

# A Financial Analysis and Valuation of Leading Companies in the U.S. Electric Utility Sector

Jiaxu Wang \*

School of Accounting, Southwestern University of Finance and Economics, Chengdu, 611130, China

\* Corresponding Author Email: JIAXU.WANG@baruchmail.cuny.edu

**Abstract.** In the post-pandemic era, as societal life demands gradually recover and stabilize, the American public utilities sector has demonstrated positive growth momentum, garnering significant investor attention. This research focuses on four prominent enterprises within the industry, including Southern Company (SO), American Electric Power (AEP), Duke Energy (DUK), and Exelon Corporation (EXC). These entities not only epitomize the developmental trajectories of the electric power industry but also reflect the escalating influence of renewable energy over traditional fossil fuels and the ramifications of heightened environmental standards on corporate operations. Leveraging the 2023 annual reports as foundational data, this study conducts a thorough analysis and valuation of these firms' financial statement indices and price-to-earnings ratios, aiming to offer comprehensive insights and analyses regarding their financial standings and market prospects. The findings indicate that Southern Company exhibits robust market competitiveness and allure, alongside an optimistic outlook for future development, rendering it a viable candidate for sustained attention from investors seeking long-term value investments.

**Keywords:** Financial Statement Analysis; Ratio Valuation; Corporate Risk.

## 1. Introduction

The electric utility industry stands as a pivotal component of the United States' infrastructure, playing an indispensable role in delivering stable and affordable energy and essential services to millions of consumers. Amidst the post-pandemic global economic backdrop, the energy sector undoubtedly emerges as a complex and challenging domain, with its developmental trends and future prospects exerting profound impacts on economic growth and social progress. Particularly, among the heightened global pursuit of clean energy and sustainable development objectives, electric and energy companies find themselves at a crucial juncture, facing unprecedented opportunities and challenges.

Against this backdrop, delving into the operational strategies, financial conditions, and market performance of Southern Company, one of the leading electric utility companies in the United States, holds significant reference value for investors seeking to make informed decisions.

Southern Company, headquartered in Atlanta, Georgia, is a power holding company operating primarily in the southeastern United States, which is the 16th largest electric company globally and ranks 4th in the United States, serving approximately over 9 million customers across six states. Its core business involves providing wholesale natural gas and electricity, customized distributed energy solutions, as well as fiber and wireless communications nationwide. Notably, electricity generation constitutes the primary revenue source, supplemented by a diversified portfolio including nuclear, coal, hydro, co-generation, solar, wind, battery storage, and fuel cell facilities.

Financially, Southern Company has demonstrated steady growth in recent years, with both revenue and profits displaying positive trends. Particularly notable is its resilience and adaptability in weathering the significant economic impact of the COVID-19 pandemic. In 2023, the company recorded revenues of \$25.253 billion, marking a 13.75% year-on-year decrease, while annual gross profit amounted to \$11.708 billion, reflecting a 7.63% increase. Notably, its EPS growth rate surged to 41.4%, a substantial improvement compared to the preceding year's 6.9%. Moreover, Southern

Company boasts a robust financial foundation, evidenced by its BBB+ credit rating from Standard & Poor's.

Southern Company's recent operational performance, focusing on emissions reduction, enhancing credibility, and diversifying its generation portfolio, underscores its commitment to sustainable energy solutions and emissions reduction. CEO Thomas A. Fanning has outlined the company's commitment to updating its long-term GHG emissions reduction goal to achieve net-zero emissions by 2050, with expectations of reaching its 50% reduction goal well in advance of 2030, possibly as early as 2025. However, amidst the evolving landscape of energy transition, environmental policy adjustments, and market competition, questions arise regarding the company's financial condition and corporate value, as well as the challenges and opportunities it faces in the future.

To address these concerns, this paper aims to conduct an in-depth analysis and evaluation of Southern Company's financial condition and corporate value through a comprehensive review of its financial statements [1]. Firstly, to provide a macroeconomic context and analyze market trends, the paper will compare Southern Company with three other major competitors in the industry – EXC, DUK, and AEP – based on key financial indicators. Subsequently, it will delve into the revenue composition, profitability, asset-liability structure, and cash flow of Southern Company and its counterparts, offering insights into their operational status and financial health. Lastly, integrating industry trends and corporate strategic planning, the paper will forecast Southern Company's future financial performance and corporate value, providing investors and stakeholders with more comprehensive and insightful decision-making guidance.

