

वार्षिक रिपोर्ट **ANNUAL REPORT** 2023-24



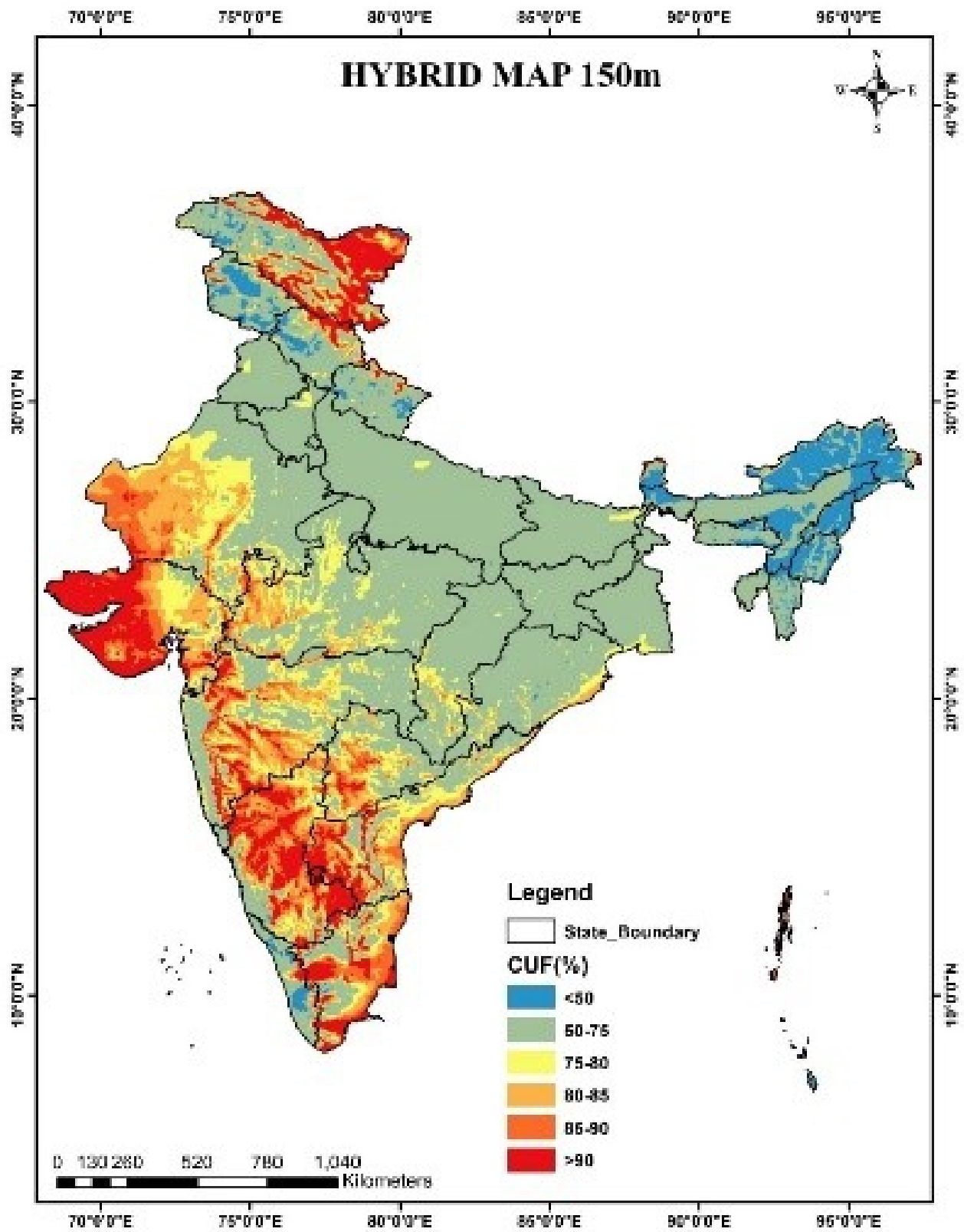
नीवे NIWE

(ISO 9001:2015)

राष्ट्रीय पवन ऊर्जा संस्थान

NATIONAL INSTITUTE OF WIND ENERGY

नवीन और नवीकरणीय ऊर्जा मंत्रालय, अनुसंधान एवं विकास स्वायत्त संस्थान, भारत सरकार
An Autonomous R & D Institution, Ministry of New and Renewable Energy, Government of India



Annual Report 2023-24



नीवे NIWE

NATIONAL INSTITUTE OF WIND ENERGY

An Autonomous Research & Development Institution
Ministry of New and Renewable Energy, Government of India
Chennai



Inside the Report

Preamble

- 07 From the Desk of Director General
- 09 Organogram
- 10 The Charter
- 11 Governing Council
- 12 Committees
- 16 Workforce

Technological Highlights

- 19 Wind & Solar Resource Measurements
- 34 Offshore Wind Development
- 39 Renewable Energy (RE) Projects
- 40 Standards and Regulation
- 44 Testing
- 46 Certification of Wind Turbine
- 49 Research and Development
- 52 Information Technology

Skill Development and Outreach

- 57 Training
- 73 Prof. Anna Mani Information Centre
- 74 Events
- 84 Papers & Publications
- 86 International Meetings / Trainings
- 88 Visitors

Finance & Administration

- 95 Finance & Administration

Finance Report

- 103 Balance Sheet
- 104 Income & Expenditure
- 105 Receipts & Payments
- 107 Schedules
- 123 Auditor's Report



PREAMBLE

- **From the desk of Director General**
- **Organogram**
- **The Charter**
- **Governing Council**
- **Committees**
- **Workforce**



Dr. Rajesh Katyal

From the desk of Director General.....

The Indian wind energy sector is undergoing a dynamic transformation, driven by a blend of promising opportunities and formidable challenges as the nation accelerates towards its ambitious renewable energy goals. With a target to achieve 140 GW of wind energy capacity by 2030, India is reinforcing its leadership in onshore wind while making significant progress in the development of offshore wind projects — a frontier that holds vast potential for the country's future energy security.

NIWE has been at the forefront of these advancements, implementing a comprehensive Wind Resource Assessment (WRA) program that is pivotal to the expansion of the sector. With 915 dedicated Wind Monitoring Stations (WMS) established nationwide, the organization is actively enabling data-driven insights for developers, policymakers, and stakeholders. Among this year's major achievements, NIWE commissioned two 100-meter-high WMS in the Andaman & Nicobar Islands and also an offshore Light Detection and Ranging (LiDAR) system at the Desalination Plant of the National Institute of Ocean Technology (NIOT) on Kadamat Island, Lakshadweep.

Furthering its leadership in offshore wind, NIWE has embarked on the installation of the Floating Offshore LiDAR and initiated extensive Geophysical & Geotechnical surveys over 108 sq. km at Sub Zone 01, Gulf of Mannar, off the Tamil Nadu coast. These projects are poised to unlock substantial offshore wind energy potential, in Tamil Nadu coast.

In its commitment to standardization and quality, NIWE finalized seven Indian standards on wind turbines, which have been accepted by the Bureau of Indian Standards (BIS) for printing. Additionally, the review process for 35 RLMM applications was successfully completed, strengthening the regulatory and operational framework of wind energy in India. NIWE also signed certification agreements for two wind turbine models for pre-evaluation.

In a year marked by quality assurance milestones, NIWE's Testing Division successfully passed the NABL (National Accreditation Board for Testing and Calibration Laboratories) onsite surveillance audit in compliance with ISO/IEC 17025:2017, ensuring continued accreditation. Simultaneously, NIWE underwent the first periodic audit of its Quality Management System as per ISO 9001:2015, with DNV (Det Norske Veritas) recommending the continuation of certification—a testament to

NIWE's adherence to global best practices.

In line with its strategic objectives, NIWE unveiled a forward-looking Research & Development thrust during its R&D Council Meeting. Key areas identified for future research include Wind Resource Characterization (onshore and offshore), wind turbine design, materials & components, decarbonization, biodiversity, and offshore wind.

NIWE's commitment to fostering skill development is equally robust. Over the past year, NIWE delivered seven training courses, reaching a broad audience of 196 trainers and 1,980 participants through its Training of Trainers (ToT) and Training of Participants (ToP) programs. These efforts were bolstered by the Vayumitra Skill Development Programme (VSDP) under MNRE, positioning NIWE as a pivotal player in building a skilled workforce for the sector.

