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EDITORIAL

Wind power generation capacity in India has significantly increased in recent years. As of 31st December 2018, the total installed wind power capacity is 35.288 GW, the fourth largest installed wind power capacity in the world. The country holds 5th position in the world for overall installed renewable energy capacity.

As per the commitment made by the Government in the Paris Accord on Climate Change, that by 2030, 40% of installed power generation capacity shall be based on clean sources, it was determined that 175 GW of renewable energy capacity will be installed by 2022. This has given assurance to the renewable energy developers & investors community about long term commitment & planning of the Government in the RE sector encouraging them to make risk free investments in the country.

In this regard, NIWE is committed in exploring in identifying the potential at different hub heights. Following the potential assessment 50m, 80m & 100m hub heights, the wind atlas preparation at 120m hub height is under progress in identifying the potential at 120m.

MNRE with the recommendations of RDSPAC, had sanctioned a project entitled "Integrated wind & solar resource assessment through mapping and measurements" to NIWE. The project envisages the deployment of dedicated 100 m integrated wind-solar monitoring stations to be installed at carefully chosen sites in different parts of the country in two phases over a period of three years with 5 levels of instrumentation. Under the project, the team has carried out multi criteria suitability analysis based on the available data sets and identified 25 Nos. of suitable locations for the installation of integrated measurement stations in the first phase of the project.

The Wind & Solar Measurement / Offshore (WSOM) Division is working on for Geo-Tagging of Wind Turbines installed across the country, the data from various stakeholders / SNA / Manufacturers of about 60 GW have been collected and the verification process is underway for the centralised database of existing and proposed installations in the country.

NIWE is in the process of exploring the largest seabed areas off Gujarat and Tamil Nadu coasts with an objective to identify the potential subzones / blocks for promotion of offshore wind farm development in the country. NIWE proposes to carry out the Oceanographic / Hydrographic measurements, which include Water level, Wave Height and period, Current speed and direction and other derived parameters such as significant wave height, wave period, etc., in and around the wind LiDAR platforms or suitable locations off the Gujarat coast and Tamil Nadu coast to understand the sea-state conditions, which are envisaged as essential and necessary to design the foundation of the Offshore wind turbines.

Testing & Research Station (T&R) Division has completed two projects on Large Wind Turbine Testing and issued the Final Test Report to the customers and has signed two agreements for Power Curve Measurements, has also completed one project on Type Testing of Model and issued the Final test report to the customer.

Research & Development and Resource Data Analytics & Forecasting (R&D and RDAF) Division, during this quarter has made significant progress is listed. Indigenous Wind Power forecast model in Gujarat , Karnataka, SRLDC and Tamil Nadu. An agreement has been signed between NIWE & MSLDC for initiating pilot wind power forecasting model for the entire state of Maharashtra. The Division had carried out pre feasibility study at Andaman & Nicobar Island.

The Skill Development and Training (SDT) Division during this period had successfully completed three International Training courses on Wind Resource Assessment and Wind Farm Planning, and Design, Installation and Maintenance of Small Wind Turbine for ITEC and African countries. Also, successfully organized an International Workshop on Small Wind Turbine which is unique and first of its kind in the country with 119 National / International participants. Following the workshop, International Conference on Small Wind Turbine had been successfully organized.

"SWURJA" (Solar Wind Energy) Mobile app developed by Solar Radiation Resource Assessment (SRRA) Division, was launched on 02.10.2018 by the Honourable Minister Shri. R.K. Singh in the 2nd Global RE-Invest Conference & Exhibition held at Greater Noida which could help in finding out potential and other technical data of any particular area of India.

Dr. K. Balaraman, Director General

Contents

Editorial Board

Wind Solar Resource Measurements / Offshore

Wind Resource Assessment (Uncovered / New Areas)

Presently 76 wind monitoring stations and Telecom towers are operational in 13 states under various wind monitoring projects funded by the Ministry of New and Renewable Energy (MNRE) as well as various entrepreneurs.

Consultancy Projects

The following consultancy projects have been completed and reports have been submitted for promotion of onshore wind farm development in the country.

- Verification of Procedure of wind monitoring for 18 sites.
- 11 nos. of private wind monitoring stations registered as per MNRE guidelines.
- Energy Yield Assessment for 3 sites.

Geo-Tagging of Wind Turbines Installed Across the Country

NIWE is creating a centralised database of existing and proposed installations in the country. NIWE has initiated data collection from SNAs and other Stakeholders. As on date, out of about 35 GW installed capacity in the country, the data from various stakeholders / SNA / Manufacturers of about 29 GW have been collected and the verification process is underway.

