



# India's Climate Action Performance Globally: Leading the Way Among G20 Nations

## Introduction

The global fight against climate change has reached a critical juncture, with nations striving to meet ambitious targets under the Paris Agreement. Among the G20 countries, India has emerged as a key player, demonstrating remarkable progress in its climate action commitments despite significant developmental challenges. This article delves into India's climate performance globally, its comparison with G20 nations, and the factors contributing to its relative success. Moreover, it highlights

how India's Public Sector Enterprises (PSEs) play a pivotal role in achieving sustainable development goals.

## India's Leadership in Global Climate Forums

India has established itself as a prominent advocate for equity, climate justice, and sustainable development on the global stage. As a key participant in international climate negotiations, including the Conference of Parties (COP) under the United Nations Framework Convention on Climate Change

(UNFCCC), India plays a pivotal role in shaping global climate policies. With ambitious climate action targets, such as achieving net-zero carbon emissions by 2070, India has not only set a high bar but has also delivered on its commitments, becoming the only G-20 nation to meet its Paris Agreement targets ahead of schedule. Reflecting its dedication, India updated its Nationally Determined Contributions (NDCs) in August 2022 and has made notable progress in advancing its climate goals since then.

## India's Updated Nationally Determined Contributions (NDCs) – August 2022

### 1. Emission Intensity Reduction

Reduce the emissions intensity of its GDP by 45% by 2030 from 2005 levels. India had already achieved 24% reduction in 2016 itself. The emission intensity of its GDP has been reduced by 33% between 2005 and 2019.

India now aims to achieve approximately 50% cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030. A significant progress has been made under this target, the cumulative electric power installed capacity from non-fossil fuel-based energy resources is 186.46 MW, which is the 43.81% of the total cumulative electric power installed capacity by October 2023.

### 2. Non-Fossil Fuel-Based Energy Capacity

### 3. Carbon Sink

Create an additional carbon sink of 2.5 to 3 billion tonnes of CO<sub>2</sub> equivalent through afforestation and reforestation by 2030.

Mobilize domestic and new & additional funds from developed countries

### 4. Sustainable Funds

### 5. Climate-resilient infrastructure

Build capacities, create domestic framework and international architecture for quick diffusion of cutting-edge climate technology

Better adapt to climate change by enhancing investments in development programmes in sectors vulnerable to climate change

### 6. Development Programmes Investments

### 7. Climate-resilient infrastructure

Build capacities, create domestic framework and international architecture for quick diffusion of cutting-edge climate technology

Propagate a healthy and sustainable way of living through a mass movement for 'LIFE' – 'Lifestyle for Environment'. Mission LIFE is an India-led global mass movement to nudge individual and community action to protect and preserve the environment.

### 8. Sustainable Lifestyle





India has consistently championed the principle of Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC) in global climate negotiations, advocating for equity and climate justice for developing nations. It has called on developed countries to honour their financial and technological commitments. At COP29, India, along with other developing nations, strongly

emphasized the need for climate finance, demanding \$1.3 trillion annually from developed countries. However, when this demand was unmet, India expressed strong criticism of the final New Collective Quantified Goal (NCQG) of \$300 billion per year by 2035.

During the 2023 G-20 Summit, held under India's presidency, the nation showcased its

leadership in environmental and climate action. The summit's theme, "One Earth, One Family, One Future," highlighted the importance of collective efforts to address global climate challenges. Key achievements included the establishment of a Global Biofuels Alliance and a focus on promoting sustainable lifestyles and consumption patterns to combat climate change and biodiversity loss.



Under the visionary leadership of Hon'ble Prime Minister Shri Narendra Modi, India has played a pivotal role in shaping the global sustainability agenda. India actively participates in initiatives such as the First Movers Coalition, a World Economic Forum initiative involving 13 countries and 80 companies aimed at introducing green technologies in hard-to-abate sectors like steel and cement. Other significant contributions include the International Solar

Alliance (ISA), Coalition for Disaster Resilient Infrastructure (CDRI), Leadership Group for Industry Transition (LeadIT), InsuResilience Global Partnership, India-Denmark Green Strategic Partnership, and India-Germany Green Strategic Partnership, all of which reflect India's growing influence in advancing green development globally. Furthermore, India's collaboration with the United States under the Climate and Clean Energy Agenda 2030

highlights its commitment to fostering international cooperation. Through these efforts, India continues to champion a fair, inclusive, and sustainable global climate agenda.