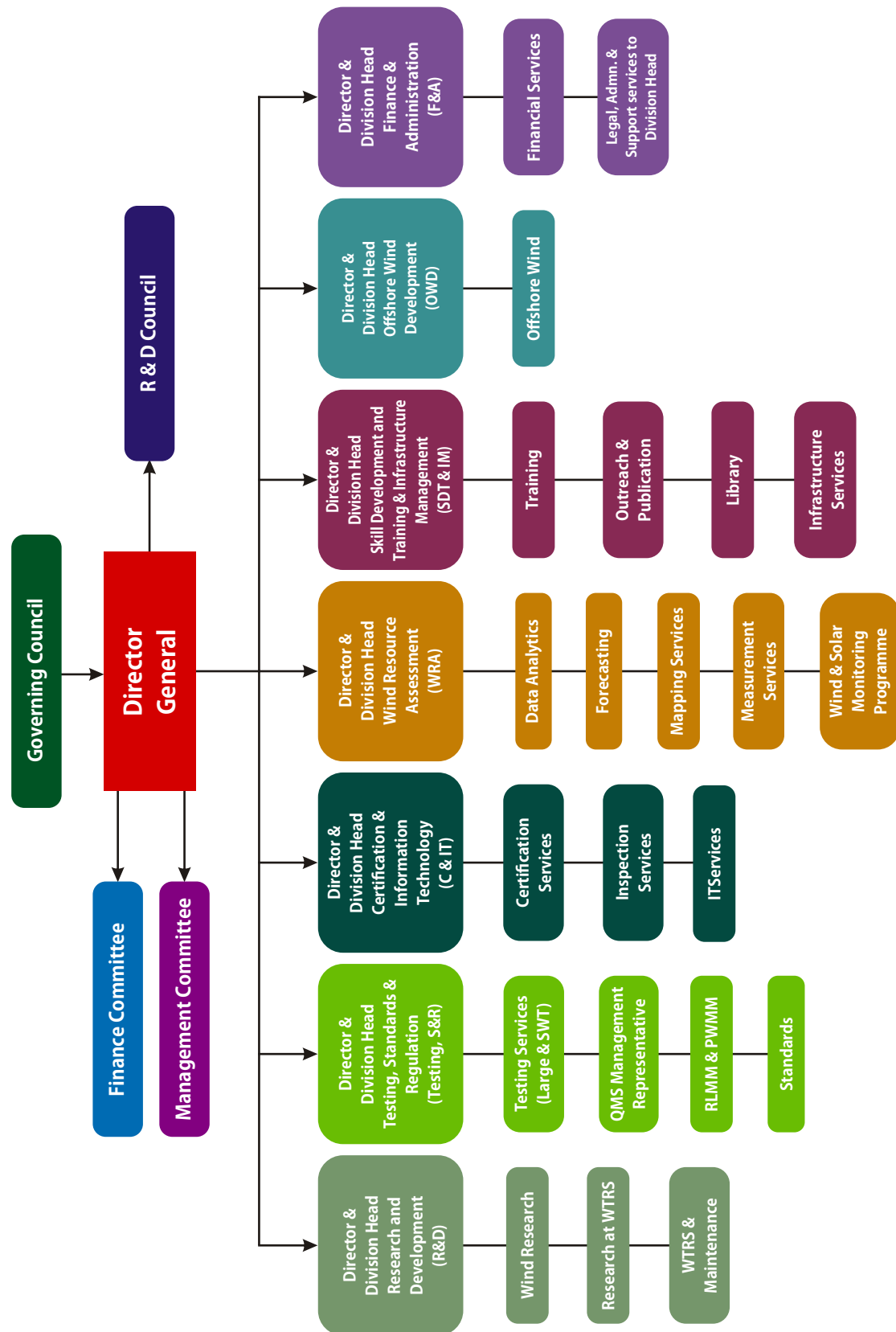
As we reflect on the past year, we are proud of the extraordinary progress made. Our unwavering commitment to innovation, coupled with the tireless efforts of our team, has positioned NIWE to exceed expectations and create substantial value for our stakeholders. Looking forward, we will continue to push boundaries, explore new markets, and invest in cutting-edge technologies that will define the future of renewable energy in India.

Thank you for your ongoing trust and partnership in this exciting journey.

Dr. Rajesh Katyal
Director General, NIWE

NIWE Annual Report 2023-24

ORGANOGRAM



The Charter

The National Institute of Wind Energy (NIWE) was established at Chennai in 1998 as an autonomous R&D institution under the Ministry of New and Renewable Energy (MNRE), Government of India. NIWE is managed by a Governing Council headed by Secretary, MNRE and the Director General is the head of the Institute.

NIWE was established to serve as a technical focal point of excellence to foster the development of Wind Energy in the country and it is a unique research organization in the whole of South Asia. A Wind Turbine Test Station (WTTS) has also been established as an integral part of NIWE at Kayathar, Tamil Nadu with an objective to conduct and / or coordinate testing of complete wind power systems, sub-systems and components according to internationally accepted test procedures.

MISSION

NIWE, a knowledge based institution of high quality and dedication, offers services and seeks to find total solutions for the major stakeholders across the entire spectrum of the wind energy sector. It will support the wind turbine industry in achieving and sustaining quality such that products of the highest quality and reliability are installed, harnessing maximum energy available in the wind. NIWE will strongly support the wind energy industry in developing the know-how and know-why and promoting export of products and services.

OBJECTIVES

- To serve as the technical focal point for wind power development in India, for promoting and accelerating the pace of utilization of wind energy and support the growing wind power sector in the country.
- To develop and strengthen the facilities and capabilities, evolve strategies, promote, conduct, co-ordinate and support research and development programmes to achieve and maintain reliable and cost effective technology in wind power systems.
- To analyse and assess wind resources based on the data available from various sources and prepare wind energy density maps / wind atlas / reference wind data.
- To prepare and establish standards including guidelines, procedures, protocols for design, testing and certification of wind power systems, sub-systems and components, taking into consideration the Indian conditions and in line with internationally recommended practices and standards and update the same based on the feedback.
- To establish world class facilities, conduct and coordinate testing of complete wind power systems, sub-systems and components according to internationally accepted test procedures and criteria, whereby the total performance that includes power performance, power quality, noise level, dynamics, operation and safety systems is tested according to agreed protocols.
- To accord type approval / type certification which verifies conformity with safety related requirements as per standards, guidelines and other rules for design, operation and maintenance, as well as adequate documentation of quality issues such as power performance, noise, life expectancy and reliability.
- To monitor the field performance of wind power systems, sub-systems and components, effectively utilize this feedback for fulfillment of the above objective and issue of certification, establish and update the data bank on a continuous basis and serve as information Centre for selective dissemination.
- To undertake human resource development programme for the personnel working in the wind energy sector.
- To promote commercial exploitation of know-how, know-why results and offer various consultancy services to the customers.
- To promote the development and commercialization of any other wind energy systems including stand-alone systems.

GOVERNING COUNCIL 2023-24



Shri Bhupinder Singh Bhalla, I.A.S.,
Secretary, MNRE, New Delhi



Shri. Padam Lal Negi, IDAS,
Joint Secretary and Financial Adviser, MNRE, New Delhi



Shri. Dinesh Dayanand Jagdale (51st GC)
Joint Secretary (Wind Energy), MNRE, New Delhi



Shri. Lalit Bohra (52nd GC)
Joint Secretary (Wind Energy), MNRE, New Delhi



Shri. Pradip Kumar Das
Chairman & Managing Director
Indian Renewable Development Agency Limited (IREDA), New Delhi



Shri. R.P. Gupta
Chairman & Managing Director, Solar Energy Corporation of India Limited (SECI)



Smt. Beela Rajesh, I.A.S.,
Principal Secretary to Government, Energy Department
Govt. of Tamilnadu, Chennai



Shri. Gaurav Gupta, I.A.S.,
Additional Chief Secretary to Government, Energy Department, Govt. of Karnataka



Dr. M.V. Ramana Murthy
Director & Scientist-G, Deep Ocean Mission
Ministry of Earth Science, New Delhi.
& Chairman, R&D Council, NIWE



Shri. D.V. Giri (upto 31-11-2023)
Secretary General, Indian Wind Turbine Manufacturers Association (IWTMA)



Shri. Parag Sharma
President
Wind Energy Independent Power Producers Association (WIPPA)



Dr. Jaya Kumar Seelam
Chief Scientist, National Institute of Oceanography (NIO), Goa



Dr. Rajesh Katyal
Director General, NIWE, Chennai

COMMITTEES

Finance Committee

Chairman

Joint Secretary and Financial Adviser

Ministry of New and Renewable Energy, (MNRE), New Delhi

Members

Principal Secretary to Govt.

Energy Department, Government of Tamilnadu, Chennai

Joint Secretary (WE)

Ministry of New and Renewable Energy, (MNRE), New Delhi

Director General

National Institute of Wind Energy (NIWE), Chennai

Director (Wind)

Ministry of New and Renewable Energy, (MNRE), New Delhi

Deputy Secretary (IFD)

Ministry of New and Renewable Energy, (MNRE), New Delhi

Member Secretary

Division Head (Finance & Administration)

National Institute of Wind Energy (NIWE), Chennai



Research & Development Council

Chairman / Expert

Dr. M.V. Ramana Murthy

Director & Scientist-G, Deep Ocean Mission, Ministry of Earth Science, New Delhi

Members / Experts

Dr. Dushyant Singh

Associate Professor, NIT, Jaladhar

Dr. Zakir Hussain Rather

Professor, Department of Energy Science and Engineering, IIT, Bombay

Dr. S.S. Chandel

Former Professor & Founder Head

Centre for Energy and Environmental Engineering, NIT, Hamirpur

Dr. N.C. Gupta

Professor, Guru Gobind Singh Indraprastha University (GGSIPU)

School of Environment Management, New Delhi

Dr. V.K. Nagendra Gopal

Assistant Professor, Department of Aerospace Engineering

Indian Institute of Technology Madras, Chennai

Members

Shri. Lalit Bohra

Joint Secretary (Wind Energy), Ministry of New and Renewable Energy (MNRE), New Delhi

Dr. Prabir Kumar Dash

Scientist D (Wind), Ministry of New and Renewable Energy (MNRE), New Delhi

Dr. P. Mukhopadhyay

Scientist F, Indian Institute of Tropical Meteorology, Pune

Dr. Rahul Goyal

Assistant Professor, Indian Institute of Technology Delhi, New Delhi

Director General

National Institute of Wind Energy (NIWE), Chennai

Industry Member

Mr. Abhijit Despande

General Manager, Suzlon Energy Limited, Pune

Member Secretary

Shri. J.C. David Solomon

Director & Head, R&D Division, WTRS (Incharge), NIWE, Chennai

Shri. N. Rajkumar (30th R&D Council)

Additional Director (Technical), Testing, S&R Division, NIWE, Chennai

Prototype Wind Turbine Models Committee

Chairman

Dr. Rajesh Katyal

Director General, NIWE, Chennai

Members

Shri. D.V. Giri

Secretary General, IWTMA, New Delhi

Shri. N. Rajkumar

Joint Director, CPRI, Bangalore

Member Secretary

Shri. A. Senthil Kumar

Director & Division Head, Testing, S&R, NIWE, Chennai

ISO 9001:2015 Standards - Trained Auditors

Auditors

Shri. A. Senthil Kumar, Director & Division Head, Testing, S&R, NIWE, Chennai

Shri. S. A. Mathew, Director & Division Head, C&IT, NIWE, Chennai

Shri. J.C. David Solomon, Director & Division Head, R&D and WTRS Incharge, NIWE, Chennai

