Decarbonizing Industries and Corporate Sustainability

A Roundtable Discussion as part of SwitchON Foundation's Move for Earth Symposium 2024

Science City, Kolkata, 8th March 2024

Preamble

Climate change is no longer a distant threat but a living reality, it's a huge stress on the environment as well as industries. India is now staring at a trilemma of industrial growth, societal development and mitigating climate change. We are also close to SDG goals of 2030, 2050 and 2070. However, the pace of change and possible policy paralysis make the task of achieving the goals intimidating. Companies are increasingly facing pressure from the stakeholders to adopt decarbonisation measures and net zero goals.

Towards these issues, the Switch On Foundation in collaboration with the Centre for Development and Environment Policy (CDEP), IIM Calcutta, organised a round table on Industrial decarbonisation on 8th March 2024 as part of its outreach activities. The interactive session brought together varying perspectives from industry stakeholders and think tanks regarding multiple pathways of industrial decarbonization such as utilisation of renewable energy, GHG emissions abatement and in some cases viably capturing and utilizing such gases are key to strive towards a more sustainable future. The roundtable was joined by Mr. Ankur Chaturvedi, Associate VP -Emami Group, Mr. Anupam Ray, expert - Power and Renewable Energy - KPMG, Mr. Debarka Chakraborty, Principal Consultant - Dastur Energy, Mr. Jagabanta Ningthoujam, principal and director - RMI India, Mr. Tamim Mohammad, Sr. General Manager TQM, Exide Industries, Prof. Mritiunjoy Mohanty, Professor, IIM Calcutta, Dr. Tirthankar Nag, Professor - IMI Kolkata, Mr. Tirthankar Mandal, Head of Energy Policy – World Resource Institute, Mr. Ranjan Sen, Consultant - Iron & Steel & Ferro Alloys Industry and Ms. Ranjeeta Bhattacharya, Senior Programme Manager - SwitchON Foundation. The session was moderated by Prof. Runa Sarkar. The objective of the roundtable was to evaluate the present scenario and dive deep into carving out a roadmap to foster the transition to renewable energy while safeguarding the interests of stakeholders. Innovations like block chain, EV (electric vehicle) have also been debated thoroughly to bolster the penetration of renewable energy. Pathways developed by the European Union and the Middle East were also evaluated for emulating the model in the Indian context. What follows is a summary of the discussions that transpired in the form of a white paper.

Agenda of the Round Table

Industry decision makers as well as regulators are keen on cutting back on their power consumption, specifically coal generated power and moving towards greener alternatives to reduce GHG emissions. Naturally, the role of renewable energy sources comes to the forefront to lower industrial carbon emissions. However, while industries look for viable alternatives, the question is whether renewable energy sources are enough to fulfil industry demands as well as economically feasible for industries to adopt decarbonisation measures that will require significant overhauling of existing infrastructure. Further, as India moves towards achieving

its net zero goals, the Indian government has introduced several policies and guidelines to accelerate this process including gradually phasing out relatively old and inefficient coal fired power plants, encouraging local production of green hydrogen to kickstart the clean fuel based industrial economy and giving industries incentives to adopt renewable energy. So how ready are industries to implement these climate adaptation measuresin their daily operations?

Discussion

The roundtable discussion painted a promising picture as industrial stakeholders discussed their decarbonisation measures and voluntary disclosures. For the industries represented at the roundtable, the majority of emissions are concentrated in the Scope 3 category which are diffused among suppliers and therefore difficult to measure. Companies continue to identify areas of operation to cut back on their Scope 1 and Scope 2 emissions which are directly controlled by companies. While investing in Electric Vehicles (EVs), recyclable packaging etc. helps lower a company's carbon footprint, industrial stakeholders agree that strategic and diligent measures are required to cut back on their power consumption for a green transition.

Most of the coal related discourse in the context of industrial decarbonisation has been electricity centred and challenges in electricity distribution centres increase carbon emissions due to lack of guidelines, bureaucratic process, outdated infrastructure and apathetic attitude. However, with the buzz around sustainability, concern around climate change is not something new, it's just nations putting more emphasis on non-conventional security issues like climate change, governments and transnational institutions are coming up with frameworks and regulations that will limit degradation of the environment caused due to human activities. While developed nations, specifically European Union (EU) countries are ahead in adopting positive changes, global south is still catching up, India being a developing country that is going through rapid infrastructural transition but as world's fifth largest economy and an activemember of international community, India's Nationally Determined Contributions to achieve net zero by 2070 will play a major role in keeping global emissions down and help achieve theScience Based Targets (SBTi) to limit global temperature rise to 1.5°C and other sustainability benchmarks that align with the Paris Agreement.

