

GOVERNMENT OF INDIA  
MINISTRY OF NEW AND RENEWABLE ENERGY  
**RAJYA SABHA**  
**UNSTARRED QUESTION NO. 940**  
ANSWERED ON 03/12/2024

**GENERATION OF RENEWABLE ENERGY IN THE COUNTRY**

940. SMT. RANJEET RANJAN  
SHRI NEERAJ DANGI

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

- (a) the percentage of total energy generated through new and renewable energy sources in the country during the last five years;
- (b) the generation of new and renewable energy in the country during the last five years, State-wise and sector-wise; and
- (c) the steps being taken by Government to address the challenge of land acquisition, especially for solar and wind projects which require large areas of land?

**ANSWER**

**THE MINISTER OF STATE FOR NEW & RENEWABLE ENERGY AND POWER**

**(SHRI SHRIPAD YESSO NAIK)**

- (a) As per information received from Central Electricity Authority (CEA), the percentage share of energy generated through renewable energy (RE) sources during the last five years is as under:

<b>Financial Year</b>	<b>Percentage of energy generated through RE Sources</b>
2019-20	21.17
2020-21	21.53
2021-22	21.62
2022-23	22.51
2023-24	20.69

- (b) The details of RE generation in the country during the last five years, State-wise and source wise, are given at **Annexure**.

(c) Land is a State subject. Most renewable energy projects are set up by the private developers based on various considerations, including resource potential, adequate transmission and availability of appropriate land.

However, to address the challenges related to land acquisition, Ministry of New and Renewable Energy (MNRE) has also taken several steps, which inter-alia, include:

(i) MNRE is implementing Scheme for Development of Solar Parks and Ultra-Mega Solar Power Projects, under which the infrastructure such as land, roads, transmission system (internal and external), pooling stations, etc. is developed with all statutory clearances/ approvals. Thus, the solar project developers have plug and play benefit.

(ii) Under the Mode 8 of the Solar Park Scheme, a facilitation charge of Rs. 0.05/unit of power being generated from the projects in the parks is provided to the States in order to encourage the State Governments to provide necessary assistance to the Solar Power Park Developers (SPPDs) in identification & acquisition of land, to facilitate in obtaining all required clearances, etc.

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**Annexure referred to in reply of part (b) of the Rajya Sabha Unstarred Question  
No. 940 to be answered on 3.12.2024**

**State-wise and source wise details of RE generation for the year 2019-20**

[in Million Units (MU)]

