BOCCONI STUDENTS FOR ALTERNATIVE INVESTMENTS

# Centrus Energy Corporation (NYSE:LEU)

Equity Research Report | Hedge Fund Division


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**General Introduction**

The global nuclear energy sector is experiencing a resurgence driven by the urgent need for reliable, vast, and climate-friendly power sources and the exponential growth in energy consumption from emerging technologies, such as artificial intelligence and cloud computing infrastructures. Nuclear energy perfectly responds to these requirements by offering steady, large-scale power generation with minimal greenhouse gas emissions. Therefore, nuclear power allows countries and firms to meet their growing energy demand while adhering to stringent carbon emissions standards. In this growing market, Centrus Energy Corp occupies a strategic position as the only company in the United States licensed by the Nuclear Regulatory Commission (NRC) to produce High-Assay Low-Enriched Uranium (HALEU). HALEU consists of nuclear fuel with a concentration of U-235 uranium isotopes between 5% and 20%. Compared to low-enriched uranium currently used in most commercial power plants (with a concentration lower than 3%), HALEU has numerous advantages, including better fuel efficiency, reduced waste volumes, and high energy density. These factors make HALEU the optimal fuel for innovative micro and modular nuclear reactors and position Centrus Energy as the leading supplier of future nuclear plants developments.

**Company Overview**

Centrus Energy is headquartered in Bethesda, Maryland, and operates two business segments. The LEU segment, which accounted for 84% of revenue in 2023, provides nuclear fuel components to commercial power plants worldwide. Low enriched uranium production is negotiated by Centrus with energy producers and plant operators in multi-year agreements, ensuring stable cashflows for the firm in the medium and long-term future. The Technical Solutions segment focuses on advanced nuclear technologies, particularly HALEU production and related services for governmental and private customers. The company's plants and facilities are spread across Maryland, Ohio, and Tennessee, allowing the company to maintain strong relationships with key state and federal stakeholders.

**Company History**

Centrus Energy Corp was born from the restructuring of the United States Enrichment Corporation (USEC) in 2014. USEC was a government-owned company founded in 1992 by Congress to reorganize the United States 'uranium enrichments operations. Initially, USEC operated two major refinement and enrichments plants in Paducah, Kentucky, and Portsmouth, Ohio. However, enrichment operations were ceased at the Portsmouth in 2001, followed by Paducah in 2013. In 2014, USEC underwent strategic reorganization through Chapter 11 bankruptcy and changed its name to Centrus Energy Corp.

**Recent Developments**

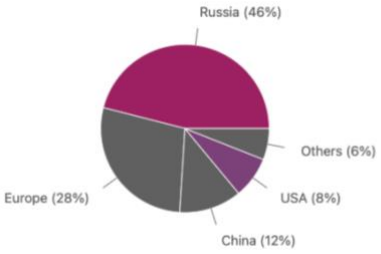
The period from 2020 to 2024 has been transformative for Centrus. The company has reached important production milestones despite a backdrop of global geopolitical tensions. In particular, the Russian invasion of Ukraine, in February 2022, has drastically altered the nuclear fuel supply chain and has highlighting the necessity of domestic enrichment capabilities. In response, Centrus has accelerated its HALEU program and has started high-assay enrichment operations in Piketon in October 2023.

Moreover, the approval of the Inflation Reduction Act in 2022 unlocked substantial funding for nuclear energy development and boosted Centrus's position as leader in the enrichment phase of nuclear fuel value chain. Furthermore, in November 2023, the company delivered its first HALEU output to the Department of Energy, demonstrating the viability of domestic production capabilities. Lastly, Centrus has strengthened its market position through strategic partnerships with developers of advanced micro reactors utilizing HALEU as fuel. In particular, in July 2023, Centrus formalized a partnership with TerraPower, a developer of cutting-edge reactors founded by Bill Gates in 2008, to supply domestically produced HALEU to fuel TerraPower's Natrium reactor in Wyoming. In August 2023, Centrus and Oklo announced a memorandum of understanding stating Centrus's readiness to purchase clean energy from Oklo's Ohio plants to power its HALEU production facilities.

**Industry Outlook**

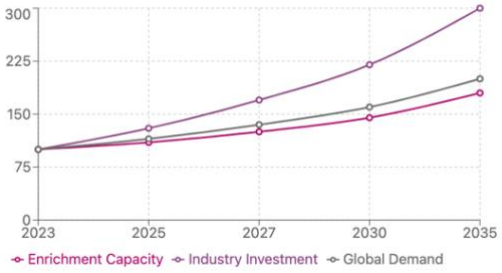
The uranium enrichment and nuclear fuel industry is poised for significant growth and transformation in the coming years, driven by a convergence of factors including increasing global demand for clean energy, geopolitical shifts, and technological advancements. According to the International Energy Agency (IEA), nuclear power generation is projected to grow by 45% by 2040 if current policy commitments are followed through, and could more than double under the net-zero emission by 2050 scenario. This growth in nuclear energy demand will require a corresponding increase in the supply of enriched uranium fuel. The World Nuclear Association (WNA) estimates that global enrichment capacity will need to increase from the current level of around 57 million separative work units (SWU) per year to roughly 70 million SWU by 2030 to meet projected fuel demand.

However, the industry also faces significant challenges and uncertainties. Geopolitical tensions have been heightened by the war in Ukraine and subsequent international sanctions on Russia. The uncertain political environment has caused major insecurities in the nuclear fuel industry, considering Russia's role as a major global supplier of enrichment services. In fact, Russia's state-owned Rosatom currently accounts for nearly half of the global enrichment capacity. To address these issue, American policymakers have enacted legislations limiting Russian uranium exports and favoring domestic investment in uranium extraction and enrichment. In particular, the U.S. Department of Energy (DOE) has launched initiatives to support the deployment of advanced centrifuge technology by American companies like Centrus Energy Corporation. The DOE also aims to establish a strategic uranium reserve and is investing in the development of high-assay low-enriched uranium (HALEU) fuel needed for next-generation advanced reactors.

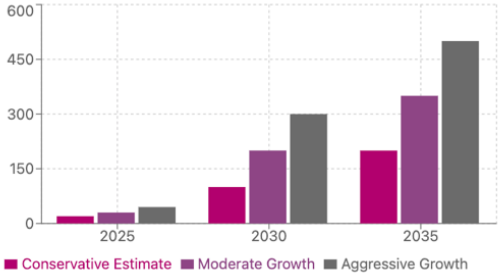



Graph 1. Global Uranium Enrichment Market Share (2023)

In the near future, the nuclear energy sector is poised not only for expansion, but also for significant innovation and transformative change. According to the Nuclear Energy Institute (NEI), almost all newly built nuclear plants in US by 2030 will use HALEU. However, the existing global infrastructure for HALEU production is very limited compared to low enriched uranium. Companies currently developing HALEU refinement operations are consequently best positioned to capture a large share of this novel market. Depending on the pace of advanced reactor deployments, the global HALEU demand could reach 100 to 500 Metric Tons per year between 2030 and 2035, creating a multi-billion-dollar HALEU market.




Graph 2. Nuclear Industry Growth Trends (Indexed: 2023 = 100)




Graph 3. Projected HALEU Demand Scenarios (Metric Tons/Year)

In conclusion, the uranium enrichment and nuclear fuel sector is at an inflection point. Demand growth driven by the world's need for clean, reliable energy is coinciding with major supply chain realignment and the emergence of new markets like HALEU. Despite significant challenges and risks, the industry appears to have favorable long-term fundamentals that will create opportunities for existing and new players. Deep collaboration between governments and private sector will be essential to align business incentives and national security and self-sufficiency needs. With the right policy support and continued innovation, the uranium enrichment and nuclear fuel industry can play a vital role in enabling the world's transition to a low-carbon future.

