Reassessing Depreciation Methodology: The Case for Equal Life Group Depreciation

Why Equal Life Group Depreciation Merits Reconsideration Today

Prepared by:

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Amanda Nori is a versatile, highly analytical, and dedicated Certified Depreciation Professional with over fifteen years of experience completing depreciation studies.

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Introduction

In this paper, Amanda Nori frames the Average Life Group (ALG) procedure as having long served as the predominant method for calculating depreciation expense among North American utilities. Its prevalence owes much to its computational simplicity and to the familiarity that regulators and practitioners have developed with it over several decades of consistent application. Familiarity alone, however, does not exempt the procedure from periodic reassessment. As the expected useful lives of utility assets become subject to increased uncertainty, the limitations of ALG warrant serious reexamination.

Building on this context, Ms. Nori presents the analytical basis for transitioning from the ALG procedure to the Equal Life Group (ELG) procedure. The recommendation rests on the mathematical properties of both methods, on the regulatory precedent that has accumulated across multiple jurisdictions in North America, and on the practical reality that energy transition may be compressing the planning horizon for certain asset groups. Utilities that continue to rely exclusively on ALG may be accepting a degree of stranded cost exposure that a straightforward procedural change could substantially reduce.

The sections that follow describe the mechanics of group depreciation, explain how ALG and ELG differ in their treatment of asset cohorts with varying service lives, present a simplified numerical illustration of those differences, survey the regulatory landscape, and articulate why the current operating environment favors a change in approach.

The Mechanics of Group Depreciation

Utility assets are not depreciated individually. They are organized into accounts composed of homogeneous property classes, and depreciation is calculated at the group level. The rationale for this practice is straightforward. A single gas service lateral represents a comparatively modest capital outlay, yet a utility may have hundreds of thousands of such assets in service at any given time. Individual tracking would be administratively impractical, and it is the statistical behavior of the group that determines the appropriate depreciation charge for ratemaking purposes.

Within any group of assets, the actual pattern of retirements will exhibit considerable dispersion around the average. For example, a gas service installed in a given year may be damaged by third-party excavation within months. An identical service installed on the same day may remain in continuous operation for seven decades or longer. The average service life captures the central tendency of these outcomes, but the retirements themselves are distributed across a range of ages. In depreciation practice, the Iowa survivor curves developed at Iowa State University provide the standard framework for characterizing the shape of this distribution.[1]

The central question in group depreciation is how to translate a known average service life and a known retirement dispersion pattern into the annual depreciation charge that will be applied to the group. It is in answer to this question that the ALG and ELG procedures diverge.

The Average Life Group Procedure

Under the ALG procedure, every dollar of investment within a group is depreciated at a uniform rate, irrespective of when the individual assets within the group are expected to retire. The accrual rate is derived by dividing one by the average service life of the group, adjusted for net salvage where applicable. If the average service life of an account is determined to be 10 years, the annual depreciation rate is 10 percent, applied uniformly to all assets in the group without differentiation.

This uniformity is the principal advantage of ALG. The calculation is transparent, straightforward to audit, and readily implementable within standard accounting systems. Throughout much of the history of regulated utility depreciation, these practical qualities were considered sufficient justification for their widespread use. Computational resources were limited, and the incremental accuracy offered by alternative procedures did not appear to warrant the additional complexity.

ALG does, however, produce a structural consequence that merits careful examination. Consider a simplified illustrative example in which an account contains two assets, each with an original cost of $1,000. Unit A has an expected service life of 5 years, while Unit B has an expected service life of 15 years. The average service life for the group as a whole is therefore 10 years.

Under ALG, both assets are depreciated at 10 percent per year, yielding an annual depreciation charge of $200 against the combined original cost of $2,000. By the end of year five, the accumulated depreciation reserve contains $1,000. When Unit A retires at that point, the entire reserve balance of $1,000 is applied to offset the retirement of that asset.

The consequence is that Unit B, now the sole remaining asset in the account, carries zero accumulated depreciation despite having been in service for five years. The full $1,000 of Unit B's original cost must be recovered over its remaining 10 years of expected life, at a rate of $100 per year. Under ALG, the accumulated depreciation attributable to the group was fully applied to Unit A's retirement, leaving no reserve balance allocated to Unit B.

Under conditions of stable and predictable asset lives, this timing asymmetry is generally manageable. The lower early-year charges may be viewed as an acceptable trade-off for the compressed recovery that follows. When service lives are changing in ways that are difficult to anticipate, however, the resulting exposure increases accordingly. The net book value carried by surviving assets is higher than under a more granular allocation approach, and the risk of under-recovery increases proportionally.

