

**GOVERNMENT OF INDIA
NON-CONVENTIONAL ENERGY SOURCES
LOK SABHA**

UNSTARRED QUESTION NO:1313
ANSWERED ON:27.11.2000
PRODUCTION OF NON CONVENTIONAL ENERGY.
CHANDRAKANT BHAURAO KHAIRE,P.R. KHUTE,PUSP JAIN

Will the Minister of NON-CONVENTIONAL ENERGY SOURCES be pleased to state:

- (a) the percentage of Non-Conventional Energy Sources being used by the common people in the country, State-wise;
- (b) the quantum of non-conventional energy produced during each of the last three years, State-wise;
- (c) the potentiality of Non-Conventional Energy Sources in the country;
- (d) whether the Government have formulated any plan to explore non-conventional energy sources ; and
- (e) if so, the details thereof;

Answer

MINISTER OF STATE FOR NON-CONVENTIONAL ENERGY SOURCES (INDEPENDENT CHARGE), (SHRI M. KANNAPPAN)
(a)&(b): Power generated from non-conventional energy sources such as solar, wind, biomass and small hydro, is about 1.75% of the total installed capacity in the country. The capacity addition under various non-conventional energy programmes during each of the last three years, State-wise, is given in Annexure-I

(c) The total estimated potential in the country of various non-conventional energy sources is given in Annexure-II.
(d) & (e): Yes, Sir. The Ministry has prepared a detailed plan for exploitation of non-conventional energy sources in the country during the Ninth Five Year Plan. The details of physical and financial targets allocated under various programmes are given in Annexure-III. State-wise and Year-wise power capacity added under various non-conventional energy programmes during the State-wise and Year-wise power capacity added under various non-conventional energy programmes during the last three years. last three years.

S1. No.	State/UT	Wind Power Programme	Solar Photovoltaic Power	Small Hydro Power	S1. No.	State/UT	Biomass Power	Biomass Gasifier	Energy from Wastes										
1997-98	1998-99	1999-2000	1997-98	1998-99	1999-2000	1997-98	1998-99	1999-2000	1997-98										
(MW)	(kW)	(MW)	(MW)	(KW)	(MW)														
1	Andhra Pradesh	1.50	6.00	26.25	~ ~ ~	14.01	12.10	1	Andhra Pradesh	~ 10.00	1.00	1000.00	2300.00	3630.00	0.25	~ 4.70			
2	Arunachal Pradesh	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
3	Assam	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
4	Bihar	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
5	Goa	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
6	Gujarat	20.10	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
7	Haryana	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
8	Himachal Pradesh	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
9	Jammu & Kashmir	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
10	Karnataka	11.17	2.63	14.59	30.00	~ ~ ~	7.10	2.75	5.40	10	Karnataka	~ 10.00	26.00	860.00	500.00	10.00	~ 1.00		
11	Kerala	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
12	Madhya Pradesh	2.70	6.16	4.14	~ 100.00	~ ~ ~	2.41	~ 12	Madhya Pradesh	~ 5.00	~ ~ 100.00	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
13	Maharashtra	0.23	23.34	50.35	~ ~ ~	2.50	0.21	~ 13	Maharashtra	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
14	Manipur	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
15	Meghalaya	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
16	Mizoram	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
17	Nagaland	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
18	Orissa	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
19	Punjab	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
20	Rajasthan	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
21	Sikkim	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
22	Tamil Nadu	31.14	17.77	45.68	150.00	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
23	Tripura	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
24	Uttar Pradesh	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
25	West Bengal	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
26	Andaman & Nicobar	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
27	Chandigarh	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
28	Dadar & Nagar Haveli	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
29	Daman & Diu	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
30	Delhi	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
31	Lakshwadeep	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
32	Pondicherry	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
33	Others	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~	~ ~ ~			
Total	66.83	55.89	143.00	205.00	125.00	225.00	11.10	28.57	33.58	Total	41.50	43.50	51.00	2490.00	3085.00	3990.00	2.00	2.00	8.46

MW= Mega Watt; kW=kilo watt; MW= Mega Watt; kW=kilo watt;
Annexure-II

Annexure-II referred to in reply to part(c) of Unstarred Question No.1313 for 27-11-2000 regarding production of non-conventional energy sources.
Details of estimated potential of various Non-conventional energy sources in the country.