## Porter's 5 Force Analysis

### Threat of Existing Competitors

The growth of the HALEU market, which is projected to reach more than $1 billion in annual volumes by 2030, has attracted numerous new players and intensified rivalry among existing competitors. The intense growth of the nuclear fuel enrichment industry has been driven by both public and private initiatives. The United States federal government has shown increasing support for technological advancements in this energy sector and has allocated $700 million from the Inflation Reduction Act to the Department of Energy with the aim of scaling up domestic production of HALEU. Simultaneously, tech giants such as Microsoft, Google and Amazon have publicly expressed their interest in entering into long-term energy contracts with operators of advanced nuclear plants and will play optionality with all the suppliers until a market leader, that can ensure constant energy delivery, emerges.

Nuclear energy companies require a lot of equity in order to start building the plants. Success depends on achieving critical mass through equity-backed investments and long-term contracts with large buyers. Companies unable to secure this level of funding may fail to compete. Therefore, the capital-intensive nature of the industry implies that the first player to achieve the critical mass will secure a competitive advantage and may prevent others from effectively contending.

Moreover, the nuclear energy sector is characterized by strong international rivalry among established conglomerates such as Russia's TENEX, France's Orano, and China's state-backed nuclear initiatives. These players enjoy large economies of scale and governmental support that allow them to create competitive moats around their operations. In conclusion, the intense domestic and international competition and the high capital requirements to reach efficient scales of production make the threat of existing competitors a headwind for Centrus Energy's growth.

Threat of new entrants

The threat of new entrants is limited mostly by barriers in capital and regulation. Advanced technologies, like gas centrifuges for uranium enrichment, require specialized expertise and long-term R&D investments, presenting high barriers for new players.

The highest obstacle to entry is the capital-intensive nature of the industry. Building uranium enrichment facilities often requires over $1 billion in initial capital investments and continuous expenses for mandatory maintenance and modernizations. These high capital expenses deter many potential entrants. In addition to this, the nuclear energy market is subject to high volatility, which can further negatively impact investment decisions. The spot price for separative work units (SWU) has experienced large fluctuations over the past decade, reaching as low as 34 $/SWU in 2018 and as high as 160 $/SWU in 2024. These price swings have largely been driven by geopolitical conflicts (Russia-Ukraine War), nuclear incidents (such as Fukushima's core meltdowns in 2011), and growing nuclear energy demand in face of supply chain bottlenecks.


Graph 4. SWU Spot Price Development (2014-2024)

In terms of regulatory barriers, the nuclear industry is heavily regulated. Companies must face regulation at international, federal, state, and local levels, including licensing from the Nuclear Regulatory Commission (NRC). The licensing process can take several years and requires extensive safety evaluations, which can substantially defer the commencement of operations and lock up capital for long periods of time before any return can be earned. In this contexts, having strong relationships with governmental institutions can prove decisive in obtaining the required certifications and economically rewarding thanks to the heavy state involvement in financing HALEU research and acquiring experimental production batches. As regards for Centrus, the company has established deep ties with state and federal authorities thanks to which it has secured multiple contracts and funding. For example, in 2022 Centrus finalized an agreement with the Department of Energy to demonstrate the economic viability of domestic HALEU production, under which the DOE would subsidize 50% of the cost incurred by Centrus. Moreover, in October 2024, American Centrifuge Operating LLC, a Centrus's subsidiary, won a federal procurement contract with a value between $2 million and $2.7 billion to further expand HALEU production. The steep capital and regulatory requirements pose severe challenges to new entrants in the uranium enrichment industry and limit the possibility for new players to gain market share and begin competing with established players like Centrus Energy.

Supplier bargaining power

The bargaining power of suppliers is particularly high due to the concentration of uranium deposits and extraction sites in a small group of countries and the increasing geopolitical tensions among the governments involved in the uranium supply chain.

Globally, only a few suppliers dominate enriched uranium production, with Russia's TENEX accounting for almost 20% of the global uranium market, as well as being a critical supplier to Centrus. However, geopolitical conflicts, particularly the war in Ukraine, have created uncertainty in the uranium market, potentially disrupting supplier reliability. In particular, the conflict has prompted lawmakers to take punitive legal actions towards Russia, including passing the "Prohibiting Russian Uranium Imports Act" in May 2024. The law bans the importation into the United States of low enriched uranium, a key input in the uranium enrichment process. In response to increased uncertainty regarding future enrichment activity, the price of SWUs have reached an all-time high of $180 as of September 2024, marking a 16% increase since the start of the year.

Customer bargaining power

Uranium enrichment output is usually sold to power plant operators and industrial final consumers under long-term supply contracts, which enable fuel enrichment companies to lock future cash inflows and product outflows for decades. Moreover, federal institutions and agencies, such as the DOE and the DOD (Department of Defense), often act as dominant buyers of enriched nuclear fuel for defense and national security purposes, ensuring constant demand even during private nuclear consumption downturns. Centrus Energy Corporation perfectly reflects the uranium market demand dynamics. The company has a revenue backlog of $3.8 billion extending through 2040, of which $2.8 billion is related to its low-enriched uranium (LEU) segment. Much of this backlog consists of medium and long-term contracts with fixed commitments involving DOE projects.

Despite long-term contracts and governmental involvement contribute to maintain the bargaining power of customers moderately low, uranium consumers often defer payments to their suppliers and may create cashflow management challenges for LEU and HALEU business.

Threat of substitutes

Nuclear energy currently accounts for nearly 20% of US electricity generation, and its share is projected to increase in future years. Recent political events might also contribute to fuel the growth of nuclear energy investments. In fact, Trump election is likely to constitute a radical shift from the previous presidency's energy agenda. In 2023, under Biden's administration, the U.S. Government allocated $369 billion to support clean energy initiatives, which favored solar, hydroelectric, and wind energy investments at the expense of nuclear projects. However, Trump has expressed alignment with bipartisan interest in SMRs (small modular reactors) and his administration is planning to promote domestic energy independence by reducing regulatory barriers and increasing energy infrastructure investments, including pipelines and nuclear facilities. Furthermore, HALEU's high energy density and suitability for next-generation reactors offers unique advantages that renewables like solar and wind cannot fully replicate. Moreover, the growing emphasis on reducing carbon emissions while at the same time supplying constant energy loads to the electric grid, independently of atmospheric and natural conditions, ensures that nuclear energy remains an indispensable and economically advantageous option.
In conclusion, thanks to its low carbon footprint, high output capacity, and political support, nuclear energy is expected to grow at a faster pace than other rivalrous energy sources; limiting the threat of substitutes and underscoring the importance of uranium enrichment operations.

**SWOT Analysis**

Strengths

A pivotal strength of Centrus Energy Corp lies in its position as the only US company currently capable of producing High-Assay Low-Enriched Uranium (HALEU) at scale. Adding to this is Centrus's expertise in centrifuge technology, the crucial technology that enables the separation of fission grade isotopes from stable uranium. Centrus has already commenced operations at the Piketon facility in Ohio, with the aim of producing 20 metric tons of HALEU annually under a DOE contract. Furthermore, the $60 million investment to expand its Tennessee centrifuge production, highlights the company's intent to scale up operations to meet the growing commercial and government requirements.
Furthermore, the company has succeeded in establishing strong partnerships with both private and governmental entities. Centrus Energy entered into a $ 115 million dollar engagement with the Department of Energy with the objective to enhance HALEU production capabilities. Moreover, the company has succeeded in negotiating an agreement with Korea Hydro & Nuclear Power (KHNP) worth $1.8 billion over ten years. This contract helps to strengthen Centrus's position as major international supplier of enriched uranium and sets the company on a trajectory of substantial intercontinental expansion in a context of rising demand and geopolitical shifts. These relationships are fundamental in ensuring the company's long-term profitability and success and enable Centrus's management to invest in the scaling up production infrastructure with an extended outlook. In addition, Centrus has forged business alliances with numerous US-based Small Modular Reactor companies and startups, bolstering the company's market share in the innovative high-enriched uranium energy sector.

