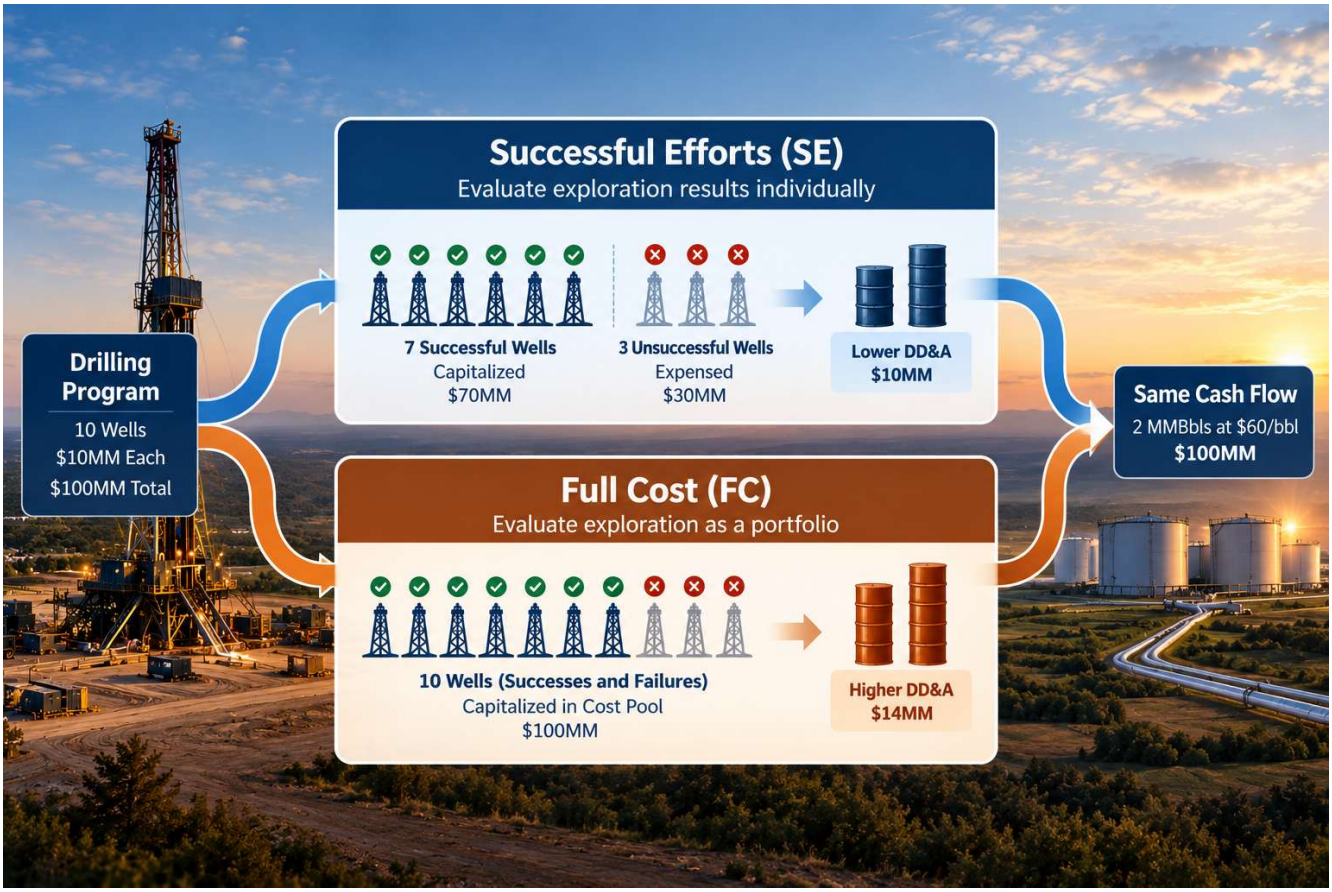
Oil & Gas Financial Analytics

Full Cost vs. Successful Efforts Accounting

Why Accounting Method Still Matters in Upstream Oil & Gas Analysis



White Paper

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Executive Summary

Two exploration and production companies can operate in the same basin, drill similar wells, produce similar volumes, and face the same commodity-price environment—yet report materially different earnings, asset values, depreciation rates, and impairment charges. The reason may have little to do with operational performance. It may simply be accounting methodology.

Under U.S. GAAP, upstream oil and gas companies can account for their exploration and development activities using either the Successful Efforts (SE) method or the Full Cost (FC) method. The fundamental distinction concerns what happens when capital fails to create commercially viable reserves.

