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THE ENERGY SECTOR: RECENT TRENDS, GROWTH AREAS AND CHALLENGES

MARKET COMMENTARY



CONTENTS

- I. INTRODUCTION
- II. RECENT TRENDS
- III. ENERGY INDUSTRY GROWTH AND RISK
- IV. ESG AND REGULATORY CHALLENGES
- V. CONCLUSION

DISCLAIMERS

CONTACTS

I. INTRODUCTION

KEY POINTS

- ✓ The aftermath of the Ukraine conflict, escalating tensions in the Red Sea, and the resultant energy crisis underscore a notable shift in the global energy discourse. Key focal points now include energy affordability, security, the imperative for alternative sources, and sustainability and achieving a net-zero carbon future.
- ✓ Opportunities for growth lie in Renewable and Nuclear Energy sources. The commitment to triple renewable power production and double energy efficiency by 2030¹, coupled with the potential decrease in interest rates, signals a pending growth phase.
- ✓ Emerging and re-emerging clean energy sectors like hydrogen and nuclear power are two key areas poised for increased focus.
- ✓ Midstream companies and construction/equipment firms specializing in energy sector infrastructure development are anticipated to benefit due to this energy transition period.
- ✓ A substantial focus on ESG regulation in Europe, the United Kingdom, and the United States has centered around investment funds enhancing transparency and certainty by labelling their investment products as “sustainable” or “green” to counteract the growing trend of greenwashing². These and other regulatory efforts underscore the tangible and impactful nature of ESG risks, which will play a crucial role in shaping investment decisions and assessing the creditworthiness and credit risk of entities operating in the energy development sector.

¹ Source: UAE Consensus at COP28 in December 2023

² Source: [Global Greenwashing Regulations: How the World Is Cracking Down on Misleading Sustainability Claims \(sustainalytics.com\)](https://sustainalytics.com)

II. RECENT TRENDS

The aftermath of the Ukraine conflict, escalating tensions in the Red Sea, and the resulting energy crisis underscore a notable shift in the discourse on global energy. Key focal points now include energy affordability, security, the imperative for alternative sources, and sustainability and achieving a net-zero carbon future. With that aim, the accompanying visual representation in Figure I delineates the escalating contribution of renewable power to global energy consumption, further portraying the evolutions within market segmentations. Nonetheless, a number of formidable credit challenges behind these focal points remain, such as volatile cost dynamics, policy uncertainties, technological risks, capital market constraints, and geopolitical logistical issues.

