

EDITORIAL



The imperative to transform the energy system is well documented and great strides have already been made to increase the penetration of

low carbon sources into the global electricity supply^{1,-2}. Over 340,000 wind turbines (WT) with a total capacity >591GW were installed worldwide at the end of 2018. The power in the wind scales with the area swept by the WT blades and is thus proportional to the rotor diameter squared (D^2). Wind speeds also generally increase with height. Thus, the total installed capacity (IC), average rated capacity and physical dimensions of WT being installed and wind generation of electricity have all exhibited marked growth in the USA over the last 20 years

In a move that could revive participation in wind bidding in a big way, the Ministry of New and Renewable Energy (MNRE) plans to stop imposing ceiling tariffs on wind tenders, according to sources close to the development. Removal of these ceilings has been a long standing demand of the industry which in turn the growth of renewable energy in the country.

During the period, NIWE were established 2 nos. of dedicated wind monitoring stations of height 100 m in Gujarat and West Bengal.

NIWE has prepared the 120 m Wind-Solar Hybrid map and also working on the

preparation of wind potential map at 150m agl. NIWE with the support of NIOT has completed the design for monopole & platform for mounting the LiDAR's at Gulf of Khambhat off Gujarat Coast.

The continuous measurements for testing of two large and one small wind turbines are on-going and the measurements have been completed for one test project and final report issued to the customer.

The twenty eighth meeting of NIWE's R&D Council was successfully convened on 10.02.2020. A Research Project on "Maintenance and Repair Strategy for Wind Energy Development" with a grant of DKK of 46,82,078 to provide Indian wind energy industry with guidelines and approaches for the efficient repair, ensuring the long-term integrity and reliable work of wind turbines approved by Danish Innovation fund has been placed in the RC meeting for information.

NIWE has organized 2nd PAN India Research Network meets at MNIT Campus, Jaipur, on 06th January 2020.

NIWE during this period had successfully conducted 24th National Training Course on Wind Resource Assessment with 13 participants from 6 States and 25th International Training Course on Wind Turbine Technology and Applications with 29 participants from 18 different countries.

Dr. K. Balaraman, Director General

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Wind Solar Resource Measurements / Offshore

ONSHORE WIND RESOURCE ASSESSMENT

WRA in Uncovered/New areas

During the period, 2 nos. of dedicated wind monitoring stations of height 100 m were established each in Gujarat and West Bengal. The data measurement is underway.

Wind resource assessment studies using existing Telecom Towers

Seven nos. of telecom towers in Assam were mounted with sophisticated wind sensors & data loggers for collecting the wind data. The measurement campaign is underway.

OFFSHORE

Geotechnical Investigation at Gulf of Khambhat off Gujarat coast

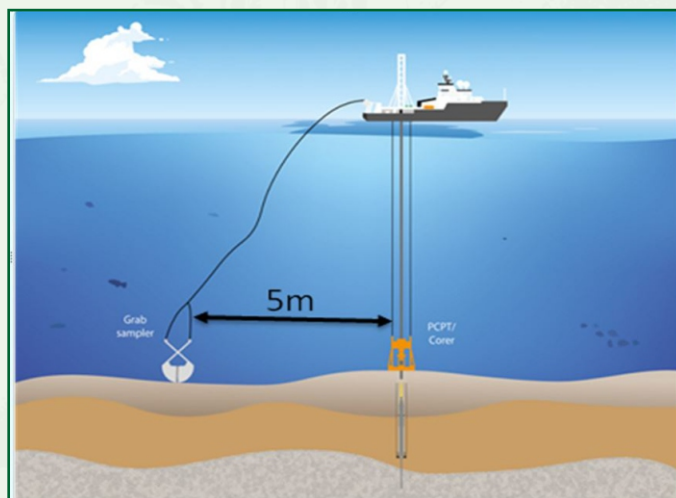
The work on Geotechnical investigation to ascertain physical engineering and chemical properties by using down hole cone penetration system, where in the soil samples were collected up to a depth of 60m using open tube push samples method was successfully completed. The soil samples were collected at every 1m interval from 0-15 m depth below the sea bed, thereafter the samples were collected at every 1.5 m interval up to a depth of 30 m and at 2 m interval to a depth of 50 m of sea bed. Finally the sampling rate was increased to 3 m interval between 50-60 m depth of sea bed. Throughout the test measurement the cone tip resistance, sleeve friction and pore pressure were calculated. The stratigraphy of boreholes indicating the subsurface soil profile was also presented in the final report. The work has been completed successfully.



