

Decarbonisation of Indian Economy

What is the issue?

India's announcement of achieving net-zero emissions by 2070 has highlighted the importance of decarbonising the economy but the road ahead will be challenging.

What is decarbonisation and what will be the impacts?

Decarbonisation is the process of reducing the amount of carbon, mainly carbon dioxide (CO₂), sent into the atmosphere.

- Industrial decarbonization will propel India towards a sustainable future and further towards deep decarbonisation but it also causes loss to several players.
- People working in fossil fuels and energy production, heavy industry and the vehicle manufacturing sectors are expected to be significantly impacted in the coming decades.
- Steel, petrochemicals, aluminum, cement, and fertilizer sectors are hard to abate sectors and cleaner pathways are yet to prove themselves economically.
- Besides maintaining global competitiveness, heavy industries due to their longer lifespan they cannot retire their existing machinery and switch to green fuels due to associated costs very quickly.
- Another problem with heavy industries is the requirement of high temperature heat (>500 Degree Celsius), which can only be provided by burning fossil fuels.

Figure 1: Industrial decarbonization challenges



What approach is needed for decarbonisation of economy?

- **Breaking up into shorter periods** - By 2070, there will be many changes in technology, environmental conditions and the economy.
- The planning horizon of about 50 years will need to be broken up into shorter periods so that new knowledge about emerging technologies can be incorporated into plans.
- Five years, as the UK has used seems reasonable.
- **Setting up an autonomous agency** - A technically credible agency like the Climate Change Committee (CCC) in the UK should be set up.
- Its members should be recognised experts in their fields to provide independent advice to the government regarding long-term and interim (five-year) targets.
- It would also monitor progress and annually report and suggest mid-course corrections.
- **Targeting the power sector** - The power sector has to be focussed because it is the biggest source of GHG emissions and also the easiest one to decarbonise.
- It would be best to have a single emissions-related objective so that an optimal strategy can be developed at the lowest cost.
- Setting permissible emission intensity in terms of grams of carbon dioxide equivalent per kWh of electricity sold would be a good option for targets in the power sector.

India is anticipating that 80-85% of the country's electricity demand will be met from renewable sources by 2050.

- **Need for a Coordinated Approach** - There are separate targets for

almost every resource such as solar, non-solar renewable energy, hydropower, etc.

- It reduces the flexibility of distribution companies to select resources to meet their loads resulting in a non-optimal resource mix and a higher cost of electricity.
- India needs a coordinated approach for decarbonisation of economy.

Figure 2: Possible pathways for decarbonizing India's industrial sector



Clear road map with sector-specific targets
Including industry-specific targets and strategies in the Nationally Determined Contributions



Expanding the decarbonization umbrella
Including MSMEs under the decarbonizing umbrella through policy intervention such as PAT scheme



Technology transfer
Platform for facilitating knowledge and technology transfer through innovative partnerships with European countries such as UK



Promoting circular economy
To ensure sustainability in terms of reducing process emissions and waste management

References

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