Through this thorough analysis, it aims to illuminate how Southern Company, as a prominent player in the energy sector, navigates opportunities for growth and development in an increasingly complex market environment, while also offering investors clearer judgment criteria when considering investments in the energy industry.

## 2. Performance Evaluation

The performance assessment of a firm is pivotal in financial scrutiny, entailing the evaluation of its liquidity, solvency, and profitability [2]. This scrutiny offers insight into its capacity to fulfill immediate and long-term commitments, sustainably operate, and generate profits [3]. This extends to Southern Company, bench-marked against peers American Electric Power (AEP), Duke Energy (DUK), and Exelon Corporation (EXC) in the industry.

### 2.1. Liquidity

Liquidity ratios evaluate a firm's ability to cover short-term obligations, focusing on the current ratio, quick ratio, and cash ratio. The current ratio measures capability to pay short-term debts with current assets. The quick ratio, excluding inventory, offers a conservative assessment. The cash ratio, the most stringent, determines the ability to settle short-term liabilities with cash and equivalents.

**Table 1.** Liquidity Ratios of four companies in 2023.

Company Name	Current Ratio	Quick Ratio	Cash Ratio
Southern Company	0.77	0.53	0.06
American Electric Power Company	0.52	0.34	0.03
Duke Energy Corporation	0.74	0.49	0.01
Exelon Corporation	0.81	0.50	0.05

Data source: Yahoo finance & 2023 Annual report

Table 1 reveals a notable observation regarding the liquidity management at American Electric Power Company (AEP), which has a current ratio significantly lower at 0.52 compared to Southern Company (SO) at 0.77, Duke Energy Corporation (DUK) at 0.74, and Exelon Corporation (EXC) at 0.81. This comparison suggests potential issues in AEP's liquidity management.

Further examination of AEP's annual report indicates that this lower current ratio may be attributed to decreased sales and reduced current assets due to weather-related demand declines. Such a decrease in demand directly impacts the company's cash flows, particularly in the recovery of accounts receivable. The decline in sales not only reduces the frequency and velocity of cash collection but may also increase financial instability as the continuous reduction in cash inflows augments financial pressures. Moreover, the elongation of the receivables turnover period further accentuates the challenges AEP faces in managing liquidity, as slower recovery of receivables decreases the cash available to meet short-term liabilities, thereby adversely affecting overall liquidity.

When analyzing the quick ratio, similar to the current ratio, AEP exhibits issues with a notably lower quick ratio of only 0.34. The quick ratio is often deemed more significant as it sets stricter criteria. Linking this with the company's disclosed Form 10-K information, it becomes evident that AEP, excluding inventory, faces a reduction in current assets due to decreased sales, posing greater cash flow liquidity risks. This scenario suggests a higher reliance on mechanisms such as short-term financing to generate cash flow. In contrast, companies like SO, DUK, and EXC perform relatively better with approximate average quick ratios around 0.5, indicating they maintain suitable liquidity levels, thus are less likely to encounter liquidity problems and offer lower investment risks.

In the utilities sector, particularly among electricity companies, it is common to observe lower cash ratios due to quick receivables turnover and lower risk of bad debts. However, variations in the cash ratio across companies can reveal differences in their financial strategies. Southern Company (SO) has the highest cash ratio at 0.06, which may partly be attributed to reduced post-tax expenses in the construction of units 3 and 4 of the Vogtle project and increased electricity sales revenue. These factors collectively enable the company to retain more cash on its books.

From a financial management perspective, SO's higher cash ratio might reflect a more conservative financial strategy. Although maintaining a higher cash reserve can mitigate financial risks and enhance the company's capacity to handle uncertainties, excessively high cash reserves could also lead to inefficient use of resources since these funds could be invested in opportunities yielding higher returns.

