

## A Clean Energy Transition Plan for India

### What is the issue?

Provision of electricity security in India has a long way to go since its per capita electricity consumption is still only a third of the global average.

### What is the status of India's energy security?

*Energy security refers to the uninterrupted supply of energy at affordable prices.*

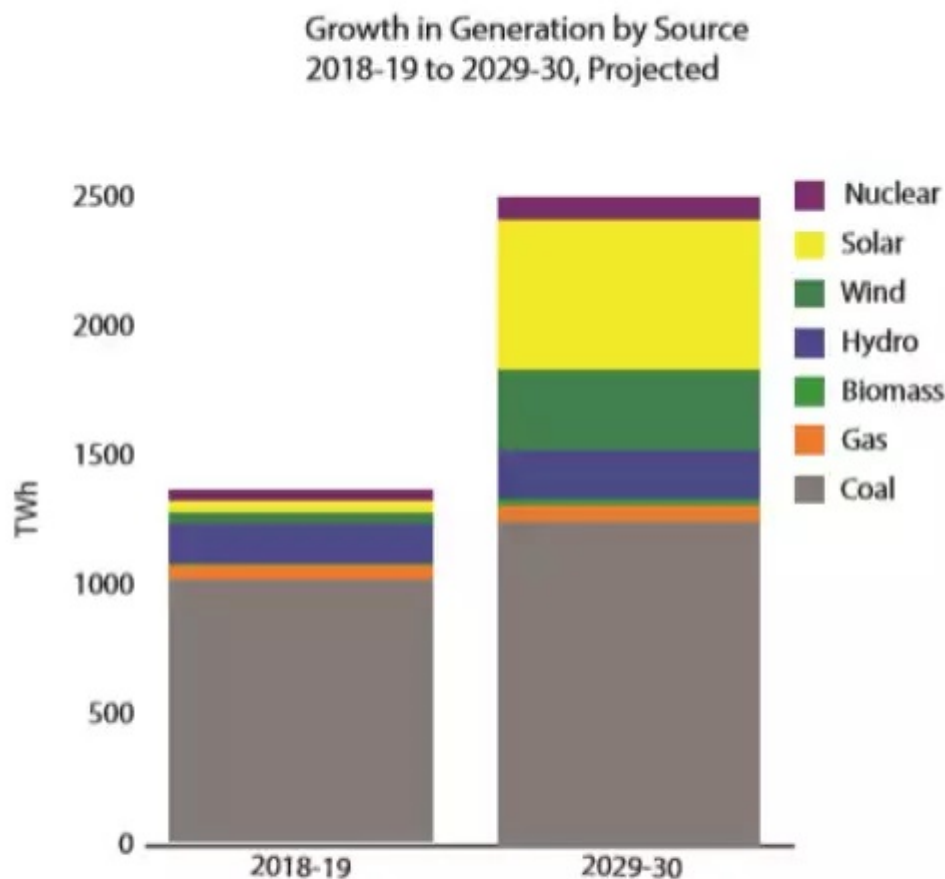
- As of 31 July 2020, the total installed power capacity in India was 372 GW.
- The share of non-fossil fuels in installed capacity is 38%.
- India's energy consumption is forecast to grow at around 4.5 per cent annually to 2035.
- India faces the twin challenges of providing energy security to its population and mitigating climate change.

### What are the major sources of India's energy sector?

- **Thermal plants** - Coal is the key driver that fuels the thermal power plants in India.
- Coal plays a vital role to achieve SDG 7, which is "to ensure access to affordable, reliable, sustainable and modern energy for all".
- The thermal power plants contributed 71% electricity generated by utilities in India during FY 2020-21 .
- But they accounted for only 55% of the total installed generation capacity of 382 GW (as of March 2021).
- **Renewable energy** - Variable renewable energy sources (VRE) (primarily, wind and solar) account for 24.7% of the total installed generation capacity, as of March 2021.
- They contributed 10.7% of the electricity generated by utilities during FY 2020-21.
- The share of non-fossil fuels in installed capacity is 38% whereas India's INDC targets to achieve 40% by 2030.
- But the current level of VRE in the national power grid is increasing the

cost of power procurement for DISCOMs, leading to tariff increases for electricity consumers.

**Figure 5: Historical (FY18-19) and projected generation by source**



*Source: TERI, based on data from (CEA, 2019)*

### **What is the clean energy transition plan?**

- **Retirement of specific installed generation capacity in TPPs** - Based on key performance parameters such as efficiency, coal consumption, technological obsolescence, age, progressive retirement of 36 GW of installed generation capacity in 211 TPPs has been outlined.
- **High-Efficiency-Low-Emission (HELE) TPPs**- The utilization of HELE TPPs can be increased to cope up with the shortfall in baseload electricity generation.
- **Nuclear power** - The Nuclear Power Corporation of India Limited's (NPCIL) construction of 11 nuclear power plants with a total generation

capacity of 8,700 MW will supply 24x7 power without any CO2 emissions.

### **What are the expected benefits out of this plan?**

- The total installed capacity of TPPs operated by utilities will increase even after the retirement of obsolete TPPs.
- TPPs to be retired saves specific coal consumption and water requirement leading to reductions in electricity tariffs.
- The combined thermal and nuclear capacity of 235 GW can meet the baseload requirement (80% of peak demand) during the evening peak in FY 2029-30 without expensive battery storage.
- India's power generation from TPPs is expected to reduce from the level of 71% to 57% of the total electrical energy during FY 2029-30.
- Consequently, total CO2 emissions from the power sector will go down.
- HELE TPPs minimise the emissions of particulate matter (PM), SO2, and NO2.
- The installation of high-efficiency electrostatic precipitators can remove 99.97% of the PM pollution.
- This plan demonstrates India's commitment to climate change mitigation by optimising the use of our land, coal, water, and financial resources with indigenous technology.

### **What clean energy commitments have been made by India?**

- India made commitments to increase renewable energy installed capacity to 450 GW by 2030
- It aims to implement a National Hydrogen Energy Mission to scale up annual green hydrogen production to 1 MT by 2030.
- The government has announced to begin a Production Linked Incentive Scheme to add 10 GW solar PV manufacturing capacity by 2025.
- It has announced to create 15 MMT production capacity of compressed biogas by 2024,
- The government aims to achieve 20 per cent ethanol blending in petrol by 2025-26.
- It also promotes energy efficiency in agriculture, buildings, industry and transport to reduce the country's emissions intensity of GDP by 33-35 per cent over 2005 levels by 2030.

### **References**

1. <https://www.thehindu.com/todays-paper/tp-opinion/a-clean-energy-transition-plan-for-india/article37133986.ece>
2. [https://www.business-standard.com/article/current-affairs/india-makes-clean-energy-commitments-at-un-summit-121092500192\\_1.html](https://www.business-standard.com/article/current-affairs/india-makes-clean-energy-commitments-at-un-summit-121092500192_1.html)

