Energy Transformation: The JETP (Just Energy Transition Partnership)-South Africa Partnership to Reduce Coal Dependency in South Africa

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ABSTRACT
The Just Energy Transition Partnership (JETP) is a multilateral initiative designed to help developing countries make the transition to clean energy in a just and sustainable manner. One of the objectives of the JETP or Just Energy Transition Partnership is to support the transition from non-renewable to renewable energy sources and reduce dependence on coal energy. South Africa is one of the world's top 15 carbon emitters as a result of its reliance on coal. With a range of negative environmental impacts such as doubling of temperature and increasing frequency of extreme weather events. One of the partnerships built by the JETP is facilitating an energy transformation in South Africa aimed at reducing the country's dependence on coal and transitioning to renewable energy for the sake of South Africa's climate sustainability. In the context of global climate change and the need to reduce carbon emissions, South Africa faces major challenges due to its historical reliance on coal as a primary energy source. The JETP partnership focuses on developing an inclusive and equitable strategy for the energy transition, integrating technical, financial and policy support to accelerate the shift to renewable energy sources. This article explores concrete steps in the implementation of this partnership, evaluates its impact on South Africa's energy sector and economy, and identifies challenges and opportunities in the transition process.
Keywords: *Economy, JEPT, South Africa, Energy Transision*

INTRODUCTION

One of the nations in the world that relies heavily on non-renewable energy sources is South Africa, especially in the Middle East and Africa. With coal-fired power plants producing 80% of the nation's total electricity capacity, the highest percentage of any country in Africa or the Middle East-coal dominates the energy mix. This demonstrates how heavily dependent South Africa is on non-renewable energy sources, particularly coal, for its energy needs.(COUNTDOWN.BLOOMBERG, 2024). This illustrates how deeply South Africa has relied on non-renewable energy, particularly coal, as its primary source of power. Over the years, this dependency has remained significant due to the country's vast coal reserves, which have historically played a critical role in meeting domestic energy demands. The abundance of coal has made it the backbone of South Africa's energy sector, with the resource powering homes, industries, and the overall economy. With 258 million tons of coal consumed by 2021, South Africa ranked eighth in the world for coal consumption. The utilisation of coal has resulted in significant environmental consequences. Due to its extreme reliance on coal, South Africa is now among the top carbon emitters in the world and makes a major contribution to overall

carbon emissions. South Africa is one of the top contributors to the global carbon footprint due to the environmental effects of this reliance, which has raised concerns as the urgency of climate change issues on the international scene has grown. While there are ongoing efforts to transition towards renewable energy, the deep-rooted dependency on coal underscores the challenges South Africa faces in moving away from fossil fuels.

The Just Energy Transition Partnership (JETP) seeks to be a major player in assisting South Africa's move to renewable energy. The JETP combines nation-led initiatives to decarbonize the energy sector and lessen dependency on fossil fuels, so constituting a novel approach to advancing current climate change efforts toward carbon neutrality. The main objective of this project is to make sure that the shift away from coal as the main energy source is fair and balanced, taking into consideration the socioeconomic effects as well as the environmental objectives (M.Annika, 2023). There isn't a strong national system in South Africa that offers geographically comprehensive climatic data. The most latest nationally gridded and quality-controlled climatic data are from 2000. Current national hydrological data are more harder and more expensive to produce through modeling or to get. This is a major obstacle to effects modeling in South Africa since water and the climate are essential resources for many industries, including agriculture, human health, urban settlements, and biodiversity (ZiervogelG., 2014). The effectiveness of JETPs depends on consistent and coherent policies across all sectors and levels of government and a long-term political commitment to the reform agenda. JETPs' comprehensive approach to decarbonizing the power industry is what makes them strong. the 2021 launch of South Africa's Just Energy Transition Partnership (JETP), valued at $8.5 billion. A fundamental tenet of the Paris Agreement, just transition is increasingly acknowledged as a vital tool for addressing the negative social and economic effects of the energy transition (M.Annika, 2023).

The energy transition shall be realised through the acceleration of "affordable, decentralised, diversely owned renewable energy systems" (Republic of South Africa 2022: 26). This will serve as an initial step, with private investment anticipated to follow, as it only accounts for a portion of the overall amount needed. The Investment Plan states that reforming the power industry must get USD 68.7 billion, or around half of the total investment amount. More than USD 21 billion will be needed for green hydrogen and the expansion of municipal capacity; the remaining funds will go toward the new energy car sector and skill development. Thus, it is evident that the JET Investment and Implementation Plans are centered on the electrical industry.

