CLIMATE FINANCE IN INDIA

PAPER 3
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ABOUT THIS PAPER SERIES

While there have been strides made in climate finance mobilisation and deployment, there are still several gaps and the quantum mobilised till date lags behind the requirements. In the face of the climate emergency, there is a need to immediately mobilise large amounts of climate finance, from across all sources, for developing countries. This collection of papers explores areas and approaches for facilitating the required finance mobilisation in India. Building on existing research and assessments, the papers in this report dive deep in the following four themes:

- The State of Climate Finance: Understanding Past and Future Trends
- Climate Finance Flows to Developing Countries: Untapped Opportunities
- Climate Finance in India
- Catalysing Private Climate Finance Readiness for Mainstreaming Article 9 at the Subnational Level: Context of India

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EXECUTIVE SUMMARY

Developed countries committed USD 100 billion to climate finance by 2020, but fell short of their target, which was then extended to 2025. The financing gap is much wider for developing countries to achieve their climate goals. This paper presents the financing required to meet India's renewable energy targets by 2030 and beyond, which is aligned with 1.5°C scenario.

ABOUT THE AUTHOR

Vibhuti Garg is an Energy Economist, Lead India at the Institute for Energy Economics and Financial Analysis (IEEFA). With more than 17 years of experience, her work includes enhancing national and international understanding of India's progress; helping inform governments and financial institutions globally about the pace and opportunities of reforms in India; accelerating finance into clean energy solutions to achieve decarbonisation of the energy sector; and, helping to achieve energy security in a self-reliant India.

INTRODUCTION

92%[1] of excess global carbon emissions is produced by the Global North, as per a report published in The Lancet Planetary Health. Yet, climate change disproportionately impacts the Global South where people and communities are much more vulnerable to the impacts of extreme weather conditions than those in the Global North.

At the 16th Conference of the Parties (COP) in 2010, developed countries pledged to mobilise USD 100 billion per year by 2020 to tackle and minimise the impacts of climate change, and help developing countries in the Global South to accelerate decarbonisation of their energy sectors.

The USD100 billion per year in climate finance was a central element of the Paris Agreement, as well. However, donor countries in the Global North have not kept to their promise and the deployment of funds is much lower than the target. The commitment was reiterated and extended to 2025 at COP21.

As per the ODI report,[2] Germany, Sweden and Norway are the only developed countries —out of 23 that were responsible for donating international climate finance—that paid their fair share of the annual USD 100 billion. Based on historical emissions and national income, the United States had the biggest shortfall.

Moreover, majority of the finance (~71%) has been in the form of loans.[3] This is creating a debt trap for economies in the Global South, still reeling from the COVID-19 pandemic, and are now taking a further hit from the Russia-Ukraine war.

The economic impacts of COVID-19 and the war have highlighted the need for countries to redouble their efforts to accelerate their energy transition pathways and reduce reliance on expensive and unreliable fossil fuels. To enhance energy security, job creation, reduce import bills etc., countries in the Global South will have to invest in building renewable energy capacity, energy efficiency, solutions for grid integration (such as pumped hydro and battery storage), and new technologies such as off-shore wind and green hydrogen. Investment is also needed for grid modernisation and strengthening.

The Global South needs to channel more investments. Domestic capital will be insufficient to meet climate goals, so what is needed is additional allocation of international capital to the Global South. However, while there is no dearth of capital, the availability of climate finance for developing countries has been limited so far.

FULFILLING THE USD 100 BILLION GOAL

Since 2015, the Organisation for Economic Co-operation and Development (OECD) has been tracking the progress of developed countries towards the USD 100 billion climate finance goal, and also produced projections of the timeline (2021-25) when this goal of climate finance is likely to be met.[4] The scenarios are grounded in a detailed OECD analysis of forward-looking information on public climate finance submitted by developed countries and multilateral development banks (MDBs) in connection with the Delivery Plan prepared by developed countries.

