

Accounting for Natural Gas Capacity Contracts under US GAAP: A Comprehensive Analysis

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Abstract

The United States' energy infrastructure heavily relies on contracts for natural gas capacity, which govern both transportation and storage. These agreements serve dual purposes: facilitating the physical movement of natural gas and acting as strategic instruments in energy trading. With over 170 operational LNG plants, the contracting landscape is extensive and complex, governed primarily by the Federal Energy Regulatory Commission (FERC). This complexity presents significant challenges for financial reporting under U.S. Generally Accepted Accounting Principles (US GAAP). This paper explores the accounting implications of such contracts, focusing on lease accounting (ASC 842) and derivative accounting (ASC 815). A key issue is determining whether these contracts represent financial instruments with embedded derivatives or convey control over physical assets. The analysis incorporates data from Electronic Bulletin Boards (EBBs), which support quasi-spot markets and provide insights into net settlement frequency—an essential factor in derivative classification. Using both qualitative and quantitative methods, the study proposes a structured framework for evaluating capacity agreements. It considers regulatory environments, market behavior, and risk exposure to guide accurate financial reporting. This framework aims to enhance transparency and consistency in accounting for natural gas capacity contracts within the evolving U.S. energy market.

Keywords

Natural Gas Capacity Contracts, US GAAP, Lease Accounting, Derivative Accounting, United States Energy Market

1. Introduction

In the U.S. energy matrix, natural gas is a predominant component, accounting for about 38% of electricity generation in 2023, in accordance with the U.S. Energy

Information Administration (EIA) (EIA, 2023). The structure required to store, move, and supervise its distribution is becoming more complex in parallel with its growing relevance. The system of capacity contracts for natural gas is a critical enabler of this framework—legal contracts that guarantee the use of storage capacity and physical pipelines. Energy companies might utilize these contracts for managing physical flows, hedging market exposure, and employing complex strategies for trading.

Contracts like these, which were traditionally seen as operational tools, are growing into financial elements like mechanisms of contingent pricing and embedded options. Controllers of accounts have launched comprehensive structures to aid in sorting, acknowledging, and determining such contracts within their financial statements in response. ASC 842 (Leases) and ASC 815 (Derivatives and Hedging) are the two main structures pertinent to the contracts of natural gas capacity, provided by the Financial Accounting Standards Board (FASB) (FASB, 2023; FASB, 2025).

Stakeholders, including market participants, regulators, and investors, want strong policies for accounting that accurately reflect the nature of these agreements, since there are important economic and regulatory impacts of these contracts. The financial state of the company could become obscured and vulnerable to legal or regulatory scrutiny if a misclassification leads to severe misstatements (FERC, 1992; FERC, 2008).

The vital nature of the market is complicating the matter further. A stronger competitive and liquid secondary market emerged after the price limitation removal on short-term capacity releases during 2008, with the coming into effect of FERC Order 712 (FERC, 2008; FERC, 2009). Currently, real-time prices and bids for the capacity available have been available through Electronic Bulletin Boards (EBBs), which offer situations closer to a spot market that is regulated (FERC, 2008; Contents Under Pressure, 2015). Such changes demand an inquiry into the assumptions of traditional accounting and demand an increasingly complex analytical strategy.

Through an in-depth study of accounting structures facilitated by empirical evidence from regulatory and market data, this paper aims to break down these complexities. It provides an outline for deciding whether an agreement is a lease, a form of derivative, or governed by a separate set of accounting laws. By achieving this, the paper attempts to offer authorities such as financial analysts, accountants, regulators, and auditors insights and guidance as they navigate this complex landscape.

2. Results

The contracts of natural gas capacity have developed from basic operational contracts to significant financial tools. By serving both trading and logistic purposes, they represent their dual nature, which is making their accounting treatment increasingly sophisticated. Throughout the years, scholars, regulators,

and practitioners have made important contributions in providing insights on how to do proper classification and reporting of these contracts under U.S. GAAP.