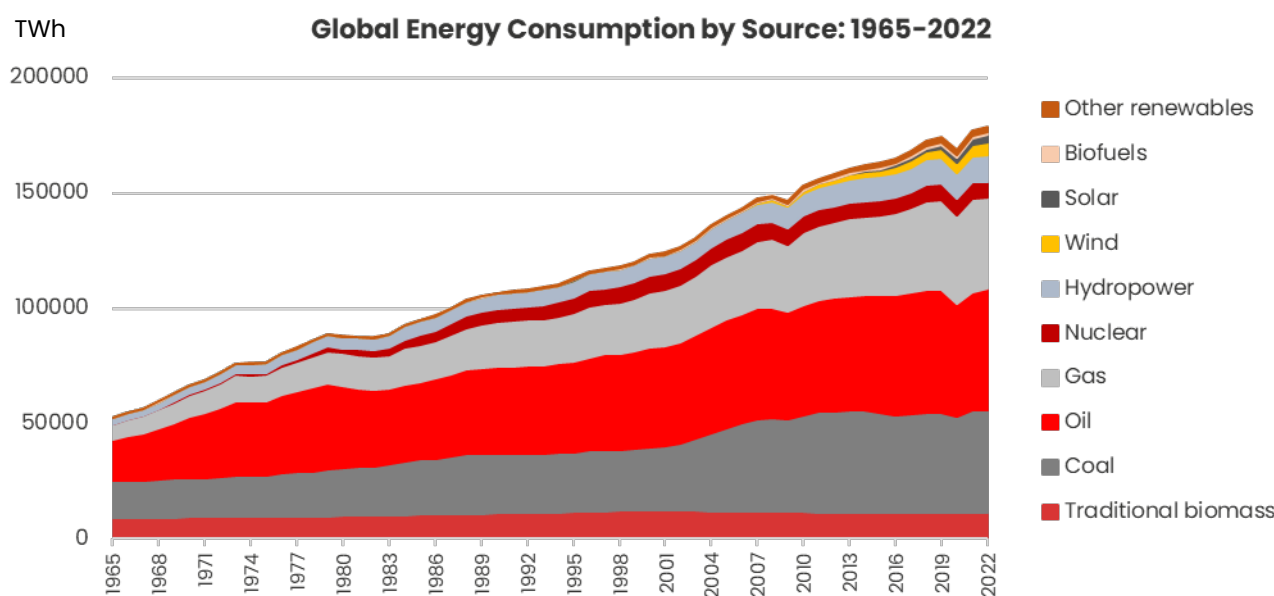


Figure I

Source: Energy Institute - Statistical Review of World Energy (2023); Data set last updated in December of 2023.

Note: Other renewables include geothermal, biomass and waste energy.

Traditional Non-renewable power, which includes Gas, Oil and Coal, continues to dominate the energy sector, albeit with diminishing market share, which peaked in 1979 at 80.8%³ and has been slowly dropping since, due to renewable power sector growth rate outpacing the non-renewable sector growth rate. The global **Gas** markets have undergone significant volatility in recent years, influenced by geopolitical instability, supply/demand fluctuations, and limited liquefied Natural Gas (“LNG”) availability in South Asian markets, challenging the perceived reliability of Natural Gas as a fuel source. Projections for 2023 indicate a growth in consumption ranging from 0.9% to 1.6%⁴, signifying a notable shift and deceleration in the industry compared to the preceding “golden decade of gas” (2011–2021), where global consumption expanded by nearly 25%⁵. This surge contributed 40% to the growth in primary energy supply, surpassing other fuels. Volatile prices have compromised the reliability and competitiveness of natural gas, prompting increased interest in alternative energy sources. Germany notably achieved a substantial 33% reduction in natural gas imports in 2023⁶. Further, The International Energy Agency (IEA) anticipated that there would be a 2% growth in global **Oil** demand over the last

³ ARC Ratings calculations using the data set from Figure I: Energy Institute – Statistical Review of World Energy (2023); Data set last updated in December of 2023.

⁴ Source: [Medium-Term Gas Report 2023 - Including the Gas Market Report, Q4-2023 \(windows.net\)](#)

⁵ Source: [Medium-Term Gas Report 2023 - Including the Gas Market Report, Q4-2023 \(windows.net\)](#)

⁶ Source: [Germany's 2023 CO2 emissions fall to lowest in 70 years, but drop not yet sustainable - study - Carbon Brief](#)

calendar year, reaching 101.7 million barrels per day (mb/d), with supply expected to rise to 101.9 mb/d⁷. Factors such as record production in Brazil and Guyana, escalating output from Iran, and higher-than-expected contributions from the United States partially offset OPEC's announced supply cuts, which could have the impact of raising the decreased oil prices and mitigating potential increased credit risk associated with offshore drilling contractors. Diminishing profitability also could threatened to cut into the sectors ability to meet interest payments or requires greater credit utilization rates, particularly for smaller players. Meanwhile, the **Coal** industry was projected to grow by 1.4% during the last year, driven by China's economic recovery and modest growth in other Asian countries⁸. However, signs of plateauing are emerging as nations like Australia and Germany opt for environmentally sustainable alternatives, potentially leading to a sectoral paradigm shift from growth to decline by 2026, at which point companies may have to further manage their operational scale at least in line with the dropping demand for coal, in order to at least retain profit and cash flow margins. Another strategy may involve increasing margins in order for the scale of free cash flow to keep up with the scale of principal and interest payments. This could further negatively impact the sector as companies with maturing loans may struggle to find refinancing, creating a higher credit risk business model. Thus, as the energy landscape continues to evolve, a transition is underway from exclusive reliance on traditional non-renewable sources. This shift is marked by growing emphasis on harnessing the potential of renewable energy sources, including solar, wind, hydro and other alternatives, like nuclear power.