The Delivery Plan maps out the progress made till date by the donor countries as per the USD 100 billion goal, and also provides an approximate trajectory of climate funding from 2021 through to 2025. The developed countries and MDBs have announced new climate pledges which have also been taken into account, as well as collective qualitative actions to make good on the finance commitment.

The level of public climate finance available from developed countries and MDBs will be dependent on a host of factors such as macroeconomic conditions, project pipelines in partner countries, future recapitalisations, and the ability to raise further funds from capital markets etc. The future levels of climate finance are also reliant on the ability of public finance interventions to mobilise private finance.
To account for uncertainties, two distinct storylines for future levels of both public and mobilised private finance are considered. These are a plausible range of possible outcomes and may not capture the full range of possibilities.

FULFILLING THE USD 100 BILLION GOAL

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	Public climate finance	Export credits	Mobilised private finance
Scenario 1	Based on countries and mutilateral development banks fully delivering on their intended climate finance commitments, in terms of both volume and timing	Both scenarios assume flat volumes based on 2019 levels	Assumes a constant ratio of private and public climate finance throughout the period, based on the minimum annual ration observed over 2016-2019. The effect of increasing shares of finance for activities that may not mobilise much private finance (e.g. finance for adaptation, capacity building, as grants, to LDCs/SIDS) is offset by a continuous improvement in the rate of mobilization for activities that do have significant private finance mobilization potential.
Scenario 2	Delays in scaling up climate financedue to a wide range of factors, e.g. macroeconomic conditions, capacity constraints	Both scenarios assume flat volumes based on 2019 levels	Assumes a lower and declining ratio of private tp public climate finance over the period relative to 2016-2019. This is the net result of increasing levels of public finance, shifting portfolio composition and no or very limited increase in the rate of mobilization for activities that do have significant finance mobilization potential.

FIGURE 1: DETAILS OF FORWARD-LOOKING SCENARIOS

climate finance is likely to be met.[4] The scenarios are grounded in a detailed OECD analysis of forward-looking information on public climate finance submitted by developed countries and multilateral development banks (MDBs) in connection with the Delivery Plan prepared by developed countries.