The fundamental knowledge describing the physical and economic structure of natural gas systems in the United States is made available by the U.S. Energy Information Administration (EIA). In accordance with the data provided by the EIA, LNG facilities and storage systems are significant in managing short-term imbalances of supply and demand (EIA, 2023).

The Federal Energy Regulatory Commission (FERC), in establishing transparency in the market and permitting secondary trading, has been vital because of important rulings like Order 636 and Order 712 (FERC, 1992; FERC, 2008; FERC, 2009). The quasi-market conditions are promoted by these orders, which are needed for fair value assessment by necessitating the capacity release mechanisms and granting flexibility in price in short-term contracts (FERC, 1992; FERC, 2008).

A Wilcoxon rank-sum analysis of total pipeline revenues was used by Chermak (1998) to analyze how the gas industry is impacted by FERC's Order 636. The statistically significant reduction in median transportation revenues after acceptance is found in the study, signaling higher competition and the expansion of short-term trading markets. Wide usage of capacity and greater flexibility in the market have occurred due to the influx of non-traditional shippers, involving industrial users, marketers, and possibly homeowners. These modifications have serious accounting impacts: the presence of an active short-term capacity market supports the capacity contracts' classification as derivative instruments under ASC 815, and the volatility in contract economics offers verifiable fair value data complying with ASC 820.

One fundamental study by Canter (1994) offers a detailed and regulatory analysis of FERC's order to restrict non-grandfathered buy/sell transactions—contractual arrangements that might have approved capacity rights' exchange irrespective of the formal capacity release system—are carefully reviewed from regulatory and legal perspectives. Findings from the research suggest that these arrangements effectively bypassed FERC's aim of offering interstate pipelines unbiased, tariff-based access.

Comprehensive market research on the growth of capacity release mechanisms and the consequences of lifting price ceilings in short-term natural gas trading has been performed in the "U.S. Gas Pipeline Transportation Market" (Mohlin, 2021). As stated in the report, interstate pipelines facilitated approximately 61,000 capacity release trades involving 768 various goods in 2020, showing functional depth and liquidity of the secondary markets (Mohlin, 2021).

Collectively, these resources reflect the complex nature of capacity contracts for natural gas, including the legal, operational, and financial elements. Together, they highlight the importance of an integrated accounting system that takes into consideration market-based derivative valuations and control-based lease models.

2.1. Mechanism of Market and Contractual Structure

Contracts for natural gas capacity give the holder the right, but not the authority, to store or move a certain quantity of gas over a fixed period. These contracts are designed to make profits from locational spreads (in transportation contracts) or calendar spreads (in storage contracts). By benefiting from regional or seasonal fluctuations in prices, the holder generates profit.

Owners or operators of pipelines auction these rights on Electronic Bulletin Boards (EBBs), in most cases, where bids are submitted by participants in the market. This public auction system is vital for both capacity markets, i.e., primary and secondary capacity markets, and ensures transparency in pricing. Since secondary markets enable resale and release of previously contracted rights, the primary market allows direct transactions with pipeline companies.

Interstate pipeline capacity is regulated by FERC, and EBB use for these transactions is required. The EBB's bidding process, awarding, and releasing of capacity is a quasi-market mechanism that resembles a regulated exchange in various aspects. The order of the traded rights and transactions provides the foundation to calculate the proper accounting treatment within US GAAP (**Table 1**).

Table 1. Comparison of storage vs transportation contracts.

Attribute	Storage Contract	Transportation Contract
Duration	Seasonal or Multi-Year	Short- to Mid-Term
Profit Basis	Calendar Spread	Locational Basis
FERC Oversight	Yes (Interstate Only)	Yes (Interstate Only)
Option Characteristics	Physical Call Option	Physical Put/Call Option
Tradability	Via EBB (Limited)	High in Short-Term Markets
Revenue Recognition Impact	Timing-Based	Delivery-Based

2.2. Lease Accounting (ASC 842)

A lease is a contract that, in exchange for payment, provides the rights to use the identified assets for a period of time, under ASC 842. Both must be included in this control:

- Being entitled to almost every economic advantage.
- The authority to determine how to use the asset.