Figure 1: ALG Depreciation Accrual Summary

Period	Plant in Service	Annual Accrual	Net Book Value
Year 0	$2,000	—	$2,000
Years 1–5	$2,000	$200	$1,000
Year 5 (post-retirement)	$1,000	—	$1,000
Years 6–15	$1,000	$100	$0

Under ALG, the uniform 10% accrual rate depletes the entire reserve upon Unit A's retirement, leaving Unit B with no accumulated depreciation at year 5.

The Equal Life Group Procedure

The ELG procedure addresses this timing asymmetry by subdividing the group into cohorts according to expected retirement age and calculating a distinct depreciation rate for each cohort. Assets expected to retire at earlier ages are depreciated at correspondingly higher rates. Those expected to remain in service longer are depreciated more gradually. The aggregate accrual for the group represents the sum of the individual cohort accruals.

Returning to the illustrative example, ELG would assign a depreciation rate of 20 percent to Unit A (derived from its 5-year expected life) and a rate of approximately 6.67 percent to Unit B (derived from its 15-year expected life). During the first five years, the combined annual charge would be $267. Following Unit A's retirement, the annual charge for Unit B alone would be approximately $67 for its remaining ten years of service.

The significance of this difference becomes apparent at year five. Under ALG, the accumulated depreciation attributable to the surviving asset was zero after the retirement was recorded. Under ELG, approximately $333 has already been accumulated against Unit B. The net book value at that juncture is $667 rather than $1,000. Capital recovery is further advanced at that point, and the utility's exposure to potentially stranded costs is reduced under this allocation.

It is important to note that both procedures recover the full original cost of the asset group over the life of the account. The distinction is entirely one of timing. ELG accelerates recovery for those portions of the group with shorter expected lives, thereby aligning the trajectory of depreciation expense more closely with the actual consumption of economic value.

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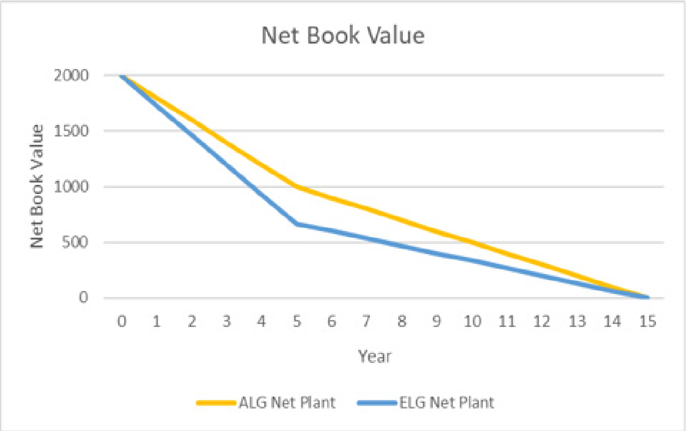
Figure 2: Comparative Depreciation Calculations

	ALG	ELG
Annual Accrual (Years 1–5)	$200	$267
Accumulated Reserve at Year 5	$1,000	$1,333
Reserve After Unit A Retirement	$0	$333
Net Book Value of Unit B at Year 5	$1,000	$667
Annual Accrual (Years 6–15)	$100	$67
Total Cost Recovered	$2,000	$2,000

ELG produces higher depreciation expense in the early years but leaves $333 less net book value exposed at the point of Unit A's retirement. Both procedures recover the same total amount.

Figure 3: Net Book Value Comparison — ALG vs. ELG



The gap between the two curves at year 5 represents the reduced stranded cost exposure under ELG. Both procedures converge to full recovery by year 15.

Practical Considerations

For much of the twentieth century, the principal objection to ELG was its computational demands. When Robley Winfrey described the procedure in his foundational 1969 text, Depreciation of Group Properties, the calculations required for full implementation were prohibitively labor-intensive. Winfrey acknowledged this constraint forthrightly, recognizing the mathematical superiority of ELG while conceding that the practical convenience of ALG provided sufficient justification for its continued use (Winfrey, 1969, p. 6).

That constraint has been fully resolved. Contemporary depreciation software can execute ELG calculations in a matter of seconds, even for portfolios encompassing thousands of assets in service. The Iowa survivor curves that underpin the subdivision of asset groups into life cohorts are well established and widely available. The computational constraints that previously limited the practical application of ELG have largely been mitigated.

One area where ELG does require somewhat greater analytical rigor is in the selection of the Iowa dispersion curve. Because the curve governs how the asset group is subdivided into life cohorts, the choice of curve exerts a more direct influence on the resulting accrual rates than it does under ALG. This places a premium on thorough analysis of historical retirement data. For utilities that maintain adequate property records, this added analytical burden is not prohibitive. It does, however, underscore the importance of conducting the underlying depreciation study with appropriate care and methodological discipline.

