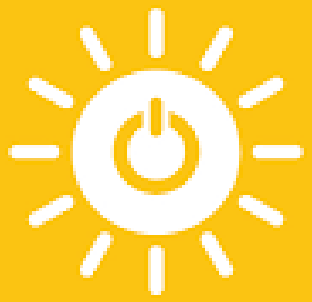
Contribution of HEIs o SDG 7
Ensuring Access to Affordable and Clean Energy

Goal 7:

Ensure access to affordable, reliable, sustainable and modern energy for all.



Dr. Vibha Dhawan

Director General

The Energy and Resources Institute

New Delhi

dg@teri.res.in

Association of Indian Universities, Zonal Conference (East Zone)

10th January 2022

Contents

- Introduction to SDG 7
- Implications for India
- How Higher Education Institutes (HEIs) can contribute towards meeting these challenges?
- Strategies for ensuring an efficient and affordable energy system with low carbon footprints

SUSTAINABLE DEVELOPMENT GOALS

SDG 7

Ensure access to affordable, reliable, sustainable and modern energy for all

SDG 7 Targets:

7.1 Universal access to modern energy

7.2 Increase global percentage of renewable energy

7.3 Double the improvement in energy efficiency

7.A Promote access to research, technology and investments in clean energy

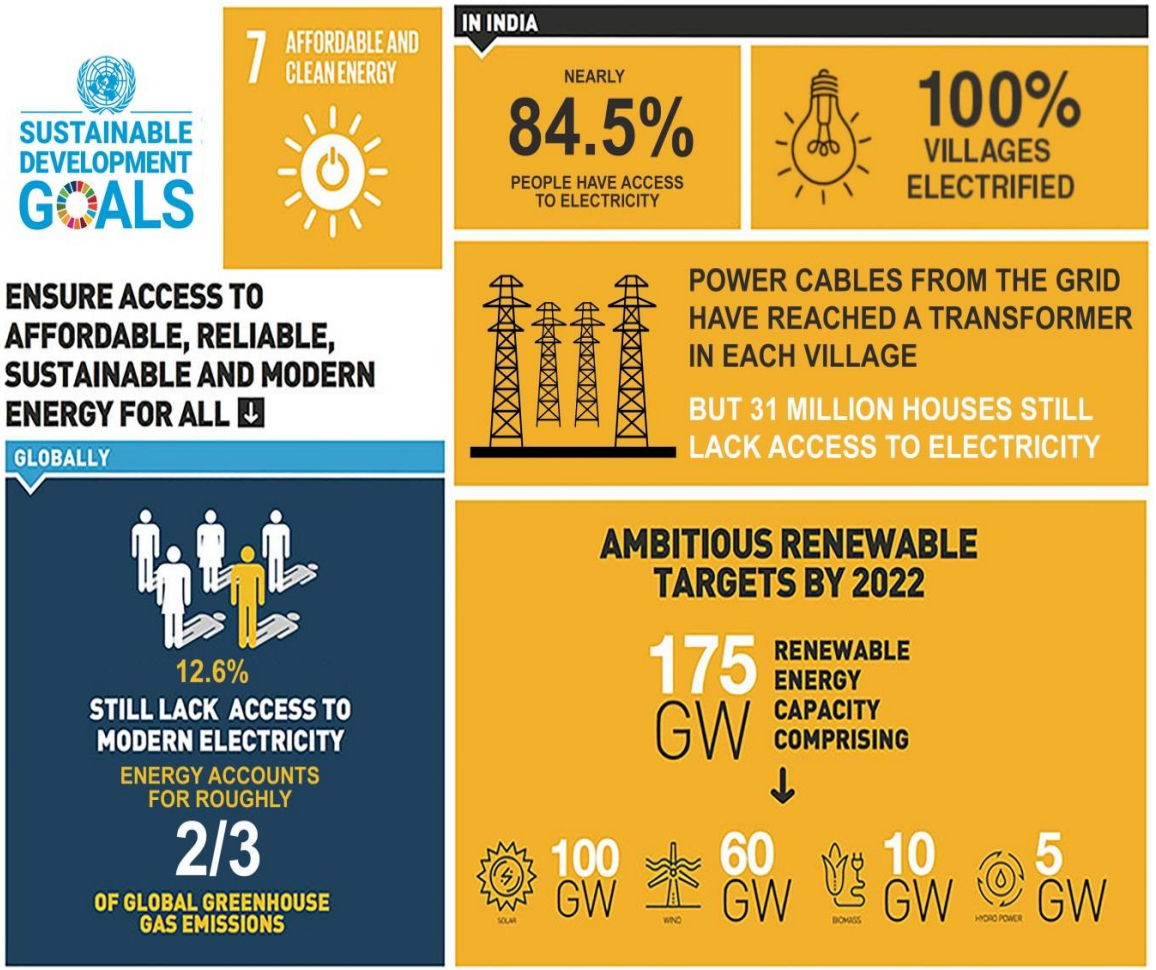
7.B Expand and upgrade energy services for developing countries

