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Ensure Equitable Rates by Optimizing Retirements & Fixed Asset Accounting

What do fixed asset records have to do with ratemaking?

One doesn't always associate fixed asset records and rates, but the two are intertwined. How projects are classified in the general ledger drives the cost of service to customers.

The rate making process follows a method that has been in place since utilities have been in business. It starts with determining operating costs for the next year (revenue requirement), cost allocation to customers (cost of service analysis), rates based on cost of service (rate design), and rate approval by the oversight board.

Rate Approval Process

The revenue requirement is the amount of revenue needed to run the utility a year into the future. As such, developing a revenue requirement is part of the annual budget process. It has four primary elements, as shown in the equation below:

Revenue Requirement = Operating Expenses + Depreciation + Property Taxes + Return on Rate Base

Fixed asset accounting processes certainly impact the revenue requirement in multiple ways. Some very obvious, while others are less so.

More obviously, given the Return on Rate Base is based on the net book value of the utility's plant in service, construction costs capitalized directly increase the revenue requirement. On the other hand, processing retirements, can lead to reductions in both depreciation and property taxes that are typically based on gross asset balances, rather than net. But this white paper will focus on the less obvious cost of service impacts.

Cost of Service Allocation Determines Equitable Rates

The cost of service analysis and rate design functions have two primary purposes. The first, is to set rates at an appropriate level to insure recovery of the revenue requirement, and secondly, to equitably recover the costs that support each class of customers (residential, industrial and commercial). In the cost of service study, the revenue requirement is assigned to 3 cost categories:

- **Fixed costs** are related to the capacity of the system and billed to customers as kW charges. A majority of power production costs are demand related.
- **Variable costs** are based on delivery and usage of the system, generally billed as kWh charges. These costs are driven by customer usage and are more distribution system related.
- **Customer costs** serve and bill customers.

The Fixed asset record balance is driven primarily by an organization's work order accounting process. Additions to the fixed asset balance come from closing construction dollars, and reductions from recording retirements. Because the cost of service assignment is based on the activity that drives the cost, what happens when the cost structure gets a bit out of whack? Let's dig into that more deeply.

The original project work order accounting determines where assets are recorded in the general ledger and fixed asset records. Assets that contribute to system capacity and power production are allocated to fixed costs, while more distribution-type assets (poles, overhead conductor, services) are allocated to variable costs. Why does this matter? Generally, industrial customers pay more of the fixed costs while commercial and residential customers pay more of the variable costs. It's an issue of fairness – a customer should pay for the costs they place on the system.

In a cost of service study, the balance of each plant in service account is allocated to fixed, variable, and customer costs in a table analysis as shown here:

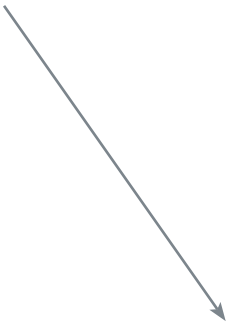
Plant in Service Category	Balance	Fixed (Demand)	Variable (Energy)	Customer
Power production	$40,000,000	$40,000,000		
Distribution	40,000,000	7,600,000	30,400,000	2,000,000
Administrative and general	5,000,000	2,975,000	1,900,000	125,000
Total Plant in Service	$85,000,000	$50,575,000	$32,300,000	$2,125,000
Allocation percentage		**59.50%**	**38.00%**	**2.50%**

Retirement Process Breakdowns Can Affect Rate Allocations

Without taking a deep dive into the cost of service allocation drivers, the principle of "what goes in must also come out" is the cornerstone of work order accounting. As many distribution projects are for the replacement of fixed assets, those replaced assets must be retired (or taken off of the books) at their historical installed cost, which reduces the general ledger balance for those types of assets. That historical installed cost comes directly from the fixed asset record.

For example, suppose a 2021 project includes the replacement of 10 poles, and the original year of their installation was 2001. The fixed asset record showing the original installed cost is used to record the retirement, as shown here. The general ledger balance would be reduced by $12,000 by the retirement journal entry.