### Climate Action Performance of G20 Countries\*

Over the past three decades, India has significantly reduced carbon emissions, consistently maintaining its position as the lowest emitter among the top



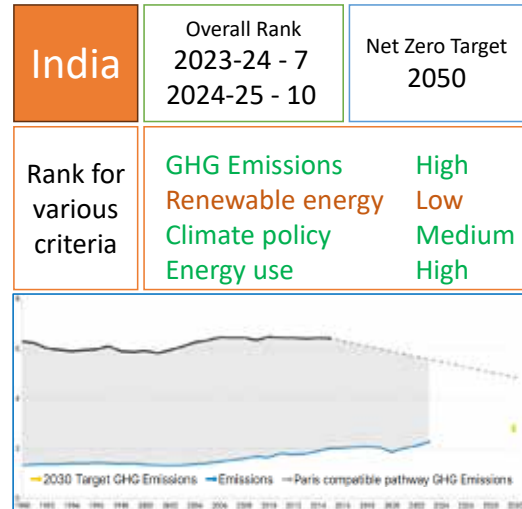


20 regions. Its achievements in renewable energy adoption are equally commendable, with 45.5% (203.18 GW) of electricity generated from renewable sources in 2024, earning it the 13<sup>th</sup> position globally. India ranks 4<sup>th</sup> worldwide in total renewable energy capacity, including wind and bio power installations, and 5<sup>th</sup> in solar and hydro power. According to the latest Climate Change Performance Index (CCPI), India ranks 10<sup>th</sup> overall and stands out as one of the top-performing G20 countries.

Global efforts to combat climate change highlight stark disparities in ambition and progress across nations, with some countries taking proactive steps while others lag. On the leading edge, the **United Kingdom**, and the **European Union (EU)** have demonstrated strong commitments. The UK aims to phase out coal production by 2024, achieve an 81% reduction in greenhouse gas (GHG) emissions by 2035, and fully decarbonize its power system by 2030. Similarly, the EU targets a 55% emissions reduction by 2030 and climate neutrality by 2050, spearheading international climate commitments through initiatives like the Loss and Damage Fund. The **United States** has also made notable progress, with the Inflation Reduction Act boosting renewable energy

capacity. However, it lacks a federal target to phase out fossil fuels, and future policy could be impacted by political changes. The **African Union (AU)** is fostering regional collaboration through renewable energy adoption, climate-smart agriculture, and equitable climate finance to address its vulnerability despite minimal emissions contributions.

Several nations have made progress in climate action, but significant challenges remain. **France** has improved renewable energy targets but faces delays in coal phase-out and risks from over-reliance on nuclear energy. **Germany** has advanced its renewable energy sector, yet emission gaps persist in the buildings and transport sectors. **India** is on track to meet its NDC targets, driven by renewable energy growth, although its heavy reliance on coal remains a concern. **Mexico** lacks sector-specific decarbonization plans and continues to struggle with deforestation and land-use conflicts. Meanwhile, **South Korea** has set ambitious NDC targets to achieve 70% renewable energy by 2050 but faces criticism for ongoing oil and gas



exploration. In contrast, several nations exhibit mixed progress. **China** leads in renewable technology, such as solar and electric vehicles, yet plans to increase coal and gas production. **Brazil** has expanded its renewable energy capacity significantly, but deforestation and fossil fuel reliance undermine its climate goals. Similarly, **Indonesia** has set net-zero targets by 2060 but remains dependent on coal, with renewables accounting for just 13.1% of its energy mix. **Japan** pledges net-zero by 2050 but lacks a detailed roadmap, with insufficient plans to phase out coal. **Australia** targets 43% emission reduction by 2030 but plans coal and gas expansion. Also, **Italy** has delayed coal phase-out and new gas projects and lacks strong economy-wide emissions targets.

Climate Change Performance Index (CCPI) of G20 Countries				Rank for various criteria				Paris compatible pathway and 2030 target compared with current development (per capita emission)
Country	Overall rank 2024	Overall rank 2025	Net Zero Target	GHG Emissions	Renewable Energy	Climate Policy	Energy Use	
Argentina	53	59	2050	VL	VL	VL	M	