COP26 and energy
implications for climate actions

- In the National Statement, at COP26 Summit in Glasgow, the Prime Minister Shri Narendra Modi, announced five targets out of which four targets had a timeframe of 2030 and one target had a timeframe of 2070 (Prime Minister, 2021).
- These targets include:
  - India will reach its non-fossil energy capacity to 500 GW by 2030.
  - India will meet 50 percent of its energy requirements from renewable energy by 2030.
  - India will reduce the total projected carbon emissions by one billion tonnes from now onwards till 2030.
  - By 2030, India will reduce the carbon intensity of its economy by less than 45 percent.
  - By the year 2070, India will achieve the target of Net Zero.
- Energy sector will be crucial to meeting all targets announced by India at COP26

Status of SDG 7 realisation in India

UNSDSN SDG Index 2021 ranked at 120th position with the score of 60.07 out of 100.



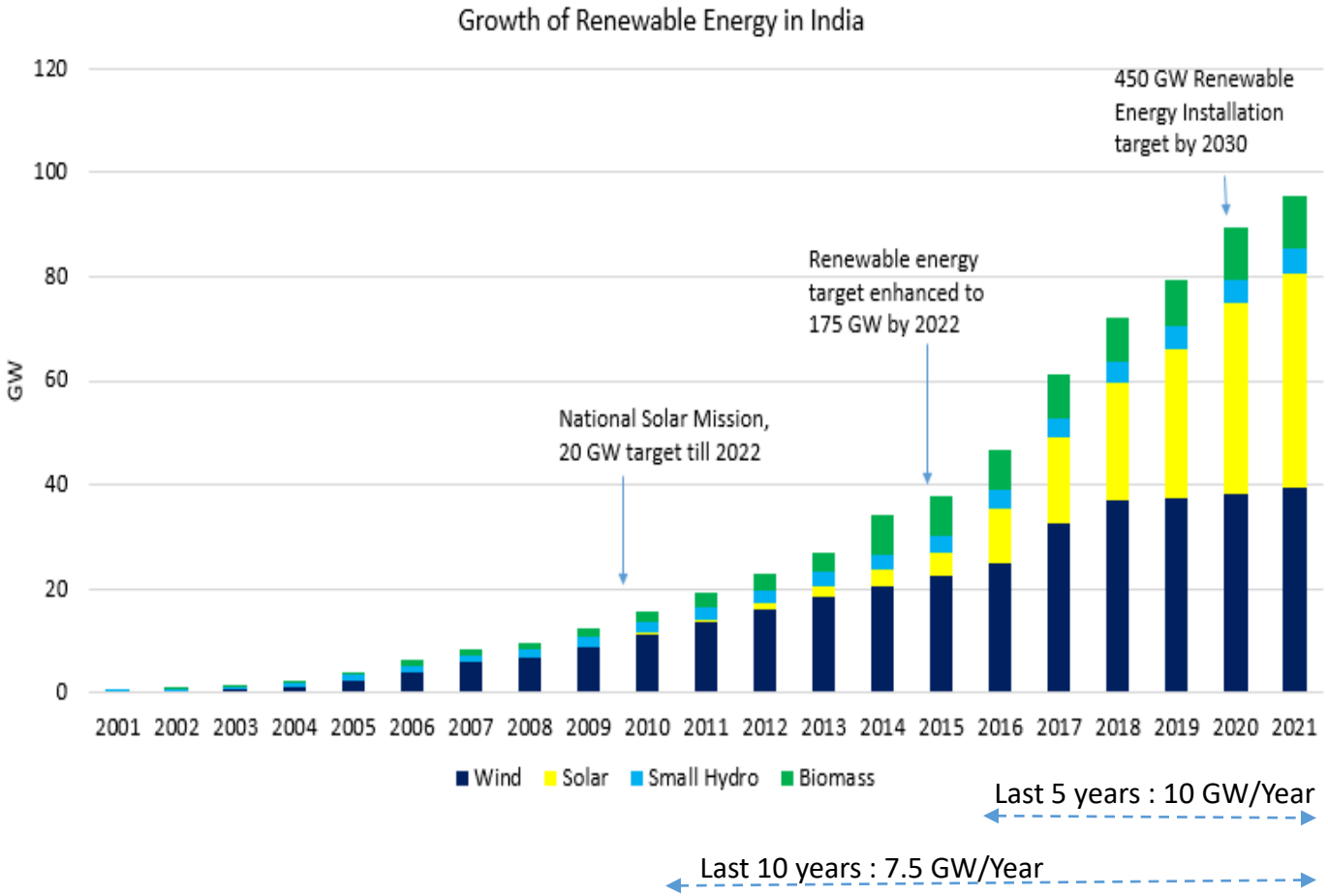
Track Report of SDG 7 in India

SDG 7	Goal Realisation
Electricity Access in India (by population percentage)	99.6% (as of 2019)
Universal Access to Clean Fuels & Technologies for Cooking	71% (as of 2018)
Share of Renewable Energy in India's Energy Mix	38% (as of 2020)

However with frequent power cuts, reliability remains an issue.

49.2% of population has primary access to clean cooking gas as of 2018.