Conversely, Duke Energy Corporation (DUK) exhibits the lowest cash ratio at 0.01, indicating that the company maintains lower cash reserves on its books, which could potentially weaken its ability to respond to sudden financial pressures, thus posing higher financial risks. Nonetheless, this is generally offset by their reliable stable income, minimizing the risk of cash flow problems.

## 2.2. Solvency

Solvency ratios assess a firm's ability to meet long-term obligations. Key metrics include total debt ratio, debt-to-equity ratio, and equity multiplier. The total debt ratio measures the proportion of assets financed by debt. The debt-to-equity ratio shows the balance between borrowed capital and shareholder investment. The equity multiplier indicates the extent to which assets are backed by equity. These ratios provide insights into financial stability and leverage levels. In this analysis, financial data from annual reports are examined, as presented in Table 2 below.

**Table 2.** Solvency Ratios of four companies in 2023.

Company Name	Total Debt Ratio	Debt/Equity	Equity Multiplier
Southern Company	0.75	180.78%	2.81
American Electric Power Company	0.74	173.70%	2.74
Duke Energy Corporation	0.72	160.69%	2.61
Exelon Corporation	0.75	172.16%	2.72

Data source: Yahoo finance & 2023 Annual report

The solvency ratio, a pivotal financial metric, gauges the extent to which a company's assets are financed through debt [4]. This indicator is crucial for assessing corporate indebtedness and the

associated risks. Table 2 reveals that Southern Company (SO), American Electric Power Company (AEP), Duke Energy Corporation (DUK), and Exelon Corporation display solvency ratios ranging between 0.72 and 0.75, slightly surpassing the generally accepted norm of 40% to 60% for corporate entities. This phenomenon is typical within public utility companies, which operate under relatively stable conditions and hence exhibit higher solvency ratios.

Moreover, these entities demonstrate financial structures with leverage ratios between 160% and 180%, and equity multiples from 2.61 to 2.81, indicating a significant use of leverage. High leverage ratios can facilitate reduced financing costs and enhanced profitability. According to Southern Company's 2023 10-K report, favorable operating conditions allowed the company to maintain the highest leverage ratio among its peers, showcasing its ability to leverage substantial development levels to yield significant investor returns. In 2023, Southern Company generated over \$332 million in operational cash flows through tax offsets, critically supporting its liquidity needs, primarily driven by a reduction in fuel recovery costs. However, projections indicate that dividends, capital expenditures, and maturing debts are expected to exceed operational cash flows from 2024 to 2026, pointing to potentially higher investment risks due to the elevated leverage ratio in the forthcoming years.

Confronted with the shift towards renewable energy sources and the challenges posed to traditional fossil fuels, public utility companies are intensifying their focus on achieving carbon neutrality. Entities such as SO, EXC, DUK, and AEP have established objectives to meet carbon emission and environmental standards by 2030 or 2035. As interest rates continue to rise in the United States, these companies are compelled to adjust their capital structures to manage the increased interest expenses effectively. These measures demonstrate that utility companies are adopting proactive strategies to tackle macroeconomic and environmental challenges, aiming to ensure long-term financial stability and sustained business growth.

### 2.3. Profitability

Profitability ratios such as profit margin, operating margin, ROA, ROE, and EBITDA margin are crucial for evaluating a company's ability to generate profits [5]. These ratios highlight the efficiency of income generation relative to expenses and operational costs, with analysis applicable using data from Table 3.

**Table 3.** Profitability Ratios of four companies in 2023.

Company Name	Profit Margin	Operating Margin	ROA (ttm)	ROE (ttm)	EBITDA Margin
Southern Company	15.75%	22.42%	2.93%	11.03%	45.19%
American Electric Power Company	11.63%	16.27%	2.60%	8.96%	35.78%
Duke Energy Corporation	9.93%	28.72%	2.54%	8.48%	46.47%
Exelon Corporation	10.72%	20.22%	2.56%	9.22%	31.34%

Data source: Yahoo finance & 2023 Annual report

Profit margin serves as a crucial financial indicator that quantifies the efficiency with which a company translates sales into profits by comparing net profit to total revenue. A superior profit margin signifies enhanced cost control and higher profitability. According to Table 3, Southern Company (SO) exhibits the highest profit margin at 15.75%, substantially surpassing American Electric Power (AEP), which records a margin of 11.63%. This differential suggests that Southern Company has implemented a more sophisticated cost management strategy, particularly evident in its effective management of fuel recovery costs. This strategic approach not only reduces operational expenditures but also significantly boosts profitability, positioning Southern Company for sustained financial health and prospective growth.