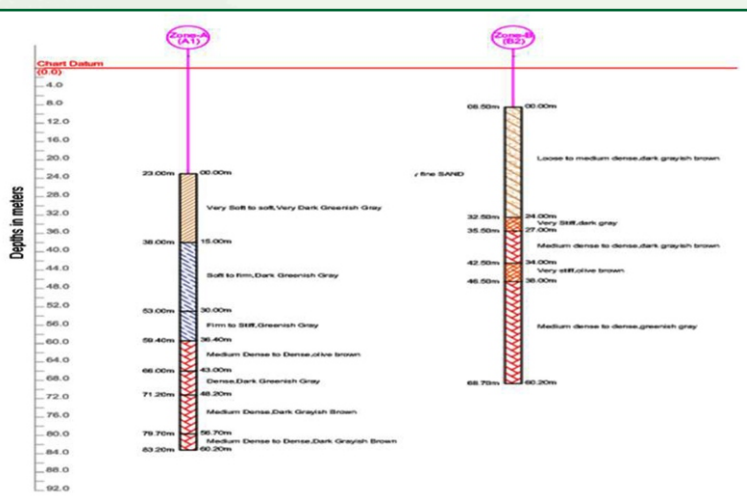
100 m Wind monitoring station installed at West Bengal



Wind Resource Assessment sensors mounted telecom tower at Assam



Pictorial representation of Geotechnical investigation



Soil profile of Geo-technical Investigation carried out locations at Gulf of Khambhat off Gujarat Coast



During field investigation collection of soil sample and onboard lab tests

Rapid Environmental Impact Assessment for 1 GW offshore wind farm project at Gulf of Khambhat off Gujarat coast

NIWE with support from National Institute of Oceanography (NIO), Goa has successfully completed the Rapid Environmental Impact Assessment work for 1 GW offshore wind farm project at Gulf of Khambhat off Gujarat Coast and the final report is submitted to the Ministry.



Image- Ecologically sensitive habitats



Coastal region near the proposed cable landing location

R&D PROJECT APPRAISAL COMMITTEE (RDPAC) APPROVED PROJECTS

Integrated wind & solar resource assessment through mapping and measurements

Preparation of Hybrid Map & 150 m wind potential Map

As a part of the project, the division has prepared the 120 m Wind – Solar Hybrid map using the 120 m wind potential map and the available ground based Solar potential map with NIWE. The map has been prepared by assuming weightages to different potential ranges and the same is at the final stage of finalization. The resultant map will provide useful pointers to the hybride stake holders for promoting the wind solar hybrid projects.

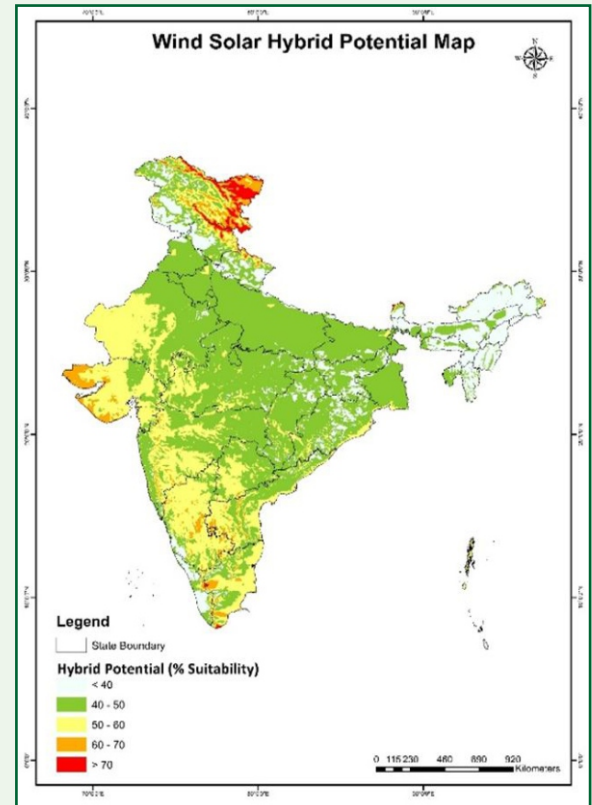
In addition to the above the division is also working on the preparation of wind potential map at 150 m agl in order to cope up with the increasing hub height of the wind turbines.

Further as a part of the project requirement the division has installed 16 nos. of hybrid met. stations in 7 renewable energy rich states. The work is underway in the remaining 9 locations.

Sl.No.	State	Mast Installed
1.	Gujarat	3
2.	Maharashtra	2
3.	Telangana	1
4.	Andhra Pradesh	2
5.	Karnataka	3
6.	Tamil Nadu	4
7.	Rajasthan	1
	Total	16



