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# BRIEF

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## TOWARDS MORE RELIANCE ON CARBON PRICING IN INDIA

### EXECUTIVE SUMMARY

The STG Climate Cluster is studying pragmatic means of promoting a wider use of carbon pricing in emerging economies, particularly those belonging to the G20. As part of their commitments under the Paris Agreement, countries are showing more interest in putting a price on carbon as this helps to cut emissions in a cost-effective manner. The focus is therefore to find pragmatic approaches to add carbon pricing tools to the domestic policy mix.

At the end of 2020, UN Secretary-General Guterres pleaded to the European Council for Foreign Relations to plan for a green recovery post-COVID, stopping the financing of coal immediately and putting a price on carbon. Yet, despite the numerous second round pledges for carbon neutrality under the Paris Agreement, very few countries have consistent policies in place which would deliver both. In this respect, India offers an interesting case-study. There are many opportunities, challenges and pitfalls in the energy transition moving away from a high reliance on coal.

In this policy brief, four 'no regret' steps towards an intersectoral carbon pricing scheme are formulated. These would gradually strengthen the institutions that support and embed carbon pricing in India. The steps include reforming existing energy policies, extending corporate climate risk disclosure, developing a sustainable finance taxonomy, and further supporting greenhouse gas monitoring, reporting and verification. Before outlining the four policy options, we offer a summary of India's energy and climate policy context.

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*The opinions of the authors represent personal opinions and do not represent the position or opinion of the European University Institute*

## SOLAR SUCCESS

India has been making headlines with record-breaking solar energy prices in 2020. The price of generating electricity from solar in India is now lower than the price of generation from coal. It is making steady progress towards its renewable energy targets of 175 gigawatt (GW) by 2022 and 450 GW by 2030,<sup>1</sup> set in the National Infrastructure Pipeline. The solar success is a result of a global cost reduction of solar energy and of Indian governmental policy: the transparent capacity tenders organised by the Solar Energy Corporation of India (SECI) attract a mix of investors, financed by domestic and foreign capital. Moreover, under the 'One Sun, One World, One Grid' banner, the Modi government aims to export its solar success to more than 100 countries.

Amidst growth in solar, it would be easy to forget that India is still a coal-intensive economy, with coal counting for more than half of total energy supply. Although coal-generated electricity is taking the full hit of the COVID downturn, with new solar capacity overtaking new coal capacity in 2020, coal will be a major source of power for years to come. The government officially still holds on to the planned 75 GW of new coal-based power installations by 2025, more than half of the current EU capacity. While investors have taken fright at stranded coal assets, the government has definitely not yet excluded new coal development.

Whereas the promotion of renewable energy is a direct result of policy, the slowdown in coal investment is mainly driven by financial considerations. Coal is increasingly seen as a carbon liability warranting a risk premium in climate risk appraisals undertaken by domestic and international financial institutions. However, there is no public policy to stop building new coal-based power installations, to phase-out the existing ones, or to stop financing them, which could be argued for from a climate policy or even energy market perspective.

## INDIA'S NDC AND MARKET-BASED MECHANISMS

This twin-track coal-solar approach is also the backdrop for India's Nationally Determined Contribution (NDC) under the Paris Agreement.

India made a triple promise, to:

- increase the share of non-fossil fuels to 40% of the total electricity generation capacity;
- reduce the emissions intensity of the economy by 33-35% by 2030 from 2005 level;
- create an additional carbon sink of 2.5-3 billion tonnes of CO<sub>2</sub> equivalent through additional forest and tree cover.

India's expected economic and population growth is expected to lead to a tripling of energy demand.

The bifurcated energy system co-exists in India with three market-based economic instruments in the energy sector:

- a 'coal cess', or tax, on coal production,
- the Renewable Energy Certificates (REC) scheme which sets targets for the uptake of renewable energy across all energy distribution companies,
- the Perform-Achieve-Trade (PAT) scheme which targets the reduction of energy consumption per unit of output in eight energy intensive sectors and industries in the country (thermal power, aluminium, cement, fertilizers, iron and steel, pulp and paper, textiles and chlor-alkali).

Although each of these market-based instruments have their merit, the schemes have been undermined by lower prices than expected and hence their effectiveness is reduced significantly.

