RETHINKING ENERGY TRANSITION

Challenges and Opportunities for a Just and Inclusive Future

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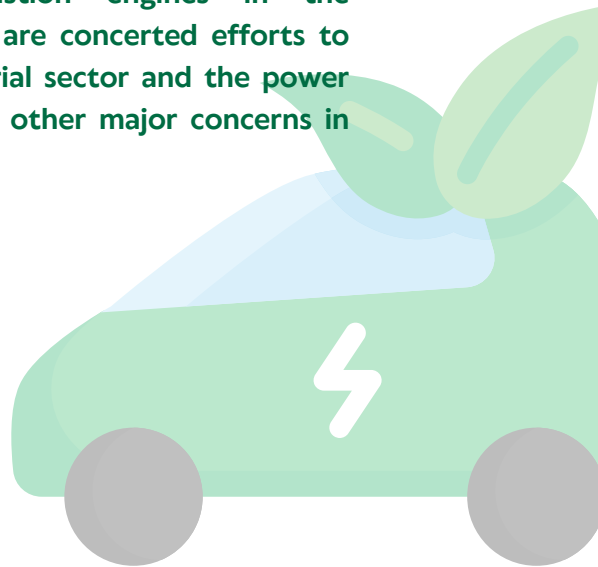
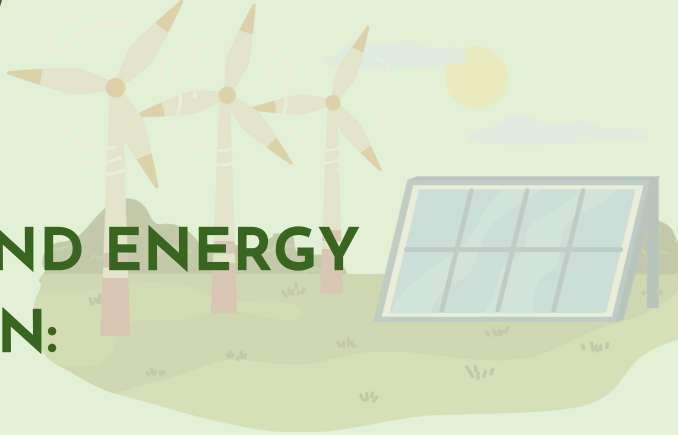
Fossil fuels—coal, oil, and gas—are the largest contributor to global climate change, responsible for more than 75% of worldwide greenhouse gas emissions, and nearly 90% of all carbon dioxide emissions. Climate change is jeopardizing the well-being of our planet and its inhabitants by causing toxic air pollution, reducing food security, increasing the likelihood of infectious disease outbreaks, extreme heat, droughts, floods, and more

Countries across the world have acknowledged the unsustainability of our current dependence on fossil fuels for energy and the need for energy transition. From electricity generation to transportation and industrial processes, alternative solutions have been actively sought. Electric vehicles are steadily replacing traditional internal combustion engines in the transportation sector. There are concerted efforts to decarbonize both the industrial sector and the power grid, addressing these as the other major concerns in the ongoing transition.





ENERGY AND ENERGY TRANSITION:

Renewable energy is being promoted as the primary strategy for energy transition: While this intention may be commendable, it appears that governments are reluctant to learn from past experiences with repeating their mistakes made in coal mining and oil & gas exploration. Transitioning from fossil fuels doesn't simply entail replacing them with renewable energy sources. It necessitates a fundamental rethinking of our development paradigm and our patterns of production and consumption. This is imperative for several reasons:

Legacy of Fossil Fuel Subsidies and Infrastructure Investment:

Decades of subsidies and substantial investments in fossil fuel infrastructure have made fossil fuel-based energy seem cost-effective. According to the UN, over $400 billion in public funds goes into fossil fuel subsidies each year. In contrast, genuinely green renewable energy sources may remain relatively expensive for some time.

Reliability Challenges:

Fossil fuel-based energy sources offer a level of reliability that is challenging to achieve rapidly with renewable energy. Renewable sources like solar and wind power are subject to the unpredictable vagaries of nature. For instance, the availability of sunlight and wind for power generation varies not only throughout a 24-hour period but also across the seasons. Consequently, we must be prepared to adapt our consumption patterns, a task easier said than done.

Decentralization and Equitable Distribution:

An essential lesson from fossil fuel-based energy production is its centralized nature, which places undue pressure on communities residing near mining, exploration, and power generation facilities. These industries often have inequitable impacts, with energy benefits disproportionately favouring industrial, urban, and affluent communities. This results in the exclusion of rural areas, impoverished communities, and women from accessing these resources.

Any model for energy transition must confront these three pressing issues, which are as significant as the challenges associated with fossil fuel extraction itself. By addressing these issues, we can pave the way for a more equitable and sustainable energy future that truly benefits all members of society.

