

F. No. 09/11/2021-RCM
Government of India
Ministry of Power

Shram Shakti Bhawan, Rafi Marg,
New Delhi, the 26th May 2022

To,

CMDs of all Central PSUs.
Principal Secretaries of the States.
CMDs of Discoms.

Subject: Trajectory for replacement of Thermal Energy with about 58,000 MU (30,000 MW) of Renewable Energy by 2025-26.

Sir,

The Tariff Policy provides for bundling of Renewable Energy with Thermal Energy. The detailed mechanism for allowing Flexibility in the Generation and Scheduling of Thermal Power Stations was issued by the Ministry of Power (MoP) vide letter dated 5th April 2018. Flexibility was provided to the generators with an intent to increase Renewable Energy (RE) generation, reduce emissions, enable compliance with Renewable Purchase Obligations (RPO), and also increase RE capacity addition. MoP vide order dated 12th April 2022 issued the revised scheme for '*Flexibility in Generation and Scheduling of Thermal/ Hydro Power Stations through bundling with Renewable Energy and Storage Power*'. The revised scheme comprehensively covers the replacement of both thermal and hydropower with renewable energy established in combination with battery energy storage systems or otherwise.

2. There is a scope for replacement of thermal power with RE power in the country. The existing regulations of CERC define a technical minimum of 55% up to which Thermal Power Plants (TPPs) in the country can be operated. Reduction in generation from TPPs is feasible up to lower levels of technical minimum of 40% in 2 to 3 years.

3. An exercise has been carried out to assess the amount of energy from TPPs that can be replaced. The TPPs in future shall operate up to the technical minimum to accommodate cheaper Renewable Energy when it is available. Thermal energy from those TPPs with high tariffs is proposed to be replaced so as to optimize the costs of power delivered to the consumer. Based on the exercise, it was found that about 58,000 MU of Thermal generation in Central, State and Private sector can be substituted with RE generation. A RE capacity of about 30,000 MW (@22% CUF) would be required for the purpose.

4. Accordingly, in order to increase the uptake of Renewable Energy utilization under the scheme and in furtherance of the national goal of achieving 500 GW of non-fossil fuel-based capacity by 2030, a target of about 58,000 MU is fixed at national level for achievement by end of the year 2025-26. The Central, State and Private sector generating stations as per the list

given at Annexure are required to replace the Thermal power with renewable energy in accordance with the year-wise trajectory mentioned below,

Table: Year-wise trajectory for replacement of Thermal power with Renewable Power

Sector	Thermal Energy in MU to be replaced	Equivalent Solar MW needed	2023-24			2024-25			2025-26		
			(%)	(MU)	(MW)	(%)	(MU)	(MW)	(%)	(MU)	(MW)
Central	33,260	17,258	20	6,652	3,452	35	11,641	6,040	45	14,967	7,766
State	12,386	6,427	20	2,477	1,285	35	4,335	2,249	45	5,574	2,892
Private	12,224	6,343	20	2,445	1,269	35	4,278	2,220	45	5,501	2,854
Total	57,869	30,028		9,129	4,737		15,976	8,290		20,541	10,658

MW equivalent Solar Capacity needed for replacing the thermal generation in MU is calculated assuming CUF of 22%

The list is indicative and not exhaustive. Any other power plants not included in this list are also eligible to blend with RE sources. Thus, all CPSUs, State and Private Generation Utilities are requested to take appropriate action to meet the target as per the year-wise trajectory given above i.e. 20% in 2023-24, 35% in 2024-25 and 45% in 2025-26 of the total target.

5. The replacement of thermal power will save a good amount of coal annually consumed in the country leading to reduced emissions and greening of the environment. The substitution of thermal power with RE power will also alleviate the concerns of coal crisis and enable the country in meeting the maximum demand benefiting the consumers. The implementation of the scheme is estimated to conserve 34.7 MMT of Coal and reduce Carbon emissions by 60.2 MMT.

6. Even though the station-wise targets have been worked out, a thermal generating station can substitute larger amounts of thermal power with RE power over and above the targets fixed here-in. The targets fixed for the thermal generating stations are the lowest minimum that can be achieved, however, any higher capacity can be installed/ procured by them. Further, any thermal generating station which is not mentioned in the list will also be eligible to replace its thermal power with RE power.

7. As per the scheme, Hydro generating stations can also bundle RE power. Hydro generating stations may explore opportunities for bundling of RE power with existing power and participate in the scheme.

8. The generating stations that have installed or procured a higher capacity for the purpose of replacement power but not getting scheduled are free to sell such power in the power exchange.

9. All the generating stations and the States are directed to implement the above to reduce their tariffs, meet their RPO commitments, increase utilization of transmission lines and reduce emissions. The generating stations are also encouraged to enhance their targets for replacement of Thermal power with renewable power in their other plants as well. State Commissions may like to oversee the implementation in the interest of the consumers as it is expected that there would be reduction in power purchase cost due to this.