Smt. Deepa Kurup, Additional Director & Division Head (i/c), OWD, NIWE, Chennai

Shri. N. Rajkumar, Additional Director (Technical), Testing, NIWE, Chennai

Smt. M.C. Lavanya, Deputy Director (Technical), OWD, NIWE, Chennai

Shri. Bhukya Ramdas, Deputy Director (Technical), OWD, NIWE, Chennai

Shri. M. Saravanan, Deputy Director (Technical), S&R, NIWE, Chennai

Shri. B. Krishnan, Assistant Director, OWD, NIWE, Chennai

Smt. K Tamilselvi, Admin & Accounts Officer, Purchase, NIWE, Chennai

Shri. Yelchuri Srinath, Assistant Director(Technical), IT, NIWE, Chennai

Shri. S. Arulselvan, Assistant Executive Engineer, Certification, NIWE, Chennai

Shri. Hasan Ali, Assistant Executive Engineer, WTRS, NIWE, Chennai

Shri. T. Suresh Kumar, Assistant Engineer, F&A, NIWE, Chennai

Shri. S. Paramasivan, Assistant Engineer, Certification, NIWE, Chennai

Shri. R. Naveen Muthu, Junior Engineer, OWD, NIWE, Chennai

Internal Complaints Committee for Women

Chairperson

Dr. Vijaya Ravichandran

Scientist 'G', National Institute of Ocean Technology, Chennai

Member

Dr. A. Murugeswari

Assistant Professor, Anna University, Chennai

Dr. A Muthukrishnan

Formerly Senior COA, CSIR – CLRI

Smt. Deepa Kurup

Additional Director, NIWE, Chennai

Smt. K. Tamilselvi

Admin & Accounts Officer, NIWE, Chennai

Ms. A. Jaseela Banu

Executive Assistant, NIWE, Chennai

Member Secretary

Smt. K. Saranya

Junior Executive Assistant, NIWE, Chennai

Official Language Implementation Committee

Chairman

Dr. Rajesh Katyal

Director General, NIWE, Chennai

Members

Shri. S.A. Mathew, Director & Division Head, C&IT, NIWE, Chennai

Shri. A. Senthil Kumar, Director & Division Head, Testing, S&R, NIWE, Chennai

Shri. J.C. David Solomon, Director & Division Head, R&D, WTRS Incharge, NIWE, Chennai

Dr. K. Boopathi, Director & Division Head, WRA, NIWE, Chennai

Dr. P. Kanagavel, Director & Division Head, SDT, NIWE, Chennai

Smt. Deepa Kurup, Additional Director, Division Head (i/c), OWD, NIWE, Chennai

Member Ex- Officio

Shri. R. Girirajan

Additional Director & Division Head, F&A, NIWE, Chennai

Member Secretary

Smt. K. Tamilselvi

Admin & Accounts Officer, Purchase, NIWE, Chennai

WORKFORCE

Dr. Rajesh Katyal, Director General
S.A. Mathew, Director
A. Senthil Kumar, Director
J.C. David Solomon, Director
Dr. P. Kanagavel, Director
Dr. K. Boopathi, Director
Deepa Kurup, Additional Director (Technical)
N. Rajkumar, Additional Director (Technical)
R. Girirajan, Additional Director (F&A)
A. Haribhaskaran, Deputy Director (Technical)
M. Saravanan, Deputy Director (Technical)
Bhukya Ramdas, Deputy Director (Technical)
M.C. Lavanya, Deputy Director (Technical)
B. Krishnan, Assistant Director (Technical)
Yelchuri Srinath, Assistant Director (Technical)
K. Tamilselvi, Admin & Accounts Officer
Anuradha Babu, Executive Staff Officer
B. Muthulakshmi, Executive Secretary
M.R. Gunasekaran, Executive Secretary
Dr. G. Arivukkodi, Assistant Executive Engineer
S. Arulselvan, Assistant Executive Engineer
A. R. Hasan Ali, Assistant Executive Engineer
Y. Packiyaraj, Assistant Executive Engineer
M. Karuppuchamy, Assistant Executive Engineer
T. Suresh Kumar, Assistant Engineer
S. Paramasivan, Assistant Engineer
R. Vinod Kumar, Junior Engineer
R. Naveen Muthu, Junior Engineer
M. Malaravan, Transport Co-Ordinator
M. Selvakumar, Record Keeper
K.A. Haji Abdul Ibrahim, Record Keeper
A. Mani, Driver
M. Nandakumar, Technician
B. Senthilkumar, Technician
R. Sunderesan, Executive Assistant
A. Jaseela Banu, Executive Assistant
K. Saranya, Junior Executive Assistant





TECHNOLOGICAL HIGHLIGHTS

- **Wind and Solar Resource Measurements**
- **Offshore Wind Development**
- **Renewable Energy (RE) Projects**
- **Standards and Regulation**
- **Testing**
- **Certification of Wind Turbine**
- **Research and Development**
- **Information Technology**

Wind and Solar Resource Measurements

Wind Resource Assessment (WRA)

Wind Resource Assessment involves evaluating and quantifying the wind energy potential at a specific site or geographic region. This process includes establishing wind monitoring stations, collecting and analyzing wind speed, direction and other meteorological data to accurately characterize the wind resource. Wind Resource Assessment is crucial for determining the feasibility of developing a wind energy project at a particular location, choosing suitable sites for wind farm development, selecting appropriate wind turbine models, optimizing the layout of wind turbines and providing reliable energy production estimates, which are essential for financial modeling, project financing and investment decisions. Additionally, wind resource data, in conjunction with other environmental factors, help in evaluating the potential impacts of wind farm development on local ecosystems, avian species, and other environmental considerations.

NIWE has a comprehensive WRA program to support the growth of the country's wind energy sector. The program aims to provide developers, policymakers and other stakeholders with accurate and reliable wind resource data. Under this program, 915 dedicated Wind Monitoring Stations (WMS) have been established with the support of MNRE and state nodal agencies (SNA).

Wind Resource Assessment Studies in Andaman & Nicobar Islands

NIWE has successfully commissioned two 100-meter height WMS in the Andaman & Nicobar Islands as part of its nationwide wind resource assessment program. One WMS is located at Bharatpur in Shaheed Dweep (South Andaman) and the other is situated at Sigmundera in Long Island (North & Middle Andaman). These WMS are equipped with advanced instruments to collect high-quality wind data at multiple heights, which will be analyzed by NIWE to estimate the wind resource characteristics and energy production potential in the region.

This WRA study is crucial for determining the feasibility of developing wind power projects in the Andaman & Nicobar Islands. The data collected will guide potential developers in site selection, turbine



WMS at Bharatpur



WMS at Sigmundera

choice and project planning. It is an important step towards harnessing the renewable energy potential of the islands, promoting sustainable development energy and reducing the dependence on fossil fuels for electricity generation and making the island green.

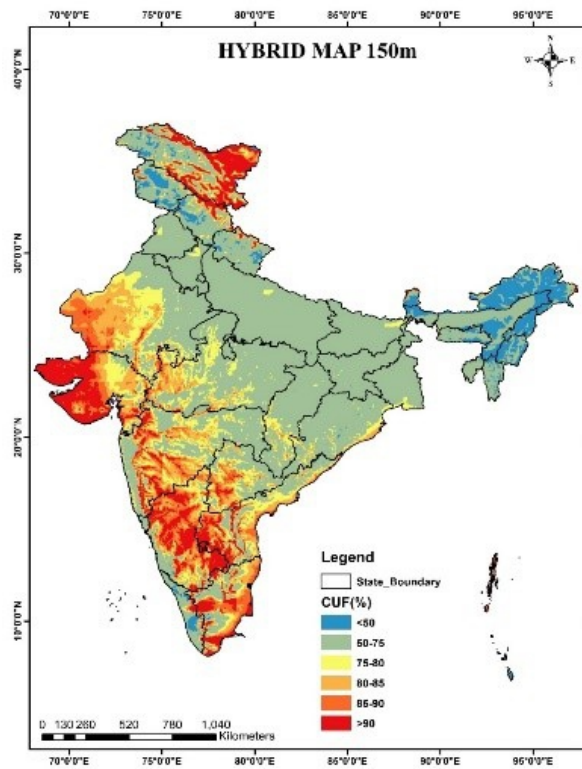
Integrated Wind Solar Resource Assessment (IWSRA)

The IWSRA project is a significant initiative undertaken by NIWE aimed at advancing wind and solar resource planning to facilitate India's renewable energy objectives. Under this project, several crucial activities have been executed:

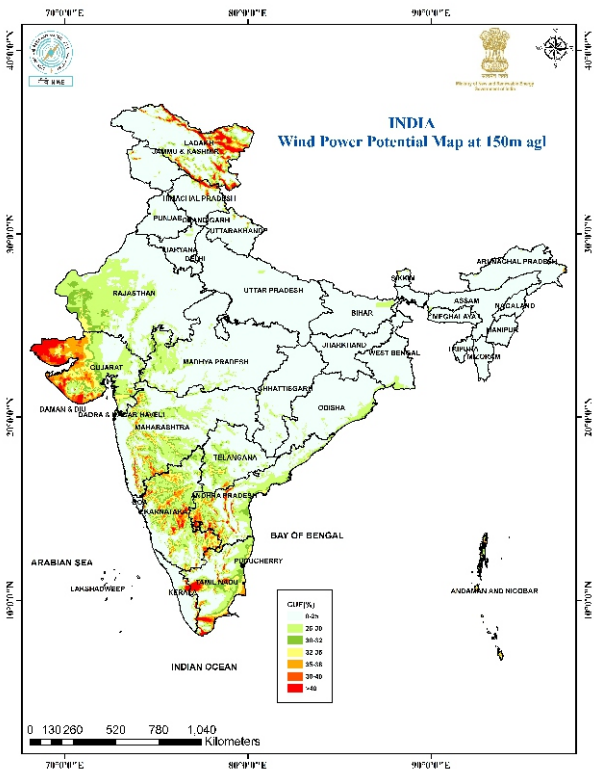
Preparation of Map

- **Preparation of Wind-Solar Hybrid Map:**

- NIWE has prepared a comprehensive Wind-Solar Hybrid Map by combining the wind potential map at 150 meters above ground level and the solar atlas prepared by NIWE.
- This hybrid map is intended to benefit the public and stakeholders involved in the renewable energy sector.
- The map presents the combined wind and solar resource potential in terms of Capacity Utilization Factor (CUF) at a high spatial resolution of 500 meters.