<b>Australia</b>	50	52	2050	M	L	L	VL	
<b>Brazil</b>	23	28	2050	L	M	M	M	
<b>Canada</b>	62	62	2050	VL	VL	VL	L	
<b>China</b>	51	55	2060	VL	M	M	L	
<b>European Union</b>	16	17	2050	M	M	M	M	
<b>France</b>	37	25	2050	M	L	L	M	
<b>Germany</b>	14	16	2045	M	M	M	M	
<b>India</b>	7	10	2070	H	L	M	H	
<b>Indonesia</b>	36	42	2060	L	M	L	L	
<b>Italy</b>	44	43	2050	M	L	L	M	
<b>Japan</b>	58	58	2050	L	VL	VL	L	
<b>Mexico</b>	38	39	NA	M	L	VL	H	
<b>Russia</b>	63	64	2060	VL	VL	VL	VL	
<b>Saudi Arabia</b>	67	66	2060	VL	VL	L	VL	
<b>South Africa</b>	45	38	2050	L	VL	M	H	
<b>South Korea</b>	64	63	2050	VL	VL	VL	VL	
<b>Turkey</b>	56	53	2053	L	M	VL	L	
<b>UK</b>	20	6	2050	H	L	M	H	
<b>USA</b>	57	57	2050	VL	VL	M	VL	
<b>Abbreviation meaning</b>	<b>VL – Very Low</b>		<b>L – Low</b>		<b>M – Medium</b>		<b>H – High</b>	



Countries like **Russia, Saudi Arabia, Turkey, and South Africa** remain heavily reliant on fossil fuels with limited plans to transition. Russia and Saudi Arabia, among the largest fossil fuel producers, have made minimal progress in renewable energy adoption. South Africa's Climate Change Bill sets caps for major emitters but continues to prioritize coal. Turkey has seen growth in renewable energy yet continues to explore new fossil fuel projects without a clear phase-out policy. Alarming, **Argentina** has denied manmade

accountability to achieve the Paris Agreement goals and secure a sustainable future. Countries are making varying progress, with leaders as well as laggards in the global climate effort. Experts universally emphasize the need for stronger fossil fuel phase-out plans, renewable energy expansion, and equitable climate finance.

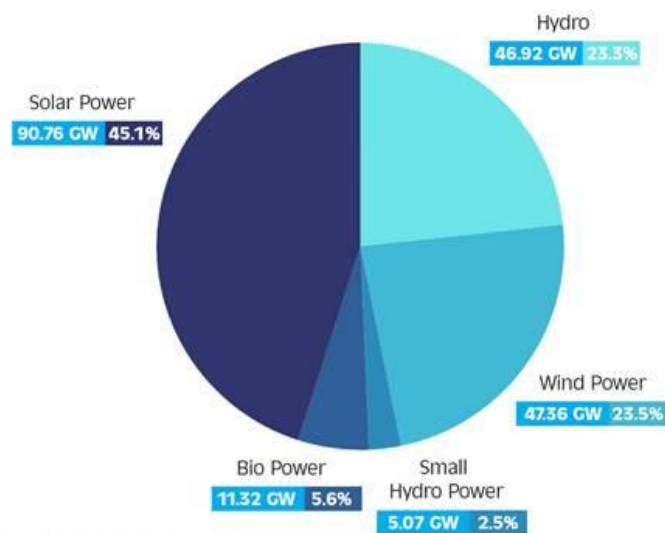
\* For this section "Climate Action Performance of G20 Countries", all data, including the table titled "Climate Change Performance Index of G20 Countries" and its interpretations, have

**Low per capita emissions:** India's per capita CO<sub>2</sub> emission is around 2 tonnes, which is significantly lower than the global average (4.7 tonnes in 2023) and considered one of the lowest among major economies, especially considering its large population; making it the lowest per capita emitter within the G20 countries.

**Renewable energy development:** India's renewable energy sources include solar, wind, hydro, and bioenergy. Solar power is the largest contributor, followed by wind power, hydro power, and biopower. India's total renewable energy installed capacity surged by an impressive 24.2 GW (13.5%) in just one year, reaching 203.18 GW in October 2024, up from 178.98 GW in October 2023. Additionally, when including nuclear energy, India's total non-fossil fuel capacity rose to 211.36 GW in 2024, compared to 186.46 GW in 2023. As of October 2024, renewable energy sources account for over 46% of India's total installed electricity generation capacity. Ongoing investments are directed towards achieving 500 GW of non-fossil fuel-based energy capacity by 2030.

## Renewable Energy

### Capacity in India



As of October 10, 2024

climate change, eliminating the term from official documents and halting participation in Agenda 2030 events. Across all regions, experts emphasize the need for phasing out fossil fuels, expanding renewable energy, and ensuring equitable climate finance. While some nations are making strides, the global effort remains fragmented, requiring greater collective ambition and

been sourced from the **CCPI Report-2025** and the **official website of CCPI** (<https://ccpi.org/>).

