

EDITORIAL



The PM Gati Shakti National Master Plan for Renewable Energy announced recently, lays great focus on the countrywide mapping of RE resources and the RE projects with their transmission infrastructure, on National and State Level Portals. This will help in planning and accelerating future capacity additions in the sector. NIWE has a major role to play by geotagging of the wind turbine installations across the country and the Integrated Wind and Solar Resource Assessment and mapping project.

During this period, the Phase I of the Integrated Wind and Solar Assessment was concluded and Phase II was initiated with Site selection/survey in the states of Bihar, Chhattisgarh, Gujarat, Madhya Pradesh, Odisha, Uttar Pradesh, and West Bengal. The Offshore Wind has also gained momentum with the tender for 4 GW offshore project, off-Tamil Nadu coast round the corner. A Task Force with representatives from Centre/ TN state has been constituted to examine various issues involved in the development of offshore wind energy projects. The Second meeting of this task force discussed various aspects related to the clearances, engagement with the local fishermen and the Greening of Rameshwaram project.

NIWE is looking at expanding its role as an accredited Inspection body for wind turbines in re-assuring investors about the safety and integrity aspects of the machines. Considerable progress has also been made in our consultancy projects on Type Testing, Verification of wind monitoring projects, project monitoring services and estimation of annual energy production. Notable amongst these is the ongoing installation of a 2 MW wind turbine at VOC Port, Tuticorin towards making it a Green Port.

The R&D project on Wind Driven Air Storage System has shown encouraging results during testing, as a proof of concept of the technology.

The Vayumitra Skill Development Programme is in full swing with completion of training 144 trainers through 5 Batches of Training of Trainers (ToT) during the quarter. Also 24 Nos. of Training of Participants (TOP) programme have been completed training 720 participants. Out of the 16 events celebrating Azadi ka Amrit Mahotsav, 3 events were conducted during the quarter. NIWE also conducted 2 Customised Training courses, and 3 International Training courses on Wind Energy Technology during this quarter.

This issue highlights the concerted efforts of NIWE during the quarter aligning with the current industry needs.

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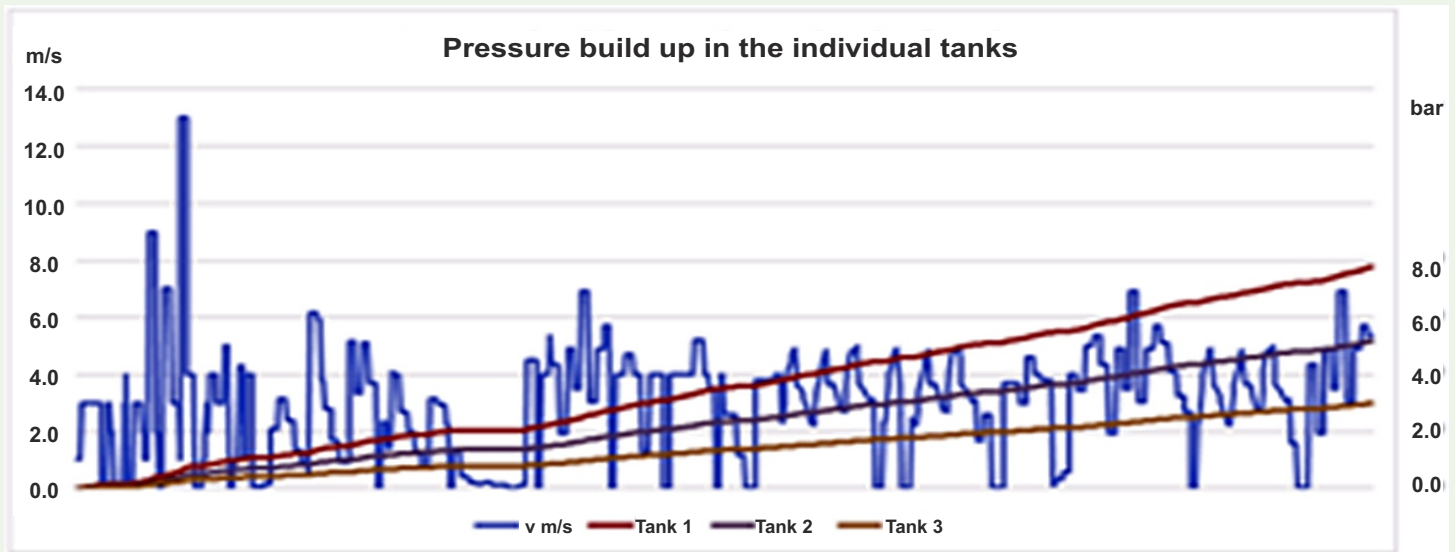