Weaknesses

Despite its strong fiscal position, Centrus Energy Corp faces several significant weaknesses.
A large portion of the company's revenue is tied to government funding, particularly from the Department of Energy (DOE), leaving it highly vulnerable to shifts in policy and federal energy objectives. Moreover, the company is limited in terms of market diversification as it focuses almost exclusively on nuclear enrichment and HALEU technologies. This makes future cash flows sensitive to volatility in the nuclear sector. Moreover, the capital requirements necessary to initiate, expand, and innovate production facilities are a heavy burden on the company's finances and operational capacity. The high R&D costs strain financial resources, with Centrus allocating approximately $14.2 millions to research and development in 2023. Operationally, Centrus struggles with regulation issues and geopolitical events. Reliance on a single transportation firm for Russian-sourced low-enriched uranium (LEU) introduces other logistical vulnerabilities, furthered by geopolitical uncertainties. The sanctions and restrictions on Russian uranium imports pose a risk to supply chain continuity, and disruptions with TENEX, its Russian counterpart, could severely impact operations. Together, these factors highlight
vulnerabilities in Centrus' operational and strategic foundations.

Opportunities

Considering the strongly positive outlook for the global nuclear energy market and the new nuclear-centered US energy agenda under Trump's administration, Centrus is potentially set for a windfall in the next decade. The nuclear energy market is projected to grow from $62.5 billion in 2023 to $92.8 billion by 2030, at a compound annual growth rate (CAGR) of 5.8%. Furthermore, U.S. government policies, including the Inflation Reduction Act and bipartisan support for nuclear energy, ensure sustained demand for HALEU. The always increasing global energy demand and the growing investments in carbon-neutral solutions leaves Centrus Energy Corp. strategically positioned within the nuclear energy sector focusing on sustainability and innovation. There is also great potential for

international expansion, with Centrus having the potential to supply HALEU to countries pursuing advanced nuclear programs, such as South Korea and members of the European Union. Current geopolitical shifts are creating new market opportunities. Agreements like the KHNP partnership and energy diversification efforts in Europe to ensure national self-sufficiency, provide opportunities to supply HALEU to countries pursuing energy security amid geopolitical tensions. Finally, Centrus continues to innovate in centrifuge technology, which could lead to reduced production costs and increased scalability. For example, recent investments in centrifuge manufacturing aim to double enrichment capacity by 2030.
In conclusion, there are significant tailwinds for investments in the industry, reflecting growing demand for advanced energy solutions. This aligns with Centrus Energy's strategic positioning to meet the expanding market.

Threats

Centrus Energy Corp faces several critical threats that could impact its long-term growth and competitiveness. The main risk derives from geopolitical tensions among countries extracting, processing, and utilizing nuclear fuel. Proposed legislation like the "Prohibiting Russian Uranium Imports Act" portray how the heightened tensions with Russia could disrupt the importation of low-enriched uranium (LEU), a key input for Centrus. The company's reliance on Russian TENEX for LEU further exacerbates supply chain vulnerabilities, as sanctions and geopolitical shifts could halt deliveries. Another pressing concern is emerging competition as international players advance in the high-enriched uranium sector. France's Orano, supported by the EU's focus on nuclear energy expansion, is exploring HALEU capabilities. Chinese energy companies are investing in expanding nuclear infrastructure, including advanced fuel cycles, with substantial state funding. Domestically, US firms potentially backed by DOE funding might bridge Centrus's competitive moat. With the global HALEU market projected to reach $1 billion annually by 2030, the intensifying competition could erode Centrus' market share. Further uncertainty is caused by economic and market volatility such as fluctuations in uranium prices and potential reductions in public funding for nuclear energy projects. Both of these factors could substantially impact profitability. Moreover, increased volatility in Centrus's revenues and cash-flows growth rates may reduce investor confidence, limiting access to capital and negatively affecting its valuation.

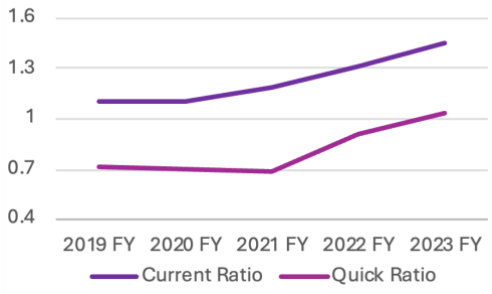
## Financial Analysis

Growth Overview

Centrus Energy Corp. has exhibited a robust financial trajectory over the past five years, with a compound annual revenue growth rate of approximately 8.83%. This significant growth underscores the company's strategic positioning and operational effectiveness within the nuclear fuel industry. In 2023, Centrus Energy reported a net income of $84.4 million, equating to $5.55 per basic share and $5.44 per diluted share. Overall, Centrus Energy's consistent revenue growth and strong financial indicators position it favorably within the energy sector, showcasing its capacity to capitalize on industry opportunities and maintain a competitive edge.

Liquidity

Centrus Energy's liquidity was assessed using the current ratio and quick ratio. These ratios provide insights into the company's ability to meet its short-term obligations. Over the period from 2019 to 2023, Centrus Energy demonstrated a steady improvement in its liquidity position. The current ratio increased from 1.097 in 2019 to 1.454 in 2023, while the quick ratio improved from 0.709 to 1.027 over the same period. This upward trend highlights the company's effective control of liquid assets relative to current liabilities and the strength of operational cash flows, demonstrating the management's ability in building a strong financial foundation, capable of supporting Centrus's future growth. The sharpest rise occurred between 2021 and 2023, reflecting enhanced financial discipline and better receivables management. This period also coincided with Centrus Energy's strategic positioning in the nuclear fuel sector through long-term contracts that further stabilized and secured future cash-flows.



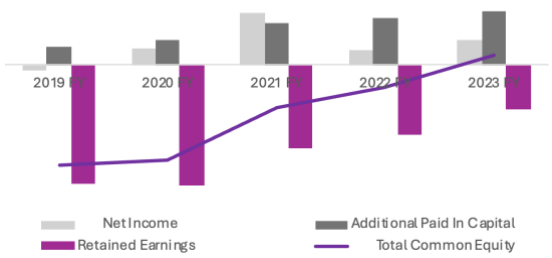

Graph 5. Current Ratio and Quick Ratio (2019-2023)

Capital Structure

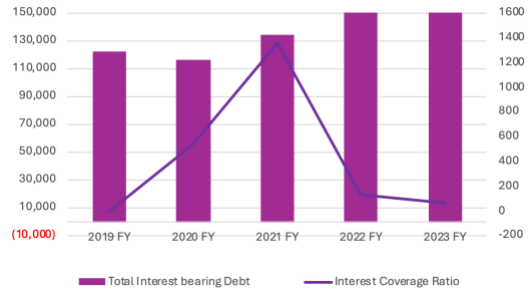
Centrus Energy Corp. maintains a capital structure characterized by a significant reliance on debt financing. As of the latest fiscal year, the company's debt-to-equity ratio stood at a remarkable 2365.02%. This indicates that for every dollar of equity, Centrus Energy carries approximately $ 23.65 in debt. This extremely high debt to equity ratio is mainly influenced by the low value of shareholder's equity rather than a particularly high level of debt. In particular, total equity is adversely affected by negative values of retained earnings. In fact, in 2019 and in 2020, the company reported $ 405.00 M and $ 407.70 M in prior losses respectively. Nevertheless between 2020 and 2023, retained earnings have sharply declined, while net income and additional paid in capital have increased,

enabling Centrus to reach a positive net worth of $ 32 M in 2023. As visible in the graph reported, Centrus's shareholders equity has seen a resurgence in the past five years, growing from $ -341.50 M in 2019, to$ 32.30 M in 2023.

The company's interest coverage ratio, a measure of its ability to meet interest obligations from operational earnings, remains strong despite fluctuations. In 2023, the interest coverage ratio stood at 60.92, reflecting Centrus's ability to comfortably service its debt using earnings before interest and taxes. The graph below bolsters Centrus's ability to easily fulfill debt responsibilities, despite increasing levels of interest-bearing debt, which reached $ 122.70 M in 2023.




