

GOVERNMENT OF INDIA
MINISTRY OF NEW AND RENEWABLE ENERGY
LOK SABHA
UNSTARRED QUESTION NO. 2429
TO BE ANSWERED ON 05.03.2020

R&D IN THE FIELD OF RENEWABLE ENERGY

2429. SHRI G.M. SIDDESHWAR

Will the Minister of New & Renewable Energy be pleased to state:

- (a) the status of the country in terms of Research and Development (R&D) in the field of renewable energy globally;
- (b) whether the Government has signed any agreement with the national and international institution/countries for promoting research;
- (c) and if so, the details thereof during the last three years and current year;
- (d) the details of potential development in the said sector; and
- (e) the manner in which Indian R&D can be compared with other countries of the world?

ANSWER

THE MINISTER OF STATE (I/C) FOR NEW & RENEWABLE ENERGY, POWER and MoS
for SKILL DEVELOPMENT AND ENTREPRENEURSHIP

(SHRI R.K. SINGH)

- (a) The research & development in the field of renewable energy in the country is being carried out at various research institutes/ universities/ laboratories and industries. The research projects for technology development and demonstration in various areas of new and renewable energy such as solar thermal systems, solar photovoltaic systems, biogas systems, waste to energy systems, wind energy systems, hybrid systems, storage systems, hydrogen and fuels cells, geothermal, etc. are taken up with the ultimate aim of increasing share of renewables in the energy mix of the country.
- (b) & (c) The details of the Agreements/ MoUs signed during last three years and which, inter alia, relate to research are given in ANNEXURE.
- (d) The research in areas of renewable energy like solar manufacturing, thermal storage systems, solar reflector materials, hydrogen storage materials, energy storage, wind turbine components & sub systems, RE forecasting etc. is being carried out with the overall objective of improving efficiency, reducing prices and developing new technologies
- (e) The research in renewable energy is also being carried out in various Indian research institutions /Universities/laboratories/ industries in cutting edge technologies such as pervoskites solar cell, hydrogen fuel cells, organic solar cells, a-Si solar cells RE forecasting. Thus it can be said that research in the country is not lagging when compared to other countries in the world.

**MEMORANDUM OF UNDERSTANDINGS (MoUs)/AGREEMENTS
SIGNED WITH FOREIGN COUNTRIES/INSTITUTES/ORGANISATIONS IN LAST
THREE YEARS**

Sl no	Country	Ministry/department	Year of signing and location
1.	Bahrain	MoU between Ministry of New and Renewable Energy of the Republic of India and the Ministry of Electricity and Water Authority of the Kingdom of Bahrain	Signed on 15th July 2018 At Manama
2.	Denmark	MoU between NIWE and Denmark Technical University	Signed on 17 th December, 2018 At New Delhi
3.	Denmark	Cooperation Agreement between Ministry of New and Renewable Energy of the Republic of India and Ministry for Energy, Utilities and Climate of the Kingdom of Denmark on Strategic Sector Cooperation in the field of Renewable Energy with a focus on Offshore Wind Energy	Signed on 6 th March 2019 At New Delhi
4.	Fiji	MoU between Ministry of New and Renewable Energy and the Ministry of Infrastructure and Transport, Fiji	Signed On 24 th May, 2017, At Suva
5.	France	MoU between National Institute of Solar Energy (NISE) and Commissariat à l'Énergie Atomique et aux Energies Alternatives (CEA), the National Solar Energy Institute (INES), France	Signed on 10 th March 2018 At New Delhi
6.	France	MoU between the Solar Energy Corporation of India Limited Government of the Republic of India and The Agence Française de Développement, French Public entity governed by French Law.	Signed On 3 rd October 2018, at New Delhi
7.	France	MoU between the Solar Energy Corporation of India Limited (SECI), a Central Public Sector Undertaking of Government of the Republic of India; Commissariat à l'Énergie Atomique Et Aux Energies Alternatives (CEA), French state-owned research entity and Blue Storage SAS, a French Company	Signed On 3 rd October 2018, at France
8.	France	Memorandum of Agreement (MoA) between NISE and CEA	Signed On 22 nd August, 2019, at Paris

9.	Germany	Implementation Agreement between National Institute of Solar Energy (NISER) MNRE and Physikalisch-Technische Bundesanstalt Bundesallee (PTB) Germany	Signed On 26 th November, 2019 At Gurgaon
10.	Germany	Implementation Agreement between MNRE and Deutsche Gesellschaft Für Internationale Zusammenarbeit (GIZ)	Signed on 20 th September, 2017 At New Delhi
11.	Germany	Implementation Agreement between MNRE and Deutsche Gesellschaft Für Internationale Zusammenarbeit (GIZ)	Signed on 28 th August, 2017 At New Delhi
12.	Germany	Implementation Agreement between MNRE and Deutsche Gesellschaft Für Internationale Zusammenarbeit (GIZ)	Signed on 03 rd August, 2018 At New Delhi
13.	Germany	Implementation Agreement between MNRE and Deutsche Gesellschaft Für Internationale Zusammenarbeit (GIZ)	Signed on 01 st November, 2019 At New Delhi
14.	Germany	Implementation Agreement between MNRE and Deutsche Gesellschaft Für Internationale Zusammenarbeit (GIZ)	Signed on 01 st November, 2019 At New Delhi
15.	Greece	MoU between Ministry of New and Renewable Energy and the Ministry of Environment and Energy of Hellenic Republic	Signed On 27 th November, 2017, At New Delhi
16.	Guyana	MoU signed between Ministry of New and Renewable Energy and Ministry of Public Infrastructure of Guyana	Signed On: 30 th January, 2018 At New Delhi
17.	Guinea	MoU between Ministry of New and Renewable Energy and of the Ministry of Energy of the Republic of Guinea	signed on 20 th September 2019 at Guinea
18.	Italy	MoU signed between Ministry of New and Renewable Energy and the Ministry of Environment of the Italian Republic	Signed On 30 th October, 2017, At New Delhi
19.	Morocco	MoU between Ministry of New and Renewable Energy and Ministry of Energy, Mines and Sustainable Development of the Kingdom of Morocco	Signed on 10 th April, 2018 At New Delhi

20.	Portugal	MoU between Ministry of New and Renewable Energy and The Ministry of Economy of the Portuguese Republic on Renewable Energy	Signed On 6 th January, 2017, At New Delhi
21.	Peru	MoU between Ministry of New and Renewable Energy and the Ministry of Energy and Mining of the Republic of Peru	Signed on 11 th May, 2018 At Lima, Peru
22.	Spain	MoU between Ministry of New and Renewable Energy and Ministry of Energy, Tourism and Digital Agenda of the Kingdom of Spain	Signed On 30 th May, 2017, At Madrid
23.	Saudi Arabia	MoU between Ministry of New and Renewable Energy and Ministry of Energy of the Kingdom of Saudi Arabia on cooperation in the field of Renewable Energy	Signed On 29 th October, 2019, At Riyadh
24.	Tajikistan	MoU between the Ministry of New and Renewable Energy of the Government of the Republic of India and the Ministry of Energy and Water Resources of the Government of the Republic of Tajikistan	Signed on 08 th October, 2018 At Dushanbe