So it's important for Indian industries to be at par with their global and regional competitors when it comes to implementing these standards and benchmarks however it's needless to say the high upfront cost of building sustainable infrastructure and completely phasing out coal based electricity at present is near impossible for a nation like India that has been highly dependent on coal since independence. So companies are exploring renewables and investing in R&D to find ways to integrate sustainable alternatives such as green hydrogen and biofuels. The challenge here is once again the nascency of proven technologies, high cost of manufacturing or procuring these sustainablealternatives. So capacity building is paramount to facilitate green transition which will help industries to gradually shift away from coal and fossil fuels considering as infrastructure like power plants get older they generate more pollution as their efficiency falls. The supply challenges in the power sector are hindering climate adaptation measures. Electricity generation cost is much lower than the selling prices, inefficiencies in distribution companies (DISCOMS) including T&D losses drive up electricity prices.

Green hydrogen and now, Blue hydrogen are being promoted as sustainable alternatives but there aren't enough studies on the long term implication of transitioning to these alternative fuels, plus existing infrastructure has to be compatible so that they can run on green hydrogen. Therefore, companies are not proactively willing to invest in a technology that from their perspective is still on a trial run. Many businesses are opting for hybrid models where they partially transition to renewables and energy efficient technologies where they can meet their short term sustainability goals as they gradually move towards their longer term goals which will require them to decommission assets that are carbon intensive. SynGas, industrial fuel-rich waste gases and biofuels are also considered a viable option as they are low cost compared to other low carbon fuels, whilesolar energy remains the most conventional source of renewable energy.

The government plays an important role in setting guidelines for companies to follow when it comes to industrial decarbonisation but due to the nature of Indian polity, policy penetration is very asymmetrical across the country as different state governments do not contribute equally to incentivise adoption of renewables. As a result, states like Gujarat, Maharashtra, Kerala and Tamil Nadu are leading when it comes to harnessing renewable energy like solar and wind and applying concessions, states like West Bengal, Jharkhand are lagging behind. It should be also taken into account that the states that are lagging behind fall in the region where coal mines are cheaply available in India. Jharkhand state is home to India's largest measured coal reserves, it is also one of the states that ranks low in Human Development Index in India, with a large number of its population living in poverty whose lives and livelihoods are dependent on coal industry, it is difficult to dismantlethe existing economic ecosystem and implement transition measures as it will be counterproductive if not provided with alternative means of employment.

On the other hand, Government PSUs like Coal India Limited and Singareni Collieries Company Limited, are the country's two largest producers of coal and play a vital role lobbying to keep the coal sector running and central to the Indian economy. Coal India Ltd is the ninth largest employerin India so it can exert considerable influence in policy formulation to ensure that the coal sector is also steadily subsidised.

It becomes even harder to track carbon emissions as it varies from sector to sector considering their emissions are often concentrated in certain points of their supply chain based on the industry so enforcing decarbonisation policy can become difficult unless there are mechanisms that enforce transparency in voluntary disclosures. To attract investments in the state, governments and policy makers aren't always enthusiastic about enforcing environmental policies, resulting in carbon disclosures and sustainability measures by companies being mostly voluntary.

Apart from the power sector, transportation was also identified as the next major carbon emitter. As EVs become increasingly common companies are switching their transportation to EV fleets to cut back their emissions. This is also not a fool proof plan as EV batteries which are made of rare metals such as lithium and cobalt generate considerable pollution during the mining and extraction phase and have been linked to many human rights violation cases in Africa.

It also becomes challenging for smaller companies and MSMEs to implement these changes so their emissions have a compounding effect on the overall emissions of the larger companies

they are supplying to. However, it can also be argued there aren't any concrete regulations and enforcement for MSMEs owing to the fact they only contribute to a minuscule of the total industrial emissions, so the onus once again is on the big corporations to decarbonise their supply chain.