Graph 6. LEU Equity Drivers (2019-2023)



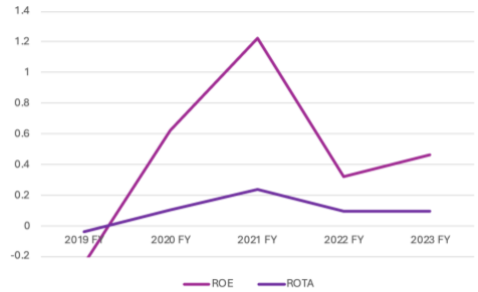

Graph 7. Interest Coverage Ratio and Interest Bearing Debt (2019-2023)

Over the years, Centrus Energy's reliance on debt financing has evolved in response to strategic priorities. The sharp increase in leverage in 2023 was driven by strategic investments in advanced nuclear technologies and operational expansion aimed at meeting growing demand for enriched uranium. These investments align with Centrus Energy's long-term goals of securing a leadership position in the evolving nuclear fuel market, particularly with the expansion of clean energy initiatives globally. Such capital expenditures, while increasing financial leverage, are expected to generate substantial returns over time as the company capitalizes on emerging opportunities.

## Profitability

Centrus Energy's profitability has been a cornerstone of its financial success, driven by a balanced focus on operational efficiency and strategic growth initiatives. Over the past five years, the company has demonstrated robust improvements in key profitability metrics, including Operating Margin, Net Margin, Return on Equity (ROE), and Return on Assets (ROA). These metrics reflect Centrus Energy's ability to optimize costs and generate significant returns on investment while navigating a competitive and capital-intensive industry. The company's operating margin highlights its efficiency in managing operational costs relative to revenues, while net margins provide insight into overall profitability after accounting for all expenses. Over the years, Centrus Energy has successfully maintained strong profitability despite challenges such as fluctuating uranium demand and increased competition


Graph 8. Profitability Metrics (2019-2023)




Building on its operating and net margins, Centrus Energy has also excelled in asset and equity utilization, as seen in its ROE and ROA metrics. These measures indicate the company's ability to generate returns for shareholders and efficiently deploy its asset base to drive profitability. To compute ROE, given the negative value of equity caused by accumulated operating losses, we deducted retained earnings from total equity, therefore eliminating the effect of previous unprofitability on current financial metrics.

Graph 9. Return on Equity and Return on Total Assets (2019-2023)

These plots highlight the three core elements supporting Centrus Energy long-term profitability. Firstly, Centrus Energy's operating margins have stabilized post-2021, reflecting improved cost control, revenue generation, and meticulous operational efficiency. Secondly, the significant increase in ROE from 32.66% in 2022 to 46.42% in 2023 underscores the company's ability to deliver value to its shareholders through effective capital allocation. Thirdly, ROA trends indicate efficient use of the asset base to generate consistent earnings, especially during periods of market volatility. Overall, Centrus Energy's profitability metrics highlight its resilience and adaptability in a demanding industry. The company's strong financial performance contributes to its operational excellence and enables strategic investments to capitalize on future growth opportunities.

Peer Comparison

Centrus Energy's performance was benchmarked against industry peers such as Cameco Corporation and Energy Fuels Inc. Centrus Energy compares favorably to its peers in the nuclear fuel sector, particularly in profitability. Its Net Margin of 26.36% significantly outpaces Cameco Corp (12.5%) and Energy Fuels Inc. (18.1%), demonstrating superior operational efficiency. However, Centrus Energy's Debt-to-Equity ratio of 2365.02% highlights a much more leveraged position compared to peers, with Cameco and Energy Fuels maintaining ratios of 120.0% and 65.0%, respectively. In similar industrial companies, this higher leverage could signal increased financial risk, however, in the case of Centrus the effect on the debt-to-equity ratio can be attributed to negative retained earnings which substantially decrease the total value of equity. This ratio should therefore stabilize around similar values of other comparable companies operating in the Uranium enrichment Sector as soon as retained earnings turn positive and begin to accumulate. By fitting a regression line, it is possible to estimate that retained earnings will become positive between mid-2025 and early-2026.

In conclusion, Centrus Energy Corp. has demonstrated strong financial performance across liquidity, profitability, and capital structure metrics. The company's ability to leverage its operational strengths and navigate market challenges underscores its resilience and competitive edge within the nuclear fuel industry. Consistent revenue growth and well-planned strategic investments pave the way for enduring success.

## Valuation

In order to value Centrus Energy Corporation we followed two distinct approaches: an intrinsic-DCF based approach, and a comparable companies-multiples based approach.

## Intrinsic Valuation

WACC

We began by constructing a proper discount rate to express the present value of projected unlevered cashflows. The discount rate was calculated using the standard approach for a weighted average cost of capital:

$$WACC = \frac{E}{D+E} * KE + \frac{D}{D+E} * KD(1-T)$$

Cost of Equity

The cost of Equity was computed in the following manner:

$$KE = R_f + \beta * ERP$$

Where:

- The risk free rate is computed using the spot yield on United States Government bonds maturing in 10 years.
- The beta is calculated using a bottom up approach. Firstly, we computed the levered beta of a selected group of comparable traded companies by plotting their historical changes in daily closing prices for the past three years against their stock market index of reference. The levered beta is determined as the slope of the regression line of the data set. Secondly, we unlevered each result using the specific leverage ratio and corporate tax rate of each company according to the formula:

$$Unlevered\ Beta = \frac{Levered\ Beta}{(1 + (1 - Tax\ Rate) * \frac{D}{E})}$$

  Moreover, we selected the average value of the unlevered betas of the comparable traded companies and relevered it using Centrus's specific tax rate and debt to equity ratio.
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- The Enterprise Risk Premium was calculated using a geographical revenues based approach. In particular, we calculated a weighted average of the Equity Risk Premiums of each country where Centrus Operates, using the revenues generated in the specific countries as weights. Each Equity Risk Premium was calculated as the sum of a mature market risk premium for the month of January 2025 and a country specific risk premium given by the country's agency risk rating. Since a detailed list of the revenues by country for Centrus was not disclosed in its 10K report, we used a mixed geographical revenue approach by indicating the revenues generated either in specific countries or in major geographical areas. The Equity Risk Premium for geographical areas was calculated as a GDP weighted average of the Equity Risk Premiums of the countries belonging to it.

Cost of Debt

The cost of debt was calculated as the sum of the risk free rate, detailed above, and a default spread based on the corporate rating of the company. The value obtained for the cost of debt is 8,0621%.
Given the input detailed above, the value obtained for the weighted average cost of capital of the firm is 7,3181%.

Discounted Cash Flow

In order to assess the equity value of Centrus Energy Corporation, we implemented a two stages discounted cashflow model to project the short-term future cashflows of the company and a Gordon Growth Model to estimate the indefinite long-term value of inflows generated by the firm.
Centrus Energy generates its revenues through two major channels: the Low Enriched Uranium Segment and the Technical Solutions or Highly Enriched Uranium Segment.
The former is responsible for 84.009% of the company's revenues as of 2023 and it is focused on selling low enriched uranium fuel to traditional nuclear energy power plants. To estimate the growth of this segment we utilized official governmental projections form the White House Nuclear Development Framework. In particular the document discloses that the United States are targeting to deploy 200 GW of net new nuclear capacity by 2050, an increase of 206,1 % from the 97.004 GW of nuclear capacity of 2023. Calculating the compound annual growth rate under these assumptions we obtain a value of 4,231%. This is the growth rate that we used to estimate the increase in revenue for the LEU segment in the second stage of growth of the DCF, between 2030 and 2035.
For the first stage of growth between 2023 and 2030, we considered the historical CAGR from the segment from 2019 to 2023. This has a value of 8,425%.

For the HALEU and technical solutions segment we projected sales growth by using the estimates from the "Estimated HALEU Requirements for Advanced Reactors to Support a Net-Zero Emission Economy by 2050" report by the Idaho National Laboratory. The document details the number and types of new advanced nuclear reactors projected to become active by 2050 and calculates the corresponding required amount of highly enriched uranium needed to operate them. Idaho National Laboratory estimates that 5350 Metric Tons of 19.75% enriched Uranium 235 are going to be needed to achieve the net-zero emission goal by 2050. It is important to underline that Centrus is currently the only non-governmental company in the U.S. allowed to produce uranium at the 19.75% enrichment level. Therefore, assuming that no other HALEU licenses are granted by the Nuclear Regulatory Commission, Centrus would be solely responsible for providing all the nation's HALEU supply. Given that Centrus's, and therefore the entire US's, current HALEU production is of 600 Kg per year, the HALEU production sector would need to grow at a 40.06% annual growth rate for 27 consecutive years to meet the report's projections.