S. No.	Name of State/ UT	Wind	Solar	Biomass	Bagasse	Small Hydro	Large Hydro*	Others	Total
1	Andaman & Nicobar Islands	0.00	11.60	0.00	0.00	5.70	0.00	0.00	17.30
2	Andhra Pradesh	7626.63	5855.11	147.47	58.49	298.19	3013.43	7.31	17006.63
3	Arunachal Pradesh	0.00	1.60	0.00	0.00	0.64	1786.46	0.00	1788.70
4	Assam	0.00	6.14	0.00	0.00	52.63	1291.68	0.00	1350.45
5	Bihar	0.00	160.16	19.19	160.35	18.98	0.00	0.00	358.68
6	Chandigarh	0.00	13.33	0.00	0.00	0.00	0.00	0.00	13.33
7	Chhattisgarh	0.00	326.42	679.70	0.00	101.75	236.79	0.00	1344.66
8	Dadra and Nagar Haveli and Daman & Diu	0.00	28.02	0.00	0.00	0.00	0.00	0.00	28.02
9	Delhi	0.00	136.30	0.00	0.00	0.00	0.00	287.37	423.67
10	Goa	0.00	0.82	0.00	0.00	0.00	0.00	0.00	0.82
11	Gujarat	13748.53	3631.86	107.03	15.95	194.80	5414.68	18.77	23131.61
12	Haryana	0.00	125.14	186.90	94.57	326.89	0.00	0.00	733.50
13	Himachal Pradesh	0.00	11.66	0.00	0.00	2155.58	40834.88	0.00	43002.12
14	Jammu & Kashmir	0.00	0.00	0.00	0.00	443.13	18094.12	0.00	18537.25
15	Jharkhand	0.00	17.47	0.00	1.28	5.43	150.96	0.00	175.13
16	Karnataka	10148.66	11221.20	171.27	2205.38	1901.91	14014.27	0.00	39662.69
17	Kerala	119.76	143.59	0.00	11.03	530.36	5454.04	0.00	6258.78
18	Ladakh	0.00	0.00	0.00	0.00	0.00	270.28	0.00	270.28
19	Lakshadweep	0.00	0.66	0.00	0.00	0.00	0.00	0.00	0.66
20	Madhya Pradesh	4425.99	3496.23	1.81	95.66	246.16	6281.74	32.02	14579.62
21	Maharashtra	7984.27	2372.68	411.99	2520.45	695.56	5880.58	0.84	19866.37
22	Manipur	0.00	2.63	0.00	0.00	1.57	366.59	0.00	370.79
23	Meghalaya	0.00	0.00	0.00	0.00	62.73	1018.29	0.00	1081.02
24	Mizoram	0.00	0.44	0.00	0.00	49.56	177.02	0.00	227.02
25	Nagaland	0.00	0.00	0.00	0.00	75.87	180.85	0.00	256.72
26	Orissa	54.66	362.29	66.59	0.00	299.65	6728.77	0.00	7511.97
27	Puducherry	0.00	4.14	0.00	0.00	0.00	0.00	0.00	4.14
28	Punjab	0.00	1358.22	398.37	252.85	712.77	5123.48	0.32	7846.01
29	Rajasthan	6172.70	7776.56	389.94	0.00	9.75	606.18	0.00	14955.14
30	Sikkim	0.00	0.00	0.00	0.00	60.62	11027.36	0.00	11087.98
31	Tamil Nadu	14126.93	4946.63	103.78	350.79	235.76	4765.24	0.00	24529.13
32	Telangana	238.25	6263.92	124.30	102.23	46.29	4507.04	19.25	11301.27
33	Tripura	0.00	3.43	0.00	0.00	24.67	0.00	0.00	28.10
34	Uttar Pradesh	0.00	1447.05	129.63	3530.10	36.43	1073.48	0.00	6216.68
35	Uttarakhand	0.00	341.51	0.00	110.26	742.19	14554.53	0.00	15748.48
36	West Bengal	0.00	64.29	0.00	1295.07	115.68	2916.38	0.00	4391.42
	<b>Total</b>	<b>64646.38</b>	<b>50131.10</b>	<b>2937.97</b>	<b>10804.46</b>	<b>9451.24</b>	<b>155769.12</b>	<b>365.88</b>	<b>294106.14</b>
<b>* Large hydro generation Excluding Import from Bhutan</b>									

**State-wise and source wise details of RE generation for the year 2020-21**

[in Million Units (MU)]

