

GOVERNMENT OF INDIA
MINISTRY OF NEW AND RENEWABLE ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO. 953
ANSWERED ON 30/07/2024

POWER CAPACITY FROM RENEWABLE SOURCES

953. SHRI SUJEET KUMAR

Will the Minister of NEW AND RENEWABLE ENERGY be pleased to state:

- (a) the details of the roadmap and specific strategies adopted by the Ministry to achieve ambitious target of 50 per cent of India's total power capacity from renewable sources by 2030, as recently reiterated by the Secretary;
- (b) the details of policies or incentives in place to encourage the adoption of renewable energy technologies by industries, businesses, and residential consumers to contribute to the overall target; and
- (c) the details of the role played by innovation and research and development in achieving the 50 per cent renewable energy goal and steps taken to promote indigenous technologies in the sector?

ANSWER

THE MINISTER OF STATE FOR NEW & RENEWABLE ENERGY AND POWER

(SHRI SHRIPAD YESSO NAIK)

(a) & (b) The Government has undertaken several measures and strategies to achieve the target of 50% of installed electric capacity of the country from non-fossil sources by 2030 and to encourage the adoption of renewable energy (RE) technologies by industries, businesses, and residential consumers to contribute to the overall target, as given in **Annexure-I**. The details of the various schemes/programmes being implemented by the Ministry of New and Renewable Energy (MNRE) and Central Financial Assistance (CFA)/incentives to be provided under these schemes/programmes are given at **Annexure-II** and **Annexure-III** respectively.

The non-fossil power capacity in the country has increased from 81.16 GW (33% of total capacity) in 2014 to 203.19 GW (45.5% of total capacity) as on 30.06.2024. In addition, projects of 151.22 GW capacity are at various stages of implementation.

(c) The Government has undertaken several measures and steps to promote indigenous technologies and research & development in the RE sector, as provided at **Annexure-IV**.

**Annexure-I referred to in reply of part (a) & (b) of the Rajya Sabha Unstarred Question
No. 953 to be answered on 30.07.2024**

The Government of India has taken several steps and initiatives to promote and accelerate renewable energy capacity in the country with the target to achieve 50% of installed electric capacity from non-fossil sources by 2030. These are including, inter-alia, the following:

- Notification of trajectory for RE power bids of 50 GW/annum to be issued by Renewable Energy Implementation Agencies (REIAs: SECI, NTPC, NHPC, SJVN) from FY 2023-24 to FY 2027-28.
- Foreign Direct Investment (FDI) permitted up to 100 percent under the automatic route.
- Waiver of Inter State Transmission System (ISTS) charges for inter-state sale of solar and wind power for projects to be commissioned by 30th June 2025, for Green Hydrogen Projects till December 2030 and for offshore wind projects till December 2032.
- To boost RE consumption, Renewable Purchase Obligation (RPO) trajectory has been announced till 2029-30 including separate RPO for Decentralized Renewable Energy.
- Project Development Cell for attracting and facilitating investments has been set up.
- Standard Bidding Guidelines for tariff based competitive bidding process for procurement of Power from Grid Connected Solar, Wind and Wind-Solar Projects have been issued.
- Schemes such as Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM), PM Surya Ghar Muft Bijli Yojana, National Programme on High Efficiency Solar PV Modules, National Green Hydrogen Mission, Development of 1 GW Offshore Wind Energy Projects, etc.
- Setting up of Ultra Mega Renewable Energy Parks to provide land and transmission to RE developers for installation of RE projects at large scale.
- Laying of new transmission lines and creating new sub-station capacity under the Green Energy Corridor Scheme for evacuation of renewable power.
- Electricity (Rights of Consumers) Rules, 2020 has been issued for net-metering up to five hundred Kilowatt or up to the electrical sanctioned load, whichever is lower.
- Cabinet approved the Viability Gap Funding (VGF) scheme for offshore wind energy projects for installation and commissioning of 1 GW of offshore wind energy projects (500 MW each off the coast of Gujarat and Tamil Nadu)
- “National Repowering and Life Extension Policy for Wind Power Projects, 2023” has been issued.
- “Strategy for Establishments of Offshore Wind Energy Projects” has been issued indicating a bidding trajectory of 37 GW by 2030 and various business models for project development.