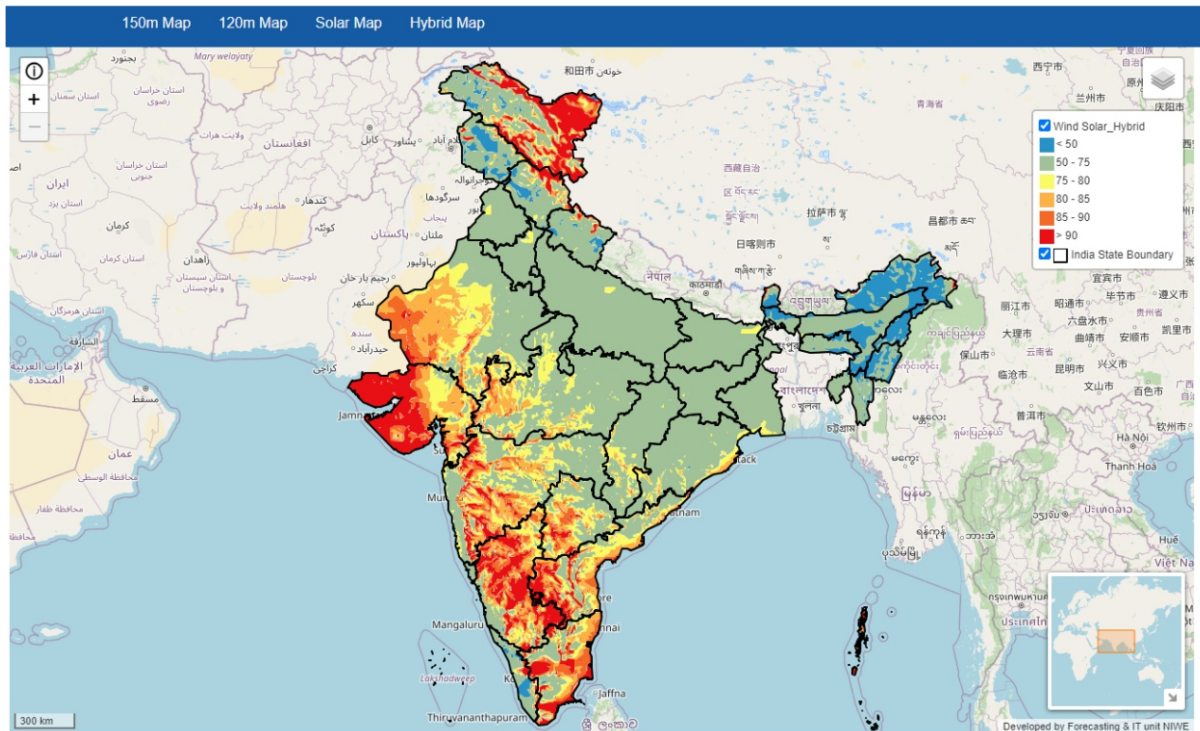


Hybrid (Wind and Solar) Map



Wind Power Potential Map at 150 height

WIND AND SOLAR RESOURCE MAP (150M, 120M, SOLAR AND HYBRID MAPS)



Wind-Solar Potential Map in NIWE web portal

- **Launch of Wind-Solar Hybrid Map:**

- The Wind-Solar Hybrid Map was officially launched by the honorable Secretary, MNRE on 15.06.2023 on the occasion of the Global Wind Day 2023 celebration held in New Delhi.
- This launch event marked the availability of this valuable resource for stakeholders across the country.

- **Interactive Web Portal:**

- NIWE has developed an interactive web portal that displays the Wind-Solar Hybrid Map, enabling stakeholders to explore and analyze the combined wind and solar resource potential for different regions.
- The portal is designed to aid stakeholders in prospecting for new Wind-Solar hybrid project areas throughout the country.
- Additionally, the portal is expected to be helpful for repowering and upgrading existing wind and solar farms, optimizing their performance and efficiency.

- **User Guide and Video Tutorial:**

- To facilitate the effective use of the 150m Hybrid Maps, as well as the web portal, NIWE has created a comprehensive user guide and an explanatory video tutorial.



Dr. K. Boopathi, Division Head, WRA demonstrating the Web Portal before launch

- The video tutorial aims to help users understand how to navigate and utilize the maps and portal effectively.
- **Web Portal Launch:**
 - The interactive web portal was formally launched by the honorable Secretary, MNRE, at NIWE in Chennai on 16.06.2023.
 - This launch event marked the public availability of the portal, enabling stakeholders to access and leverage the combined wind and solar resource data for their projects and initiatives.

Dismantling of sensors / chip collection / site selection

NIWE has been actively involved in various activities related to wind resource assessment across multiple states in India. , NIWE has carried out comprehensive data collection, including chip retrieval, at Headpura in Madhya Pradesh, where the wind and solar resource data was gathered to evaluate the potential for energy generation from these renewable sources.

Moreover, NIWE has undertaken site selection activities for the installation of new WMS in Phase II of the WRA program. Three sites namely Bahadapalle, Ippapenta and Ramayapatnam, were identified in Andhra Pradesh after a thorough evaluation of factors such as wind resource potential, terrain characteristics, accessibility and suitability for installing tall meteorological masts. These selected sites will undergo further assessments and preparations involving the erection of tall masts equipped with advanced sensors and instruments to collect valuable wind data.

Sound Detection and Ranging (SoDAR) Instrument

The WRA division conducted wind profile measurement study using the SoDAR system located at Kayathar.



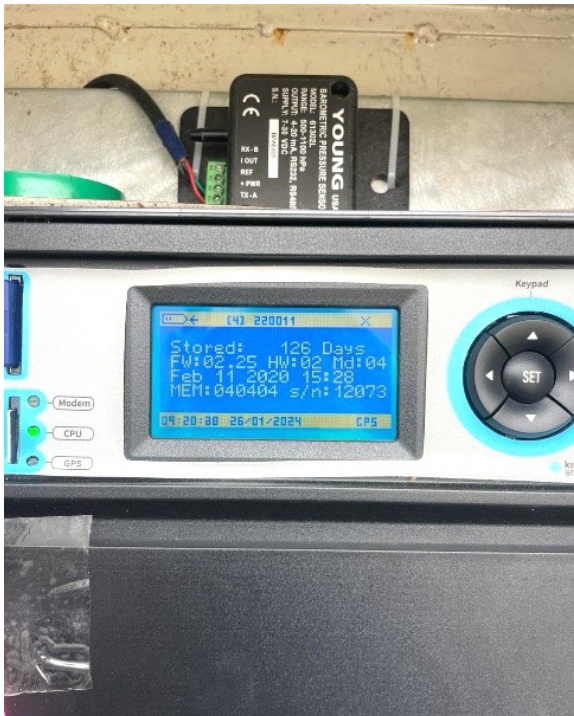
SoDAR system located at Kayathar



Maintenance of SoDAR

Wind & Solar Resource Assessment Studies at Ladakh

- In an effort to comprehensively evaluate the wind and solar energy potential in the strategically important region of Ladakh, NIWE has undertaken an extensive resource assessment study. As part of this initiative, four numbers of 100-meter WMS and two Solar Resource Reassessment (SRRA) stations have been commissioned in the region.



Wind and Solar Resource Assessment at Leh

- Complementing the WRA, NIWE has also deployed two SRRA stations in Ladakh. The findings from these studies will aid in informed decision-making processes, enabling stakeholders to identify suitable sites, optimize project designs and harness the region's wind and solar energy potential effectively.

LiDAR based Offshore Wind Measurement at Kadamat Island, Lakshadweep

Towards Greening of the Island , NIWE has successfully commissioned an offshore Light Detection and Ranging (LiDAR) system at the Desalination Plant of the National Institute of Ocean Technology (NIOT) located at Kadamat Island, Lakshadweep. LiDAR is an advanced remote sensing technology that uses laser pulses to measure wind speeds and directions at various heights, making it suitable for offshore wind resource assessment.

The LiDAR system deployed at Kadamat Island is capable of capturing wind data up to several hundred meters above the surface, providing a comprehensive profile of the wind resource. This data is crucial for evaluating the feasibility and optimal design of potential offshore wind energy projects in the region.

NIWE has established a robust data management system to ensure continuous monitoring and daily data retrieval from the LiDAR system. The collected data will undergo rigorous processing and analysis by NIWE's experts, employing advanced computational models and techniques to characterize the wind resource, including wind speed distributions, prevailing wind direction, turbulence intensity and her relevant offshore wind parameters.



Installation of LiDAR at Kadamat Island, Lakshadweep

Solar Radiation Resource Assessment

NIWE has established a comprehensive Solar Radiation Resource Assessment (SRRA) program to assess and map the solar energy potential across India. This program plays a crucial role in supporting the growth of solar power projects in the country. Under this programme the WRA Division has conducted thorough site visits and inspections of SRRA stations, focusing meticulous examination of the solar radiation instruments, such as pyranometers, pyrheliometers and sun trackers, ensuring their proper function. WRA Division also inspected the meteorological instruments, including sonic anemometers, temperature sensors, data loggers, solar panel and humidity sensors etc. to ensure accurate and reliable data collection.