Operating margin, an essential metric for evaluating profitability from core business operations, elucidates the efficiency of cost management within firms. Duke Energy Corporation exhibits a leading operating margin of 28.72%, signifying proficient cost control. However, it registers the lowest profit margin among the group, a discrepancy primarily attributable to substantial tax liabilities and interest expenses. In contrast, Southern Company maintains a solid operating margin of 22.42%, indicative of strong operational efficiency.

Conversely, American Electric Power (AEP) presents a less favorable operating margin of 16.27%, adversely affected by elevated non-operational and maintenance expenditures, reflecting challenges in its cost management practices. Nonetheless, AEP achieves a commendable profit margin, suggesting robust overall financial stewardship and a strategic approach that mitigates future financial risks. This scenario is complicated by AEP's pronounced debt risk, underscoring the imperative for enhanced cost management to improve its operating margin and ensure long-term financial sustainability.

ROA, which measures net profit relative to total assets, reflects a company's efficiency in generating profit from its assets. Southern Company (SO) leads with an ROA of 2.93%, indicating more effective asset utilization compared to the industry average of about 2.56%. American Electric Power (AEP), Duke Energy (DUK), and Exelon Corporation (EXC) follow with ROAs of 2.60%, 2.54%, and 2.56% respectively, suggesting Southern Company achieves higher returns for investors through better management.

ROE measures a company's ability to generate profit from shareholder equity. Southern Company (SO) leads with an ROE of 11.03%, indicating more efficient capital use compared to the industry average of 9%. Exelon Corporation (EXC) follows with an ROE of 9.22%, showing Southern Company's stronger capability in capital utilization.

Southern Company (SO) achieves a robust EBITDA margin of 45.19%, reflecting strong operational profitability, attributed to increased natural gas revenues from tax increases and infrastructure upgrades, along with mitigated impacts from 2022's goodwill impairment through higher depreciation and amortization costs. This indicates an effective balance of operational costs and financial strategies, enhancing profitability while minimizing risks.

Duke Energy (DUK), with an EBITDA margin of 46.47%, utilizes a capital structure heavily reliant on short-term financing and equity market funding, offering liquidity benefits but also exposing the company to market volatility. Duke's financial strategies significantly influence its profitability potential and vulnerability to market shifts.

Conversely, American Electric Power (AEP) and Exelon Corporation (EXC) display lower EBITDA margins of 35.78% and 31.34%, respectively, indicating higher operational costs and potential risks to future profitability and liquidity. Exelon's particular challenges include debt issues and a shortage of liquid assets, impairing its ability to handle economic fluctuations effectively and heightening operational risks.

### 3. Valuation

#### 3.1. Forecast

This study employs two primary valuation methods: the Trailing Twelve Months (TTM) and Price-to-Earnings (P/E) ratios, using data from Yahoo Finance and 2023 corporate annual reports [6]. Results are presented in Table 4 as of March 5, 2024, providing a comprehensive analysis consistent with current financial analytical standards.

**Table 4.** Forecast of four companies in 2023

	SO	AEP	DUK	EXC
Ahare price	68.2	84.95	92.42	36.2
TTM EPS	3.64	5.24	5.56	2.38
NTM EPS	4.03	5.6	5.94	2.42
EPS growth rate	10.7%	6.9%	6.8%	1.7%
R growth rate	4.01%	6.85%	1.08%	-0.18%
TTM P/E	18.74	16.21	16.62	15.21
NTM P/E	16.92	15.17	15.56	14.96
PEG	33.97	76.27	81.35	141.61
GP/A	8.40%	11.51%	7.78%	8.79%

Data source: Yahoo finance & 2023 Annual report

In the current financial analysis, Southern Company (SO), American Electric Power (AEP), Duke Energy (DUK), and Exelon (EXC) exhibit distinct performance characteristics. Southern Company demonstrates significant potential in terms of Earnings Per Share (EPS) and revenue growth, with an EPS growth rate of 10.7% and a revenue growth rate of 4.01%. This growth can be attributed in part to an anomalously warm winter previously, which underscores the impact of environmental factors on operational outcomes. Although this may not represent a sustainable growth strategy, it highlights the potential for profit fluctuations caused by external climate conditions.