- The Offshore Wind Energy Lease Rules, 2023 have been notified vide Ministry of External Affairs notification dated 19th December 2023, to regulate the grant of lease of offshore areas for development of offshore wind energy projects.
- Procedure for Uniform Renewable Energy Tariff (URET) has been issued.
- Standard & Labelling (S&L) programs for Solar Photovoltaic modules and Grid-connected Solar Inverters have been launched.
- To augment transmission infrastructure needed for steep RE trajectory, transmission plan has been prepared till 2030.
- Notification of “The Electricity (Late Payment Surcharge and related matters) Rules (LPS rules) issued.
- Notification of Promoting Renewable Energy through Green Energy Open Access Rules 2022 issued.
- Launched Green Term Ahead Market (GTAM) to facilitate sale of Renewable Energy Power through exchanges.
- Government has issued orders that power shall be dispatched against Letter of Credit (LC) or advance payment to ensure timely payment by distribution licensees to RE generators.

Annexure-II referred to in reply of part (a) & (b) of the Rajya Sabha Unstarred Question No. 953 to be answered on 30.07.2024

Details of the major ongoing Renewable Energy Schemes/Programmes

1. Scheme for Development of Solar Parks and Ultra-mega Solar Power Projects with a target of setting up 40,000 MW capacity. Under the scheme, the infrastructure such as land, roads, power evacuation system water facilities are developed with all statutory clearances/approvals. Thus, the scheme helps expeditious development of utility-scale solar projects in the country.
2. Central Public Sector Undertaking (CPSU) Scheme Phase-II (Government Producer Scheme) for setting up grid-connected Solar Photovoltaic (PV) Power Projects by Government Producers, using domestically manufactured solar PV cells and modules, with Viability Gap Funding (VGF) support, for self-use or use by Government/ Government entities, either directly or through Distribution Companies (DISCOMS).
3. Production Linked Incentive scheme 'National Programme on High Efficiency Solar PV Modules' for achieving manufacturing capacity of Giga Watt (GW) scale in High Efficiency Solar PV modules (Tranche - I & II).
4. PM-KUSUM Scheme to promote small Grid Connected Solar Energy Power Plants, stand-alone solar powered agricultural pumps and solarization of existing grid connected agricultural pumps. The scheme is not only beneficial to the farmers but also States and DISCOMs. States save on subsidy being provided for electricity to agriculture consumers and DISCOMs get cheaper solar power at tail end saving transmission and distribution losses.
5. PM-Surya Ghar: Muft Bijli Yojana for installing rooftop solar for 1 Crore households.
6. Green Energy Corridors (GEC) Phase I and II: to create intra-state transmission system for renewable energy projects.
7. Bio-Energy Programme:
 - Waste to Energy Programme: Programme on Energy from Urban, industrial and Agricultural Wastes/Residues
 - Biomass Programme: Scheme to Support Manufacturing of Briquettes & Pellets and Promotion of Biomass (non-bagasse) based cogeneration in Industries.
 - Biogas Programme: for promotion of family type Biogas plants
8. Renewable Energy Research and Technology Development (RE-RTD) Programme.
9. Human Resource Development Scheme with components such as short-term trainings & skill development programmes, fellowships, internships, support to lab upgradation for RE and renewable energy chair.
10. National Green Hydrogen Mission launched with aim to make India a Global Hub for production, utilization and export of Green Hydrogen and its derivatives.

