

# Questions and Answers\*

Interpretations for the Utility Industry



Accounting for Property, Plant and Equipment, Asset Retirement Obligations and Depreciation

## Introduction

Accounting for property, plant and equipment and the related retirement obligations has been a fundamental element of financial reporting by utilities for many years. However, deregulation of generation assets in some jurisdictions and the issuance of FASB 143, *Accounting for Asset Retirement Obligations*, have challenged industry members to rethink previous accounting and reporting methods. FIN 47, *Conditional Asset Retirement Obligations*, effective in the fourth quarter of 2005 for most utilities, will provide new challenges.

This Questions and Answers paper was written to provide practical guidance and to assist utility companies with the challenges of implementing FIN 47. As always, the people of PricewaterhouseCoopers are available to assist you with any questions you may have regarding this publication.

I would like to acknowledge the PwC contributors and editors to this publication for a job well done.

Warmest Regards,

A handwritten signature in black ink, appearing to read "Paul", written in a cursive style.

Paul M. Keglevic  
PricewaterhouseCoopers U.S. Utilities Leader

## Background

Utilities often apply the mass-asset convention of accounting<sup>1</sup> (also known as the “group” method) to certain fixed assets such as utility poles and other components of their transmission and distribution systems which are too numerous to practically track on an individual basis given the small relative value of each individual asset. Similarly, many utility companies utilize the composite convention of accounting for component parts of larger assets such as electric generating stations which also contain numerous components and parts which are impractical to separately track. As opposed to the unitary convention of accounting for fixed assets, generally neither the group or composite convention of accounting result in the recognition of a gain or loss upon the retirement of an asset. Rather, any difference between the net book value of the assets and the value realized at retirement (salvage proceeds less removal and disposal costs) are embedded in accumulated depreciation and considered in the determination of prospective depreciation rates.

In addition to the longstanding acceptance of the group and composite accounting conventions as Generally Accepted Accounting Principles (“GAAP”), regulatory guidance and industry practice<sup>2</sup> specifically address the appropriate convention of accounting for retirements of utility plant. The Federal Energy Regulatory Commission’s (FERC) Uniform System of Accounts (“USoA”) General Instructions specify that retirements should be recorded as: (i) a credit to the plant account; and (ii) a debit to the accumulated provision for depreciation. The cost of removal and the proceeds from salvage are also charged against the accumulated depreciation accounts when they are incurred. As a result, generally gains or losses are not recorded in the retirement of utility plant.

In order to demonstrate an example of this accounting convention, assume a utility installs an asset with an estimated useful life of 19 years incurring a total cost upon purchase and installation of \$20,000. At the time of installation, the expected net salvage value of the asset (expected salvage less the expected cost of removal and disposal) is \$1,000 resulting in a depreciable base of \$19,000. Assume that at the end of 15 years of service the asset is replaced at a removal cost of \$500 and salvage proceeds of \$1,250, resulting in net salvage of \$750. Pursuant to industry accounting described above, the resulting journal entries for the removal would be:

<i>Dr. Cash (proceeds from net salvage)</i>	\$ 750	
<i>Dr. Accumulated Depreciation</i>	*19,250	
<i>Cr. Property</i>		(\$20,000)

\* Calculated as \$15,000 accumulated depreciation plus the \$4,250 calculated loss [net salvage of \$750 less the cost of the asset (\$20,000 – \$15,000)]

Another layer of complexity to retirement accounting results from the common rate-making convention of including a provision for cost-of-removal in depreciation rates, thereby increasing depreciation expense over the life of an asset. If we were to assume a 10% removal cost for an asset for which no salvage proceeds are expected to be received, the depreciation over the life of the asset would be 110% of the cost of the asset. Under cost-of-service ratemaking, depreciation expense is recovered from customers over the life of the asset providing the utility with the revenues over the life of the asset to fund the eventual removal cost of the asset.