Research & Development

NIWE funded R&D Projects

Wind-Driven Air Storage System

The project aims at a novel scheme to store the wind energy in the form of compressed air. In the proposed system, the rotor of the wind turbine of capacity 5 kW drives the compressor and the excess energy from the wind turbine is stored locally, as compressed air in a storage pressurized tank. The proposed system is currently being tested under isolated conditions. The compressed air from the pressurized storage tanks (at 8 ,5 and 2 bars) can be used for various applications.



Measurements & Testing

Measurements

Integrated Wind and Solar Resource Assessment (IWSRA)

Under IWSRA Project Phase – I, data collection for 1 year and analysis has been completed. The site selection/survey in the states of Bihar, Chhattisgarh, Gujarat, Madhya Pradesh, Odisha, Uttar Pradesh and West Bengal for Phase II of the project are in progress. Two sites in Odisha, 1 site in Chhattisgarh and 2 sites in West Bengal, 1 site in Madhya Pradesh, 1 site in Uttar Pradesh and 1 site in Bihar have been selected under Phase II.



Site selecting / surveying process in Chhattisgarh

Pre-feasibility Study for 40 MW Solar-Wind Hybrid Farm

A pre-feasibility study and report were completed and a report detailing the findings was prepared and submitted to the relevant authorities.

Testing

Limited period Power Curve & Load Measurements of its model GWL 225 a wind turbine of M/s. Southern Wind Farms Limited

An agreement was signed between NIWE and M/s. Southern Wind Farms on 29.11.2022 for measurements of its model GWL 225, a wind turbine with 29.8 m rotor diameter at Varapatti Village, Sultanpet Post, Suler Talak, Coimbatore District. Instrumentation for GWL 225 kW WT has been carried out by NIWE Team from 20th to 31st March, 2023. Also calibration of Load channel by external load method was carried out.



Instrumentation for GWL 225 kW WT

Offshore Wind Development, Data Analytics and Forecasting & Information Technology

Research Activities

The SCADA control system at Bhuj, Gujarat

The testing of controller with master-slave architecture to control wind turbines in two pooling substations in Bhuj area for Indian Air force during emergency / war situations, undertaken as a pilot project, is in progress. In this project, a main controller is installed at IAF Bhuj while the slave controllers were installed in Bhuwad and Naranpur substations respectively. The stations were connected through a secure VPN network. The master controller sends commands to open feeder breakers, thereby halting the wind turbines. Upon receiving directions from the Indian Air Force, the pooling substation developers manually energize the feeders to start the wind turbines in Bhuj area.

Consultancy projects

7 nos. of consultancy projects were completed and currently 6 nos. of projects are ongoing towards supporting the stakeholders of wind industry in the following areas;

- Verification of wind monitoring procedure
- Energy Yield Estimation
- Tender document preparation & Technical Bid evaluation.

Installation and Commissioning of 2 MW Wind Turbine at VOC Port

NIWE is rendering its service as a project monitoring consultant for the installation and Commissioning of 2 MW wind turbine at VOC port, Tuticorin towards meeting the objective of a Green Port. The Installation works are in progress at the site.



Embedded CAN work

Certification

Reaccreditation / Accreditation by NABCB

Re-Accreditation Office Assessment was conducted on 6th & 7th of March 2023 by National Accreditation Board for Certification (NABCB), QCI as per the requirements of ISO/IEC 17065:2012 in connection with the renewal of the PCB accreditation of NIWE. The assessment findings were successfully completed and accepted by NABCB. The renewal process is in process.

The documents as per the requirements of ISO/IEC 17020:2012 have been prepared and the application submitted for Accreditation as “Type-A Inspection Body” to NABCB, Quality Council of India (QCI) on 30th March 2023.

Ongoing Projects

Conducted the verification of the availability of the replaced spares/components identified by NIWE in 15 numbers of Vensys 77 wind turbines installed at Periyapatti site, Tamil Nadu of M/s. GAIL (India) Limited (GAIL)” from 11.02.2023 - 19.02.2023 and 2 numbers of Vensys 77 wind turbines during 24.03.2023 and 25.03.2023. The project has been completed successfully.

