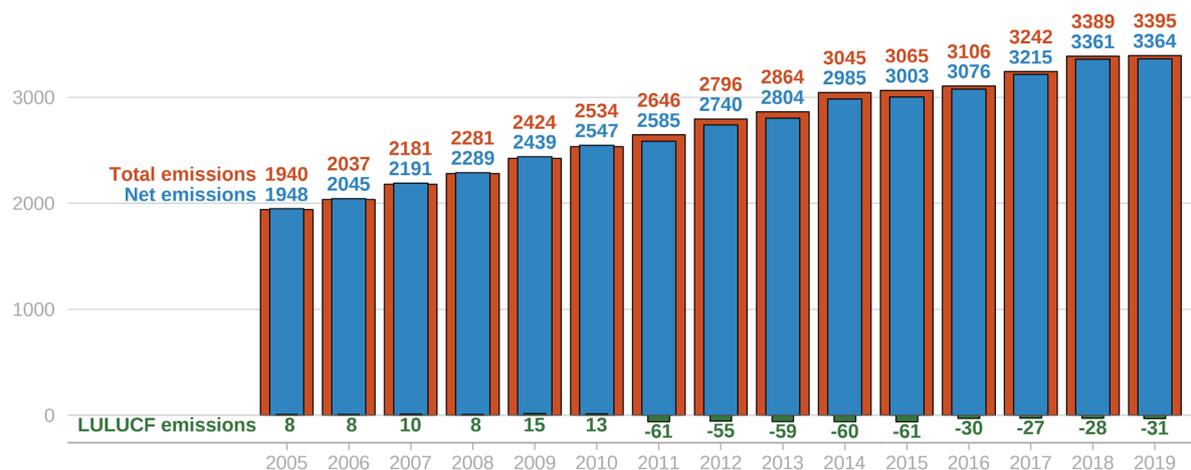


Trends in India's emissions

In 2019, India emitted almost 3.4 billion tCO₂e, equalling the EU-27's share of global greenhouse gas (GHG) emissions of 7%. A [growing energy demand](#) fuelled by population increase, urbanisation and continued economic growth, averaging [6.8%](#) annually since 1991, led to a doubling of GHG emissions between 2000 and 2019. As a country, India is the third-largest GHG emitter globally.

India has faced [criticism](#) as to what is included as forest in its land use, land-use change and forestry (LULUCF) sector data, which shows a [carbon sink](#). A 2018 assessment report [noted](#) only partial transparency of the submitted data. Despite high ambitions, India still [lacks](#) a concrete policy.

Figure 1 – Total, LULUCF and net greenhouse gas (GHG) emissions (MtCO₂e), 2005-2019



Data source: Climate Watch (CAIT): [Country Greenhouse Gas Emissions Data](#), FAOSTAT. Note: emissions data from the [Climatewatch/CAIT](#) dataset may differ from countries' official greenhouse gas inventories.

India is party to the United Nations Framework Convention on Climate Change ([UNFCCC](#)) and has ratified the [Paris Agreement](#). It belongs to the [non-Annex I group](#) of developing countries, which face less strict requirements and are entitled to support from the developed countries listed in Annex I to the convention. Nationally determined contributions (NDC) set out parties' targets and commitments to climate action with mandatory updates every 5 years.

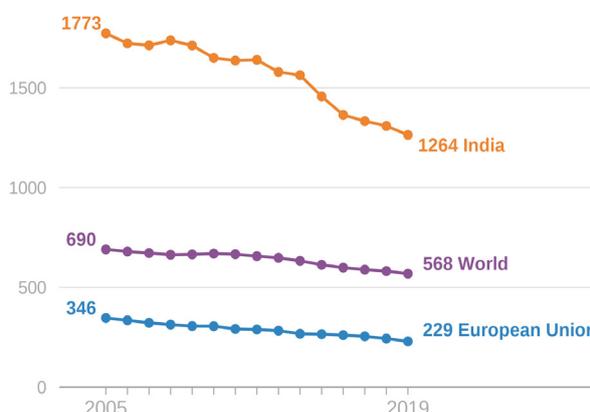
Carbon intensity

Between 2000 and 2019, India's gross domestic product (GDP) more than [tripled](#) (in 2015 constant US\$), while its emissions doubled. India has made significant strides to improve energy efficiency in energy-intensive industries through its [PAT-scheme](#), which sets mandatory efficiency targets and allows trade in surplus energy savings through certificates.

