

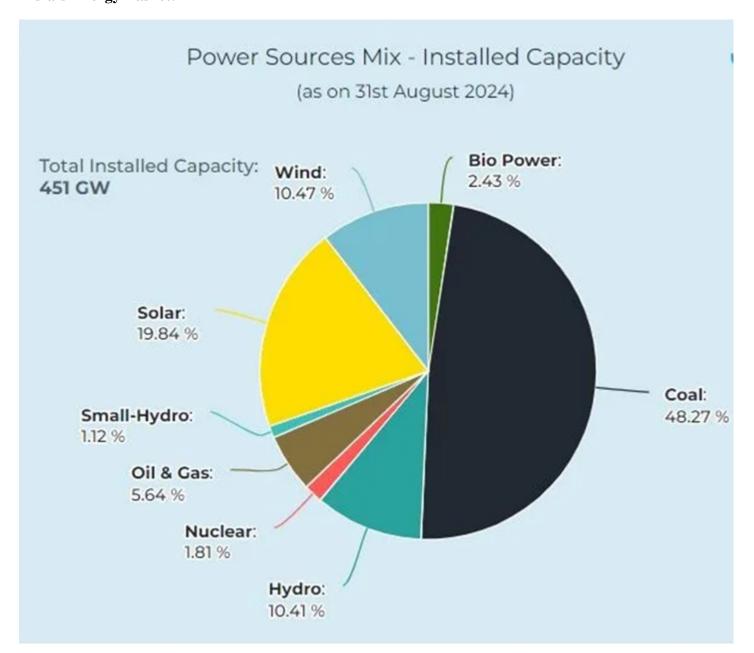
# India's Total Renewable Energy Capacity Crosses 200 GW Mark

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#### Context

• India has reached asignificant milestone as the country's total renewable energy capacity crosses the 200 GW (gigawatt) mark in 2024.

## **India's Energy Basket:**



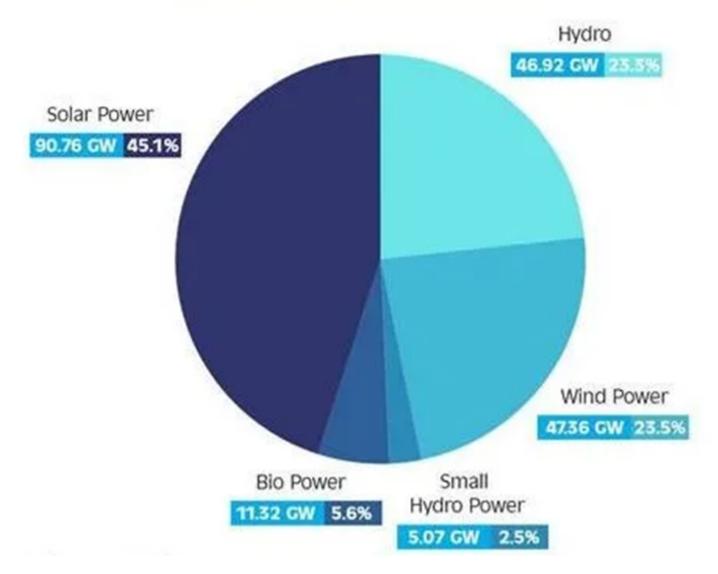
## **Kamaraj IAS Academy**

Plot A P.127, AF block, 6 th street, 11th Main Rd, Shanthi Colony, Anna Nagar, Chennai, Tamil Nadu 600040 Phone: **044 4353 9988 / 98403 94477** / Whatsapp : **09710729833** 

#### **India's Renewable Energy Capacity**

- India's total electricity generation capacity has reached 452.69 GW
- Having the **8,180 MW** (megawatt) of nuclear capacity, the total non-fossil fuel-based powernow accounts for almost half of the country's installed electricity generation capacity
- As of 2024, renewable energy-based electricity generation capacity stands at 201.45 GW, accounting for 46.3 percent of the country's total installed capacity.
- Solar powercontributes towards90.76 GW, wind powerfollows closely with 47.36 GW, hydroelectric powergenerating 46.92 GW and small hydro power adding 5.07 GW, andbiopower, including biomass and biogas energy, adds another11.32 GW





## **India's Targets**

• India has a vision is to achieveNet Zero Emissions by 2070, in addition to attaining the short-term targets which include:

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- Increasing renewables capacity to 500 GW by 2030,
- Meeting 50% of energy requirements from renewables,
- Reducing cumulative emissions by one billion tonnes by 2030, and
- Reducing emissions intensity of India's gross domestic product (GDP) by45% by 2030 from 2005 levels

## **Challenges in Renewable Energy**

- **High Upfront Costs**: The **initial investment** for renewable energy infrastructure, such as solar panels and wind turbines, is significant, which can be a barrier for many regions and investors.
- Geographical Disparities: Renewable resources are unevenly distributed, with some regions having limited access to wind or sunlight. This geographical imbalance can limit the feasibility of renewable energy adoption in certain areas.
- Governance Issue:Inconsistent government policies, regulatory challenges, and bureaucratic delays can slow down project approval and implementation, creating uncertainty for investors and developers.
- **Infrastructure Development:** The transition to renewable energy requires significant infrastructure development.
- The speed and scale of this infrastructure development can be a challenge for a country as large and diverse as India.
- Grid Integration:Integrating renewable energy into the existing power grid is a complex task.
- The grid must be flexible and capable of handling fluctuations in supply.

# Steps Taken by Government for Transition to Renewable Energy Sources

- National Solar Mission (NSM): It was launched in 2010, it has set ambitious targets for solar capacity installation, including grid-connected and off-grid solar power projects
- Green Energy Corridors: The Green Energy Corridor project focuses on enhancing the transmission infrastructure to facilitate the integration of renewable energy into the national grid
- National Wind Energy Mission: Focuses on the development and expansion of wind energy in India. The target for wind energy capacity is set at 140 GW by 2030.
- National Clean Energy Fund (NCEF):It was established to support research and innovation in clean energy technologies and projects that help in reducing greenhouse gas emissions.
- Renewable Purchase Obligation (RPO): This requires power distribution companies and large electricity consumers to procure a certain percentage of their power from renewable sources, encouraging the demand for renewable energy.
- Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM):It includes the installation of solar pumps, solarization of existing grid-connected agricultural pumps, and the establishment of solar power plants on barren or fallow land.
- International Solar Alliance (ISA): India played a key role in establishing the International Solar Alliance, a coalition of solar-resource-rich countries to address their energy needs through the promotion of solar energy

# Way forward:

- This accomplishment is a testament to the nation's **commitment to a sustainable energy future**including solar, wind, hydro, and bioenergy
- With ambitious targets set for the future, India is well-positioned to emerge as aglobal leader in renewable energy, contributing to environmental sustainability and energy security
- These ongoing efforts reflect a holistic approach to building a greener economy, ensuring that India not only
  meets its energy needs but also addresses the pressing challenges of climate change and resource
  conservation.

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