United Nations Environment Programme

The role and responsibilities of fossil fuel companies in the global energy transition

Research Report

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"let us sing songs of freedom together"

Forum: **United Nations Environment Programme**

Issue: **The role and responsibilities of fossil fuel companies in the global energy transition**

Position: **Deputy Chair**

Introduction

The Intergovernmental Panel on Climate Change (IPCC) is a United Nations scientific group on climate change. Their regular reports warn the world about the far-reaching consequences of the use of fossil fuels in greenhouse gas (GHG) emissions, such as carbon dioxide (CO2). They explain, in the B.5.3 of the sixth assessment report, which is their last one, that "If the annual CO2 emissions between 2020–2030 stayed, on average, at the same level as 2019, the resulting cumulative emissions would almost exhaust the remaining carbon budget for 1.5°C [with a probability of] 50%. Projected cumulative future CO2 emissions over the lifetime of existing and planned fossil fuel infrastructure, if historical operating patterns are maintained and without additional abatement, are approximately equal to the remaining carbon budget for limiting warming to 2°C with a likelihood of 83%".

In order to face global climate change, the fossil fuel industry is moving into a global energy transition. The main aim of it is to move into renewable energy, which means fewer CO2 emissions.

All these fossil fuel companies are seen, nowadays, as a real part of the issue. However, we should keep in mind that their economical, social and climatic influence is impressively huge and raises complex questions about the role of these fuels in a changing energy economy, and also the position of these companies in the societies in which they operate. This is the reason why this entire industry is facing demands to clarify the implications of energy transitions for their operations, and to explain the contributions that they can make toward reducing GHG emissions and achieving the goals of the Paris Agreement.

Definition of Key Terms

Climate change:

Climate change is a natural process where elements such as rainfall, temperature, and other variables vary over decades and centuries. Since the formation of Earth, millions of years ago, our world has been colder and warmer. However, today we are experiencing unprecedented rapid warming from human activities, primarily due to burning fossil fuels that generate greenhouse gas emissions.
Delegates should bear in mind that temperature rise is only the beginning of the story, because the Earth is a system, where everything is connected, changes in one area can influence changes in all others. The consequences of climate change now include, among others, intense droughts, water scarcity, severe fires, rising sea levels, flooding, melting polar ice, catastrophic storms and declining biodiversity.

Nonrenewable energy:

Fossil fuels are made from decomposing plants and animals found on earth's crust. Coal is a material usually found in sedimentary rock deposits where rock and dead plant and animal matter are piled up

in layers. Oil is originally found as a solid material between layers of sedimentary rock, like shale; this material is heated in order to produce the thick oil that can be used to make gasoline. Natural gas is usually found in pockets above oil deposits; it is primarily made up of methane.
Unfortunately, fossil fuels are a nonrenewable resource and waiting millions of years for new coal, oil, and natural gas deposits to form is not a realistic solution. Fossil fuels are also responsible for almost three-fourths of the emissions from human activities in the last 20 years.

Renewable energy:

Renewable energy is energy derived from natural sources that are replenished at a higher rate than they are consumed. These sources are plentiful and ubiquitous. There are many, such as **solar energy**: the rate at which solar energy is intercepted by the Earth is about 10,000 times greater than the rate at which humankind consumes energy. **Wind energy** has been used for millennia, but onshore and offshore wind energy technologies have evolved over the last few years to maximise the electricity produced. **Geothermal energy** utilises the accessible thermal energy from the Earth's interior. Heat is extracted from geothermal reservoirs using wells or other means. Once at the surface, fluids of various temperatures can be used to generate electricity. **Hydropower** can be generated from reservoirs and rivers, it currently is the largest source of renewable energy in the electricity sector. **Ocean energy** systems are still at an early stage of development, but the theoretical potential for ocean energy easily exceeds present human energy requirements. **Bioenergy** comes from the burn of biomass (various organic waste streams), however it creates GHG emissions but at lower levels than fossil energies. Delegates should be aware that extraction of renewable energy sources is now cheaper in most countries, and generates three times more jobs than fossil fuels.