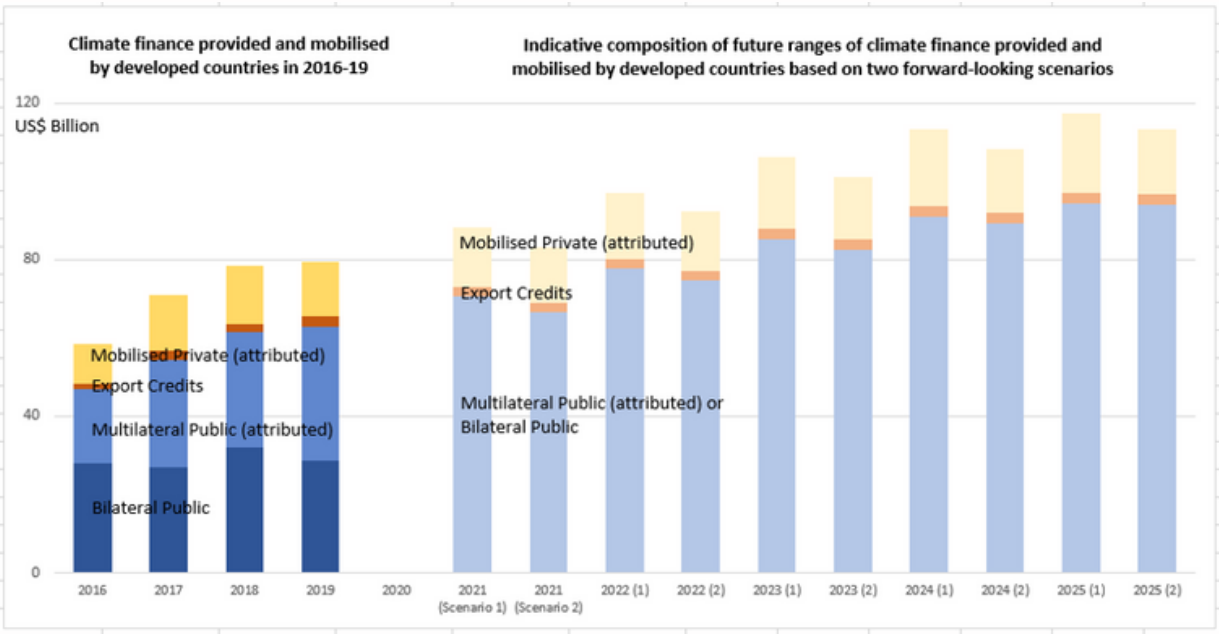

FIGURE 1: DETAILS OF FORWARD-LOOKING SCENARIOS
SOURCE: OECD
** DUE TO TIME LAGS IN OFFICIAL REPORTING, DATA FOR 2020, THE INITIAL TARGET YEAR FOR THE GOAL, WILL NOT BE AVAILABLE BEFORE 2022.*

As per OECD estimates, the developed countries' deployment of finance for climate funds increased from USD 58.5 billion in 2016 to USD 79.6 billion in 2019. The data for 2020 is not yet available, but it is unlikely that the USD 100 billion goal will be achieved.
As per the 2016 Roadmap projections, public finance in 2019 was in line with projections. Adaptation finance doubled from 2013 levels, whereas public grant financing increased to USD 16.7 billion. Mobilisation of private finance remained flat during the 2017-2019 period, amounting to ~USD 14 billion, implying a shortfall of USD 19 billion compared to the 2016 Roadmap projections.

As per projections, developed countries are expected to make appreciable strides towards their USD 100 billion goal in 2022, with the goal being met in 2023.
In both forward-looking scenarios, public climate finance, from bilateral and multilateral providers, converges over time towards the providers' stated intentions, pledges and targets, with some delays under Scenario 2. The difference between public finance numbers in both scenarios, therefore, shrinks over time, while the difference between mobilised private finance numbers grows.

Developed countries need to undertake some actions to achieve their climate finance trajectory. As per the Climate Finance Delivery Plan, a 10-point action agenda has been identified for developed countries to improve their delivery and mobilisation of climate finance to 2025.[5]

Increasing the scale of climate finance:

- Increasing finance for adaptation
- Prioritising grant-based finance for the poorest and most vulnerable
- Addressing barriers in accessing climate finance
- Strengthening the Financial Mechanism of UNFCCC and the Paris Agreement
- Working with MDBs to increase and improve climate finance
- Improving the effectiveness of private finance mobilised
- Reporting on our collective progress transparently
- Assessing and building on lessons learned
- Taking into account the broader financial transition needed to implement Article 2.1(c) of the Paris Agreement."

RAISING CLIMATE AMBITION IN LINE WITH PARIS GOALS

The OECD Delivery Plan is formulated on the basis of pledges made by developed countries in 2009. However, the need to raise climate ambition accelerated with the Paris Agreement goal of limiting global warming to well below 2°C, and preferably to 1.5°C, compared to pre-industrial levels. Climate finance will have to be enhanced in order for the world to meet the more ambitious 1.5°C goal; USD 100 billion per year will not serve the purpose. The Emissions Gap Report 2021[6] reveals that global warming can be restricted to 2.2°C if net zero emissions goals are effectively implemented, suggesting that there is a need to scale climate finance for countries to get closer to their climate goals.

Finance will be a key enabler in helping countries to reach their climate goals and limit global warming to 1.5°C. As per McKinsey's report[7], USD 275 trillion of global capital spending on physical assets for energy and land-use systems will be required in the net-zero transition between 2021 and 2050, which translates to about USD 9.2 trillion per year on average. This would require an annual increase of as much as USD 3.5 trillion of capital funds to meet the net zero goals. In addition to the current annual spend, an extra USD 1 trillion needs to be reallocated from high-emissions to low-emissions assets.

