

India's ambitious Renewable Energy Targets

1) Introduction

- The ambitious target of achieving 175GW of renewable energy capacity by 2022 needs a clear strategy roadmap, integrated planning, and a whole-of-system approach that factors in domestic developmental and environmental considerations.
- India has committed that 40 per cent of its total power capacity by 2030 will be based on renewable sources
- India's aim to add 175,000 Mw of capacity from clean energy sources by 2022: 60 per cent from solar energy, 30 per cent from wind and the balance from biomass and small hydro.
- Considering where India started from in 2010 (JNNISM), the growth of solar power in India has been phenomenal

2) Progress in Renewable Energy

- Such ambition has been central to changing the perception about India's willingness to contribute to the global effort to reduce carbon pollution
- India is an interesting and inspiring example. The ambition is amazing
- While the targets appear daunting, the increased pace of capacity addition shows the government's serious intent.
- India's RE capacity has gone from 33.8gw to 43gw, overtaking hydroelectric capacity
- Unlike before, there is political support for the renewable energy programme at the highest level
- Renewable energy tariffs have hit record lows—an all-time low price of Rs 4.34/unit was achieved for solar energy capacity
- REN21, the global renewable energy multi-stakeholder network, in its 2016 Global Status Report listed India among the top five countries for investment in renewable power and fuels in 2015, behind China, the US, Japan and the UK.
- The government and the electricity regulator have taken some steps to encourage state participation in the renewable energy programme.
- Discoms are now mandated to source 8% of electricity from RE sources
- Interstate transmission charges have been waived for solar and wind
- Ujwal Discom Assurance Yojana (UDAY), will help distribution companies become financially healthier
- The states of Telangana, Karnataka and Tamil Nadu will see the largest solar capacity additions
- The Green Energy Corridor (GEC)— will commission new transmission infrastructure to allow more renewable to be put on the grid

- Central Electricity Regulatory Commission (CERC) has issued supportive regulations to increase transmission capacity, that will support more renewable energy on the grid
- Policy and regulatory framework for the promotion of renewable energy is in place
- There is a push for wind solar hybrid systems by using an optimum combination of wind-turbines and solar-PV
- Since wind energy is already competitive with imported coal-based power, it can be deployed very quickly without any policy support
- Several Indian as well as international banks have already sanctioned large sums of funding for solar power projects.
- India is also in talks with development banks like the Asian Development Bank, International Finance Corporation, and the New Development Bank to access cheap debt finance for setting up solar power projects.
- India also signed a MoU with Germany to promote solar energy.
- India also launched the International Solar Alliance (ISA), a coalition of solar resource-rich countries, to address energy needs and common concerns.

3) Need for further action

- After the country's solar power capacity doubled to almost 7gw in 18 months, some within the government think it's time for an upward revision of the goal of 100gw by 2022.
- Policies to facilitate finance resulting in scaling up private sector investment are required
- The risk of extreme and unexpected currency devaluation needs to be addressed to facilitate foreign investment.
- Focus must shift to the grid, and the manner in which intermittent power like solar and wind energy are introduced
- Central government needs "some out-of-the-box thinking and innovative plans to push states to contribute to a smart and flexible grid."
- Buy-in from the states is crucial
- Industrial competitiveness in manufacturing needs improvement because most Indian manufacturers are still below competitiveness with, for example, the Chinese manufacturers.
- Government should focus its attention on the demand for solar energy, by developing solutions that provide the private sector with access to affordable solar.
- Support distributed and off-grid generation systems, as well as the adoption of storage technologies
- Need to consolidate the institutional structure to ensure timely and effective execution of policy targets
- Effective private sector participation, and thus promote a competitive electricity market that provides a level playing field to all sorts of generators and suppliers

- India needs to optimise sustainable consumption practices, tapping the demand-side management and energy conservation opportunities
- The roadmap to achieve the energy transformation must have a political mandate and social legitimacy.
- It is critical to engage the public and other stakeholders in the planning and execution process
- If India is to achieve its global commitment on energy transformation, it needs to promote bottom up planning and execution
- Need to develop hybrid plants as well for optimum utilisation of available land.
- There should be thrust on equipment manufacturing under the 'Make in India' plan as it will go a long way in job creation.
- Green bonds can provide a long-term source of debt capital for renewable infrastructure projects
- Rooftop solar, extension of tax holidays, waiver of electricity duty and banking charge for solar rooftops, activating Renewable Energy Certificates (REC) will certainly motivate more rooftop installation in cities and towns.

4) Challenges

- Accessing affordable finance, the poor financial health of state electricity distribution companies
- Poor transmission infrastructure and technological challenges — be it grid stability or storage is a "big barrier"
- Financing is available, but the terms are unattractive— high cost of debt, short-tenor loans, variable interest rates, adding up to as much as 30% of the cost.
- Currency hedging in India is expensive, making foreign financing as expensive as domestic
- Renewable energy, which, given the nature of the source, is periodic — unlike coal, gas or hydro
- Sophisticated operational mechanisms which make renewable energy integration on a large scale very difficult
- Foreign investors also cite the financial ill-health of discoms as a concern
- Another factor that could impact the rise of solar energy: a disruption in the manufacturing ecosystem on account of the slowing Chinese economy