Wind turbine static information on geo-spatial platform

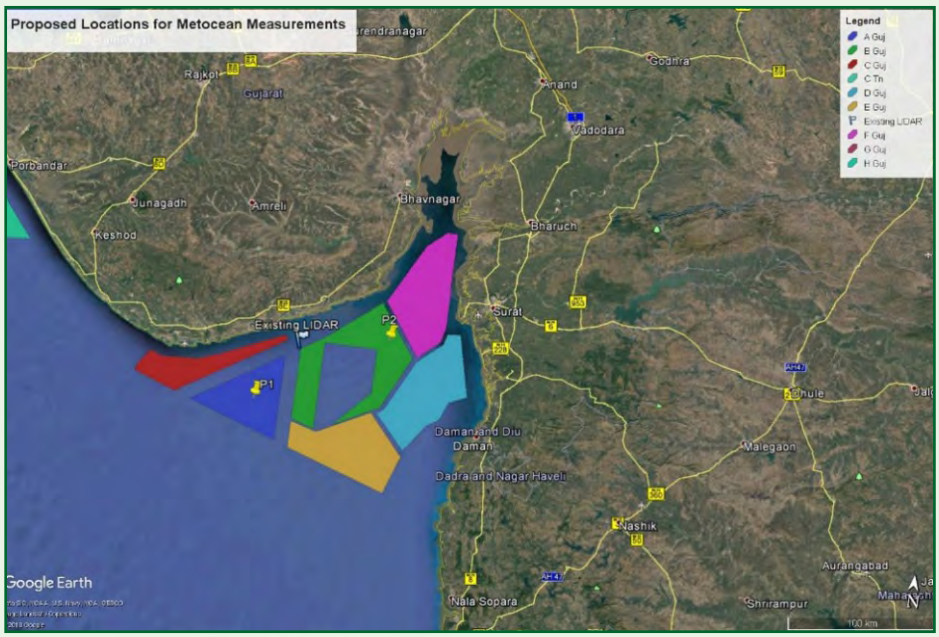
The details are as follows:

- Maharashtra : 3911 MW
- Tamil Nadu : 7899 MW
- Rajasthan : 4176 MW
- Andhra Pradesh : 3252 MW
- Gujarat : 4065 MW
- Karnataka : 3224 MW
- Madhya Pradesh : 2168 MW
- Telangana : 100.8 MW
- Kerala : 27 MW
- Total : 28,822.8 MW

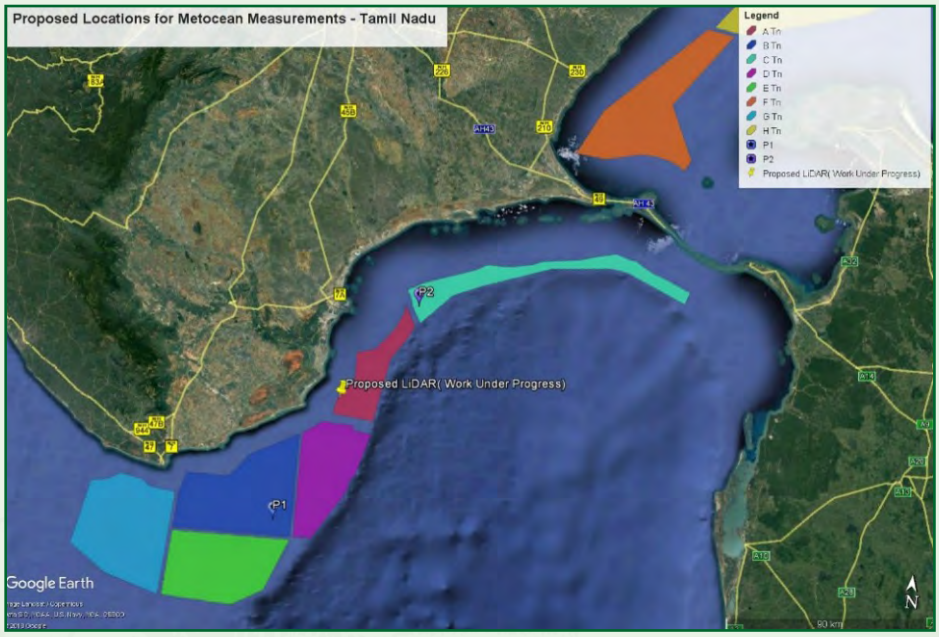
The process of development of web portal initiated and existing data will be imported.

Offshore Gujarat

- One year LiDAR data report (November 2017 to October 2018) has been uploaded in



Proposed met-ocean locations in Gulf of Khambhat, Gujarat



Proposed met-ocean locations in Gulf of Mannar, Tamil Nadu

NIWE website along with the time series data as per the approval of MNRE. (https://niwe.res.in/assets/Docu/LiDAR_data/Report-Lidar%20data%20analysis(Nov17-Nov18).pdf).

- Onsite Geo-physical investigation (single beam bathymetry survey, side scan sonar, sub-bottom profiling, magnetometer survey and sediment samples) covering the entire area (302 Sq.Km by NIOT + 67 Sq.Km by FOWPI) for 1GW offshore project is underway at Gulf of Khambhat off Gujarat Coast.