S. No.	Name of State/ UT	Wind	Solar	Biomass	Bagasse	Small Hydro	Large Hydro*	Others	Total
1	Andaman & Nicobar Islands	0.00	24.82	0.00	0.00	14.69	0.00	0.00	39.51
2	Andhra Pradesh	6557.75	6956.10	135.21	67.66	351.23	3280.12	65.88	17413.95
3	Arunachal Pradesh	0.00	1.54	0.00	0.00	0.55	3451.34	0.00	3453.44
4	Assam	0.00	13.37	0.00	0.00	38.15	270.87	0.00	322.38
5	Bihar	0.00	160.63	21.30	1.48	43.20	0.00	0.00	226.61
6	Chandigarh	0.00	10.16	0.00	0.00	0.00	0.00	0.00	10.16
7	Chhattisgarh	0.00	370.80	1089.32	28.25	145.52	419.19	0.00	2053.08
8	Dadra and Nagar Haveli and Daman & Diu	0.00	41.47	10.53	0.00	0.00	0.00	0.00	52.00
9	Delhi	0.00	189.99	0.00	0.00	0.00	0.00	236.71	426.70
10	Goa	0.00	1.46	0.00	0.00	0.00	0.00	0.00	1.46
11	Gujarat	13058.52	4633.81	43.15	19.37	211.94	4233.36	10.61	22210.75
12	Haryana	0.00	162.95	178.88	142.34	276.58	0.00	0.00	760.75
13	Himachal Pradesh	0.00	36.52	0.00	0.00	2123.78	37473.47	0.00	39633.77
14	Jammu & Kashmir	0.00	9.42	0.00	0.00	429.88	17002.68	0.00	17441.97
15	Jharkhand	0.00	17.16	0.00	0.00	9.31	223.09	0.00	249.56
16	Karnataka	9610.91	13238.86	211.79	2589.09	2199.68	12587.35	0.00	40437.68
17	Kerala	130.42	275.44	0.00	45.68	640.58	6628.39	0.01	7720.51
18	Ladakh	0.00	0.00	0.00	0.00	0.00	376.21	0.00	376.21
19	Lakshadweep	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.45
20	Madhya Pradesh	3913.45	4202.03	0.48	82.57	281.76	6477.33	37.57	14995.19
21	Maharashtra	6384.74	3089.46	328.23	3627.43	802.71	5548.46	0.10	19781.13
22	Manipur	0.00	7.71	0.00	0.00	0.00	621.62	0.00	629.33
23	Meghalaya	0.00	0.00	0.00	0.00	56.79	1151.99	0.00	1208.78
24	Mizoram	0.00	2.45	0.00	0.00	31.07	158.85	0.00	192.37
25	Nagaland	0.00	0.00	0.00	0.00	69.77	203.86	0.00	273.63
26	Orissa	0.00	476.26	42.71	0.00	358.80	6859.97	0.00	7737.74
27	Puducherry	0.00	6.39	0.00	0.00	0.00	0.00	0.00	6.39
28	Punjab	0.00	1356.48	585.99	231.50	690.33	4747.03	0.17	7611.50
29	Rajasthan	5708.27	10384.24	413.24	0.00	10.64	469.63	0.00	16986.01
30	Sikkim	0.00	0.00	0.00	0.00	55.96	10879.50	0.00	10935.46
31	Tamil Nadu	14564.99	6115.48	152.23	581.57	244.77	5212.71	0.00	26871.76
32	Telangana	220.91	6351.04	164.11	61.00	67.27	3645.38	69.05	10578.75
33	Tripura	0.00	6.04	0.00	0.00	9.58	0.00	0.00	15.62
34	Uttar Pradesh	0.00	1856.19	135.82	3590.87	164.91	1572.35	0.00	7320.13
35	Uttarakhand	0.00	329.64	0.00	85.33	821.88	13592.49	0.00	14829.34
36	West Bengal	0.00	73.92	0.00	148.73	107.06	3212.28	1200.99	4742.98
	<b>Total</b>	<b>60149.95</b>	<b>60402.25</b>	<b>3512.98</b>	<b>11302.85</b>	<b>10258.41</b>	<b>150299.52</b>	<b>1621.06</b>	<b>297547.03</b>

\* Large hydro generation Excluding Import from Bhutan

**State-wise and source wise details of RE generation for the year 2021-22**

[in Million Units (MU)]

