

GOVERNMENT OF INDIA
MINISTRY OF POWER

RAJYA SABHA
UNSTARRED QUESTION NO.319
ANSWERED ON 05.12.2023

STEPS TAKEN TO REDUCE CARBON EMISSIONS

319 SHRI VIVEK K. TANKHA:

Will the Minister of **POWER** be pleased to state:

- (a) the steps taken by Government to reduce carbon emissions from power projects;
- (b) the number of new power projects that have been established by Government since 2018, the details thereof, year-wise and State-wise;
- (c) whether Government has shut down any thermal power plant and replaced it with a renewable and non-polluting project, if so, the details thereof; and
- (d) the plans contemplated by Government to shift from pollution causing thermal plants to non-polluting energy projects?

A N S W E R

THE MINISTER OF POWER AND NEW & RENEWABLE ENERGY

(SHRI R.K. SINGH)

(a) : The steps taken by Ministry of Power to reduce carbon emissions from power projects are as follows:

- i. Ministry of Power is implementing a market-based mechanism namely Perform, Achieve and Trade (PAT) scheme to enhance energy efficiency in energy intensive large industries including Thermal Power Stations consuming more than 30,000 tonne of oil equivalent (toe) of energy per annum. Under this scheme, 226 number of Thermal Power Station are covered accounting for capacity of around 197 GW. This scheme mandates all Thermal Power Stations to reduce their Net Heat Rate over a period of three year cycle which in turn reduces coal consumption and hence result in CO₂ emissions reduction. As on 2020-21, saving in terms of energy is about 7.21 million tonnes of oil equivalent (mtoe), which is equivalent to emission reduction of about 27.51 million tonnes of CO₂ from these Thermal Power Plants (TPPs).
- ii. Many TPPs have adopted use of efficient technologies i.e. from subcritical to supercritical and now using ultra-supercritical technology in order to improve efficiency, thereby reducing coal consumption and emissions. A total capacity of Supercritical/ Ultra-supercritical units of 63830 MW (92 Units) and 2120 MW (03 units) has been commissioned respectively till 31.10.2023.
- iii. The capacity of about 8059.92 MW comprising 99 units of inefficient and old thermal power generation units has already been retired from Jan, 2018 to 15.10.2023.

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- iv. Policy on Bio-mass Utilization for Power Generation through Co-firing in Domestic Coal based Power Plants was issued on 08.10.2021 for the use of agro residue-based biomass which has mandated usage of biomass co-fired along with coal for thermal power plants.
- v. A total of 186.46 GW capacity from non-fossil fuel-based energy resources has been installed in the country as on 31.10.2023, which includes 178.98 GW Renewable Energy and 7.48 GW Nuclear Power. This is about 43% of our total power generation capacity. By 20230, India will have 50 percent of its installed power generation capacity from non-fossil sources.

(b) : As on 31-10-2023 (Financial Year 2023-24), National Thermal Capacity of 25,091.91 MW have been added to the grid since FY 2018-19. The details are **Annexed**.

(c) & (d) : As per Section 7 of the Electricity Act, 2003, generation is a de-licensed activity and phasing out/retirement of units is decided by generating utilities/companies based on their own techno-economic and commercial considerations. To promote the generation of Renewable Energy in the country since 2018, Government of India has taken the following steps:

- (i) Permitting Foreign Direct Investment (FDI) up to 100 percent under the automatic route.
- (ii) Waiver of Inter State Transmission System (ISTS) charges for inter-state sale of Solar, Wind, Green Hydrogen/Green Ammonia, Pumped Storage Plants & Energy Storage Sources.
- (iii) Notification of trajectory for Renewable Purchase Obligation (RPO) up to the year 2029-30.
- (iv) Setting up of Ultra Mega Renewable Energy Parks to provide land and transmission connectivity to RE developers for installation of RE projects at large scale.
- (v) Schemes such as Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM), Solar Rooftop Phase II, 12000 Mega Watt (MW) Central Public Sector Undertaking (CPSU) Scheme Phase II, etc.
- (vi) Laying of new transmission lines and creating new sub-station capacity under the Green Energy Corridor Scheme for evacuation of renewable power.
- (vii) Standard Bidding Guidelines for tariff based competitive bidding process for procurement of Power from Grid Connected Solar photovoltaic (PV), Wind and Solar Wind hybrid Projects.
- (viii) Notification of Promoting Renewable Energy through Green Energy Open Access Rules 2022.
- (ix) Launch of Green Term Ahead Market (GTAM) to facilitate sale of Renewable Energy Power through exchanges.