Standards and Regulation

Wind Turbine Prototype

The review / verification of documentation of one prototype wind turbine model viz., “Wind Turbine INOX DF/3000/145 3.0 MW Rotor Blade Type SR71 (T-Bolt), Hub Height 100m IEC WT Class IIIB” of M/s. Inox Wind Limited (Inox) was completed in connection with installation of prototype wind turbine in India, as per MNRE guidelines. Subsequently, a letter has been issued in connection with grid synchronization of said prototype wind turbine, as decided by the Prototype Committee.

The Review / verification of documentation of a prototype wind turbine model viz., “MWL-160-5.2MW HYT-140m” of M/s. Mundra Windtech Limited (MWL) in connection with installation of prototype wind turbine in India is under progress.

RLMM

Review / verification of documentation of 04 wind turbine models submitted for RLMM has been completed. Further, technical support has been provided to MNRE for implementation of Revised Lists of Models and Manufacturers of wind turbines (RLMM) process.

Standards

Technical support to Bureau of Indian Standards (BIS) in connection with standards related works is under progress. Based on the works carried out, during the ETD 42 meeting, six Indian standards on wind turbine have been finalized. Further, the works related to preparation of draft Indian standards / IEC standards & IECRE documents are under progress.

Skill Development and Training & Infrastructure Management

The following Training programmes were conducted during the quarter:

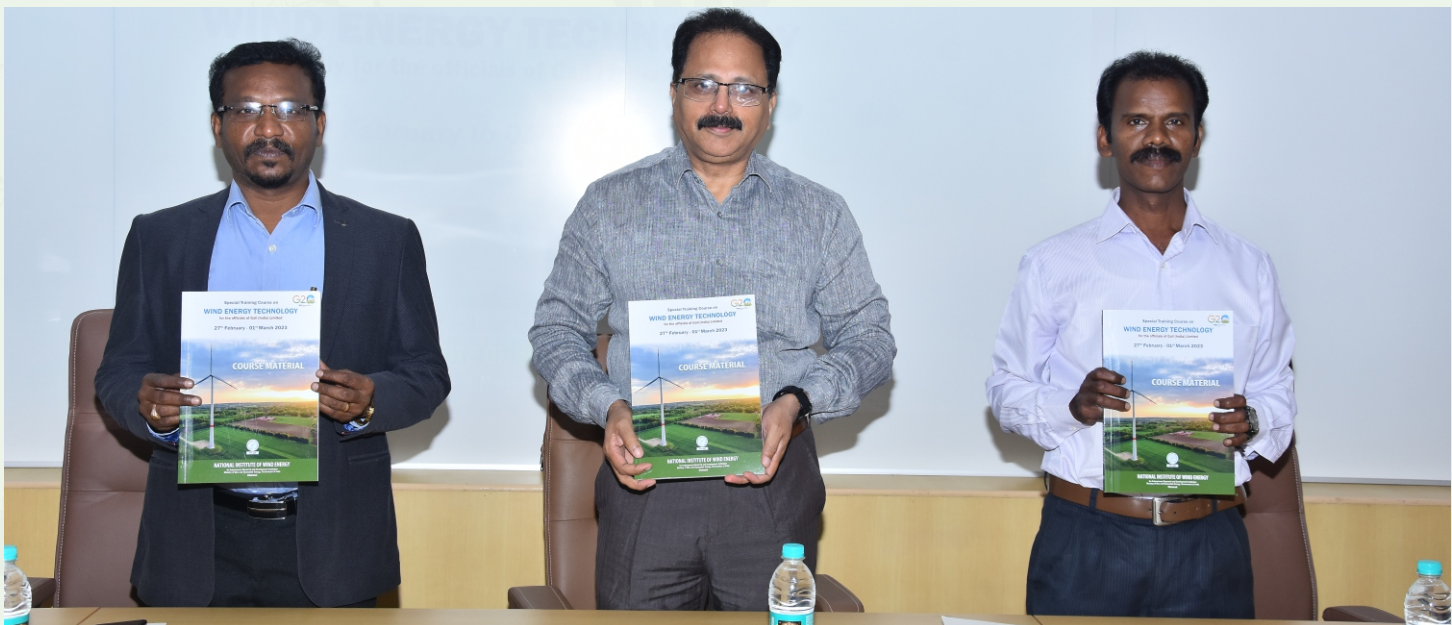
1. Special Training Course on "BASICS OF WIND ENERGY TECHNOLOGY" for the 29 officials of Nordex Engineering and Technology Pvt. Ltd. from 23rd to 25th January 2023.



