

ISSUE BRIEF

THE ROAD FROM PARIS: INDIA'S PROGRESS TOWARD ITS CLIMATE PLEDGE

India announced its pledge to cut greenhouse gas (GHG) emissions intensity by 33 to 35 percent, relative to 2005 levels, by 2030. This builds on the pledge it made at the 2009 Copenhagen Climate Conference to cut its energy intensity by 20 to 25 percent by 2020. India's climate pledge is a strong target and places clean energy at the center of its plan for economic growth. India has played a key role in the adoption of an amendment to cut heat-trapping pollutants known as hydrofluorocarbons (HFCs) under the Montreal Protocol.

OVERVIEW OF NATIONAL CIRCUMSTANCES

With 1.2 billion people and counting, India holds nearly one-fifth of the world's population.¹ In 2013, India was the third-largest emitter of GHGs, ranking behind only China and the United States and accounting for 6 percent of the global total.² Nearly 22 percent of its population earns less than \$1.25 per day, and over 200 million people are without access to reliable electricity; accordingly, poverty alleviation, economic development, and energy access are top priorities for the Indian government.^{3,4} As India works toward these goals, its gross domestic product (GDP) is expected to grow 6 to 7 percent each year over the next decade.⁵ To achieve low-carbon economic growth, the

Indian government has committed to global environmental leadership while using clean energy resources to power a sustainable and prosperous future for a rapidly growing population.⁶

As of March 2015, electricity generated by coal-fired plants constituted 61 percent of India's installed capacity. Another 15 percent comes from hydropower, 13 percent from renewable energy sources, 9 percent from oil and gas, and 2 percent from nuclear plants.⁷ While coal consumption will still increase with India's energy needs, its share of the overall energy mix will decline in the coming decades as renewable energy increases.



**INDIA WILL CUT
ITS EMISSIONS
INTENSITY BY** **33-35%** **OF 2005
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THE PARIS AGREEMENT

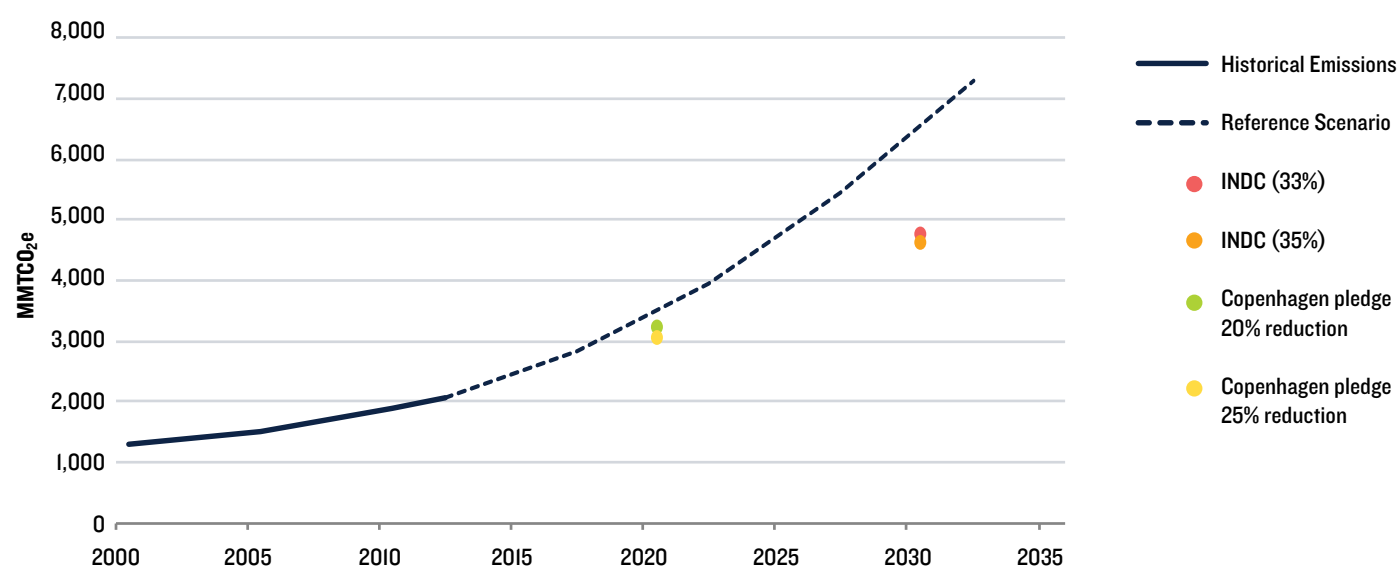
In late 2015, the 21st session of the Conference of the Parties (COP21) to the 1992 United Nations Framework Convention on Climate Change (UNFCCC) was held in Paris. The 196 nations that are part of the UNFCCC approved the Paris Agreement, which aims to limit global temperature rise to 2 degrees Celsius, and to make best efforts to keep it to 1.5 degrees. To that end, countries submitted intended nationally determined contributions (INDCs) detailing the level to which they planned to cut emissions and their plans to reach that goal. The Paris Agreement entered into force on November 4, 2016—and the INDCs are now formally enshrined as part of the Agreement—and hereafter referred to as nationally determined contributions (NDCs).