Details of site survey of SRRA stations

State	No. of SRRA Stations	Site name
Tamil Nadu	6	Vellore, Trichy, Erode, Tuticorin, Ramanad and Sivagangai.
Karnataka	6	Haveri, Chitradurga, Mysore, Vijayapura, Gokak and Kalabhuragi
Andhra Pradesh	6	Kadiri, Tirupati, Kadappa, Srikakulam, Rajamundry and Guntur
Kerala	2	Alappuzha and Kannur
Puducherry	1	Puducherry
Madhya Pradesh	3	Rewa, Jabalpur and Indore
Chhattisgarh	2	Ambikapur and Bilaspur
Maharashtra	8	Bhandara, Jalgaon, Karad, Osmanabad, Shahada, Shegaon, Solapur and Wardha
Odisha	4	Bhubaneshwar, Rourkela, Chakarkend and Similiguda
Telangana	3	Mahabu Nagar, Medak and Warangal



Survey of SRRA stations in the State of Chhattisgarh and Madhya Pradesh



Survey of SRRA stations in the State of Karnataka and Odisha

Consultancy Services

WRA Division, offers a comprehensive range of consultancy services to support the wind and solar energy sectors. These services leverage NIWE's extensive expertise, advanced tools and industry knowledge to assist clients in various aspects of renewable energy project development and implementation.

Energy Yield Estimation: NIWE utilizes its in-depth knowledge and state-of-the-art tools to estimate the potential energy output of wind projects accurately. This analysis is crucial for project planning, financial projections and overall project viability assessments. NIWE's energy yield estimation services provide valuable insights into the expected energy generation, enabling clients to make informed decisions.

Preparation of Tender Documents and Technical Bid Evaluations: NIWE assists clients in developing well-structured and comprehensive tender documents that effectively communicate project requirements. These documents ensure clear communication of technical specifications, legal terms and evaluation criteria. Additionally, NIWE evaluates technical bids submitted by potential vendors, ensuring they meet the necessary criteria and align with project objectives, thereby facilitating transparent and efficient procurement processes.

Wind-Solar Hybrid Projects: Recognizing the complementary nature of wind and solar energy resources, NIWE helps clients to explore the possibilities of wind-solar hybrid power generation systems. By combining the strengths of both technologies, these hybrid systems can maximize energy production, optimize resource utilization and enhance the overall reliability and efficiency of renewable energy projects.

Preparation of Detailed Project Reports (DPRs): NIWE prepares comprehensive Detailed Project Reports (DPRs) that provide in-depth insights into project feasibility, financial aspects, technical

specifications and risk assessments. These DPRs serve as valuable resources for stakeholders, facilitating informed decision-making and ensuring project viability.

Project Management Consultancy (PMC) Services: NIWE's Project Management Consultancy (PMC) services ensure that wind turbine components meet required standards, verify manufacturing facilities and monitor the installation process to ensure compliance and safety. Additionally, PMC services supervise the commissioning process to evaluate performance and resolve any issues. By providing comprehensive project management support, NIWE contributes to the successful implementation of wind turbine projects.

Verification Procedure of Wind Monitoring Stations: NIWE offers verification procedures for wind monitoring stations established by private developers. This process involves verifying the wind monitoring equipment, calibrating instruments to ensure accuracy and ensuring continuous data collection of wind speed, direction and other relevant parameters, such as geographical locations. These verification services ensure the quality and reliability of wind resource data, enabling informed decision-making for wind energy projects.

Elevation Certificate: The Government of India has authorized the Airports Authority of India (AAI) to issue No Objection Certificates (NOCs) for height clearance near airports to ensure the safety of aircraft and passengers during take off and landing. Applicants seeking NOCs must provide site coordinates and elevation certificates from licensed surveyors authorized by the government. To support the installation of wind power projects and achieve the goal of 500 GW renewable energy capacity by 2030, NIWE will simplify the NOC process. NIWE will verify and accept site survey data from other surveyors and issue elevation certificates for Ministry of Defence (MoD) NOC applications for wind power projects.

During the financial year spanning from April 2023 to March 2024, NIWE's expertise played a pivotal role in supporting various stakeholders within the wind industry and provided 25 consultancy projects. These projects showcased NIWE's capabilities in leveraging advanced data analysis techniques and computational tools to provide valuable insights and solutions to its clients.

Geotagging

Geotagging is a critical service offered by the NIWE to support wind energy developers, operators and asset owners. This process involves capturing the precise GPS coordinates of each wind turbine location within a wind farm site and assigning a unique identification number or ID, to every individual turbine.

The creation of these unique geotagging IDs is a crucial aspect of NIWE's geotagging services. Each ID is specifically associated with a particular wind turbine, allowing for accurate mapping, tracking and monitoring of the turbine's location and performance data.

During the recent period, NIWE successfully has carried out geotagging activities across multiple wind farm sites and created 304 unique geotagging IDs.

International Project - Indo Danish Project

Maintenance and Repair Strategy for Wind Energy Development

Overview

To enhance the maintenance and repair strategies for wind energy development, we have implemented a comprehensive approach focused on technician training, damage assessment, and effective repair techniques for wind turbine blades.

Key Initiatives

- **Survey Inquiry Form:** We developed a survey inquiry form to assess the training needs of technicians specializing in blade repair. This form also gathers recommendations for damage assessment and prevention of common errors.
- **Collaboration with Windcare India Pvt. Ltd.:** Weekly meetings with representatives from Windcare India Pvt. Ltd. in Tamil Nadu have facilitated discussions on the Maintainergy project and planning for a virtual workshop on "Maintenance and Repair Strategies for Wind Turbines in India."
- **Non-Destructive Testing (NDT):** We engaged in discussions regarding the implementation of non-destructive testing on wind turbine blades to enhance our understanding of blade integrity and repair needs.
- **Damage Assessment Survey:** A survey was conducted to determine the extent of damage to wind turbine blades and the associated repair costs, providing critical data for developing effective maintenance strategies.
- **Literature Preparation:** We prepared literature on blade damage identification techniques to assist technicians in recognizing and addressing issues promptly.
- **Engagement with NDT Suppliers:** Meetings with various non-destructive testing suppliers and blade engineers were held to initiate experiments and obtain quotations, evaluating the quality of inspections using infrared techniques and other methods.
- **Research Presentation:** An abstract titled "Damage Assessment of Wind Turbine Blade Damage in Indian Conditions" was submitted for presentation at the 5th International Symposium on "Leading Edge Erosion of Wind Turbine Blades," focusing on the impact of Indian environmental factors on blade damage.
- **Current Research:** We are conducting non-destructive testing on a damaged blade to assess its structural integrity, aiming to gather insights into the specific challenges posed by Indian conditions and develop effective strategies for managing blade damage.

Inhouse Research Project

Development of Controller / Interface System to control different OEM WTG in the Bhuj area

NIWE has achieved a significant milestone by successfully installing and configuring a Supervisory Control and Data Acquisition (SCADA) controller system at the Naranapar (300 MW) and Bhuvad (230 MW) pooling substations. This system enables the control of Wind Turbine Generators (WTGs) from the Indian Air Force (IAF) station in Bhuj, ensuring efficient monitoring and control of wind farm operations.

During the installation and configuration process, NIWE collaborated closely with officials from the IAF, MNRE, M/s. Renew Power and M/s. Power Sync. The successful demonstration of the SCADA system's capabilities to control the WTGs at the Naranapar substation was a crucial achievement, showcasing the system's effectiveness in enabling the IAF and the Ministry of Defense to efficiently switch off wind turbines as needed.

Building on this success, NIWE has conducted meetings with wind farm developers to discuss and plan the implementation of the SCADA control system at other pooling substations in the Bhuj region.

These meetings aimed to foster a collaborative approach, ensuring a smooth and efficient integration of the SCADA system across multiple wind farm sites. The goal is to establish a centralized control system to switch off the WTGs whenever needed.

In subsequent discussions, the SCADA developers associated with NIWE, the Western Regional Load Dispatch Centre (WRLDC) and wind farm pooling substation developers have made significant progress. As a result, the SCADA control system has been successfully established at 13 pooling substations with plans for the entire control system to be fully operational by the end of May 2024.

Other Assignments carried out by WRA Staff

- Data availability reports were prepared for potential customers, explaining the wind and solar resource data available for sale at specific sites or regions. This supports the assessment of renewable energy projects.
- The Division Head and Project Assistant visited Osmanabad, Maharashtra, on 10.10.2023. The site visit was to collect ground truth data for micro-siting and verification of WMS.
- On-site factors like wind flow patterns, obstructions, land accessibility and infrastructure logistics were assessed. Surrounding areas were surveyed to finalise an optimal location for wind turbine installation.



Site visit at Osmanabad for collection of ground truth for preparation of report

- The Division Head and Engineer visited Deomali Hills, Odisha on 12.10.2023, along with representatives from NHPC and NLC. The objective was to identify suitable locations for installing wind monitoring stations that would collect wind data to assess the viability of potential wind power projects in the region. The team surveyed several sites in and around Deomali based on factors like wind flow patterns, access roads, proximity to grid infrastructure, land availability etc. After evaluating multiple options, two locations were finalised for setting up 120-meter met masts with equipment to gather wind speed, direction and other parameters.



Site selection at Odisha for installation of WMS at 120 m / 150 m height

- The Division Head and Engineer travelled to Lakshadweep Islands from 20.11.2023 to 30.11.2023. The purpose was to identify suitable locations for wind monitoring stations across various islands



Site visit at Lakshadweep Island for assessing wind energy potential

like Kavaratti, Andrott and Minicoy. This was part of a project for the Solar Energy Corporation of India (SECI) to assess wind energy potential in Lakshadweep. The team surveyed a few inland sites on the Kavaratti islands.

- Dr. K. Boopathi, Director & Division Head travelled to Assam during the period from 14th to 16th February 2024, along with representatives from OTPC, NEEPCO, APDCL. The objective was to identify suitable locations for installing wind monitoring station in the state of Assam. The team surveyed several sites in and around Assam based on factors like wind flow patterns, access roads, proximity to grid infrastructure, land availability etc. Based on site characteristics and available data, one location was finalised for setting up 120/150 meter met masts with equipment to gather wind speed, direction and other parameters.