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 is in the process of exploring the largest seabed areas off Gujarat and Tamil Nadu coasts with an objective identify the potential subzones / blocks for promotion of offshore wind farm development in the country. For the purpose, it is proposed to procure 4 Nos. of LiDARs (2 Nos. for Gujarat and 2 Nos. for Tamil Nadu) to carry out extensive wind resource assessment. In addition to this, NIWE proposes to carry out the Oceanographic / Hydrographic measurements, which include Water level, Wave Height and period, Current speed and direction and other derived parameters such as Significant Wave Height, Wave period, etc., in and around the wind LiDAR platforms or suitable locations off the Gujarat coast and Tamil Nadu coast to understand the sea-state conditions, which are envisaged as essential and necessary to design the foundation of the Offshore wind turbines. Based on the study NIWE will plan the installation & other survey activities to understand the Weather Window for Operation and Maintenance planning.

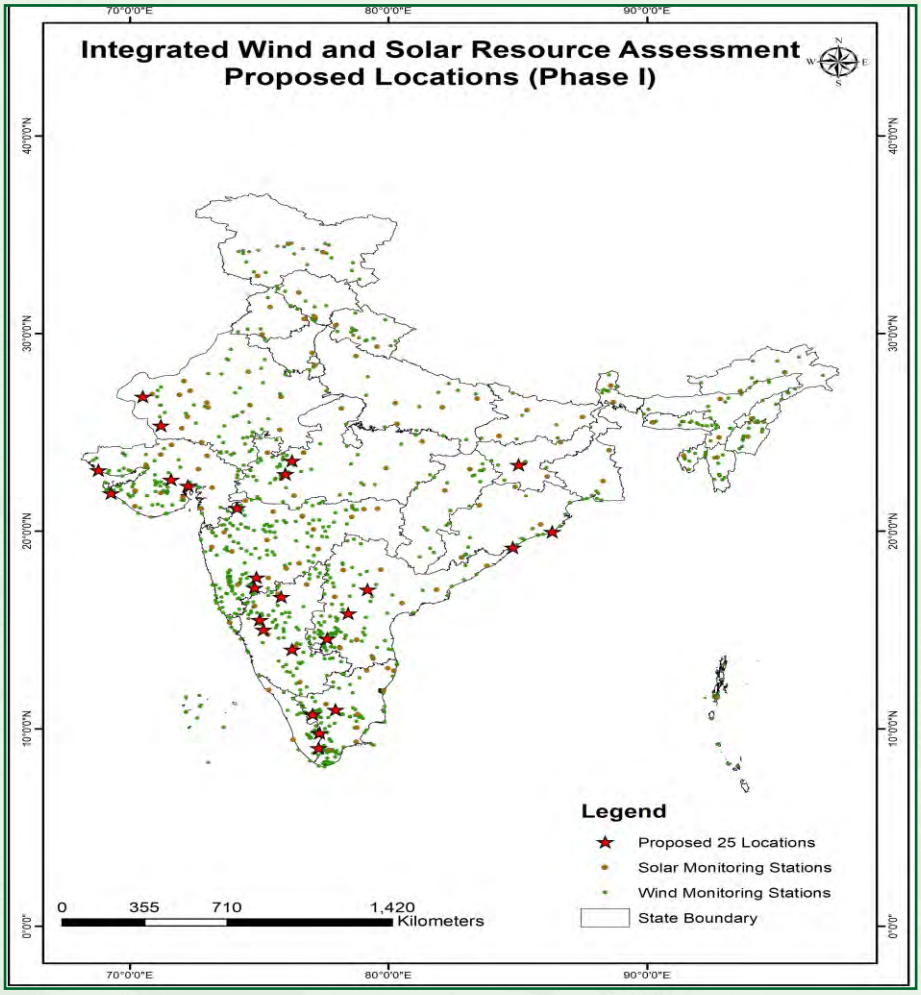
NIWE is in consultation with the field experts, M/s. DNV-GL and M/s. NIOT has finalized the proposed locations for LiDAR installation off Gujarat coast. The tender for LiDAR procurement is also underway. The tender for carrying out geo-technical study underneath the LiDAR locations has been floated. NIWE has also identified 2 proposed LiDAR locations off Tamil Nadu coast based on the multi criteria analysis. The letter requesting clearance from various ministries viz., MoD, MHA, MEA, DoS, and MoEF&CC have already been issued and clearances are awaited.

Integrated Wind and Solar Resource Assessment through Mapping and Measurements

MNRE with the recommendations of RDSPAC, had sanctioned a project entitled "Integrated wind & solar resource assessment through mapping and measurements" to NIWE. The project envisages the deployment of dedicated 100 m integrated wind-solar monitoring stations at carefully chosen sites in different parts of the country. Under this project, 50 numbers of 100m tall integrated wind-solar monitoring stations (in two phases) with 5 levels of instrumentation are to be installed in the country over a period of three years. The measurements carried out using integrated wind-solar measurements and the SODAR will be used to estimate the wind solar power potential of the country and for the preparation of wind-solar hybrid Map, which is expected to be very much useful for fostering the growth of wind-solar hybrid projects in the country.