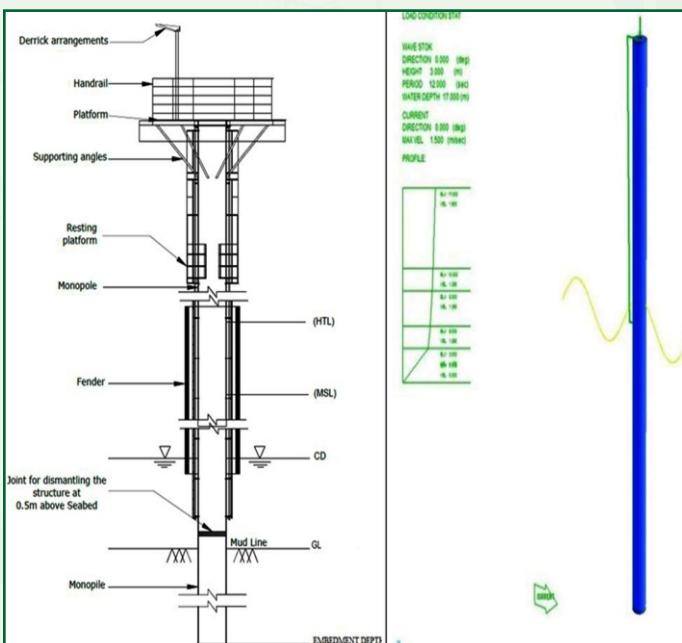
100 m integrated wind-solar mast installed at Gujarat



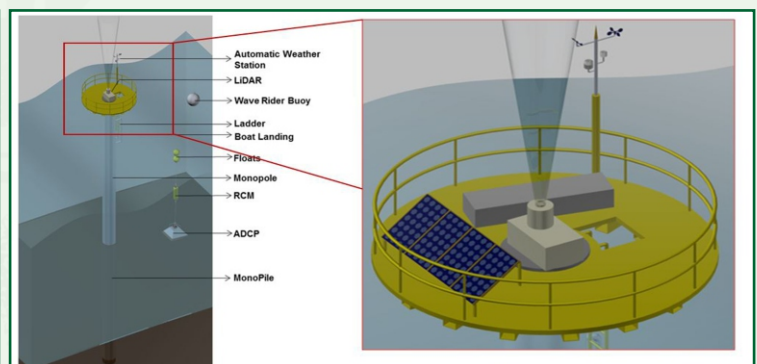
Wind Solar Hybrid Potential Map

Met-Ocean measurements (Wind, Wave, Tide, Current, Water level, etc) at Gulf of Khambhat and Gulf of Mannar for fostering the growth of offshore wind in the country

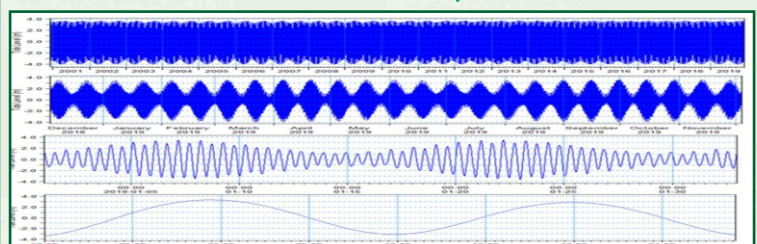
NIWE with the support of NIOT has completed the design for monopole & platform for mounting the Lidar's at Gulf of Khambhat off Gujarat coast. An independent design assessment is being carried out by IIT Madras as a proof check of the design in order to ascertain the structural safety both for operational and extreme wind conditions. The independent design vetting process is under way at IIT Madras.



Design of Monopile structure with platform



Details of data collection platform



Wave pattern for B2 LiDAR location

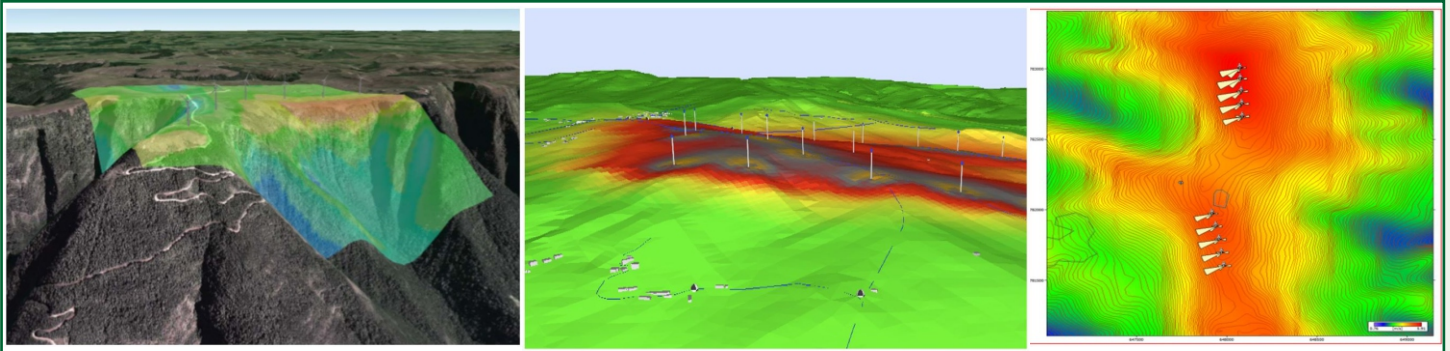
CONSULTANCY PROJECTS

WSOM division has executed consultancy projects to the tune of about 200 MW towards supporting the stakeholders of the wind industry. The activities include;

- Verification of wind monitoring procedure
- Wind Monitoring Study
- Micrositing
- Energy Yield Estimation
- Energy Production Demonstration Test



Further, NIWE has taken first of its kind international project for preparation of detailed project report for establishment of wind farm project from M/s Energoimport at Rio-Seco Cuba for a capacity of 50 MW of electricity power generation to be financed under the line of credit by Government of India. During the quarter, as a part of project deliverables, NIWE had carried out the data analysis for the full year measurement data submitted by M/s. Energo Import and prepared the data analysis report as per the 3rd milestone of the project.