Source/System	Estimated	Potential
1. Biogas plants (No.)	120	lakh
2. Improved Chulha (No.)	12	crores
3. Biomass		
a. Biomass Power	16,000	MW
b. Bagasee based Cogeneration	3,500	MW
4. Solar Photovoltaic Power	20	MW/sq. km.
5. Solar Thermal Power	35	MW/sq. km.
Solar Water Heating Systems	30	million square meter collector area
6. Wind Power	20,000	MW
7. Small Hydro Power	10,000	MW
8. Energy Recovery from wastes	1700	MW

MW = Mega-watt Sq. km.= Square Kilometer

ANNEXURE-III Annexure referred to in reply to parts (d) & (e) of the Lok Sabha Unstarred QuestionNo. 1313 to be answered on 27.11.2000 regarding production of non-conventional energy sources.
PROGRAMME-WISE ALLOCATIONS AND PHYSICAL TARGETS DURING 9TH PLAN PERIOD

S1. No. Programmes/Schemes	FINANCIAL (Rs. in crores)		PHYSICAL
	9th Plan Allocations	(Rs. in crores) Units	9th Plan Physical Target
1. Biogas (NPSD)	286.00	No. in lakhs	10
2. CBP/IBP/NBP	30.00	Nos.	800
3. Improved chulha	84.00	No. in lakhs	150
4. Biomass/Gasifier	25.00	MW	40
5. IREP	53.00	Block Nos.	660 (old) 200 (new)
6. Urjagram	1.00		
7. SADP	8.00	Nos. (Energy Parks)	200

8. Animal energy Programme 2.14

9. SPV Demo 219.00
 SPV Home Light Nos. 2,00,000
 SPV Lanterns Nos. 3,00,000
 SPV Power Plants MW 1.6

10. SPV Pumps 46.50 Nos. 4000
 11. SPV R&D 25.00
 12. ST Energy 34.00
 Solar Water Heating Systems M2 collector area 1,50,000
 Solar Cooker Nos. 1,50,000

13. Solar Energy Centre 24.00
 14. Wind Pumps & Hybrid Syst. 8.00 Nos. 1000
 KW 250
 15. Wind power 63.00 MW 1000
 16. Small Hydro 187.00
 (SHP) MW 130
 (Water Mills) Nos. 700
 (R&M) MW 65

17. Biomass Power 226.00 MW 314
 18. ST Power / SPV Power 63.00
 ST Power MW 140
 SPV Power MW 1.5

19. UsI & NBB 62.00 MW 42
 20. New Technology
 a. Chemical sources 7.00
 b. Hydrogen Energy 4.50
 c. Alternate Fuels 7.50
 d. Ocean Energy 3.00
 e. Geo-Thermal 3.00

21. T & P 15.00
 22. International Cooperation 9.00
 23. Project Preparation Assistance 2.00
 24. TIFAC 6.00
 25. Seminars 2.50
 26. Regional Office 4.00
 27. NIRE 20.00
 28. State Nodal Agencies 15.00
 29. Rural Energy Entrepreneurship / Institutional Development 5.00
 30. Market development & Export Promotion 5.00
 31. Women and Renewable Energy Development 1.00
 32. HRD & Training 6.00
 33. IREDA
 a. Equity 250.00
 b. Technology Commercial Funds 10.00
 Total (DBS) 1822.14
 34. Counterpart funding to IREDA (EAP) 300.00
 TOTAL (GSB) 2122.14
 35. IEER 1678.00

Total outlay 3800.14

Rs.65.50 crores in NPSD and Rs.23.00 crores in NPIC programmes would be needed in addition to the above allocation to meet the physical targets. This would be met through saving during the remaining period of the Ninth Plan.