INDIA'S CLIMATE PLEDGE

The Paris Agreement entered into force on November 4, 2016. The agreement recognizes countries' climate pledges, which detail domestic plans to reduce GHG emissions after 2020, as "nationally determined contributions." India's pledge offers a comprehensive approach to curb the worst impacts of climate change while fostering economic growth, increasing energy access, creating jobs, protecting forests, and providing cleaner air and water for its citizens. The pledge includes the following commitments:

1. To put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation.
2. To adopt a path that is climate-friendly and cleaner than the one followed hitherto by others at a corresponding level of economic development.
3. To reduce the emissions intensity of its GDP by 33 to 35 percent by 2030 from 2005 levels.
4. To achieve about 40 percent cumulative electric power installed capacity from non-fossil-fuel energy resources by 2030 with the help of technology transfer and low-cost international finance, including support from the Green Climate Fund (GCF).
5. To create an additional carbon sink of 2.5 to 3 billion tonnes of CO₂ equivalent through additional forest and tree cover by 2030.
6. To better adapt to climate change by enhancing investments in development programs in sectors vulnerable to climate change, particularly agriculture, water resources, the Himalayan region, coastal regions, health, and disaster management.
7. To mobilize domestic funds and new or additional funds from developed countries to implement the above mitigation and adaptation actions, in view of the resources required and the resource gap.
8. To build capacities and create domestic and international frameworks for quick diffusion of cutting-edge climate technology in India and for collaborative R&D for future technologies.⁸

INDIA'S GHG EMISSIONS INCLUDING LULUCF



Source: Natural Resources Defense Council; Reference Scenario, based on Government of India Biennial Update Report, emissions projections from IESS 2047's Least Effort Scenario, India's INDC submission to the UNFCCC and calculations using World Bank 2005 GDP and OECD GDP growth projections of 5.8 percent.

CLIMATE MITIGATION POLICY

Renewable Energy

Renewable energy is the foundation of India's emissions reduction strategy. India has expanded its Jawaharlal Nehru National Solar Mission (NSM) and set a target of 100 gigawatts (GW) of installed solar energy capacity by 2022. That is five times the previous target of 20 GW. India's solar industry is expanding rapidly. By September 2016, total installed capacity exceeded 8 GW—a more than 500-fold increase from 2010.⁹ A number of domestic and international financing institutions and solar companies have announced investments that will help India meet this target.¹⁰ Assessments from 2014 suggest that India has more than 700 GW of overall solar energy potential.

In the summer of 2016, the Indian Ministry of New and Renewable Energy drafted the National Occupational Standards and Qualifications Packs on Solar Skill Development Courses.¹¹ These standards include descriptions of functions, performance levels, and skills required for various solar power jobs. This measure will ensure that solar power job candidates have the necessary qualifications,¹² which in turn will help India achieve its renewable energy goals. Given its large potential and the strong policy and financial support to maximize it, solar power expansion is a top priority for the Indian government.

Prime Minister Narendra Modi has set a solar investment target of \$100 billion by 2022, and government officials are working to incentivize renewable energy investments and eliminate barriers.¹³ These policy improvements have been effective so far, contributing to a 59 percent increase in renewable energy investment in 2015 over the previous year.¹⁴

India's wind energy industry is similarly positioned for strong growth that will help shift the nation to a low-carbon path. India is currently the world's fifth-largest wind energy producer, with an installed capacity of more than 27 GW. This represents 9 percent of India's total installed power capacity.¹⁵ Through its proposed National Wind Mission (NWM), India plans to install 60 GW of utility-scale wind power and 1 GW of distributed wind power by 2022.