The [Indian economy's](#) services sector – the country's largest and a driver of growth – accounts for 54% of GDP, followed by industry (30%) and agriculture (17%).

From 2005 to 2019, the Indian economy's carbon intensity dropped by 28.7%, compared to a 33.8% drop for the EU-27 and a world average drop of 17.7%. India's carbon intensity is more than double the world average value.

Figure 2 – Carbon intensity of the economy: GHG emissions (gCO₂e) per unit of gross domestic product (GDP) (US\$ in 2015 prices)



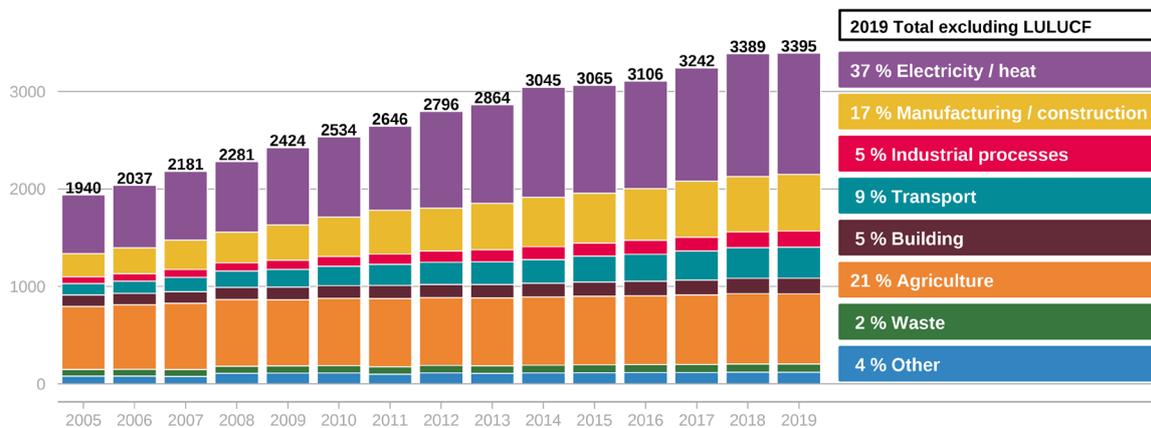
Data sources: WB [GDP data](#) and Climate Watch (CAIT): [Country Greenhouse Gas Emissions Data](#).

Emissions across the economy

While electricity and heat production account for the majority of GHG emissions in India, and more than doubled from 2005 to 2019, emissions linked to transport have increased the fastest – by 166 % – since 2005. Transport, mainly fuelled by petroleum products, is [responsible](#) for just under half of India's oil demand. India imports [75 %](#) of its crude oil but is a net exporter of refined products.

Continued growth has led to emission increases across all sectors in recent decades, with both manufacturing / construction as well as industrial processes more than doubling their emissions, by 146 % and 136 % respectively, since 2005. Agriculture saw a significant decline in its share of GDP and, as it adhered to traditional farming methods, it was, with its 11 % increase of emissions over the period, the sector with the lowest increase in emissions. GHG emissions linked to waste increased by 24 %.

Figure 3 – Total GHG emissions by sector (MtCO₂e) (rounded data)



Data source: Climate Watch (CAIT): [Country Greenhouse Gas Emissions Data](#).

