

Memorandum of Understanding

between

National Institute of Solar Energy

**Ministry of New and Renewable Energy, Government of India, Block-14,
CGO Complex, Lodhi Road, New Delhi-110003, INDIA 'NISE'**

and

Commissariat à l'Energie Atomique et aux Energies Alternatives
- The National Solar Energy Institute (INES), France 'CEA'

Whereas,

The Ministry of New and Renewable Energy (MNRE) is the nodal Ministry of the Government of India for all matters relating to new and renewable energy and the National Institute of Solar energy (NISE) is the premier solar R&D, Technology Application and Solar Testing Laboratory and Institute in India and is a part of MNRE & NISE works in the area of Solar Energy, Hydrogen and Serves as an interface between Government, Research Organizations and Industry in India.

Whereas,

Commissariat à l'Energie Atomique et aux Energies Alternatives, a French state-owned research entity with a scientific, technical or industrial activity duly organised under the laws of France and having its registered office located at 25 rue Leblanc, Bâtiment « Le Ponant D » - 75015 Paris, FRANCE, declared at the Paris Register of Commerce and Trade under registration number R.C.S. Paris B 775 685 019, for its LITEN Institute dedicated to research and development activities in the renewable energy field.

hereinafter referred to as "CEA",

This Memorandum of Understanding (MoU) will be implemented jointly by the team of NISE and CEA- National Solar Energy Institute (INES), a France's center of reference in the field of solar energy, based at Savoie Technolac on the shores of Lake Bourget, the Institute having been set up with the backing of Savoie Départemental Council and Rhône-Alpes Regional Council, and which includes research and development teams from the CEA, CNRS, University of Savoie and CSTB and is a link between academic research and business practice and 'Institut National De' Lenergie Solaire' (INES)

contributes considerably to technology transfer between universities and industry,

This MoU is based on areas of cooperation identified for working in MoU signed between Ministry of New and Renewable Energy (MNRE) and The Ministry of Ecology, Sustainable Development and Energy of the French Republic in the year 2015 signed by Ambassador of India in France and Minister of Ministry of Ecology, Sustainable Development and Energy of the French Republic,

have reached the following understanding:

ARTICLE 1 OBJECTIVE

The main area of work under this MoU would be to identify research/ demonstration/ pilot projects between NISE and CEA in the mutually identified areas. Based on mutual agreement, both parties would work for implementation & deployment of pilot project in ISA member countries.

Both Parties agree to work in various areas of Solar Energy as detailed below:

1.1 Solar Photovoltaic (PV)

- High efficiency Solar PV Cell.
- Co-operation in testing, evaluation, characterization of PV modules and calibration of Reference modules and cells.
- Testing, Monitoring, performance evaluation and analysis of Solar PV Systems including stand-alone (lighting, telecom applications), CPV and Large Capacity PV Power plants.
- Establishment of facilities for testing of large capacity inverters.
- Long term outdoor performance studies of different technology PV Modules and Degradation analysis of the EVA/Polymers on different aging PV modules.
- Joint studies on design and analysis of distributed generation and smart mini-grids.
- Technical assistance to prepare and undertake Feasibility Study, DPR, Economic Assessment system, design etc.
- Implement demonstration and pilot project in the areas of Solar Irrigation, Solar rooftop, Solar Grid-connected, Solar Parks and Concentrated Solar Technology (CST).

1.2 Storage Technologies

- Collaboration on Testing, performance evaluation and analysis of different technologies of batteries
- Establishment of state of the art facilities for testing and certification of batteries
- Evaluation of hydrogen technologies for storage

1.3 Transfer of Technology

Both side agreed to collaborate in finding technological solutions and to undertake transfer of technology as mutually agreed upon. They will cooperate in projects involving Scientists, Engineers and personnel from user communities associated with each party in respect of IP strategy of both parties.

1.4 Collaborative Activities:

1.4.1 Expand the mapping of Indian Solar Energy resource: This will be the basis for development of Solar Energy in India. Through previous collaborative efforts between CEA & the NISE and other Indian partners (i.e. Indian Meteorological Department), the solar resource in the northwest part of India has been mapped. A main objective of the collaboration will be to facilitate the expansion of that mapping and assessment to the remainder of the country.

1.4.2 Identify optimal sites for large-scale solar projects in India: After the validation of existing solar data (high resolution, for both flat and concentrating collectors) for northwestern India collected over six years and once the data are validated, the most economical viable sites in this region are to be identified based on GIS (Geographical Interface systems) data and guided by MNRE, the NISE, and industry representatives.

1.4.3 Invite Indian Scientists to France and French Scientists to India for Workshop and Research & Study Tour.

1.4.4 Provide advice and technical information exchange regarding NISE and its plans for development and any related plans for support of Indian solar and storage industry.

1.4.5 Undertake employee exchange with aim of sharing and furthering the scientific and technical know-how of both parties.

1.4.6 Collaboration may occur through several means, including joint research projects, joint R&D, joint workshops, Research and Technology exchange including exchange of domain experts.