Under the project, the team has carried out multi criteria suitability analysis based on the available data sets and identified 25 Nos. of suitable locations for the installation of integrated measurement stations in the first phase of the project. The map showing the proposed wind solar monitoring stations are shown in above figure.

As a part of the first year milestone of the project, NIWE is in the process of preparing the 120m wind potential map of the country. The 120m high potential assessment will be carried out in similar lines with the 100m wind potential map, at a spatial resolution of 500m, using the advanced meso-micro coupled numerical wind flow model with the corroboration of actual measurements spread all over India. Under this study, the indicative wind potential at 120m agl will be estimated technically by excluding the unsuitable area / land features. Under the work, the base 120m map has been prepared and the validation and technical potential estimation are underway. The final report is expected to be prepared by end of March 2019 as per the project timeline.



Testing & Research Station

LARGE WIND TURBINE TESTING

- Power Curve Measurements of INOX 2000 kW wind turbine. The final Test Reports issued to the customer and the project has been closed.
- Power Curve Measurements & Special Measurements for Loads of Pioneer 750 kW wind turbine. Final Test Reports issued to the customer.
- An agreement has been sigend between NIWE and M/s. Atria Wind Power (Savarkundla) Pvt. Ltd. dated 20.07.2018 for Power Curve Measurments of Wind turbine at Gujarat. The measurements are on-going.
- An agreement has been signed between NIWE & M/s. Inox Wind Ltd. dated 20.07.2018 for Power Curve Measurements of Inox 2000 kW wind turbine at Gujarat. The measurements are on-going.

SMALL WIND TURBINE TESTING

Type testing of SM2 (1kW) at Wind Turbine Test Station, Kayathar, Tuticorin District, Tamil Nadu of M/s. Windstream Energy Technologies India Pvt.Ltd. The measurements are on-going.

Type Testing of model Vaata Smart, Vertical Axis WT (5.5 kW) at Wind Turbine Test Station, Kayathar of M/s. Vaata Smart Ltd. Final test report issued to the customer and project has been closed.

Research & Development and Resource Data Analytics & Forcasting

FORECASTING

NIWE Indigenous Wind Power forecast model

Tamil Nadu

- Updated the existing data management system of Tamil Nadu to process the feeder wise generation data more efficiently.
- Developed the Intraday algorithm and implemented in the operational forecasting system to deliver intraday correction every 1.5 hour for the whole state of Tamil Nadu.
- Error analysis report from October 2018 to December 2018 has been prepared for the State of Tamil Nadu.
- Created a Google Forms for collecting WTG level details of all pooling stations in the state of Tamil Nadu and circulated to IWPA.

Initiating Wind Power Forecasting Services to other RE Rich States

Gujarat

- Developed the Intraday algorithm and implemented in the operational forecasting system to deliver intraday correction every 1.5 hour for the whole State.
- Error analysis report has been prepared from October 2018 to December 2018 for the State.

Andhra Pradesh & Rajasthan

- Follow up done with APSLDC & Rajasthan SLDC for obtaining static/real time generation data.

Karnataka

- Pilot Operational Wind Power Forecasting services has been initiated for the whole State from October 2018 onwards.
- Developed the Intraday algorithm and implemented in the operational forecasting system to deliver intraday correction every 1.5 hour for the whole State.
- Error analysis report has been prepared from October 2018 to December 2018 for the State.

SRLDC

- Pilot Operational Wind Power Forecasting services has been initiated for the specific solar park N. P. Kunta (250 MW) from November 2018 onwards.
- Pilot Operational Solar/Wind Power Forecasting services has been initiated for the specific 7 solar parks and 1 wind farm (250 MW) from December 2018 onwards.

Maharashtra

- MoU, NDA has been signed between NIWE and Maharashtra SLDC on 12th December 2018 in connection with pilot Wind Power Forecasting project

for the entire State.

- Follow up done with MSLDC for obtaining static/real time generation data.

MoU

An agreement has been signed between NIWE & MSLDC for initiating pilot wind & power forecasting model for the entire state of Maharashtra on 12th December 2018 at Maharashtra State Load Despatch Centre, Maharashtra.

Pre-feasibility Study

Carried out pre feasibility study at Andaman & Nicobar Island to understand the wind resource and feasibility to setting up of wind farm in Andaman & Nicobar Island, to find the possible locations to install wind turbines near the sea and to study the wind and solar hybrid system.

Internship & Project Work

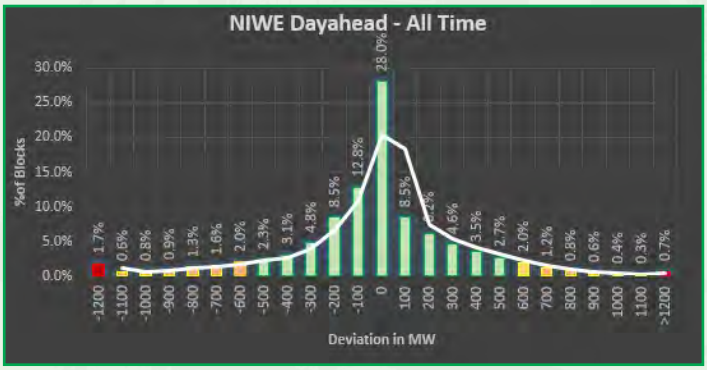
During the period October to December 2018, 15 UG/PG students & faculties have completed their internship & project work at NIWE in the field of Wind and Solar Energy mentored by various subject experts of NIWE Scientific staff.

