Assessing the Climate Risks Faced by Total Energies: A Comprehensive Analysis

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Abstract: *This assignment identifies the climate risks faced by TotalEnergies, a global energy company, based on the Global Risks Perception Survey (GRPS) by the World Economic Forum (WEF) and the Climate Risk and Response report from McKinsey Global Institute. The assignment examines the key climate risks identified by the WEF, including biodiversity loss and ecosystem collapse and natural resource crisis. It also explores the McKinsey report's findings on the physical and transitional risks faced by energy companies, such as changes in demand for fossil fuels, increased regulation, and reputational risks. The assignment concludes by analyzing the potential impacts of these climate risks on TotalEnergies and highlights the company's efforts to mitigate these risks through various sustainability initiatives, including investments in renewable energy and low-carbon technologies.*

1. Introduction

TotalEnergies [EPA: TTE] is a French multinational integrated oil and gas company that operates in more than 130 countries worldwide. It was previously known as Total S.A. before rebranding in 2021 to reflect the company's commitment to becoming a broad energy company, including renewable energies[1].

TotalEnergies is one of the seven supermajor oil companies in the world and has a strong presence in exploration, production, refining, marketing, and distribution of energy products, including oil, gas, and electricity. In addition to traditional fossil fuels, TotalEnergies is also committed to the transition to a low-carbon future, with significant investments in renewable energy technologies such as solar, wind, and biofuels[2]. TotalEnergies has set a target to become a net-zero emissions company by 2050, and it has already made significant progress towards this goal, reducing its emissions intensity by more than 20% since 2015.

In addition to its commitment to sustainability, TotalEnergies has also been at the forefront of innovation in the energy sector, investing heavily in research and development to develop new technologies and business models. The company has established partnerships with leading academic institutions, startups, and other industry players to foster innovation and drive the transition to a more sustainable energy system[3].

2. Climate risks based on World Economic Forum's Global Risk Perception Survey

Climate risks faced by the oil and gas industry are varied and can be categorised into short term (2 year horizon) and long term (10 year horizon). Two year climate risks include but

are not limited to policy and regulatory shifts and extreme weather events. Similarly, long term risks include natural resource crisis and asset stranding[5]. It is important to note that these risks are not mutually exclusive and could interact with each other, leading to more significant impacts on the industry. Therefore, it is critical for the oil and gas industry to take action to address these risks and transition to a more sustainable energy future.

Total Energies faces almost all of the above mentioned risks but the select few which need urgent mitigation are as follows:

2.1. Biodiversity loss and ecosystem collapse

Biodiversity loss and ecosystem collapse can have significant impacts on TotalEnergies in several ways:

- **Impacts on the availability and quality of natural resources:** TotalEnergies relies on natural resources such as oil and gas reserves, as well as other natural resources such as water and land. Biodiversity loss and ecosystem collapse can reduce the availability and quality of these resources, making it more challenging and costly for the company to extract and use them.
- **Reputational risks:** TotalEnergies' operations can have significant impacts on biodiversity and ecosystems, and any negative impacts can harm the company's reputation and social license to operate. As public awareness of biodiversity loss and ecosystem collapse increases, stakeholders such as customers, investors, and communities may demand that the company operates in a more sustainable and environmentally responsible manner.
- **Physical risks:** Biodiversity loss and ecosystem collapse can increase the risk of physical events such as floods, landslides, and wildfires, which can damage the company's infrastructure and impact its operations. For example, extreme weather events can damage pipelines and refineries, disrupt supply chains, and lead to production disruptions.

To mitigate these risks, the company has established environmental and social sustainability goals and targets, and is investing in renewable energy and low-carbon technologies to reduce its impacts on biodiversity and ecosystems.

2.2. Natural Resource Crisis

Natural resource crisis can have significant impacts on TotalEnergies in several ways:

- **Depletion of natural resources:** The depletion of natural resources, such as oil and gas reserves, poses a significant risk to TotalEnergies' business model, which relies heavily on these resources for its operations. As these resources become scarcer, the company may face increasing costs and reduced profitability.
- **Water scarcity:** TotalEnergies is a significant consumer of water for its operations, and the growing demand for water, coupled with water scarcity in many regions, poses a significant risk to the company's operations. Water scarcity could lead to increased costs, operational disruptions, and reputational damage.
- **Resource nationalism:** Resource-rich countries may increasingly seek to retain control over their natural resources, which could lead to increased taxes, royalties, and regulatory burdens on TotalEnergies' operations in these countries. This could result in reduced profitability and operational disruptions.

To address these challenges, TotalEnergies has developed various sustainability strategies and initiatives to reduce its impact on the natural environment and mitigate these risks. These include investments in renewable energy and low-carbon technologies, reducing its greenhouse gas emissions, improving water efficiency, and preserving biodiversity in regions where it operates. The company also engages with stakeholders and local communities to ensure that its operations are conducted responsibly and sustainably.