Wind flow modelling at the proposed site at CUBA

Testing & Research Station

LARGE WIND TURBINE TESTING

Power Curve Measurements of Inox 2000 kW Wind turbine of M/s. Atria Wind Power (Savarkundla) Pvt Ltd. The measurements have been completed as per the signed agreement. The final test report issued to the customer.

Power Curve Measurements of Inox 2000 kW wind turbine of M/s. Inox Wind Ltd. The continuous measurements are on-going.

Type Testing of its Model Pioneer Wincon 750/57, 750 kW, a wind turbine of M/s. Para Enterprises Pvt. Ltd. The continuous measurements are on-going.

Site Feasibility Study carried out for Type Testing of Inox 3 MW wind turbine with 145 m rotor diameter at Gujarat.

SMALL WIND TURBINE TESTING

Type Testing of model Vaata Smart, Vertical Axis WT (5.5 kW) Wind Turbine of M/s. Vaata Smart Pvt. Ltd. The test reports are under preparation.

Research & Development and Resource Data Analytics & Forecasting and Solar Radiation Resource Assessment

R&D Activities

Research Council of NIWE

The Division has convened the twenty eighth meeting of NIWE's R&D Council on 10.02.2020 successfully under the chairmanship of Shri Jitendra J Jadhav, Director, CSIR-National Aerospace Laboratories, Bangalore.

The following eight R&D proposals were placed and approved/recommended for further consideration by the committee.

- Exploring the possibilities of Repowering of Wind Farms in Tamil Nadu and Gujarat through Pilot study
- Establishment of National Test facility to carry out static and fatigue tests of Wind Turbine Blades up to 120 m
- Establishment of Centre for Excellence in Solar Power Forecasting
- Development of a Prototype controller to control different OEM WEG SCADA
- Centre for Excellence in Wind Power Forecasting
- Establishment of Centre for Excellence in Resource Data Analytic
- Establishment of Predictive maintenance system with real-time monitoring and control of smart wind farm
- Development of an efficient Hybrid Prediction tool for Medium-term and Long-term Wind Speed Forecasting

Indo Danish Project

A Research Project on "Maintenance and Repair Strategy for Wind Energy Development" with a grant of DKK of 4682078 to provide Indian wind energy industry with guidelines and approaches for the efficient repair, ensuring the long-term integrity and reliable work of wind turbines approved by Danish Innovation fund has been placed in the RC meeting for the information.

Establishment of Smart RE-Micro Grid with Integrated Resource and Building Management System (IRBM) at National Institute of Wind Energy, Chennai

- The design engineering calculation for sizing of solar and wind requirement to meet out the demand has been completed.

- Land requirement and spacing criteria assessment has been carried out
- Layout diagram of the project has been completed
- BESS design criteria and Load growth works are in progress
- The expert committee has been formulated to verify the specification, and the first Technical Committee Meeting was held on 10.10.2019 at Bangalore.
- Simulation of Microgrid using the various tool is under progress
- Expert Committee Meeting has been convened on 10.02.2020 for finalization of a detailed specification for the installation of Solar PV panel at NIWE
- Floating of tender document is in progress
- 100 kW on-grid Microgrid system intend has been prepared and submitted for approval.

Design and Development of Indigenous Grid Emulator Facility

- The internal committee has been formulated to design the framework of GE & LVRT test facilities.
- A literature survey on the functional blocks of the Grid Emulator test facility is in progress.
- Draft specification preparation with the support of industries is in progress.
- Eminent persons/organizations in the field of power systems were identified & requested their nomination for the formation of R&D consortium.
- The redrafting of Technical specification and Identification of testing requirements is in progress.
- Discussion with Experienced professionals for the formation of R&D consortium is in progress.
- Expression of Interest for finalizing the technical specification and for the collaborative development will be initiated based on the availability of funds.

IoT Based Smart wind farm to enable real-time remote monitoring and control

- Design Document framework has been completed.

- IoT communication Hardware Module has been procured and tested with the 200 kW WTG control system at NIWE lab is in progress.
- The procurement and development of hardware for testing of IoT system to fetch data from the existing WTG were in progress.
- A prototype for data acquisition has been developed.
- Dashboard for Remote monitoring has been developed.
- The real-time remote monitoring and control system is tested successfully at WTRS kayathar for 200 kW Maicon Wind Turbine.
- The procurement of hardware for implementing the same to other 200 kW Maicon wind turbine is under process.