RENEWABLE ENERGY AND SUSTAINABILITY CONCERNS

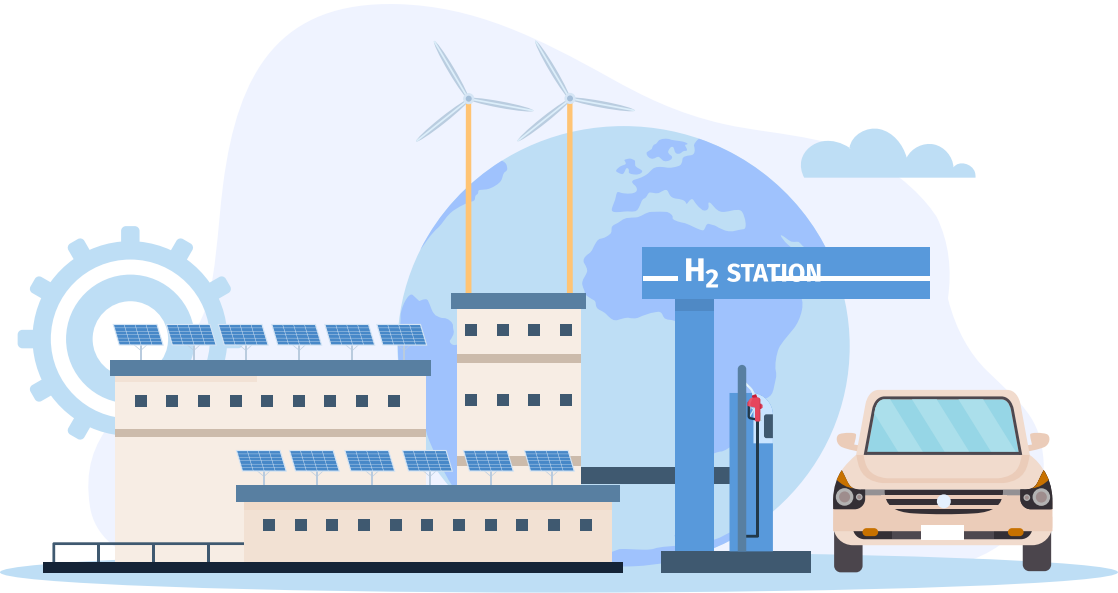
The way in which renewable energy (RE) is being promoted raises sustainability concerns. There has been a significant emphasis on large-scale renewable energy projects in India, such as the Paavgada, Rewa and Badla solar power plants. These large-scale solar and wind projects bring with them some of the same challenges as fossil fuel plants:

- They require vast areas of land and significant water resources.
- Power purchase agreements often benefit big cities and industrial centres, neglecting the local areas where land and water resources are used.
- Local communities, despite hosting these projects, often do not receive the power generated.
- Large-scale solar projects involve issues related to materials mining

Currently, about 80% of India's electricity is generated from thermal power plants, making India the second-largest consumer of coal, with coal accounting for 55% of the country's energy needs and 75% of its electricity supply. Despite discussions of phasing out coal, new thermal power plants continue to be commissioned and proposed, necessitating the development of policies and systems to support communities affected by the transition away from coal.

While the use of fossil oil as a vehicle fuel is declining due to the global shift to electric vehicles and a planned transition to renewable energy sources like wind, solar, and small hydro, there is still a significant demand for fossil oil and gas as feedstock for petrochemical production. The petrochemical industry's emissions contribute to a substantial portion of industrial-sector CO2 emissions. A successful energy transition must consider moving away from fossil fuels as a feedstock source for its use as materials including petrochemicals.

Hydrogen is being promoted as a clean energy source, but it's important to recognize the various shades of hydrogen. Green hydrogen, produced through electrolysis using renewable energy sources, is the only truly renewable form. Other forms of hydrogen are derived from fossil fuels or nuclear power. The challenge with green hydrogen lies in its high production cost due to clean electricity expenses, which can make it unprofitable for industries.



CONTOURS OF ENERGY TRANSITION IN A PEOPLE-LED AGENDA

A notable gap in the discussion of energy transition in India is the absence of people's voices and input. Reports from organizations like Niti Aayog and discussions within forums like the G20 often mention a 'just' energy transition, but the perspectives of the people most affected are overlooked. Communities directly impacted by fossil fuel industries and those vulnerable to climate change are not included in discussions about the direction of India's energy transition.

Large-scale renewable energy projects often involve the acquisition of agricultural and forest land, leading to the loss of livelihoods and food security for many. Promised jobs in solar power plants for local populations often fail to materialize once projects are approved. Another issue with large-scale solar projects is their excessive use of water, diverting this vital resource from local communities and causing drinking water shortages.

A truly just energy transition must be holistic, prioritizing comprehensive transformation, environmental and social protection, community control and ownership, localization, and democratic decision-making. Energy for people's development must be affordable, consistent, and equitably accessible. While the idea of 'Universal Access for All' is touted during G20 energy transition discussions, governments should apply the Common But Differentiated Responsibilities (CBDR) principle to prioritize energy access for people over the industry.

Two essential steps toward energy transition include:

- Ensuring just and equitable energy access for those who have been historically marginalized, especially in rural areas and natural landscapes.
- Reducing production and consumption of materials derived from fossil fuels by supporting decentralized and local economies. Anything short of this comprehensive approach will only delay the inevitable energy and environmental crises we face.

The path to a sustainable energy transition is fraught with complexities and challenges. While renewable energy holds great promise, our approach must evolve to ensure it truly benefits all, especially those most affected by the changes. The voices of communities and individuals impacted by these transitions must be heard, and their needs and concerns addressed. Our efforts must encompass environmental and social protection, community empowerment, and equitable access. We must prioritize affordable, consistent, and accessible energy for all, while also reducing our reliance on fossil fuels throughout the entire production chain. Only through a holistic and inclusive approach can we navigate this critical transition successfully, safeguarding our future and the environment.