In contrast, Exelon shows weaker performance on these metrics, with an EPS growth rate of only 1.7% and a negative revenue growth rate of -0.18%, suggesting challenging future prospects. This may be due to the reduced electricity demand during the pandemic, impacting all companies within the industry. However, as the market gradually returns to pre-pandemic levels, this is likely to improve the financial positions of these companies in the short to medium term. Moreover, the shift towards renewable energy, particularly with falling prices in renewable technology, poses both strategic challenges and opportunities. This transition is expected to suppress growth in the traditional coal power market but also provides companies like AEP and SO the opportunity to leverage their existing infrastructure and capital capabilities for a competitive advantage in the renewable sector.

From the perspective of Gross Profit to Assets (GP/A), American Electric Power notably excels with a GP/A ratio of 11.51%, significantly higher than the other three companies. Duke Energy's GP/A ratio is slightly lower at 7.78%, marginally below Southern Company's 8.40% and Exelon's 8.79%. These figures reflect the slow compound annual growth rate of over 0.5% expected in the U.S. coal power market between 2024-2029, indicating a stable yet mature market with low demand elasticity and stringent regulatory frameworks. Such environments typically favor large, mature public utility companies with robust operational frameworks like SO and AEP, explaining why they can exhibit superior financial metrics compared to other industry players.

Further analysis of the Price/Earnings to Growth (PEG) ratio shows that Southern Company's PEG at 33.97 is significantly lower than those of its competitors, suggesting more optimistic prospects for future profit growth. Conversely, Exelon's high PEG value of 141.61 indicates potentially limited growth opportunities. The PEG ratios of SO, AEP, DUK, and EXC suggest that in a low-interest-rate environment, these energy companies' stable profit growth secures them high valuations [7]. Particularly, SO's PEG ratio, substantially lower than its peers, suggests it is undervalued relative to its growth prospects, reflecting its stable earnings capacity and dominant market position.

Lastly, the Price-to-Earnings (P/E) ratio analysis shows that Southern Company's forward twelve months (NTM) P/E of 16.92, compared to its past twelve months (TTM) P/E of 18.74, indicates positive market expectations for its future earning potential. In contrast, Exelon's TTM P/E of 15.21 with a slight increase to 14.96 NTM reflects more conservative expectations for earnings growth. These analyses offer in-depth insights into the companies' financial performances and future growth potential in the current economic climate.

### 3.2. Strategy & Risks

This paper investigates the strategic orientations of prominent U.S. energy firms and their potential impacts, scrutinizing their market positioning, investments in technology, practices of sustainability, and prospective risks [8]. The analysis aims to equip investors with profound insights into the long-term trends and investment vulnerabilities within the anticipated competitive dynamics of the energy industry [9].

Southern Company has bolstered its market allure and customer satisfaction by capitalizing on its regional strengths and predominant position in the southern United States. The firm has committed substantial resources to advanced technologies and sustainable energy solutions, addressing challenges imposed by escalating environmental regulations. These initiatives not only fortify its competitive position but also enhance its overall sustainability. However, the company's financial health may be compromised by economic recessions affecting customer rates and variable weather conditions influencing energy demand.

Exelon Corporation mitigates risks associated with fluctuations in fuel prices and regulatory alterations through a diversified energy portfolio strategy. It has augmented its investments in renewable resources, meeting the expectations of an environmentally aware consumer base, and has broadened its market reach through strategic alliances and acquisitions. Furthermore, Exelon is dedicated to improving service quality, promoting clean energy solutions, and ensuring equitable financial returns.