Development of Long-term Wind Speed Forecasting Using Hybrid Model

- A literature survey on different sources of Long-term data collection is in progress.
- Developing a script to extract and download long-term data automatically was in progress.
- Pre-processing of data along with visualization dashboard
- Review paper based on literature survey report has been completed and submitted to the springer conference.
- Comparative analysis of existing Wind speed forecasting models and their performance evaluation was done.
- Establishment of Big data framework and Development of Visualisation Tool is in progress

FORECASTING

- Documentation of the NWP and Physical Model is under progress.
- The physical model script in MATLAB has been converted in python is in progress.
- Sky Camera cloud motion detection module is in progress.
- Finalization/Verification of operational solar scripts has been carried out.
- The conversion of historical data into Parquet format was in progress.
- Preparation of user technical manual on Indigenous wind power forecasting system is in progress.
- Karnataka Pilot operational forecasting services reinitiated.

- A script to download Rajasthan generation data and configuration files has been developed and prepared for the same.
- Simulation runs for Gujarat with updated static details were under progress.
- Comparison of NWP with SARIMA predicted output.
- Prepared a general template for data visualization and developed a script for Data Visualization.
- Developed a script for feeder wise data monitoring for the state of Tamil Nadu has been completed, and fine tuning the script was carried out.
- Prepared documentation for the Data visualization has been completed and developed a script for Data Visualization.
- Combined Proposal for Wind and Solar Power Forecasting and Long term Wind Speed Forecasting, Data Analytics, and Solar Radiation Resource Assessment have been prepared.
- MoU signed with MPSLDC, and the same has been sent to GoMP-NRE for inking.
- The development of a multilinear regression model for the regional level has been completed.
- IT Policy Document has been finalized.
- Error analysis report from January 2020 to March 2020 has been prepared for the state of Tamil Nadu, Gujarat, Karnataka, Maharashtra, and SRLDC specific solar parks and wind farms.

Resource Data Analytics Lab

- Updated the status of the running stations, and new commissioned stations and extraction process is under progress.
- Developed a script for the PRN data logger format script, and the Extraction process was in progress.
- A script for the Quality check algorithm for wind and solar data has been developed.
- Processing of Historical and in operation wind monitoring stations for QC has been carried out.
- Sample data report and data availability report have been sent to client for two SRRRA stations.
- Data segregation of 300 stations below 50 m completed.
- SRRRA asset validations are completed in terms of Physical availability of assets and still have to be checked with store.

SRRA

Calibration of Solar Instruments

Calibration of 10 pyranometers, two pyrliometers under commercial mode and Calibration of 6 pyranometers & 3 pyrliometers under the SRRA project have been carried out.

Inspection of SRRA stations

Carried out inspection of SRRA stations at Gwalior, Shegaon and Rajgarh from 30.01.2020 to 10.02.2020.

PAN INDIA RESEARCH NETWORK MEET

As per the Research Council guidelines, NIWE has initiated a sustained discussion with various Industry and Premier Academia groups for conducting a workshop to identify R&D Areas and to create the hub of synergy for all wind-related research in India. To establish this amalgamation and to step forward for a good number of collaborative R&D funded projects, NIWE has organized 2nd PAN India Research Network meets at MNIT Campus, Jaipur, on 06th January 2020. To discuss the preparatory works of meting a discussion was held on 05th January 2020 with Dr. Sunanda Sinha, Program Coordinator and Dr. Rohit Bhakar, Head of the Department, Center for Energy Environment.

The 2nd PAN India Research Network meet started with the welcome address by the Dr. Rohit Bhakar followed by the address of Mr. K. Boopathi, Director & Division Head, NIWE, he gave an overview about PAN India research network which aims to bring the industry, academia, and government bodies (NIWE/MNRE) under one umbrella where the industry can share the problems with academia, and the academia can take those problems as research work. So that the research work is in line with the industry requirement, ultimately, it will improve the wind technology in India, and especially academia can work on the wind turbine design and reduce the Levelized Cost of Energy (LcoE), and he also thanked the chief guest Prof. R. Yaragatti, Director, MNIT and Dr. Rohit Bhakar and program coordinator for their support in conducting the meeting at MNIT, Jaipur.

Then the Director, MNIT, addressed the gathering along with a brief presentation about the advantages of wind technology and the social impact of wind technology in India.

Dr. Sunada Sinha has proposed the vote of thanks for the inaugural function.

After the inaugural session, four technical sessions were conducted. Industry experts from Vestas, RVPN, etc have given their detailed presentation, and also from the academic research experts from different IIT, NIT has given their presentation. The technical sessions covered almost every aspect of wind technology. In each session, a moderator and 3 to 4 other speakers gave their presentation.

Technical sessions:

1. Grid Integration and Recent Research trends in Electrical Subsystems.
2. Hybridization of Renewable and Energy storage
3. Onshore/offshore Wind Resource Assessment and Wind Speed/Energy forecasting
4. Aerodynamics, Material selection and Design Challenges of Wind turbines

In between the sessions, academic officials had a brief discussion with industry experts.

Mr. K. Boopathi has given a presentation on wind resource assessment, offshore and also the design challenges of wind turbines.