Site identification at Assam for Installation of WMS

- The Engineers & Technician of WRA Division travelled to Odisha during the period from 02.01.2024 to 10.01.2024, along with representatives from OTPC, GRIDCO, MCL. The objective was to identify suitable locations for installing wind monitoring stations that would collect wind data to assess the viability of potential wind power projects in the region. The team surveyed several sites in and around Odisha based on factors like wind flow patterns, access roads, proximity to grid infrastructure, land availability etc. After evaluating multiple options, five locations were finalised for setting up 150 & 120 meter met masts with equipment to gather wind speed, direction and other parameters.



Site identification at Odisha for Installation of WMS

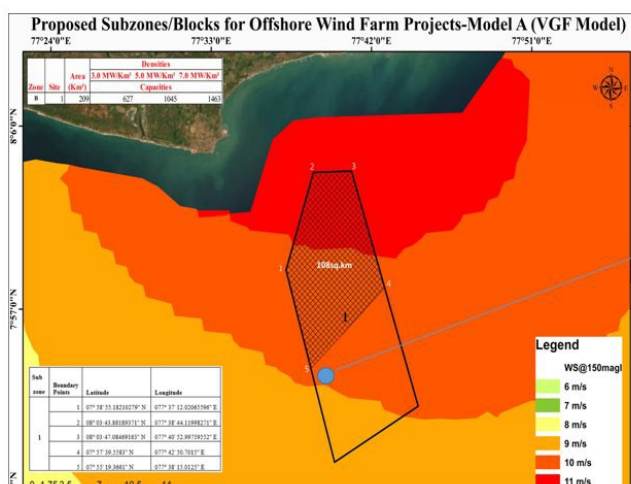


Offshore Wind Development

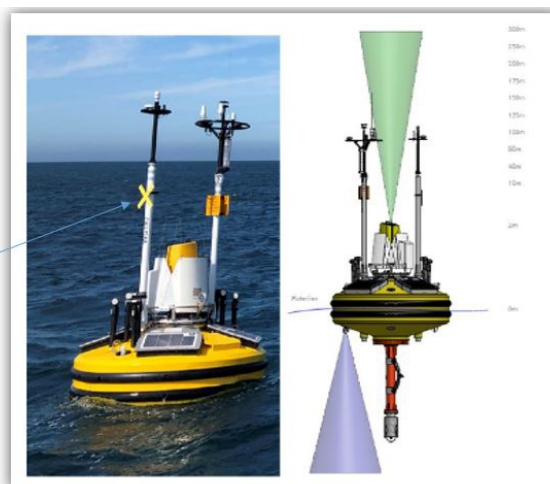
During the year, NIWE has initiated new offshore wind survey projects with the support of MNRE. This initiative is part of the government plan to increase Renewable Energy's share in the country energy mix and reduce Greenhouse Gas emissions. The aim is to tap into India's vast offshore wind potential to achieve a significant share of Renewable Energy in the country's energy mix. By leveraging advanced technologies, favourable policies and research collaborations, India is striving to establish a sustainable and efficient offshore wind energy sector that contributes to its energy security and environmental objectives.

Offshore studies/surveys under Model A of strategy paper:

As per the Strategy for Establishment of Wind Energy Projects issued by MNRE, Model A of offshore wind power development will be followed for the sites (500MW for Tamil Nadu & 500MW for Gujarat) for which studies/ surveys has been conducted or proposed to be conducted by NIWE/ Govt entity. MNRE through its implementing agencies will come up with bid for procurement of offshore wind power capacity under this model.



Location of Floating buoy with offshore LiDAR



Schematic of Floating buoy integrated with LiDAR

NIWE is in the process of installing the Floating Lidar and conducting Geophysical & Geotechnical survey (108 Sq.km seabed area) at Sub zone 01, Gulf of Mannar, Off Tamil Nadu coast for the development of 500 MW (VGF support), under Model A. The work order for installation floating LiDAR and geophysical & geotechnical investigation has been placed with the successful bidder and the works are underway. Figure 1 below shows the location of the Integrated floating buoy LiDAR system and the area under investigation for the geophysical and geotechnical survey.

Met-Ocean Measurements:

MNRE has sanctioned RDSPAC project Met-Ocean Measurements at Gulf of Khambhat and Gulf of Mannar for fostering the growth of Offshore Wind in the country to NIWE with the objective of quantifying the wind potential of such regions towards demarcating the offshore wind energy blocks.

Under the project, as per the approval of the Project Monitoring Committee, 3 sites have been identified to map offshore wind resource in Gulf of Mannar, Tamil Nadu coast on priority. The details of the site are as follows:

LiDAR Location

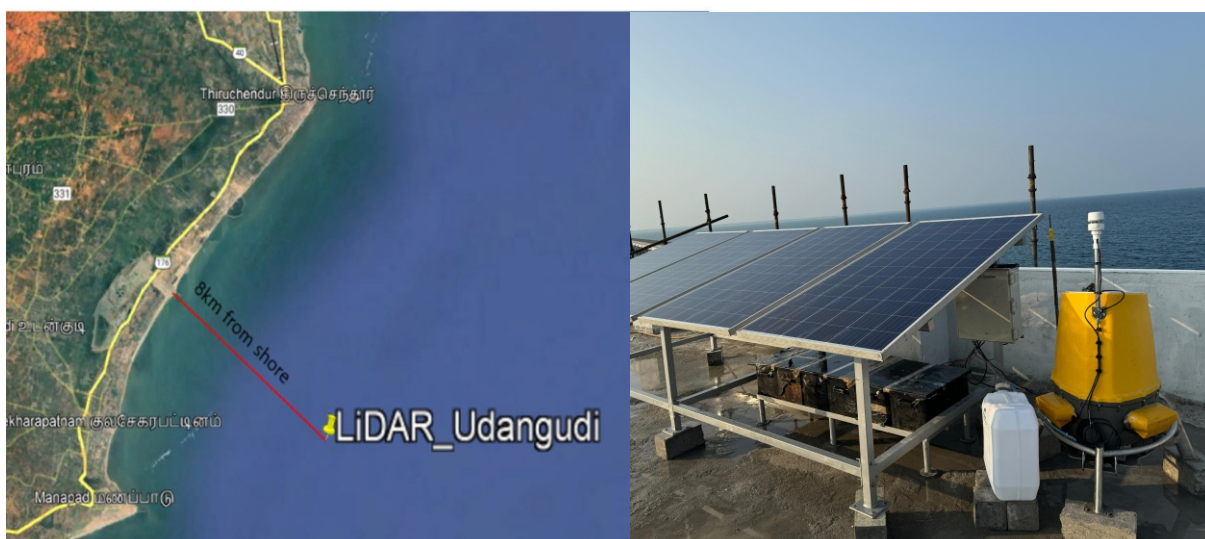
Location	LiDAR Serial number	Latitude/Longitude
VOC_Port_1	ZX300M-996	8° 44' 58.2" N / 78° 13' 36.19" E
VOC_Port_2	ZX300M-997	8° 45' 19.58" N / 78° 13' 16.24" E
UDANGUDI	ZX300M-998	8°23'35.763"N / 78°8'0.686"E



Lidar Installed at VOC Port, Gulf of Mannar, Off Tamil Nadu coast



Lidar Installed at VOC Port, Gulf of Mannar, Off Tamil Nadu coast



Lidar Installed at Udangudi Thermal coal Jetty, Gulf of Mannar, Off Tamil Nadu coast

Environment Impact Assessment (EIA) study for National Offshore Wind Turbine Test Station:

Offshore wind turbine test and research station has been planned at Dhanuskodi, Tamil Nadu. The offshore wind turbines installed at the Test & research station with a capacity of ~17 MW would supply bulk of the power requirement of Rameshwaram island. The clearances from state and central organization and EIA are prerequisite for establishment of the station.

EIA study for the offshore test station at Dhanushkodi has been completed. Necessary clearances are underway. The samples were collected within a radius of 10 km from the proposed location as depicted in the figure.



Layout of the National Offshore Test & Research Station, Dhanushkodi



Location of seawater, seabed sediments and biological sampling - Palk Bay

Location of sample collections for the EIA Study, Palk Strait

Development of Offshore Wind Energy Facilitation portal:

Single window clearance system for offshore wind farm projects:

As per the National Offshore Wind Energy Policy (2015), MNRE is nodal ministry and NIWE is nodal agency for development of offshore wind power projects (single window clearance). Clearance/NOC from concerned central ministries/state departments would be required in stage 1 and stage 2 for survey and wind farms developments purposes. NIWE has developed the On-line web portal to ease the process of NOC/ on-line clearances for studies/ surveys and development of the offshore wind farm. The web portal is aimed at facilitating the prospective developers for submission of applications online for grant of clearance/ No Objection Certificate (NoC) for initiating the studies and surveys at the designated offshore wind blocks and development of the project. The automated/online system will help in reducing the time, bringing in more transparency, accuracy and speedy disposal of applications for grant of NoC by the respective Ministries/ State departments.



Renewable Energy (RE) Projects

NIWE has expanded the scope of its WRA division to provide comprehensive support services to academic institutions and public sector undertakings (PSUs) for the development of renewable energy projects in the wind and solar sectors. This initiative aligns with NIWE's commitment to promoting sustainable energy solutions and fostering collaboration with key stakeholders in the renewable energy landscape. Under this expansion the division carried out the following.

2 MWp Ground Mounted Grid Connected Solar Power Plant at Indian Institute of Management (IIM)-Trichy and 1 MW (AC) Ground Mounted Grid Connected Solar Power Plant at Madurai Kamaraj University (MKU), Madurai

The 2 MWp ground-mounted grid-connected solar PV power plant at IIM Trichy campus and 1 MW AC plant at Madurai Kamaraj University are being monitored through daily solar power generation data review and periodic site visits to inspect the solar arrays, inverters, transformers along with oversight of O&M activities like module cleaning, string checks, equipment tests as per the operational and maintenance agreements to validate proper maintenance and optimal performance of the solar assets for maximizing clean power generation from the grid-connected plants.