ANNEXURE

ANNEXURE REFERRED TO IN REPLY TO PART (b) OF UNSTARRED QUESTION NO. 319 ANSWERED IN THE RAJYA SABHA ON 05.12.2023

| Thermal Power Projects commissioned since FY-2018 | | | | | | | |
|---|---------|----------------|--|---------------------|---------|---------|-----------------|
| | Sector | State | Project Name | Implementing Agency | Fuel | Unit No | Cap. added (MW) |
| FY 2018-19 | | | | | | | |
| 1 | Central | Assam | Bongaigaon TPP | NTPC | Coal | U-3 | 250 |
| 2 | Central | Bihar | Nabi Nagar TPP | NTPC & BRBCL | Coal | U-3 | 250 |
| 3 | Central | Madhya Pradesh | Gadarwara TPP | NTPC | Coal | U-1 | 800 |
| 4 | Central | Maharashtra | Solapur STPP | NTPC | Coal | U-2 | 660 |
| Total Central Sector | | | | | | | 1960 |
| 5 | State | Madhya Pradesh | Shri Singhaji TPP St-II | MPPGCL | Coal | U-3 | 660 |
| 6 | State | Madhya Pradesh | Shri Singhaji TPP St-II | MPPGCL | Coal | U-4 | 660 |
| 7 | State | Telangana | Kothagudem TPS St-VII | TSGENCO | Coal | U-1 | 800 |
| 8 | State | Rajasthan | Chhabra TPP Extn | RRVUNL | Coal | U-6 | 660 |
| 9 | State | Assam | Lakwa Replacement Power Project (7x9.965 MW) | APGCL | Gas | GT | 69.76 |
| Total State Sector | | | | | | | 2849.76 |
| 10 | Private | Madhya Pradesh | Mahan TPP / Essar Power MP Ltd. / Chinese | Essar Power MP Ltd. | Coal | U-2 | 600 |
| 11 | Private | Chhattisgarh | Uchpinda TPP | RKM Power | Coal | U-4 | 360 |
| 12 | Private | West Bengal | Dishergarh TPS | IPCL | Coal | U-1 | 12 |
| Total Private Sector | | | | | | | 972 |
| Total F Y 2018-19 | | | | | | | 5781.76 |
| FY 2019-20 | | | | | | | |
| 13 | Central | Bihar | Nabi Nagar STPP | NPGCL | Coal | U-1 | 660 |
| 14 | Central | Madhya Pradesh | Khargone STPP St-I | NTPC | Coal | U-1 | 660 |
| 15 | Central | Madhya Pradesh | Khargone STPP St-I | NTPC | Coal | U-2 | 660 |
| 16 | Central | Uttar Pradesh | Tanda TPP St- II | NTPC | Coal | U-5 | 660 |
| 17 | Central | Odisha | Darlipalli STPP St-I | NTPC | Coal | U-1 | 800 |
| 18 | Central | Tamil Nadu | Neyveli New TPP | NLC | Lignite | U-1 | 500 |
| Total Central Sector | | | | | | | 3940 |
| 19 | State | Gujarat | Wanakbori TPS Extn. | GSECL | Coal | U-8 | 800 |
| 20 | State | Odisha | Ib valley TPP | OPGC | Coal | U-3 | 660 |
| 21 | State | Odisha | Ib valley TPP | OPGC | Coal | U-4 | 660 |
| 22 | State | Rajasthan | Suratgarh SCTPP | RRVUNL | Coal | U-7 | 660 |
| Total State Sector | | | | | | | 2780 |
| 23 | Private | Madhya Pradesh | BLA Power Pvt. Ltd(Niwari) TPP | BLA Power Pvt. Ltd | Coal | U-2 | 45 |
| Total Private Sector | | | | | | | 45 |
| Total FY 2019-20 | | | | | | | 6765 |