After the technical sessions, the feedback was taken from both industry and academia experts and also from the students and researchers and all of them expressed to conduct similar meeting on regular intervals in all parts of the country.



OVERVIEW OF INDIGENOUS WIND POWER FORECAST MODEL PERFORMANCE

NIWE has established an operational forecasting system for the whole state of Tamil Nadu during September 2015, Gujarat, during April 2018 and Andhra Pradesh during July 2019. NIWE forecasting team is actively carrying out various activities, including daily event analysis, to improve the wind power forecasting model accuracy on a daily/weekly / monthly basis. The brief model analysis for the above said three states are being explained below:

Tamil Nadu

Figure 1 & 2 represents the frequency error distribution for the whole state of Tamil Nadu from January – March 2020. From Figure 1, it may be noted that about 98% of the blocks have a day ahead deviation of 600 MW, and with intraday corrections, 98% got improved to 99%, i.e., 1% improvement (Figure 2).

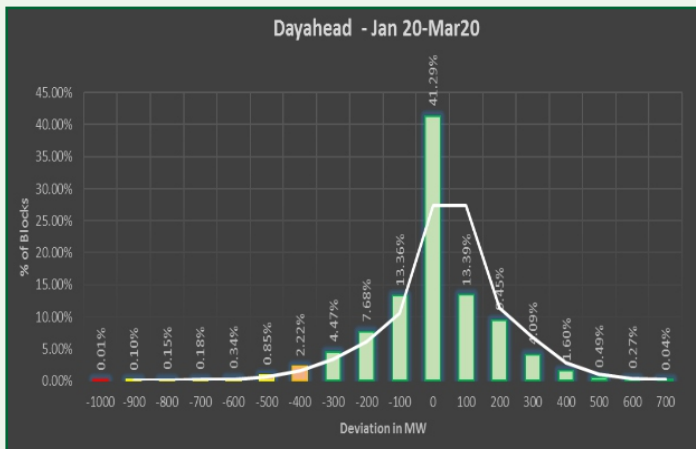


Figure : 1

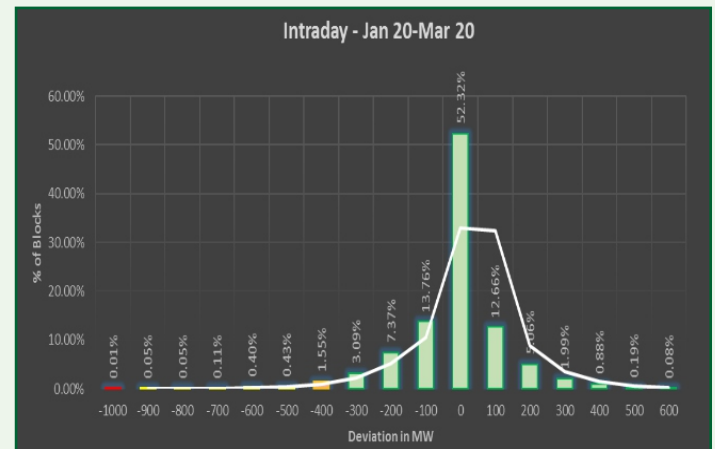


Figure : 2

Gujarat

Figure 3 & 4 represents the frequency error distribution for the whole state of Gujarat from January – March 2020. From Figure 3, it may be noted that about 76% of the blocks have a day ahead deviation of 600 MW, and with intraday corrections, 76% got improved to 89%, i.e., 13% improvement (Figure 2).