S. No.	Name of State/ UT	Wind	Solar	Biomass	Bagasse	Small Hydro	Large Hydro*	Others	Total
1	Andaman & Nicobar Islands	0.00	21.51	0.00	0.00	13.26	0.00	0.00	34.77
2	Andhra Pradesh	7134.58	7832.51	104.85	72.70	384.08	3113.83	133.88	18776.44
3	Arunachal Pradesh	0.00	1.72	0.00	0.00	0.41	4161.28	0.00	4163.41
4	Assam	0.00	81.64	0.00	0.00	40.46	676.24	0.00	798.34
5	Bihar	0.00	163.08	2.14	65.84	8.77	0.00	0.00	239.83
6	Chandigarh	0.00	14.19	0.00	0.00	0.00	0.00	0.00	14.19
7	Chhattisgarh	0.00	436.56	1307.27	8.70	185.67	404.13	0.00	2342.34
8	Dadra and Nagar Haveli and Daman & Diu	0.00	84.51	12.32	0.00	0.00	0.00	0.00	96.83
9	Delhi	0.00	225.84	0.00	0.00	0.00	0.00	232.89	458.73
10	Goa	0.00	15.93	0.00	0.00	0.00	0.00	0.89	16.82
11	Gujarat	17854.77	6774.50	0.00	18.16	192.10	2621.51	0.00	27461.04
12	Haryana	0.00	572.85	171.60	96.75	270.13	0.00	24.09	1135.42
13	Himachal Pradesh	0.00	44.29	0.00	0.00	1999.47	36459.64	0.00	38503.40
14	Jammu & Kashmir	0.00	1.71	0.00	0.00	414.10	17074.02	0.00	17489.83
15	Jharkhand	0.00	18.21	0.00	0.00	10.49	547.96	0.00	576.67
16	Karnataka	9491.62	13169.43	174.08	3338.24	2460.91	13936.46	0.00	42570.74
17	Kerala	136.41	496.93	0.00	48.92	932.37	9317.44	0.00	10932.06
18	Ladakh	0.00	0.00	0.00	0.00	0.00	405.98	0.00	405.98
19	Lakshadweep	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.30
20	Madhya Pradesh	4346.66	4006.70	25.35	82.20	221.43	4686.72	34.40	13403.45
21	Maharashtra	7085.98	3187.18	316.79	4468.31	787.16	6007.38	0.22	21853.02
22	Manipur	0.00	6.72	0.00	0.00	0.00	455.48	0.00	462.20
23	Meghalaya	0.00	0.47	0.00	0.00	44.21	841.82	0.00	886.50
24	Mizoram	0.00	1.68	0.00	0.00	26.41	137.44	0.00	165.53
25	Nagaland	0.00	0.00	0.00	0.00	63.47	100.55	0.00	164.02
26	Orissa	0.00	603.71	100.08	0.00	377.32	5230.63	0.00	6311.73
27	Puducherry	0.00	12.24	0.00	0.00	0.00	0.00	0.00	12.24
28	Punjab	0.00	1473.41	576.83	208.30	983.37	3709.73	0.24	6951.88
29	Rajasthan	6493.19	17219.88	378.40	0.00	7.85	481.84	0.00	24581.15
30	Sikkim	0.00	0.00	0.00	0.00	12.35	11493.90	0.00	11506.25
31	Tamil Nadu	15821.18	7172.88	116.66	657.40	293.17	5212.07	0.00	29273.35
32	Telangana	275.69	6536.94	111.13	103.95	91.00	5626.63	227.20	12972.52
33	Tripura	0.00	6.18	0.00	0.00	1.44	0.00	0.00	7.62
34	Uttar Pradesh	0.00	2900.41	85.20	3160.39	162.54	1402.68	20.40	7731.62
35	Uttarakhand	0.00	301.60	0.00	244.02	326.70	14332.13	0.00	15204.45
36	West Bengal	0.00	98.24	0.00	0.00	152.90	3189.84	1593.96	5034.93
	<b>Total</b>	<b>68640.07</b>	<b>73483.94</b>	<b>3482.69</b>	<b>12573.88</b>	<b>10463.55</b>	<b>151627.33</b>	<b>2268.17</b>	<b>322539.63</b>

\* Large hydro generation Excluding Import from Bhutan

**State-wise and source wise details of RE generation for the year 2022-23**

[in Million Units (MU)]