In 2010, an innovative coal cess, or tax, was introduced to fund and accelerate the expansion of clean energy. India has quadrupled this coal cess to approximately \$6 per metric ton to generate \$4 billion annually for its National Clean Energy Fund.¹⁶ In addition, India has leveraged international cooperation in support of clean energy. For example, the U.S.–India Clean Energy Finance (USICEF) initiative will mobilize \$400 million for clean and renewable electricity for up to 1 million households by 2020. At the same time, the U.S.–India Catalytic Solar Finance Program will create a \$40 million fund for small-scale renewable energy investment, especially in rural and economically stressed villages not currently connected to the energy grid.¹⁷

Energy Efficiency

Under India's National Mission for Enhanced Energy Efficiency, the Perform, Achieve, and Trade (PAT) program encourages energy-intensive industries—such as thermal coal power plants and cement and steel manufacturing—to become global efficiency leaders. India also has strong standards and labeling programs for key appliances such as air conditioners, fans, and lighting fixtures.¹⁸ Other key initiatives include:

- The Market Transformation for Energy Efficiency program, which uses innovative measures to accelerate the shift to energy-efficient appliances and equipment in designated sectors.
- The Energy Efficiency Financing Platform, which creates mechanisms to finance demand-side management programs to reap energy savings.
- The Framework for Energy-Efficient Economic Development, which develops fiscal instruments to promote energy efficiency.

The National Mission for Enhanced Energy Efficiency is delivering savings of millions of tons of fuel and conserving gigawatts of energy while reducing greenhouse gas emissions.¹⁹

Green Buildings and Energy Codes

India is expecting 400 million more people to move to already resource-strapped urban areas by 2050, increasing demand for energy and new infrastructure.²⁰ Energy codes (such as the Energy Conservation Building Code) and ratings systems (including the Green Rating for Integrated Habitat Assessment for all new government buildings) are expected to reduce cumulative electricity consumption by 3,453 terawatt-hours (TWh) by 2030. This is equivalent to the annual energy use of 358 million Indian homes between 2014 and 2030, based on the current annual consumption level for households with electricity.²¹

The aforementioned Energy Conservation Building Code, which incorporates energy efficiency measures into building construction, has been adopted by 10 leading states. India already ranks fourth in the world in Leadership in Energy and Environmental Design (LEED)-certified buildings, with 13.24 million gross square meters of certified LEED space.²²

Transport Sector

The Indian automobile market is expanding rapidly, so stronger fuel efficiency standards are critical for reducing emissions intensity in the transport sector. In a strong move, the Indian government has decided to leapfrog from the current BS IV vehicle emission norms straight to BS VI norms (equivalent to Euro VI emission standards) by 2020.²³ The Corporate Average Fuel Consumption standards from 2015 require that passenger vehicles improve mileage by 15 percent by 2022. In addition, in 2015 India released the Auto Fuel Vision and Policy meant to increase fuel quality and reduce vehicular emissions by 2025.²⁴ The

National Electric Mobility Mission Plan 2020 was launched in 2013 to subsidize the cost and facilitate the sale of six million to seven million hybrid and electric vehicles over five years. New Delhi's mass-transit system serves 2.6 million daily riders, reducing the number of vehicles on the streets and avoiding the associated emissions. Other major cities are following suit.

Green Banks and Green Bonds

India has more than 400 million people who still depend on hazardous biomass and kerosene for cooking, heating, and lighting.²⁵ Better financing will help bring safer, cleaner energy to the people of India. It is estimated that more than \$140 billion in financing is needed over the next six years to reach India's solar, wind, and efficiency targets.²⁶

India is exploring ways in which innovative financing can help foster low-carbon economic growth and development. The Indian Renewable Energy Development Agency (IREDA), the nation's leading clean energy financing body, has announced plans to become the Green Bank of India. India's leadership on clean energy financing has the potential to transform global markets and tip the scales for rapid global clean energy deployment. Innovative financial mechanisms and institutions, such as green bonds and

green banks, have proved successful from the local to the international level. They can help propel India's solar and wind energy markets while supporting critical energy-saving and climate resilience projects.

THE ROAD AHEAD

The Indian government is already hard at work paving its low-carbon pathway. Key features of its plan include a renewable energy law, a national renewable energy fund, state-level green funds, a national renewable energy advisory group, and a national renewable energy committee.²⁷ For India and other burgeoning economies, clean energy finance will prove instrumental for powering renewable energy markets and meeting climate targets.

India is playing a significant role in multilateral climate change discussions. Going into Paris, India laid strong foundations for greater global cooperation on climate action through its pledge. India has agreed to the adoption of an amendment to the Montreal Protocol, joining the international community to phase down HFCs, whose climate impact is thousands of times greater than that of carbon dioxide.²⁸ In October, India formally joined the Paris Agreement on climate change, demonstrating once again its commitment to a sustainable, low-carbon future.

ENDNOTES

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