

Schemes for encouraging wind power generation

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

- (a) the details of the schemes to encourage wind power generation in the country;
- (b) the details of the total generation of wind energy in the country, *vis-a-vis* total power generated from other sources of renewable energy during the last five years State/UT-wise;
- (c) the ratio of contribution made by wind energy to the total energy consumption in the country during the above period; and
- (d) the measures taken by Government to augment wind power in the country including technological advancements made in this direction?

THE MINISTER OF STATE OF THE MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE (SHRI PRAKASH JAVADEKAR): (a) To encourage wind power generation in the country, Government provides various fiscal and financial incentives including Accelerated Depreciation (AD), concessional Custom, Excise and Special Additional Duties, 100% Foreign Direct Investment through automatic route, etc. The wind power projects which do not avail the benefit of AD and not covered under third party sale of wind power generated, are eligible for Generation Based Incentives (GBI) of ₹ 0.50 per Unit of energy fed in to the grid with a cap of ₹ 1.00 crore per MW for a period not less than 4 years and a maximum period of 10 years.

(b) The details of the total generation of wind energy in the country, *vis-a-vis* total power generation from other sources of renewable energy during the last five years State/UT-wise is given in the Statements (*See* below).

(c) The contribution made by wind power generation to the total power generation in the country during last five years is given in the Statement-II (*See* below).

(d) The measures taken to augment the wind power in the country include a) restoration of GBI and AD for Wind power projects; b) implementation of Green Energy Corridors project for strengthening of transmission infrastructure to facilitate evacuation

of renewable power including wind power from these resource rich States; c) the Tariff Policy has been amended to include provisions for free inter-state transmission of wind power; d) wind turbines of capacity up to 3 MW, rotor diameter up to 114 meter and hub-height up to 141 meter are being manufactured in the country; and e) forecasting and scheduling of wind power by National Institute of Wind Energy in the State of Tamil Nadu.

Statement-I

Generation from wind energy vis-a-vis generation from other sources of renewable energy, State/UT-wise during last five years (in MU)

(A)

Sl. No.	State/UT/Organisation	2011-12		
		Wind	Other Sources of Renewable Energy#	Total
1	2	3	4	5
Northern Region				
1.	Delhi	0.00	85.18	85.18
2.	Haryana	0.00	48.30	48.30
3.	Punjab	0.00	56.17	56.17
4.	Rajasthan	2419.60	248.84	2668.44
5.	Uttar Pradesh	0.00	2566.40	2566.40
6.	Uttarakhand	0.00	51.10	51.10
SUB TOTAL (Northern Region)		2419.60	3055.99	5475.59
Western Region				
1.	Chhattisgarh	0.00	279.88	279.88
2.	Gujarat	4180.91	864.09	5045.00
3.	Madhya Pradesh	130.22	167.82	298.04
4.	Maharashtra	3295.92	1403.95	4699.87
SUB TOTAL (Western Region)		7607.06	2715.73	10322.79
Southern Region				
1.	Andhra Pradesh	122.46	937.50	1059.96
2.	Karnataka	3278.93	3677.25	6956.18

1	2	3	4	5
3.	Kerala	69.52	316.33	385.85
4.	Tamil Nadu	9855.28	2339.63	12194.91
SUB TOTAL (Southern Region)		13326.20	7270.71	20596.91
Eastern Region				
1.	Bihar	0.00	34.10	34.10
2.	Jharkhand	0.00	2.74	2.74
3.	Odisha	0.00	301.55	301.55
SUB TOTAL (Eastern Region)		0.00	338.38	338.38
North Eastern Region				
1.	Arunachal Pradesh	0.00	3.46	3.46
SUB TOTAL (North Eastern Region)		0.00	3.46	3.46
GRAND TOTAL		23352.85	13384.27	36737.12

(B)

Sl. No.	State/UT/Organisation	2012-13		
		Wind	Other Sources of Renewable Energy	Total
Northern Region				
1.	Delhi	0.00	85.30	85.30
2.	Haryana	0.00	48.49	48.49
3.	Punjab	0.00	63.42	63.42
4.	Rajasthan	3177.80	545.40	3723.20
5.	Uttar Pradesh	0.00	3078.21	3078.21
6.	Uttarakhand	0.00	52.20	52.20
SUB TOTAL (Northern Region)		3177.80	3873.02	7050.82
Western Region				
1.	Chhattisgarh	0.00	312.29	312.29
2.	Gujarat	5854.46	1218.64	7073.10
3.	Madhya Pradesh	453.26	239.03	692.29
4.	Maharashtra	4666.12	1798.27	6464.39
SUB TOTAL (Western Region)		10973.84	3568.23	14542.07
Southern Region				
1.	Andhra Pradesh	481.12	966.96	1448.08