S. No.	Name of State/ UT	Wind	Solar	Biomass	Bagasse	Small Hydro	Large Hydro*	Others	Total
1	Andaman & Nicobar Islands	0.00	23.94	0.00	0.00	13.94	0.00	0.00	37.88
2	Andhra Pradesh	7426.46	8140.72	54.86	99.93	410.90	3747.58	279.04	20159.49
3	Arunachal Pradesh	0.00	22.27	0.00	0.00	2.55	4820.94	0.03	4845.79
4	Assam	0.00	216.35	0.00	0.00	62.66	481.60	0.00	760.61
5	Bihar	0.00	169.53	0.00	106.68	12.63	0.00	0.00	288.85
6	Chandigarh	0.00	12.61	0.00	0.00	0.00	0.00	0.00	12.61
7	Chhattisgarh	0.00	635.42	1194.60	17.10	155.92	237.37	0.00	2240.42
8	Dadra and Nagar Haveli and Daman and Diu	0.00	27.40	3.22	0.00	0.00	0.00	0.00	30.62
9	Delhi	0.00	236.11	0.00	0.00	0.00	0.00	294.09	530.20
10	Goa	0.00	14.87	0.00	0.00	0.00	0.00	5.09	19.96
11	Gujarat	19206.22	10335.32	0.00	5.76	213.10	6133.14	2.24	35895.77
12	Haryana	0.00	555.20	356.07	203.01	241.90	0.00	63.55	1419.73
13	Himachal Pradesh	0.00	58.76	0.00	0.00	2854.07	38666.98	0.00	41579.81
14	Jammu & Kashmir	0.00	0.00	0.00	0.00	393.20	16777.42	0.00	17170.62
15	Jharkhand	0.00	19.70	0.00	0.00	2.40	305.47	0.00	327.57
16	Karnataka	9967.89	14153.79	106.90	3037.31	2308.59	13157.34	0.00	42731.82
17	Kerala	179.32	879.75	0.00	62.85	824.34	7989.00	0.00	9935.26
18	Ladakh	0.00	0.00	0.00	0.00	0.00	402.78	0.00	402.78
19	Lakshadweep	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.10
20	Madhya Pradesh	4486.72	3839.30	38.76	113.05	357.97	7309.07	36.93	16181.79
21	Maharashtra	7243.06	4387.85	236.48	4572.03	766.73	5894.29	0.44	23100.88
22	Manipur	0.00	8.17	0.00	0.00	0.00	477.98	0.63	486.77
23	Meghalaya	0.00	0.00	0.00	0.00	72.16	980.25	0.00	1052.41
24	Mizoram	0.00	3.21	0.00	0.00	59.06	204.13	0.00	266.40
25	Nagaland	0.00	0.00	0.00	0.00	111.95	177.37	0.00	289.32
26	Odisha	0.00	706.24	60.95	0.00	424.92	5462.81	0.00	6654.91
27	Puducherry	0.00	12.24	0.00	0.00	0.00	0.00	0.00	12.24
28	Punjab	0.00	2778.66	497.68	210.76	682.48	4399.65	0.00	8569.23
29	Rajasthan	6111.41	34474.43	397.05	0.00	7.17	967.43	0.00	41957.48
30	Sikkim	0.00	0.00	0.00	0.00	12.35	11696.79	0.00	11709.14
31	Tamil Nadu	16913.85	9419.39	126.93	869.56	296.71	5965.77	0.00	33592.22
32	Telangana	279.23	6745.46	21.48	132.94	91.71	6010.07	159.08	13439.96
33	Tripura	0.00	6.58	0.00	0.00	0.00	0.00	0.00	6.58
34	Uttar Pradesh	0.00	3674.02	66.35	3183.67	234.69	974.04	58.45	8191.22
35	Uttarakhand	0.00	331.80	0.00	248.52	352.07	15435.77	0.00	16368.16
36	West Bengal	0.00	125.04	0.00	0.00	204.44	3423.73	1629.64	5382.85
	<b>Total</b>	<b>71814.16</b>	<b>102014.24</b>	<b>3161.32</b>	<b>12863.16</b>	<b>11170.61</b>	<b>162098.77</b>	<b>2529.18</b>	<b>365651.45</b>

\* Large hydro generation Excluding Import from Bhutan

**State-wise and source wise details of RE generation for the year 2023-24**

[in Million Units (MU)]