Prior to the implementation of Financial Accounting Standards Board (“FASB”) Statement of Financial Accounting Standards No. 143, *Accounting for Asset Retirement Obligations* (“FAS 143”), GAAP considered this “excess depreciation” expense or “negative salvage” embedded in utilities accumulated depreciation accounts to be “regulatory liabilities” representing cash previously collected to fund anticipated future expenditures.<sup>3</sup> Since industry

---

<sup>1</sup> As defined in the American Institute of Certified Public Accountants (“AICPA”) Draft Statement of Position, *Accounting For Certain Costs and Activities Related to Property, Plant and Equipment*, the mass-asset convention of accounting applies to the accounting for large numbers of homogeneous assets in situations in which the accounting for individual assets is not practical. Under this convention, homogeneous assets are aggregated and depreciated by applying a rate based on the average expected useful life of the assets.

<sup>2</sup> As defined by the Uniform System of Accounts of the Federal Energy Regulatory Commission, (“USoA”), specifically 18 CFR chapter 1, General Instruction 10, *Additions and Retirements of Electric Plant*.

<sup>3</sup> See Statement of Financial Accounting Standards No. 71, *Accounting for the Effects of Certain Types of Regulation*, paragraph 11. b. and FAS 143, paragraph 20.

fixed asset accounting conventions resulted in these cost of removal expenditures eventually being debited to accumulated depreciation, the industry saw no benefit in grossing-up balance sheets to provide for the separate accounting of these amounts. However, concurrent with the implementation of FAS 143, the Staff of the Securities and Exchange Commission (“SEC”) provided informal guidance to the Big Four Accounting Firms and to the Edison Electric Institute that these embedded regulatory liabilities should be reclassified out of accumulated depreciation to the liability section of the balance sheet. Accordingly, utilities collecting cost of removal in their depreciation rates estimated and reclassified previously collected but unspent recoveries for removal costs to a regulatory liability.<sup>4</sup>

While FAS 143 required the accrual of an asset retirement obligation (“ARO”) liability for legally required removal costs, prior to the release of FASB Interpretation No. 47, *Accounting for Conditional Asset Retirement Obligations, an interpretation of FASB Statement No. 143* (“FIN 47”), AROs were not recorded for legally required disposal costs related to assets which themselves were never legally required to be retired (pursuant to previous interpretations of FAS 143 paragraphs A15 and A17). Therefore, even though a legal requirement may have existed to dispose of items such as treated utility poles once the utility pole was removed from service, no ARO had been recorded because there was no legal requirement to ever remove the pole from service. FIN 47 has provided interpretative guidance around this issue which will result in the establishment of AROs for these “conditional” obligations based on the premise that eventually the treated pole will be removed from service as a result of its eventual deterioration. Accordingly, we expect that many utility companies will record AROs for these conditional disposal obligations when they implement FIN 47, thereby establishing a liability for the portion of the costs that are attributable to the legal obligation. Of course, to the extent such disposal costs have previously been included in a company’s estimated removal cost included in its regulatory depreciation rates, a regulatory liability already exists for the portion of the disposal costs.

In considering these two further layers of complexity to our simple example above would result in the following assumptions and balances as of December 31st of year 15, the day of the implementation of FIN 47:

<i>Original asset cost</i>	\$20,000
Salvage value:	
<i>Cost of removal (no legal obligation)</i>	(450)
<i>Cost of disposal (legal obligation)</i>	(50)
<i>Salvage value</i>	<u>1,500</u>
<i>Net salvage value</i>	<u>1,000</u>
<i>Net depreciable value</i>	<u>\$19,000</u>
 <i>Estimated depreciable life</i>	 19 yrs

Upon adoption of FIN 47, it is assumed that the Company has reclassified the cost of removal and disposal to a regulatory liability. In addition, an asset retirement cost and obligation of \$30 were recorded. For simplicity, the cumulative effect was not considered. As of year 15, the Company has already recognized approximately \$40 (\$50/19 yrs\*15) in removal cost through accumulated depreciation. As such, these costs have been reclassified out of the regulatory liability. Resulting balances at the end of year 15 assuming the implementation of FIN No. 47 has been completed:

<i>Dr. Adjusted asset cost</i>	\$20,030	
<i>Cr. ARO @ 12/31/05 (assumed)</i>		(\$ 30)
<i>Cr. Accrued regulatory liability for cost of removal and disposal</i>		
<i>[(450+50)/19*15]-ARO of 30</i>		(365)
<i>Cr. Accumulated depreciation</i>		
<i>[(20,000-1,500)/19*15]</i>		(14,600)

<sup>4</sup> Generally, removal costs remain embedded in as accumulated depreciation for regulatory reporting as outlined in paragraph 37 of FERC Order 631.

