

## Workshops on “Solar Resource Assessment”

The United States and India will co-operate on 3 workshops on “Solar Resource Assessment”  
in April 2016 in India



### Introduction:

The U.S. Department of Energy (DOE) and India’s Ministry of New and Renewable Energy (MNRE) and Department of Science and Technology (DST) announce three workshops on Solar Resource Assessment and Solar Project Development featuring experts from DOE’s National Renewable Energy Laboratory (NREL) and from research institutions in India affiliated to the Solar Research Institute for India and the US (SERIIUS). The workshops will be held at the National Institute of Solar Energy (NISE), Gurgaon; the Indian Institute of Science, Bangalore; and the Indian Institute of Technology Bombay, Mumbai. The workshops build on ongoing collaboration in renewable energy between the two countries under the US-India Energy Dialogue and the Joint Clean Energy R&D Centers (JCERDC), co-ordinated by the Indo-US Science and Technology Forum (IUSSTF). The 2016 edition of the workshops will present new data which has been collected during the last two years.

### Objective:

The workshops are intended to provide solar developers throughout India information on the new solar resource data and training on how to leverage the data in financial analyses to improve assessments of potential solar projects.

The workshops will be held on:

- April 11, 2016 at the National Institute of Solar Energy in Gurgaon
- April 13, 2016 at the Indian Institute of Science in Bengaluru
- April 15, 2016 at the Indian Institute of Technology Bombay in Mumbai

### Target Audience:

The primary audience is solar project developers in India, including both PV and CSP developers of all-scales (utility-scale, self-supply, rooftop), and financing companies interested in investing in solar projects. Because this is similar content to the previous workshops, preference will be given to new participants.

### Course Contents include (full details below in the Program Schedule):

- Solar Measurements Overview
- Solar Modeling Overview

### Eligibility:

A participant are strongly encouraged to have a minimum academic qualification of graduation in science or engineering. Participants should be from industry, or be an individual intending to set up a solar company. A very limited number of persons from academic/research institutions will be accepted. Basic knowledge of solar energy is a pre-requisite. Applications will be screened for suitability. Registration will be on a first-come, first-served basis.

### Dates and Locations:

- **At National Institute of Solar Energy, Gurgaon on April 11, 2016:**  
**NISE, Institutional Area, Gurgaon-Faridabad Road, Gwalpahari, Gurgaon 122005**  
Contact Person:  
Mr. N.B. Raju, Scientist "E", Director Training  
e-mail: training.nise@gmail.com  
Phone: 0124-2579214
- **At the Indian Institute of Science, Bengaluru on April 13, 2016:**  
**IISc Bengaluru, CV Raman Avenue, Bengaluru 560012**  
Contact Person:  
Dr. Sanchita Sengupta, DST-INSPIRE faculty  
email: icerworkshop@gmail.com  
Phone: 080-2293 3525
- **At the Indian Institute of Technology Bombay, Mumbai on April 15, 2016:**  
**IIT Bombay, Powai, Mumbai 400076**  
Contact Persons:  
Ms. Smita Bhattacharjee/Ms. Rupali Chavan  
Email: workshop\_seriius@ee.iitb.ac.in  
Phone: 022-2576 4480

### Course Coordinators:

- At NISE, Gurgaon on April 11, 2016: O.S. Sastry, training.nise@gmail.com
- At IISc, Bengaluru on April 13, 2016: Sanchita Sengupta, Upendra K. Pandey, sanchita@icer.iisc.ernet.in, ukpandey@icer.iisc.ernet.in
- At IIT Bombay, Mumbai on April 15, 2016: Juzer Vasi, vasi@ee.iitb.ac.in

### Registration Fee:

There is no registration fee for the Workshops, as these are supported by Department of Energy (USA), Ministry of New and Renewable Energy (India), and SERIUS under the bi-lateral JCERDC.