Comparing the Two Procedures

Characteristic	Average Life Group	Equal Life Group
Accrual rate	Single rate based on average life	Multiple rates based on expected retirement age of each cohort
Calculation complexity	Simple and transparent	More complex, but handled by modern software
Total cost recovered	100% of original cost	100% of original cost
Early-year depreciation	Lower	Higher
Net book value at mid-life	Higher	Lower and better aligned with asset consumption
Stranded cost exposure	Greater, especially when lives are shortening	Reduced through faster recovery of shorter-lived assets
Computational requirements	Minimal	Minimal with modern software

The Regulatory Landscape

The ELG procedure is neither novel nor untested. Its adoption across North American jurisdictions has proceeded in three discernible phases, each driven by circumstances that rendered the theoretical advantages of ELG practically consequential.

The First Phase: Telecommunications Restructuring in the 1980s

The first large-scale transition to ELG occurred within the telecommunications sector. As the industry underwent structural reorganization in the early 1980s, it became apparent that large classes of telephone plant were facing substantially compressed service lives relative to prior estimates. The Federal Communications Commission responded in 1980 by ordering the use of ELG to ensure adequate recovery of investment within the shortened time horizon.[2] The regulatory rationale was well founded: when the expected lives of assets are changing rapidly, the procedure that most accurately tracks the consumption of each asset's economic value is the one that best serves the interests of both investors and ratepayers.

The Second Phase: IFRS Adoption in the 2010s

A second phase of adoption followed the broader implementation of International Financial Reporting Standards (IFRS) across Canadian regulated utilities. IFRS requirements under IAS 16 specify that the depreciable amount of each asset should be allocated on a systematic basis over its useful life.[3] ELG offered a practical means of satisfying this standard within the established framework of group depreciation. A number of Canadian utilities transitioned to ELG during this period to achieve compliance with their financial reporting obligations.

The Third Phase: Energy Transition

The industry is presently in a third phase of adoption. Growing uncertainty regarding the long-term viability of natural gas distribution infrastructure arising from electrification policies, decarbonization mandates, and shifting consumer preferences, has compelled both utilities and regulators to reassess the pace of capital recovery. ELG has gained favor in this context because it initiates the return of capital sooner for shorter-lived asset cohorts without necessitating a fundamental departure from the group depreciation framework.

The pattern of regulatory approvals reflects this broader trend. In the United States, the Connecticut Public Utilities Regulatory Authority has mandated the use of ELG for natural gas distribution utilities.[4] Regulatory filings incorporating ELG have also been submitted in New York and Massachusetts, driven in part by concerns related to the energy transition.[5] Taken together, these developments point to a clear trajectory, jurisdictions that have not yet adopted ELG are increasingly likely to give it greater consideration in future proceedings, and utilities that pursue the transition proactively may be better positioned than those that await a regulatory directive.

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The Rationale for Immediate Action: Considerations Supporting Reassessment

Every depreciation study requires the exercise of professional judgment regarding which procedure best serves the circumstances of the utility under examination. That judgment necessarily weighs multiple considerations: the historical precedent established by the utility and its regulator, the magnitude of the revenue requirement impact associated with a procedural change, applicable accounting standards, and the risk characteristics of the asset base.

For much of the past several decades, historical precedent exerted considerable influence on this determination. Where a utility had consistently applied ALG and its regulator had accepted ALG without objection, the case for change was difficult to advance. The differential in annual depreciation expense between the two procedures was considered prohibitive, and the residual computational advantages of ALG, though diminishing, continued to favor the status quo. Nonetheless, the Alberta Utilities Commission has long required ELG for essentially all utilities within its jurisdiction.[6] New Brunswick,[7] Newfoundland,[8] Nova Scotia,[9] the Northwest Territories,[10] Québec,[11] and Yukon[12] have each approved ELG for at least one regulated entity. While ELG is less commonly accepted within the United States, utilities have been approved to use ELG in the following states: Colorado,[13] Indiana,[14] Kentucky, Pennsylvania, and Texas.

That calculus has materially changed. The energy transition has introduced a risk variable that did not figure prominently in earlier depreciation assessments. The assumptions regarding the service lives of gas infrastructure merit ongoing review. Policy developments in several jurisdictions, including restrictions on new gas connections and emissions reduction mandates, together with the evolving economics of alternative heating technologies have contributed to a planning environment in which the assumed longevity of gas infrastructure requires careful reassessment.[15]

Within this context, ELG represents a measured adjustment within the existing depreciation framework for addressing stranded cost exposure. It does not alter the total quantum of cost recovered from ratepayers. It does not require the abandonment of the group depreciation framework that regulators and utilities are familiar with. Nor does it introduce the speculative assumptions about future retirement timing that more aggressive methodologies such as Units of Production necessarily entail. Rather, ELG adjusts the temporal allocation of cost recovery so that assets expected to retire at earlier ages contribute proportionally more to the depreciation charge while they remain in service. This is a measured and defensible adjustment, and it reduces the net book value that would be exposed to under-recovery should service lives prove shorter than currently estimated.