S. No.	Name of State/ UT	Wind	Solar	Biomass	Bagasse	Small Hydro	Large Hydro*	Others	Total
1	Andaman & Nicobar Islands	0.00	27.50	0.00	0.00	12.00	0.00	0.00	39.50
2	Andhra Pradesh	8644.00	8300.03	18.75	66.63	127.10	1373.19	307.97	18837.67
3	Arunachal Pradesh	0.00	1.89	0.00	0.00	0.66	4278.18	0.00	4280.73
4	Assam	0.00	316.31	0.00	0.00	64.20	614.70	0.75	995.96
5	Bihar	0.00	195.19	0.00	140.98	5.92	0.00	0.00	342.08
6	Chandigarh	0.00	11.70	0.00	0.00	0.00	0.00	0.00	11.70
7	Chhattisgarh	0.00	943.75	1368.61	19.54	145.54	321.76	0.00	2799.20
8	Dadra and Nagar Haveli and Daman and Diu	0.00	15.74	13.12	0.00	0.00	0.00	0.00	28.86
9	Delhi	0.00	206.53	0.00	0.00	0.00	0.00	522.28	728.81
10	Goa	0.00	59.99	0.00	0.00	0.00	0.00	7.96	67.95
11	Gujarat	24794.50	13468.91	0.00	2.13	217.68	4556.33	0.00	43039.55
12	Haryana	0.00	992.91	294.12	83.60	222.05	0.00	58.82	1651.50
13	Himachal Pradesh	0.00	59.54	0.00	0.00	2526.98	36365.85	0.00	38952.37
14	Jammu & Kashmir	0.00	0.00	0.00	0.00	408.69	15874.24	0.00	16282.93
15	Jharkhand	0.00	17.64	0.00	0.00	5.52	196.80	0.00	219.96
16	Karnataka	10950.20	15404.09	47.45	2754.06	1370.76	8973.17	0.00	39499.72
17	Kerala	214.53	1195.28	0.00	78.08	716.31	5155.72	0.04	7359.96
18	Ladakh	0.00	0.00	0.00	0.00	0.00	388.48	0.00	388.48
19	Lakshadweep	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.09
20	Madhya Pradesh	4949.78	4025.19	84.62	97.01	469.60	6444.78	28.83	16099.80
21	Maharashtra	8228.97	5814.13	304.61	3495.82	888.48	5264.49	33.40	24029.90
22	Manipur	0.00	7.73	0.00	0.00	0.00	298.18	1.23	307.14
23	Meghalaya	0.00	0.00	0.00	0.00	66.55	808.58	0.00	875.13
24	Mizoram	0.00	3.19	0.00	0.00	95.93	118.63	0.00	217.74
25	Nagaland	0.00	0.00	0.00	0.00	81.14	165.47	0.00	246.61
26	Odisha	0.00	757.69	96.07	0.00	407.97	6162.20	0.00	7423.92
27	Puducherry	0.00	12.24	0.00	0.00	0.00	0.00	0.00	12.24
28	Punjab	0.00	2673.99	613.44	197.99	636.97	4676.42	0.00	8798.82
29	Rajasthan	8390.67	38363.28	387.55	0.00	7.45	1013.97	0.00	48162.93
30	Sikkim	0.00	0.00	0.00	0.00	12.35	8609.86	0.00	8622.21
31	Tamil Nadu	16908.08	11737.48	129.14	622.61	206.00	3563.28	0.00	33166.59
32	Telangana	304.63	6884.68	10.57	95.08	58.87	1243.29	155.29	8752.39
33	Tripura	0.00	7.01	0.00	0.00	0.00	0.00	0.00	7.01
34	Uttar Pradesh	0.00	3971.31	46.65	2923.55	175.24	850.64	84.85	8052.23
35	Uttarakhand	0.00	331.80	0.00	248.52	350.62	13919.23	0.00	14850.17
36	West Bengal	0.00	168.32	2.49	0.00	204.46	2816.49	1545.13	4736.88
	<b>Total</b>	<b>83385.35</b>	<b>115975.11</b>	<b>3417.19</b>	<b>10825.59</b>	<b>9485.04</b>	<b>134053.93</b>	<b>2746.55</b>	<b>359888.76</b>

\* Large hydro generation Excluding Import from Bhutan

Source: Central Electricity Authority (CEA)