

GOVERNMENT OF INDIA
MINISTRY OF NEW AND RENEWABLE ENERGY
LOK SABHA
UNSTARRED QUESTION NO-1948
ANSWERED ON-22/09/2020

R&D IN THE FIELD OF RENEWABLE ENERGY

1948. SHRI G.M. SIDDESHWAR

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

- (a) the status of Research and Development (R&D) in the field of renewable energy in comparison to other countries;
- (b) whether the Government has signed any agreement with the National and International Institutions for promoting R&D, if so, the details thereof during the last three years and the current year; and
- (c) the details of the potential development in the said sector; and
- (d) the outcome of R&D activities?

ANSWER

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

(SHRI R.K. SINGH)

(a) 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.

The research in renewable energy is also being carried out in cutting edge technologies such as pervoskites solar cell, hydrogen fuel cells, organic solar cells, a-Si solar cells, RE forecasting.

(b) The details of the Agreements/ MoUs signed during the last three years and which, inter alia, relate to research are given in **ANNEXURE**.

(c) 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.

(d) The continuous R&D efforts in the area of renewable energy has resulted in enhancement of overall efficiency, cost reduction, and better reliability of renewable energy systems/ projects being deployed in the country.

Annexure referred to in reply to part (b) of the Lok Sabha Unstarred Question No. 1948 for 22.09.2020 regarding R&D IN THE FIELD OF RENEWABLE ENERGY

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

S. No.	Country/Agency	National International Institutions and Agency	Date of Signing
1.	Portugal	MoU between Ministry of New and Renewable Energy and The Ministry of Economy of the Portuguese Republic on Renewable Energy	6 th January 2017
2.	Fiji	MoU between MoU between Ministry of New and Renewable Energy and the Ministry of Infrastructure and Transport, Fiji	24 th May 2017
3.	Spain	MoU between Ministry of New and Renewable Energy and Ministry of Energy, Tourism and Digital Agenda of the Kingdom of Spain	30 th May 2017
4.	Germany	Implementation Agreement between MNRE and Deutsche Gesellschaft Fur Internationale Zusammenarbeit (GIZ)	28 th August 2017
5.	Italy	MoU signed between Ministry of New and Renewable Energy and the Ministry of Environment of the Italian Republic	30 th October 2017
6.	Greece	MoU between Ministry of New and Renewable Energy and the Ministry of Environment and Energy of Hellenic Republic	27 th November 2017
7.	Guyana	MoU signed between Ministry of New and Renewable Energy and Ministry of Public Infrastructure of Guyana	30 th January 2018
8.	France	National Institute of Solar Energy (NISE) and Commissariat a l'Energie Atomique et aux Energies Alternatives (CEA), the National Solar Energy Institute (INES), France	10 th March 2018

9.	Morocco	MoU between Ministry of New and Renewable Energy and Ministry of Energy, Mines and Sustainable Development of the Kingdom of Morocco	10 th April 2018
10.	Peru	MoU between Ministry of New and Renewable Energy and the Ministry of Energy and Mining of the Republic of Peru	11 th May 2018
11.	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	15 th July 2018
12.	France	MoU between the Solar Energy Corporation of India Limited Government of the Republic of India and The Agence Francaise De Development, French Public entity governed by French Law.	3 rd October 2018
13.	France	MoU between the Solar Energy Corporation of India Limited (SECI), a Central Public Sector Undertaking of Government of the Republic of India; Commissariat á l'Énergie Atomique Et Aux Energies Alternatives (CEA), French state-owned research entity and Blue Storage SAS, a French Company	3 rd October 2018
14.	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	8 th October 2018
15.	Denmark	MoU between NIWE and Denmark Technical University	17 th December 2018
16.	Denmark	(i) 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 and (ii) Letter of Intent (LoI) to establish an Indo-Danish Centre of Excellence for Integrated Renewable Power in India	6 th March 2019
17.	France	Memorandum of Agreement (MoA) between NISE and CEA	22 nd August 2019
18.	Guinea	MoU between Ministry of New and Renewable Energy and of the Ministry of Energy of the Republic of Guinea	20 th September 2019
19.	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	29 th October 2019