The report further highlighted that the spending as a share of GDP today by sub-Saharan Africa and India to support economic development and build low-carbon infrastructure would require 1.5 times more investment compared to advanced economies. The global average in a 'Net Zero 2050' scenario would be about 7.5% of GDP, whereas India's capital requirements would be 11% of GDP.

A few developed countries have enhanced their financing commitments:

- Japan, Canada, and Germany reaffirmed their goal to donate USD 100 billion annually through to 2025[8];
- In September 2021, the European Union has pledged an additional USD 5 billion by 2027;
- UK expanded its finance commitment to GBP 11.6 billion in the next four years;
- President Biden pledged that the U.S. will commit USD 11.4 billion annually by 2024.

While there has been an increase in commitment, there is still a wide gap and these pledges lack immediacy, too There is a need for developed countries to massively scale climate

finance, and also reduce, and eliminate, fossil fuel capital subsidies. Also grant-based financing needs to be prioritised to draw private investors into spheres that face financing challenges. Furthermore, the role of private capital has to be amplified in order to make the transition to net-zero emissions at the required pace.

INDIA'S NEED FOR CLIMATE FINANCE

To mitigate this climate risk, India has set ambitious targets for renewable energy. This transition has become even more critical in light of increasing financial risks of reliance on fossil fuels. The volatility of oil and gas prices has exposed the vulnerability of nations that rely on such expensive fuels. Oil and gas prices reached unprecedented lows in 2020 and all-time highs in 2021 and 2022.

India needs to transition to renewable energy, thereby empowering the government to meet additional targets like energy security, energy self-reliance, job creation, and lowering imports of expensive fossil fuels, leading to a lower import bill.
India's energy supply growth is now being led by renewable energy capacity additions.

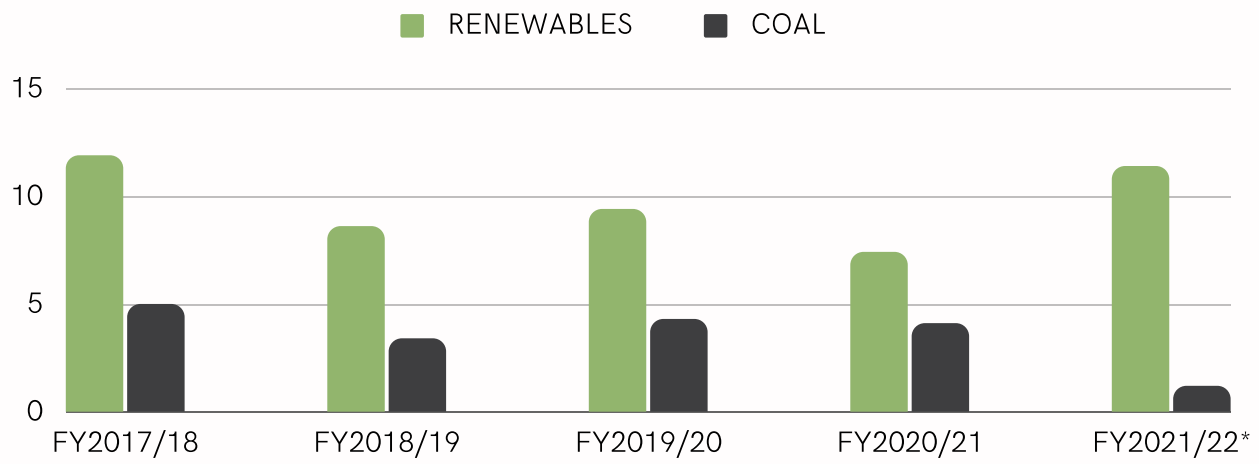

FIGURE 3: CAPACITY ADDITIONS OF COAL VS RENEWABLES IN INDIA 2017 - 2022
SOURCE: CEA, MNRE, IEEFA CALCULATIONS
** TILL JANUARY 2022*

The transition to renewable energy is now synonymous with countries committing to net zero. While net zero emissions would include demand-side measures like energy efficiency, carbon capture storage etc., the larger focus is on the supply side by increasing the deployment of renewable energy.