| FY 2020-21 | | | | | | | |
|--|---------|----------------|-------------------------------------|----------------------|---------|-------|------------------|
| 24 | Central | Chhattisgarh | Lara STPP | NTPC | Coal | U-2 | 800 |
| 25 | Central | Uttar Pradesh | Meja STPP | JV of NTPC & UPRVUNL | Coal | U-2 | 660 |
| 26 | Central | Tamil Nadu | Neyveli New TPP | NLC | Lignite | U-2 | 500 |
| 27 | Central | Madhya Pradesh | Gadarwara STPP | NTPC | Coal | U-2 | 800 |
| 28 | Central | Uttar Pradesh | Tanda St-II | NTPC | Coal | U-6 | 660 |
| 29 | Central | Bihar | Nabi Nagar STPP | NPGL | Coal | U-2 | 660 |
| Total Central Sector | | | | | | | 4080 |
| 30 | State | Assam | Namrup CCGT-Gas | APGCL | Gas | ST | 36.15 |
| 31 | State | Telangana | Bhadradi TPP | TSGENCO | Coal | U-1 | 270 |
| 32 | State | Telangana | Bhadradi TPP | TSGENCO | Coal | U-2 | 270 |
| 33 | State | Telangana | Bhadradi TPP | TSGENCO | Coal | U-3 | 270 |
| Total State Sector | | | | | | | 846.15 |
| Total F Y 2020-21 | | | | | | | 4926.15 |
| FY 2021-22 | | | | | | | |
| 34 | Central | Odisha | Darlipalli STPP St-I | NTPC | Coal | U-2 | 800 |
| 35 | Central | Bihar | Barh STPP, Stage-I | NTPC | Coal | U-1 | 660 |
| 36 | Central | Bihar | Nabi Nagar TPP | BRBCL | Coal | U-4 | 250 |
| 37 | Central | Bihar | Nabi Nagar STPP | NPGL | Coal | U-3 | 660 |
| Total Central Sector | | | | | | | 2370 |
| 38 | State | Rajasthan | Suratgarh SCTPP | RRVUNL | Coal | U-8 | 660 |
| 39 | State | Telangana | Bhadradi TPP | TSGENCO | Coal | U-4 | 270 |
| 40 | State | Uttar Pradesh | Harduaganj Expn-II | UPRVUNL | Coal | U-1 | 660 |
| Total State Sector | | | | | | | 1590 |
| 41 | Private | Tamil Nadu | Tuticorin TPP, St-IV | SEPC | Coal | U-1 | 525 |
| Total Private Sector | | | | | | | 525 |
| Total FY 2021-22 | | | | | | | 4485 |
| FY 2022-23 | | | | | | | |
| 42 | Central | Jharkhand | North Karanpura STPP | NTPC | Coal | U-1 | 660 |
| Total Central Sector | | | | | | | 660 |
| 43 | State | Andhra Pradesh | Sri Damodaram Sanjeevaiah TPP St-II | APPDCL | Coal | U-1 | 800 |
| Total State Sector | | | | | | | 800 |
| Total FY 2022-23 | | | | | | | 1460 |
| FY 2023-24 | | | | | | | |
| 44 | Central | Bihar | Barh STPP, Stage-I | NTPC | Coal | U-2 | 660 |
| 45 | Central | Telangana | Telangana STPP St- I | NTPC | Coal | U-1 | 800 |
| Total Central Sector | | | | | | | 1460 |
| 46 | Private | Uttarakhand | Kashipur CCPP, Ph-II | M/s SEPL | R-LNG | Mod-2 | 214 |
| Total Private Sector | | | | | | | 214 |
| Total FY 2023-24 (upto 31-10-2023) | | | | | | | 1674 |
| Grand Total 2018-24 | | | | | | | 25,091.91 |
