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Low Carbon Economy: Disruptions and Actions

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Abstract

As India strikes a delicate balance between economic growth and environmental stewardship; its efforts would serve as an inspiration for others grappling with the challenges of decoupling development from carbon-intensive practices. Globally India ranks 3rd highest emitter of greenhouse gases and even though continue to be one of the lowest of the bigger economies on a per capita basis. Many policy gaps exist, primary amongst them the absence of comprehensive climate legislation. Through a combination of policy measures, technological advancements, and societal engagement, India can carve a path towards a low-carbon, resilient future that holds promise not only for its citizens but also for the entire global community.

1. Introduction

The past nine years have been reported warmest for the Earth since the modern record keeping began in 1880. Sea level continues to rise and is projected to increase by 1 to 3 feet if Greenhouse Gases (GHG) emissions are not contained. Global warming poses an irreversible threat to human society and the planet. Addressing it is only possible through global cooperation - emissions do not recognize any national boundaries (NASA, 2024). Many of the issues, discussed since United Nations (UN) conference on the environment held in 1972 at Stockholm, at the crossroads of environment and development are still relevant. This is because nations are realizing the extent of the changes needed to move toward economies and societies that are greener, more resilient, and climate neutral. It is becoming more and clearer that, among other things, addressing social inequities and preventing the creation of new ones must be the focus of this shift to a low-carbon economy, if it is to be successful. Employees and communities that presently rely on fossil fuels may see major effects from the transition to a more sustainable economy. In light of this, it is crucial to address the question of how to encourage and manage the shift toward sustainability—that is, a fundamental shift toward more environmentally friendly forms of consumption and production. The current imperative is to transform the economy and economic system in a way that is as equitable and inclusive as possible for all parties involved, while also ensuring that no one is left behind and providing

adequate employment possibilities. In a scenario where carbon-based fuels are supposed to be cheapest source of energy, every business must also look into the climate cost of doing business. In India, the costs of climate change are already occurring and are expected to escalate.

More than 75 per cent of Indian districts are exposed to extreme climate events, and estimated losses from climate-induced disasters in the past two decades near USD 200 billion (ToI, 2023). With a shrinking window to limit global warming by 2050 to well below 2^0 C above pre-industrial levels, businesses are beginning to step up and set bold Environmental, Social, Governance (ESG) and net-zero commitments. Without urgent global action, temperatures are likely to reach 4.9^0 C by the end of the 21st century, even with current policies in place. The worst impacts of climate change can be averted by limiting the increase in global temperature to 1.5^0 C above pre-industrial levels. At present, our planet is already about 1.1^0 C warmer than it was in the late 1800s, and emissions are constantly on the rise. To restrict the global warming increase to no more than 1.5^0 C, the global GHG emissions will need to drop by nearly half by 2030 and ultimately reach net zero. While setting goals for low carbon emission is somewhat straightforward, the means to achieve them can be less clear. This gap between aim and action threatens a climate-safe future. A number of obstacles stand in the way of effective climate policy. Among the most important is the fact that existing policy frameworks and economic interests continue to be geared towards fossil fuels and carbon-intensive activities, as coal, oil and natural gas have fuelled global economic development for centuries. Inadvertently or not, this creates a misalignment between existing policy frameworks and climate objectives, hindering low carbon investment and consumption choices. The challenge for developing economy like India is to set an emissions trajectory that balances global commitments with national priorities and circumstances. Policy makers face a number of structural economic, financial, social and environmental challenges. Responding to the threat of climate change implies a profound transformation in order to reduce GHG emissions over this century, in particular CO_2 from the production and consumption of fossil fuels. The policy framework required to orient the low carbon economy rests on three pillars:

- Sending a robust and credible price signal to internalise the cost of these emissions
- Regulatory measures whenever pricing is not effective
- Bringing promising low-emission technologies to commercial maturity in anticipation of more ambitious reductions.

More countries are taking action, but implementation is lagging behind in many regions, as the policy changes required tend to be resisted on social and economic grounds.

2. The Indian Perspective

At COP27, India pledged to further reduce the emissions intensity of its GDP by 45 per cent by 2030, from 2005 level. The government also committed to achieving 50 per cent of its electric power requirements from non-fossil fuel energy resources by 2030. Earlier at COP26, India announced a highly ambitious goal of decarbonizing energy to 50 per cent and achieving 500 GW of fossil fuel-free generating capacity by 2030. India also pledged to reach net-zero emissions by 2070 – an important benchmark in the fight against climate change. (IMF, 2023)

Industrialised countries must reach net-zero GHGs emissions rapidly. Emerging economies like India need to decouple economic growth from GHGs emissions to put their economies on a low-carbon pathway. These economies, however, face enormous developmental challenges as they attempt to grow in a climate-constrained world. India's climate policy challenge is situated in the context of its urgent need to create millions of new jobs, increase incomes, and improve public health in the next few decades. India's youth constitute about one-third of its 1.38 billion population, and one-third of them remain unemployed at any given time (the prevailing youth unemployment rate is 32 per cent). Moreover, four-fifths of its existing workforce of 500 million people is employed in the informal sector. Therefore, any low-carbon transition effort must generate job opportunities while also finding alternative livelihoods for the jobs lost in the fossil-fuel-dependent industries that are expected to decline (ORF, 2021).

