

# Adaptation of Oil & Gas Companies to a Net-Zero Emission Future

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## Introduction

The global energy landscape has started changing in recent years with an emphasis on environmental protection and preservation. In order to balance issues that are posed by the global climate, the positive net-zero and low-carbon energy transition of companies plays a leading role that influences the market consumption of the O&G corporations to steer them towards a low-carbon and greener direction. The oil and gas industry affected by serious greenhouse gas implications has seen dramatically fluctuating prices of oil and gas in recent years which has posed detrimental and unprecedented difficulties to their business around the world. Thus, countries have accelerated their efforts to achieve net-zero carbon and greenhouse gas emissions as the Earth and human society go through the adverse impacts of global warming due to the catastrophic activities of the energy industry.

However, the transition to a low-carbon sector encompasses the adaptation of sustainable and reliable future-oriented strategic decisions based on renewable energy sources as non-renewables decline substantially. The strategies include the development of storage capacities, electrification distribution network and infrastructure, carbon storage, and carbon capture that would maintain the economic and reputational resilience of the O&G industry as a result of transforming towards low-carbon energy (Chiodi et al., 2016). For instance, oil and gas companies can strategically adopt attentive sources of energy such as biofuels and natural gas to diversify their portfolios, integrate operations from joint ventures in the global O&G industry, and execute acquisitions to maintain low-carbon energy resilience in terms of enhancing reputation and economy. Building on the diverse impacts of climate change and the need for adaptation of potential strategies to achieve a low-carbon energy industry, this paper explores ways to foster economic and reputational resilience of O&G organizations as the world transitions to a “low-carbon” energy future.

## Driving Force for Transitioning to a Net-Zero Carbon O&G Sector

The transition of energy in the oil and gas sector is an elaborate pathway that has become the development trend seeking a suitable gateway to change into a “green” and “low-carbon” energy sector as the world is at significant risk due to dire climate implications. Therefore, downstream businesses and renewable energy are the main focus of the oil and gas organizations to lay the

foundational stone for a new organizational model globally. As low carbon and emission reduction become the global trend in the O&G industry, it presents both an opportunity as well as a challenge to oil and gas firms for their development in the process of transitioning from “fossil-based” sources to “low-carbon energy” sources. This transition aims to reduce emissions related to energy in the O&G sector and mitigate the detrimental impacts of global warming and climate change across the globe (Bento, 2018).

However, this transition also threatens companies’ economic and reputational resilience that are operating in the oil and gas sector. This threat necessitates the remodeling of the global business based on oil and gas through the adaptation of effective strategies including investment in alternative energy sources, portfolio expansion, forming joint ventures within the operational frameworks of the companies, and integrated operations to invest substantially in carbon capture and carbon storage. This would explore continuous divestment and investment opportunities in new and different energies such as hydrogen fuels and biofuels for mobility which initiate companies’ adaptation to operate in the dispensation of new energy sources.

Li, Trencher, and Asuka (2022) corroborate that a significant proportion of mitigation measures for reducing global greenhouse gas emissions posit that the increasing human activities in the energy sector while burning fossil fuels and biofuels are the significant causes of climate change and global warming that has majorly targeted oil and gas industry. Thus, two-thirds of the global greenhouse and carbon emissions are attributed towards the oil and gas sector because of the massive burning of fossil fuels (Li et al., 2022). Moreover, the traditional oil and gas sector is under tremendous pressure due to the low prices of oil in some countries which leads to organizations laying off their employees in order to reduce costs which compromises the energy security.

With the traditional and current development model of the O&G organizations to make “low-carbon” use of oil and gas resources in the context of increasing environmental protection and preservation requirements as well as increasing energy demand, the need for transitioning of O&G industry to “low-carbon energy” has become imminent in the ever-emerging world. Therefore, the transformation of fossil fuels-based to the low-carbon energy sector and decarbonization of the economies across the globe cannot become fully aware without realizing the deliberate transition of the fossil fuels and biofuel-based global organizational model. In light of these disruptions and circumstances, it is indispensable for corporations in the O&G quarter to increasingly focus on the impacts of climate change and embrace the concept of clean and greener energy.

## Strategic Plans and Ways by the Oil and Gas Organizations to Achieve Reputational and

# Economic Resilience

The “low-carbon” O&G sector as an imperative foundation of the international economy merits the attention of the globe as the industry undergoes a significant transition to low-carbon, greener, and sustainable energy according to the specific conditions set by every company based on regional, international, and organizational requirements. For instance, BP Amoco is the largest and most significant petrochemical and petroleum company in the world that has been through performance problems in recent years which put BP into an unparalleled and unprecedented “Oil Spill” issue. This accident led the BP company to transform its traditional status into an integrated low-carbon corporation as it accelerated plans to increase consumption of “low-carbon energy” sources in order to cut carbon emissions (Christiansen, 2002).