METHODS

This research utilizes a qualitative method aimed at understanding the partnership between South Africa and the Just Energy Transformation Partnership (JETP) in reducing coal dependency and promoting energy transformation in South Africa. A qualitative research method was chosen as it allows for an in-depth exploration of energy policies, environmental sustainability, and international cooperation. Descriptive analysis is employed to explain the data obtained and to elaborate on the relationship between energy transformation and sustainable development. The type of research conducted is descriptive qualitative research,

which focuses on providing a detailed description of the phenomena related to energy transformation policies, the challenges and benefits of reducing coal dependency, and the role of international partnerships. Descriptive research is used to provide a clear picture of how JETP supports energy transformation efforts in South Africa. By using this method, the research will present the context, process, and outcomes, focusing on the transition of energy policies and the framework of international cooperation. This study utilizes primary data gathered from the official websites of JETP and the South African government. Key literature sources include academic books, journal articles, government policy documents, and reports from international organizations involved in energy transformation initiatives, accessed through the internet.

This research applies the theories of energy transformation and sustainable development. These theories will assist in analyzing the cooperation between JETP and South Africa in the energy transition by reducing coal dependency and how this relates to global energy transformation and climate action, focusing on Sustainable Development Goal 13 (Climate Action). The study aims to contribute to the growing body of literature on energy policy transitions and the role of partnerships in promoting sustainable energy development. Additionally, the research gathers data from reports published by key stakeholders in the energy transition sector, including the South African government, international organizations and non-governmental organizations (NGOs). These reports provide insights into the progress of energy transformation policies, particularly in South Africa.

RESULTS AND DISCUSSION

South Africa Energy Transition

South Africa relies on non-renewable energy sources, particularly coal, making it the eighth-largest coal consumer in the world. Coal serves as the primary energy source for various applications, such as industry and electricity generation. In 2021, South Africa's coal consumption reached approximately 258 million tons per year. There are many reasons for this dependence on coal, including the abundance of natural resources, infrastructure built for the industry, and the relatively lower cost compared to renewable energy. More than 80% of the country's electricity comes from coal-fired power plants (COUNTDOWN.BLOOMBERG, 2024). However, South Africa faces significant challenges in reducing its dependence on coal and transitioning to cleaner and more sustainable energy sources, such as solar, wind, and hydropower, as coal consumption has significant environmental impacts, including high carbon dioxide emissions and air pollution, contributing to global climate change. Nevertheless, the transition to renewable energy still faces some challenges, including high investment costs, policy changes, and the need for new technology. However, with global pressure to reduce carbon emissions and growing awareness of environmental impacts, South Africa is expected to begin reducing coal usage and increasing its contribution to renewable energy in the future.

The Just Energy Transition Partnership (JETP) is a significant initiative involving countries in the Global South that remain dependent on fossil fuels, particularly coal, for their energy production (Fünfgeld & Wischermann, 2024). Countries like South Africa, Indonesia, and Vietnam are the main focus of this initiative because the use of environmentally harmful fossil fuels results in significant carbon emissions. The primary goal of JETP is to assist these countries in transitioning to cleaner energy sources in a "just" manner. In other words, this energy transition must consider its social and economic consequences, especially for vulnerable groups. For instance, many workers in the coal industry and communities dependent on this industry will be affected by the change. Therefore, it is essential to ensure they receive adequate support in terms of retraining, new job opportunities, and fair compensation. Despite some challenges, this collaboration helps accelerate decarbonization through financial, technical, and policy assistance. These countries face many challenges, such as technological limitations, energy infrastructure still reliant on fossil fuels, and the political-economic complexity involving numerous stakeholders, including governments, large energy companies, and local communities. JETP holds great potential as it can help these countries meet their carbon emission targets and support the global transition toward clean energy. Conversely, there are risks and challenges to avoid, such as policies implemented without proper oversight and evaluation, and imbalances between investment in the clean energy sector and support for affected communities. Therefore, JETP depends on the ability of these countries and international partners to make the transition fair, inclusive, and sustainable.

The main objective of this project is to ensure that the shift away from coal as the primary energy source is carried out equitably and balanced, considering the socio-economic impacts alongside environmental goals. In the energy transition process, the shift from coal as the main energy source poses a major challenge for countries heavily reliant on fossil fuels. Socio-economic aspects are crucial because many workers and communities depend on the coal industry for their livelihoods. Without careful planning, this transition could lead to job losses, local economic decline, and social instability. Therefore, this project seeks to create fair solutions for workers in the coal sector by providing retraining, employment opportunities in the renewable energy sector, and other forms of economic support (M.Annika, 2023). The project's primary focus is on reducing greenhouse gas emissions and other negative effects of fossil fuel use. However, the success of this project depends on balancing environmental goals with socio-economic interests; the energy transition must be carried out inclusively and sustainably without leaving vulnerable communities behind.