### Key Drivers of India's Superior Performance in Climate Action

India's strong performance in climate change action among G20 countries is primarily driven by following:












**Green Hydrogen and Emerging Technologies:** Recognizing the transformative potential of green hydrogen, India has launched the National Green Hydrogen Mission (budget allocation of Rs. 19,744 Cr up to 2029-2030) to promote its production and application. Green hydrogen offers a sustainable alternative for decarbonizing hard-to-abate sectors like steel, cement, and transportation. India's proactive adoption of Green Hydrogen and other modern innovative technologies underlines its

forward-thinking approach to tackling climate challenges.

**Policy Frameworks and International Commitments:** India's climate action is guided by its Nationally Determined Contributions (NDCs) under the Paris Agreement. Policy instruments like the National Action Plan on Climate Change

(NAPCC), launched in 2008, outlines comprehensive strategies for climate mitigation and adaptation in eight areas i.e., solar energy, energy efficiency, sustainable habitat, Himalayan ecosystem, sustainable agriculture, green India, and strategic knowledge. In line with NAPCC, states and Union

Territories (UTs) prepared their State Action Plan on Climate Change (SAPCC), outlining sector-specific and cross-sectoral climate actions. Several other initiatives are in place for specific climate actions. Some selected examples are summarised in figure.

Selected examples of climate action related initiatives	
	Perform, Achieve, Trade (PAT) Scheme for implementing energy efficient technologies
	National Solar Mission and National Green Hydrogen Mission for Transition to renewable & alternate energy sources
	Swachh Bharat Mission for improved waste management practices
	Formation of Circular Economy Cell (CE Cell) by NITI Aayog for promotion of circular economy
	Accelerating CCS Technologies (ACT) for promoting Carbon Capture, Utilization, and Storage (CCUS)
	Green India Mission, Nagar Van Yojana, and Compensatory Afforestation Fund (CAMPA) for creation of additional carbon sink
	National Electric Mobility Mission Plan (NEMMP) for promoting the adoption of electric vehicles, reducing fossil fuel dependence
	National Mission for Sustainable Agriculture and Parampragat Krishi Vikas Yojana (PKVY) for promotion of sustainable agriculture
	Atal Bhujal Yojana and Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) for Water Management Strategies
	Smart Cities Mission and Atal Mission for Rejuvenation and Urban Transformation aiming to develop sustainable and resilient urban infrastructure
	Skill India Mission (SIM) and National Skill Development Mission (NSDM) for public awareness campaigns, training and capacity building

**Significant Investments in Climate Action:** The Union Budget 2024 allocated ₹3330.37 crores to the Ministry of Environment, Forest, and Climate Change (MoEFCC) that entails a robust vision for key climate sectors, marked by substantial investments for promoting green economy. International climate finance for India through collaboration primarily involves leveraging partnerships between developed nations such as the International Solar Alliance (ISA) facilitate global collaboration to deploy solar energy technologies and secure \$1,000 billion of investments in solar energy

solutions by 2030. Other sources include multilateral development banks, private sector investors, and Indian government agencies to access funding for climate mitigation and adaptation projects, often utilizing mechanisms like blended finance, where public funds incentivize private investment in climate-friendly initiatives, thereby maximizing the impact of available funds and addressing India's significant climate financing needs. In addition, India's climate policies prioritize inclusivity and grassroots engagement. Active contributions from both public

and private sectors, coupled with community participation through public awareness campaigns and capacity-building initiatives, significantly strengthens national climate action efforts.

### Contribution of Indian PSEs in National Climate Action

Indian Public Sector Enterprises (PSEs) play a pivotal role in advancing the nation's climate objectives while setting a benchmark for sustainability through their operations and initiatives. As key drivers of India's transition towards a low-carbon economy, PSEs





have demonstrated a strong commitment to environmental stewardship. In alignment with India's ambitious target of achieving net-zero emissions by 2070, **approximately 20 PSEs have already taken a proactive stance by announcing their net-zero goals**, with many aiming to achieve this milestone by 2050. This is a testament to their leadership and vision in embracing sustainability as a core aspect of their business strategies. With the evolving landscape of national climate action and increasing focus on global commitments, we can anticipate even more rigorous and ambitious climate pledges from PSEs. Their continued efforts not only support India's climate goals but also inspire broader industry action towards a sustainable and resilient future.