In order to balance its chemical assets, the leading O&G company BP gave away its chemical business to technology giant INEOS which alleviated its financial problems in 2020. This allowed BP to focus on the integration of its business model and proposing of organizational model emphasizing “low-carbon energy” and its potential customers, BP Amoco has increased its investment in clean and “low-carbon energy” to build an integrated portfolio of reducing carbon emissions in order to meet the objective of neutrality of carbon footprints in the future (Vieira et al., 2023). Therefore, companies operating in the oil and gas sector can adopt several effective plans and actions including investment portfolios and company operating models across the world which are curated as under:

## O&G Companies’ Operational Integration

The industry comprising small as well as big oil and gas corporations is characterized by numerous complexities in their operations that adversely impact the relationship and stability among O&G organizations. There is a significant proportion of such operational complexities that disproportionate the operational relationships between upstream and downstream operators impeding the functional effectiveness and technical efficiency of the company. The impediment of the progressive enhancement of the organization restricts the ability of that firm to operate in the sector. Moreover, the failure in the integration of the operations hamper the ability of the firm to compete, specialize in organizational segments, and implement its full strategic potential. The operational integration of the companies encompasses the blending of activities and unification tasks to optimize organizational processes while facilitating seamless decision-making within the operational framework. In this regard, oil and gas companies that fail to integrate their operations and implement their strategic potential should realize their economic and reputational success before and after integrating their upstream and downstream operations in the industry.

For instance, Exxon Mobil is one of the leading companies that has the most proven reserves of gas and oil but was excluded from “Dow Jones Industrial Average” of Wall Street due to falling market value, wrong decision-making, declined energy demand due to the pandemic, and most importantly negative attitude of Mobil towards neutrality of carbon across the world. In 2021, Exxon Mobil

underwent certain strategic adjustments as there was a conflict within the company's operational processes between revenue and profits in the company and climate change. It decided to launch a "resilient" oil transition to increase its internal growth momentum for the complete reversal of the great loss it endured in recent years and also to accelerate the pace of decarbonization among its competitive oil and gas companies.

In the year 2022, Mobil adopted operational integration and announced a net-zero emission goal by 2050. The company not only increases its investment in oil and gas reserves but also largely invests in innovation and cooperation in the technological realm to shift its focus to low cost on the one hand and reduce production cost on the other hand. Furthermore, Exxon Mobil has adopted a low-carbon strategy by optimizing the structure of its chemical business, eliminating ineffective capacity due to not achieving maximum productivity, refining capability of the energy utilization, and strengthening the emission reduction capabilities of the company (CHEN et al., 2022). In a nutshell, Exxon Mobil drives global economic and reputational development while meeting global energy demand as well as a "low-carbon" and net-zero future at the same time. The main reliance strategy of Exxon Mobil is addressing the emissions of greenhouse and carbon from major oil and gas organizations augmented by greener and cleaner renewable energies.

Operationally integrated companies can achieve better executions when they excel in smarter decision-making due to the real-time information of the industry, interdisciplinary expertise, and other strategic benefits that make the oil and gas sector an indispensable component for the transformation to "low-carbon" energy. As the gas and oil industry derives its business realignment characterized by changes from the outside factors, the concept of vertically operational integration and strategic benefits such as market intelligence ensures that a company remains informed of the events occurring in the energy ecosystem to derive a direct contact with the energy and market.

Moreover, businesses in the O&G industry that focus on only one segment of the supply chain cannot speedily respond to structural imbalances and intricate happenings in a firm's operational environment leading the firm to serious cyclical risks and threats. To cope with the impediment and the risky eventualities, operationally integrating an organization and implementing intelligence-driven smart decisions improve the economic sustainability and enhance the reputational profitability of the corporation strategically. Therefore, organizations with operational integration and sustainability can effectively maintain their financial and reputational resilience by addressing risks and threats posed to the organization as effective risk management strategies reduce vulnerabilities of the firms to losses and threats.

## Investment Portfolios Transformation

With the concept of transitioning to a low-carbon and energy oil and gas sector, the operating organizations face uncertainty, volatility, uncertain long-term sustainability, and other transition-related risks which make oil and gas firms reassess their current business strategy. Major oil and gas

organizations reorganize their integrating components of the non-traditional business to transform their portfolios in order to ensure long-term sustainability and expand their business strategy. Most oil and gas companies perceive the increased electrification of energy reserves to reorganize and optimize their portfolio by transitioning into full-energy entities in order to optimize financial and reputational resilience. For instance, Shell partnered with “NewMotion” which is the largest electric vehicle (EV) charging company in Europe to venture into the new, lucrative, and volatile consumer power market in order to remain relevant in the ever-emerging energy landscape. This gave the company an effective venture of energy retailer control to own and operate 30,000 existing charging points in Europe. This initiative of Shell expanded its investment portfolio in 2017 and excelled in the O&G market for its low-carbon transport measures (Blondeel and Bradshaw, 2022). The strategic decision-making of oil and gas corporations in the investment in EV systems allows firms to embrace opportunities and measures presented by the energy transition to reflect the company’s strategic evolution from fossil-based reserves to renewables and green energy while enabling it to secure a “low-carbon” future in the energy quarter.