Renewable power, which includes Solar, Wind, and Hydropower, has experienced a substantial global surge, notably taking a leading role in Europe's strategic response to the energy crisis. The sector has witnessed a noteworthy growth of 107 gigawatts in energy capacity additions, constituting the largest absolute increase on record, reaching over 440 gigawatts during the previous calendar year. This surge is predominantly attributed to heightened installations of **Solar** Photovoltaic (PV) technology, which contributed to two-thirds of the total increase in global renewable capacity, as assessed by the International Energy Agency (IEA)⁹. Meanwhile, **Onshore Wind** capacity additions, following a two-year decline induced by a limited volume of new projects outside of China during the Covid-19 restrictions, were projected to rebound by 70% during the previous calendar year, reaching 107 gigawatts⁹. This resurgence, although meaningful, is however anticipated to decelerate, given the persistent challenges in the onshore sector. Issues such as undersubscription in auctions, sluggish policy implementation, permitting delays, and supply chain challenges have impeded project commissioning. These challenges are particularly pronounced in Europe and the United States, contributing to the partial inflation of the 70% rebound rate in 2023¹⁰. Moreover, **Hydropower**, commonly noted as one of the primary source of clean energy, faced challenges in 2023, arising from issues such drought conditions in China, the world's largest Hydropower producer. The Economist Intelligence Unit projects a 1.8% decline in global hydropower output for 2023¹¹, necessitating an increased reliance on fossil fuels. However, it is noteworthy that this decline is anticipated to be temporary in nature.

⁷ Source: IEA (2023), Oil 2023, IEA, Paris <https://www.iea.org/reports/oil-2023>, Licence: CC BY 4.0

⁸ Source: IEA (2023), Coal 2023, IEA, Paris <https://www.iea.org/reports/coal-2023>, Licence: CC BY 4.0

⁹ Source: IEA (2023), Renewable Energy Market Update - June 2023, IEA, Paris <https://www.iea.org/reports/renewable-energy-market-update-june-2023>, Licence: CC BY 4.0

¹⁰ Source: IEA (2023), Renewable Energy Market Update - June 2023, IEA, Paris <https://www.iea.org/reports/renewable-energy-market-update-june-2023>, Licence: CC BY 4.0

¹¹ Source: [Global hydropower generation to fall in 2023 - Economist Intelligence Unit \(eiu.com\)](https://www.eiu.com)

Lastly, approximately one-quarter of the global demand for clean electricity is met by **Nuclear power**, ranking second only to hydropower. Nuclear power classification within the above categories is always difficult as some market participants would classify it as Non-Renewable because certain fuel sources used are finite, such as uranium and similar. On the other hand, other participants would consider Nuclear Energy renewable because elements such as thorium and other new technologies may provide practically inexhaustible fuel sources needed to power nuclear reactors. Putting aside the classification, Nuclear Power is a major alternative energy source, contributing to approximately 10% of global electricity generation, according to estimates from the World Nuclear Association (WNA)¹². However, the sector witnessed some decline over recent years, largely attributed to specific events such as past welding repairs and outages in France, the impact of closures of certain Germany reactors at the end of 2021, and the shutdown of units at the Zaporizhzhia nuclear power plant in Ukraine. Notably, in April 2023, Germany closed its last three reactors, exerting negative pressure on sector evolution estimates. On a positive note, new reactors were connected to the grid over the recent years (two in China, one in Finland, one in Pakistan, one in South Korea, and one in the United Arab Emirates), while an additional eight reactors also commenced construction (five in China, two in England, and one in Turkey¹²). This collective development is expected to contribute to a potential recovery and growth within the nuclear power sector.

The world's energy landscape is undergoing profound shifts with significant implications for various energy sources. As the energy industry grapples with these dynamics, the pursuit of alternatives and a sustainable future becomes increasingly paramount.

III. ENERGY INDUSTRY GROWTH AND RISKS

The UAE Consensus at COP28 in December 2023, where nearly 200 countries committed to reducing fossil fuel consumption and production, presented a significant growth opportunity for **renewable energy companies**. The commitment to triple renewable power production and double energy efficiency by 2030¹³, coupled with the potential decrease in interest rates, signals a pending growth phase.

The Global Energy Perspective 2023 report by McKinsey¹⁴ outlines an expectation that wind and solar power will collectively dominate the world's energy mix by 2040. Furthermore, the United Nations suggested that renewable sources could supply 65% of the global electricity demand by 2030, aiming to decarbonize 90% of the power sector by 2050¹⁵. The increasing prices of Oil and Gas contribute to the growing relative cost-effectiveness of renewable sources. Simultaneously, the situation in the Red Sea has raised additional concerns about the safety, reliability, and cost of commodity transportation, given that 10% of the world's oil demand and 12% of trade pass through these channels. This underscores the importance that is expressed by many market participants that governments further prioritize self-sustaining energy projects, reducing reliance on international trade in the face of geopolitical uncertainties.