Finally, assume the asset is disposed of January 1st of year 16 with an actual cost of disposal of \$100, cost of removal of \$200 and proceeds from salvage of \$6,300. If the asset was accounted for under unit convention of accounting, the following entry would be recorded:

<i>Dr. ARO</i>	\$ 30	
<i>Dr. Accrued regulatory liability</i>	365	
<i>Dr. Cash</i>	6,000	
<i>Dr. Accumulated depreciation</i>	14,600	
<i>Cr. Property</i>		(\$20,030)
<i>Cr. Gain on Sale</i>		(965)

Depending upon the regulatory mechanism, the difference between the actual disposal and removal costs of \$300 and the accrued balance of \$395 (accrued regulatory liability plus ARO) may remain as a regulatory liability and flowed back to the customer in future years.

Under the composite convention of accounting, no gain or loss would be recorded as follows:

<i>Dr. ARO</i>	\$ 30	
<i>Dr. Accrued regulatory liability</i>	365	
<i>Dr. Cash</i>	6,000	
<i>Dr. Accumulated depreciation</i>	*13,635	
<i>Cr. Property</i>		(\$20,030)

\*The accumulated depreciation balance includes the following:

<i>Accumulated depreciation of the asset</i>	\$14,600
<i>Gain on salvage - \$6,300 less \$5,430</i>	(870)
<i>Gain on removal costs - \$200 less \$365</i>	(165)
<i>Loss on ARO settlement - \$100 less \$30</i>	<u>70</u>
<i>Total impact to accumulated depreciation</i>	<u>\$13,635</u>

In this circumstance, depending upon the regulatory mechanism, the embedded gains and losses are flowed back through the customer through depreciation rates adjusted periodically going forward.

While tracking this detail is not difficult for one asset as demonstrated above, utilities typically have tens or hundreds of thousands of these assets which have accumulated over many years. For instance, as disclosed in the property section of their Form 10-K, a single small integrated electric utility company with a market capitalization of approximately \$1.1 billion has approximately 10 generating units, 300 transmission and distribution substations, and 12,000 miles of transmission and distribution lines.

As a result of the complexities detailed above, the following Q&A has been designed to address some of the common questions regarding mass unit accounting conventions and the impact on asset retirement obligations.



Q. 1. *Many owners of previously regulated generation assets continued the use of the composite convention of accounting for their generating assets after deregulation. Is it appropriate for these companies to continue to apply the composite or group convention of accounting to these unregulated generating stations?*

A.1. The composite convention of accounting is an acceptable convention regardless of whether an entity is subject to cost-of-service regulation. As noted above, the composite or group convention was established as a means of simplifying the process of tracking a large asset system with many small components with small relative values compared to the larger composite group. As discussed in the following excerpts from Chapter 11 of Kieso, Weygant, and Warfield's *Intermediate Accounting Text* (11th Edition), both of these conventions of accounting are considered acceptable conventions pursuant to GAAP.

Two methods of depreciating multiple-asset accounts are employed: the group method and the composite method. The term "group" refers to a collection of assets that are similar in nature. "Composite" refers to a collection of assets that are dissimilar in nature. The group method is frequently used when the assets are fairly homogeneous and have approximately the same useful lives. The composite approach is used when the assets are heterogeneous and have different lives. The group method more closely approximates a single-unit cost procedure because the dispersion from the average is not as great. The method of computation for group or composite is essentially the same: find an average and depreciate on that basis.

The differences between the group or composite method and the single-unit depreciation method become accentuated when we look at asset retirements. If an asset is retired before, or after, the average service life of the group is reached, the resulting gain or loss is buried in the Accumulated Depreciation account. This practice is justified because some assets will be retired before the average service life and others after the average life. For this reason, the debit to Accumulated Depreciation is the difference between original cost and cash received. No gain or loss on disposition is recorded.

The group or composite method simplifies the bookkeeping process and tends to average out errors caused by over- or under depreciation. As a result, periodic income is not distorted by gains or losses on disposals of assets.