### Important Dates:

- Last date for submitting registration form by email: March 28, 2016
- Intimation of acceptance of registration by NISE/IISc/IITB: April 1, 2016
- Last date to receive confirmation of attendance from participants: April 5, 2016

### How to Apply:

Participants should decide which of the Workshops they would like to apply to (NISE, IISc, or IITB). The registration form given below should be filled in, and sent by email to the contact person at the location to which application is being made by March 28. Please clearly mention **only one** venue where you would like to attend the course. The profiles of the prospective participants would be reviewed/selected by the course coordinators. Acceptance of registration will be intimated by April 1. Selected participants must confirm their registration by April 5.

Please note that no accommodation will be arranged at any of the locations.



**Registration Form:**

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Designation: \_\_\_\_\_

Email and Mobile Phone No.: \_\_\_\_\_

Background, Experience and Qualifications:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Years of project development / experience: (1) \_\_\_\_ (2) \_\_\_\_ (3) \_\_\_\_ (4) \_\_\_\_ (5+) \_\_\_\_

Workshop you would like to attend (mark **only one** with a "✓"):

\_\_\_\_ At NISE, Gurgaon on April 11, 2016

\_\_\_\_ At IISc Bengaluru on April 13, 2016

\_\_\_\_ At IIT Bombay, Mumbai on April 15, 2016

Please send the completed registration form by email the Contact Person of the tick-marked location on or before March 28, 2016.



### Proposed Program Schedule:

TIME	DESCRIPTION
9:00 – 9:45	<b>Registration, Welcome Drink &amp; Networking</b>
9:45 – 10:00	<b>Introductions</b>
10:00 – 12:00	<p><b>Solar Measurement and Modelling Overview</b>            This session will focus on familiarizing the audience with solar resource measurement with ground stations and modelling with satellites. Topics that would be covered include</p> <ul style="list-style-type: none"> <li>• Calibration and Measurement of Solar Radiation</li> <li>• Siting and Maintenance</li> <li>• Introduction to Satellite Resource Assessment</li> <li>• New Satellite based Datasets for India</li> <li>• Accessing the new datasets</li> <li>• Dissemination and uses</li> </ul>
12:00 – 1:00	<b>Lunch &amp; Networking</b>
1:00 – 2:00	<p><b>SERIIUS and NIWE Presentation</b></p> <ul style="list-style-type: none"> <li>• SERIIUS updates</li> <li>• Solar Radiation Calibration and Measurements in India</li> </ul>
2:00 – 3:00	<p><b>Solar Forecasting Overview</b>            This session will focus on the familiarizing the audience with solar forecasting. Topics that would be covered include</p> <ul style="list-style-type: none"> <li>• Introduction to Solar Forecasting</li> <li>• Current Developments in Solar Forecasting</li> <li>• Application and Validation of Solar Forecasting</li> </ul>
3:00 – 3:15	<b>Afternoon Drink &amp; Networking</b>
3:15 – 4:15	<p><b>Tools for Project Performance and Financial Projection</b></p> <ul style="list-style-type: none"> <li>• System Advisor Model</li> <li>• PVWatts</li> <li>• Walk through example project</li> </ul>
4:15 – 4:30	<b>Concluding Remarks</b>
4:30 – 5:30	<b>Optional Field Tour</b>

## Speaker Biography:



### **Dr. Manajit Sengupta — Senior Scientist and Manager**

Resource Assessment and Forecasting  
National Renewable Energy Lab, Golden, CO

Dr. Manajit Sengupta currently leads the Resource Assessment and Forecasting (RAF) group at NREL. The RAF group maintains expertise in solar and atmospheric resource measurement, modeling, and forecasting for renewable energy applications. Manajit is an expert in solar resource modeling, forecasting, and remote sensing with nearly 20 years of research experience. He is internationally recognized in his field with numerous publications on satellite-based resource assessment, PV variability, and measurement uncertainty analysis. Before joining NREL, Manajit was a researcher at Colorado State University and the Pacific National Northwest Laboratory. His research areas have included cloud and solar radiation modeling for future satellites and the impact of clouds on climate change. Dr. Sengupta earned his Ph.D. in Meteorology from the Pennsylvania State University.