At COP26, Prime Minister Narendra Modi enhanced India's clean energy target and pledged to achieve net zero by 2070. The targets also included increasing non-fossil capacity to 500 gigawatts (GW), renewable sources to supply 50% of total energy requirements, reducing emissions by 1 billion tonnes, and reducing the emissions intensity of the economy by 45% from 2005 levels by 2030.

PM Modi also demanded that rich countries contribute more; USD 1 trillion in climate finance just for India over the next decade. The demand for USD 1 trillion far exceeds the USD 100 billion a year commitment to enable developing countries achieve their climate goals. While private investment into clean energy in India has increased, it is critical that

concessional public capital is directed towards deployment of proven new zero-emissions technologies at scale instead of fossil fuel imports.

Developed countries have failed to keep their climate finance promise, and this breach of trust has made countries in the Global South sceptical about enhancing their climate ambitions. Developed countries now face the dual demand of meeting their own net zero targets while further increasing climate finance for developing countries beyond the initial USD 100 billion commitment. While USD 1 trillion is the new ask, it should not be the ceiling. Developed countries need to ratchet up their commitment of climate finance to developing countries.

As per the IEA India Energy Outlook 2021[9], the expected annual investment for deployment of renewable energy, battery storage, electric vehicles and network expansion, and grid modernisation is USD 110 billion in the Sustainable Development Scenario (SDS) for India. This reflects the net zero roadmap for India but shifts the goal post from 2070 to 2050. Current investment is about USD 40 billion, thereby requiring an investment increase by three times. However, the actual investment requirement to achieve the net zero goal would be much higher than the SDS scenario, which means the investment gap would be even wider.

AVENUES OF FINANCE

As renewable energy went mainstream, the financing landscape has transformed. A variety of financing avenues are now available to the renewable energy sector. Private equity, sovereign wealth funds, global pensions and infrastructure funds, global fossil fuel utilities, and oil & gas majors are the key institutions that will play a pivotal role.

On the debt side, bond instruments are well suited to funding renewable energy infrastructure projects, as they provide long-term capital at competitive rates (given the project revenues are secured by 25-year power purchase agreements), raised from a diverse set of investors. Green bonds are the most widely used bond instrument to fund renewable energy assets. Another set of bond instruments, sustainability-linked bonds, have been used extensively by global utilities such as Enel and Total Energies to raise capital for their clean energy initiatives[10]. Such bonds have also started to make inroads in the Indian markets with Adani Electricity Mumbai recently raising USD 300 million in sustainability-linked bonds in July 2021.[11]

In the 2022 Budget speech, India's Finance Minister announced issuance of sovereign green bonds (SGB) by the government. Availability of SGB will help drive investment into projects that reduce the carbon intensity of the economy and enhance availability of funds for energy transition. The issuance of SGB will further catalyse Indian corporates to issue green bonds, adding to the current USD 1.86 trillion pool of global green bond investments.[12]
While the Indian government will be issuing a rupee-denominated sovereign green bond, IEEFA recommends that the government should also consider offshore issuing the rupee-denominated sovereign bond. This will avoid foreign currency risk by improving liquidity of the rupee in foreign markets by providing benchmark pricing for future corporate issuances.

While bonds may be more suited for renewable energy projects, the majority of debt used during construction is raised through term loans from banks and financial institutions domestically, which is then refinanced either through another loan facility with more favourable terms or through bond issuances. These term loans are usually raised at higher rates given the execution risk involved. A viable alternative to raising term loans domestically is to tap foreign lenders willing to venture into the renewable energy sector.

On the equity front, while an initial public offering (IPO) or private placement helps raise fresh capital and provides an exit for start-up investors, asset level monetisation is imperative for renewable energy companies to keep recycling capital from operational projects to under-construction projects.

Pooled investment vehicles such as Infrastructure Investment Trust (InvITs) allow companies to monetise operational cash generating assets by pooling multiple assets under a single entity, and being listed on the National Stock Exchange provides investor liquidity. The local InvIT market is increasingly considered a key facilitator of this rapidly expanding domestic-foreign capital interplay, leveraging very strong centre government policy support. This represents a very important global precedent of how the enormous developed world capital investor pool is already being matched to developing country financing needs when the policy and financial risks are aligned and balanced.