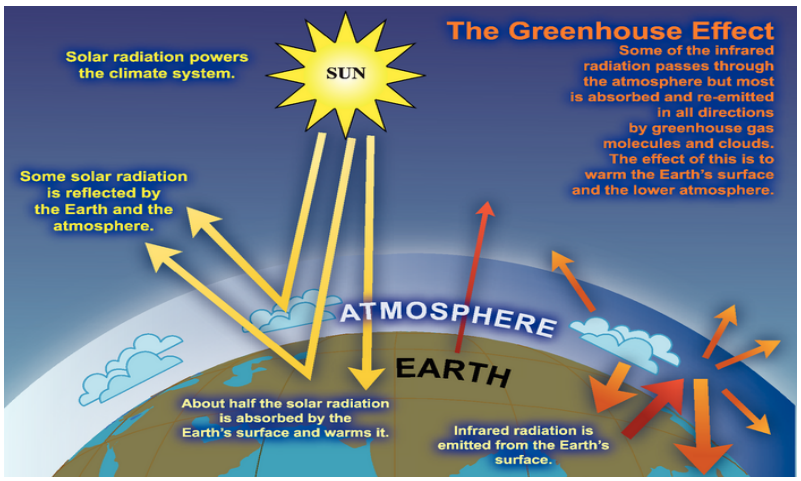
Energy transition:

The global energy transition refers to the ongoing shift from fossil fuels to renewable energy sources. This transition is driven by the need to mitigate climate change, reduce greenhouse gas emissions, and ensure a sustainable and clean energy future. Delegates should bear in mind that it involves a collective effort from countries and their companies to invest in renewable energy and reduce their carbon emissions. Transitioning from fossil fuels, which currently account for the lion's share of emissions, to renewable energy is key to addressing the climate crisis.

Fossil Fuel Companies:

Fossil fuel companies are corporations that are primarily involved in the extraction, production and distribution of fossil fuels such as coal, oil, and natural gas. These companies play a significant role in meeting global energy demand but they also contribute to greenhouse gas emissions and climate change. Nowadays the largest and most influential publicly-traded oil and natural gas producers - called Big Oil - are BP, Chevron, Eni, ExxonMobil, Shell and Total Energy.

Greenhouse effect:



The Greenhouse Effect is a natural process, similar to the phenomenon on a planetary scale, but certain gases are replacing the glass of a greenhouse. On Earth, it ensures that the amount of incoming and outcoming emissions allow the planet's temperature to be stable. However human activity is increasing emission of so-called greenhouse gases and part of the energy absorbed can't be re-emitted out of the atmosphere.

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General Overview

The United Nations Framework Convention on Climate Change states: "Switching energy systems from fossil fuels to renewables like solar will reduce the emissions driving climate change. But we have to start right now. While a growing coalition of countries is committing to net zero emissions by 2050, about half of emissions cuts must be in place by 2030 to keep warming below 1.5°C. Fossil fuel production must decline by roughly 6 percent per year between 2020 and 2030". This is the reason why multiple countries and their companies are committed to the global energy transition.

Paris Agreement

The Paris Agreement is a "legally binding international treaty on climate change". Adopted during the COP 21 in Paris by the end of 2015, 196 parties have committed to this agreement starting in November 2016. The main goal of this treaty is to hold "the increase in the global average temperature to well below 2°C above pre-industrial levels" and pursue efforts "to limit the temperature increase to 1.5°C above pre-industrial levels." However, many organisations such as the IPCC and world's leaders urge the limit to 1.5°C for the temperature's rise by the end of the century. In order to follow this goal, GHG emissions must decline 43% by 2030.

Implementation of this agreement requires economic and social transformations. It works on a five-year cycle of increasingly more ambitious climate actions. Delegates should be aware that since 2020, countries have been submitting their national climate action plans, which are called Nationally Determined Contributions (NDCs). They are supposed to reflect and communicate a more ambitious version so as to reduce GHG emissions than the previous one. To better frame the efforts towards the long-term goal, the Paris Agreement invites countries to formulate and submit long-term low greenhouse gas emission development strategies (LT-LEDS).

"The Paris Agreement provides a framework for financial, technical and capacity building support to those countries who need it. The Paris Agreement provides a framework for financial, technical and capacity building support to those countries who need it." This treaty reaffirms that developed countries should provide financial assistance to countries more vulnerable. Climate finance is equally important for adaptation, as significant financial resources are needed to adapt to the adverse effects and reduce the impacts of a changing climate. The IPCC sixth report states in its A.4.5 part: "Public and private finance flows for fossil fuels are still greater than those for climate adaptation and mitigation. The overwhelming majority of tracked climate finance is directed towards mitigation, but nevertheless falls short of the levels needed to limit warming to below 2°C or to 1.5°C across all sectors and regions (C.7.2). In 2018, public and publicly mobilised private climate finance flows from developed to developing countries were below the collective goal under the UNFCCC and Paris Agreement to mobilise USD 100 billion per year by 2020 in the context of meaningful mitigation action and transparency on implementation." The same support should be provided on technical and capacity building parts.

Countries also have to establish an Enhanced Transparency Framework (ETF), which means that in 2024, countries will transparently report their climate change mitigation, adaptation measures and support provided. The information gathered will feed into the Global stocktake which will assess the collective progress towards the long-term climate goals.

