Forum: Environmental Commission

Issue: Measures to reduce global dependency on fossil fuels

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Introduction

Global reliance on fossil fuels is one of the greatest challenges to meaningful climate action and environmental sustainability. Fossil fuels like coal, oil, and natural gas, currently supply more than 80% of the world's primary energy, driving economic growth but also causing over two-thirds of global greenhouse gas emissions.[1]

Sustainable Development Goal 7 (SDG7) aims for universal access to affordable, reliable, sustainable, and modern energy by 2030.[2] However, progress is uneven, energy poverty persists for hundreds of millions, and the expansion of renewables is still not rapid enough to avoid catastrophic climate impacts. The transition away from fossil fuels is thus a moral, economic, and practical action for all nations, requiring urgent collective action.

Definition of Key Terms

Sustainable Development Goal 7

The UN goal to ensure access to affordable, reliable, sustainable and modern energy for all by 2030.

Fossil Fuels

Non-renewable energy sources formed from ancient organic matter, including coal, oil and natural gas. The origin of these fuels is from plants and animals that existed in the geological past, millions of years ago. The combustion of these fossil fuels to produce energy, produces large amounts of greenhouse gases, which contribute to global warming.[3]

Renewable Energy

Sources of energy that are created from natural sources, which can be restored at a rate faster than

it is consumed. Renewable energy is abundant, for example solar energy and wind energy.[4]

Sustainable Energy Transition

The shift in the distribution, production and consumption of energy is defined as Energy Transition. Energy Transition. It aims to divert from using fossil towards the usage of renewable energy. This shift is very important in order to tackle the climate crisis, since almost 80% of global energy supply, is still produced from fossil fuels, which release large amounts of polluting gases into our atmosphere.[5]

Universal Energy Access

Universal Energy Access refers to the availability of reliable, affordable and sustainable energy for all irrespective of their socioeconomic status or geographic location.[6]

Background Information

Fossil fuel dependency and environmental impact

Fossil fuels like coal, oil and natural gas remain the dominant sources of global energy, accounting for about 86% of the world's energy supply in 2024. Despite rapid growth in renewable energy, global fossil fuel consumption increased by over 1% in 2024, reflecting rising overall energy demand. This dependency generates significant environmental challenges, as fossil fuel combustion is the largest contributor to greenhouse gas emissions, driving climate change. Additionally, burning these fuels causes air and water pollution, impacting human health and biodiversity worldwide.[7]

Energy access and socioeconomic disparities

Approximately 675 million people worldwide still lack access to electricity, and 2.1 billion rely on polluting fuels for cooking as of 2023. These figures highlight regional disparities, predominantly affecting sub-Saharan Africa and South Asia. Simply reducing fossil fuel use without addressing energy access risks exacerbating development inequalities. Thus, sustainable energy transitions must combine emissions reductions with improved access to affordable, clean energy services.[8]

Challenges to the energy transition

While renewable energy grew rapidly, reaching 30% of global power generation in 2024, its share in overall energy use remains low—especially in heating, transport, and industrial processes. Persistent fossil fuel subsidies globally, which exceeded $7 trillion in 2022, distort energy markets and slow the shift to cleaner alternatives. Political support for fossil fuels, legacy

infrastructure investments, and limited financing capacity in developing countries further obstruct progress. Additionally, geopolitical tensions and recent crises have exposed vulnerabilities in fossil fuel supply chains, causing price volatility and energy insecurity.[9]

Recent events highlighting urgency

The COVID-19 pandemic, Russia's invasion of Ukraine, and subsequent energy crises underscored the fragility of fossil fuel dependence. These shocks intensified price volatility and supply interruptions, prompting exporting nations to reconsider their economic models and importers to face rising security risks. They emphasize the critical need for resilient energy systems that reduce reliance on fossil fuels while ensuring affordability and stability.[10]

Opportunities from renewables and energy efficiency

Despite the challenges, the rapid expansion of renewables such as wind and solar demonstrates the potential for decarbonizing the energy sector. In 2024 renewables accounted for the largest share of energy supply growth globally. Achieving significant reductions in fossil fuel dependency requires scaling up clean energy technologies, energy efficiency measures, electrification of transport and heating, and diversification of energy sources. Global cooperation and strong policy frameworks are essential to overcome financial, technological, and political barriers, particularly in emerging and developing economies where energy demand is growing most rapidly.[11]