The building sector saw a 38 % increase in emissions over the period. Energy efficiency has been a key focus; estimates [show](#) that this helped avoid 300 MtCO₂ emissions over the 2000-2018 period.

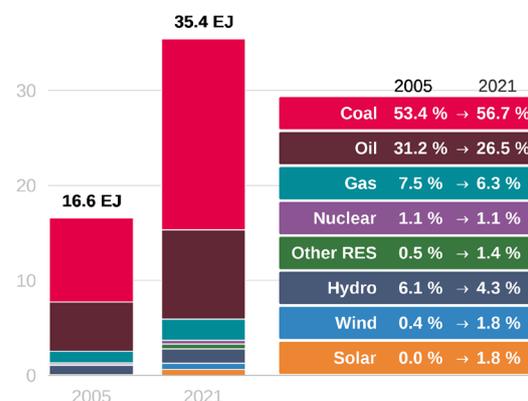
Energy transition

More than 900 million people in India have gained [access to electricity](#) in recent decades. This means that residential energy consumption has grown faster than the energy consumption of the overall economy. India has vast coal reserves, and coal remains the main energy source, with its use having more than doubled since 2005. According to the [IEA](#), between 2015 and 2019 coal-fired capacity increased by 58 gigawatts, and solar and wind capacity by 49 GW. India is [forecast](#) to account for 25 % of global energy demand growth towards 2040.

Ambitious targets for renewables, falling costs and policies in support of deployment have [led](#) to a tenfold increase of photovoltaic (PV) and a doubling of wind power capacity since 2015.

Renewable energy sources (RES) accounted for a 9 % share of total energy consumption in 2021, i.e. almost 3.3 [exajoules](#) (EJ). By 2030, India aims to ensure that around half of its electric power capacity is non-fossil-fuel based.

Figure 4 – Primary energy consumption by energy source (exajoules, 2005 and 2021)



Data source: [BP statistical review of world energy](#), 2022.

Indian climate policies

India last updated its NDC in August 2022. It has yet to submit a long-term strategy, though it is currently holding [inter-ministerial consultations](#) with the aim of producing a holistic long-term action plan that would help the country achieve its net zero target by 2070. Achieving lifestyles in tune with and doing no harm to our planet are key to India's LIFE - '[Lifestyle for Environment](#)' vision.

Eight objectives are listed in India's [updated NDC](#) and include 1) implementation of the LIFE vision, based on conservation and moderation values, and 2) a more climate-friendly and cleaner path to economic development than followed by other countries. Objectives 3 to 5 are quantitative 2030 targets and include reducing the carbon intensity of GDP by 45 % compared to 2005 levels; achieving about 50 % cumulative non-fossil-fuel-based electric power installed capacity (conditional on international support); and creating an additional carbon sink of 2.5 to 3 billion tCO₂e through afforestation. Objective 6 focuses on adaptation measures particularly for vulnerable sectors and areas. Objectives 7 and 8 concern finance mobilisation, capacity-building and technology transfer.

In 2022, India suffered extreme heat in March and April, and heavy monsoon rains and floods in June and August. India is expected during COP27 to remind developed countries of their climate finance [commitment](#) shortfall and to reiterate its [call](#) for a [loss and damage](#) facility.

[Climate Action Tracker](#) (CAT) rated India's climate policy as 'highly insufficient', taking into account the updated NDC. Though the new NDC improved India's 'fair share' rating from 'highly insufficient' to merely 'insufficient', CAT considers that the new targets would be met with existing policies. CAT recommends that India increase its conditional NDC 2030 target to curb emissions. [Climate Change Performance Index](#) praises India's climate policies but notes that some of them are disjointed and missing long-term targets and details on implementation. Its experts also argue that the country should set an explicit net zero target for 2050 and strengthen its climate resilience policies.

MAIN REFERENCES

[India energy outlook report](#), International Energy Agency, February 2021.

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Extreme heat swept over India in 2022, with lakes drying up and crops withering.