Under Successful Efforts accounting, costs associated with unsuccessful exploration are generally recognized as expense when the failure becomes apparent. Successful expenditures are capitalized and subsequently depleted as hydrocarbons are produced. Full Cost accounting takes a portfolio approach. Exploration and development expenditures—including costs associated with unsuccessful exploration—are generally accumulated in large cost pools and capitalized. Those costs subsequently flow through depreciation, depletion and amortization (DD&A), unless the capitalized pool exceeds prescribed limits and triggers a ceiling-test write-down.

Historically, this distinction was especially important because conventional exploration involved substantial dry-hole risk. The shale revolution reduced much of that geological uncertainty. Modern shale development increasingly resembles a manufacturing process in which operators repeatedly drill delineated acreage with extensive subsurface data. That has led some investors to conclude that FC-versus-SE accounting no longer matters very much. It does. The differences have simply migrated.

In today's upstream industry, accounting method can materially influence reported earnings, DD&A rates, net oil and gas property values, impairment timing, reserve-revision effects, return-on-capital measures, and comparability among peer companies.

For analysts, understanding these differences is essential. At the same time, neither accounting method changes the cash spent drilling a well or the cash generated from selling production.

1. Two Ways of Accounting for the Same Business

Oil and gas accounting faces an unusual problem. An E&P company may spend millions of dollars drilling a well without knowing with certainty whether that expenditure will produce commercially recoverable hydrocarbons. Unlike the purchase of a factory or piece of equipment, exploration capital can result in either a productive asset or virtually nothing.

The accounting question is straightforward: What should happen to the cost of an unsuccessful investment? Successful Efforts and Full Cost accounting answer that question differently.

Successful Efforts: Evaluate the Outcome

Under SE accounting, unsuccessful exploratory activity is recognized relatively quickly. Costs associated with successful discoveries and development activities are capitalized, while unsuccessful exploration costs are expensed. The philosophy is essentially project-oriented: capitalize success and recognize failure.

This treatment causes unsuccessful exploration programs to flow through the income statement relatively quickly. Earnings can consequently be more volatile, particularly for companies engaged in high-risk exploration. The advantage is that unsuccessful investments generally do not remain embedded in the oil and gas asset base indefinitely. This accounting methodology has typically been used by larger, more established E&P companies.

Full Cost: Evaluate the Portfolio

Full Cost accounting starts from a different premise. Exploration is viewed as a portfolio activity in which unsuccessful wells are an unavoidable cost of ultimately discovering economic reserves. Instead of evaluating every exploration outcome separately, FC companies generally capitalize exploration and development expenditures into broad cost pools, typically organized by country.

The philosophy might be summarized as: finding oil and gas requires both successes and failures, so evaluate the exploration program collectively rather than one well at a time. Consequently, unsuccessful exploration costs

can remain in the capitalized asset base and subsequently be recognized through DD&A. FC accounting has typically been used by smaller, more exploration focused E&P companies.

Table 1 shows the key differences between the two accounting methodologies.

Table 1. Successful Efforts vs. Full Cost Accounting

Key Differences at a Glance

Accounting Issue	Successful Efforts (SE)	Full Cost (FC)
Basic philosophy	Evaluates exploration results individually.	Evaluates exploration as a portfolio.
Successful exploration	Capitalized.	Capitalized.
Unsuccessful exploration	Generally expensed when determined unsuccessful.	Generally capitalized in the cost pool.
Asset grouping	More project- or field-oriented.	Large cost pools, generally by country.
Initial earnings impact of failure	Recognized more immediately (expensed).	Generally deferred (remains in cost pool).
DD&A	Based on capitalized successful costs and applicable asset base.	Includes a broader pool of capitalized costs.
Impairment mechanism	Asset- or field-level impairment analysis.	Full Cost ceiling test.
Potential earnings volatility	Greater sensitivity to exploration results.	Generally smoother from exploration activity.
Balance sheet effect	Failed exploration costs removed sooner.	Failed investments can remain embedded in cost pools.

KEY ANALYTICAL POINT

The accounting method changes when costs are recognized — not the underlying cash economics.

A $10 million unsuccessful well consumes $10 million of cash whether the cost is expensed immediately under Successful Efforts or capitalized under Full Cost.