Overview of Indigenous wind power forecast model performance

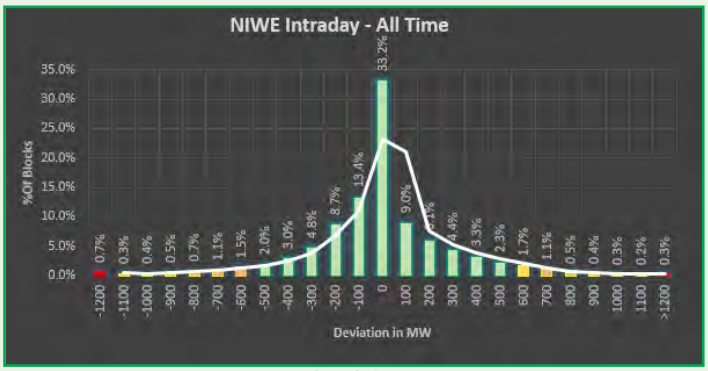
NIWE has established operational forecasting system for the whole state of Tamil Nadu during September 2015, Gujarat during April 2018 and Karnataka during October 2018. NIWE forecasting team is actively carrying out various activities including daily event analysis to improve the wind power forecasting model accuracy on daily / weekly / monthly basis. The brief model analysis for the above said 3 States are explained below:

Tamil Nadu

The graphs 1 & 2 represents the overall frequency error distribution for the whole state of Tamil Nadu since

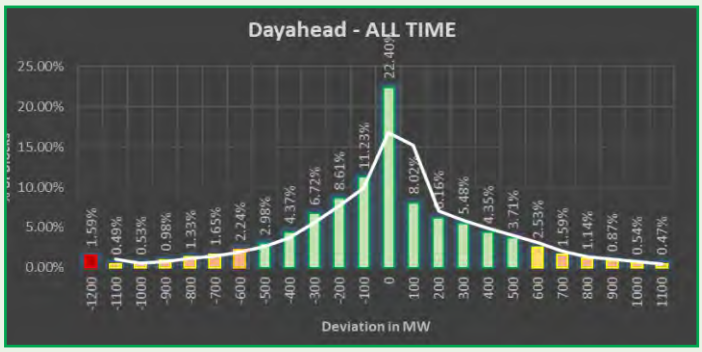


Graph 1

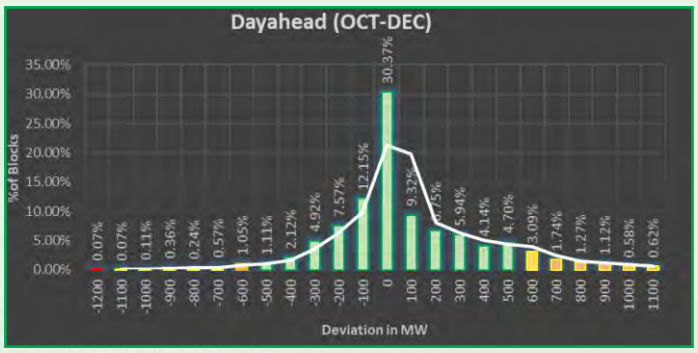


Graph 2

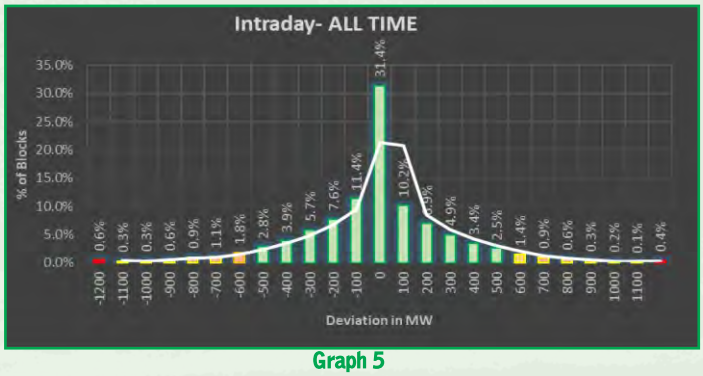
September 2015. From the graph 1, it may be noted that about 85% of the blocks are having day ahead deviation of 600 MW and with intraday corrections, the 85% got improved to 90% i.e., 5% improvement (graph 2). Further fine-tuning of the wind power-forecasting model for the whole state of Tamil Nadu is under progress.