Major Countries and Organisations Involved

Germany

Germany plays a critical role in the global energy transition. In 2024, renewables supplied 57% of Germany's electricity, significantly above the global average, with wind power contributing 28% and solar 15%. Despite ambitious plans to generate 75%-80% of electricity from renewables by 2030 and achieve net zero carbon emissions by 2045, 43% of electricity generation still came from fossil fuels in 2024. Germany has committed to phasing out coal power by 2030 and has invested heavily in grid infrastructure and renewable energy projects, balancing energy security with decarbonization. Coal mine methane emissions remain a challenge, and accurate monitoring is essential for meeting climate targets.[12]

United States of America

The United States is the world's largest producer and consumer of fossil fuels, accounting for 22% of global oil production. It continues to invest in shale oil and gas while promoting renewable

energy growth and emission reductions, aiming to cut carbon emissions by 50-52% from 2005 levels by 2030. The transition faces challenges due to entrenched fossil fuel infrastructure and political factors.[13]

Saudi Arabia

Saudi Arabia is a leading global oil producer, the largest member of the Organization of the Petroleum Exporting Countries (OPEC), with production exceeding 11 million barrels per day. The country heavily relies on oil revenues for its economy, complicating its energy transition ambitions. Nevertheless, Saudi Arabia has embarked on initiatives such as the Vision 2030 plan aiming to diversify its economy and develop renewable energy sources including solar and wind to reduce domestic oil consumption.[14]

China

China is the world's largest energy consumer and a major fossil fuel producer, heavily reliant on coal for power generation. Coal accounts for about 57% of China's energy consumption, although the country leads globally in renewable energy investment and capacity, especially solar and wind. China plans to peak carbon emissions by 2030 and achieve carbon neutrality by 2060. The government has implemented policies to expand renewable energy infrastructure aggressively and improve energy efficiency, while also managing the phase-out of coal plants.[15]

Russia

Russia is one of the top global producers of oil and natural gas, with significant exports mainly to Europe and Asia. Fossil fuel revenues play a crucial role in its economy and geopolitical influence. Despite new geopolitical tensions limiting some markets, Russia continues to invest in fossil fuel infrastructure. Efforts to diversify the energy mix and increase renewable capacity are limited compared to other major economies.[16]

Brazil

Brazil's energy mix is notable for its high share of renewables, particularly hydropower, which supplies around 65% of electricity. The country is also a fossil fuel producer, primarily of oil and natural gas. Brazil has pledged to reduce greenhouse gas emissions and increase renewable capacity, with growing investments in wind and solar energy.[17]

Viable Solutions

Fossil Fuel Dependency and Environmental Impact

Reducing fossil fuel dependency begins with significantly expanding investments in renewable energy technologies such as wind, solar, hydro, and geothermal. Governments should enact policies to remove subsidies for fossil fuels, redirecting financial support towards clean energy projects to reflect the actual environmental costs and health impacts. Implementing carbon pricing mechanisms and strict emission standards will incentivize industries to adopt greener technologies and improve energy efficiency.[18]

Energy Access and Socioeconomic Disparities

To address energy poverty while reducing fossil fuel reliance, expanding decentralized renewable energy systems is critical. Off-grid solar solutions, mini-grids, and community-based renewable projects can deliver clean energy to remote and underserved populations, especially in sub-Saharan Africa and South Asia. International cooperation and financing mechanisms should prioritize equitable access to affordable, sustainable energy services, ensuring that vulnerable populations benefit from the transition.[19]

Challenges to the Energy Transition

Overcoming barriers to energy transition requires coordinated policy frameworks that involve governments, industry, and civil society. Investing in modernizing electrical grids with smart technologies will enable integration of intermittent renewable energy. Removing fossil fuel subsidies and incentivizing private investment in renewable infrastructure are essential. Support programs for workers and communities impacted by the decline of coal and fossil fuel industries will ensure a just transition.[20]

Recent Events Highlighting Urgency

The energy shocks from the COVID-19 pandemic and geopolitical crises have reinforced the importance of resilient, diversified energy systems. Accelerating clean energy adoption can reduce exposure to fossil fuel market volatility. Governments should adopt energy security strategies that prioritize domestic renewable resources and diversified energy mixes. Establishing strategic reserves for critical clean energy components and fostering regional energy cooperation can buffer against future shocks.[21]