2. Why These Methods Developed

The distinction makes considerably more sense when viewed through the history of petroleum exploration. From the 1950s through much of the 1990s, a significant portion of industry capital was directed toward relatively high-risk conventional exploration. Companies routinely drilled frontier basins, offshore prospects and geologically complex structures with far less subsurface information than operators possess today.

Exploration outcomes could be binary. A company might spend tens of millions of dollars drilling a well and discover a major field—or discover nothing commercially recoverable. Successful Efforts proponents argued that unsuccessful projects should therefore be recognized promptly. Full Cost proponents took a broader view: several dry holes might be part of the economic cost of ultimately finding a successful field.

The industry's eventual accounting framework permitted both approaches, provided they were applied consistently and properly disclosed. The SEC's Full Cost rules also imposed the ceiling test, preventing companies from accumulating unlimited capitalized costs unsupported by the economics of their proved reserves.

3. Shale Changed the Accounting Debate

The shale revolution fundamentally altered the risk profile of the U.S. upstream business. Horizontal drilling, hydraulic fracturing and increasingly sophisticated subsurface analysis transformed large portions of the industry from traditional exploration into repeatable development.

In mature areas of the Permian, Eagle Ford, Bakken, Marcellus and Haynesville, operators frequently know hydrocarbons are present before a development well is drilled. The primary questions increasingly concern productivity, recovery, cost and economics—not simply whether hydrocarbons exist.

Modern shale development therefore resembles a manufacturing process far more closely than traditional wildcat exploration. If companies are drilling far fewer dry holes, does Full Cost versus Successful Efforts still matter? Yes—but for different reasons. Shale reduced traditional dry-hole risk without eliminating the consequences of accounting choice. The analytical battleground shifted toward impairment timing, DD&A, reserve revisions and capital accumulated on the balance sheet.

4. The Income Statement: Same Economics, Different Earnings

A simplified example, laid out in Table 2, demonstrates the difference. Assume two identical E&P companies each hold 14 million barrels of reserves; produce 2 million barrels during the year; realize $60/bbl; incur lifting costs of $10/bbl; drill 10 wells at $10 million each; and discover that seven wells are successful while three are sub-commercial.

Both companies spent $100 million. Nothing about accounting changes that fact. The difference is what happens to the $30 million associated with the three unsuccessful wells.

Table 2. Comparison of Successful Efforts and Full Cost Accounting

Illustrative example showing how accounting method changes reported profit and DD&A – but not cash flow.

($MM)	Successful Efforts (SE)	Full Cost (FC)	Difference
Revenue	$120	$120	—
Lifting Costs	($20)	($20)	—
Exploration Expense	($30)	$0	$30
DD&A	($10)	($14)	($4)
Profit	**$60**	**$86**	**$26**
Cash Flow	**$100**	**$100**	**$0**

Key Assumptions

- Reserve base: 14 MMbbls
- Annual production: 2 MMbbls at $60/bbl
- Lifting costs: $10/bbl
- 10 wells drilled at $10MM each = $100MM capex
- 7 wells successful; 3 sub-commercial

Accounting Treatment

- SE exploration expense: 3 wells × $10MM = $30MM
- SE DD&A: ($70MM / 14 MMbbls) × 2 MMbbls = $10MM
- FC DD&A: ($100MM / 14 MMbbls) × 2 MMbbls = $14MM

Key Takeaway

Full Cost reports $26MM more profit in this example because unsuccessful exploration is capitalized, while cash flow is identical under both methods.

Under SE, the $30 million associated with unsuccessful wells is recognized immediately as exploration expense. Under FC, all $100 million enters the cost pool. There is no immediate $30 million exploration expense, but the larger asset base produces higher DD&A. The FC company therefore reports $86 million of profit versus $60 million for the SE company, even though both generated the same $100 million of cash flow.

5. DD&A: Where Yesterday's Capital Decisions Reappear

The accounting difference does not disappear when costs are capitalized. It simply moves into future periods. Capitalized oil and gas costs eventually pass through the income statement primarily through depreciation, depletion and amortization.

For upstream companies, depletion is commonly calculated using a unit-of-production framework. In simplified form: DD&A per BOE = Depletable Capitalized Costs ÷ Oil and Gas Reserves (boe). Depreciation Expense = DD&A per BOE x Oil and Gas Production (boe)

A company carrying more capitalized cost for a given quantity of reserves will generally have a higher depletion burden. Under FC accounting, unsuccessful historical investments can remain embedded within a cost pool. Under SE, failed exploration is more likely to have already passed through the income statement.