Year Placed in Service	Original Installed Cost per Unit
2001	$1,200
2002	1,250
2003	1,320
2004	1,410
2018	1,940
2019	1,962
2020	1,980
2021	2,000



Original installed cost of poles added in 2001	$1,200
Number of poles retired	10
Total amount of poles retired	**$12,000**

Retirement Process for 10 Poles

What if there are gaps in the retirement process? What if the field crew doing the construction project does not inform the accounting department that those 10 poles were retired? Then the retirement journal entry will not get made, and the general ledger balance for poles is now overstated by $12,000. This means that depreciation will continue to be recorded on those retired assets, as well as the rate of return on ratebase. Both of these items will impact customer rates. In our example, the revenue requirement is now overstated by $1,320, as shown here.

Original installed cost of poles added in 2001	$1,200
Number of poles retired	10
Total amount of poles retired	**$12,000**
Rate of return on ratebase on 8%	$960
Depreciation at 3%	$360
Total rate of return and depreciation expense	$1,320

Impact of Missed Asset Retirements on Revenue Requirement

Many distribution projects are for the replacement of fixed assets, and our analysis is for one small project. Imagine the business process for retirements has deficiencies so that replaced assets are not properly retired – if so, this issue would compound by the number of projects over time.

Multiplying the Result of Retirements on Rates

You could look at this illustration and say, "Does this matter? The revenue requirement impacting customer rates is $1,320 higher than it should be." In the overall scheme of things, this may seem like small potatoes with all the issues you have to address.

If the goal is to accurately develop the cost of service and equity in customer rates, then these are bigger potatoes than you may think. For example, if your organization lacks a solid retirement process for distribution assets, the compounding effect may shift the cost of service allocators from fixed to variable (i.e., demand (kW) to energy (kWh)) and misstate the actual cost to serve customers. This will also throw off depreciation rates and depreciation studies, as asset lives will be overstated, because assets have not been properly recorded.

10-year Impact of Unrecorded Retirements

Year	Unrecorded Retirements	Cumulative Impact
2021	$240,000	$240,000
2022	240,000	480,000
2023	240,000	720,000
2024	240,000	960,000
2025	240,000	1,200,000
2026	240,000	1,440,000
2027	240,000	1,680,000
2028	240,000	1,920,000
2029	240,000	2,160,000
2030	240,000	2,400,000
Cumulative impact in 2030		$2,400,000
Rate of return on ratebase	8%	$192,000
Depreciation	3%	$72,000
Total annual rate of return and depreciation expense on unrecorded retirements		**$264,000**
Annual revenue requirement		$50,000,000
Overstated rate of return and depreciation impact on the revenue requirement		**0.53%**

The next illustration shows the 10-year impact on unrecorded distribution asset retirements on the cost of service allocations for a utility that has a $50 million annual revenue requirement and 20 annual projects like that in the previous illustration. Now the revenue requirement is overstated by $264,000 due to the cumulative 10 years of under-recorded distribution asset retirements.

Cumulative Impact of Missed Asset Retirements on the Revenue Requirement

The under-recorded distribution asset retirements also have the impact of shifting the cost of service allocators in the direction of variable costs (as distribution costs are more variable in nature).

Impact of Missed Asset Retirements on Cost-of-Service Allocations

While this is a hypothetical example, it is actually quite common. All things being equal, the value of power production assets is relatively stable, while distribution assets grow at the pace of system customer growth and routine asset replacements. There would be additions to the distribution assets, but the underlying lack of retirements would lead to an overallocation of costs to the variable portion of the cost of service by approximately 1.27%. This would mean that customers would avoid paying approximately $637,000 in demand-related costs.

Allocations without Retirement Properly Recorded

Plant in Service Category	Balance	Fixed (Demand)	Variable (Energy)	Customer
Power production	$40,000,000	$40,000,000		
Distribution	40,000,000	7,600,000	30,400,000	2,000,000
Administrative and general	5,000,000	2,975,000	1,900,000	125,000
Total Plant in Service	$85,000,000	$50,575,000	$32,300,000	$2,125,000
Allocation percentage		**59.50%**	**38.00%**	**2.50%**

Allocations with Retirements Properly Recorded

Plant in Service Category	Balance	Fixed (Demand)	Variable (Energy)	Customer
Power production	$40,000,000	$40,000,000		
Distribution	37,500,000	7,100,000	28,400,000	2,000,000
Administrative and general	5,000,000	3,038,710	1,832,258	129,032
Total Plant in Service	$82,500,000	$50,138,710	$30,232,258	$2,129,032
Allocation percentage		**60.77%**	**36.65%**	**2.58%**

Revenue requirement:

Without retirements properly recorded	$50,000,000	$29,750,000	$19,000,000	$1,250,000
With retirements properly recorded	$50,000,000	$30,387,097	$18,322,581	$1,290,323
Allocation percentage	**$(0)**	**$637,097**	**$(677,419)**	**$40,323**

Common Gaps in the Retirement Process

My background is in managing business analysis projects for utilities. In these projects, we often found that issues in retirement accuracy are related to the work order process. Here are some common gaps:

1. **Silos between operations and accounting data**
   The flow of asset information from field crews to the accounting team closing work orders is not sufficient. When asset retirement information is not communicated, the retirement process cannot happen effectively.