Annexure III referred to in reply of part (a) & (b) of the Rajya Sabha Unstarred Question No. 953 to be answered on 30.07.2024

Incentives being provided as Central Financial Assistance (CFA) for the implementation of major Renewable Energy Schemes/Programmes

Scheme/Programmes	Incentives presently available as per the Scheme			
a) PM Surya Ghar: Muft Bijli Yojana	The details of the CFA pattern for the component “CFA to Residential Consumers” under this scheme are as follows:			
	S. No.	Type of Residential Segment	CFA	CFA (Special Category States/UTs)
	1	Residential Sector (first 2 kWp of Rooftop Solar (RTS) capacity or part thereof)	Rs.30,000/kWp	Rs.33,000/kWp
	2	Residential Sector (with additional RTS capacity of 1 kWp or part thereof)	Rs.18,000/kWp	Rs.19,800/kWp
	3	Residential Sector (additional RTS capacity beyond 3 kWp)	No additional CFA	No additional CFA
	4	Group Housing Societies/ Residential Welfare Associations (GHS/RWA) etc. for common facilities including EV charging up to 500 kWp (@ 3 kWp per house)	Rs.18,000/kWp	Rs.19,800/kWp
b) Central Public Sector Undertaking (CPSU) Scheme Phase-II (Government Producer Scheme) for grid-connected Solar Photovoltaic (PV) Power Projects by the Government Producers	Viability Gap Funding (VGF) support up to Rs. 55 lakhs per MW to the CPSUs/Govt. Organizations entities selected through competitive bidding process.			
c) PLI Scheme ‘National Programme on High Efficiency Solar PV Modules’	The beneficiaries are eligible for Production Linked Incentive (PLI) on production and sale of solar PV modules. The quantum of PLI eligible for disbursal depends upon: (i) quantum of sales of solar PV modules; (ii) performance parameters (efficiency and temperature coefficient of maximum power) of solar PV modules sold; and (iii) percentage of local value addition in modules sold.			

Scheme/Programmes	Incentives presently available as per the Scheme
d) Solar Park Scheme	<p>(a) Up to Rs. 25 lakhs per Solar Park, for preparation of Detailed Project Report (DPR).</p> <p>(b) Rs. 20 lakh per MW or 30% of the project cost, whichever is lower, for development of infrastructure.</p>
e) PM-KUSUM scheme	<p>Component A: Setting up of 10,000 MW of Decentralized Ground/Stilt Mounted Solar Power Plants</p> <p>Benefits available: Procurement Based Incentive (PBI) to the DISCOMs @ 40 paise/kWh or Rs.6.60 lakhs/MW/year, whichever is lower, for buying solar power under this scheme. The PBI is given to the DISCOMs for a period of five years from the Commercial Operation Date of the plant. Therefore, the total PBI payable to DISCOMs is up to Rs. 33 Lakh per MW.</p> <p>Component B: Installation of 14 Lakh Stand-alone Solar Pumps</p> <p>Benefits available: CFA of 30% of the benchmark cost or the tender cost, whichever is lower, of the stand-alone solar agriculture pump is provided. However, in North Eastern States, Sikkim, Jammu & Kashmir, Ladakh, Himachal Pradesh, Uttarakhand, Lakshadweep and A&N Islands, CFA of 50% of the benchmark cost or the tender cost, whichever is lower, of the stand-alone solar pump is provided. Component B can also be implemented without State share of 30%. The Central Financial Assistance will continue to remain 30% and rest 70% will be borne by the farmer.</p> <p>Component C: Solarisation of 35 Lakh Grid Connected Agriculture Pumps including through Feeder Level Solarisation</p> <p>Benefits available:</p> <p>(a) Individual Pump Solarization (IPS): CFA of 30% of the benchmark cost or the tender cost, whichever is lower, of the solar PV component will be provided. However, in North Eastern States, Sikkim, Jammu & Kashmir, Ladakh, Himachal Pradesh, Uttarakhand, Lakshadweep and A&N Islands, CFA of 50% of the benchmark cost or the tender cost, whichever is lower, of the solar PV component is provided. Component C (IPS) can also be implemented without State share of 30%. The Central Financial Assistance will continue to remain 30% and rest 70% will be borne by the farmer.</p> <p>(b) Feeder Level Solarization (FLS): Agriculture feeders can be solarized by the State Government in CAPEX or RESCO mode with CFA of Rs. 1.05 Crore per MW as provided by MNRE. However, in North Eastern States, Sikkim, Jammu & Kashmir, Ladakh, Himachal Pradesh, Uttarkhand, Lakshadweep and Andaman & Nicobar Island, CFA of Rs. 1.75 crore per MW is provided.</p>
f) Green Energy Corridor Scheme	<p>(a) GEC Phase-I: CFA of 40% of DPR cost or awarded cost whichever is lower.</p>