It also may be suitable for an entity to use both unit and group depreciation conventions on different groups of assets based on the type of assets and ease of application. As outlined in the AICPA Audit Guide *Audits of Airlines* section 3.104, unit depreciation could be used for other fixed assets which have large units cost and are comparatively few in number.

However, we believe it would generally not be appropriate for a company to switch to composite or group depreciation convention from the unitary convention of depreciation based on preferability as established by Accounting Principles Board ("APB") Opinion No. 20, *Accounting Changes* or FASB Statement of Financial Accounting Standards No 154, *Accounting Changes and Error Corrections -- a replacement of APB No. 20 and FAS No. 3*. The selection of the composite or group depreciation is an acceptable convention of accounting when entities have not maintained detail records to support the unitary convention. One would assume that those companies who have historically used the unitary bases of depreciation should have the capability to continue the use of this convention of depreciation. Those who have historically used group or composite depreciation have not maintained detail records to their mass asset accounts and may not have the information available to establish a single unit convention of accounting.

We also believe that those businesses using the composite or group depreciation convention should regularly obtain updated depreciation studies (perhaps every 3 – 5 years), which is consistent with FERC regulations. The periodic update of depreciation rates is necessary to level actual incurred disposition gains or losses and is part of the underlying basis for the acceptability of these group accounting conventions.

Q.2. *How do the composite and group depreciation conventions impact the recognition of gains and losses in the case of “abnormal” or “extraordinary” retirement of assets?*

A.2. To the extent that a company may choose to depreciate assets on a group or composite basis, the policy for recognizing gains or losses on its retirement of assets should be consistent. The AICPA Audit Guide, *Audit of Airlines*, in its glossary defines group depreciation as follows:

“A plan under which (1) depreciation is based on the application of a single depreciation rate to the total book cost of all property included in a given depreciable property and equipment account or class, despite differences in service life of individual items of property and equipment, (2) the full original cost, less any salvage realized, of a retired item of depreciable property or equipment is charged to the allowance for depreciation regardless of the age of the item, and (3) no gain or loss is recognized on the retirement of individual items.”

As noted above, in the case of normal retirement, no gain or loss would be recognized. As such, gains or losses which would be recognized if one used the unitary convention of accounting are simply included in the entity’s net property balance and are depreciated over future years. However, although not specifically addressed in the audit guide, we believe a gain or loss should be considered in cases where abnormal or extraordinary retirements have occurred. We believe that the occurrence of an abnormal or extraordinary retirement would be rare.<sup>5</sup>

As mentioned in A.1., above, businesses using the composite or group deprecation convention should obtain updated depreciation studies periodically (every 3 – 5 years), which is consistent with FERC regulations. However, in a circumstance where an entity experiences a significant and unplanned level of retirements we recommend that an updated depreciation study be obtained more immediately. It is likely that as a result of the significant and unplanned level of retirements that the characteristics (i.e. average age of the assets, average remaining life if the assets, etc.) of the entity’s property may have changed so significantly that the previous depreciation rates may no longer be a reasonable estimate of the assets’ remaining depreciable life.

---

<sup>5</sup> This topic is also addressed by the USoA, specifically 18 CFR chapter 1, General Instruction 10, *Additions and Retirements of Electric Plant* paragraphs 5F and 10F. Paragraph 5F discusses the retirement of an entire system or operating unit which requires the recognition of the entire gain or loss in income rather than as an adjustment to accumulated depreciation. Paragraph 10F discusses that the early retirement of material property units, referred to as “extraordinary retirements,” can lead to separate deferred amortization of unrecovered plant costs, but usually requires specific regulatory approval.