3. Climate risks as per Mckinsey Global Institute

According to the Climate Risk and Response report from McKinsey Global Institute, TotalEnergies faces a range of transitional risks related to changes in the demand for fossil fuels[4]. These risks are driven by the global transition towards a low-carbon economy, which is expected to result in a decline in the demand for fossil fuels over the coming decades. The following are some of the changes in demand for fossil fuels that TotalEnergies may face:

3.1. Changes in demand for fossil fuel

Changes in demand for fossil fuels may impact TotalEnergies in the following ways:

- **Decreased demand for oil**: As the world shifts towards renewable energy and electric vehicles, the demand for oil is expected to decline. This could result in lower revenues and profitability for TotalEnergies' oil production and refining businesses.
- **Growth in renewable energy:** The demand for renewable energy is expected to grow significantly over the coming decades, driven by government policies, declining costs, and increased consumer demand. TotalEnergies has been investing in renewable energy and low-carbon technologies to position itself for this growth.
- **Increased regulation:** As governments around the world seek to address climate change, they are expected to introduce more stringent regulations on fossil fuels, including carbon pricing and emissions standards. This could increase TotalEnergies' costs and reduce its profitability.

To address these transitional risks, TotalEnergies has developed a long-term strategy to transition to a low-carbon economy, including investments in renewable energy and low-carbon technologies, and reducing its greenhouse gas emissions. The company is also diversifying its portfolio to include more natural gas and renewable energy, and has set ambitious targets to become a net-zero emissions company by 2050.

4. Risk Reduction measures undertaken by TotalEnergies

4.1. Offsetting Residual Emissions with Natural Carbon Sinks

In addition to taking action to prevent and reduce GHG emissions, it will be necessary to offset residual carbon emissions for TotalEnergies to achieve net zero emissions together with society. For that reason, it is investing in natural carbon sinks, such as forests, regenerative agriculture and wetlands. Backed by an average annual budget of $100 million between 2020 and 2030, TotalEnergies aims to build up a stock of 100 million credits and develop the annual capacity to produce at least 5 million credits a year as from 2030.

- **Peru:** Since 2021, TotalEnergies and CIMA (Centro de Conservation, Investigacion y Manejo de Areas Naturales), a Peru-based NGO, have been working together in the Peruvian Amazon to fund projects for preserving the primary forest in Cordilleria Azul National Park, which spans 1.35 million hectares and is included on the IUCN Green List. These campaigns include efforts by forest rangers to monitor and prevent degradation and deforestation of park areas. They also include programs to develop sustainable economic activity in the buffer region surrounding the Park, such as sustainable agroforestry crops and their value chains, ecotourism and craft production. Under the agreement, more than 15 Mt of CO2 equivalent will be prevented over ten years.

4.2. Preserving Fresh Water, an Essential Resource

Both nature and humanity depend on water as a resource. TotalEnergies adopted the CEO Water Mandate of the UN Global Compact in 2022 because water is completely incorporated into its business strategy. This framework enables collaboration with various stakeholders in order to safeguard this resource. The sites of the company withdrew 101 million cubic metres of fresh water in 2021. The World Resources Institute's Baseline Water Stress indicator shows that half of this was taken out in water-stressed areas.

In early 2022, the Company set a target to reduce fresh water withdrawals by 20% between 2021 and 2030 at sites in water stressed areas. Each site now has an action plan that covers both operational excellence and particular projects. Also, the company takes precautions to protect water resources from pollution, most notably by lowering the hydrocarbon content of its aqueous waste. It has also created tools specifically designed to monitor water use, such as "Wat-R-use", which estimates a site's water footprint, costs connected with it, and suggests actions to reduce water use.

4.3. Creating Shared Value

With operations across the energy value chain in 130 countries, TotalEnergies aspires to create shared prosperity with all of its many stakeholders. The Company is dedicated to making sure that both value and constructive change are produced by its ventures and projects.

The $48 billion of value created in 2021 generates revenues for the governments of the 130 countries that Total operates in (taxes), their economic partners, including their suppliers (investments), their 101,000 employees (wages and payroll taxes), and their shareholders, who number more than 1,300,000 (dividends).

5. Conclusion

TotalEnergies' commitment to mitigating climate risks is evident in the company's comprehensive strategy that aligns with the goals of the Paris Agreement. The company's goal to achieve carbon neutrality by 2050, and its target to reduce net carbon intensity by 60% by 2050, is a significant step towards addressing climate change. TotalEnergies' investments in renewable energy, carbon capture, natural gas, and circular economy initiatives will contribute towards reducing greenhouse gas emissions and achieving a low-carbon future. By investing in carbon capture, the company is acknowledging that traditional fossil fuels will continue to play a role in the energy mix and that it is essential to capture

and store CO2 emissions to mitigate climate risks. TotalEnergies' efforts towards energy efficiency in its operations and promotion of natural gas as a transition fuel highlight the company's commitment to achieving a low-carbon future. Overall, TotalEnergies' climate risk mitigation plans demonstrate the company's proactive approach towards addressing climate change and contribute towards achieving the global goal of net-zero emissions by 2050.

Referências

[1] Sustainability and climate 2022 progress report. Available at: https://totalenergies.com/system/files/documents/2022-03/Sustainability_Climate_2022_Progress_Report_EN_0.pdf.

[3] Total energies new initiatives. Available at https://totalenergies.com/features/totalenergies (2022).

[2] Transforming total. Available at: https://totalenergies.com/company/transforming.

[4] (2023). *Climate Risk and Response*. Mckinsey Global Institute.

[5] (2023). *Global Risks Report 2023*. World Economic Forum.