Prices are low, with Energy Saving Certificates (ES-Certs) trading at around €4/ESCert and the coal cess at around €4.4/tonne of coal. Since the beginning of the PAT scheme, the ESCerts have lost two-thirds of their value. At the beginning of the COVID crisis, the government considered suspending the coal cess, but thus far has not done so. The 'coal cess' initially financed a clean energy fund, but as the revenue stream grew with the increase of the cess, earmarking was discontinued and the cess now finances the general budget.

Moreover, none of the instruments bear a direct relation to CO<sub>2</sub> equivalent. The schemes focus on energy efficiency, renewable energy and making coal consumption more expensive, but they are not carbon denominated and only indirectly give an

<sup>1</sup> This compares with power generation capacity of 366 GW in 2019. The targeted solar capacity would result in a share of renewables (including wind, hydro and biomass) in power generation of 20% in 2022 and 30% in 2030.

incentive towards decarbonisation. If there is one important thing the EU learned from its Emissions Trading System (ETS) is that a direct link with CO2 equivalent as well as a significant carbon price helps in reducing the carbon content of the power system. The Indian market-based mechanisms would benefit from reforms to make the incentives stronger, to establish a clear carbon price signal, and to raise revenues.

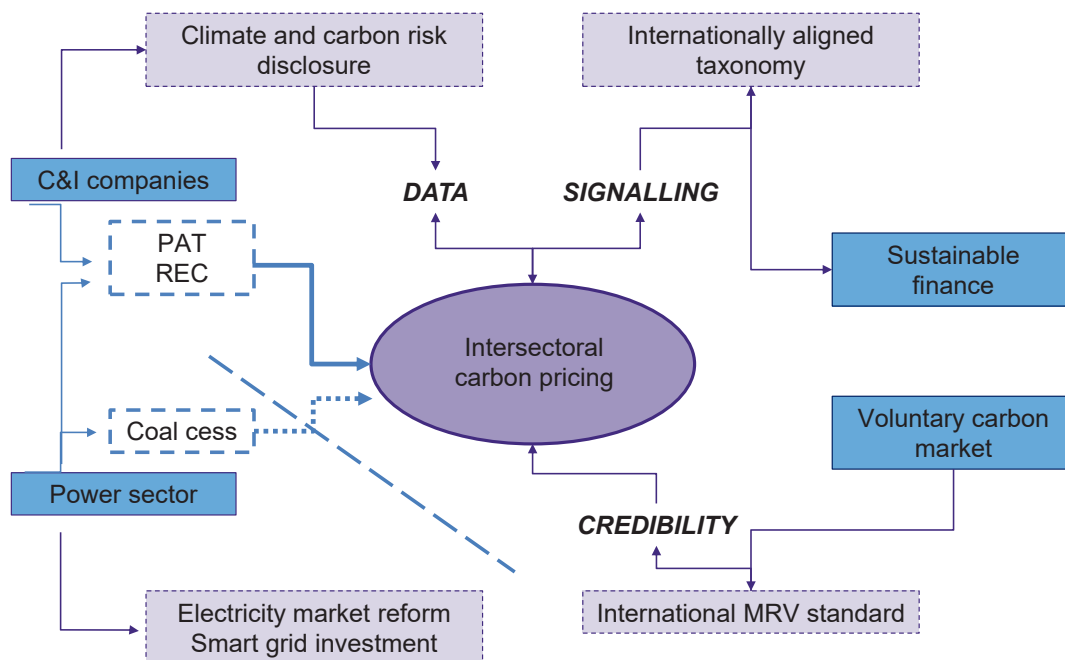
## WHICH WAY FORWARD FOR CARBON PRICING IN INDIA?

Carbon pricing still exhibits strong advantages as a policy instrument, as stated by the Carbon Pricing Leadership Coalition in its [fourth progress report](#):

- It provides an incentive. Carbon pricing changes investment, production, and consumption patterns, while stimulating technological innovation to bring down the cost of emissions abatement measures.
- It is an effective and cost-efficient way to reduce emissions, in particular when carbon pricing forms part of a well-designed suite of policies.
- It quantifies market externalities. Putting a price on carbon gives decision-makers a tool to better assess the risks and opportunities presented by climate change.
- It generates revenue that can be used to deal with distributive impacts or to encourage low-carbon innovation and investment.

The issue is therefore to consider ways of gradually inserting carbon pricing initiatives into the institutional policy context of India. Four complementary no-regret options emerge. They are presented in the figure below and explained in the four following sections.