Q. 3. *What is the appropriate accounting for differences between estimated accrued ARO liabilities and the actual cost of extinguishing those liabilities under composite or group convention of accounting?*

A. 3. While not addressed in the body of FAS 143, the accounting for the extinguishment of AROs was alluded to in paragraph B41 of Appendix B: Background Information and Basis for Conclusions. As further described in PwC's DataLine 2001-22: *FASB Statement No. 143, Accounting for Obligations Associated with the Retirement of Long-Lived Assets* paragraph 4, "The Board acknowledges that if the cost actually incurred to settle an ARO is less than the obligation accrued by the company based on fair value, **the company will have a gain on retirement**. The fair value measurement convention of FAS 143 was one of the most controversial of its provisions during the exposure period. The FASB published an article entitled *Understanding the Issues: The Case for Initially Measuring Liabilities at Fair Value* to explain and defend its conclusions on measurement of AROs. Consequently, we have concluded that the accounting for the extinguishment of AROs would be consistent with the accounting for the extinguishment of any other non-financial liability: any difference between the accrued and actual cost should be recognized when the liability is fully satisfied." (Emphasis added) However, we believe that the accounting for AROs is a sub-set of an entity's fixed asset accounting policies and, therefore, to the extent that an entity has elected to use the group or composite convention of accounting for depreciation, the entity should follow the group or composite accounting as described below for their accounting of AROs.

Referencing the simple example above, the recognition of a loss on retirement of \$70 (the release of the \$30 ARO liability as compared to the cash expenditure of \$100 assumed in the example) is straight-forward, and to the extent that AROs are established on a unitary basis and actual retirement costs incurred can be matched to an individual asset and ARO, this accounting is appropriate. However, many (if not substantially all) of the AROs recorded by utilities (at least those not related to nuclear plant decommissioning costs) relate to assets which are accounted for under either the group or composite conventions of accounting. Therefore the assets for which these AROs have been established are not tracked separately. These AROs have been estimated using methodologies similar to those used to establish the average or composite depreciable life of the assets: developing averages for the estimated remaining life of the assets, the period remaining until the obligations will be incurred, and the fair value of the obligations. Therefore, for the same reasons that utilities would have difficulties determining the specific gain or loss resulting from the retirement of a specific asset as a result of not maintaining detailed records of their mass asset accounts, it will also be difficult for utilities to determine the difference between the accrued ARO for an asset's retirement and the actual cost incurred for the retirement of the obligation. Entities that utilize the group or composite conventions of accounting for their property, plant and equipment do not have detailed records to track the asset and ARO information for literally thousands of group and component assets.

We believe that given: (i) the accepted convention of the group and composite accounting to embed gains and losses on the retirement of assets in the accumulated depreciation account<sup>6</sup>; and (ii) the FERC USoA's accounting instructions to account for gains, losses, salvage and cost of removal as charges to accumulated depreciation<sup>7</sup>; a modified group and composite accounting convention for AROs is acceptable. Such a method might include the following conventions:

1. The continued real-time accounting for actual costs incurred for the cost of removal of assets (including those amounts for which an ARO has been accrued) as charges to accumulated depreciation;
2. Recording accretion expense for the ARO during the current year based on the prior year's balance;

---

<sup>6</sup> See excerpt from Chapter 11 of Kieso, Weygandt, and Warfield's *Intermediate Accounting Text* (11<sup>th</sup> Edition) above.

<sup>7</sup> See footnote 2 above.



3. A periodic (at least annually, however more frequently if there have been significant amounts of property additions or retirements) revision of the estimated ARO and regulatory liability (amounts already collected in rates) for removal and disposal costs based on a current statistical analysis of updated fixed assets considering the impact on current year additions, retirements, and other changes to the asset average age, ARO fair value, or other relevant assumptions (i.e. similar to an updated depreciation study) and costed and discounted using current year assumptions.

Any adjustment required as a result of the analyses would result in a charge to accumulated depreciation. It is noted that some consideration was given to charging this entry to the ARC and adjusting depreciation of the ARC accordingly. However, the impact of recording the adjustment against the ARC does not result in different income treatments and adjusting accumulated depreciation preserves consistency with current accounting conventions of group depreciation. Consistent with the application of group and composite accounting theory, adjustments to accumulated depreciation will be reflected in future depreciation expense based on the utility's updated depreciation studies.

In order to provide a practical example of the three-step approach above, assume a utility has 1,000 of the assets in the previous example accounted for under the composite method. The balances as of the end of year 15 are assumed to be as follows:

<i>Original asset cost</i>	\$ 20,000,000
<i>Asset Retirement Costs (ARC)</i>	30,000
<i>Assumed ARO @ 12/31/05</i>	(30,000)
<i>Accrued regulatory liability for cost of removal and disposal</i> [(450,000+50,000)/19*15]-ARO of 30	(365,000)
<i>Accumulated depreciation</i> [(20,000,000-1,500,000)/19*15]	(14,600,000)

The following journal entries would be recorded if ten of the 1,000 assets were removed and disposed at a cost of \$4,000 and \$250, respectively. The total salvage value of the assets was \$14,000.