Players like Indian government finance organisations, multilateral development banks (MDBs) and development finance institutions (DFIs), as well as Indian power billionaires are another set of key institutions providing development capital, which is also considered to be the riskiest form of capital. The difference between global and local commercial banks and MDBs is that MDBs do not seek to maximise investment returns, which allows them to invest in high-risk countries and sectors.

Economic, social and governance (ESG) investing is now increasingly becoming a part of the mainstream financial system. Globally, as well as in India, we are witnessing more ESG-labelled funds coming up with enhanced aspirations and targets in the clean energy financing sphere. India has the potential to attract a large part of this capital through adopting green bond frameworks, enhancing credit rating of projects, adopting globally recognised ESG frameworks and principles, and creating a robust investor outreach program.

As per Platts CEC, carbon prices are booming, rising 900% during 2021.[13] In 2021, voluntary carbon markets are gaining momentum and hit a record of USD 1 billion in traded volumes. This could provide a good platform for Indian companies to trade their carbon credits.

FIGURE 4: INVESTMENT IN INDIA'S RENEWABLE ENERGY INFRASTRUCTURE AS OF FEBRUARY 2021
SOURCE:IEEFA

INVESTMENT IN RENEWABLE ENERGY

In the renewable energy sector, more than INR 5.2 lakh crore (USD 70 billion) has been invested between 2014 to 2020.[14] Investments dropped from USD 8.4 billion in FY2019/20 to USD 6.4 billion in FY2020/21, representing a 24%decline. However, 2021 witnessed a revival of energy demand and the government enhanced its renewable energy targets, as well. Further, with the commitments from various banks and financial institutions to move away from fossil fuel investments, and the improving risk-return metrics of renewables over expensive imported fossil fuels, the share of renewable energy investment is rising.

In FY2021/22, investment in renewable energy totalled USD 19 billion, far exceeding the investments in renewable energy in the last two to three years. Analysis of investment deals in the last two years indicates that the majority of investment happened through acquisitions. SB Energy's USD 3.5 billion[15] sale was the largest deal in the Indian renewable energy sector.

The other big deals were rafted as debt, equity investment or green bonds, followed by mezzanine funding. In August 2021, ReNew Power was listed on NASDAQ by completing its business combination with RMG Acquisition Corporation II, wherein ReNew received USD 610 million in net proceeds as part of this transaction.[16]

Even established companies like Reliance and Adani Group are shifting their capital investments to renewable energy. For example, Mukesh Ambani, Chairman of Reliance Industries, has committed investment of INR 75,000 crore (USD10 billion) by 2024 to develop four giga-factories on 5,000 acres of land in Jamnagar, Gujarat.[17] Reliance further enhanced its investment outlay to achieve net-zero emissions by 2035 to INR 5.95 lakh crore (USD 80 billion) in clean energy and other projects in Gujarat.[18] Even Gautam Adani, Chairman of Adani Group, has said that they will invest USD 20 billion in clean energy generation,[19] component manufacturing, transmission and distribution over a 10-year period.
The profit maximisation principle and the desire to avoid high emissions stranded assets guides investor decisions, and outlays will be directed towards areas with better chances of returns. The chart below shows the total return (share price + dividends) comparison between Coal India, Adani Transmission and Adani Green. Over the last five years (15 March 2017-15 March 2022), while Adani Green and Adani Transmission have given astronomical returns of 5,579% and 3,273% in the renewable energy generation and transmission businesses respectively, Coal India has destroyed shareholder wealth by generating ~-11% returns during the same period.