In **energy transition**, PSEs are transitioning to renewable and alternate energy sources with ambitious plans to expand solar, wind, green hydrogen, etc. for reducing their reliance on fossil fuels. In **afforestation and carbon sequestration**, PSEs are undertaking extensive reforestation projects to enhance carbon sinks, playing a crucial role in offsetting emissions and improving environmental resilience. PSEs are **adopting energy and material-efficient construction practices**, contributing to the creation of climate-resilient urban infrastructure. Furthermore, Indian PSEs are leading the charge in innovation and technology by **investing in advanced technologies** such as green hydrogen, electric vehicle charging networks, and carbon capture systems, all aimed at reducing carbon footprints and

promoting sustainability. In the area of green finance, **sector-specific financial institutions** PSEs are raising finance through international green bonds, which fund projects in solar, wind, and green hydrogen. Some PSEs are leading the development and deployment of **Carbon Capture and Storage (CCS)** technologies, contributing to India's efforts to reduce emissions. PSEs are also making strides in **waste management and the circular economy** such as steel recycling, taking initiatives to convert plastic waste into fuel, introducing efficient waste management measures. Additionally, few PSEs are involved in **coastal protection projects**, working to prevent erosion and safeguard communities from rising sea levels.

Beyond these actions, PSEs actively contribute to climate action through their Corporate Social Responsibility (CSR) initiatives. They focus on increasing renewable energy generation, enhancing energy efficiency, implementing sustainable practices within their operations, and conducting awareness campaigns on climate change. They also support community projects that promote adaptation and resilience to climate impacts, with a particular focus on water conservation and disaster preparedness. By **aligning their CSR activities with national climate goals**, PSEs are not only reducing their own carbon footprint but also empowering communities to do the same. **In summary, Indian PSEs support the national climate agenda by embedding climate action into their business strategies and investing in community capacity-building.**

**This enables them to make local contributions while promoting an inclusive and equitable transition.**

### Challenges and Opportunities for India

Climate change poses both significant challenges and promising opportunities for India. As a country highly vulnerable to its impacts, India faces a complex array of issues, including rising temperatures, extreme weather events, and sea-level rise that threaten agriculture, water resources, and infrastructure. The pressures of a vast population and rapid urbanization further intensify the challenge. Balancing economic growth with environmental sustainability remains a critical hurdle, given India's heavy dependence on coal and other fossil fuels for energy. However, these **challenges also present India with opportunities to lead in climate action.** With abundant renewable energy resources like solar and wind, India has a clear pathway to reducing carbon emissions while fostering sustainable economic growth. Additionally, India has the potential to emerge as a global leader in sustainable agriculture, water management, and green technologies, creating new industries and employment opportunities while mitigating climate impacts. The growing emphasis on green finance through investments in renewable energy and clean technologies provides a critical avenue for sustainable development while addressing India's increasing energy demands. In transforming its climate challenges into opportunities, India can achieve long-term economic, social, and environmental prosperity,



setting an example for the world in integrating climate action with sustainable development.

### Conclusion & Future Perspectives

India's commitment to climate action positions it as a cornerstone of global leadership, particularly within the G20 framework. As one of the top ten global performers in climate action, India demonstrates how developing countries can not only contribute to but also drive meaningful global climate solutions. Looking ahead, India's role as a climate leader will evolve, marked by its ability to integrate sustainability into every aspect of development while addressing the unique challenges of a rapidly growing economy. To achieve its ambitious 2070 net-zero target, India must prioritize accelerating renewable energy adoption, enhancing energy efficiency, and

fostering innovations in green technologies. The expansion of sustainable agricultural practices and the scaling up of carbon capture technologies will also play a crucial role. Investments in climate-resilient infrastructure will strengthen the country's preparedness against climate-related risks, while advancing equitable climate finance mechanisms will ensure inclusive growth. Robust policy frameworks will be critical in mobilizing green finance and incentivizing low-carbon development across sectors. India's proactive approach requires active collaboration between businesses, policymakers, and citizens to reach its climate goals. Through such inclusive participation, India is not only addressing its domestic challenges but also setting an inspiring example for the global south. Its strategies

provide a replicable framework for nations grappling with the dual imperatives of economic growth and climate sustainability. In the global arena, India's growing influence in technology, economy, and trade presents an unparalleled opportunity to lead climate solutions. Future pathways suggest that India's leadership will be distinguished by cutting-edge green technologies, enhanced international partnerships, and the promotion of sustainable lifestyles. By fostering global cooperation and spearheading innovative climate strategies, India is poised to shape a resilient and inclusive global agenda. This vision not only reinforces its leadership but also inspires collective efforts to mitigate climate change and secure a sustainable future for all.