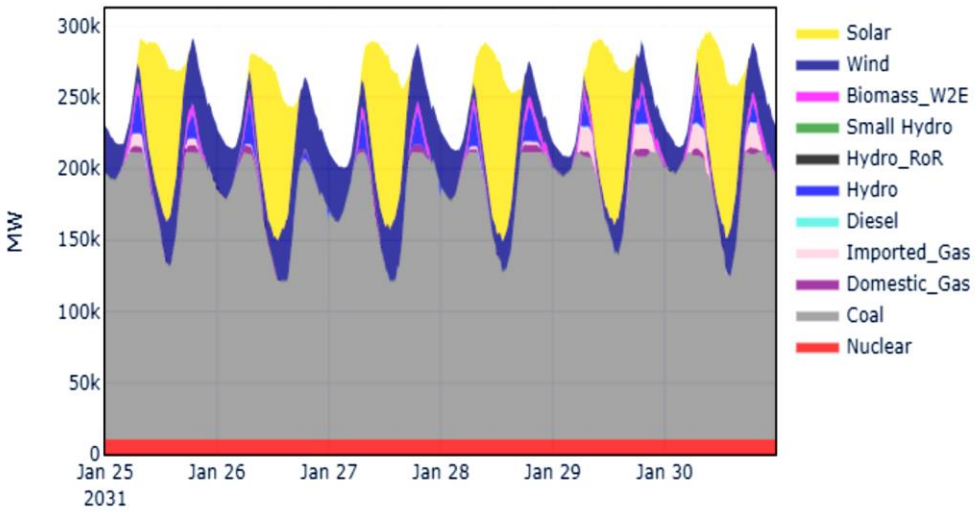
Status of renewable energy



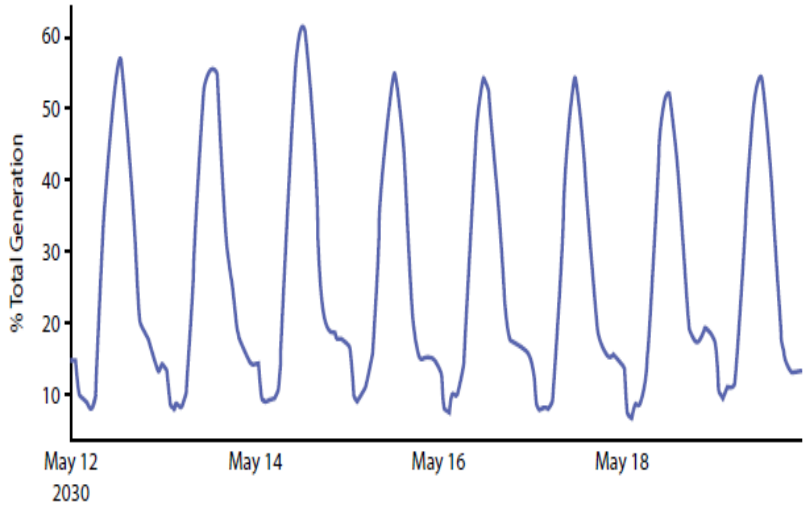
- Glasgow announcement: 500 GW
- As on date, non-fossil fuels, accounted for 40% generation capacity. 60% of capacity is from fossil fuels.
- As per CEA, optimal mix capacity for year 2030,
  - Solar 280GW
  - Wind 140GW
  - Biomass 10GW
  - Small Hydro 5GW
  - BESS 27GW (4hr)
- To reach 450 GW by 2030, an average capacity addition of ~ 45 GW is required every year.

Twin challenges of reliability and increasing flexibility needs due to renewable energy integration

Cyclic operation of thermal fleet, 2030



Daily Share of Wind and Solar in Total Generation, 2030



- Renewable energy share will vary substantially, from typically less than 10% on a summer night to more than 50% during peak solar generation.
- For clean energy transitions, there is thus a dramatic need for enhanced power system flexibility

Strategies that Higher Education Institutes (HEIs) may adopt to contribute to SDG 7

- Sustainable lifestyle should be promoted through academic syllabus and co-curricular activities
- Students have proven themselves as an effective mean of generating awareness
- They should be encouraged to generate awareness through street plays and various other co-curricular activities
- Facilitate research capacity building to innovate required technology development for achieving SDG 7
- Climate finance is still not a popular body of knowledge –this may be incorporated into research and higher learning
- COVID-19 and its adverse impacts should be kept in mind while strategizing the role of HEIs

Challenges and opportunities of energy sector in India and how Higher Education Institutes can contribute towards meeting the challenges?

- Considering the role of technologies, new technology opportunities such as the Green Hydrogen
- More research funding needs to go to develop disruptive technologies
- Young minds can bridge the technological gap through research and innovation
- Focused research should be facilitated
- To ensure the efficiency of energy sector it is important to focus on the interface of Science, Finance, Policy, and Business.
- Most of the Indian Universities do not have dedicated departments on Sustainable Development and Climate Change bring all these interdisciplinary subjects under one roof and ensure the complete realization of SDG 7

Conclusion

- Increasing reliability of energy including for clean cooking
- Innovations for ensuring energy access through measures such as distributed renewable energy
- Flexibility of the power systems through energy storage and supply-demand measures
- Linkages between environment and energy–coal plants versus clean energy
- People-centric approaches to energy transitions are needed to ensure access to reliable, affordable and modern energy for all demand needs
- Investment in inter-disciplinary research and higher education to drive innovations and solutions for SDG 7 is key
- There should be workshops organized to sensitize the younger generation for sustainable lifestyles

Thank you!