One of the efforts to reduce South Africa's reliance on coal is the Just Energy Transition Partnership (JETP), which is supported by developed countries such as the UK, the US, Germany, France, and the European Union. This agreement commits $8.5 billion to help South Africa transition to more environmentally friendly energy. JETP is committed to reducing emissions in the energy sector while maintaining social justice, particularly for communities dependent on coal (African Climate Foundation, 2022). The closure of the 56-year-old Komati coal power plant is one of the key projects under JETP. State-owned electricity company Eskom will replace the plant with a combination of renewable energy sources, such as solar and wind panels, along with battery storage. In addition to reducing emissions, this opens new job opportunities for the surrounding community, which was previously dependent on

coal. The key to the success of this project can be mapped into three parts: 1. Decommissioning Coal Plants. A major step that has been taken is replacing old coal-fired power plants like the Komati Power Station with renewable energy sources such as wind and solar, as well as battery storage. This transition is expected to enhance energy security and reduce carbon emissions.2. Job Creation and Retraining. To mitigate the socio-economic impact of the renewable energy transition, the Just Energy Transition Partnership (JETP) offers retraining programs for workers in the coal sector so they can transition to jobs in the renewable energy sector. Programs such as technical and vocational education and training (TVET) focus on empowering youth and women with the skills needed to participate in the renewable energy sector. 3. Energy Access and Infrastructure. Rolling blackouts and energy insecurity remain issues in South Africa despite the transition having begun. With around 10% of the population still lacking access to electricity, the goal of investment in renewable energy is to stabilize the grid (Africa, 2024).

Sustainable Development : JETP Energy Transision

In sustainable development, there are well-structured goals aimed at achieving the desired outcomes. One of these goals is to ensure a healthy and well-maintained environment. The transition from fossil fuels to the Just Energy Transition Partnership (JETP) is a method currently being implemented by various countries. The use of fossil fuels leads to the destruction of the earth's atmosphere due to the greenhouse effect and global warming, caused by the release of carbon dioxide into the atmosphere, resulting in more carbon dioxide being absorbed (PGN LNG Indonesia, 2023). The depletion of the atmosphere has raised concerns and simultaneously prompted solutions to address this issue. Recently, energy transformation has taken place through JETP, which uses renewable energy to replace the fossil fuels that have been used thus far. This aligns closely with sustainable development, which takes into account the long-term environmental impact. The gradual phase-out of coal-fired power plants in South Africa is a risky and highly debated approach, but on the other hand, the just energy transition also requires support to achieve clean and sustainable energy sources. The public's dependence on coal mining jobs is a key issue that needs to be addressed. Replacing fossil fuels like coal with just energy forces coal miners to seek new employment. However, this also presents an opportunity, as new job openings are emerging (Africa, 2024)

The shift from fossil fuels to sustainable energy is a critical point in sustainable development. It contributes to reducing the negative impacts of coal use, such as climate change and the greenhouse effect. The use of just energy aligns with the goals of sustainable development, utilizing environmentally friendly energy resources. Concerns about the impact of fossil energy have also driven innovation, leading to the development of more efficient and environmentally friendly technologies.

CONCLUSION

This study focuses on South Africa's partnership with the Just Energy Transition Partnership (JETP) to understand efforts to reduce dependence on coal and promote a more sustainable energy transition. A qualitative method was chosen to provide an in-depth understanding of energy policy, environmental sustainability, and international cooperation. Energy transition in South Africa is crucial given that the country is one of the largest coal consumers in the world, with more than 80% of its electricity coming from coal sources. This reliance is driven by the availability of natural resources, existing infrastructure, and relatively low costs. However, coal consumption has serious environmental impacts, including high carbon emissions and air pollution. Therefore, the transition to renewable energy, such as solar and wind power, is essential, although challenges such as investment, policy changes, and technical requirements remain obstacles.

JETP has emerged as an important initiative to help countries still dependent on fossil fuels transition fairly towards environmentally friendly energy. This research highlights the importance of considering social and economic impacts, particularly on vulnerable groups such as coal industry workers. Involving developed countries with financial and technical support is key to accelerating decarbonization. This project is supported by countries including the UK and Germany, providing $8.5 billion to support South Africa's energy transition. A specific step is the closure of the Komati coal power plant, which will be replaced by renewable energy sources. In addition to reducing emissions, this project is expected to create new job opportunities for communities previously reliant on the coal industry. The success of this transition will depend heavily on key aspects: the closure of coal-fired power plants, job creation and retraining, and access to energy and infrastructure. Closing old power plants aims to enhance energy resilience and reduce CO2 emissions. To enable coal workers to transition to the renewable energy sector, retraining programs are needed, along with providing new skills to the younger generation and women.

Sustainable development is the main foundation of this energy transition. Reducing dependence on coal and transitioning to renewable energy aligns with global goals to create a healthy environment and combat climate change. This shift will also encourage innovation in more efficient and environmentally friendly energy technologies, contributing to sustainable development goals. However, challenges remain. Economic uncertainty, infrastructure issues, and technological limitations may hinder the transition process. Steps taken must be accompanied by proper monitoring and evaluation to ensure no imbalance in investment and support for affected communities. JETP must ensure that the transition is inclusive and that vulnerable groups are not left behind. Overall, this study demonstrates that the South Africa-JETP partnership has great potential to build a more sustainable and equitable energy system. With proper support, the shift from coal to renewable energy will not only reduce environmental impacts but also create new economic opportunities and improve the quality of life for communities. This initiative is expected to become a model for other countries facing similar challenges in energy transition and sustainable development.

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