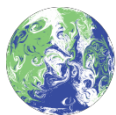




WORLD SUSTAINABLE DEVELOPMENT SUMMIT 2022

**TOWARDS A RESILIENT PLANET:
ENSURING A SUSTAINABLE AND EQUITABLE FUTURE**



UN CLIMATE
CHANGE
CONFERENCE
UK 2021
IN PARTNERSHIP WITH ITALY



UK Government

Bloomberg
Philanthropies



SHAKTI
SUSTAINABLE ENERGY
FOUNDATION

TATA CLEANTECH CAPITAL LIMITED

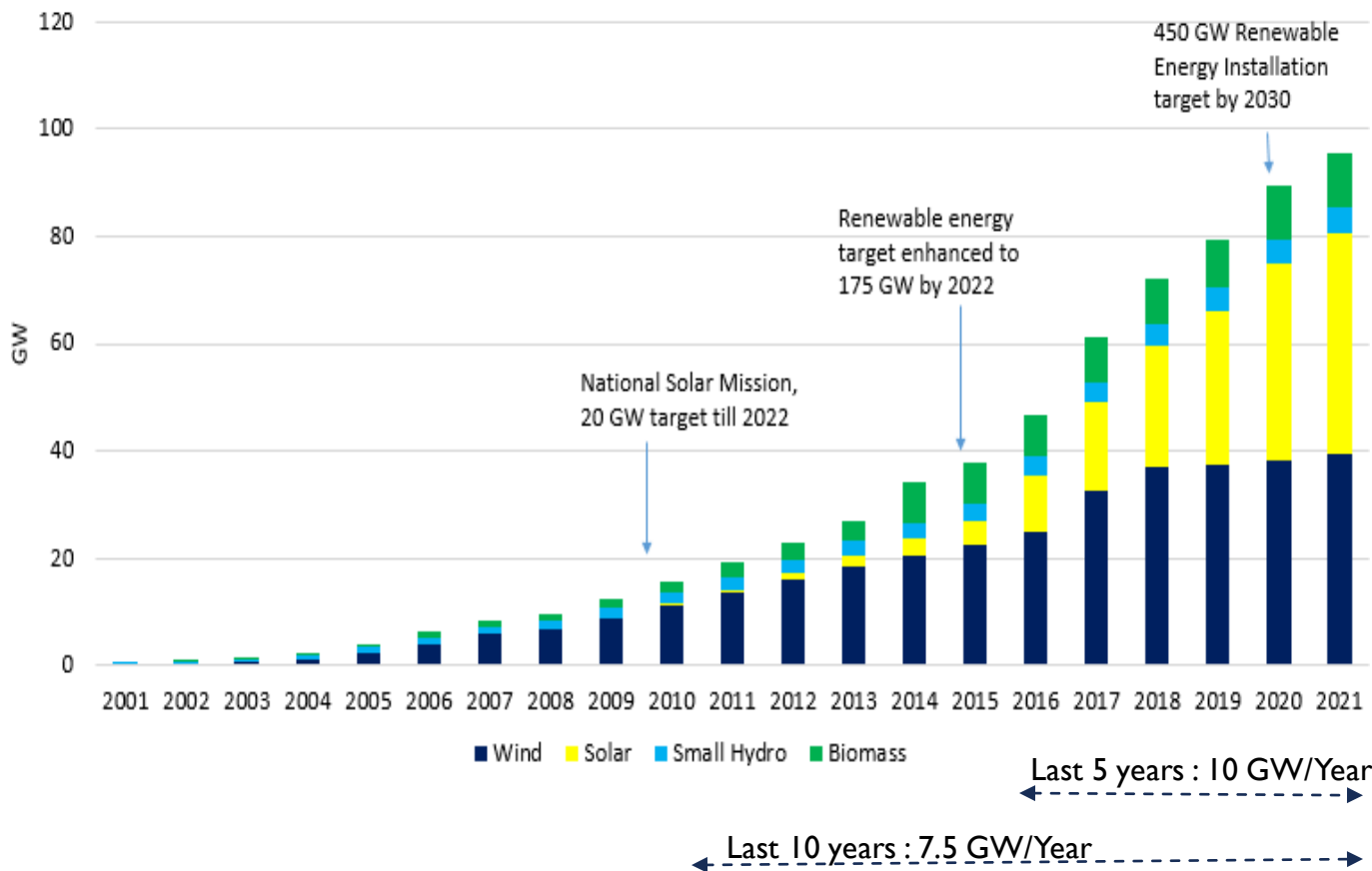
Virtual Stakeholder Roundtable Discussion on 'India's Renewable Energy Vision of 450GW by 2030' for COP26 Charter of Actions

Date: 18th August, 2021 | **Time:** 3:00 PM to 4:30 PM | **Duration:** 90 minutes