This is one reason DD&A per BOE deserves considerably more analytical attention than it often receives. It is not merely a non-cash accounting charge. Over time, it provides information about the amount of capital embedded in the reserve base.

6. Net Capitalized Cost per BOE: A Useful Analytical Tool

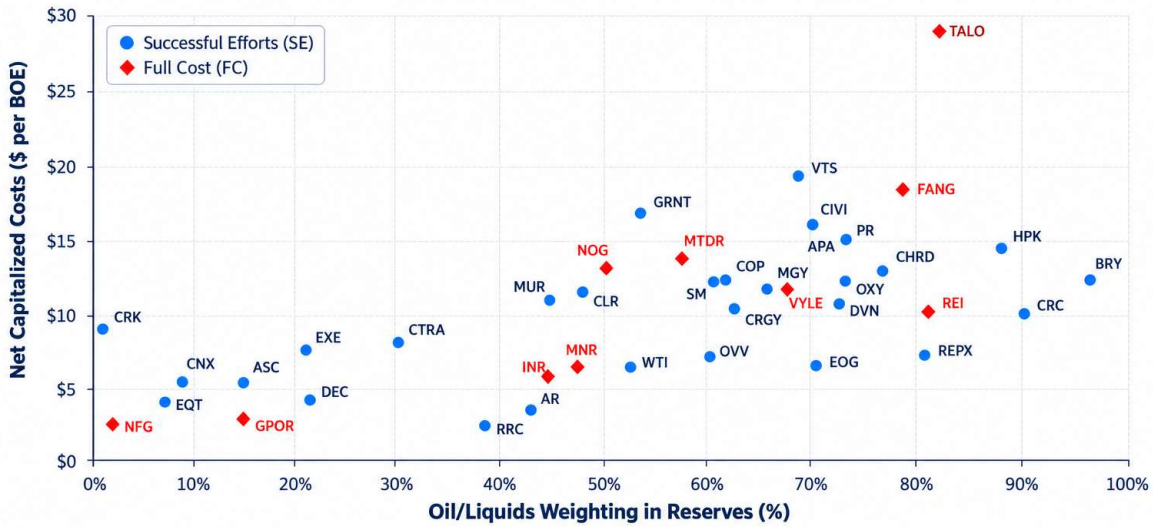
One useful comparison is net capitalized oil and gas costs per BOE of reserves. Comparing the capitalized cost of a gas producer directly with an oil-heavy producer can be misleading because the underlying economics of those reserves differ substantially. Reserve mix therefore needs to be considered. Figure 1 plots oil and gas reserve weighting with net capitalized costs per boe.

The Diamondback Energy example is particularly instructive. Diamondback has historically been regarded as a highly efficient Permian operator on measures such as finding-and-development costs. Yet the company's net capitalized cost per reserve barrel in the 2024 peer analysis was among the higher figures for oil-weighted producers. That apparent contradiction illustrates the analytical problem.

A high book cost per reserve barrel does not necessarily mean current drilling is inefficient. It may partly reflect the cumulative effect of Full Cost accounting on the balance sheet. This is precisely why analysts should avoid interpreting balance-sheet metrics without first knowing the company's accounting method.

Figure 1. 2024 E&P Net Capitalized Costs per BOE

By Oil/Liquids Weighting in Reserves



Key Takeaways

- Net capitalized costs per BOE vary widely across E&P companies.
- Costs are generally higher for oil-weighted producers.
- Full Cost (FC) companies (red) tend to have higher capitalized costs per BOE than comparable Successful Efforts (SE) companies (blue).

Notes

- Net capitalized costs per BOE based on 2024 company filings.
- Liquids weighting includes oil, NGLs and condensate.
- Includes selected U.S. E&P companies.
- Ticker symbols used for identification purposes only.
- Source: Company filings, Oil & Gas Financial Analytics, LLC.

7. Impairments: Perhaps the Most Important Modern Difference

In the shale era, impairment accounting may be more important than dry-hole accounting in distinguishing FC from SE companies.

Successful Efforts Accounting

SE companies generally evaluate impairment at a more granular asset or field level. If changing commodity prices, reserve revisions, deteriorating well performance or altered development plans indicate that an asset may no longer support its carrying value, an impairment analysis can result in a write-down. The important analytical point is granularity.

A deteriorating asset cannot necessarily hide indefinitely behind stronger properties elsewhere in the portfolio. Murphy Oil provides a useful example: the company recorded a pretax impairment of $115 million on its operated Dalmatian asset in the Gulf of Mexico in Q3 2025 following reserve reductions and changes in its competitiveness compared to future projects.