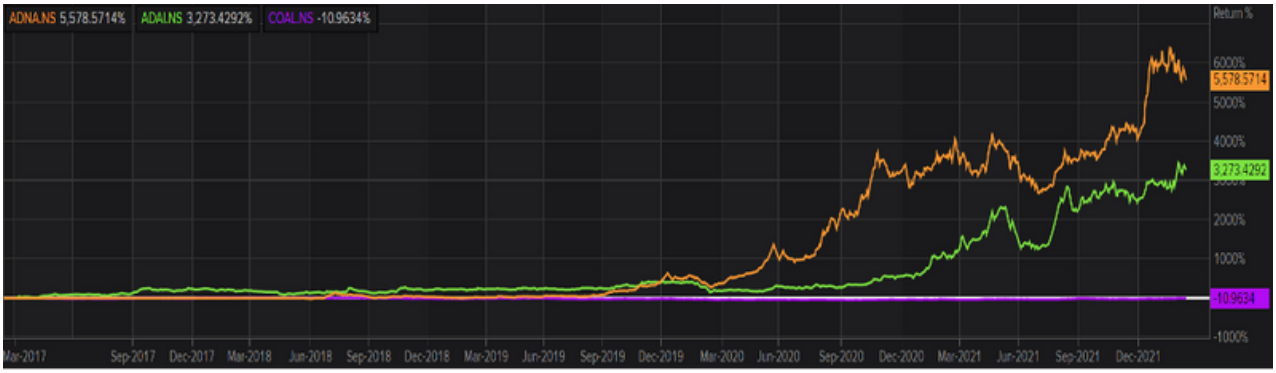

FIGURE 5: SHARE PRICE PERFORMANCE OF ADANI GREEN, ADANI TRANSMISSION AND COAL INDIA
SOURCE:REFINITIV

The situation is even more serious when just price returns are considered – Coal India's share price has fallen by ~41% over the last five years. Adani Green and Adani Transmission have not given any dividends during the period.

Name	Price Return (Holding Period %)	Total Return (Holding Period %)
Adani Green Energy Ltd	5,578.5714	5,578.5714
Adani Transmission Ltd	3,273.4292	3,273.4292
Coal India Ltd	-41.2368	-10.9634

FIGURE 6: PRICE AND TOTAL RETURNS OF ADANI GREEN, ADANI TRANSMISSION AND COAL INDIA
SOURCE:REFINITIV

CONCLUSION

India will benefit from a strong climate action policy that needs to be further strengthened. India should leapfrog into renewable energy technologies, which will also help meet the government's objective of a self-reliant economy by focussing on domestic manufacturing. As part of its climate diplomacy efforts, India should focus on channelising more funds for meeting its objective of a more sustainable, low-carbon economy.

India is pushing for domestic fossil fuel resources to meet energy security, development, job creation and other social requirements. However, with many international banks and financial institutions announcing fossil fuel exit policies, there is decreasing availability of international capital. India will be able to attract more capital in more bankable renewable energy, firming capacity, and grid modernisation.

Renewable energy tariffs are deflationary and are hovering in the range of INR 2-2.5/kWh. Renewable energy tariffs may increase due to the imposition of basic custom duties (BCD) and disruption in supply of solar modules, but with improved technology innovation and domestic manufacturing of cells and modules, prices will follow a downward trajectory and are likely to hit a record low of Rs1/kWh within the next ten years. Similarly, for battery storage and electric vehicles, prices will go down, further compromising the competitiveness of fossil fuels, which are, on the other hand, following an upward price trajectory.

Coal India Ltd faced a 15-20% wage rise in 2021 which will push up coal prices.[20] With the increasing coal and oil and gas prices in 2021 and the Russia-Ukraine war in the first quarter of 2022 exposing India to price volatility and energy security risk, the transition to clean energy will have to happen much earlier than expected.

The task ahead is daunting yet achievable. India needs to invest in sustainable energy choices to decarbonise not only the power sector but industries, buildings, transport, agriculture, forestry and other land use. India is investing in the immense potential of electric vehicles, battery storage, and green hydrogen, and both public and private players are putting big money into indigenous development of clean energy solutions that will decarbonise, not only the power and transport sectors, but other hard-to-abate sectors, too.

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