RENEWABLE CAPACITY TARGET ANNOUNCEMENTS

INDIA ANNOUNCED AN AMBITIOUS RE CAPACITY TARGET OF 450GW BY YEAR 2030

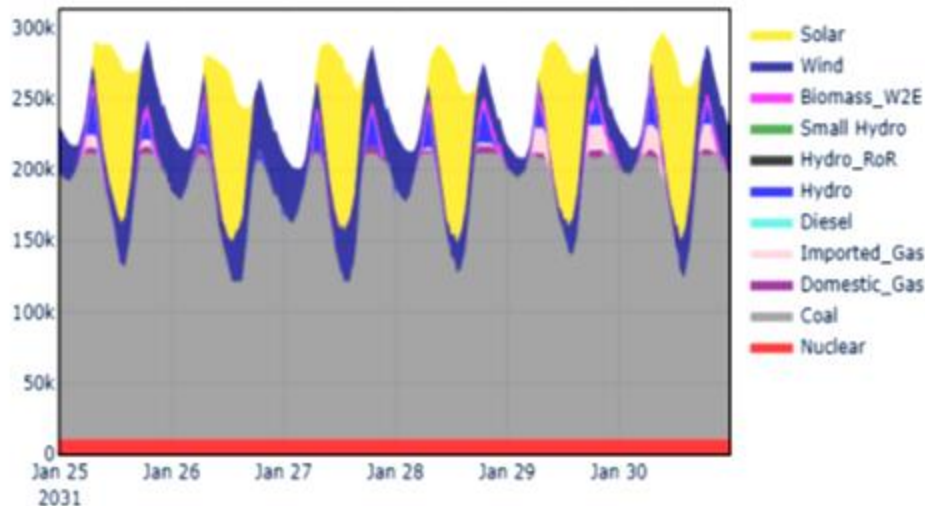
Growth of Renewable Energy in India



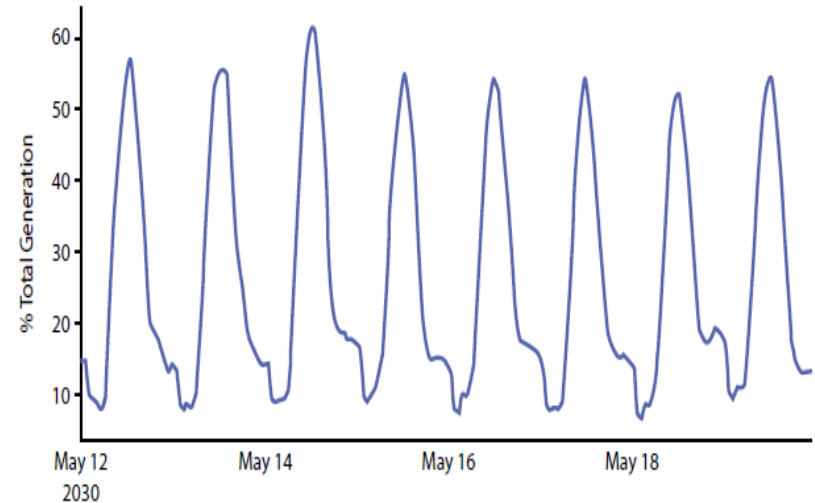
- ❑ By the end of FY2021, RE account for 21% generation capacity. Still 55% of capacity is coal based.
- ❑ As per CEA, optimal mix capacity for year 2030,
 - Solar 280GW
 - Wind 140GW
 - Biomass 10GW
 - Small Hydro 5GW
 - BESS 27GW (4hr)
- ❑ To reach 450 GW by 2030, an average capacity addition of ~ 40GW is required every year.

INCREASING FLEXIBILITY NEEDS DUE TO RE INTEGRATION

Cyclic operation of thermal fleet, 2030



Daily Share of Wind and Solar in Total Generation, 2030



- In high RE scenarios, Wind and solar would likely to account for 30%-32% of total annual generation by 2030.
- However, across the days and seasons of the year, their share varies substantially, from typically less than 10% on a summer night to more than 50% during peak solar generation.
- This means that the rest of the power system needs to adapt in order to provide between 40%-90% of residual power demand over the course of a typical summer day.
- There is thus a dramatic need for enhanced power system flexibility.

RECENT DEVELOPMENTS



- Gol announced a Rs. 3 Trillion (over the five years) electricity distribution reform programme in the Union budget this year for Infrastructure creation including
 - Pre-paid smart metering,
 - Feeder separation
 - Upgradation of systems, etc.
- Use of energy storage facilities in secondary and tertiary ancillary services
- Production Linked Incentive (PLI) schemes for domestic manufacturing of Advanced Chemistry Cells (ACC) Battery Storage for achieving manufacturing capacity of 50 GWh
- Announcement of plans to invite bids for 4GWh storage at the RLDCs,
- Announcement of National Hydrogen mission - India a global hub for the production and export of green hydrogen

RECOMMENDATIONS FOR DISCUSSION

Promoting RE and portfolio approach for flexibility solution

- RE integration and Increasing VRE through a state policy
- A policy-driven mechanism for Flexibility enhancement in a high RE regime
 - Portfolio approach which includes demand-side as well as supply-side options
- Promotion of various other Generation sources. Such as
- Battery energy storage, pump hydro storage, geothermal, hydrogen, concentrating solar power (CSP) with thermal storage, and various other

Periodic review of Electricity Demand and restoring Distribution sector

- Restoring financial health of DISCOMs through
 - Private sector participation,
 - Tariff dispensation,
 - Implementation of direct benefit transfer (DBT)
- Feed in Tariff for direct sale of solar power from rural area
- Demand curve analysis, Demand Response (DR), peak load management
- Power procurement planning tools and Capacity Building at the State level
- Grid Stability Studies

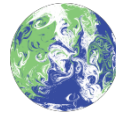
Economic as well as social issues

- Long term Plans
 - Fossil fuel free electricity and associated Just Transition
- Investments - Long Term Financing
 - funding from organizations that hold long-term money such as pension funds, insurance companies



WORLD SUSTAINABLE DEVELOPMENT SUMMIT 2022

TOWARDS A RESILIENT PLANET:
ENSURING A SUSTAINABLE AND EQUITABLE FUTURE



UN CLIMATE
CHANGE
CONFERENCE
UK 2021
IN PARTNERSHIP WITH ITALY



UK Government

Bloomberg
Philanthropies



SHAKTI
SUSTAINABLE ENERGY
FOUNDATION

TATA CLEANTECH CAPITAL LIMITED

THANK YOU!