1	2	3	4	5
2.	Karnataka	4342.10	4053.65	8395.76
3.	Kerala	59.01	334.82	393.83
4.	Tamil Nadu	12948.24	2375.79	15324.03
SUB TOTAL (Southern Region)		17830.47	7731.22	25561.69
Eastern Region				
1.	Bihar	0.00	48.71	48.71
2.	Jharkhand	0.00	6.81	6.81
3.	Odisha	0.00	301.55	301.55
4.	DVC	0.00	96.88	96.88
SUB TOTAL (Eastern Region)		0.00	453.96	453.95
North Eastern Region				
1.	Arunachal Pradesh	0.00	4.53	4.53
SUB TOTAL (North Eastern Region)		0.00	4.53	4.53
GRAND TOTAL		31982.11	15630.96	47613.06

(C)

Sl. No.	State/UT/Organisation	2013-14		
		Wind	Other Sources of Renewable Energy	Total
Northern Region				
1.	Delhi	0.00	103.71	103.71
2.	Haryana	0.00	379.38	379.38
3.	HP	0.00	1181.01	1181.01
4.	Punjab	0.00	895.10	895.10
5.	Rajasthan	3695.67	1308.41	5004.08
6.	Uttar Pradesh	0.00	2863.40	2863.40
7.	Uttarakhand	0.00	358.61	358.61
8.	NTPC Dadri+FBD+Unchahar	0.00	6.10	6.10
SUB TOTAL (Northern Region)		3695.67	7095.72	10791.39
Western Region				
1.	Chhattisgarh	0.00	1229.17	1229.17
2.	Gujarat	5288.56	1425.16	6713.72
3.	Madhya Pradesh	477.40	574.08	1051.48

1	2	3	4	5
4.	Maharashtra	5727.35	3041.59	8768.94
	SUB TOTAL (Western Region)	11493.31	6270.00	17763.31
Southern Region				
1.	Andhra Pradesh	817.85	965.01	1782.86
2.	Karnataka	4547.92	4514.73	9062.65
3.	Kerala	68.07	589.50	657.57
4.	Puducherry/NTPS Rama	0.00	2.45	2.45
5.	Tamil Nadu	10641.99	2001.49	12643.47
	SUB TOTAL (Southern Region)	16075.82	8073.18	24149.00
Eastern Region				
1.	Odisha	0.00	370.83	370.83
2.	DVC	0.00	101.99	101.99
3.	NTPC Andman+Talchar	0.00	6.51	6.51
	SUB TOTAL (Eastern Region)	0.00	479.32	479.32
North Eastern Region				
1.	Mizoram	0.00	41.48	41.48
	SUB TOTAL (North Eastern Region)	0.00	41.48	41.48
	GRAND TOTAL	31264.80	21959.70	53224.50

(D)

Sl. No.	State/UT/Organisation	2014-15		
		Wind	Other Sources of Renewable Energy	Total
Northern Region				
1.	Chandigarh	0.00	2.23	2.23
2.	Delhi	0.00	116.63	116.63
3.	Haryana	0.00	470.69	470.69
4.	Himachal Pradesh	0.00	1685.08	1685.08
5.	Jammu and Kashmir	0.00	313.23	313.23
6.	Punjab	0.00	1159.29	1159.29
7.	Rajasthan	4053.85	1542.72	5596.57
8.	Uttar Pradesh	0.00	3140.70	3140.70

1	2	3	4	5
9.	Uttarakhand	0.00	664.38	664.38
10.	NTPC Dadri+FBD+Unchahar	0.00	22.90	22.90
11.	Oil India Ltd.	117.78	9.14	126.93
SUB TOTAL (Northern Region)		4171.63	9126.99	13298.62
Western Region				
1.	Chhattisgarh	0.00	1066.29	1066.29
2.	Goa/NTPC Rajgarh	0.00	62.94	62.94
3.	Gujarat	5660.09	1562.18	7222.27
4.	Madhya Pradesh	592.25	835.26	1427.51
5.	Maharashtra	6804.80	3479.13	10283.93
6.	Dadra and Nagar Haveli	0.00	0.03	0.03
7.	Daman and Diu	0.00	0.15	0.15
SUB TOTAL (Western Region)		13057.14	7005.98	20063.12
Southern Region				
1.	Andhra Pradesh	1675.82	1035.24	2711.06
2.	Telangana	0.00	802.86	802.86
3.	Karnataka	4658.10	5036.80	9694.90
4.	Kerala	58.40	571.24	629.64
5.	Puducherry/NTPS Rama	0.00	15.62	15.62
6.	Tamil Nadu	10147.06	1755.33	11902.39
7.	Lakshadweep	0.00	46.09	46.09
SUB TOTAL (Southern Region)		16539.38	9263.17	25802.55
Eastern Region				
1.	Andaman Nicobar	0.00	0.47	0.47
2.	Bihar	0.00	209.13	209.13
3.	Jharkhand	0.00	8.32	8.32
4.	Odisha	0.00	329.82	329.82
5.	Sikkim	0.00	20.88	20.88
6.	West Bengal	0.16	1553.47	1553.63