¹² Source: [World Nuclear Performance Report 2023 – World Nuclear Association \(world-nuclear.org\)](https://www.world-nuclear.org/)

¹³ Source: UAE Consensus at COP28 in December 2023

¹⁴ Source: [Global Energy Perspective 2023 | McKinsey](https://www.mckinsey.com/)

¹⁵ Source: [Renewable energy – powering a safer future | United Nations](https://www.un.org/)

Additionally, two emerging clean energy sectors poised for growth are Hydrogen and Nuclear Power. Notably, 372 new **Hydrogen** projects have been announced globally (period: Jan-Oct'2023), concluding a total of 1,411¹⁶ as of October 2023 as illustrated in Figure II, marking a near 36% growth in the first 10 months of 2023¹⁷. More than 1,000 projects are scheduled to be fully or partially commissioned through 2030. This also represents a growth in investments from about \$320 billion to \$573 billion in hydrogen value chains, with most of it being attributed to projects in Europe and the Americas¹⁸, as depicted in Figure III. Additionally, the current U.S. administration has further underscored its commitment by announcing a \$7 billion investment round to foster the growth of domestic hydrogen hubs, aiming to stimulate the expansion of the domestic hydrogen industry¹⁹. Similarly, the European Union (EU) has identified hydrogen as a crucial component of its energy strategy, emphasizing its significance in the