Opportunities from Renewables and Energy Efficiency

Continued technological advancements in renewable energy and energy storage systems present enormous potential for sustainable growth. Increasing energy efficiency in industrial, residential, and transport sectors will cut energy demand and emissions. Electrification of transport with electric vehicles and heat pumps, combined with renewable power, can drastically reduce fossil fuel use in hard-to-abate sectors. Enhanced digitalization and AI-enabled smart grids facilitate demand-side management, reducing waste and optimizing energy use. Policies supporting research and development, along with scalable deployment models, are vital to harness these opportunities globally.[22]

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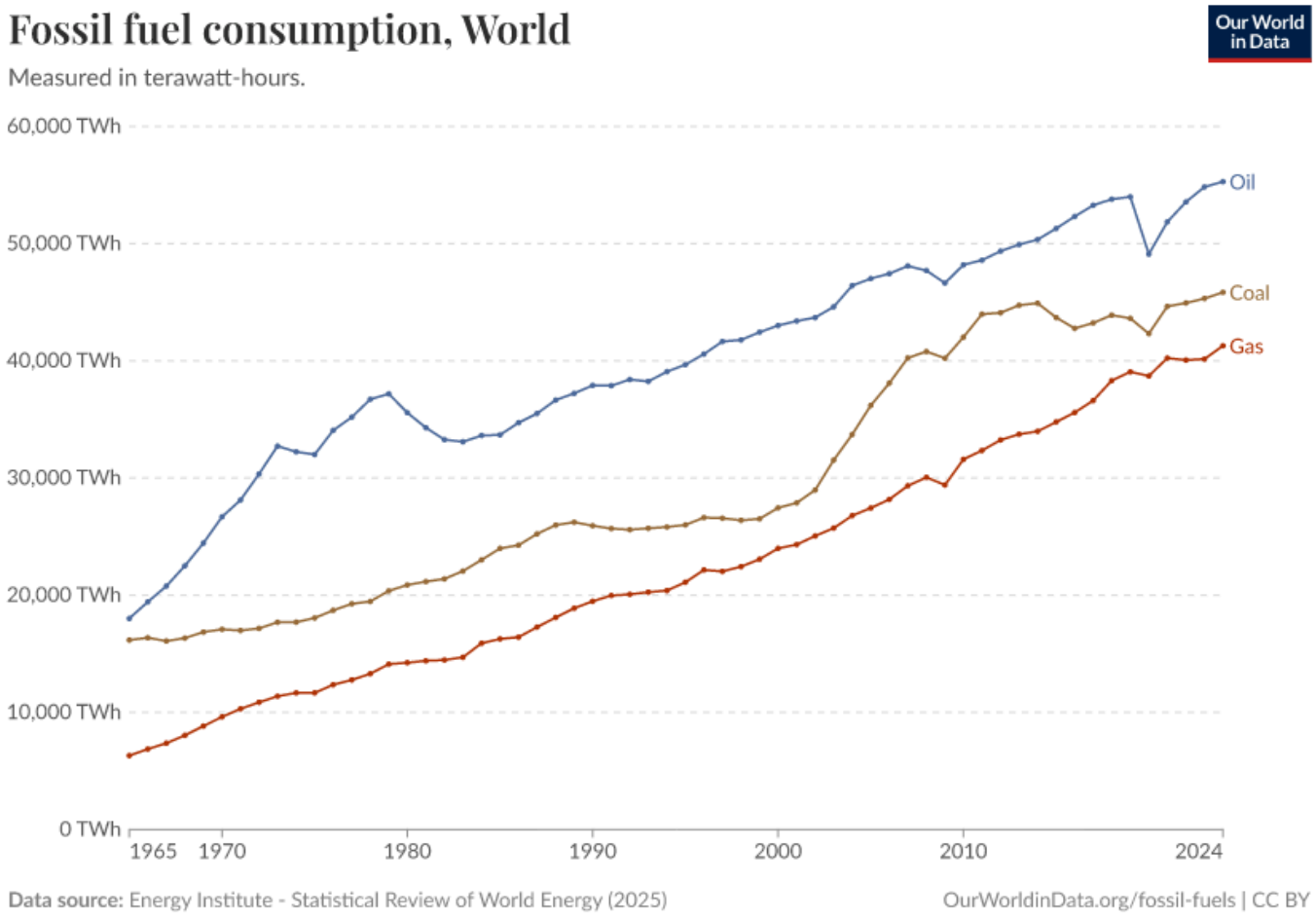
Appendix or Appendices



i. Fossil Fuel consumption in the world, over the last 60 years.