Renewable energy development

As the C.4.1 of the IPCC's sixth report declares: "Countries at all stages of economic development seek to improve the well-being of people, and their development priorities reflect different starting points and contexts. In regions with high dependency on fossil fuels for, among other things, revenue and employment generation, mitigating risk for sustainable development requires policies that promote economic and energy sector diversification and considerations of just transitions principles, processes and practices. Eradicating extreme poverty, energy poverty, and providing decent living

standards in low-emitting countries/regions in the context of achieving sustainable development objectives, in the near term, can be achieved without significant global emissions growth."
Delegates of these countries should bear in mind that solar technologies can deliver heat, cooling, natural lighting, electricity, and fuels for a host of applications. The cost of manufacturing solar panels has plummeted dramatically in the last decade, making them often the cheapest form of electricity. Moreover, the world's technical potential for wind energy exceeds global electricity production, and ample potential exists in most regions of the world to enable significant wind energy deployment, and offshore wind power offers tremendous potential. In addition there is hydropower which harnesses the energy of water moving from higher to lower elevations. The infrastructure needed to create hydropower can also impact ecosystems in adverse ways. For this reason, many consider small-scale hydro a more environmentally-friendly option, and especially suitable for communities in remote locations. This way to use water energy isn't the best one for these fossil fuel companies in their energy transition. However ocean energy derives from technologies that use the kinetic and thermal energy of seawater - waves or currents for instance - to produce electricity or heat. As hydropower, bioenergy should only be used in limited applications, given potential negative environmental impacts related to large-scale increases in forest and bioenergy plantations, and resulting deforestation and land-use change.

Economical issues

The energy transition shift is an issue which urges to be solved. "Rapid and far-reaching transitions across all sectors and systems are necessary to achieve deep and sustained emission reductions and secure a liveable and sustainable future for all. These system transitions involve a significant upscaling of a wide portfolio of mitigation and adaptation options. Feasible, effective, and low-cost options for mitigation and adaptation are already available, with differences across systems and regions." However delegates should be aware, as we said before, that "equity remains a central element in the UN climate regime, notwithstanding shifts in differentiation between states over time and challenges in assessing fair shares. Ambitious mitigation pathways imply large and sometimes disruptive changes in economic structure, with significant distributional consequences, within and between countries. Distributional consequences within and between countries include shifting of income and employment during the transition from high- to low-emissions activities"
"The Intergovernmental Panel on Climate Change, states that, to avoid dangerous levels of warming, investment in fossil fuels must start falling by tens of billions a year." because "Fossil fuel firms are also facing escalating pressure from investors, with some large pension funds having already divested. The world's biggest sovereign wealth fund, itself built on oil and gas revenues, is now formally considering dumping its fossil fuel stocks."

Major Parties Involved

IPCC

The Intergovernmental Panel on Climate Change is a United Nations body, made of thousands international scientists, they provide assessments concerning the evolution of climate change where neutrality is needed in front of the 195 signatory countries. Their assessments are written by hundreds of leading scientists in order to report the actual current situation around the world. Delegates should bear in mind that their sixth report confirms the urge to act in order to face climate change.

Conference Of the Parties (COP)

The Conference of the Parties is the name for the United Nations Climate Change Conferences. This is the main decision-making body of the UNFCCC. In these annual conferences, members review their contributions concerning their struggle against climate change; COP also welcomes conferences stemming from agreements or treaties such as CMA where country-members discuss their involvement in the Paris Agreement, or CMP concerning the Kyoto protocol where parties, by their own targets, limit GHG emissions.

COP are broadly organised in five regional groups: Africa, Asia, Eastern Europe, Latin America and the Caribbean, Western Europe and other states (including The USA, Canada, Australia) so as to organise presidency rotation and host.

Norway

Norway is struggling with issues concerning responsibilities of fossil fuel companies, it is a real involved country. The Norwegian finance ministry, which manages the $850bn fund, said: An expert group will evaluate whether the exclusion of coal and petroleum companies is a more effective strategy for addressing climate issues and promoting future change than the exercise of ownership and exertion of influence.

The USA

The USA are the world's top producer and consumer of oil. The USA also has amongst the biggest oil companies in the world such as ExxonMobil or Chevron (the two biggest American oil companies). Most of the USA production goes to its domestic market. Because of the USA independence politics for energy, it is unlikely to see a real reduction of oil production until they fully engage in an energy transition. However, the USA don't depend on oil for their external market such as countries like Saudi Arabia or Kuwait. That means that a decrease in oil production is possible if the USA reduces their oil consumption. Unlike China, the USA has a fully developed industry and economy and reached their oil peak consumption in 2005.