1.4.7 Encourage exchange of Faculty, Scientists, Staff & Students between the two parties.

1.4.8 Exchange of Scientific and Technical material between the two parties.

1.4.9 Joint hosting of Conferences, Workshops, short-term courses and to undertake joint sponsored solar research & development and consulting.

1.4.10 Accreditation of Solar Lab Testing and bilateral acceptance of testing standards

1.4.11 Capacity building and specialized training.

1.4.12 Construction of pilot projects and innovative demonstrators in India and France,

1.4.13 Common R&D programs and technical assistance for the setting up of new facilities (R&D - testing - commissioning) in India.

1.4.14 The bilateral cooperation could, for certain topics, be linked with ISA programs and worldwide activities while including ISA (International Solar Alliance) member countries.

ARTICLE 2 TERMS OF COOPERATION & COST SHARING

All terms and conditions relating to joint projects under this MoU shall be agreed upon separately on case to case basis.

Although the parties wish to cooperate in future projects this Memorandum of Understanding does not impose any duty on one of the Parties to disclose any information to the other party nor to enter into any individual agreement or obligation.

Each party will be responsible for its own costs in connection with all matters relating to collaboration under this MoU. Where possible and

appropriate, the parties may provide funding or seek funding for collaboration from other donors.

ARTICLE 3 CONFIDENTIALITY

NISE and CEA shall, for the duration of this MoU not make accessible to third parties information of a technical or commercial nature received from the other party and declared to be confidential. This however, shall not apply to information:-

- Which is known or generally accessible to the public
- Or
- Which becomes known or generally accessible to the public after disclosure without any involvement or fault on the part of the other party,
- Or
- Which corresponds to information disclosed or made accessible to the other party by an entitled third party, or
- Which is independently developed by an employee of the other party not in possession of the information disclosed, or
- Which is required, by the action of a legal counsel, to be provided to any government, judicial, regulatory or administrative body or to a listing authority, self-regulatory body or any entity similar to the foregoing.
- Each Participant intends to collaborate in a manner that will facilitate exchange of non-proprietary information, subject to applicable laws and regulations. The Parties intend that information, data and reports of collaborative activities carried out under this MoU may be released by either Party with the written concurrence of the other Participants.
- Activities that may involve sharing of proprietary information and transfer of rights and interest in intellectual property are excluded from the preview of this MoU. In the event it becomes necessary to share proprietary information, separate written non-disclosure understanding should be put in place.

ARTICLE 4 SOURCE OF FUNDING

- 4.1 The conduct of any collaboration activities mutually determined is subject to the availability of funds and staff available to the Parties. In the event that special funding is available for selected activities, the Parties may develop a separate written understanding for such activities. In such cases, the terms of funding should be mutually determined by both Parties before the commencement of activities and should be described in a separate written note.
- 4.2 Each Party is responsible for its own expenses for collaboration activities under this MoU, including all administrative costs, overhead expenses, labor costs, insurance costs, travel expenses and similar costs, unless a separate written understanding between the Parties so provides. No exchange of fund is permitted under this MoU.

ARTICLE 5 REVIEW OF ACTIVITIES

The Parties intend to undertake a review of collaborative activities conducted under this MoU as a means to ascertain their effectiveness, document achievements and lessons, recognize technical personnel, and identify and plan areas for future collaboration. This review should take the form of annual, mutually determined meeting of key technical persons and management from each Party to discuss ongoing and future cooperation. Specific commitments developed pursuant to this MoU should be reflected in a separate written note.

ARTICLE 6 DURATION

This Memorandum of Understanding (MoU) shall enter into force on date of its signature, initially for five (5) years and shall remain in force until either Party gives notice of termination of the MoU 90 days in advance.

ARTICLE 7 DISPUTE SETTLEMENT

Any dispute arising out of the interpretation of the MoU shall be mutually settled through negotiations between the Parties. In case of failure to settle the dispute through negotiations, either Party may submit the dispute to superior their respective Ministries/Authorities for a cordial resolution at a diplomatic level.

ARTICLE 8 RESULTS

Arrangement regarding intellectual property shall be formally agreed under terms and conditions for the individual contracts on a case to case basis. However, it is anticipated that each party shall lay claim to intellectual property arising out of research conducted by its employees. In the event that intellectual property is developed jointly by employees of the both the parties, joint ownership shall apply and the Parties will agree on a strategy for the protection and use of the intellectual property.

ARTICLE 9 MISCELLANEOUS

- 9.1 Each Party should conduct the activities contemplated by this MoU in accordance with the applicable laws of its respective country, without limitation of export control laws.
- 9.2 Subsequent, amendments, and supplements hereto must be made in writing.

Signed at New Delhi on 10th March 2018 in two originals each in Hindi, English and French languages. In case of any divergence of interpretation, English Text shall prevail.

On behalf of;

**National Institute of Solar Energy
(NISE)**



**Dr. Arun K. Tripathi
Director General
National Institute of Solar Energy
(NISE)**

Date:

10th March 2018

On behalf of;

**The Commissariat à l'Energie
Atomique et aux Energies
Alternatives (CEA)**



**Mr Daniel VERWAERDE, General
Administrator
The Commissariat à l'Energie
Atomique et aux Energies
Alternatives (CEA)**

Date:

03 / 10 / 2018