Energy transition becomes more attractive when they are backed by innovation and skill development. Companies who are worried about the cost of transition fail to see the opportunities of investing in R&D for a greener future. Inability to adapt to the changing market needs poses its own risks. Companies who are embracing these changes are going to be the ones that will have technological edge over their competitors, lowered compliance risks and better public perception making them attractive to their shareholders, investors and consumers.

The concerns around industrial waste management remains poignant, especially when untreated industrial toxic water gets dumped directly into rivers, it greatly affects the pH level of the water which is destructive to its biodiversity. The Central Government has set up the 'National Ganga River Basin Authority' (NGRBA) vide gazette notification dated 20th Feb, 2009 as a collaborative institution of Central and State Governments under the Environment (Protection) Act (EPA) of 1986 for abatement of pollution of River Ganga. (Central Pollution Control Board, n.d.). Despite that Ganga remains one of the most polluted rivers in the world. Other anthropogenic causes such as post-harvest stubble burning spikes air pollution in north Indian states, where air quality degrades to dangerous levels affecting the health and quality of life of people living in those states but also the neighbouring states due to winds.

While companies are trying to come up with ways to track their Scope 1, 2 & 3 emissions, they are also putting efforts on their 'Product Lifecycle Management' thanks to concepts like 'Circular Economy' which has provided companies and regulators with frameworks and guidelines on waste management, recycling and repurposing. Incorporating the principles of circular economy holds companies accountable about how their products are discarded and whether they are decomposable or not, pushing them to use more sustainable materials in their value chain.

Key Takeaways

The key takeaways from this session were-

- The strategy entails the importance of transitioning towards a sustainable circular economy, focusing on reducing carbon emissions from production units and exploring environmentally viable solutions for industries and their value chains.
- To seek energy solutions that are both economically viable and environmentally sustainable, it is imperative to stress the importance of shifting away from environmentally exploitative practices towards approaches that minimize negative impacts while maximizing profitability.
- Emphasis on addressing Scope 2 and Scope 3 emissions, with speakers urging industries to prioritize decarbonization through the adoption of new technologies to achieve net-zero emissions.

- The importance of enhancing energy efficiency in industries needs to be done. This includes building capacity for industries to improve energy efficiency practices, ultimately reducing their carbon footprint.
- A strong commitment from industries to achieve net-zero carbon emissions is required. This commitment reflects a growing awareness and willingness to transition towards more sustainable practices.

Recommendations

- The panelists debated various solutions to combat climate change and to achieve decarbonisation. However, any measures taken towards decarbonisation mustsafeguard the interest of its stakeholders. Hence, we can have an integration oftechnology, policy and governance as well as behavioural changes to achieve our goal.

  For example, Uttar Pradesh has embraced block chain for solar power trading. This project is being implemented by an Australian Company - Power Ledger in partnership with India Smart Grid Forum (ISGF). (ETEnergyWorld, 2019)

- India is also witnessing a steep growth in the EV sector. Union Minister, Nitin Gadkari proposed to have 100% of buses, 80% of 2 and 3 wheelers and 70% of commercial vehicles to be EV based. An average household spends approximately 9,000 per month on transportation, which is about 16% of the monthly expenditure. Hence, shifting to Electric Vehicle (EV) will lower the cost. (PTI, 2021)
- In the construction sector fly ash could be used and synthesis gas could be used for low-carbon steel production and other key base chemicals which feed into the petrochemicals, specialty chemicals and even pharmaceutical API industry.
- Also, a well-defined net metering and gross metering policy needs to be drafted and implemented in all states, especially West Bengal which will ensure penetration of players in the RE domain. A net zero policy at every level - starting from organisation to state and central government level is the need of the hour, which shall be in congruence with international standards and agreements aimed towards fulfilling India’s ambitious targets.
- Moreover, drastic measures, both in terms of policy and implementation, are required in terms of energy efficiency and utilization to mitigate wastage of energy.
- Further, recycling can play a major role in the process. Steel industry can utilize scrap steel, which will reduce per unit energy consumption and lesser usage of petcoke. Some industries already have the practice of collecting scrap through their subsidiary companies, which not only reduces waste generation but also contributes towards a circular economy.
- Finally, 4 key pillars for transition were carved out - technology, policy, economy and market. A sustainable solution needs all four pillars to work in synergy.

Reference

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