

GOVERNMENT OF INDIA
MINISTRY OF NEW AND RENEWABLE ENERGY
LOK SABHA
UNSTARRED QUESTION NO. 2553
ANSWERED ON 22.12.2022

ELECTRICITY PRODUCED BY RENEWABLE ENERGY SOURCES

2553. SHRI G. M. SIDDESHWAR
SHRIMATI POONAM MAHAJAN

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

- (a) the quantum of electricity produced by renewable energy sources, State/UT-wise including in districts of Karnataka and Maharashtra;
- (b) the measures taken/proposed to be taken and schemes introduced to promote renewable energy sources;
- (c) the steps taken/being take by the Government to implement green energy corridors; and
- (d) the amount of subsidy allocated and disbursed during the last five years and the current year for adopting renewable energy sources, State/UT-wise?

ANSWER

THE MINISTER OF NEW & RENEWABLE ENERGY AND POWER
(SHRI R.K. SINGH)

(a) The state-wise & source-wise details of power generation from various renewable energy sources in the country including the States of Karnataka and Maharashtra during the current year i.e. 2022-23 (upto October 2022) are given in **Annexure-I**.

(b) The Government has taken several measures to promote renewable energy in the Country, including, inter-alia, the following:-

- Permitting Foreign Direct Investment (FDI) 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,
- Declaration of trajectory for Renewable Purchase Obligation (RPO) up to the year 2029-30,
- Setting up of Ultra Mega Renewable Energy Parks to provide land and transmission to RE developers for installation of RE projects at large scale,
- Schemes such as Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM), Solar Rooftop Phase II, 12000 MW CPSU Scheme Phase II, etc,
- Laying of new transmission lines and creating new sub-station capacity under the Green Energy Corridor Scheme for evacuation of renewable power,
- Notification of standards for deployment of solar photovoltaic system/devices,
- Setting up of Project Development Cell for attracting and facilitating investments,
- Standard Bidding Guidelines for tariff based competitive bidding process for procurement of Power from Grid Connected Solar PV and Wind Projects.
- 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.
- Notification of Promoting Renewable Energy through Green Energy Open Access Rules 2022.
- Notification of “The electricity (Late Payment Surcharge and related matters) Rules (LPS rules).
- Launch of Green Term Ahead Market (GTAM) to facilitate sale of Renewable Energy Power through exchanges.

The details of major renewable energy schemes/ programmes being implemented by the Ministry in the country to promote renewable energy sources are given in **Annexure-II**.

(c) The Intra-State Transmission System Green Energy Corridor Phase-I (GEC-I) has been sanctioned to the States of Andhra Pradesh, Gujarat, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Tamil Nadu in order to facilitate integration of approx. 24 GW of RE power with a total project cost of Rs. 10141.68 crore and Central Financial Assistance (CFA) @ 40%, i.e. Rs. 4056.67 crore. Under GEC-I, transmission projects have been sanctioned to Karnataka for Rs. 906 crore with CFA of Rs. 362.40 crore for evacuation of approx. 4 GW of RE power and transmission projects have been sanctioned to Maharashtra for Rs. 361.61 crore with CFA of Rs. 144.64 crore for evacuation of approx. 1.86 GW of RE power.

The Intra-State Transmission System Green Energy Corridor Phase-II (GEC-II) has been sanctioned to the States of Gujarat, Himachal Pradesh, Karnataka, Kerala, Rajasthan, Tamil Nadu and Uttar Pradesh in order to facilitate integration of approx. 20 GW of RE power. The project cost is Rs. 12031.33 crore with CFA @ 33%, i.e. Rs. 3970.34 crore. Under GEC-II, transmission projects have been sanctioned to Karnataka for Rs. 1036.25 crore with CFA of Rs. 341.96 crore for evacuation of approx. 2.6 GW of RE power.

(d) The State-wise details of Central Financial Assistance (CFA) released for the implementation of various renewable energy schemes / programmes by the Ministry during the last five years and the current year i.e. from 2017-18 to 2022-23 (till 30.11.2022) are given in **Annexure-III**.