3. The Disruptions

Resource management is a one of the key factor which dominates operational costs while setting up a mall, an airport, an SEZ, metro station, educational institution or large corporate campus. Today, resources like electricity, water and gas contribute significantly not only to the operational costs of a facility but also to its carbon footprint. The need of the hour, therefore, is to balance the eco-system while maintaining a sustainable growth of the country. It has become vital for organizations to develop and deploy a system capable of monitoring the overall support infrastructure to optimize resources use and minimize the environmental impact. The Disruptions that Low Carbon Economy can lead to are:

- Transition Costs: Shifting from carbon-intensive industries to cleaner alternatives often involves significant upfront costs. Companies and industries may face financial challenges in updating technologies, infrastructure, and processes to comply with new emission standards.
- Job Displacement: The transition to a low-carbon economy may lead to job displacement in traditional industries such as coal mining, fossil fuel extraction, and certain manufacturing sectors. It's crucial to implement effective policies and programs to retrain and support workers in transitioning industries.
- Economic Inequality: The costs and benefits of carbon mitigation efforts may not be distributed evenly across society. Low-income communities may bear a disproportionate burden, facing higher energy costs and potential job losses. Policies need to address these disparities to ensure a just transition.
- Stranded Assets: Companies heavily invested in carbon-intensive assets, such as fossil fuel reserves or infrastructure, may face financial losses as the demand for such assets decreases. This phenomenon is known as the risk of stranded assets, and it poses challenges for both investors and companies.
- Global Competitiveness: Industries in regions with strict carbon regulations may face challenges competing with those in regions with lax environmental standards. There's a need for international cooperation to ensure a level playing field and prevent ‘carbon leakage’ where industries move to regions with lower environmental standards.

- Technological Risks: The deployment of new technologies to reduce carbon emissions, such as carbon capture and storage or renewable energy sources, carries its own set of challenges. Technical failures, high implementation costs, and uncertainties about the long-term effectiveness of these technologies can pose risks.
- Supply Chain Disruptions: As industries shift toward more sustainable practices, there may be disruptions in the supply chain. Companies may face challenges in sourcing raw materials for green technologies, leading to potential bottlenecks and increased costs.
- Policy and Regulatory Uncertainty: Frequent changes in environmental policies and regulations can create uncertainty for businesses. Clear and stable regulatory frameworks are crucial to providing businesses with the confidence to invest in carbon mitigation strategies.
- Consumer Resistance: Consumers may resist changes in their behaviour or choices that come with carbon mitigation efforts. For example, there could be resistance to adopting electric vehicles, energy-efficient appliances, or sustainable consumption patterns.
- Lack of International Cooperation: Carbon emissions are a global issue, and effective mitigation requires international cooperation. Lack of consensus or commitment among nations can impede progress in achieving meaningful reductions in global emissions.

4. The Actions

Three clear, actionable innovations are critical to low carbon economy

- Embedding climate considerations across internal governance and operations while linking with company finances,
- Shifting from a linear “take, make, sell, consume, discard” model to circular and regenerative business models, and
- Addressing the entire carbon footprint of a company’s value chain.

Decarbonisation can provide opportunities for a business to remain competitive under multiple potential climate futures while also curbing emissions to avoid the worst-case climate scenarios. The 4 As of Climate Leadership are - ambition, action, advocacy and accountability.

- Ambition: Has the company set the right decarbonization targets?
- Action: Is your company prioritizing the most impactful climate actions?
- Advocacy: Is your company’s lobbying in line with your climate goals?
- Accountability: Is your company’s sustainability reporting clear and transparent?

A particular challenge confronting Indian policymakers today is the question of whether or not Indian goods and services can compete in the emerging global landscape of trade-modifying decarbonisation policies. These include the EU's proposed Carbon Border Adjustment Mechanism (CBAM), which threatens USD 41 billion worth of Indian steel exports and an unfortunate developing trend of trade disputes over policy support to domestic renewable energy manufacturers.

All stakeholders need to come together and take actions to accelerate India's decarbonisation and move towards low carbon economy. The government could provide policy and regulatory support to make projects across sectors economically viable. Support would also be required to ensure a just transition that minimizes impact on low-income households. These actions need to happen in the right sequence to avoid energy shortages, price increases, and transition disorderliness (Mckinsey, 2022). Beyond facilitating a climate action, aligning these policies with a low-carbon economy can contribute to a broader reform agenda for greener, more resilient and inclusive growth, including more progressive tax codes, pro-growth long-term infrastructure investment, and energy and transport systems that support cleaner air, better health and a more diversified energy supply.