The strategic rationale for the optimization of the portfolio offers a wide range of energy solutions including diversification of firm revenues and exploitation of emerging opportunities to foster the ability of such organizations to generate strong economic returns (Pickl, 2019). Oil and gas companies, therefore, acquire changing infrastructures in order to expand the investment portfolio of the firm and enhance the consumer base in low-carbon transport. For instance, Statoil which is a leading Norwegian oil and gas corporation has rebranded itself to Equinor, from an oil-based enterprise to an extensive renewable solution provider, for energy-focused problems which reflects the strategic evolution of Statoil as a progressive organization in the oil and gas sector. Resultantly, organizations like Statoil embrace transitioning opportunities to secure their sustainability and profitability in economic and reputational terms for market development in a low-carbon and net-zero energy future. As the transition of the energy sector to net zero gathers pace, the leading firms in the oil and gas quarter optimize their organizational portfolio and exploit emerging opportunities in the sector to foster resilience and sustainability at reputational and economic levels.

## Joint Ventures in the Oil and Gas Quarter

In the O&G sector, joint ventures are common arrangements and alignments for businesses involved in exploring, developing, and producing oil and gas resources in upstream projects. The business model of joint ventures is prevalent for the strengthening and diversification of the portfolios of O&G companies in the resource-intensive volatile market. Joint ventures in the O&G industry enhance the ability of corporations to facilitate the easy transfer of best practices in large-scale operations. These operations facilitate high-value activities such as managing expenditures, transferring knowledge, distributing risks, accessing funding, and allowing participation in risk protective measures. Furthermore, strategies such as diversification of the portfolio of the company, best technological practices, and pooling of resources protect many aspects of organizational performance in order to facilitate easier entry into the new and volatile market.

In this regard, international joint ventures such as upstream operations of companies dealing with oil and gas including Chevron, Mobil, Texaco, and Shell in Nigeria under the umbrella of the Nigerian government improve the operational, economic, and reputational resilience of the organizations involved in the joint ventures through mergers and acquisitions of the firms. For instance, Shell, the leading oil and gas giant, has participated in Nigeria with the Nigerian government because the company has technical and engineering expertise. The political influence and resources of the Nigerian government facilitated Shell in exploring, extracting, and facilitating the production of gas and oil reserves in Nigeria. The type of such mergers, ventures, and partnerships intend to leverage the operational capabilities, risk management, and exploration of resources while improving the economic and reputational resilience of participating entities (Wheeler et al., 2001).

With the challenging O&G market conditions, oil and gas companies seek ways of delivering high-value projects in the most cost-effective way that requires companies to actively share risks on capital operations. For instance, the partnership and joint venture of MAANA and Chevron was designed to enhance the utilization of technological innovations including data mining and robotics in the oil and gas Chevron company. The company of information communication technology named MAANA was involved in the development of an “analytics platform” in a joint collaboration and venture with Chevron that allows energy organizations to adapt their operations along with emerging technologies (Trevathan, 2020). This partnership allows the most appropriate avenue to enhance sustainability, minimize the risk, and spread the technological cost. Further, joint ventures and operational integration enhance the profitability and sustainability of the oil and gas corporations that foster efficient assets to reduce the cost of production, enhance prevailing market needs, and improve the flexibility of the operational framework within organizations.

## Realignment of O&G Business through Mergers and Acquisitions

The O&G sector adjusts to the reality of embracing and expanding low-carbon energies while rearranging and realigning its operational framework through mergers and acquisitions across the globe. These mergers and acquisitions rearrange the reserves and assets of the firms through defined strategic objectives of the involved corporations in the O&G sector. The liabilities of the corporations include the provision of services and products to enhance the exploration, extraction, production, and distribution capacities of the O&G companies. For instance, Shell and Total, the most significant and leading giants in the O&G industry have led most transactions in mergers and acquisitions to enhance the mobility, low-carbon energy segments, and offshore wind generation to progressively transition into the low-carbon energy dispensation declining the demand of the fossil fuels.

Another significant example could be of Exxon and Mobil merger that led to the development of Exxon Mobil which availed sufficient economic resources to invest in renewables. Therefore, the oil and gas firms seeking investment and production avenues for enhancing financial, economic, and reputational resilience through mergers and acquisitions primarily drive the companies' need to



invest in cleaner and greener energy. Moreover, the mergers and acquisitions are specifically designed to reinforce the economic and reputational resilience within the operational framework of the organization so that companies can continue performing progressively and impressively in the face of the changing O&G and energy business landscape.

## Conclusion

As the catastrophe of global warming poses a threat to climate change as well as serious implications to the Earth and human society, the aim of accomplishing a low-carbon energy sector has become the attention of the O&G industry in order to reach and meet the big goal of net-zero while reducing the share of greenhouse gas emissions in the globe. However, companies face dire economic and reputational risks as the transition of the O&G sector draws near. To cope with transactions and investment risks, oil and gas firms merge and acquire other businesses based on technology and analytics, operationally integrate their frameworks and processes, transform their portfolios, form joint ventures, and build on cutting fossil fuel consumption. The implementation of such plans and strategies leads such organizations to adapt their operational frameworks in accordance with low-carbon energy strategies. These strategies also cushion companies operating on renewables against the demand for fossil fuels to enhance profitability, economic sustainability, and economic resilience in order to transition into the “low-carbon” energy era.

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