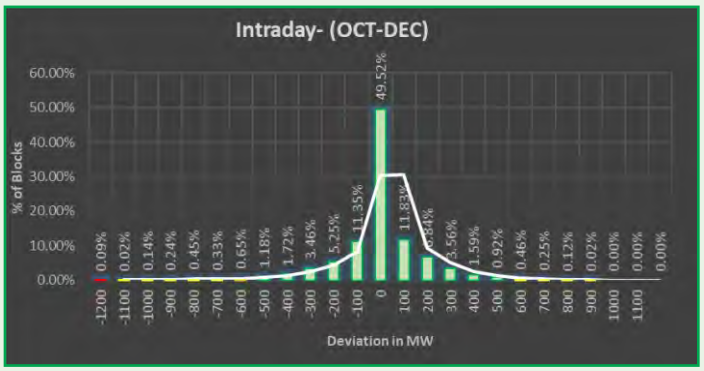
Graph 3



Graph 4



Graph 5

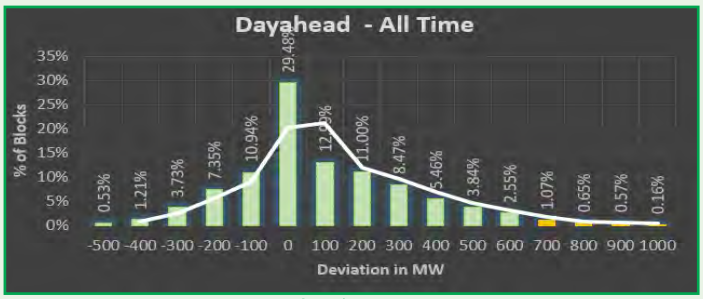


Graph 6

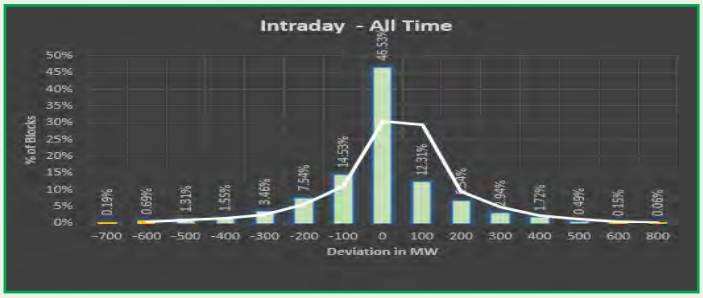
Gujarat

The graphs 3 & 5 represents the overall frequency error distribution for the whole state of Gujarat since April 2018 and the graphs 4 & 6 represents the frequency error distribution for the whole state of Gujarat from October 2018 – December 2018. From the graph 3, it may be noted that about 84% of the blocks are having day ahead deviation of ±600 MW and with intraday corrections, the 84% got improved to 90% i.e., 6% improvement (graph 5).

From the graph 4, it may be noted that about 89% of the blocks are having day ahead deviation of ±600 MW i.e., 5% improvement from the overall performance and with intraday corrections, the 90% got improved to 97% i.e., 7% of improvement from the overall performance. Further fine-tuning of the wind power-forecasting model for the whole state of Gujarat is under progress.



Graph 7



Graph 8

Karnataka

The above graphs 7 & 8 represents the overall frequency distribution of NIWE's forecast error for the whole state of Karnataka since October 2018. From the graph 7, it may be noted that about 95% of the blocks are having day ahead deviation of ±600 MW and with intraday corrections, the 95% got improved to 98% i.e., 3% improvement (graph 8). Further fine-tuning of the wind power-forecasting model for the whole state of Karnataka is under progress.

Standards and Regulation

- Based on the request received, prototype application form has been sent for two wind turbine models in connection with installation of prototype wind turbines in India.
- Review / verification of documentation of 3 prototype wind turbine models in connection with installation of prototype wind turbines in India as per MNRE guidelines is under progress.
- Technical support has been provided to MNRE in connection with draft Indian Wind Turbine Certification Scheme (IWTCS).
- The continuous technical support is being provided to MNRE for all the works related to Revised Lists of Models and Manufacturers of wind turbines (RLMM). Review of documentation has been carried out for more than 20 wind turbine models during this period.
- Organized the 5th RLMM committee meeting chaired by Joint Secretary (wind), MNRE on 26.10.2018 at NIWE, Chennai.
- Technical support to Bureau of Indian Standards (BIS) in connection with standards related works are ongoing.
- Review of draft Indian standards circulated by BIS is under progress.
- Organized Brainstorming Meeting with Type Certification Bodies & Type Testing Laboratories at NIWE, Chennai with a focus on Indian Standards preparation, Type Certification (TC) scheme in India.
- Subsequent to exchange of communications, it was decided to host International Electrotechnical Commission (IEC) TC 88/ International Electrotechnical Commission Renewable Energy (IECRE) meetings at Chennai by NIWE jointly with BIS.