Step 1 – Real time accounting for the cost of removal:

<i>Dr. Cash – Earned in salvage</i>	\$ 14,000	
<i>Dr. Accumulated depreciation</i>	190,550	
<i>Cr. Cash – Cost of removal and disposal</i>		(\$ 4,250)
<i>Cr. Utility Plant</i>		( 200,300)

The balance charged to accumulated depreciation represents the adjustment to the accumulated depreciation of the assets sold as well as the gains and losses related to the difference between the estimated removal costs, disposal costs, and salvage value as of the date of the disposal.

Step 2 – Record accretion expense based on the liability as of the beginning of the year (assuming 7% \* 30,000):

<i>Dr. Accretion expense</i>	\$2,100	
<i>Cr. ARO</i>		(\$2,100)

By recording the accretion expense based upon prior liability, one assumes that there have been no significant changes in total ARO during the year (i.e. there are some new additions to offset the disposals.)

Step 3 – Annual revision of the estimated ARO assuming an increase in overall estimate of costs of disposal for remaining assets to \$35,000 based on an updated ARO cost study:

<i>Dr. Accumulated depreciation</i>	\$2,900	
<i>Cr. ARO</i>		(\$2,900)*

\*The adjustment to the ARO is equal to the following:

<i>Beginning ARO</i>	\$30,000
<i>Accretion expense</i>	2,100
<i>Less: Required ARO</i>	<u>35,000</u>
 <i>Total adjustment recorded</i>	 <u>\$ 2,900</u>

It is noted that step 2 and 3 above do not contemplate potential impacts of regulatory recovery of removal and disposal costs. Certain regulatory recovery mechanisms will also require periodic adjustment to regulatory asset or liabilities based on the timing differences between collection, recognition and payment of removal and disposal costs. In addition, accretion expense may qualify as a deferred cost.

We also note that companies that follow the full cost rules in accordance with the SEC's Article 4-10 of Regulation S-X, which prescribes financial accounting and reporting standards for public companies engaged in the production of crude oil or natural gas in the United States, account for gains and losses resulting from the settlement of AROs in a manner similar to companies that follow the group or composite conventions of accounting for property, plant and equipment. Upon the issuance of FAS 143, the SEC Staff addressed a number of accounting issues for companies that utilize the full cost rules in Staff Accounting Bulletin No. 106, *Topic 12 D (4) Interaction of Statement 143 and the Full Cost Rules* ("SAB 106"). One issue that was not specifically addressed in SAB 106 was the accounting for gains or losses resulting from the settlement of AROs. However, the SEC did provide informal guidance to companies utilizing the full cost method that allowed those companies to preclude the recognition of gains or losses from the settlement of AROs. Instead, those companies were to record any gains or losses as adjustments to accumulated depreciation of the full cost pool, which is consistent with the overall theoretical basis of full cost accounting. This SEC guidance provides a useful analogy to the accounting concepts described above.

(Note: entities that have selected the unitary convention of accounting for fixed assets would not follow the guidance above but would recognize the difference between the estimated ARO and actual cost in earnings upon settlement of the ARO)

Q. 4. *How frequently should cost studies supporting the computation of AROs for the decommissioning of nuclear plants be updated?*

A. 4. FAS 143, paragraph 13, states that “an entity shall recognize period-to-period changes in the liability for an asset retirement obligation resulting from (a) the passage of time and (b) revisions to either the timing or the original estimate of undiscounted cash flows.” However, the standard does not provide specific guidance on the frequency that updates to the original estimate of undiscounted cash flows should be performed.