### Schematic view of the four non-regret measures towards intersectoral carbon pricing in India:



## 1: REFORM OF PAT AND REC INTO CARBON-DENOMINATED ALLOWANCES

As indicated above, the prices of ESCerts and RECs are low, thereby losing most of their incentive effect. After 5 years in place, and with the benefits of learning-by-doing, the schemes are ready for reform, as part of a broader reform of the energy market. Indeed, for carbon pricing to produce its incentive effect, it needs a functioning energy market where electricity producers, suppliers and consumers react to the price signal.

A useful and coherent step would be to convert the ESCerts to carbon-denominated allowances, sharpen the performance benchmark, and trade excess carbon allowances resulting from overperformance. In such a way, a cap-and-trade system could emerge, based on a carbon intensity benchmark. The incentive effect would have a direct impact on the carbon emissions, which would be consistent with the Indian NDC to decrease the emissions intensity of the economy. The market would quickly adapt to using carbon-denominated allowances. The resulting market price could also function as a benchmark against which to design policies for non-PAT sectors.

The PAT scheme has a wide coverage in manufacturing industry but does not include the power sector. A particular question therefore arose on whether the coal cess should also be integrated in the carbon pricing scheme. Inclusion would make the pricing scheme more focused in its original purpose and guarantee an efficient price signal across all sectors. It would also reinforce the incentive signal of the scheme.

Three arguments cautioning against such an approach can be formulated. Firstly, solar and increasingly also wind energy do not need additional incentives anymore as they are already cheaper than thermal coal. Hence, the Indian NDC aiming to increase the share of non-fossil fuel in electricity generation capacity can be delivered without inclusion of the power sector in the future carbon pricing scheme. Secondly, the switch from coal to gas which has followed the higher ETS's price in the EU might, in the short term, not be repeated in India, given the poor gas resources and infrastructure. Indeed, a carbon price needs a well-designed energy market and infrastructure to react to the price signal. In India,

a high carbon price would mainly push electricity prices up, by 66% in the case of a \$50 carbon tax according to the [IMF](#), instead of pushing out coal. Lastly, the coal cess, in effect an implicit carbon tax which raises revenue, does not sit well with a cap-and-trade system primarily focused on an incentive effect. If the government does not want to lose the revenue, it would need to auction allowances and bring the power sector emissions - half of the total fuel-related greenhouse gas emissions - under the overall cap.

For these reasons it appears unlikely that the power sector would join an intersectoral carbon scheme anytime soon. It will thus be up to cheap renewable energy and storage to turn the tables and steadily push coal out of the power system. To support this evolution, further energy market reform and smart grid investment will be needed.

## 2: IMPOSE MANDATORY CLIMATE AND CARBON RISK DISCLOSURE RULES FOR ALL LARGE COMMERCIAL AND INDUSTRIAL COMPANIES

India has almost ten years of experience with non-financial reporting. In 2012, the Securities and Exchange Board of India (SEBI) mandated the top 100 listed companies by market capitalisation to file Business Responsibility Reports (BRR). These disclosures were intended to enable businesses to engage more meaningfully with their stakeholders and encourage them to go beyond regulatory financial compliance and report on their social and environmental impacts. The requirement for filing BRR was extended to the top 500 listed companies by market capitalisation from the financial year 2015-16. In December 2019, SEBI extended the BRR requirement to the top 1000 listed companies by market capitalisation, from the financial year 2019-20.

In the absence of a carbon price, it is a measure of no regret to start reporting on carbon risk. Reporting in itself would require an assessment of risks and opportunities presented by climate change and might spur some actions. The recommendations of the international Task Force on Climate-related Financial Disclosure have detailed the reporting and disclosure standards from an international finance perspective. Sharpening the SEBI compliant impact reporting to carbon and climate disclosure rules that

are in conformity with these international disclosure standards would raise awareness amongst the company executives, as well as amongst a broader group of investors and stakeholders.

India may consider extending the current SEBI obligation even further to at least all large-scale companies, accounting for around 40% of GDP, comparable to the remit of the EU ETS. From the perspective of carbon pricing, it would force these companies to already be compliant with carbon monitoring, reporting and verification (MRV) standards. Attaching a carbon price alongside the measured emissions would allow the calculation of the climate risk of a company as part of its overall financial assessment. The carbon price makes the financial risk related to its carbon emission intensity explicit. In the absence of an intersectoral carbon price, either SEBI would need to determine a shadow carbon price for reporting or companies would need to determine their own.