Annexure-I referred to in reply to part (a) of Lok Sabha Unstarred Question No. 2553 for 22/12/2022 regarding 'Electricity Produced by Renewable Energy Sources'

State-wise details of power generation from various renewable energy sources during current year i.e. 2022-23 (upto October 2022)

| All India RE Generation for the Year 2022-23 (Up to October,2022) | | | | | | | | | |
|---|-----------------|-----------------|----------------|----------------|----------------|----------------|------------------------|------------------|--------------------------------|
| (All figures in MUs) | | | | | | | | | |
| Name of State/UT | Wind | Solar | Biomass | Bagasse | Small Hydro | Others | Renewable Energy Total | Large Hydro* | Total RE including Large Hydro |
| Chandigarh | 0.00 | 7.83 | 0.00 | 0.00 | 0.00 | 0.00 | 7.83 | 0.00 | 7.83 |
| Delhi | 0.00 | 150.33 | 0.00 | 0.00 | 0.00 | 159.34 | 309.67 | 0.00 | 309.67 |
| Haryana | 0.00 | 402.94 | 209.61 | 125.76 | 170.77 | 32.65 | 941.73 | 0.00 | 941.73 |
| HP | 0.00 | 37.96 | 0.00 | 0.00 | 2077.80 | 0.00 | 2115.76 | 30885.16 | 33000.92 |
| J & K | 0.00 | 0.00 | 0.00 | 0.00 | 288.02 | 0.00 | 288.02 | 13270.08 | 13558.10 |
| Ladkh | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 322.92 | 322.92 |
| Punjab | 0.00 | 1395.44 | 245.89 | 44.78 | 450.87 | 0.00 | 2136.98 | 2734.02 | 4871.00 |
| Rajasthan | 4465.76 | 19540.42 | 224.97 | 0.00 | 0.29 | 0.00 | 24231.45 | 384.02 | 24615.47 |
| Uttar Pradesh | 0.00 | 2120.56 | 41.62 | 604.70 | 133.63 | 32.73 | 2933.23 | 545.93 | 3479.16 |
| Uttarakhand | 0.00 | 193.55 | 0.00 | 144.97 | 206.15 | 0.00 | 544.67 | 11446.75 | 11991.42 |
| Chhattisgarh | 0.00 | 298.85 | 620.03 | 0.60 | 121.75 | 0.00 | 1041.24 | 183.35 | 1224.59 |
| Gujarat | 12639.39 | 5553.31 | 0.00 | 2.88 | 111.19 | 2.24 | 18309.01 | 4623.33 | 22932.34 |
| Madhya Pradesh | 3253.74 | 2280.98 | 6.94 | 22.17 | 180.80 | 21.36 | 5765.99 | 5084.36 | 10850.35 |
| Maharashtra | 5659.20 | 2196.95 | 149.26 | 1162.99 | 497.99 | 0.33 | 9666.72 | 3674.29 | 13341.01 |
| Dadra and Nagar Haveli and Daman and Diu | 0.00 | 20.56 | 3.22 | 0.00 | 0.00 | 0.00 | 23.78 | 0.00 | 23.78 |
| Goa | 0.00 | 7.31 | 0.00 | 0.00 | 0.00 | 2.97 | 10.28 | 0.00 | 10.28 |
| Andhra Pradesh | 5752.21 | 4638.13 | 39.48 | 55.39 | 185.13 | 163.55 | 10833.89 | 2500.57 | 13334.46 |
| Telangana | 185.30 | 3721.95 | 19.83 | 7.17 | 65.78 | 93.29 | 4093.31 | 4786.11 | 8879.42 |
| Karnataka | 6876.62 | 7791.95 | 74.83 | 822.77 | 1692.06 | 0.00 | 17258.23 | 7905.73 | 25163.96 |
| Kerala | 94.73 | 398.10 | 0.00 | 34.67 | 628.59 | 0.00 | 1156.09 | 5537.71 | 6693.80 |
| Tamil Nadu | 14119.78 | 5246.80 | 74.60 | 410.25 | 163.04 | 0.00 | 20014.47 | 3603.40 | 23617.87 |
| Lakshadweep | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 | 0.06 |
| Puducherry | 0.00 | 7.14 | 0.00 | 0.00 | 0.00 | 0.00 | 7.14 | 0.00 | 7.14 |
| Andaman Nicobar | 0.00 | 14.18 | 0.00 | 0.00 | 9.26 | 0.00 | 23.44 | 0.00 | 23.44 |
| Bihar | 0.00 | 101.64 | 0.00 | 0.00 | 9.87 | 0.00 | 111.51 | 0.00 | 111.51 |
| Jharkhand | 0.00 | 12.25 | 0.00 | 0.00 | 0.00 | 0.00 | 12.25 | 271.18 | 283.43 |
| Orissa | 0.00 | 386.98 | 25.62 | 0.00 | 310.41 | 0.00 | 723.01 | 3817.57 | 4540.58 |
| Sikkim | 0.00 | 0.00 | 0.00 | 0.00 | 7.21 | 0.00 | 7.21 | 9882.92 | 9890.13 |
| West Bengal | 0.00 | 70.66 | 0.00 | 0.00 | 127.87 | 968.54 | 1167.07 | 2407.12 | 3574.19 |
| Arunachal Pradesh | 0.00 | 21.32 | 0.00 | 0.00 | 2.21 | 0.03 | 23.56 | 3708.07 | 3731.63 |
| Assam | 0.00 | 111.34 | 0.00 | 0.00 | 40.02 | 0.00 | 151.36 | 365.79 | 517.15 |
| Manipur | 0.00 | 4.98 | 0.00 | 0.00 | 0.00 | 0.01 | 4.98 | 394.60 | 399.58 |
| Meghalaya | 0.00 | 0.00 | 0.00 | 0.00 | 53.56 | 0.00 | 53.56 | 804.56 | 858.12 |
| Mizoram | 0.00 | 1.88 | 0.00 | 0.00 | 19.09 | 0.00 | 20.97 | 140.84 | 161.81 |
| Nagaland | 0.00 | 0.00 | 0.00 | 0.00 | 71.67 | 0.00 | 71.67 | 152.06 | 223.73 |
| Tripura | 0.00 | 3.75 | 0.00 | 0.00 | 0.00 | 0.00 | 3.75 | 0.00 | 3.75 |
| All India Total | 53046.71 | 56740.10 | 1735.90 | 3439.11 | 7625.02 | 1477.03 | 124063.88 | 119432.44 | 243496.32 |

