

GOVERNMENT OF INDIA
MINISTRY OF EDUCATION
DEPARTMENT OF HIGHER EDUCATION

LOK SABHA
UNSTARRED QUESTION NO. 241
ANSWERED ON 02.02.2026

Role of Educational Institutions in Energy Sector

241. Ms. S Jothimani:

Will the Minister of EDUCATION be pleased to state:

- (a) the details of steps taken by the Government to address the shortage of skilled professionals in India's renewable energy sector, particularly in solar manufacturing and the role of educational institutions in this regard;
- (b) whether the Ministry of Education collaborates with the Ministry of New and Renewable Energy to develop specialized curricula or training programs to bridge the skills gap in the clean energy industry and if so, the details thereof; and
- (c) the number of educational institutions that have introduced renewable energy-focused courses during the last three years and the measures taken to align these programs with industry requirements?

ANSWER

**MINISTER OF STATE IN THE MINISTRY OF EDUCATION
(DR. SUKANTA MAJUMDAR)**

(a) to (c): The Government of India has taken several steps to address the shortage of skilled professionals in the renewable energy sector, including solar manufacturing. The Ministry of New and Renewable Energy is implementing capacity building and skill development programmes to create a skilled workforce for the design, installation, operation and maintenance of renewable energy projects including solar, wind, bio-energy and small hydropower. Skill development programmes such as Suryamitra, Varunmitra, Vayumitra and Jal-Urjamitra are being implemented under the Human Resource Development Programme through MNRE's autonomous institutions namely the National Institute of Solar Energy, Gurugram, the National Institute of Wind Energy, Chennai and the National Institute of Bio-Energy, Kapurthala. The skilling programme for hydropower is administered through the Hydro and Renewable Energy Department, IIT Roorkee. These programmes are implemented through training centres located across the country, wherein ITIs, polytechnics, engineering colleges and universities empanelled by the implementing agencies act as training centres. To address the skill requirement in solar cell and module manufacturing, the National Institute of Solar Energy has organised a two-and-a-half-month specialised training programme for students and industry professionals. Further, under the Prime Minister Surya Ghar Muft Bijli

Yojana, training is being provided to technicians, electricians, installers, engineers, supervisors, vendors and trainers for installation, design, operation and maintenance of rooftop solar systems across the country. Skilled manpower for the green hydrogen sector is also being created under the National Green Hydrogen Mission through schemes for skilling, up-skilling and re-skilling implemented through national skill training institutes, industrial training institutes, the National Institute for Entrepreneurship and Small Business Development, MNRE institutions, the Skill Council for Green Jobs and other sector skill councils.

To address the shortage of skilled professionals in the renewable energy (RE) sector, specifically focusing on solar manufacturing and installation, the All India Council for Technical Education (AICTE) has also implemented several strategic initiatives which include curriculum alignment & new electives for minor degrees in Sustainable Energy Engineering (SEE), Mandatory R&D and Climate Cells to establish Research and Development (R&D) Cells and Climate Cells to foster innovation and sustainable practices, such as solar energy, within campuses. In order to create awareness among Students, faculty and industry members, AICTE has developed AICTE Research Internship (ARI) Portal in partnership with Industry leaders which connects students directly with companies for internships in emerging fields, including renewable energy. Generation Green Initiative empowers students with green skills and enhance employability in the renewable sector.

Educational institutions under AICTE guidance are shifting from traditional teaching to acting as skill hubs through initiatives like Integration of Renewable Energy in STEM. Institutions are integrating solar PV, wind energy, and sustainability topics into their core engineering curricula, they are partnering with companies for on-the-job training, specifically in solar manufacturing to bridge the gap between classroom knowledge and industrial requirements. As per AICTE mandatory internship, every student has to go for internship with options to work in government-initiated solar projects or the industry. Institutions are encouraged to install rooftop solar plants through the scheme of MNRE, Govt. of India providing students with on-campus, real-world experience in solar PV systems.

Ministry of Education collaborates with the Ministry of New and Renewable Energy in developing specialised curricula and training programmes to bridge the skills gap in the clean energy sector. MNRE, in collaboration with the Hydro and Renewable Energy Department, IIT Roorkee has developed the Jal-Urjamitra programme for operation and maintenance of small hydropower plants. Qualification packs and model curricula for short-term training programmes have been developed by the Skill Council for Green Jobs in collaboration with MNRE and IIT Roorkee. In addition, a two-year Small Hydro Power Plant Technician course has been developed by the Directorate General of Training in association with IIT Roorkee and industry associations. These collaborative efforts ensure standardised training and availability of skilled manpower aligned with sectoral requirements.

Several educational institutions have introduced renewable energy-focused courses during the last three years. MNRE's autonomous institutions are running joint postgraduate and research programmes in collaboration with reputed educational institutions, including an M.Tech programme in Renewable Energy launched in 2020 by Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, in collaboration with Sardar Swaran Singh National Institute of Bio-Energy, Kapurthala, an MTech programme on Green Energy and Sustainable Development in collaboration with Aligarh Muslim University and an MTech by Research programme with Delhi Technological University. These institutions are also collaborating with IIT Bombay, IIT Delhi and IIT Roorkee for research in renewable energy. The Ministry supports centres of excellence at IIT Bombay for solar photovoltaic technologies and at IIT Roorkee for small

hydropower and also provides research grants, laboratory upgradation support and fellowships to IITs, NITs and universities to align academic programmes with industry requirements.

The State-wise count of AICTE approved institutes running energy related courses is given in **Annexure**.

AICTE has introduced model curricula for minor degrees in Sustainable Energy Engineering (SEE). The updated curricula for technical education now emphasize "green skills". These programs, alongside Memorandum of Understanding (MoU) with organizations aim to train students in sustainability, green skill development.

ANNEXURE REFERRED IN REPLY TO PARTS (a) to (c) OF THE LOK SABHA UNSTARRED QUESTION NO. 241 ANSWERED ON 02.02.2026 ASKED BY HON'BLE MEMBER OF PARLIAMENT MS S JOTHIMANI REGARDING ROLL OF EDUCATIONAL INSTITUTIONS IN ENERGY SECTOR

State wise count of AICTE approved Institutes running Energy related courses

State	2023-2024		2024-2025		2025-2026	
	No. of Approved Institutions	Total Approved Intake	No. of Approved Institutions	Total Approved Intake	No. of Approved Institutions	Total Approved Intake
Andhra Pradesh	4	54	4	54	5	66
Assam	3	69	3	69	4	117
Bihar	1	30	4	126	4	126
Chandigarh	1	12	1	12	1	12
Chhattisgarh	6	142	6	142	5	130
Delhi	4	108	3	78	4	108
Goa	1	18	1	18	1	18
Gujarat	7	282	7	264	7	264
Haryana	3	54	3	54	3	54
Himachal Pradesh					1	18
Jammu and Kashmir	1	18	1	18	1	18
Jharkhand	1	31	1	31	3	121
Karnataka	17	582	16	561	16	543
Kerala	12	276	10	204	11	222
Madhya Pradesh	7	150	7	150	8	168
Maharashtra	6	111	6	99	8	130
Meghalaya	1	30	1	30	1	30
Odisha	4	75	7	102	7	102
Puducherry	2	47	2	47	2	107
Rajasthan	8	207	8	207	10	285
Tamil Nadu	20	410	19	398	25	572
Telangana	4	156	5	216	5	216
Tripura	1	18	1	18	1	18
Uttar Pradesh	11	291	13	471	12	441
Uttarakhand	1	18	1	18	1	18
West Bengal	7	238	8	256	8	256
Grand Total	133	3,427	138	3,643	154	4,160