Dr. Rajesh Katyal is distributing the Course Certificates to Participants

2. Special Training Course on "WIND ENERGY TECHNOLOGY" for the 26 officials of Gail (India) Ltd from 27th February to 1st March 2023.

The Special Training courses covered all aspects of wind power, including wind resources assessment, project implementation, and operations & maintenance. It also touched upon wind-solar hybrid systems and offshore wind aspects. The lectures during the course were delivered by the experienced scientists and engineers of NIWE.



Release of Course Material during Inaugural Function of the Course

- 26th International Training course on “Wind Turbine Technology and Applications” from 01st to 24th January 2023. The course, sponsored by the Ministry of External Affairs (MEA) of the Government of India under the ITEC program and attended by 29 participants from 20 ITEC partners countries.



Participants visiting Gearbox facilities at Elecon Engineering Company Limited, Thirumangalam, Tamil Nadu

The course covers various aspects such as introduction to wind technology, wind resource assessment, installation and commissioning, operation and maintenance of wind farms, as well as financial and policy aspects. The training sessions consisted of classroom lectures, practical classes and visits to a wind farm and a wind turbine manufacturing factory.

- 5th Special International Training Course on "Wind Resource Assessment and Wind Farm Planning from 1st to 24th March 2023. The course, sponsored by the MEA, Government of India and attended by 28 participants from 10 ITEC partner countries.

The training program included lectures, practical classes, and visits to wind monitoring stations, wind farms, and wind turbine manufacturing facilities. The participants gained knowledge in wind resource assessment techniques, site selection, data collection and processing, wind farm design, and wind resource mapping.



Participants in front of NIWE Campus

5. 2nd Special International Training Course on "Solar Resource Assessment and Development of Solar Power Plant"



Participants at Solar Hybrid System at WTTS, Kayathar

The 2nd Special International Training Course on "Solar Resource Assessment and Development of Solar Power Plant" was successfully conducted by the SDT Division of NIWE from 15th March to 7th April 2023.

The course, sponsored by the MEA of the Government of India and attended by 28 participants from 16 countries. The training program included lectures, practical training, and visits to solar power plants and a solar panel manufacturing factory. Participants gained knowledge in solar resource assessment, solar generation systems, and related topics.

Vayumitra Skill Development Program (VSDP)

The Vayumitra Skill Development Program (VSDP) is an initiative by the Ministry of New & Renewable Energy (MNRE) in India, implemented by the National Institute of Wind Energy (NIWE) in Chennai. The program aims to create a skilled workforce for the Indian wind energy sector, particularly for the operation and maintenance of wind farms, to meet the industry's demand and achieve the government's targets.

The VSDP focuses on three major areas or job levels: O&M Electrical & Instrumentation Technician - WPP, O&M Mechanical Technician - WPP, and Site Surveyor - WPP. The program includes Training of Participants (TOP) Training of Trainers (TOT) programs, and Orientation to Assessors (OTA) programs. A total of 5,010 participants are proposed to be trained through the Training of Participants (TOP) courses conducted by 22 identified institutions located near wind farms in windy states, 690 Trainers through ToT and 34 Assessors through OTA.

Five Batches of Training of Trainers(TOT) programmes have been successfully completed under which 144 participants were trained. The TOT participants were assessed by the Skill Council for Green Jobs (SCGJ) and awarded certificates by the National Skill Development Corporation (NSDC) of the Ministry of Skill Development and Entrepreneurship (MSDE).

A total 24 Nos. of TOP Programmes have been completed covering 720 participants and remaining programs are underway, with a focus on content development for training



Classroom Lecture of ToT



Explaining about Metmast climbing safety measures

Azadi ka Amrit Mahotsav-2022-23

NIWE, with the support of MNRE, organized a series of sixteen events to celebrate 75 years of independent India. One of these events was the "RE Camp at Kayathar for Engineering Graduate Students," which took place from 6th to 10th February 2023. The camp covered various topics related to wind energy technology and included lectures, practical sessions, and field visits. Out of 58 registrations, 29 participants attended the camp and gained knowledge about wind energy technology, wind resource assessment, turbine components, and operations. The participants appreciated the structure and organization of the camp and expressed satisfaction with the quality of the training content. Certificates were distributed to the participants during the valedictory function, and they expressed gratitude to NIWE and MNRE for arranging the free camp.