India

In India, car sales are growing strongly. Here too, the proportion of electric car sales is rising rapidly, and 90% of passenger car sales in 2040 will be electric. In addition to petrochemicals, this scenario also forecasts an increase in the use of oil in buildings. LPG helps to provide clean cooking for around 300 million people in rural areas in 2030, who would otherwise have been dependent on traditional biomass uses.

China

China is the leading country on energy transition investments worldwide; they invest 546 billion U.S. dollars in 2022. On the other hand, China continues to massively invest in fossil energy. Last year, 60% of Chinese electricity was produced by coal power plants and China continues to open new coal power plants. At the same time, China gas and oil demand continue to grow and oil demand should peak around 2025.China will play a major role in the energy transition, but its national oil companies face an uncertain future as the country reorients its energy strategy. Those companies reinforce China's geopolitical and trade ambitions.

Russia

Before the start of the Ukraine invasion, Russia was the 3rd world oil producer and is an OPEC+ member (OPEC+ is an extended group of OPEC, created in order to increase cooperation amongst the oil producers countries). Russia is still a huge oil producer today, even if their exportations reduced with European sanction. This country shifted their exportation toward Asia in order to export oil. Despite this change, this State has reduced their production by 5% in march, mostly for economic reasons and difficulties to export. Russia is also an important gas producer, with companies such as Gazprom. However, the gas sector here faces the same difficulties, if even more, than the oil one because of the Russian-Ukrainian war. Russia and Russian oil and gas companies have an important role to play in energetic transition, but because of the war, they need to finance it, maintain its economy and the degraded relations with occidental countries, change and negotiation seems unlikely in a short term period.

OPEC

The Organisation of the Petroleum Exporting Countries is an organisation composed of the major producers of oil in the world. Created in 1960, the OPEC counts the 13 followings members :
Islamic Republic of Iran, Iraq, Kuwait, Saudi Arabia, Venezuela, Qatar, Indonesia, Libya, the United Arab Emirates, Algeria, Nigeria, Ecuador, Gabon, Angola, Equatorial Guinea and Congo.
This organisation was created to regulate the oil market and ensure a maximum profit for the members by ending the price war on the oil market. Delegates should keep in mind that OPEC has a huge impact on climate change and energy transition by its capacity to increase or decrease oil production, financing clean energy projects and using their huge influence on countries, oil companies, and world organisations in favor of energy transition and struggle against climate change.

Timeline of Events

[1958]	[The american scientific Charles Keeling notice that the increase in carbon dioxide concentration in the atmosphere is linked to human activity]
[1979]	[The first international conference on climate change (in Geneva)]
[1988]	[The United Nations Environment Programme and the World Meteorological Organization established the Intergovernmental Panel on Climate Change]
[March 1994]	[The United Nations Framework Convention on Climate Change enters into force to warn against human activities that threaten the climate system]
[1997]	[Creation of the Kyoto Protocol during the COP 3]
[2005]	[Seventeen UN sustainable development goals for 2030, with the integration of corporate social responsibility]
[2015]	[Implementation of the Paris Agreement, resulting from COP 21]
[the 20th of March 2023]	[Synthesis of the 6th assessment report from the IPCC]
[2045]	[Maximum deadline of no return concerning climate issues]

Possible Solutions

Finally, discussing this issue is a significant way to understand the role and responsibilities of fossil fuel companies in the global energy transition. This is the reason why this research report is giving delegates directional paths. Even if it suggests a few possible solutions, they are not to take into account.

First of all, “the process of change is difficult for companies, and there is no single or sure recipe for success. Based on experience thus far, though, there are some indicative steps that form part of the company transformations that are underway today”. Delegates should bear in mind that this topic is asking them to face the issue in their own country. They should consider the responsibilities of their National Oil Companies in the global energy transition because the companies that are embracing the transition from fossil fuel to renewable energy are attempting to straddle divergent possible outcomes and risks. Companies are investing to meet oil and gas requirements, sustaining the volume of their oil and gas activity, while building new low carbon energy businesses. The balancing act is to generate the necessary cash flow to sustain investments in both hydrocarbons and new low-carbon businesses,

while remaining financially robust for shareholders. As a matter of fact, fossil fuel firms are also facing escalating pressure from investors because some pension funds have already divested.

Norway, which is the world's biggest sovereign wealth fund, itself built on oil and gas revenues, is now formally considering dumping its fossil fuel stocks. However it is not a fact that LEDCs countries can consider.

In order to fight against fossil fuel development, activists and associations suggest boycotting events producing and involving fossil fuel companies.

Last but not least, BP, Shell and Total are discussing the carbon bubble risk publicly to some extent even if Chevron has refused to do so. They are now asking the oil companies to indicate which carbon trajectory they're betting on.

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