Standards and Regulation

Introduction

Wind energy sector is consistently growing in India with the increased unit size, higher hub height & larger rotor diameter and with a strong manufacturing base. Standards & Regulation (S&R) Division provides various services for the healthy and orderly growth of wind energy sector. The wind energy in India has matured over decades and is presently considered as mainstream source of Renewable power generation.

Standards

S&R Division has been providing the technical support to Bureau of Indian Standards (BIS) for the standards related works on a continuous basis throughout the year. BIS is the National Standards Body which issues Indian Standards. A separate committee viz., Wind Turbines Sectional Committee (ETD 42) was formulated by BIS for preparation of Indian standards on wind turbines, under the Chairmanship of Director General, NIWE. S&R Division, which is part of BIS ETD 42 committee, provides the technical support to BIS for the preparation of Indian Standards on wind turbines and also in all the standards related works. Director & Division Head, S&R along with Deputy Director (T) attended the 13th meeting of Wind Turbines Sectional Committee (ETD 42) of BIS held on 21.04.2023 through video conference under the Chairmanship of DG, NIWE. The working group meeting on standards was organized towards carrying out standardization works. During the year 2023-24, seven Indian standards on wind turbines have been finalized and accepted by BIS for printing. A total of 30 Indian standards on wind turbines have been finalized so far.

Contribution to IEC / IECRE

India is the "P" Member in IEC TC 88 committee (through BIS) which issues IEC standards on wind turbine. India is also a member in "The IEC System for Certification to Standards Relating to Equipment

for Use in Renewable Energy Applications (IECRE System) through BIS, which aims to facilitate international trade in equipment and services for use in Renewable Energy Sectors while maintaining the required level of safety". S&R Division has been providing technical support to BIS regularly on works related to IEC standards / IECRE documents.

Revised List of Models and Manufacturers of Wind Turbines (RLMM)

MNRE has been issuing Revised List of Models and Manufacturers of wind turbines (RLMM) periodically for the healthy and orderly growth of wind power projects in the country. S&R Division, which is part of RLMM committee, has been providing support to MNRE in verification of documentation submitted along with application and in handling RLMM related works. During the year, review of documentation has been completed for 35 RLMM applications of various wind turbine models and the review comments have been submitted to MNRE / RLMM committee. Director & Division Head, S&R and Deputy Director (T) along with DG, NIWE participated in eight RLMM committee meetings during the year, through video conference and provided technical support for finalizing the recommendations for issuing the RLMM lists.

Prototype Wind Turbine Models

The amended guidelines of MNRE dated 02.06.2016 for installation of prototype wind turbine models in India is being implemented by S&R Division. By implementing the guidelines, the division facilitates the installation of Prototype wind turbine models in the country to carry out the Type Testing for obtaining Type Certificate. In this regard, NIWE has formulated a committee to take a suitable decision on issuing the recommendation letters. S&R Division provides the technical support to the committee in verification of the documentation submitted on the prototype wind turbine models for its compliance as per the requirements stipulated in the MNRE guidelines for issuing the recommendation letter(s) in connection with grid synchronization.

During the year, the review / verification of documentation of one prototype wind turbine model in connection with installation of prototype wind turbines in India as per MNRE guidelines has been completed. During the said period, one prototype committee meeting was organized and the division has issued letter in connection with grid synchronization for one prototype wind turbine model with a rated capacity of 5200 kW for the purpose of Type Testing.

Quality Management System (QMS)

The services offered by NIWE viz., "Provision of type certification, testing, Resource assessment and inspection services related to wind energy" are already certified as per ISO 9001:2015 by DNV. Director & Division Head, Testing and S&R, as a Management Representative (MR) of ISO 9001:2015, has carried

STANDARDS AND REGULATION

out various works for maintaining ISO 9001 documentation / certification of NIWE. Further, the Internal Audit and Management Review (MR) meeting have been conducted, as per requirements of ISO 9001:2015 standard.

During the year, NIWE has successfully undergone the First periodic audit of Quality Management System as per ISO 9001:2015 conducted by DNV. Based on the audit, DNV has recommended for continuation of Certification as per ISO 9001:2015 for NIWE..



Prototype Wind Turbine Models & Manufacturer (PWMM) committee meeting



Wind Turbines Sectional Committee ETD 42 Meeting (through VC)



Testing

Introduction

Wind Turbine Test Station (WTTS) was established with the technical assistance of Danish Technical University (earlier RISO National Laboratory), Denmark, under the Danish International Development Agency (DANIDA) grant and with financial assistance and guidance from the Ministry of New and Renewable Energy (MNRE), Government of India.

WTTS is equipped to undertake Type Testing (TT) of wind turbines and also to conduct testing of wind turbines as per the requests of customers / manufacturers and the following tests are normally carried out as per International standards

- Power Performance Measurement
- Yaw Efficiency Test
- Safety and Functional Test
- Load Measurements

The above-mentioned tests are also being offered to be carried out at customer sites if the site meets the requirements of IEC Standards regarding terrain, obstacles, sector for measurements and wind conditions. The testing services are certified as per the requirements of ISO 9001:2015 and accredited as per the requirements of ISO/IEC 17025:2017. The Division contributes to the wind energy community by knowledge transfer through National and International training programmes on a periodic basis.

Important Events

Type Testing

- Type Testing as per IEC Standards (IEC 61400-12-1:2017 & IEC 61400-13:2015) are ongoing for INOX DF/3000/145 3.0 MW Power Booster Mode 3.3 MW Rotor Blade Type SR71 (T-Bolt), Hub

Height 100 m IEC WT Class IIIB wind turbine at Rajkot, Gujarat for M/s. Inox Wind Limited. Test report for Power Performance measurements, Safety and Function Tests have been issued. Test report (draft) for load measurements is sent to Customer and finalization is in progress. Further, Power Performance Measurements of 3.3 MW capacity as per IEC Standards viz., IEC 61400-12-1:2017 for the said wind turbine is ongoing.

- Power Performance & Load Measurements as per IEC Standards (IEC 61400-12-1:2017 & IEC 61400-13:2015) for GWL 225 wind turbine at Varapatti Village, Coimbatore, Tamil Nadu for M/s. Southern Wind Farms Limited have been completed. Test reports (draft) for Power Performance, Load Measurements have been sent to Customer and finalization of the reports are in progress.
- Conducted Acoustic Noise Measurements as per IEC Standards (IEC 61400-11:2018) on Servion 2.3M130 / 2.7 MW turbine (HH 120 m, RD 130 m) at Tithawa, Gujarat for M/s. Servion Wind Technology Private Limited. Draft Test report for acoustic measurements is issued and finalization is in progress.

Quality Management System

- Testing division has undergone the NABL onsite surveillance audit as per ISO/IEC 17025:2017 held on 23.09.2023 and 24.09.2023 at WTTS, Kayathar and NABL has recommended for continuation of accreditation.
- Also, the division has undergone the First Periodic audit as per ISO 9001:2015 held on 01.08.2023 at WTTS, Kayathar and 14.08.2023 at NIWE Chennai and DNV has recommended for continuation of certification.

Technical Co-operation

Dhanuskodi off-shore wind turbine Test Centre establishment under INDEP Program, NIWE along with DTU Wind and DEA organized an internal Workshop on "Efficacy Study" for Dhanuskodi Site on 02.05.2023.



Rotor Blade Instrumentation



Met Mast Instrumentation

Certification of Wind Turbine

Type Certification plays an active role in healthy and orderly growth of wind turbines. Type Certification ensures the structural integrity of a wind turbine under various external conditions (wind and other environmental conditions) and issued to a Wind Turbine Type (Model). The continuation of the accreditation as per the requirements of ISO / IEC 17065 for the certification services has benefited the wind industry to avail accredited type and component certification services for wind turbines within India in line with international practices. It has also created visibility for NIWE amongst international Accredited Certification Bodies. Type Certification of wind turbines facilitates the orderly growth of the wind energy sector. Currently, NIWE provides Certification services in India based on IS / IEC 61400-22:2010. The following major activities have been completed by the division.

Type Certification Projects Completed

- NIWE has signed an Agreement with M/s. Siva Wind Turbine India Private Limited for Pre-evaluation of documentation in connection with the Type Certification of 'SIVA U57' wind turbine model as per the requirements of IS / IEC 61400-22 : 2010. The Pre-evaluation has been completed.
- NIWE has signed an agreement with M/s PowerWind Limited for Pre-evaluation of documentation in connection with the Type Certification of "PowerWind 56" wind turbine model as per the scheme IS/IEC 61400-22 : 2010. The Pre-evaluation has been completed.
- NIWE has initiated the 2nd stage of the Type Certification process viz. evaluation of documentation for "PowerWind 56" wind turbine model of M/s. PowerWind Limited as per the scheme IS/IEC 61400-22: 2010. The project is ongoing.

Re-Accreditation Assessment by NABCB

NIWE obtained accreditation on 16.04.2020 for the certification services valid up to 15.04.2023 as per the requirements of ISO/IEC 17065 standard from the National Accreditation Board for Certification

Bodies (NABCB), Quality Council of India (QCI). As per accreditation requirements, the following activities have been completed successfully by NIWE:

- Re-Accreditation Office Assessment was conducted on 06.03.2023 & 07.03.2023 by NABCB, QCI as per the requirements of ISO/IEC 17065:2012 in connection with the renewal of the PCB accreditation of NIWE. The corrective actions for assessment findings were successfully submitted and accepted by NABCB. NABCB has extended accreditation to NIWE for a further period of four years valid up to 15.04.2027.
- As a part of the re-accreditation process, NABCB conducted the Witness Assessment of NIWE Certification Engineers during the Manufacturing Evaluation (mock) of the Wind Turbine rotor blades.
- In connection with the maintenance of the Accreditation as a Product Certification Body (PCB), NIWE conducted the Impartiality Committee meeting as per the requirements of ISO/IEC 17065:2012.