It is clear that numerous assumptions have to be respected for these projections to be materialized. Firstly, a net-zero economy by 2050 has to be achieved through a strong growth in the nuclear energy sector. Although we are confident in the future strong performance of the nuclear industry, it is less likely that a net-zero emissions goal will be achieved in the United States by 2050 considering the latest political developments in the United States, such as President Trump's decision to exit the Paris Treaty. Moreover, it is common for complex projects, such as developing, testing, and building advanced HALEU reactors, to face numerous delays and postponements. Consequently, not all the projected reactors will become active by their initially stated date and will not require any HALEU.

Given these considerations, we decided to revise our growth estimates by incorporating an additional report from the Department of Energy. The document states that: "currently, nine out of ten advanced reactor designs funded by the US Government will need HALEU fuel in the next decade". The DOE consequently estimates that the demand for HALEU will reach 40 Metric Tons by 2030 and 50 Metric Tons by 2035. Given the 600 kg annual production of HALEU in 2023, these evaluations yield CAGRs of 82.20% until 2030 and of 44.57% until 2035. Applying such growth rates to the revenues from the Technical Solutions segment of Centrus would yield, according to our model, and astronomically high share price of 1970,20 and an implied upside of 2031,75%. It is therefore clear that these projections have to be diminished in order to account for potential delays, regulatory opposition, and, most importantly, the possibility of future competitors undermining HALEU competitive advantage. Therefore, we decided to divide both CAGR by a third, obtaining an ending growth rate of 27.40% until 2030 and 14.86% until 2035.

Terminal Growth Rate

To estimate the indefinite value of the firm, we applied the Gordon Growth Model using the last projected year free cash flow to the firm, the weighted average cost of capital, and an indefinite growth rate of 2,00%, in line with long-term inflation in the U.S. This approach yielded a terminal value for the firm of $2.672 B.

Share Target Price

We lastly discounted all estimated future cash flows and terminal value to the present using the WACC and summed them together, reaching an enterprise value of $1.690 B. After subtracting net-debt and dividing by the number of share outstanding, we reached a final target price of $112.73, for an implied upside of 52.24% % from the closing price of January 2nd, 2025.

**Traded Comparable Companies Valuation**

In order to price Centrus Energy we also considered a multiples based approach. We firstly selected a group of closely related companies working in the nuclear fuel enrichment, treatment, production, excavation, and deployment sectors. Subsequently we calculated a series of enterprise value and equity value based multiples and selected the Enterprise Value to EBITDA multiple as the most appropriate for the valuation. Moreover, we calculated the average value for the EV/EBITDA ratio of the comparable companies, obtaining a multiple of 26.289x, to which we applied the EBITDA of Centrus Energy, obtaining an Enterprise Value for our target company of $1.658 B. Finally, we subtracted the total interest bearing debt and added cash to the EV in order to obtain an equity value of $1.687$ B. This yields a stock price of $110,897 and an implied upside of 49,759% over the closing price of January 2nd, 2025.

**Appendix**

Appendix Element 2. Cash Flow Statement (Data in Thousands of Dollars)

| | 2019 FY | 2020 FY | 2021 FY | 2022 FY | 2023 FY |
|---|---|---|---|---|---|
| **Operating Activities ($000)** | | | | | |
| Net Income - CF | (16,500.00) | 54,400.00 | 175,000.00 | 52,200.00 | 84,400.00 |
| Depriciation | 500.00 | 500.00 | 500.00 | 600.00 | 800.00 |
| Amort. of Goodwill and Intangibles | 6,500.00 | 6,800.00 | 8,100.00 | 9,000.00 | 6,300.00 |
| D&A Total | 7,000.00 | 7,300.00 | 8,600.00 | 9,600.00 | 7,100.00 |
| (Gain) Loss From Sale Of Assets | (700.00) | 0.00 | 0.00 | 0.00 | 0.00 |
| Stock-Based Compensation | 0.00 | 7,100.00 | 12,100.00 | 1,900.00 | 2,300.00 |
| Other Operating Activities | 17,700.00 | (5,300.00) | (92,400.00) | 50,000.00 | (40,400.00) |
| Change in Acc. Receivable | 29,300.00 | (8,500.00) | 500.00 | (9,000.00) | (11,300.00) |
| *Change In Inventories* | *100.00* | *26,600.00* | *(14,200.00)* | *(88,500.00)* | *(83,800.00)* |
| Change in Acc. Payable | (12,300.00) | (5,200.00) | (4,600.00) | 2,600.00 | 8,500.00 |
| Change in Unearned Rev. | 44,000.00 | 9,700.00 | 13,200.00 | (22,500.00) | 12,100.00 |
| Change in Other Net Operating Assets | (57,300.00) | (18,900.00) | (48,200.00) | 24,300.00 | 30,200.00 |
| **Cash from Operating Activities** | **11,300.00** | **67,200.00** | **50,000.00** | **20,600.00** | **9,100.00** |
| **Investing Activity ($000)** | | | | | |
| Capital Expenditure | (100.00) | (1,400.00) | (1,200.00) | (700.00) | (1,600.00) |
| Sale of Property, Plant and Equipment | 700.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Cash from Investing Activities** | **600.00** | **(1,400.00)** | **(1,200.00)** | **(700.00)** | **(1,600.00)** |
| **Financing Activity ($000)** | | | | | |
| Total Debt Repaid | (27,500.00) | 0.00 | 0.00 | 0.00 | 0.00 |
| Issuance of Common Stock | 0.00 | 23,400.00 | 43,000.00 | 4,000.00 | 23,200.00 |
| Repurchase of Common Stock | 0.00 | 0.00 | (2,400.00) | (1,900.00) | (3,000.00) |
| Repurchase of Preferred Stock | 0.00 | (61,600.00) | (44,400.00) | 0.00 | 0.00 |
| Other Financing Activities | (7,500.00) | (6,200.00) | (6,100.00) | (6,400.00) | (6,300.00) |
| **Cash from Financing Activities** | **(35,000.00)** | **(44,400.00)** | **(9,900.00)** | **(4,300.00)** | **13,900.00** |
| **Net Change IN Cash** | **(23,100.00)** | **21,400.00** | **38,900.00** | **15,600.00** | **21,400.00** |
| **Supplemental Items ($000)** | | | | | |
| Cash Interest Paid | 1,500.00 | 6,100.00 | 6,100.00 | 6,100.00 | 6,100.00 |
| Levered Free Cash Flow | 40,412.50 | 60,387.50 | 115,175.00 | (39,262.50) | (1,112.50) |
| Unlevered Free Cash Flow | 42,287.50 | 60,450.00 | 115,237.50 | (38,950.00) | (300.00) |
| Change in Net Working Capital | (44,800.00) | (14,200.00) | (10,700.00) | 91,500.00 | 57,600.00 |