For utilities that have not yet undertaken this transition, the relevant question is no longer whether ELG is theoretically superior to ALG. That proposition has been advanced in the depreciation literature since Winfrey's work in 1969 and has gained broad, though not universal, professional acceptance.[16] The operative question is whether the current risk environment provides sufficient justification for the change. On the basis of the evidence presented in this paper, the answer is affirmative.

Conclusion

The selection of a depreciation procedure is, at its foundation, a determination about the temporal allocation of asset costs to the ratepayers who benefit from those assets' service. ALG distributes that cost uniformly across the average service life of the group, with the structural consequence that cost recovery for longer-lived assets is deferred as the group reserve absorbs earlier retirements. ELG allocates cost in a manner that more closely corresponds to the expected service life of each constituent cohort within the group. Both procedures achieve full recovery of the original cost of investment. Neither imposes a greater aggregate burden on ratepayers.

What distinguishes ELG is the closer alignment of depreciation expense with the actual pattern of value consumption across the asset group. In a stable operating environment with predictable service lives, the practical significance of this distinction may appear modest. Current operating conditions introduce increased uncertainty regarding the future service lives of certain asset classes, including gas distribution infrastructure. The policy forces and market dynamics reshaping the energy sector carry direct implications for the realized lives of utility plants. Utilities that adopt ELG position themselves to manage that uncertainty with a methodology that is well established in the professional literature, widely approved by regulatory commissions, and more granular in its mathematical treatment of group depreciation.

The computational constraints that once limited the practical application of ELG are no longer determinative. The body of regulatory precedent supporting ELG has developed across multiple jurisdictions. Within this context, ELG provides an alternative timing of capital recovery that results in lower net book value earlier in the asset life cycle. The professional case for this procedural change is supported by the technical literature and existing regulatory precedent.

Endnotes

1 Wolf, Frank K, Fitch, W. Chester, Depreciation Systems, 1994, Page 36

2 Staff Subcommittee on Depreciation of the Finance and Technology Committee of the National Association of Regulatory Utility Commissioners, Public Utility Depreciation Practices, 1996, Page 172

3 IAS 16, Subpart 43 states “Each part of an item of property, plant and equipment with a cost that is significant in relation to the total cost of the item shall be depreciated separately.” Subpart 50 further clarifies that “The depreciable amount of an asset shall be allocated on a systematic basis over its useful life.” This reliance on depreciating each asset over its own useful life requires the use of a depreciation procedure that allows for greater precision than what is possible with the Average Life Group procedure.

4 Page 51 of Decision C22-0642 of the Public Utilities Commission of the State of Colorado stated: “[H]owever, we are persuaded by Staff’s suggestion that taking a directional step toward higher depreciation expenses is reasonable and gradualism is appropriate in this instance. Taking no action now causes there to be less opportunity to apply gradualism later. We conclude that it is reasonable to direct Public Service to recalculate the depreciation expense for the HTY using the ELG approach.”

5 For example, Niagara Mohawk Power Corporation d/b/a National Grid proceeding 24-G-0323 before the Public Service Commission of New York and Boston Gas Company d/b/a National Grid filing in D.P.U. 26-50 before the Massachusetts Department of Public Utilities.

6 The Alberta Utilities Commission most recently reaffirmed their approval of ELG in Decision 29879-D02-2026

7 Most recently in the New Brunswick Energy and Utilities Board decision related to Matter 552

8 Newfoundland Power has used ELG since it was approved in Order P.U. 47 in 1982

9 Nova Scotia Utilities and Review Board Decision M12451

10 The Public Utilities Board of the Northwest Territories Decision 11-2025, page 10

11 Régie de l’Énergie Decision D2025-105

12 Yukon Utilities Board Decision 2024-01

13 Public Utilities Commission of the State of Colorado, Proceeding 22AL-0046G, Decision C22-0642

14 See Indiana Utility Regulatory Commission Decision in Cause 45988

15 For example, the Massachusetts Department of Public Utilities Order 20-80 requires that natural gas distribution companies consider non-gas alternatives to any future gas expansion project.

16 Wolf, Frank K, Fitch, W. Chester, Depreciation Systems, 1994, Page 75

References

Winfrey, Robley. *Depreciation of Group Properties*. Engineering Research Institute Bulletin 155, Iowa State University, 1969.

Federal Communications Commission, Docket No. 20188, Prescription of Procedures for Separating and Allocating Plant Investment, 1980.

International Financial Reporting Standards (IFRS), IAS 16: Property, Plant and Equipment.