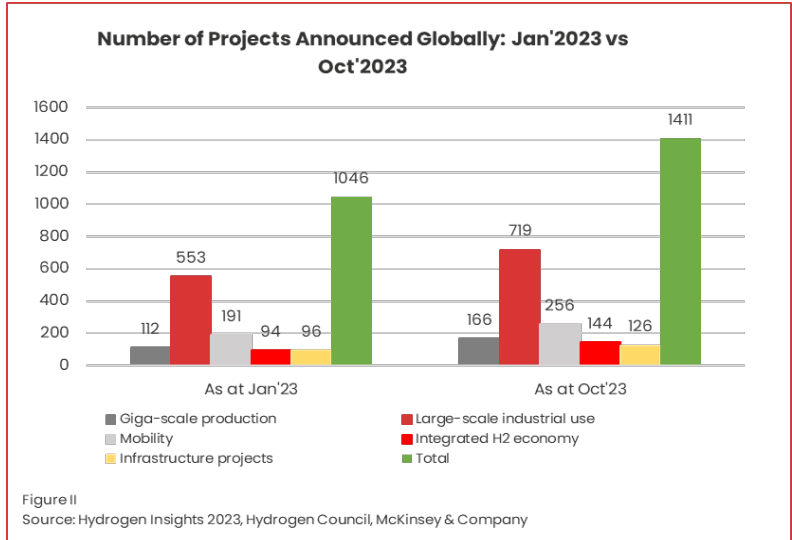


Figure II
Source: Hydrogen Insights 2023, Hydrogen Council, McKinsey & Company

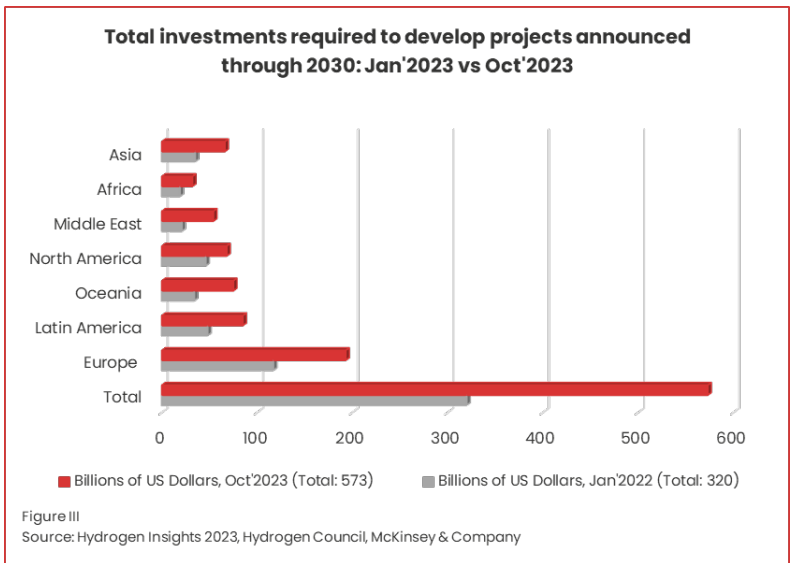


Figure III
Source: Hydrogen Insights 2023, Hydrogen Council, McKinsey & Company

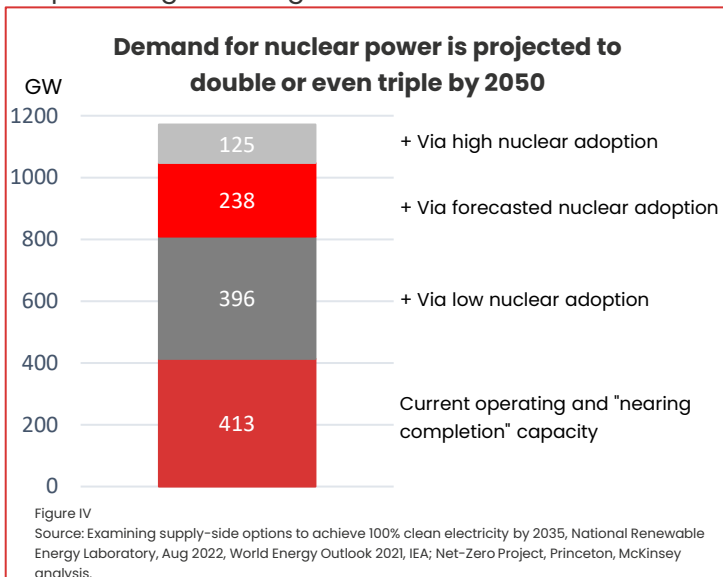


Figure IV
Source: Examining supply-side options to achieve 100% clean electricity by 2035, National Renewable Energy Laboratory, Aug 2022, World Energy Outlook 2021, IEA; Net-Zero Project, Princeton, McKinsey analysis.

region's clean energy future.

Simultaneously, there is a resurgence of interest in the **Nuclear Power** industry, primarily concentrated in the Asian region. Notably, three-quarters of the reactors under construction worldwide are situated in Asia, with China emerging as a regional leader in this sector²⁰. Despite this, the ongoing energy crisis could prompt global reconsideration of nuclear power as an energy source. McKinsey analysis suggests that the energy transition may require an additional 400 to 800 GW

¹⁶ Excludes 7 projects with project type unspecified.

¹⁷ Source: [Hydrogen Insights December 2023 \(hydrogencouncil.com\)](https://www.hydrogencouncil.com/hydrogen-insights-december-2023)

¹⁸ Source: [Hydrogen Insights December 2023 \(hydrogencouncil.com\)](https://www.hydrogencouncil.com/hydrogen-insights-december-2023)

¹⁹ Source: [Biden-Harris Administration Announces \\$7 Billion for America's First Clean Hydrogen Hubs, Driving Clean Manufacturing and Delivering New Economic Opportunities Nationwide | Department of Energy](https://www.energy.gov/biden-harris-administration-announces-7-billion-for-americas-first-clean-hydrogen-hubs-driving-clean-manufacturing-and-delivering-new-economic-opportunities-nationwide)

²⁰ Source: [World Nuclear Performance Report 2023 - World Nuclear Association \(world-nuclear.org\)](https://www.world-nuclear.org/world-nuclear-performance-report-2023)

(Gigawatts) of new nuclear power generation depending on its adoption level, as described in Figure IV, representing up to 10-20% of future global electricity demand by 2050²¹. In particular, African countries grappling with inconsistent energy supply due to insufficient generation capacity could find nuclear power appealing for its relative affordability and output consistency. However, it is crucial to note that nuclear power projects at the construction stage entail significant expenses, necessitating external support for funding in the region.

Lastly, some of the beneficiaries in the current energy transition are expected to be **midstream companies** and **construction and equipment firms** specializing in the development, maintenance, and servicing of the energy sector infrastructure. The ongoing and anticipated high demand for transportation, terminaling, and storage services positions midstream companies for substantial growth. For example, Europe, in particular, is confronted with the objective of harmonizing its energy supply dynamics, notably in light of the intermittency inherent in renewable sources. Thus, strategic investments in energy storage technologies and the modernising of the grid infrastructure are expected to drive further growth in this area. Although not entirely immune to economic uncertainties, the midstream sector is relatively less exposed to the volatilities experienced in the upstream (i.e. production) sector, making it on average a relatively less risky option for capital markets in terms of creditworthiness. Given the rising demand for new infrastructure to support alternative and expanding energy sources, particularly in Europe, the construction and equipment niche is poised for substantial growth.