Appendix Element 2. Income Statement (Data in Thousands of Dollars)

| | 2019 FY | 2020 FY | 2021 FY | 2022 FY | 2023 FY |
|---|---|---|---|---|---|
| Total Revenue | 209,700.00 | 247,200.00 | 298,300.00 | 293,800.00 | 320,200.00 |
| Cost Of Goods Sold | 177,200.00 | 149,600.00 | 183,800.00 | 175,900.00 | 208,100.00 |
| **Gross Profit** | **32,500.00** | **97,600.00** | **114,500.00** | **117,900.00** | **112,100.00** |
| Selling General & Admin Exp. | 29,400.00 | 34,400.00 | (31,600.00) | 27,300.00 | 12,400.00 |
| R & D Exp. | 14,600.00 | 2,800.00 | 2,100.00 | 14,800.00 | 14,200.00 |
| Amort. of Goodwill and Intangibles | 6,500.00 | 6,800.00 | 8,100.00 | 9,000.00 | 6,300.00 |
| Other Operating Expense | (700.00) | 400.00 | 0.00 | 0.00 | 0.00 |
| **Total Operating Expenses** | **49,800.00** | **44,400.00** | **(21,400.00)** | **51,100.00** | **32,900.00** |
| **Operating Income** | **(17,300.00)** | **53,200.00** | **135,900.00** | **66,800.00** | **79,200.00** |
| Interest Expense | (3,000.00) | (100.00) | (100.00) | (500.00) | (1,300.00) |
| Interest and Invest. Income | 2,200.00 | 500.00 | 100.00 | 2,000.00 | 8,700.00 |
| **Net Intereset Expense** | **(800.00)** | **400.00** | **0.00** | **1,500.00** | **7,400.00** |
| Other Non Operating Income | 0.00 | 0.00 | 0.00 | 0.00 | 1,500.00 |
| **EBT excluding unusual items** | **(18,100.00)** | **53,600.00** | **135,900.00** | **68,300.00** | **88,100.00** |
| Restructuring Charges | 1,900.00 | (600.00) | 0.00 | (500.00) | (3,600.00) |
| **EBT including unusual items** | **(16,200.00)** | **53,000.00** | **135,900.00** | **67,800.00** | **84,500.00** |
| Income Tax Expense | 300.00 | (1,400.00) | (39,100.00) | 15,600.00 | 100.00 |
| **Net Income** | **(16,500.00)** | **54,400.00** | **175,000.00** | **52,200.00** | **84,400.00** |
| Pref. Dividends and Other Adj. | 7,800.00 | 48,600.00 | 39,700.00 | 1,500.00 | 0.00 |
| **NI to Common Incl Extra Items** | **(24,300.00)** | **5,800.00** | **135,300.00** | **50,700.00** | **84,400.00** |
| **Per Share Items ($)** | | | | | |
| Basic EPS | (2.54) | 0.59 | 10.03 | 3.47 | 5.55 |
| Basic EPS Excl. Extra Items | (2.54) | 0.59 | 10.03 | 3.47 | 5.55 |
| Weighted Avg. Basic Shares Out. (actual) | 9566000.00 | 9825000.00 | 13493000.00 | 14601000.00 | 15212000.00 |
| Diluted EPS Incl. Extra Items | (2.54) | 0.57 | 9.75 | 3.38 | 5.44 |
| Diluted EPS Excl. Extra Items | (2.54) | 0.57 | 9.75 | 3.38 | 5.44 |
| Weighted Avg. Diluted Shares Out. (actual) | 9566000.00 | 10123000.00 | 13879000.00 | 14988000.00 | 15501000.00 |
| Normalized Basic EPS | (1.18) | 3.41 | 6.30 | 2.92 | 3.62 |
| Normalized Diluted EPS | (1.18) | 3.31 | 6.12 | 2.85 | 3.55 |
| **Supplemental Items ($000)** | | | | | |
| EBITDA | (10,300.00) | 60,500.00 | 144,500.00 | 76,400.00 | 86,300.00 |
| EBITA | (10,800.00) | 60,000.00 | 144,000.00 | 75,800.00 | 85,500.00 |
| EBIT | (17,300.00) | 53,200.00 | 135,900.00 | 66,800.00 | 79,200.00 |
| Depriciation Expense | (500.00) | (500.00) | (500.00) | (600.00) | (800.00) |

Appendix Element 3. Balance Sheet (Data in Thousands of Dollars)

| | 2019 FY | 2020 FY | 2021 FY | 2022 FY | 2023 FY |
|---|---|---|---|---|---|
| **Assets ($000)** | | | | | |
| Cash & Short Term Investments | 130,700.00 | 152,000.00 | 193,800.00 | 179,900.00 | 201,200.00 |
| Accounts Receivables | 21,100.00 | 29,600.00 | 29,100.00 | 38,100.00 | 49,400.00 |
| Inventory | 64,500.00 | 64,800.00 | 91,100.00 | 209,200.00 | 306,400.00 |
| Restricted Cash | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 |
| Other Current Assets | 153,100.00 | 159,500.00 | 151,700.00 | 159,700.00 | 128,200.00 |
| **Total Current Assets** | **369,600.00** | **406,100.00** | **465,900.00** | **587,100.00** | **685,400.00** |
| Gross Property, Plant & Equipment | 5,900.00 | 7,600.00 | 10,400.00 | 17,000.00 | 14,000.00 |
| Accumulated Depreciation | (2,200.00) | (2,700.00) | (3,000.00) | (3,600.00) | (4,300.00) |
| Net Property, Plant & Equipment | 3,700.00 | 4,900.00 | 7,400.00 | 13,400.00 | 9,700.00 |
| Other Intangibles | 69,500.00 | 62,800.00 | 54,700.00 | 45,700.00 | 39,400.00 |
| Deferred Tax Assets, LT | 0.00 | 1,900.00 | 41,400.00 | 26,800.00 | 28,500.00 |
| Other Long-Term Assets | 13,100.00 | 10,600.00 | 3,000.00 | 32,500.00 | 33,200.00 |
| **Total Non Current Assets** | **86,300.00** | **80,200.00** | **106,500.00** | **118,400.00** | **110,800.00** |
| **Total Assets** | **455,900.00** | **486,300.00** | **572,400.00** | **705,500.00** | **796,200.00** |
| **Liabilities ($000)** | | | | | |
| Accounts Payable | 7,000.00 | 4,900.00 | 4,900.00 | 5,900.00 | 6,100.00 |
| Accrued Exp. | 31,200.00 | 36,300.00 | 31,500.00 | 26,400.00 | 34,400.00 |
| Curr. Port. of LT Debt | 6,100.00 | 6,100.00 | 6,100.00 | 16,000.00 | 20,400.00 |
| Current Portion of Leases | 2,500.00 | 2,400.00 | 900.00 | 3,300.00 | 1,400.00 |
| Unearned Revenue, Current | 276,300.00 | 290,200.00 | 303,600.00 | 293,200.00 | 282,600.00 |
| Other Current Liabilities | 13,700.00 | 26,200.00 | 46,300.00 | 104,400.00 | 126,200.00 |
| **Total Current Liabilities** | **336,800.00** | **366,100.00** | **393,300.00** | **449,200.00** | **471,100.00** |
| Long-Term Debt | 114,100.00 | 108,000.00 | 124,200.00 | 144,400.00 | 152,700.00 |
| Long-Term Leases | 0.00 | 0.00 | 3,000.00 | 6,100.00 | 2,600.00 |
| Unearned Revenue, Non-Current | 37,700.00 | 45,900.00 | 45,100.00 | 46,200.00 | 32,800.00 |
| Pension & Other Post-Retire. Benefits | 280,400.00 | 255,200.00 | 138,000.00 | 128,100.00 | 98,500.00 |
| Other Non-Current Liabilities | 23,800.00 | 31,700.00 | 10,700.00 | 5,600.00 | 6,200.00 |
| **Total Non Current Liabilities** | **456,000.00** | **440,800.00** | **321,000.00** | **330,400.00** | **292,800.00** |
| **Total Liabilities** | **792,800.00** | **806,900.00** | **714,300.00** | **779,600.00** | **763,900.00** |
| **Equity ($000)** | | | | | |
| Preferred Stock | 4,600.00 | 100.00 | 0.00 | 0.00 | 0.00 |
| Common Stock | 900.00 | 1,200.00 | 1,500.00 | 1,500.00 | 1,600.00 |
| Additional Paid In Capital | 61,500.00 | 85,000.00 | 140,700.00 | 158,100.00 | 180,500.00 |
| Retained Earnings | (405,000.00) | (407,700.00) | (284,600.00) | (233,900.00) | (149,500.00) |
| Comprehensive Inc. and Other | 1,100.00 | 800.00 | 500.00 | 200.00 | (300.00) |
| **Total Shareholders Equity** | **(336,900.00)** | **(320,600.00)** | **(141,900.00)** | **(74,100.00)** | **32,300.00** |
| **Total Liabilities And Shareholders Equity** | **455,900.00** | **486,300.00** | **572,400.00** | **705,500.00** | **796,200.00** |
| **Supplemental Items (Data in Thousands $ (000), eexcept per share items)** | | | | | |
| ECS Total Shares Outstanding on Filing Date (actual) | 9,472,389 | 13,379,876 | 14,393,133 | 14,638,846 | 15,675,634 |
| ECS Total Common Shares Outstanding (actual) | 9,464,889 | 12,109,389 | 14,369,133 | 14,638,846 | 15,675,634 |
| Book Value per Share | (36.08) | (26.48) | (9.88) | (5.06) | 2.06 |
| Tangible Book Value | (411,000.00) | (383,500.00) | (196,600.00) | (119,800.00) | (7,100.00) |
| Tangible Book Value per Share | (43.42) | (31.67) | (13.68) | (8.18) | (0.45) |
| Total Debt | 122,700.00 | 116,500.00 | 134,200.00 | 169,800.00 | 177,100.00 |
| Net Debt (Debt [Line Above] - Cash and Cash Equivalents) | (8,000.00) | (35,500.00) | (59,600.00) | (10,100.00) | (24,100.00) |
| Debt Equiv. of Unfunded Proj. Benefit Obligation | 142,300.00 | 124,800.00 | 23,500.00 | 44,000.00 | 17,700.00 |
| Debt Equivalent Oper. Leases | 21,600.00 | 20,800.00 | 4,000.00 | 5,600.00 | 800.00 |
| Finished Goods Inventory | 64,500.00 | 64,800.00 | 91,100.00 | 209,200.00 | 306,400.00 |
| Land | 1,200.00 | 1,200.00 | 1,200.00 | 1,200.00 | 1,200.00 |
| Buildings | 0.00 | 0.00 | 4,600.00 | 4,800.00 | 5,000.00 |
| Machinery | 1,100.00 | 1,400.00 | 1,400.00 | 2,000.00 | 3,800.00 |
| Full Time Employees (actual) | 230 | 267 | 266 | 275 | 292 |
| **Loss Carry Forward Related Items ($000)** | | | | | |
| NOL Carryforward, After Five Years | 783,500.00 | 1,207,700.00 | 1,197,900.00 | 1,128,300.00 | 1,056,400.00 |
| NOL Carryforward, No Expiration | 106,800.00 | 131,400.00 | 131,400.00 | 131,400.00 | 131,400.00 |
| Total NOL Carryforward | 890,300.00 | 1,339,100.00 | 1,329,300.00 | 1,259,700.00 | 1,187,800.00 |