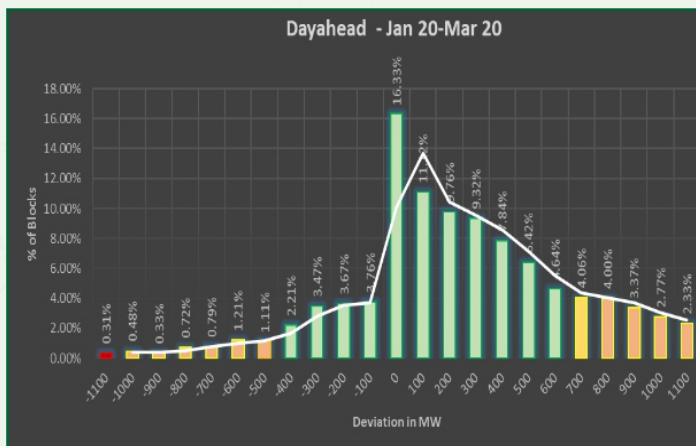


Figure : 3

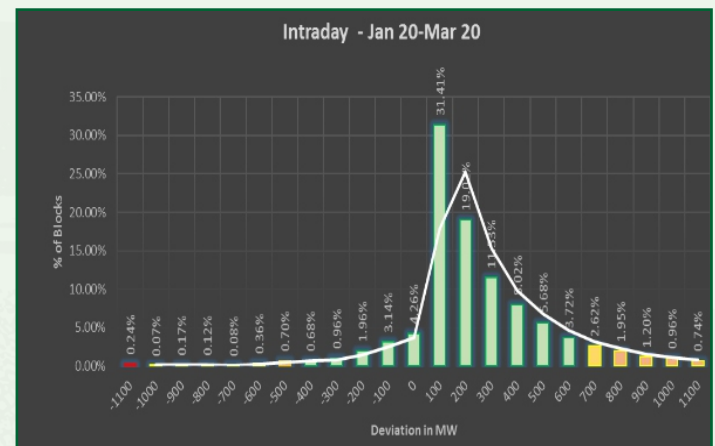


Figure : 4

Andhra Pradesh

Figure 5 & 6 represents the frequency error distribution for the whole state of Andhra Pradesh from January – March 2020. From Figure 5 it may be noted that about 94% of the blocks have a day ahead deviation of 600 MW and with intraday corrections, 94%.

Further fine tuning of the wind power forecasting model for the whole state of Tamil Nadu, Gujarat and Andhra Pradesh is under progress.

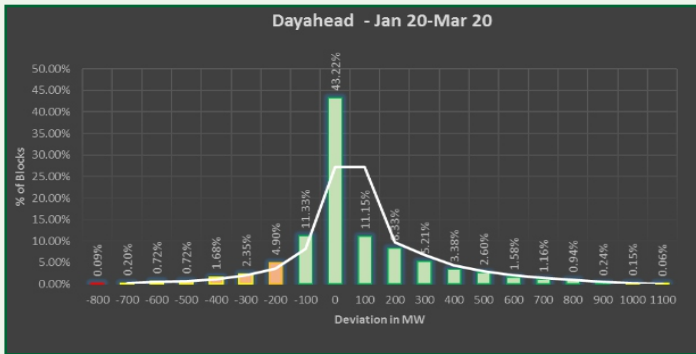


Figure : 5

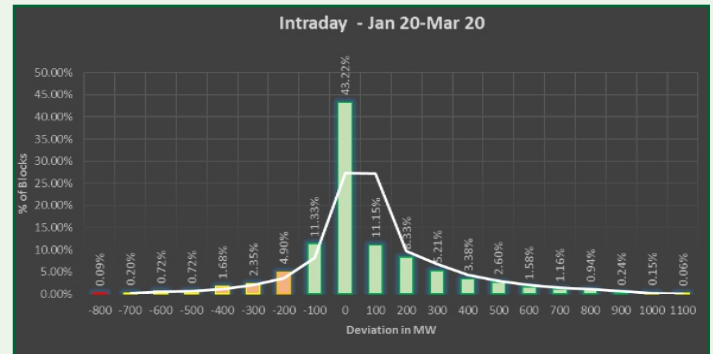


Figure : 6

WEB PORTAL

- Developed a web portal for online data availability of Solar and wind measurement has been completed.
- Development of EM portal, capacity building on SCADA system architecture, communication protocol have been carried out
- A web portal for Forecasting has been created.
- A software requirement specification document for the RDAF portal and Road Map for Interactive Forecasting Portal has been prepared.
- Developing a web portal for 120 m Map has been completed.
- A document for the consultancy project form has been prepared.
- Developing a web portal for the consultancy project has been completed.
- Carried out Modifications in the Sports portal.

INTERNSHIP & PROJECT WORK

During the period January to March 2020, 13 UG/PG students and faculties have completed their internship & project work at NIWE in the field of Wind and Solar Energy mentored by various subject experts of NIWE Scientific staff.

Certification and Information Technology

- Certification Division has completed a project on Pre evaluation of documentation in connection with the Type Certification of the wind turbine model as per IS/IEC 61400-22:2010.

Manufacturer's Name	Wind Turbine Model / Capacity
M/s. Siemens Gamesa Renewable Power Private Limited	G58-850 kW 50 Hz

- NIWE has been assigned to obtain accreditation for the certification services as the ISO/IEC 17065 standard from National Accreditation Board for Certification Bodies (NABCB), Quality Council of India. The following major activities have been completed:

- a. NABCB has visited NIWE for the assessment of competences and to assess the compliance of all the

requirements of ISO/IEC 17065 through the process namely Office Assessment on 7th and 8th January 2020.

- b. As a part of accreditation process, Certification Engineers of NIWE have carried out manufacturing evaluation at a production plant. The evaluation was assessed and the Witness Assessment (mock) by NABCB was completed successfully by NIWE on 9th March 2020. Presently, independent Technical review by NABCB is ongoing and accreditation process is expected to be completed shortly.

- In order to enhance and streamline the digital usage in NIWE with more transparent and secured way, IT division has drafted an IT Policy for NIWE and the same is under review by the committee constituted by the competent authority for implementation.

Skill Development and Training Division

24th National Training Course

The SDT Division had successfully conducted the 5 days 24th National Training Course on "WIND RESOURCE ASSESSMENT" held during 10th to 14th February 2020. The course was successfully commenced on 10th February 2020 with the inauguration by Dr. K. Balaraman, Director General, NIWE in the presence of the Course Coordinator, Dr. P. Kanagavel, Director and Head, SDT Division, NIWE. The course was attended by 13 participants from 6 States, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu and Uttar Pradesh.

