13th International Training Programme

WIND TURBINE TECHNOLOGY AND APPLICATIONS

Specially for ASEAN Countries

7th to 30th May 2014

Organized by

CENTRE FOR WIND ENERGY TECHNOLOGY, Chennai, India

Sponsored by

ASSOCIATION OF SOUTHEAST ASIAN NATIONS

Supported by

MINISTRY OF NEW AND RENEWABLE ENERGY, Government of India

Introduction

Wind power is being adapted the world over as the most efficient power generation source that does not cause greenhouse emissions. With the raising concerns on climate change, countries are under pressure to turn Renewable Energy (RE) sources and reduce CO_2 emissions. Amongst RE sources, Wind energy proved to be more successful energy option next to hydro and about 300 GW has been installed worldwide. Earth's commercially viable wind power potential is estimated 72 TW which is five times more than world's total energy demand. With such a huge potential, only very few countries are really using wind power. USA, some of the European countries and Asian countries China and India are using wind energy at a large scale. Wind Energy has been started in the South East Asian countries as a pilot projects for supporting their energy needs. Countries such as Thailand, Bhutan and Myanmar started their projects. Deficit of skilled human resource has been one of the main barriers to hinder wind energy and other renewable energy diffusion.

C-WET

Centre for Wind Energy Technology (C-WET), Chennai being first of its kind institution in Asia has contributed for diffusion of wind energy as one of the primary energy source in India. Now India, over the years has been a trend-setting nation with regard to wind power utilization. Decades of concentrated efforts have started to yield gratifying results and today, wind power contributes about 9 % of the total Indian energy mix and stands fifth in terms of installed wind power capacity worldwide. With this vast experience, it is worth effort that India can incorporate lessons learnt from its own experience and foster elsewhere in the globe. It is in this context, a four week thirteenth International Training Programme is scheduled by C-WET, which is a sponsored programme under India ASEAN Cooperation Fund with the support of Ministry of New and Renewable Energy (MNRE), Government of India. To highlight, C-WET has so far organized 11 international training programmes and trained 260 professionals from 63 countries and has also organized 15 national training courses and three special international / national training courses.

Objectives

- The prime objective is to transfer knowledge and special skills to the ASEAN Countries participants
- To build skilled human resource so that there will be advancement of wind energy in the participants' country
- To provide an invaluable platform for exchange of professional and cultural experiences among diverse participants
- To leverage the research that continues to shape this rapidly evolving discipline

Training Methodology

The lectures include exercises and case studies to stimulate active participation and dialogue. Hands-on working on wind energy equipments, excursions to operating wind farms and wind turbine manufacturing facilities are also scheduled to enhance transfer of knowledge.

Resource Persons

The resource persons for the programme will be the C-WET Scientists, industry professionals, academicians and other national experts who have significantly contributed for wind energy development.

Course Syllabus

The course content for the training was carefully thought out syllabus with specific subject experts giving lectures and going through the specific case studies such that at the end of the day considerable useful knowledge transfer is perceived.

The programme will address the following aspects:

- Wind energy conversion technology and power generation
- Wind turbine technology and developments
- Design of wind turbine
- Wind turbine components and performance characteristics
- Wind resource assessment and techniques
- Planning including design of wind farms

- Wind farm developments & feasibility study
- Pre-Investment study and Cost benefit analysis
- Installation and commissioning of wind farms
- Post installation activities - Grid integration
- O & M aspects of wind farms
- Testing & Certification of wind turbines
- Small wind turbine and hybrid systems
- Indian government policies, schemes and legal frameworks
- Wind energy developments in India
- CDM related to wind energy

Additional lectures during wind farms and manufacturing facility visits would be organized during the course to give a complete picture of the know-how and how to go about setting up a coordinated wind energy programme at a national level.

The Programme

The programme duration will be 24 days, from 7th to 30th May 2014.

Venue

The venue for the programme will be the Conference Hall of Centre for Wind Energy Technology (C-WET), Chennai, India.

Targeted Participants

The course will be useful for anyone involved in wind energy or those looking for an introduction. Person from the following fields will find this course very relevant.

- Academic and R&D institutions
- Power Industry
- Manufacturers
- Suppliers and Distributors
- Utilities
- Consultants
- Project Developers / Managers
- Government Organization
- NGOs
- Media

Reason to Attend

The course will offer a good foundation on the principles of engineering behind wind energy technology and power generation & distribution along with financial viability and entrepreneur opportunities. The course would facilitate an invaluable forum for dialogue and open exchange of views and experiences with Indian scientists and professionals. The course would give a picture of complete know-how and pave the way to go about setting up a financially viable wind farm project.

Eligibility

- Applicant should be from the countries under **ASEAN Member States**
- **Degree / Diploma in Engineering / Science** with good knowledge in English
- Age should be between **25 to 45 years**
- Relevant experience in wind energy preferred

Course Fee

The course is a completely sponsored programme under India-ASEAN Cooperation Fund which includes to and fro air fare, local travel expenses, accommodation, living allowance, book allowance. Accommodation provided will be of international standards.

How to Apply?

Application should be submitted at Embassy of India, Jakarta, Indonesia. For more details the applicants may contact Shri. Nikhilesh, First Secretary (ASEAN), Embassy of India, Jakarta, Indonesia, e-mail: fsasean@indianembassy jakarta.com Telephone : +62-21-5255348, Fax: +62-21-5265622.

Course Coordinator

P. KANAGAVEL
Scientist & Unit Chief i/c
Information, Training & Commercial Services
Centre for Wind Energy Technology(C-WET)
Velachery – Tambaram Main Road
Pallikaranai, Chennai – 600 100
Tamil Nadu, India
Phone: +91-44-2246 3982, 2246 3983,
2246 3984 +91-44-2246 3994 (D)
Mobile: +91-9445798007
Fax: +91-44-2246 3980
E-mail: pkanagavel@cwet.res.in
training@cwet.res.in

ABOUT C-WET

The Centre for Wind Energy Technology shortly known as C-WET is an autonomous R&D institution established at Chennai in 1998 by the Ministry of New and Renewable Energy (MNRE), Government of India. It is a young organization with highly experienced professionals with expertise in all related disciplines of wind energy sector. This unique combination makes it a forward looking and practical organization that will take the next logical steps towards advancing wind technology in the right direction. With its open approach to all wind energy related science and technology, C-WET assures assistance from resource assessment to project implementation. As an integral part of C-WET, a world class Wind Turbine Test Station (WTTS) is established at Kayathar in Thoothukudi District, Tamil Nadu. Perhaps, C-WET is the only Testing and certifying agency in the country.

C-WET has the responsibility to provide complete scientific and technical backing to all stakeholders in the field of wind energy and has stated its commitment through its quality policy.

C-WET is committed to achieve customer satisfaction, loyalty and confidence by providing credible, prompt and complete solutions of international quality to all the stakeholders in the wind energy sector.

C-WET, strives to be technical focal point of excellence for the present and future. C-WET shall stay at the forefront of Wind Turbine Technology application by continuously improving its expertise.

CENTRE FOR WIND ENERGY TECHNOLOGY

An Autonomous Research and Development Institution
Ministry of New and Renewable Energy, Government of India
Velachery – Tambaram Main Road, Pallikaranai, Chennai – 600 100, Tamil Nadu, India
Phone: +91-44-2246 3982, +91-44-2246 3983, +91-44-2246 3984 Fax: +91-44-2246 3980
E-mail: info@cwet.res.in Web: http://cwet.res.in & www.cwet.tn.nic.in