Appendix Element 4. WACC

| WACC Output | |
|---|---|
| KE | 19.047% |
| KD | 8.062% |
| D | 152700000 |
| E | 32300000 |
| Marginal Tax Rate | 40.0% |
| WACC | 7.318% |

## Appendix Element 5. DCF Model Projections

| | 2019 FY | 2020 FY | 2021 FY | 2022 FY | 2023 FY | 2024 FY | 2025 FY | 2026 FY | 2027 FY | 2028 FY | 2029 FY | 2030 FY | 2031 FY | 2032 FY | 2033 FY | 2034 FY | 2035 FY | TV |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Revenues** | | | | | | | | | | | | | | | | | | |
| Uranium | 45,700.00 | 39,000.00 | 22,800.00 | 39,400.00 | 60,800.00 | 65,922.47 | 71,476.52 | 77,498.50 | 84,027.84 | 91,107.28 | 98,783.18 | 107,105.77 | 111,637.94 | 116,361.88 | 121,285.71 | 126,417.90 | 131,767.25 | 134,402.59 |
| Separative Work Units | 123,700.00 | 151,500.00 | 163,300.00 | 196,200.00 | 208,200.00 | 225,741.09 | 244,760.05 | 265,381.37 | 287,740.06 | 311,982.50 | 338,267.39 | 366,766.81 | 382,286.49 | 398,462.88 | 415,323.77 | 432,898.13 | 451,216.14 | 460,240.46 |
| Technical Solutions | 40,300.00 | 56,700.00 | 112,200.00 | 58,200.00 | 51,200.00 | 65,229.52 | 83,103.32 | 105,874.79 | 134,885.97 | 171,846.62 | 218,935.00 | 278,926.25 | 320,362.31 | 367,953.94 | 422,615.57 | 485,397.49 | 557,506.01 | 568,656.13 |
| **Total Revenues** | **209700** | **247200** | **298300** | **293800** | **320200** | **356,893.08** | **399,339.88** | **448,754.66** | **506,653.86** | **574,936.39** | **655,985.56** | **752,798.84** | **814,286.74** | **882,778.69** | **959,225.05** | **1,044,713.51** | **1,140,489.40** | **1,163,299.19** |
| *% Change* | | *17.88%* | *20.67%* | *-1.51%* | *8.99%* | *11.46%* | *11.89%* | *12.37%* | *12.90%* | *13.48%* | *14.10%* | *14.76%* | *8.17%* | *8.41%* | *8.66%* | *8.91%* | *9.17%* | *2.00%* |
| **COGS** | | | | | | | | | | | | | | | | | | |
| Separative Work Units and Uranium | (118,600.00) | (92,700.00) | (113,100.00) | (105,000.00) | (163,900.00) | (135,315.48) | (151,409.12) | (170,144.66) | (192,097.06) | (217,986.27) | (248,715.95) | (285,422.56) | (308,735.60) | (334,704.22) | (363,688.75) | (396,101.57) | (432,414.85) | (441,063.15) |
| Technical Solutions | (58,600.00) | (56,900.00) | (70,700.00) | (70,900.00) | (44,200.00) | (80,371.89) | (89,930.85) | (101,059.00) | (114,097.83) | (129,474.97) | (147,727.15) | (169,529.38) | (183,376.38) | (198,800.68) | (216,016.31) | (235,268.21) | (256,836.82) | (261,973.56) |
| **Total COGS** | **(177,200.00)** | **(149,600.00)** | **(183,800.00)** | **(175,900.00)** | **(208,100.00)** | **(215,687.37)** | **(241,339.97)** | **(271,203.66)** | **(306,194.89)** | **(347,461.25)** | **(396,443.09)** | **(454,951.93)** | **(492,111.98)** | **(533,504.91)** | **(579,705.05)** | **(631,369.77)** | **(689,251.68)** | **(703,036.71)** |
| *% Change* | | *-15.58%* | *22.86%* | *-4.30%* | *18.31%* | *3.65%* | *11.89%* | *12.37%* | *12.90%* | *13.48%* | *14.10%* | *14.76%* | *8.17%* | *8.41%* | *8.66%* | *8.91%* | *9.17%* | *2.00%* |
| **Gross Profit** | **32,500.00** | **97,600.00** | **114,500.00** | **117,900.00** | **112,100.00** | **141,205.72** | **157,999.91** | **177,551.00** | **200,458.98** | **227,475.14** | **259,542.47** | **297,846.90** | **322,174.76** | **349,273.78** | **379,519.99** | **413,343.73** | **451,237.72** | **460,262.48** |
| *% Change* | | *200.31%* | *17.32%* | *2.97%* | *-4.92%* | *25.96%* | *11.89%* | *12.37%* | *12.90%* | *13.48%* | *14.10%* | *14.76%* | *8.17%* | *8.41%* | *8.66%* | *8.91%* | *9.17%* | *2.00%* |
| **OPEX** | | | | | | | | | | | | | | | | | | |
| R&D | (14,600.00) | (2,800.00) | (2,100.00) | (14,800.00) | (14,200.00) | (13,041.71) | (14,592.81) | (16,398.55) | (18,514.32) | (21,009.52) | (23,971.25) | (27,509.03) | (29,755.94) | (32,258.80) | (35,052.33) | (38,176.28) | (41,676.15) | (42,509.68) |
| Selling, General and Administrative | (33,700.00) | (36,000.00) | (36,000.00) | (33,900.00) | (35,600.00) | (35,992.67) | (36,389.66) | (36,791.04) | (37,196.84) | (37,607.12) | (38,021.93) | (38,441.31) | (38,865.31) | (39,293.99) | (39,727.40) | (40,165.60) | (40,608.62) | (41,056.53) |
| Other Operating Expenses | 4,300.00 | 1,000.00 | 67,600.00 | 6,100.00 | 19,600.00 | 6,100.00 | 6,100.00 | 6,100.00 | 6,100.00 | 6,100.00 | 6,100.00 | 6,100.00 | 6,100.00 | 6,100.00 | 6,100.00 | 6,100.00 | 6,100.00 | 6,100.00 |
| **Total Opex** | **(44,000.00)** | **(37,800.00)** | **29,500.00** | **(42,600.00)** | **(30,200.00)** | **(42,934.38)** | **(44,882.48)** | **(47,089.59)** | **(49,611.16)** | **(52,516.64)** | **(55,893.18)** | **(59,850.34)** | **(62,521.26)** | **(65,452.80)** | **(68,679.73)** | **(72,241.87)** | **(76,184.77)** | **(77,466.21)** |
| *% Change* | | *-14.09%* | *-178.04%* | *-244.41%* | *-29.11%* | *42.17%* | *4.54%* | *4.92%* | *5.35%* | *5.86%* | *6.43%* | *7.08%* | *4.46%* | *4.69%* | *4.93%* | *5.19%* | *5.46%* | *1.68%* |