10. This issues with the approval of Hon'ble Minister of Power and New & Renewable Energy.

Yours Sincerely,



(Ghanshyam Prasad)

Joint Secretary (R&R, Trans, OM & RCM)

Tel. No. 011-23710389

Copy to:

1. Secretary, Ministry of New and Renewable Energy
2. Secretary, CERC
3. Secretaries of All SERCs/ JERCs

Copy for information to:

Sr. PPS to Secretary(P)/ PPS to AS (Hydro)/ PPS to AS (Thermal)/ PPS to JS (R&R)/ PPS to JS (Hydro)/ PS to Director (RCM), Ministry of Power

Sl. No.	Station Name	Thermal Energy in MU to be replaced #	Equivalent Solar Capacity in MW ^s
CENTRAL SECTOR			
1	BARAUNI TPS	290	151
2	BARH II	1,151	597
3	BHILAI TPS	653	339
4	BONGAIGAON TPP	643	334
5	CHANDRAPURA(DVC) TPS	748	388
6	DADRI (NCTPP)	362	188
7	DURGAPUR STEEL TPS	1,024	531
8	FARAKKA STPS	2,006	1,041
9	GADARWARA TPP	1,066	553
10	INDIRA GANDHI STPP	876	454
11	KODARMA TPP	1,274	661
12	KUDGI STPP	342	177
13	LARA TPP	2,125	1,103
14	MAUDA TPS	1,747	906
15	MEJA STPP	1,188	616
16	MEJIA TPS	2,475	1,284
17	MUZAFFARPUR TPS	465	241
18	NABINAGAR STPP	1,506	782
19	NABINAGAR TPP	1,030	534
20	NEYVELI (EXT) TPS	645	335
21	NEYVELI TPS-II	1,696	880
22	NEYVELI TPS-II EXP	202	105
23	NTPL TUTICORIN	430	223
24	RAGHUNATHPUR TPP	832	432
25	RAMAGUNDEM STPS	3,184	1,652
26	SIMHADRI	1,830	950
27	SOLAPUR STPS	438	227
28	TANDA TPS	699	363

29	UNCHA HAR TPS	1,195	620
30	VALLUR TPP	1,137	590
	Total	33,260	17,258
STATE SECTOR			
1	BHUSAWAL TPS	485	251
2	CHANDRAPUR	1,019	529
3	CHHABRA-II TPP	171	89
4	CHHABRA-I PH-1 TPP	164	85
5	CHHABRA-I PH-2 TPP	98	51
6	GANDHI NAGAR TPS	237	123
7	KAKATIYA TPS	825	428
8	KALISINDH TPS	701	364
9	KHAPARKHEDA TPS	600	312
10	KORADI TPS	875	454
11	KOTA TPS	589	305
12	KOTHAGUEDEM TPS	805	418
13	KOTHAGUEDEM TPS (NEW)	714	370
14	KUTCH LIG. TPS	48	25
15	METTUR TPS	430	223
16	METTUR TPS - II	112	58
17	NASIK TPS	50	26
18	NORTH CHENNAI TPS	250	130
19	PANIPAT TPS	168	87
20	PARAS TPS	190	99
21	PARICHHA TPS	40	21
22	PARLI TPS	40	21
23	SANJAY GANDHI TPS	206	107
24	SATPURA TPS	438	227
25	SHREE SINGAJI TPP	98	51
26	SINGARENI TPP	1,385	719
27	TENUGHAT TPS	100	52
28	TUTICORIN TPS	253	131
29	UKAI TPS	277	144

30	WANAKBORI TPS	788	409
31	YAMUNA NAGAR TPS	119	62
32	YERMARUS TPP	112	58
	Total	12,386	6,427
PRIVATE SECTOR			
1	ANUPPUR TPP	874	454
2	BARADARHA TPS	1,161	603
3	BINA TPS	153	79
4	HALDIA TPP	568	295
5	JALIPA KAPURDI TPP	848	440
6	JOJOBERA TPS	197	102
7	KAWAI TPS	920	477
8	LALITPUR TPS	493	256
9	MAHADEV PRASAD STPP	472	245
10	MAHATMA GANDHI TPS	742	385
11	MAITHON RB TPP	995	516
12	NEYVELI TPS(Z)	161	84
13	PATHADI TPP	258	134
14	PRAYAGRAJ TPP	1,118	580
15	RAJPURA TPP	1,224	635
16	SEIONI TPP	392	203
17	BUDGE BUDGE TPS	777	403
18	DAHANU TPS	404	210
19	TROMBAY TPS	464	241
	Total	12,224	6,343
	Grand Total	57,869	30,028

Note:

- * The actual generation and PLF figures of 2021-22 which was a Covid year were increased by 10% to bring it closer to normal year generation.
- # A technical minimum of 40% for CGS and 55% for others was considered.
- \$ CUF of 22% was considered assuming no Auxiliary Power Consumption.