The course started with briefing about Wind energy technology and detailed deliberation on various characteristics of Wind Resource Assessment, Wind Resource Assessment techniques, Site Selection for Wind Monitoring Stations (WMS), Installation, Instrumentation and Commissioning of WMS, Met Mast and Modern Measurement Techniques including measurement using remote sensing instruments (SODAR & LiDAR), Data Collection, Analytics and Processing, Software Tools used for Wind data Analysis, Design and Layout of Wind Farms, Wind Resource Mapping, Forecasting and Wind Energy Production.

As part of the training, the practical training at the field and laboratories was arranged for site selection, mast installation and



Director General of NIWE inaugurating the Course



Participants during Practical class

instrumentation of sensors, collection of data and its validation, processing, analysis and reporting.

The Renewable Energy facilities available in the NIWE Campus were also showcased to the participants for practical exposure, wherein they had an opportunity of understanding about the Wind Resource Assessment set up and how the Hybrid System works etc.

Mr. Roberto Alfonso Zapata Quiroz, Secretariat of Energy, Honduras was the Guest of Honour for Valedictory Function and he had distributed the Course Certificates to all the participants after his valedictory address.



Training Participant receiving Course Certificate

25th International Training Course

The SDT Division had successfully conducted the 28 days International Training Course on "Wind Turbine Technology and Applications" held during 29th January to 25th February 2020, sponsored by the Ministry of External Affairs (MEA), Government of India under ITEC programmes. The course addressed all aspects of Wind Power starting from introduction to wind and its technology, wind resource assessment, installation and commissioning, operation and maintenance aspects of wind farms in a focused manner along with financial and policy aspects. The course was attended by 29 participants from 18 ITEC countries, Bhutan, Colombia, Eritrea, Ethiopia, Guyana, Honduras, Kenya, Kingdom of Eswatini, Lebanon, Lesotho, Mauritius, Morocco, Philippines, Sudan, Syria, Tajikistan, Tanzania, Uzbekistan.



Release of Course Material

The training course was inaugurated by Dr. K. Balaraman, Director General, NIWE in the presence of Shri. A. Senthilkumar, Director and Head, S&R, NIWE and the Course Coordinator, Dr. P. Kanagavel, Director & Head, SDT Division, NIWE on 29th January 2020.

The course content of the training were handled by Scientists, Engineers of NIWE, wind turbine manufacturers and academicians from premier institutions, who have years of experience in the field.

The syllabus of the training course had been taken under the following 7 modules to group the syllabus / topics and each module was evaluated after completion of each lecture.

Module 1: Introduction and Wind Turbine Components

Module 2: Standards, Testing & Certification

Module 3: Resource Assessment

Module 4: Erection, Commissioning and Operation & Maintenance

Module 5: Electrical Systems & Grid Integration



Glimpse of Study visit

Module 6: Energy Storage and Hybrid

Module 7: Policy and Financial / Economical Analysis

Module 8 : Environmental & Social aspects

The participants were taken factory visit to M/s. Siemens Gamesa Renewable Energy Pvt. Ltd., Mamandur, where they had a chance of getting theoretical knowledge about wind turbine nacelle assembling from the industry experts and also visited the assembling unit. The participants also attended the live practical sessions on Wind Monitoring Station installation, assembling of Sensors, data collection and analysis and also the Wind Turbine Training System. As part of the study visit, all the participants were taken to southern part of Tamil Nadu to visit Wind Turbine Test Station and Wind Turbine Research Station at Kayathar, where they got exposure on small and large wind turbine testing process apart from visiting wind farms in and around Kanyakumari where wind turbines are installed in large numbers with different technology, capacity, make and models.



Shri A. Senthil Kumar distributing the Course Certificate

IREDA – NIWE Awards for Wind Energy 2020

The third edition of the IREDA-NIWE Awards was announced for the following categories and nominations received against each categories as given below.

- I. Best Projects
IREDA-NIWE Award for Best Performing State Nodal Agencies for the Year
- ii. Innovative Technology / New Initiative / Mechanism
IREDA-NIWE Award for Best Institution of Higher Learning in Wind Energy
- iii. Research & Development
IREDA-NIWE Award for Best Research Work in Wind Energy

The duly constituted Jury committee has scheduled the awardees.

As per the directives of Government to avoid the large gathering in connection with the Outbreak of COVID - 19, the Award Ceremony of 'IREDA-NIWE Annual Awards for Wind Energy 2020' scheduled on 21st March 2020 (Foundation of NIWE) is postponed to the later date.

VISITORS

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 January to March 2020, the following visit was coordinated and facilities of NIWE showcased and explained.

- 29 students & 1 faculty from NITTTR, Taramani, Chennai on 13th February 2020.



नीवे NIWE

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