Scheme/Programmes	Incentives presently available as per the Scheme
(for development of intra-state transmission system for RE projects)	(b) GEC Phase-II: CFA of 33% of DPR cost or awarded cost whichever is lower.
g) Biomass Programme	<p>(a) For Briquette manufacturing plants: Rs. 9 Lakhs/MTPH (metric ton/hour) [Maximum CFA- Rs. 45 Lakh per project]</p> <p>(b) For Non-Torrefied Pellet manufacturing plant: Rs. 21 lakhs/MTPH production capacity or 30% of the capital cost considered for plant and machinery of 1 MTPH plant, whichever is lower (Maximum Rs. 105 lakhs per project)</p> <p>(c) For Torrefied Pellet manufacturing plant: Rs. 42 lakhs/MTPH production capacity or 30% of the capital cost considered for plant and machinery of 1 MTPH plant, whichever is lower (Maximum Rs. 210 lakhs per project)</p> <p>(d) For Non-Bagasse Cogeneration Projects: Rs. 40 Lakhs/MW (Maximum CFA- Rs. 5 Crore per project)</p>
h) Waste to Energy Programme	<p>(a) For Biogas generation: Rs. 0.25 crore per 12000 cum/day (Maximum CFA- Rs.5 crore/project)</p> <p>(b) For BioCNG/Enriched Biogas/Compressed Biogas generation: (Maximum CFA- Rs.10 crore/project)</p> <p>(i) BioCNG generation from new Biogas plant – Rs. 4 Crore per 4800 Kg/day;</p> <p>(ii) BioCNG generation from existing Biogas plant - Rs 3 Crore per 4800 Kg/day;</p> <p>(c) For Power generation based on Biogas (Maximum CFA - Rs. 5 crore/project):</p> <p>(i) Power generation from new biogas plant: Rs. 0.75 crore per MW</p> <p>(ii) Power generation from existing biogas plant: Rs. 0.5 crore per MW</p> <p>(d) For Power generation based on bio & agro-industrial waste (other than Municipal Solid Waste (MSW) through incineration process): Rs.0.40 crore/MW (Maximum CFA - Rs.5.00 Crore/Project)</p> <p>(e) For Biomass Gasifier for electricity/ thermal applications:</p> <p>i) Rs. 2,500 per kW_e with dual fuel engines for electrical application</p> <p>ii) Rs. 15,000 per kW_e with 100% gas engines for electrical application</p> <p>iii) Rs. 2 lakh per 300 kW_{th} for thermal applications.</p> <p>Note:</p> <ul style="list-style-type: none"> In case, the Waste to Energy plants are set up in Special Category States (NE Region, Sikkim, Himachal Pradesh and Uttarakhand), Jammu & Kashmir, Ladakh, Lakshadweep and Andaman & Nicobar Islands, the

Scheme/Programmes	Incentives presently available as per the Scheme
	<p>eligible CFA would be 20% higher than Standard CFA pattern given above.</p> <ul style="list-style-type: none"> Biogas/BioCNG/Power (biogas based) generation plants based on cattle dung as main feedstock set up by Gaushalas independently or through joint ventures/partnerships will be eligible for 20% higher CFA than Standard CFA pattern given above. These Gaushalas (Shelters) should be registered with the respective State Government.
i)Biogas Programme	<p>(a) Rs. 9800/- to Rs. 70,400/- per plant based on size of the plant in cubic meter for small biogas plants (1-25 cubic meter/day plant capacity)</p> <p>(b) Rs. 35,000/- to Rs. 45,000/- per kilowatt for power generation and Rs. 17,500 /- to Rs. 22,500/- per kilowatt equivalent for thermal applications (25 - 2500 cubic meter/day plant capacity)</p> <p>The eligible CFA would be 20% higher than Standard CFA in for North Eastern Region (NER), Island, Registered Gaushalas and SC/ST beneficiaries</p>
j) R&D programme	<p>The Ministry encourages research and technology development proposals in collaboration with the industry and provides up to 100% financial support to Government/non-profit research organizations and up to 70% to Industry, Start-ups, Private Institutes, Entrepreneurs and Manufacturing units.</p>
k) National Green Hydrogen Mission	<p>The Strategic Interventions for Green Hydrogen Transition (SIGHT) Programme guidelines under the Mission have been notified for Electrolyser Manufacturing and Mode-1, Mode 2A and Mode 2B for Green Hydrogen Production.</p> <p>(a) SIGHT programme for Electrolyser manufacturing has an allocation of Rs. 4440 crore by 2029-30. The incentives start from Rs. 4440 per kW in the first year and end at Rs. 1480 per kW in the fifth year.</p> <p>SIGHT programme for Green Hydrogen production (Mode-1) provides incentives for Green Hydrogen production, which are capped at Rs. 50/kg, Rs. 40/kg and Rs. 30/kg for the first, second and third year respectively.</p> <p>For Mode 2A and 2B, the incentives are fixed at Rs. 50/kg, Rs. 40/kg and Rs. 30/kg for the first, second and third year respectively.</p>