Certificate Distribution

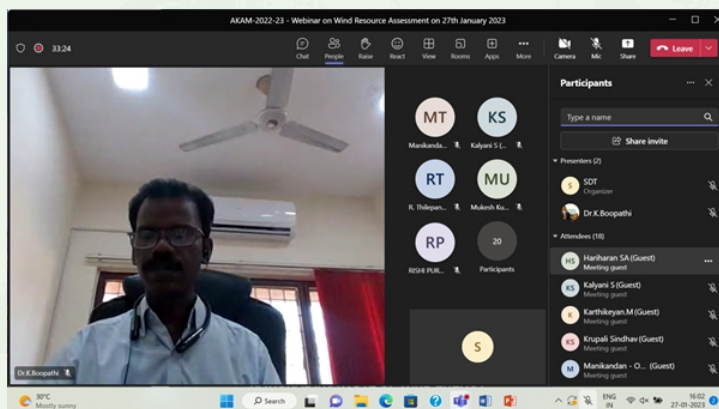
SEVENTH EVENT - "Webinar on Wind Resource Assessment"

The seventh event, "Webinar on Wind Resource Assessment" by Dr. K. Boopathi, Director & Head, OWD, DAF & IT Division, NIWE was successfully conducted on 27th January 2023. 78 candidates registered and 38 participants attended the event.

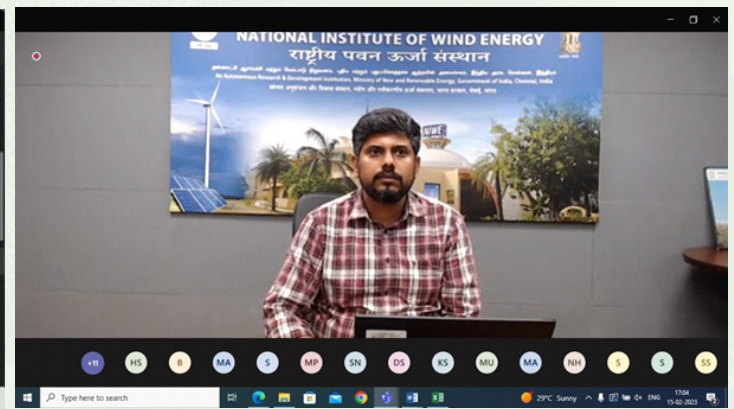
EIGHTH EVENT - "Webinar on Design and Layout of Wind Farms"

The eighth event of the Azadi ka Amrit Mahotsav series was a successful webinar on the "Design and Layout of Wind Farms," held on 15th February 2023. Shri. J. Bastin from NIWE delivered a detailed presentation on the topic, which was attended by 25 out of the 74 registered participants.

The sessions included a question and answer segment, allowing participants to interact with the speaker and clarify their doubts. The participants expressed their satisfaction with the webinar and conveyed their gratitude to NIWE and MNRE for organizing the event, recognizing its value for students and professionals in the wind energy industry.



Dr. K. Boopathi presenting webinar at 7th Event



Shri. J. Bastin presenting webinar at 8th Event

Students & Training Participants Visit

To create awareness and to motivate towards research on wind energy, achieving the indigenization and also to create awareness about the activities and services of NIWE, schools and college students are encouraged to visit the campus.

During the period from January to March 2023, the following visits were coordinated.

- 5th year student (Architecture) of 5th McGan's Ooty School on 20th January 2023.
- 8 participants & 1 coordinator of NITTTR on 2nd March 2023.
- 15 participants & 1 coordinator of ITEC Course participants of National Productivity Council, Chennai - delegation from various countries on 13th March 2023.

Meetings / Summits / Conferences

- 2nd UK INDIA Offshore Wind Summit held on 10th March 2023 at the Taj Wellington Mews in Chennai.
- 2nd Taskforce Meeting (Hybrid mode) on the development of Offshore Wind Energy Projects off the coast of Tamil Nadu & Greening of Rameshwaram, including TMB clearance, CRZ clearance, preferential tariff was conducted under the Co-Chairmanship of Joint Secretary, MNRE and Additional Chief-Secretary to Industries, Government of Tamil Nadu at Secretariat, Chennai on 24th March 2023.



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