Contracts for natural gas sometimes do not fit both criteria. A wide range of storage and transportation agreements only convey partial or shared use, making them partially eligible as leases. However, some might include the use of a physically distinct pipeline segment (for instance, an entire lateral line). A company that contracts 25% of the capacity of pipelines, for instance, does not hold the assets entirely or control the operational use of them. The contract may neverthe-

less qualify for lease accounting if it explicitly offers operational discretion and complete utilization of a particular cavern or segment of a pipeline (**Table 2**).

Table 2. Criteria for lease determination.

Criteria	Status
Physically distinct portion of the pipeline?	Often not met
Right to direct use of the asset?	Rarely met
Right to all economic benefits from the asset?	Sometimes met

2.3. Derivative Accounting (ASC 815)

Their fundamental requirements are listed in ASC 815 for determining whether or not a contract is a derivative.

- 1) Considering rights are associated with price indexes and volumes, the notional amount and underlying are found in the majority of contracts of capacity.
- 2) No net investment initially: This is normally the case for contracts of natural gas capacity.
- 3) The most difficult criterion of all is net settlement.

While nearly all the contracts demand physical delivery, several of them have clauses for liquidated damages, and holders could possibly be eligible to settle contracts with no delivery if the EBB has a thriving secondary market. An argument in support of quasi-derivative treatment is put forward here (**Table 3**).

Table 3. Criteria evaluation according to ASC 815.

Criteria	Status
Physically distinct portion of the pipeline?	Often not met
Right to direct use of the asset?	Rarely met
Right to all economic benefits from the asset?	Sometimes met

Companies often resell rights related to equity-based benefits (EBB) before they are exercised, which can satisfy the final criterion under ASC 815 and suggest the potential for net settlement equivalence. Contracts must be regularly studied by companies to determine if this status has changed due to the developing condition of the market.

2.4. Functionality of EBB and Market Activity

It is not possible to overstate the vital role of EBB in contracts of capacity. EBBs give:

- Pricing data transparency.
- Bidding mechanisms that are competitive.
- Access by third parties for release or resale.

- Protocols for contract settlement that are pipeline-enforced.

FERC has effectively institutionalized a secondary market, allowing companies to calculate fair value via data points that are observable (FERC, 1992; FERC, 2008; Skadden, Arps, Slate, Meagher & Flom LLP, 2008). For qualifying contracts, these data points can support market-to-market accounting. Also, they might aid auditors in validating estimates of fair value.

Moreover, bundled capacity contracts, which are packaged and sold as a unit by using multiple rights, are increasing in occurrence. However, the average rate must adhere to the tariff limits of FERC (U.S. Government Publishing Office, 2026: 18 C.F.R. Part 154); individual segments could go above the cap. Component analysis is required for the accounting of these bundles, identical to guidance on multi-element arrangements in ASC 606 (FASB, 2016).

3. Discussion

3.1. Implications of Accounting Policy

Companies are facing pressure to evaluate their accounting policies as contracts for capacity become increasingly complex. Serious problems in financial reporting could arise from misclassifying a contract as an ordinary service agreement when it involves derivative or lease aspects. This misrepresentation puts public companies at risk of audit findings, SEC inquiries, and mistrust from investors.

For the analysis of new and existing contracts, accounting teams must work with federal and legal departments. Contract review processes must feature decision frameworks and formalized checklists. In addition, companies must consider whether contracts that fulfill the definition of derivatives should be observed at fair value through profit or loss (FVPL).

3.2. Impact of Market and Industry

Despite FERC's Order 712's easing of short-term price limitations, the markets for natural gas have become more active. Contracts for capacity are now instruments of speculative positioning along with operational tools because of the introduction of price volatility. This dual nature has an influence on the disclosure of risks, accounting, and hedging techniques.

