

## ABOUT THE PROGRAMME

India being in the tropical region and Given the average solar insolation of 5 kwhr/m<sup>2</sup>/day in most parts of India, the potential to tap solar energy is huge. Realizing this and also to reduce dependence on the depleting fossil fuel sources (coal, oil and gas), Government of India set initial target of addition of 20,000 MW of solar in the total energy mix by 2022, and further revised the same to 100GW on successful developments of some projects. India has already achieved impressive cumulative growth targets in addition of installed capacity. The vision 2022 of achieving the installed capacity of 175 GW of renewable power aims to transform India through rapid strides in the renewable energy sector, job creation and skill development.

Ministry of New & Renewable Energy (MNRE) and the respective State level nodal agencies have been coordinating to arrive at the necessary tender specifications and ensuring the timely completion and quality of the various central projects awarded to the developers. Similarly, the respective State governments through their State power ministries have been carrying out these tasks for the State awarded projects. However, lack of experienced/trained work force has been the major drawback.

About 90% of the projects awarded are solar PV, MW size, Grid Enabled projects, with energy fed to 33 kV or above through the existing substations, with about 10% comprising mostly solar PV roof tops tied to the grid.

International Solar Alliance (ISA) is part of Prime Minister's vision to bring clean and affordable energy within the reach of all and create a sustainable world. It will be a new beginning for accelerating development and deployment of solar energy for achieving universal energy access and energy security of the present and future generations.

ISA will be India's first international and inter-governmental organization headquartered in

India. ISA will be dedicated to promotion of solar energy for making solar energy a valuable source of affordable and reliable green and clean energy in 121 member countries.

Considering the above, CIRE is conducting a training programme on " PLANING AND MANAGEMENT OF SOLAR POWER PLANTS" to create better awareness on solar power and technologies among the executives of power utilities of both public and private sector, on the likely challenges and available solutions, through interaction with experts in the field for enhancing their skill on the subject with the following objectives.

## PROGRAMME OBJECTIVES

- To create awareness on the need for solar power generation -issues, challenges and remedial measures.
- To familiarize with the latest initiatives and Policies of Govt. of India - incentives and concessions available.
- To gain insight to the various Solar PV and Solar Thermal power generation technologies.
- Best practices of Erection, testing, commissioning and O&M of solar power plants.
- Global trends and technologies adopted worldwide.

## PROGRAMME CONTENTS

- Over view of power generation across globe & need of Solar Power Generation.
- Review of Government Policies, Jawaharlal Nehru National Solar Mission - opportunities and challenges
- Opportunities and challenges of utilities in Rural Electrification and Decentralized Distributed Generation
- Review of semiconductor physics and Operating principle of solar PV Cell – Silicon as PV material – Types of Cells such as Single, Multi crystal and thin film technologies, – Structure –Electrical parameters
- Manufacturing processes of Mono crystalline, multi-crystalline and thin film solar PV

- Review of other PV technologies – Comparison of efficiencies of various technologies and Recent trends in technology and selection criterion of solar cells
- PV modules and arrays – Standard Conditions (STC & NOCT) and design aspects of solar PV systems
- Selection of modules, inverters and structures (Configuration such as stand alone,grid interactive and net metered PV system)depending upon the local site conditions
- Safety considerations in cable layouts, earthing layouts, lightning protection
- The importance of tracking –tracking methods and cost benefit analysis
- Large MW scale plants, greater emphasis on quality in commissioning, operation and maintenance
- Inspection and monitoring techniques, when and why & Instruments required, Diagnostics and analysis
- Typical faults and diagnosis- Performance measurement, reliability Testing: IEC Standards 61215 & 61646.
- Life Cycle Cost analysis – Technical warranty and commercial warranty.
- Preparation of detailed project reports, financing, clearances, Tariff fixation and CDM benefits
- Field visit to an operating solar power plant to gain first-hand knowledge

## TARGET PARTICIPANTS

Technical Executives of Power Utilities, SEBs, State Govt. Organizations, Power Companies, Corporations, Private Entrepreneurs,Industries,Manufacturers, Project implementors, Research/Academic Institutions, Nodal agencies, Energy Planners, etc.