2. **Historical asset information**
   The field crew is not able to determine the historical year of installation of the retired items. This is also known as the vintage year of installation. This is due to insufficient detail on the original project and/or fixed asset records that do not have the locational information needed to determine the historical year of installation. Unlike a fine wine, this vintage does not age well. If the information is not available at the time of retirement, backtracking to get that information is unlikely.

3. **Incorrect asset types**
   The utility may have a high number of similarly named asset types, which may be mis-identified by the field crew or work order closer, so the wrong asset type may be retired. The construction crew probably knows the difference between a 45' Class 1 Wood Pole and a 45' Class 5 Wood Pole, but the accounting team closing the work order may not. The higher the pole class, the thinner it is and the per unit cost difference of a Class 1 and Class 5 pole may be several hundred dollars per pole. The incorrect fixed asset information may be conveyed from field crews or the closer may choose the incorrect pole unit to retire, leading to an error in the amount that should be retired from the pole account.

How to Improve Retirements to Optimize Ratemaking Processes

1. **Train construction field crew and work order closers on the importance of asset retirements and flow of data**
   This leads to a discussion of the needs from each area's perspective and a deeper dive into analyzing the process used to move information from the construction process to the fixed asset system, eliminating bottlenecks and building in process efficiencies. The discussion should include what an inaccurate or non-existent retirement means for rates and why it is important to have an accurate process.

2. **Develop alternative retirement methods**
   Rather than miss reporting retirements because some data is unknown, utilities can use methods such as the theoretical life curve of the asset, FIFO, or Handy-Whitman and the replacement cost to determine a retirement amount.

3. **Consolidate the number of fixed asset record types in the system**
   Is it easier to identify and retire a 45' Class 1 Wood Pole and a 45' Class 5 Wood Pole or is it just as accurate to retire a "wood pole"? Reducing the number of unit classifications by grouping units into larger categories assists in greater accuracy in the information flow for asset retirements.

4. **Implement new fixed asset platforms and technology**
   Software solutions can provide more efficient process flows, the potential for mobile tools, and the opportunity to overhaul embedded work order processes for greater efficiencies.

These techniques can take years to refine, but I have seen good results with careful planning and commitment by utilities to tighten up their work order retirements.

Key Takeaways

In closing, my hope is that you will take these concepts with you as you consider how your utility can improve retirements and fixed asset accounting to improve ratemaking for your customers.

1. The leading cause of inaccurate retirements is inefficient processes or inefficient fixed asset platforms and technology.
2. Initial project work order accounting directly impacts where assets are recorded in the general ledger and fixed asset records.
3. Fixed asset balances drive the cost of service allocations between fixed, variable, and customer costs.
4. Unrecorded or incorrectly recorded fixed assets can skew cost allocations in a cost of service study, which could lead to inequitable rates, as some customer classes may pay for costs they did not cause.
5. You can close gaps in your work order retirement business processes through training, reducing fixed asset record types, and implementing alternative methods and new technology.
6. Solutions take careful planning, patience, and focus to be successful.

An initiative focused on this specific area of work order accounting can yield more accurate fixed asset records, more accurate cost of service studies, and equitable customer rates.

About the Author

Russ has more than 35 years of experience as a utility industry accounting executive, author, speaker and instructional design leader. He teaches advanced accounting to utility professionals to help them understand and apply current standards, and utilize best practices in financial reporting, ratemaking, and strategic planning. As the founder of Utilities Accounting Education Specialists, Russ and his firm offer on-demand, CPE-eligible courses, live instruction, and customized training programs for finance professionals. He has authored multiple books, articles, and textbooks on utility accounting topics ranging from introductory to highly technical. Russ is a frequent speaker at industry events.