Full Cost Accounting

FC companies instead apply a ceiling test to their cost pools. In simplified terms, the company's net capitalized oil and gas costs cannot exceed a ceiling largely supported by the discounted value of proved reserves, subject to the detailed adjustments prescribed by the accounting rules. If capitalized costs exceed the ceiling, the company records a non-cash write-down.

Northern Oil and Gas provides an example. The company recorded a $318.7 million non-cash impairment in Q3 2025 under the ceiling test following lower average oil prices. Stronger assets within a broad cost pool can potentially offset weaker ones, so deterioration in an individual property may not produce an immediate impairment if the overall pool remains adequately supported.

SE can therefore expose asset-specific deterioration sooner; FC may defer recognition until weakness becomes sufficiently significant to affect the broader cost pool. Neither outcome necessarily means one company is economically stronger than another, but the timing of reported losses can be materially different.

8. Reserve Revisions Can Have Different Financial Consequences

Reserve revisions provide another connection between petroleum engineering and financial accounting. Suppose an operator determines that a group of previously economic drilling locations no longer meets the criteria for proved reserves. Perhaps well performance disappointed, development plans changed, commodity prices weakened, or the locations lost out in the company's capital allocation process.

When barrels are removed from proved reserves, the reserve denominator used in depletion calculations becomes smaller; DD&A per BOE can increase; asset recoverability may deteriorate; an impairment may become more likely; and net capitalized cost per remaining reserve barrel increases.

For an analyst, the reserve reconciliation therefore cannot be examined independently of the financial statements. A negative reserve revision is not merely a petroleum-engineering footnote. It can change the economics of the asset base and the way historical capital flows through future earnings.

9. Accounting Method Can Distort Peer Comparisons

The FC-versus-SE distinction affects several commonly used financial metrics. Consider return on capital employed (ROCE). If an FC company carries more historical exploration cost on its balance sheet, its capital base may be larger than that of an otherwise similar SE company. The FC company could therefore report a lower return on capital even if its current drilling economics were identical.

Conversely, a large impairment can reduce the asset and equity base dramatically. Subsequent return metrics may improve simply because the denominator has fallen—not because the underlying business suddenly became more efficient.

The same issue can affect book value, debt-to-capital ratios, DD&A/BOE, return on assets, return on equity, net capitalized cost/BOE, reported net income and certain EV/book-value comparisons. These metrics are not useless; they require normalization and context.

10. What Accounting Method Does Not Change

FC and SE accounting do not change the amount of cash paid to drill a well, the amount of oil or gas discovered, the production rate of the well, the price received for production, the physical decline curve, the ultimate recovery of the reservoir, or the underlying economics of the investment.

If two companies each spend $10 million drilling identical wells, accounting cannot transform one of those wells into a better economic investment. It can only change when the cost appears in reported earnings and where the unrecovered cost resides on the balance sheet.

11. Why Cash Flow Remains the Anchor

Cash-flow analysis provides an important bridge across accounting methods. Investors comparing FC and SE companies should emphasize measures such as operating cash flow and free cash flow. This does not mean earnings should be ignored. Rather, the analyst should understand why earnings and cash flow diverge. A large exploration expense at an SE company may depress earnings without indicating deteriorating current production economics. Conversely, strong earnings at an FC company should not automatically be interpreted as superior economic performance if unsuccessful historical investment remains embedded in its balance sheet.

Conclusion: Accounting Matters—But Economics Matters More

Full Cost and Successful Efforts accounting originated in an upstream industry very different from today's. Traditional exploration involved high geological uncertainty, frequent dry holes and potentially enormous differences between successful and unsuccessful drilling outcomes. The shale revolution reduced much of that risk by replacing exploration across large portions of the U.S. industry with repeatable development drilling.

But shale did not make the FC-versus-SE distinction irrelevant. It changed where analysts need to look. Today, some of the most important differences appear in DD&A, impairment timing, reserve revisions, net capitalized costs and the accumulation of historical investment on the balance sheet.

These differences can materially affect reported earnings and financial ratios. They can make two economically similar companies appear quite different—and occasionally make companies with very different capital-efficiency records appear deceptively similar.

A company can capitalize a cost today, expense it today, deplete it tomorrow or eventually write it off. None of those accounting treatments changes what management originally paid for the asset or what the reservoir ultimately produces.