1	2	3	4	5
7.	DVC	0.00	146.86	146.86
8.	NTPC Andman+Talchar	0.00	18.79	18.79
SUB TOTAL (Eastern Region)		0.16	2287.74	2287.90
North Eastern Region				
1.	Arunachal Pradesh	0.00	51.94	51.94
2.	Assam	0.00	64.52	64.52
3.	Manipur	0.00	0.00	0.00
4.	Meghalaya	0.0	66.94	66.94
5.	Mizoram	0.00	34.86	34.86
6.	Nagaland	0.00	84.14	84.14
7.	Tripura	0.00	29.37	29.37
8.	Neeeco	0.00	0.98	0.98
SUB TOTAL (North Eastern Region)		0.00	332.75	332.75
GRAND TOTAL		33768.30	28016.63	61784.93

(E)

Sl. No.	State/UT/Organisation	2015-16		
		Wind	Other Sources of Renewable Energy	Total
Northern Region				
1.	Chandigarh	0.00	2.66	2.66
2.	Delhi	0.00	97.38	97.38
3.	Haryana	0.00	1021.87	1021.87
4.	Himachal Pradesh	0.00	1661.30	1661.30
5.	Jammu and Kashmir	0.00	256.30	256.30
6.	Punjab	0.00	1064.64	1064.64
7.	Rajasthan	3733.34	1448.49	5181.83
8.	Uttar Pradesh	0.00	1532.99	1532.99
9.	Uttarakhand	0.00	545.41	545.41
10.	NTPC Dadri+FBD+Unchahar	0.00	31.83	31.83
11.	Oil India Ltd	154.73	6.66	161.39
SUB TOTAL (Northern Region)		3888.07	7669.53	11557.60

1	2	3	4	5
Western Region				
1.	Chhattisgarh	0.00	865.35	865.35
2.	Goa/NTPC Rajgarh	0.00	102.03	102.03
3.	Gujarat	5325.54	1233.10	6558.64
4.	Madhya Pradesh	1215.24	951.47	2166.71
5.	Maharashtra	5331.88	2934.71	8266.59
6.	Dadra and Nagar Haveli	0.00	0.33	0.33
7.	Daman and Diu	0.00	2.42	2.42
SUB TOTAL (Western Region)		11872.66	6089.41	17962.07
Southern Region				
1.	Andhra Pradesh	1760.71	692.04	2452.75
2.	Telangana	0.00	715.97	715.97
3.	Karnataka	4115.25	3752.42	7867.67
4.	Kerala	46.51	460.26	506.77
5.	Puducherry/NTPS Rama	0.00	11.78	11.78
6.	Tamil Nadu	6747.45	1322.71	8070.16
7.	Lakshadweep	0.00	0.75	0.75
SUB TOTAL (Southern Region)		12669.92	6955.93	19625.85
Eastern Region				
1.	Andaman Nicobar	0.00	15.72	15.72
2.	Bihar	0.00	70.87	70.87
3.	Jharkhand	0.00	13.42	13.42
4.	Odisha	0.00	343.93	343.93
5.	Sikkim	0.00	37.02	37.02
6.	West Bengal	0.00	1187.32	1187.32
7.	DVC	0.00	112.99	112.99
8.	NTPC Andman+Talchar	0.00	13.28	13.28
SUB TOTAL (Eastern Region)			1794.55	1794.55

1	2	3	4	5
North Eastern Region				
1.	Arunachal Pradesh	0.00	0.69	0.69
2.	Assam	0.00	74.23	74.23
3.	Manipur	0.00	0.00	0.00
4.	Meghalaya	0.00	53.07	53.07
5.	Mizoram	0.00	23.80	23.80
6.	Nagaland	0.00	79.56	79.56
7.	Tripura	0.00	11.32	11.32
8.	Neepco	0.00	4.51	4.51
SUB TOTAL (North Eastern Region)			247.18	247.18
GRAND TOTAL		28430.65	22756.60	51187.25

Source: CEA/POSOCO/SNAs/Wind Industry

* Up to December 2015

Calculated proportionately based on the installed capacity for generation data of 2012-13

Statement-II

The contribution made by wind power generation to the total power generation in the country during last five years (Generation in MU)

	2011-12	2012-13	2013-14	2014-15	2015-16 (Till Dec 2015)
Gross power Generation from Wind Energy source.	23352.85	31982.11	31264.80	33768.30	28430.65
Total Gross power Generation in the country including Import from Bhutan.	876886.53	912056.70	967150.32	1048672.97	830170.80
% of Wind power Generation contribution to Total power Generation in the country including Import from Bhutan.	2.66%	3.51%	3.23%	3.22%	3.42%

Source: CEA/SNAs/POSOCO/Wind Industry