| **EBITDA** | **(11,500.00)** | **59,800.00** | **144,000.00** | **75,300.00** | **81,900.00** | **98,271.34** | **113,117.43** | **130,461.41** | **150,847.81** | **174,958.50** | **203,649.29** | **237,996.56** | **259,653.50** | **283,820.99** | **310,840.26** | **341,101.86** | **375,052.95** | **382,796.27** |
| *% Change* | | *-620.00%* | *140.80%* | *-47.71%* | *8.76%* | *19.99%* | *15.11%* | *15.33%* | *15.63%* | *15.98%* | *16.40%* | *16.87%* | *9.10%* | *9.31%* | *9.52%* | *9.74%* | *9.95%* | *2.06%* |
| D&A | (7,000.00) | (7,300.00) | (8,600.00) | (9,600.00) | (7,100.00) | (9,643.61) | (10,790.57) | (12,125.80) | (13,690.30) | (15,535.36) | (17,725.39) | (20,341.38) | (22,002.85) | (23,853.57) | (25,919.23) | (28,229.21) | (30,817.17) | (31,433.51) |
| *% Change* | | *4.29%* | *17.81%* | *11.63%* | *-26.04%* | *35.83%* | *11.89%* | *12.37%* | *12.90%* | *13.48%* | *14.10%* | *14.76%* | *8.17%* | *8.41%* | *8.66%* | *8.91%* | *9.17%* | *2.00%* |
| **EBIT** | **(18,500.00)** | **52,500.00** | **135,400.00** | **65,700.00** | **74,800.00** | **88,627.73** | **102,326.86** | **118,335.61** | **137,157.52** | **159,423.14** | **185,923.90** | **217,655.18** | **237,650.65** | **259,967.42** | **284,921.03** | **312,872.65** | **344,235.78** | **351,362.76** |
| *% Change* | | *-383.78%* | *157.90%* | *-51.48%* | *13.85%* | *18.49%* | *15.46%* | *15.64%* | *15.91%* | *16.23%* | *16.62%* | *17.07%* | *9.19%* | *9.39%* | *9.60%* | *9.81%* | *10.02%* | *2.07%* |
| Taxes (EXP) | (300.00) | 1,400.00 | 39,100.00 | (15,600.00) | (100.00) | (22,156.93) | (25,581.72) | (29,583.90) | (34,289.38) | (39,855.78) | (46,480.98) | (54,413.80) | (59,412.66) | (64,991.86) | (71,230.26) | (78,218.16) | (86,058.94) | (87,840.69) |
| % Tax Rate | -1.62% | -2.67% | -28.88% | 23.74% | 0.13% | 25.00% | 25.00% | 25.00% | 25.00% | 25.00% | 25.00% | 25.00% | 25.00% | 25.00% | 25.00% | 25.00% | 25.00% | 25.00% |
| **NOPAT** | **(18,800.00)** | **53,900.00** | **174,500.00** | **50,100.00** | **74,700.00** | **66,470.80** | **76,745.15** | **88,751.71** | **102,868.14** | **119,567.35** | **139,442.93** | **163,241.39** | **178,237.99** | **194,975.57** | **213,690.77** | **234,654.49** | **258,176.83** | **263,522.07** |
| *% Change* | | *-386.70%* | *223.75%* | *-71.29%* | *49.10%* | *-11.02%* | *15.46%* | *15.64%* | *15.91%* | *16.23%* | *16.62%* | *17.07%* | *9.19%* | *9.39%* | *9.60%* | *9.81%* | *10.02%* | *2.07%* |
| D&A | (7,000.00) | (7,300.00) | (8,600.00) | (9,600.00) | (7,100.00) | (9,643.61) | (10,790.57) | (12,125.80) | (13,690.30) | (15,535.36) | (17,725.39) | (20,341.38) | (22,002.85) | (23,853.57) | (25,919.23) | (28,229.21) | (30,817.17) | (31,433.51) |
| **∂ NWC** | (44,800.00) | (14,200.00) | (10,700.00) | 91,500.00 | 57,600.00 | 35,689.31 | 39,933.99 | 44,875.47 | 50,665.39 | 57,493.64 | 65,598.56 | 75,279.88 | 81,428.67 | 88,277.87 | 95,922.50 | 104,471.35 | 114,048.94 | 116,329.92 |
| *% Change* | | *-68.30%* | *-24.65%* | *-955.14%* | *-37.05%* | *-38.04%* | *11.89%* | *12.37%* | *12.90%* | *13.48%* | *14.10%* | *14.76%* | *8.17%* | *8.41%* | *8.66%* | *8.91%* | *9.17%* | *2.00%* |
| **CAPEX** | (100.00) | (1,400.00) | (1,200.00) | (700.00) | (1,600.00) | (10,706.79) | (11,980.20) | (13,462.64) | (15,199.62) | (17,248.09) | (19,679.57) | (22,583.97) | (24,428.60) | (26,483.36) | (28,776.75) | (31,341.41) | (34,214.68) | (31,433.51) |
| *% Change* | | *1300.00%* | *-14.29%* | *-41.67%* | *128.57%* | *569.17%* | *11.89%* | *12.37%* | *12.90%* | *13.48%* | *14.10%* | *14.76%* | *8.17%* | *8.41%* | *8.66%* | *8.91%* | *9.17%* | *-8.13%* |
| **FCFF** | **32,900.00** | **74,000.00** | **192,600.00** | **(32,500.00)** | **22,600.00** | **29,718.31** | **35,621.53** | **42,539.40** | **50,693.43** | **60,360.98** | **71,890.19** | **85,718.92** | **94,383.56** | **104,067.90** | **114,910.74** | **127,070.94** | **140,730.38** | **2,767,713.08** |
| *% Change* | | *124.92%* | *160.27%* | *-116.87%* | *-169.54%* | *31.50%* | *19.86%* | *19.42%* | *19.17%* | *19.07%* | *19.10%* | *19.24%* | *10.11%* | *10.26%* | *10.42%* | *10.58%* | *10.75%* | *1866.68%* |

## Appendix Element 6. Enterprise Value to Equity Value and Target Share Price

| | |
|---|---|
| **Total PV** | 1,721,950.89 |
| **Cash** | 201,200.00 |
| **Interest Bearing Debt** | 175,700.00 |
| **Equity Value** | 1,747,450,890.66 |
| **Shares Outstanding** | 15,501,000.00 |
| **Share Price** | 112.73 |
| **Current Price** | 74.05 |
| **Change** | 52.24% |

## Appendix Element 7. Enterprise Value to EBITDA Multiple Valuation

| Enterprise Value Based | | |
|---|---|---|
| EV/EBITDA | Average | |
| **Selected Multiple** | | 26.28936746 |
| **EBITDA** | | 63100000 |
| **Target Company EV** | | 1658859087 |
| **Bridge to Equity** | | -28100000 |
| **Equity Value** | | 1686959087 |
| **Shares Outstanding** | | 15212000 |
| **Share Price** | | **110.8966005** |
| **Close Price Valuation Date** | $ | **74.05** |
| **Change** | | **0.497590824** |

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