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Q11

Give an account of the current status and the targets to be achieved pertaining to renewable energy sources in the country. Discuss in brief the importance of National Programme on Light Emitting Diodes (LEDs).

UPSC Civil Services Mains 2016 · GS III · 12 marks · Infrastructure

Infrastructure: Energy, Ports, Roads, Airports, Railways etc.

Core demand of the question

- Give the present status of renewable energy in India and the targets the country has set
- Explain why those targets matter for power, climate, and jobs
- Discuss in brief the National Programme on Light Emitting Diodes and why it is important

Revision summary

Wind still leads installed renewables; solar is the fastest-growing slice after parks and auctions.

The headline target is **175 GW by 2022**, led by 100 GW solar and 60 GW wind.

Paris-era INDC adds a 40 per cent non-fossil capacity share by 2030.

The National LED programme through EESL cuts peak demand, bills, and carbon.

Supply targets and efficient lighting succeed together only if the grid and product quality hold.

Introduction

India still runs a large share of its grid on coal, yet sunlight, wind, biomass, and small hydro are no longer side experiments. After the revised **Jawaharlal Nehru National Solar Mission** and the **175 gigawatt renewable target for 2022**, capacity and auctions have moved fast. The question asks for that status and those targets, and then for a short account of the **National Programme on Light Emitting Diodes (LEDs)**, which cuts demand even as new green supply is built.

Body**Current status**

- **Wind** is still the largest renewable slice of installed capacity, concentrated in Tamil Nadu, Gujarat, Maharashtra, Rajasthan, and Karnataka, with a shift from feed-in tariffs toward competitive bidding.
- **Solar** has grown sharply since 2014-15 through solar parks, rooftop policy, and reverse auctions that brought tariffs down; deserts, canals, and rooftops are the three main sites.
- **Biomass, bagasse cogeneration, waste-to-energy, and small hydro** add smaller but useful megawatts, especially where a factory already has fuel or a hill stream can take a run-of-river

plant.

- **Large hydro** is counted separately from the Ministry of New and Renewable Energy basket, yet it remains a major non-fossil source for the grid.
- **Manufacturing, storage, and transmission still lag generation announcements:** solar cells and modules are import-heavy, and renewable-rich States face **evacuation and must-run** disputes with distribution companies.

Targets to be achieved

- The Union target of **175 GW of renewable capacity by 2022 is the working number: 100 GW solar** (utility plus rooftop), **60 GW wind**, **10 GW bio-energy**, and **5 GW small hydro**.
- India's **Intended Nationally Determined Contribution** after **Paris (2015)** pledges that about **40 per cent of installed electric power capacity** will come from non-fossil sources by **2030**, and that emissions intensity of GDP will fall **33-35 per cent** from 2005 levels by 2030.
- The **International Solar Alliance**, announced at Paris and hosted by India, is a diplomatic target as well as a technology club for sun-rich countries.
- State renewable purchase obligations, green corridors, and ultra-mega solar parks are the instruments meant to turn the 175 GW figure into wires and meters, not only a speech.

Why the targets matter

- They reduce the coal import and air-pollution bill, and they hedge a future carbon constraint on exports and climate finance.
- They can create installation, operation, and small-manufacturing jobs if **Make in India** on cells, inverters, and towers actually happens.
- They fail if land, forest clearance, and unpaid discom dues stall plants, or if the grid cannot absorb daytime solar.

National Programme on LEDs

- The programme, delivered mainly through **Energy Efficiency Services Limited**, aggregates demand so households and urban local bodies buy **LED lamps and street lights** at a low price instead of incandescent or sodium lamps.
- **Unnat Jyoti by Affordable LEDs for All (UJALA)** puts efficient bulbs in homes; the **Street Lighting National Programme** replaces municipal lighting.
- **Importance is threefold: peak load falls**, so fewer peaking plants and less diesel; **household and municipal bills fall; carbon and local air pollution fall** for the same lumen.
- It is the cheapest "renewable" megawatt because a unit not consumed need not be generated. It also builds a domestic LED manufacturing and assembly chain.
- **Limits:** quality and warranty must be policed, or cheap failures will send users back to old lamps; street-light savings need honest metering by municipalities.

Flow diagram

Renewable status wind solar bio SHP -> 175 GW by 2022

175 GW by 2022 -> 40 percent non-fossil by 2030

National National LED programme UJALA street lights programme UJALA street lights ->

Lower peak and bills

175 GW by 2022 -> Green corridors auctions

Lower peak and bills -> Green corridors auctions

Conclusion

India's renewable story in 2016 is a real rise in wind and solar against a still-coal grid, judged against the 175 GW (2022) and 40 per cent non-fossil (2030) marks. The LED programme is the demand-side twin of that supply push: cheaper light, lower peak, and less carbon. Targets will count only when evacuation, discom payments, and lamp quality keep up with auctions and bulb distribution.

Facts & figures

175 GW by 2022

Union renewable capacity target: 100 GW solar, 60 GW wind, 10 GW bio-energy, 5 GW small hydro.

INDC 2015

About 40 per cent of installed power capacity from non-fossil sources by 2030, and 33-35 per cent lower emissions intensity of GDP versus 2005.

National Solar Mission

Flagship solar programme, later scaled toward the 100 GW solar leg of the 2022 target.

UJALA

Unnat Jyoti by Affordable LEDs for All: household LED distribution through aggregated procurement by EESL.

International Solar Alliance

India-hosted grouping of sun-rich countries announced at the Paris climate conference in 2015.

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