Scheme/Programmes	Incentives presently available as per the Scheme
	<p>(b) Pilot projects for projects in Mobility sector have an outlay of Rs. 496 crore.</p> <p>(c) Pilot projects in Shipping sector have an outlay of Rs. 115 crore.</p> <p>(d) Pilot projects in Steel sector have an outlay of Rs. 455 crore.</p> <p>(e) Hydrogen hubs have been allocated an outlay of Rs. 200 crore.</p> <p>(f) The R&D program of the Mission has a budget of Rs. 400 crore.</p> <p>(g) Skill Development component of the Mission has an outlay of Rs. 35 crore.</p> <p>(h) The Testing component of the Mission has an outlay of Rs. 200 crore.</p>

**Annexure-IV referred to in reply of part (c) of the Rajya Sabha Unstarred Question No. 953 to
be answered on 30.07.2024**

Measures and Steps undertaken to promote Indigenous technologies and research & development in the Renewable Energy sector, inter-alia, include:

(i) Production Linked Incentive Scheme: The Ministry of New Renewable (MNRE) is implementing the Production Linked Incentive (PLI) Scheme for High-Efficiency Solar PV Modules, for achieving domestic manufacturing capacity of Giga Watt (GW) scale in High-Efficiency Solar PV modules, with an outlay of Rs. 24,000 crore.

(ii) Domestic Content Requirement (DCR): Under the scheme of PM-KUSUM Components B & C, PM Saurya Ghar and CPSU Scheme Phase-II, wherein government subsidy is given, it has been mandated to source solar PV cells and modules from domestic sources.

(iii) Preference to “Make in India” in Public Procurement: Through implementation of ‘Public Procurement (Preference to Make in India) Order’, procurement and use of renewable energy items specified in the MNRE’s order have been mandated for Government/Government entities.

(iv) Imposition of Basic Customs Duty on import of solar PV cells & modules: The Government has imposed Basic Customs Duty (BCD) on import of solar PV cells and modules, with effect from 01.04.2022.

(v) Discontinuation of Customs Duty Concessions: MNRE has discontinued issuance of Customs Duty Concession Certificates for import of material/equipment for initial setting up of solar PV power projects with effect from 02.02.2021.

(vi) Domestic Manufacturing in Wind Sector: MNRE enlist the type and quality certified wind turbines under ‘Revised List of Models & Manufacturers’ (RLMM) and also mandates that Hub and Nacelle assembly/manufacturing facility shall be in India.

(vii) National Green Hydrogen Mission: Under Strategic Interventions for Green Hydrogen Transition (SIGHT) programme of the Mission, Government provides incentives for setting up green Hydrogen production plants as well as setting up electrolyser manufacturing capacity.

(viii) Renewable Energy Research and Technology Development Programme (RE-RTD): MNRE is implementing a “Renewable Energy Research and Technology Development Programme (RE-RTD)” through various research institutions and industry to develop indigenous technologies and manufacturing for widespread applications of new and renewable energy in efficient and cost-effective manner.