The estimate of an ARO for nuclear decommissioning is generally calculated using expected-cash flow technique as described in FASB Concepts Statement 7, *Using Cash Flow Information and Present Value in Accounting Measurements* (“CON 7”) and is subject to significant variability from even slight changes to key assumptions or inputs into the cash-flow model. Estimates of nuclear decommissioning costs involve a number of assumptions and cost estimates including: a) decommissioning costs for many discrete components; b) cost escalation factors; c) decommission approach/scenario regarding timing and methodologies; and d) choice of credit-adjusted risk free rates. Changes and revisions to these key assumptions may occur for various reasons including changes in technology and/or management’s approach to decommissioning.

The Nuclear Regulatory Commission (“NRC”) is responsible for overseeing the decommissioning of all nuclear plants in the United States. NRC regulation Section 50.75, *Reporting and Record Keeping for Decommissioning Planning*, establishes the requirements for how nuclear plant owners (known as licensees) are to provide the NRC reasonable assurance that the appropriate level of funds will be available for the decommissioning process. As part of the reporting process to the NRC, all licensees are required to provide a site specific cost study for the decommissioning of each nuclear unit owned every five years. These cost studies are used by the NRC to verify the licensee will have adequate funds available for the ultimate decommissioning of the unit. The preparation of these studies is generally performed by a third-party engineering firm and is an extremely expensive and time consuming process, sometimes requiring over a year to complete. Cost estimates are developed by the individual task or project required to decommission the unit. Also, the original design and subsequent modifications make each nuclear unit unique. As a result, cost estimates are specific to each nuclear unit.

The NRC provides for three alternative time choices to decommission a nuclear facility, DECON, SAFSTOR (or Delayed DECON) and ENTOMB. The DECON alternative involves the more immediate removal or decontamination of the equipment, structures and portions of the facility that contain radioactive containments so that the property can be released and the NRC license can be terminated. The SAFSTOR or Delayed DECON allows for the nuclear facility to be maintained in a condition that allows sufficient time for the radioactivity to decay; and afterwards, it is dismantled. Under ENTOMB, radioactive contaminants are encased in a structurally sound material such as concrete and appropriately maintained and monitored until the radioactivity decays to a level permitting release of the property. These time periods would generally be substantial, i.e., measured in decades rather than years.

Cost studies are typically prepared by an independent third-party consultant for each nuclear unit. The cost studies may reflect the cost to decommission a nuclear facility under a single approach or under different scenarios using a probability determination to calculate the cost estimate. The site specific cost estimate for each decommissioning scenario is prepared using the present day costs that are then escalated to the year that the decommissioning is planned for the unit. Each nuclear unit has its own specific timeline for completion, cost estimate and management’s assessment of the likelihood of which decommissioning strategy will be followed that is incorporated into the expected cash flow model used to calculate the cost estimate.

The escalation factors used to determine the future cost of labor, materials and equipment, energy, burial and other decommissioning activities at the planned time of decommissioning are typically based on an assessment of the consumer price index, employment cost index, producer price index and other indices.

## Considerations

Of course, ARO should be updated when cost studies are completed at least every five years as required by the NRC. However, if circumstances warrant a change to management's approach to decommissioning a nuclear unit prior to the completion of an updated cost study, then the ARO calculation should be adjusted accordingly in the period the change is made. It may also be possible to annually obtain independent third-party verification, or an internal representation from qualified engineers, that there have been no material changes to the previously completed cost studies to further support the reasonableness of the estimated ARO. Additionally when decommissioning activities begin, the update of the applicable cost estimates should become more frequent to ensure the accuracy of the ARO.

From an accounting perspective, it is good practice to obtain all site-specific cost estimates within the same reporting period. However, for entities that own multiple nuclear units, this may not be feasible from an operational perspective. If cost estimates for different plants are updated in different periods, management should document its consideration of the feasibility of extrapolating cost study updates from one nuclear unit to other nuclear units for which updated cost estimates have not been obtained during a period.

Changes in escalation factors can have a significant impact to the ARO estimate. The underlying indices of the escalation factors' change are based on current and expected future economic conditions. As such, the rates used to escalate the costs as determined by the site-specific cost estimates should be evaluated by management at least annually and preferably within the same reporting period (i.e. quarter) for consistency between years. Additionally, for entities with multiple nuclear units, the escalation factors for all units should be updated within the same reporting period during the year. Management may obtain updates to its escalation factors from its third-party provider that was utilized to provide cost study updates or from internal sources; however, management should be consistent with its sources when determining changes to escalation factors.