Investors and regulators are putting increasing pressure on energy companies to make financial risk more transparent. Accounting treatments require modification to better capture:

- In contracts, the embedded optionality.
- Changes in fair value.
- The impact of contractual rollovers or cancellations.

For example, an improper hedge designation can result in significant earnings volatility, impacting investor sentiment and key performance metrics.

3.3. Ethical and Regulatory Considerations

Contracting for natural gas also has an increasingly significant ethical aspect. Con-

tracts of capacity that promote fossil fuel use are being scrutinized as climate change and ESG reporting gain prominence. The trustworthiness of ESG might be impacted by accounting disclosures that understate or hide the economic impact of such contracts.

There is still limited regulatory convergence between IFRS 16 and IFRS 9. US GAAP requires more detailed examinations of net settlement and applies more rigid conditions to the classification of leases. Global firms still need to report under both systems, enabling better internal controls and standardized judgments in accounting.

3.4. Opportunities and Limitations

There are still challenges in spite of the structure that this paper suggests:

- The absence of contract-level disclosures in several EBBs lowers the transparency of the market.
- The unique structure of each contract can prevent the usage of a standardized accounting model.
- Quick changes in rules and regulations, especially those dealing with environmental policies, could make present beliefs outdated in the future.

However, there are many opportunities. Most of the classification procedures could possibly be managed by technological advancements, notably blockchain for tracing contracts and identifying leases that are AI-driven. Over time, these innovations might lessen the cost of compliance and increase the reliability of audits.

4. Materials and Methods

The following research opts for a hybrid technique, mixing quantitative and qualitative methods to evaluate the natural gas capacity contract's accounting treatment under US GAAP. A thorough analysis of applicable accounting standards—particularly ASC 842 (Leases), ASC 815 (Hedging and Derivatives), and ASC 980 (FASB, 2009) (Regulated Operations)—constitutes the qualitative components. These standards were examined with the objective of learning about the practical treatment of various contract structures.

Moreover, the Federal Energy Regulatory Commission's (FERC) officially issued guidance and regulatory filings, such as Orders 636 and 712, that govern the operational and legal framework of natural gas markets, were analyzed in the study. Major accounting firms like Deloitte, PwC, EY, and KPMG, in particular, provided interpretive guidance that enriched these insights, specifically in relation to their implementation and interpretation of GAAP in energy sector contracts.

The analysis of trading data obtained from Electronic Bulletin Boards (EBBs) like El Paso (El Paso Natural Gas Company, n.d.), ANR (ANR Pipeline Company, n.d.), and Northern Border Pipeline (Northern Border Pipeline, n.d.) is the quantitative aspect of the technique. The study assesses the volume, frequency, and pricing characteristics of secondary market transactions to identify the existence

of visible factors that promote the measurement of fair value. The ASC 820 criteria for active markets are employed for evaluating these datasets.

For deciding whether a contract for natural gas capacity should be classified as a lease, derivative, or hybrid financial tool, a comparative decision framework was developed. This structure consists of:

- Recognizing the rights to economic benefits and the right to control.
- Evaluating market activity and the prospect of net settlement.
- Features of contracts, such as transferability and liquidated damages.

The constant review of every contract that complies with appropriate standards of accounting and regulatory requirements can be assured by this methodological framework. Integrating market data with legislative and accounting rules offers an extensive platform for evaluation and serves the objective of the paper, making it important to practice as well as theory.

5. Conclusion

Contracts for natural gas capacity are evolving into sophisticated financial instruments, which need to be carefully documented under US GAAP. This study explains that agreements for storage and transportation may be categorized as leases and derivatives under ASC 842 and ASC 815, respectively, depending upon market behavior and control. Derivative classification and fair value measurement are supported by increased trading via the Electronic Bulletin Board (EBB). For accurate disclosure and recognition, a structured framework is required. To preserve comparability, regulatory compliance, and transparency, accounting practices must evolve in line with the evolution of market dynamics and regulations. This paper contributes to both academic theory and application in real life.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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