### Faculty

Experts from the field are invited to take sessions on the identified topics

## REGISTRATION FEE

Category	Course fee per participants (in Rs.)	Service Tax@ 15 % (in Rs.)	Course Fee per participant (in Rs.)	Discount for three or more Participants *
Residential @	27,500	4125	31, 625	10%
Non Residential#	22500	3375	25875	10%

\* Only on Participation basis

@Includes Boarding and Accommodation in addition to tuition, courseware & other facilities, field visit, etc.

# includes working lunch & tea but excludes Boarding and Accommodation.

Course fee shall be paid in the form of a demand draft in favor of "Central Institute for Rural Electrification" payable at Hyderabad in advance or at least at the time of registration. The course fee may also be paid by NEFT/RTGS transfer to HDFC Bank Account No: 00210350000930, IFSC Code: HDFC0000021.

## HOW TO REGISTER

Please send your nominations on or before 15th May, 2017 along with demand draft (or NEFT/RTGS Receipt) to: Addl. Director, Central Institute for Rural Electrification, N.P.A. Post, Shivarampally, Hyderabad – 500 052, E-mail: [cire.rec@gmail.com](mailto:cire.rec@gmail.com), Ph: 040-29805897, Fax: 040-29805896. Please contact Sudhir Chopade, Programme Coordinator in his Mobile 07680883477 for further information.

## ABOUT THE INSTITUTE

Central Institute for Rural Electrification (CIRE) was established at Hyderabad in 1979 under the aegis of Rural Electrification Corporation Limited (A Navaratna PSU & Non Banking Finance Company) to cater to the training and development needs of Engineers and Managers of Power and Energy Sector. Based on the MOU with Ministry of Power, the performance of REC is rated as "Excellent" consistently for the last 16 years. CIRE of REC is relentlessly engaged in capacity building to strengthen the human resources development initiatives of Power Sector. CIRE has been conferred with "Education Leadership Award" by reputed Business school, Mumbai

during Nov'14 and ABP NEWS National Educational Awards in July 2015 consecutively in recognition of Leadership, Development, Innovation and Industry Interface.

The Institute is spread over an area of about 14 acres, with administrative, teaching and hostel blocks. Classrooms in the teaching blocks are air-conditioned. Hostel block has got 36 AC rooms and 2 VIP suites with AC Dining Hall. The campus has recreational facilities like Badminton Court, Table Tennis, Carom Boards, a Jogging Track of about 1 Km length, a Mini Gym, etc. An Energy Park has been set up to develop awareness on Renewable Energy Sources System and High Voltage Distribution System.

Up to Dec 2016, CIRE has organized 1753 Programmes and 38,436 executives from various SEBs, Generation, Transmission & Distribution Companies, Electricity Departments, RE Cooperatives, Regulatory Commissions, Manufacturing Industries have participated. The Institute has organized 76 International Training Programmes under ITEC/SCAAP of Ministry of External Affairs, GOI and trained 1170 executives from 70 countries.

## VENUE

Venue will be CIRE Campus, Sivarampally, Near Aramgarh 'X' Road, NPA Post, and Hyderabad 500052 from 22th May – 26 th May 2017 from 9.45 a.m. to 5 p.m. with break for lunch, tea and refreshment.

**Participants are advised to commence their journey after receiving the confirmation from CIRE.**

## ADDRESS FOR COMMUNICATION

SUDHIR CHOPADE

(Programme Coordinator)

CENTRAL INSTITUTE FOR RURAL ELECTRIFICATION  
of

**Rural Electrification Corporation Limited**  
(A Government of India Enterprise)

Shivarampally, NPA Post, Hyderabad 500 052

Mobile: 07680883477, E-mail: [cire.rec@gmail.com](mailto:cire.rec@gmail.com)

Phones Office: 040-29805896, 040-64616376

Fax: 040-2401-5896-97

## Five Days Training Programme

On

### CONCEPT TO COMMISSIONING OF SOLAR POWER PLANTS (INCLUDING O&M)



22 - 26 May 2017



Organized by

**Central Institute for Rural Electrification  
Of  
Rural Electrification Corporation Ltd**  
(A Government of India Enterprise)  
Shivarampally, NPA Post, Hyderabad 500 052