### **3: ALIGN THE INDIAN TAXONOMY WITHIN THE INTERNATIONAL PLATFORM FOR SUSTAINABLE FINANCE**

India is estimated by [Standard Chartered](#) to need some \$2.6 trillion of sustainable investment to achieve the Sustainable Development Goals 6, 7 and 9 on access to affordable and clean water and energy, sustainable transport, and digital access. The private sector could cover a substantial part of this, if stable, scalable and sustainable business models can be created. Indeed, India is already attracting substantial international finance for its solar and wind development. The challenge is to expand this attractiveness for international finance to other sectors, such as water and transport, as well as blend and de-risk sustainable investments through national infrastructure funds and international Development Finance Institutions (DFIs).

A sustainable finance taxonomy is a promising tool to identify which activities contribute to climate and environmental objectives. India's current taxonomy is related to the SEBI requirements for the issuance and listing of green debt securities (mainly green bonds). A reflection is under way on a broader taxonomy of green investments, both within India and within the Platform for Sustainable Finance, of which India is a member. At the last meeting of the

Platform, the EU and China announced that they will explore the common ground covered by their respective taxonomies. It is in the interest of India to closely monitor these developments, with a view to developing its own scheme.

Like carbon disclosure, broadening the taxonomy and aligning with international standards is a no regret measure that might contribute to the introduction of an intersectoral carbon pricing scheme. Both instruments are complementary. Whereas the sustainable investment screening based on the taxonomy impacts the cost of capital, an explicit carbon price strengthens the rate of return of the sustainable investments. Hence, the carbon price would represent a clear signal on the sustainability of investments and lend credibility to the sustainable finance taxonomy.

### **4: ALIGN WITH INTERNATIONAL MRV RULES TO MAKE ANY VOLUNTARY CARBON MARKET CREDIBLE**

The third commitment of the Indian NDC is to generate an additional carbon sink of 2.5-3 billion tonnes of CO<sub>2</sub> equivalent through additional forest and tree cover. The investment in nature-based solutions has traditionally been marred by poor monitoring, reporting and verification. The initial enthusiasm for the Clean Development Mechanism under the Kyoto Protocol among buying countries has evaporated accordingly. The EU has explicitly banned any such credits from its ETS. Indeed, lack of credibility of nature-based projects can undermine the environmental credibility of any domestic or international carbon trading scheme.

The flawed experience of the last decades, combined with renewed appetite for voluntary commitments by industry, have led the International Finance Institute under the leadership of UN climate envoy Mark Carney to try to restore credibility to this market. The formulation of minimum standards, market institutions and market integrity assurances are what a voluntary carbon market would need to attract substantial sustainable finance. This voluntary market is expected to grow on the back of initiatives, such as the International Civil Aviation Organization's market-based mechanism CORSIA and corporate net zero announcements. The voluntary market is in need of a credible footing.



Given India's carbon sink NDC, there is in any case a need for adequate MRV procedures for nature-based projects. If carbon sink credits would be used in any domestic and international voluntary carbon market, this need becomes a prerequisite. The EU experience has underlined how important it is for market mechanisms to be underpinned by robust MRV systems. In anticipation of an intersectoral carbon pricing scheme, a no regret investment in MRV credibility is warranted and is already a useful intermediate step.

## CONCLUSION

The opportunities and challenges the low-carbon energy transition presents to a coal-intensive emerging economy like India are huge. India has a state-of-the-art tendering mechanism for installing renewable energy and this triggered spectacular growth of investment particularly in solar energy. In addition, it has shown leadership in introducing three different economic instruments of relevance to the energy transition. These have not yet had sufficient incentive effect, despite the fact targets are being met.

Four 'no regret' policies could further prepare the Indian economy for the ongoing energy transition: reform of the current market-based instruments into carbon priced instruments, extension of disclosure of climate-related risks, adopting a comprehensive sustainable finance taxonomy, and aligning MRV rules for voluntary carbon markets with international standards. These policy options would fall short of creating an intersectoral carbon pricing scheme, but would help support its future development. More importantly climate considerations would need to be extended to power generation in view of driving the low carbon transition and addressing the continued use of coal. However, in their own right, these proposals would contribute to a strengthened implementation of India's NDC and facilitate its interaction with financing institutions and carbon markets globally.

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