Duke Energy Corporation has vigorously invested in renewable energy projects, like wind and solar power, diversifying its energy mix and preparing for a market led by renewable sources. The company deepens its community engagement through local initiatives and delivers comprehensive solutions that address the nuanced demands of contemporary energy consumers. Nevertheless, Duke contends with financial repercussions due to its reliance on regulatory mechanisms and discrepancies in regulatory frameworks across different jurisdictions.

Lastly, AEP emphasizes infrastructure modernization and reliability enhancement to support environmental sustainability, with a goal of achieving carbon neutrality by 2050. The company faces challenges such as access to capital markets, supply chain disruptions, and inflation, which may impede its operational efficiency and strategic endeavors.

Therefore, these corporations exhibit resilience and adaptability in the face of industry challenges, employing technological innovation and strategic modifications to consolidate their market positions and navigate future uncertainties with effectiveness [10].

## 4. Conclusion

In conclusion, this study underscores the differential strategic positioning and growth prospects of Southern Company (SO), American Electric Power (AEP), Duke Energy (DUK), and Exelon Corporation (EXC) within the evolving landscape of the utility industry. Given the dual pressures of stagnating traditional energy growth and burgeoning renewable energy sources, these firms face distinct challenges and opportunities that influence their investment appeal.

Southern Company, with its industry-leading status and robust EPS growth, emerges as a strong investment prospect. The firm's capacity to stay at the vanguard of industry developments suggests significant growth potential, making it a favorable option for long-term investment. Conversely, American Electric Power and Duke Energy, although financially robust, need to more clearly define and enhance their engagement in the renewable sector to sustain their market positions.

Exelon Corporation presents a more complex investment profile. Given its lower growth forecasts and substantial adaptation challenges, a more circumspect investment approach is advisable. Potential investors should closely monitor Exelon's ability to innovate and adjust to market conditions before committing to longer-term investments.

Investors are encouraged to focus on how these companies expand their renewable energy investments and drive technological innovations, responding to increasing clean energy demands and

stringent environmental regulations. Such strategic considerations are crucial for assessing the companies' long-term market competitiveness and investment attractiveness. Investors should align their decisions with personal risk tolerance and investment goals, carefully choosing investment avenues that reflect a comprehensive evaluation of the companies' responses to environmental policies, market demand shifts, and technological progress.

## References

- [1] Li, X. H., & Cai, L. (2006). Corporate Financial Analysis: Framework and beyond. *Research on Financial and Economic Issues*, 10, 67-73.
- [2] Ge, J. S., & Zhan, M. S. (2008). Key Financial Information to Focus on in Corporate Financial Reporting Analysis: Liquidity, Financial Adaptability, Expected Net Cash Inflows, Profitability, and Market Risk. *Accounting Research*, 5, 3-9+95.
- [3] Hou, Z. C. (2012). A Brief Discussion on Methods of Financial Statement Analysis. *Finance and Accounting Newsletter*, 35, 123-124.
- [4] Feng, L. F. (2014). The Origin and Development of Financial Statement Analysis. *Accounting Research*, 8, 47-50.
- [5] Nissim, D., & Penman, S. H. (2001). Ratio Analysis and Equity Valuation: From Research to Practice. *Review of Accounting Studies*, 1, 109-154.
- [6] Chen, Y. B. (2010). Research on Enterprise Valuation in Venture Capital. *Financial Theory and Practice*, 1, 64-67.
- [7] Ji, Y. C. (2018). Research on the Relationship between Enterprise Value Assessment and Company Valuation. *Friends of Accounting*, 9, 2-8.
- [8] McGee, J. (2010). *EBOOK: Strategy: Analysis and Practice*. McGraw Hill.
- [9] Liu, P., & Lu, C. (2021). Strategic analysis and development plan design on digital transformation in the energy industry: A global perspective. *International Journal of Energy Research*, 45(14), 19657-19670.
- [10] Dudin, M. N., Frolova, E. E., Protopopova, O. V., Mamedov, O., & Odintsov, S. V. (2019). Study of innovative technologies in the energy industry: nontraditional and renewable energy sources. *Entrepreneurship and Sustainability Issues*, 6(4), 1704.