- Scale up sustainable low-carbon investment and finance: There is an urgent and unprecedented opportunity to ensure that new investment in infrastructure supports the climate agenda while fostering economic development. The additional short-term costs of shifting to a low carbon would amount to just a fraction of the finance needed for infrastructure overall. There is no shortage of capital, but new sources of financing need to be mobilised. Financial stability is a prerequisite to any kind of investment, including low carbon.
- Look at taxation beyond energy alone: Subsidies and tax expenditures favouring the production and use of fossil fuels slow down low-carbon innovation; however, current low oil prices also present an opportunity for reform. Other taxes and tax provisions deserve a closer look (e.g. property taxes, various corporate income tax provisions), as they may encourage carbon-intensive choices. Governments also need to anticipate the impact of the low-carbon transition on tax revenues.
- Spur low-carbon innovation on a large scale: Clear and credible government commitment to ambitious core climate policy instruments is an important spur for low-carbon innovation. The low-carbon transition could – and in some cases already is– driving a boom in innovation and emerging businesses, and a parallel shift in skills and the labour force.
- Promote climate-friendly international trade: The international trade regime itself does not prevent governments from pursuing ambitious climate policies, but some international trade barriers can undermine climate objectives. The attention needs to be given by many countries to promote greener growth by favouring domestic manufacturers of low-carbon technologies. Where these measures restrict international trade, they may well undermine overall investment and the uptake of sustainable technologies.
- Revisit electricity markets: Electricity lies at the heart of a successful decarbonisation of energy systems. However, deregulated electricity markets do not deliver the long-term price signal needed for investment in high capital cost, low-carbon technologies. Ensuring competitive and timely investment in low-carbon solutions will require new market arrangements such as long-term supply agreements, as well as a robust and stable CO_2 price signal. Achieving technological breakthroughs would require consistent public and private investment. It would also require willingness among business leaders and policy makers to adopt new technologies, for example, long-

duration storage technologies to capture seasonality of renewable sources, advancement in fuel cell technology, and improvements in recycling technologies.

India needs to take thoughtful actions now to set itself up for an accelerated and orderly transition. Looking beyond the short term and laying the foundation for this transformation within this next decade is the imperative for a decarbonised India and world. 'Lifestyle for Environment' is a unique initiative which seeks to protect and preserve the environment by nudging individual and community action towards sustainable living. The intent is to base actions on the values of conservation and moderation. India's G20 Presidency is best encapsulated in its motto of One Earth, One Family, One Future. This emphasises the interconnectedness of the global community while calling for just transition and greater inclusion. India has taken substantial steps towards this. Now, with the G20 Leaders' Summit, through its Presidency, India is uniquely positioned to accelerate effective climate action (Climate Group, 2023).

India's current emissions trajectory is one of continued slow but steady growth due to its existing limited package of policies that directly and indirectly influence emissions. India's journey towards decarbonisation is a multifaceted and dynamic process, reflecting the nation's commitment to a sustainable future. The G20 Presidency has provided India with a significant opportunity to bolster its global standing and steer multilateral cooperation towards stronger climate action. Through its Presidency, it can emerge as a climate leader: championing cooperation between the global north and the global south to reflect climate justice and equity.

5. Conclusion & Way Forward

The transition to a low carbon economy is both an opportunity and a necessity. The urgency of addressing climate change is not just a global concern but a deeply personal responsibility that every Indian must embrace. India as a nation with its rich cultural heritage and diverse landscapes, stands at a critical juncture where the choices India makes today will define the quality of life for generations to come. Embracing decarbonization is not merely an environmental obligation; it is an investment in the well-being of our people, the preservation of our breathtaking ecosystems, and the sustained prosperity of our nation. By prioritizing clean energy initiatives, sustainable practices, and eco-friendly technologies, India will not only able to safeguard its ecosystem but also stimulate innovation and create new avenues for economic growth. Let us unite as a nation to champion the cause of low carbon economy, recognizing it not only as a necessity but as an opportunity to shape a future where India stands as a beacon of sustainable development, setting an inspiring example for the world. Disruptions in traditional sectors may pose challenges, but they also present opportunities for innovation, job creation, and economic growth. Governments, businesses, and individuals must collaborate to navigate this transition successfully. By embracing sustainable practices, investing in green technologies, and advocating for policies that support the low carbon economy, India can build a future that is not only environmentally resilient but economically vibrant. The time to act is now, and the path forward is clear–towards a low carbon economy for the well-being of our

planet and future generations. Together, let us tread the path of responsible stewardship, ensuring that the melody of progress harmonizes with the symphony of nature for the well-being of our beloved nation.

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