Skill Development and Training Division

International Trainings

Special International Training Course on "Design, Installation and Maintenance of Small Wind Turbine"

Guest of Honour Inaugurating the Course

The SDT Division has successfully conducted the Special International Training Course on "Design, Installation and Maintenance of Small Wind Turbine" for ITEC partner countries during 14th November to 14th December 2018 and during 15th November to 13th December 2018 for African countries, sponsored the Ministry of External Affairs (MEA), Government of India under ITEC and IAFS-III programmes. The course was designed in such a way that the participants themselves design and manufacture the parts / components of the Small Wind Turbines (SWT) from the low cost and locally available materials also to assemble, install, commission and erect the manufactured SWT and ensure the power generation and also learn the operation and maintenance practices. The course was attended by 31 participants from 14 ITEC countries (Azerbaijan, Bangladesh, Bhutan, DR Congo, Ethiopia, Iraq, Malawi, Mauritius, Morocco, Myanmar, Nepal, Niger, Nigeria and Sudan) and 21 participants from 10 IAFS countries (Benin, Botswana, Cameroon, Chad, Ghana, Ivory Coast, Liberia, Nigeria, Tanzania and Uganda) .

The training course was inaugurated by Ms. Jessica Rivas, Coordinator, Wind Empowerment Association, United Kingdom (UK).

The 31 days course, had a schedule of Twenty two classroom lectures, practical training at laboratories, study visits

Glimpse of Study visit

to functioning wind farms and exclusive practical hands on session on design and manufacturing of SWT. The course started with classroom sessions briefing about the Wind Turbine technology and its components and wind resources assessment, testing, certification and grid integration of large and small wind turbines to learn the know-how of wind turbine technology, which were handled by Scientists and Engineers of NIWE who have years of experience in the field.

The participants were taken to southern part of Tamil Nadu to visit Wind Turbine Test / Research Station 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 like coconut trees.

During the training period, the participants had participated in the 10 days International Workshop on Small Wind Turbine held during 30th November to 9th December 2018. As part of the workshop all the training participants along with the workshop participants designed and manufactured the parts / components of the SWT including the wooden tower from the low cost and locally available materials at the Small Wind Turbine Laboratory at NIWE, Chennai. Finally, 3 SWTs of different capacity was designed, assembled and erected.

The participants had also attended the 3 days International Conference, unique and first of its kind in Small Wind Turbine, held during 10th to 12th December 2018. There were 10 sessions scheduled for Panel Discussion and fruitful discussion held during the sessions which were enjoyed and responded by the participants nicely. There were poster session wherein 35 selected posters were displayed on all the three days of the Conference.

Dr. K. Balaraman, Director General had delivered the valedictory address and distributed the course certificates to all the participants during the Valedictory function.

The course structure and organization of training was highly appreciated by the participants. The participants were very much satisfied by the quality of knowledge transfer process (classroom and practical sessions) and the hospitality.

Dr. K. Balaraman, DG, NIWE distributing the Course Certificate

International Workshop on Small Wind Turbine

The SDT Division had successfully conducted the International Workshop on "Small Wind Turbine" held during 30th November to 09th December 2018 organized by National Institute of Wind Energy (NIWE), Chennai, which is a unique and first of its kind in the country. The workshop was sponsored by Ministry of New and Renewable Energy (MNRE), New Delhi in association with The Wind Empowerment Association, United Kingdom and Skill Council for Green Jobs (SCGJ), New Delhi. This workshop was open to all Indian entrepreneurs, scientists and rural development champions along with international participants. The workshop was designed in such a way that the participants will themselves design the parts / components of the Small Wind Turbines from the low cost and locally available materials. Then to assemble, install, commission and erect the manufactured SWT and ensure the power generation and also learn the Operation and Maintenance practices.

The International Workshop was attended by 126 numbers of national and international participants from 37 countries and 35 expert trainers of Wind Empowerment Association from Argentina, Austria, Brazil, France, Greece, Italy, India, Peru, Sri Lanka, Portugal, South Africa, USA and UK. The Workshop was inaugurated by Shri. Rajendra V. Kharul, Director & CEO, Synergy Infrasys Management Pvt. Ltd, Pune.

As part of the workshop all the participants with the help of international trainers have designed and manufactured the parts / components of the SWT including the wooden tower from the low cost and locally available materials at the Small Wind Turbine Laboratory at the NIWE Chennai campus. The Manufacturing Session (Hands-on-training) were handled by Shri. Jorge Ayarza, Engineer and Founder of MINVAYU, Auroville with the support of NIWE scientist / engineers particularly the international trainers / practitioners from different countries of Wind Empowerment Association. All the participants and

trainers had exhibited their keen interest and tireless efforts in the manufacturing sessions and had designed 3 SWTs of different capacity and assembled all the 3 SWTs.

The International workshop brought together a wide national and international audience under one umbrella to build, learn and share global small wind turbine knowledge. The hands on building sessions had acted as a catalyst to launch a strong national programme to help start local entrepreneurial hubs to serve remote human habitats of India. Creating a network of wind turbine installers, will facilitate the scaling up of the technology in remote rural India with an emphasis on productive low cost home-grown solutions. This will also stimulate localized research solutions that will continue to shape and sustain this rapidly evolving sector. The workshop structure and organization of Hands-on training was highly appreciated by the participants. The participants were very much satisfied by the quality of hands on training and hospitality of NIWE and in India.