* Large hydro generation Excluding Import from Bhutan

(Source : CEA)

Annexure-II referred to in reply to part (b) of Lok Sabha Unstarred Question No. 2553 for 22/12/2022 regarding 'Electricity Produced by Renewable Energy Sources'

Details of the ongoing major 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, transmission system (internal and external), pooling stations, water feasibility is developed with all statutory clearances/ approvals. Thus the solar project developers have plug and play benefit.
2. Central Public Sector Undertaking (CPSU) Scheme Phase-II (Government Producer Scheme) for setting up 12,000 MW grid-connected Solar Photovoltaic (PV) Power Projects by Government Producers 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 solarisation of existing grid connected agricultural pumps. The scheme is not only beneficial to the farmers but also States and DISCOMs. States will 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. Rooftop Solar Programme Phase II for grid connected solar rooftop power plants. Under this Programme, subsidy is provided for residential sector and performance linked incentives to DISCOMs for achieving capacity addition in rooftop solar above baseline.
6. Green Energy Corridors (GEC): to create intra-state transmission system for renewable energy projects. Central Financial Assistance (CFA) is provided to set up transmission infrastructure for evacuation of Power from Renewable Energy projects in total ten States (considering both the phases of GEC).
 - (i) Intra-State Transmission System Green Energy Corridor Phase-I
 - (ii). Intra-State Transmission System Green Energy Corridor Phase-II
7. Waste to Energy Programme : Programme on Energy from Urban, industrial and Agricultural Wastes/Residues
8. Biomass Programme: Scheme to Support Manufacturing of Briquettes & Pellets and Promotion of Biomass (non-bagasse) based cogeneration in Industries.
9. Biogas Programme : for promotion of family type Biogas plants
10. Renewable Energy Research and Technology Development (RE-RTD) Programme (Support Programme).
11. 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.
12. Information & Public Awareness (I&PA)

Annexure-III referred to in reply to part (d) of Lok Sabha Unstarred Question No. 2553 for 22/12/2022 regarding 'Electricity Produced by Renewable Energy Sources'