Nevertheless, companies operating in the Renewable and Nuclear Power sectors face a conspicuous challenge during a phase marked by an increased demand for technological enhancement through research and development (R&D) and technological adoption. This comes at a time when capital markets are already constrained, while these sectors require additional funding. Failure to secure timely financial support may precipitate project delays, consequently pushing back anticipated technological deployment dates. Such delays pose a potential impediment to the industry's capacity to adhere to interest and debt repayment schedules, with the added risk of compromising collateral values in cases of substantial project non-completions. Conversely, there is increased potential for longer term refinancing, driven by the expanding and enduring national imperatives for energy independence, which facilitates long-term growth prospects for the aforementioned industries. Also, failure to move towards a more diversified energy portfolio for companies operating in the energy sector could expose them to increasing credit risk via diminishing market share and associated challenges, as well as, missing the opportunity to soften exposures to commodity price risk is a significant concern. Lastly, increasing ESG regulation and the transition towards resource efficiency and decarbonisation create further pressures for the energy industry at large to shift towards renewable power due to its greater compliance with regulatory frameworks, leading to a comparatively lower credit risk profile on regulatory risk exposures.

²¹ Source: [Nuclear power and the climate change challenge | McKinsey](#)

IV. ESG AND REGULATORY CHALLENGES

One of the predominant factors that has garnered increased significance in the past decade within the energy sector, and is poised to be pivotal in the forthcoming years, pertains to the regulatory framework encompassing environmental risks. Irrespective of whether the energy derivation is renewable or non-renewable, global environmental regulations compel enterprises to expedite the implementation of operational modifications conducive to early decarbonization. A noteworthy illustration is the European Union (EU) taxonomy for sustainable activities, which has instigated regulatory transformations and is progressively shaping investment determinations. The EU aspires to achieve climate neutrality by 2050²², and economic pursuits delineated in its taxonomy are anticipated to emerge as more lucrative alternatives for both public and private capital.

The Environmental, Social, and Governance (“ESG”) materiality map formulated by the Sustainability Accounting Standards Board (SASB) accentuates the principal environmental challenges confronting the non-renewable energy sector in the ensuing decades²³. The anticipated paradigm shift within the investment community not only exposes these industries to regulatory hazards but also subjects them to legal and reputational perils, gradually positioning unsustainable models as less financially viable. Simultaneously, the renewable energy sector confronts the imperative of embracing enhanced practices. The mere adoption of a renewable energy model falls short in meeting the demand for environmental sustainability within a competitive business environment.

Sustainability Accounting Standards Board (SASB) Materiality Map for <u>Environmental Factors</u> .	GHG Emissions	Air Quality	Energy Management	Water & Wastewater Management	Waste & Hazardous Materials Management	Ecological Impacts
Traditional Non-Renewable Power						
Oil & Gas (Exploration & Production)						
Oil & Gas (Midstream)						
Oil & Gas (Refining & Marketing)						
Oil & Gas (Services)						
Renewable Power						
Biofuels						
Fuel Cells & Industrial Batteries						
Solar Technology & Project Developers						
Wind Technology & Project Developers						

Figure V

Source: SASB, from the IFRS Foundation (<https://sasb.org/>)

Regulatory trajectories have already initiated their initial phases. In 2023, a significant portion of regulatory emphasis in Europe, the United Kingdom, and the United States has concentrated on investment funds enhancing transparency and certainty by designating their investment products as "sustainable" or "green" to counteract the growing and disconcerting trend of greenwashing. Therefore, markets demand transparency as investors exhibit a proclivity to invest in clean energies and sustainable business frameworks. ESG risks are tangible and will prove impactful in shaping investment

²² Source: [2050 long-term strategy - European Commission \(europa.eu\)](https://ec.europa.eu/economy_finance/2050-long-term-strategy)

²³ Source: [Overview - SASB](#)

decisions and evaluating the creditworthiness and credit risk of entities operating in the energy development sector.

V. CONCLUSION

In essence, the energy industry faces a period of profound transition and challenges, while simultaneously offering strategic opportunities for growth in renewables, nuclear power, and infrastructure development. Navigating this landscape requires a delicate balance between addressing current energy security concerns and steering towards a sustainable, diversified future, on one hand while simultaneously noting the consequential shift in investment dynamics, additional funding needs, regulatory impact and the significance of ESG factors in shaping investment decisions and evaluating creditworthiness and credit risk within the energy development industry.

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