The probability weightings assigned to the decommissioning scenarios incorporated into the expected cash flow model used to calculate the ARO should be updated when site-specific cost estimates are prepared. In addition, management should consider whether any events have occurred that would impact the previous probability weightings used in the calculation. Such events could include a new nuclear management team, a change in the strategic direction of the company related to the operation of their nuclear facilities, or advances in the technology and methods of decommissioning nuclear facilities.

## Accounting Recognition

Pursuant to FAS 143, changes resulting from revisions in the timing or amount of estimated cash flows should be recognized as an increase or decrease in the carrying amount of the ARO and the associated capitalized ARC. Increases in the ARO as a result of upward revisions in undiscounted cash flow estimates should be considered a new obligation and initially measured using a current credit-adjusted risk-free interest rate. Any decreases in the ARO as a result of downward revisions in cash flow estimates should be treated as a modification of an existing ARO, and should be measured at the historical interest rate used to measure the initial ARO.

Q.5. *How should one account for an asset retirement obligation when a previously inestimable ARO becomes estimable?*

- A.5. Paragraph 4 of FIN 47 states that an ARO would be reasonably estimable if one of the following conditions were met: (a) It is evident that the fair value of the obligation is embodied in the acquisition price of the asset; (b) An active market exists for the transfer of the obligation; (c) Sufficient information exists to apply an expected present value technique.

Additional clarity around the ability to estimate and the subsequent accounting has been outlined under example 4 of Appendix A of the Interpretation which demonstrates that an obligation may be recognized at a date subsequent to the date that the obligation was incurred. Paragraphs A26 and A27 of FAS 143 provide guidance for the revisions of asset retirement obligations and the impact on the asset retirement cost as follows:

A26. Revisions to a previously recorded asset retirement obligation will result from changes in the assumptions used to estimate the cash flows required to settle the asset retirement obligation, including changes in estimated probabilities, amounts, and timing of the settlement of the asset retirement obligation, as well as changes in the legal requirements of an obligation. Any changes that result in upward revisions to the undiscounted estimated cash flows shall be treated as a new liability and discounted at the current rate. Any downward revisions to the undiscounted estimated cash flows will result in a reduction of the asset retirement obligation. For downward revisions, the amount of the liability to be removed from the existing accrual shall be discounted at the rate that was used at the time the obligation to which the downward revision relates was originally recorded (or the historical weighted-average rate if the year(s) to which the downward revision applies cannot be determined).

A27. Revisions to the asset retirement obligation result in adjustments of capitalized asset retirement costs and will affect subsequent depreciation of the related asset. Such adjustments are depreciated on a prospective basis.

The preceding excerpt provides implied guidance on how to account for the recognition of an asset retirement obligation which was previously inestimable at the date it was incurred or upon the implementation of FAS 143 and FIN 47. In summary, the asset retirement obligation is recorded at fair value with an equal and offsetting asset retirement cost resulting in no income statement impact. The asset retirement cost is amortized over the remaining life of the asset, mimicking the prospective approach to change in estimate<sup>8</sup>.

---

<sup>8</sup> See paragraph 31 of APB 20 and paragraph 19 of FAS 154.



## **Principal Authors:**

**Michael (Casey) Herman**

U.S. Utilities Technical Accounting and Auditing Leader

**David (Michael) Eberhardt**

Partner

**Jim Nowoswiat**

Senior Manager

**Andrea Larsen**

Manager

**Caroline Fulginiti**

Manager

## **Editorial Team and Contributions:**

**Paul Keglevic**

U.S. Utilities Leader

**Tom McGuinness**

Partner

**Mike Elpers**

Partner

**Alan Felsenthal**

Managing Director

## **PricewaterhouseCoopers' Utilities Practice For more information, please contact:**

**Paul Keglevic**

U.S. Utilities Leader

Email: [paul.keglevic@us.pwc.com](mailto:paul.keglevic@us.pwc.com)

Telephone: 213.356.6309

**Michael (Casey) Herman**

U.S. Utilities Technical Accounting and Auditing Leader

Email: [michael.a.herman@us.pwc.com](mailto:michael.a.herman@us.pwc.com)

Telephone: 312.298.4462