International Conference on Small Wind Turbine

The SDT Division had successfully conducted the International Conference on "Small Wind Turbine" held during 10th to 12th December 2018 in Chennai. The Conference was sponsored by Ministry of New and Renewable Energy (MNRE), New Delhi, Government of India and conducted by National Institute of Wind Energy (NIWE) in association with The Wind Empowerment Association, United Kingdom and Skill Council for Green Jobs (SCGJ), New Delhi.

The conference was inaugurated by Shri. Bhanu Pratap Yadav IA&AS, Joint Secretary, MNRE on 10th December, 2018 along

Glimpse of International Workshop on Small Wind Turbine

with Prof. Dr. K. Kasthurirangan, Chairman of the Indian Wind Power Association who was the Guest of Honour.

The main objectives of the conference was to exchange the open source technical advances, sharing experiences and discuss global best practices to enable the technology to expand rural wind electrification globally, with a particular emphasis on India. It is also intended to create a network of wind turbine installers to facilitate the scaling up of the technology in remote rural areas with an emphasis on productive solutions. The conference was attended by 234 participants from 37 countries around the globe and the participants were from small and large wind turbine manufactures, developers, small scale industries, entrepreneurs, academicians, electricity boards and state nodal agencies.

The conference brought a wide national & international audience under one umbrella to build, learn and compare global small wind turbine know-how. The conference gathered together manufacturers, producers and experts from diverse energy sectors. The conference discussed various topics covering the dissemination of experiences globally with small wind turbine development, especially in developing countries and how these experiences can be applied to India and other developing countries. During the conference, the participants were involved in various session with panel discussions and poster presentations that facilitated the dissemination of best practices & experiences available globally in small wind turbine sector. The sessions provided a valuable platform for the creation of collaborative projects between international and domestic member organizations. The panel also discussed about greening the grid challenge for urban and rural habitats in complex terrains and low windy States.

The conference also focused on sub 500 kW class wind turbine manufacturers who have done pioneering work in quality

Glimpse of International Conference on Small Wind Turbine

and made a niche in export market from India.

The panel discussion was managed by 10 Moderators with 52 panelists of National I International Experts. 35 posters selected were displayed on all the three days of the conference.

Prof. & Dr. M.K. Surappa, Vice-Chancellor, Anna University, Chennai was the Chief Guest of the valedictory function and addressed the gathering.

Visitors to NIWE

During the period October to December 2018, SDT division has coordinated visits and explanation /demonstration about the facilities of NIWE along with the activities / services of NIWE to create awareness and to motivate towards research on wind energy, schools and college students are encouraged to visit the campus.

Outreach Activities

NIWE took part and put 120 sq.m. NIWE Exhibition Stall in the '2nd Global Re-Invest 2018" held during 3rd to 5th October 2018 at Greater Noida, New Delhi The Stall was inaugurated by Hon'ble Shri Raj Kumar Singh, Minister for State for Power and New and Renewable Energy. The Stall was nicely arranged with information panels explaining the on-going projects, activities and services of NIWE along with Field Mast model and Wind Turbine model to showcase. The Stall was visited by dignitaries from MNRE, MEA and personnel from foreign embassies around the Globe who took part in the Expo. The app "SWURJA" (Solar Wind Energy) was launched in the exhibition which could help in finding out potential and other technical data of any particular area of India. The Stall was appreciated for its design and information provided. NIWE had deputed Senior Scientists, Project Engineers, Associates to explain the wind sector and role played by NIWE.

Solar Radiation Resource Assessment

Project Activities

- Calibration readings taken for 6 pyranometers and 3 Pyrheliometers under SRRA mode.
- Calibration reading taken for 3 pyranometer under commercial mode.
- SWURJA Mobile app was launched on 02.10.2018 by the Honourable Minister Shri.R.K.Singh in the 2nd Global RE-Invest Conference & Exhibition during the period 01.10.2018 - 05.10.2018 at Greater Noida.
- Dr.G.Giridhar made a surveillance visit as a Technical Committee member of SRRA to the SRRA stations at Kohima and Aizwal on 08.10.2018 and 10.10.2018 respectively.
- Project Proposal sent to NHPC on 15.10.2018 for Performance Guarantee Test & Technical Audit for 50 MW SPV Plant at Bathalagundu,Theni,Tamil Nadu.
- Dr.G.Giridhar along with 3 SRRA officials visited solar power parks in NP Kunta (Andhra Pradesh) and Pavagada (Karnataka) during the period 09.11.2018-12.11.2018 in connection with solar forecasting activities.
- One SRRA station at Palakkad and a server for data reception at ANERT, Head Quarters were commissioned respectively on 11.11.2018 and 14.11.2018 under commercial mode.
- PV Syst report based on SRRA data provided to 2 stakeholders under consultancy mode.
- First STC meeting on 2 MW SPV plant at IIM, Trichy was convened on 02.12.2018.

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