State-wise details of Central Financial Assistance (CFA) released for the implementation of various renewable energy schemes/ programmes during the last five years and the current year i.e. from 2017-18 to 2022-23 (till 30.11.2022)

| (In Rs. Crores) | | | | | | | |
|-----------------|------------------------|---------|---------|---------|---------|---------|---------------------------------|
| S No. | State / UT Name | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2023-24 (upto 30.11.2022) |
| 1 | MAHARASHTRA | 43.12 | 147.38 | 55.94 | 106.61 | 75.09 | 0 |
| 2 | LAKSHADWEEP | 3.97 | 0 | 0 | 0 | 0 | 0 |
| 3 | TELANGANA | 26.26 | 18.67 | 28.17 | 23.12 | 20.81 | 8.92 |
| 4 | JAMMU AND KASHMIR | 16.12 | 85.84 | 21.39 | 4.89 | 51.76 | 0 |
| 5 | PUNJAB | 4.41 | 30.04 | 22.23 | 23.34 | 45.78 | 3.20 |
| 6 | RAJASTHAN | 103.14 | 64.52 | 88.60 | 105.60 | 166.11 | 0 |
| 7 | KERALA | 44.02 | 20.73 | 3.57 | 12.37 | 37.16 | 0 |
| 8 | ARUNACHAL PRADESH | 45.16 | 5.94 | 24.07 | 25.42 | 11.36 | 0 |
| 9 | TRIPURA | 2.73 | 0.22 | 12.98 | 18.48 | 16.88 | 0 |
| 10 | NAGALAND | 11.49 | 2.39 | 16.55 | 10.69 | 5.86 | 0 |
| 11 | SIKKIM | 0.18 | 2.74 | 0.05 | 0 | 0.03 | 0 |
| 12 | MEGHALAYA | 23.28 | 2.08 | 4.14 | 1.23 | 0 | 0 |
| 13 | UTTARAKHAND | 39.93 | 0.45 | 23.99 | 11.59 | 22.68 | 0 |
| 14 | WEST BENGAL | 6.58 | 4.19 | 13.38 | 0 | 0.51 | 0.06 |
| 15 | HARYANA | 2.16 | 22.39 | 18.51 | 55.45 | 178.35 | 10.00 |
| 16 | GUJARAT | 158.89 | 361.08 | 124.33 | 106.18 | 1237.79 | 81.69 |
| 17 | ANDAMAN AND NICOBAR | 3.03 | 0 | 0 | 1.01 | 0 | 0 |
| 18 | ODISHA | 13.55 | 9.11 | 11.04 | 1.12 | 5.66 | 0.40 |
| 19 | TAMIL NADU | 53.49 | 54.94 | 55.44 | 30.28 | 158.85 | 15.21 |
| 20 | MANIPUR | 6.65 | 0 | 16.86 | 23.06 | 14.89 | 0 |
| 21 | DADRA AND NAGAR HAVELI | 0.34 | 0 | 0 | 0 | 0 | 0 |
| 22 | CHANDIGARH | 2.23 | 18.76 | 5.13 | 0.85 | 0 | 0 |
| 23 | CENTRAL AGENCY | 1875.77 | 2684.48 | 2564.23 | 1875.56 | 4333.76 | 972.60 |
| 24 | JHARKHAND | 5.58 | 0.99 | 10.84 | 16.05 | 6.63 | 0 |
| 25 | UTTAR PRADESH | 36.41 | 37.85 | 64.33 | 74.11 | 39.11 | 4.51 |
| 26 | KARNATAKA | 38.21 | 100.18 | 16.48 | 70.71 | 3.97 | 0 |
| 27 | CHHATTISGARH | 161.96 | 95.81 | 5.16 | 2.50 | 3.18 | 0 |
| 28 | DELHI | 311.45 | 228.25 | 11.63 | 56.28 | 99.15 | 1145.49 |
| 29 | ANDHRA PRADESH | 138.32 | 213.15 | 30.66 | 62.32 | 5.44 | 4.22 |
| 30 | ASSAM | 24.86 | 0.2 | 33.29 | 3.11 | 10.20 | 0.04 |
| 31 | MIZORAM | 21.47 | 7.89 | 16.12 | 20.33 | 3.29 | 0 |
| 32 | HIMACHAL PRADESH | 42.30 | 84.13 | 32.04 | 73.98 | 33.44 | 0 |
| 33 | PUDUCHERRY | 0.31 | 0.1 | 0.79 | 0 | 0.03 | 0 |
| 34 | GOA | 0 | 0 | 0 | 0.08 | 3.60 | 0 |
| 35 | MADHYA PRADESH | 442.13 | 105.01 | 94.84 | 49.42 | 76.16 | 0 |
| 36 | BIHAR | 0 | 5.26 | 1.38 | 1.49 | 1.21 | 0 |
| 37 | LADAKH | 0 | 0 | 0 | 9.31 | 18.41 | 0 |