Inspection

Accreditation for Inspection Services

NIWE has prepared the documents as per the requirements of ISO/IEC 17020:2012 and submitted the application for obtaining Accreditation as "Type-A Inspection Body" to NABCB, QCI. The application has been accepted by NABCB and the following stages of the accreditation process have been completed:

- The first round of Documentation Review (DRR) has been completed successfully.
- The second round of Documentation Review (DRR) has been completed successfully on 10.07.2023 by NABCB, QCI as per the requirements of ISO/IEC 17020:2012 in connection with obtaining Accreditation for Inspection Services.
- Initial Assessment (IA) has been completed successfully on 25.07.2023 and 26.07.2023 by NABCB, QCI as per the requirements of ISO/IEC 17020:2012 in connection with obtaining Accreditation for Inspection Services.
- NIWE underwent the Witness Inspections successfully for the Mechanical component 'Tower' and the Electrical Component 'Wind Turbine Generator' on 11.03.2024 and 18.03.2024 respectively conducted by NABCB, QCI as per the requirements of ISO/IEC 17020:2012 in connection with obtaining accreditation for Inspection Services.
- NIWE has obtained Accreditation for Inspection Services from NABCB as Type 'A' Inspection Body as per the requirements of ISO/IEC 17020:2012, valid upto 25.04.2027.

CERTIFICATION OF WIND TURBINE

Inspection Activity

Physical verification of the components viz. Hub and Nacelle Assembly, Rotor Blade, and Tower have been completed at VOC Port in connection with PMC services for the commissioning of one number of WTG at VOC Port Trust, Tuticorin.

Agreement for Cooperation

A co-operation agreement has been signed between NIWE, M/s TUV Rheinland Industrie Service GmbH, Germany and M/s TUV Rheinland (India) Private Limited, Bengaluru and routine interactions are ongoing on a continuous basis.

Quality Management System (QMS)

Wind Turbine Type Certification and Inspection Services of NIWE are certified as per the requirements of ISO 9001: 2015 by DNV Business Assurance B.V (DNV). During the year, NIWE has successfully undergone the first periodic audit conducted by DNV as per ISO 9001:2015 for the scope of certification and inspection services. The continual improvement and maintenance of the Quality Management System are ongoing.



Shop Floor inspection

- 'Mock' Witness Assessment at Relwa Khurd, near Indore, Madhya Pradesh



Document Verification



'Mock' Witness Inspection at Silvassa, Dadra and Nagar Haveli and Daman and Diu



Research and Development

Vision for NIWE's new Research & Development Thrust

The Vision for NIWE's new Research & Development Thrust was unveiled during the 30th R&D Council Meeting.

Based on the recent advancements in technology, it was identified that research in the following thrust areas would provide impetus to further development of wind energy in the country including offshore, large scale hybrid systems:

Wind Resource Characterization (Onshore & Offshore)

- Resource Assessment including remote sensing
- Offshore Resource Assessment using floating LIDAR
- RSD Calibration
- Wind Flow Modeling (Micro siting)
- Site Suitability analysis (Turbulence, Wind shear, extreme wind conditions)

Wind Turbine Design

- Rotor design (including Airfoil & Wind turbine aerodynamics)
- Aero elastic load simulations
- Type Certification (Design Assessment)
- Type Testing (Power Performance, Loads)
- Acoustic Noise Measurements
- Drivetrain Technology innovation
- Support Structure design (Onshore & Offshore)

RESEARCH AND DEVELOPMENT

Wind Energy Systems

- Distributed energy systems including hybrid system
- Hybrid Power Plant design and operation
- Wind Power Forecasting

Wind Turbine Materials & Components

- Structural design and full scale Testing (Blades)
- Composites Analysis, manufacturing and Testing

Market & Policy

- Standards, guidelines, schemes preparation on above areas
- Repowering
- Life Time extension
- Wind Farm economics including LCOE studies

Short, Medium, Long Terms

NIWE being the technical focal point visualizes that the following targets could be achieved in short, Medium, Long Terms

Short Term (Up to 2 years)

- Lifetime Extension Assessment studies
- Met ocean Studies
- Mesoscale data validation using one year measurements
- Offshore Resource Assessment using floating LIDAR
- Inter decade variability in wind resources (to determine AEP uncertainty)
- Acoustic Noise Measurements in different terrain conditions
- Validation of Turbulence Normalization with measured data
- Condition Monitoring using Artificial Intelligence

Medium Term (Up to 5 years)

- Test Station development for offshore wind turbines at Dhanuskodi
- Blade Test Facility for large wind turbines

Long Term (Up to 10 years)

Renewable grid integration

- Effect of including wind in electric grid specially in terms of offshore wind through power modelling to balance generation vs demand all through the year.
- Model study on incorporation of grid and stability of power from offshore wind.
- Model study on the integrated wind solar hybrid through enhanced coordination and flexible operation, regulating the power and thereby greening the energy
- Study on causes of degradation and improving life of stored energy

Decarbonization

- Policy of decarbonization through renewable energy as a part of large business plans that are to be met for regulatory requirements.
- Expanded modelling scenarios to understand role of offshore wind in decarbonizing India
- Technology for cutting down carbon emissions by 45% by 2030 and zero emissions by 2050 for wind energy.
- Research on new and engineered materials that better withstand the wear and tear while offering exceptional performance.
- Aim to reduce waste from wind systems and preserve and re-use products, as a part, or whole.

Biodiversity

- Study on limiting effect of biodiversity by 80% in 2030 and to no effect by 2050.
- Study on re-use of wind turbine materials through recycling
- Study on materials utilized and its availability in futuristic scenarios

Offshore Wind

- Modelling study on types of foundations and its economical impact on wind turbines
- Feasibility of floating wind energy in Gulf of Mannar
- Atomistic examination of technology to reveal stressors and allow for the identification of weak points in the material or structure
- Securing funds and support for development in offshore wind through policies and contracts

The vision document will be made available in NIWE website seeking proposals in the identified thrust areas from academic, R&D Institutions and Industry.

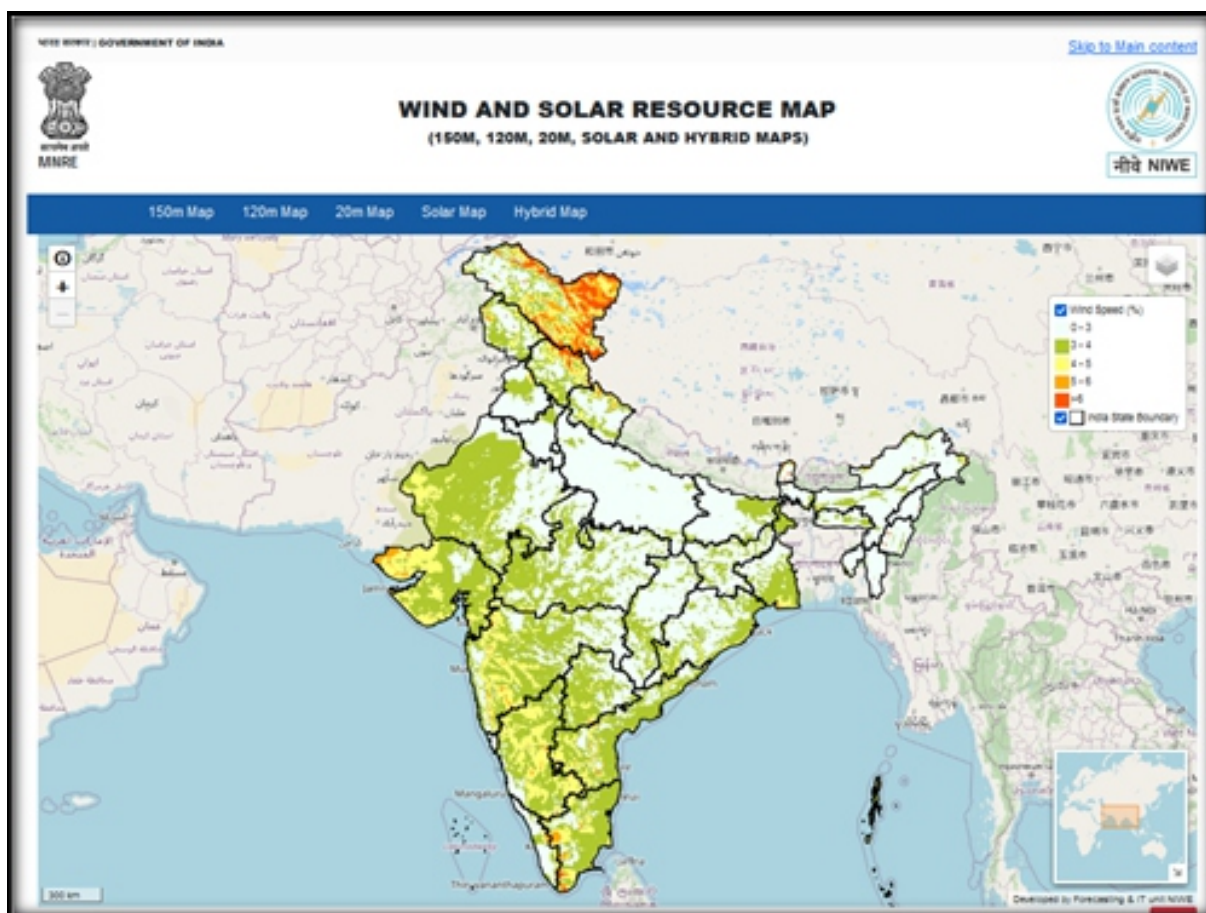


Information Technology

Information Technology (IT) Division continues to upgrade and maintain NIWE's IT infrastructure. The brief activities carried out by the Division are as follows:

Information Technology

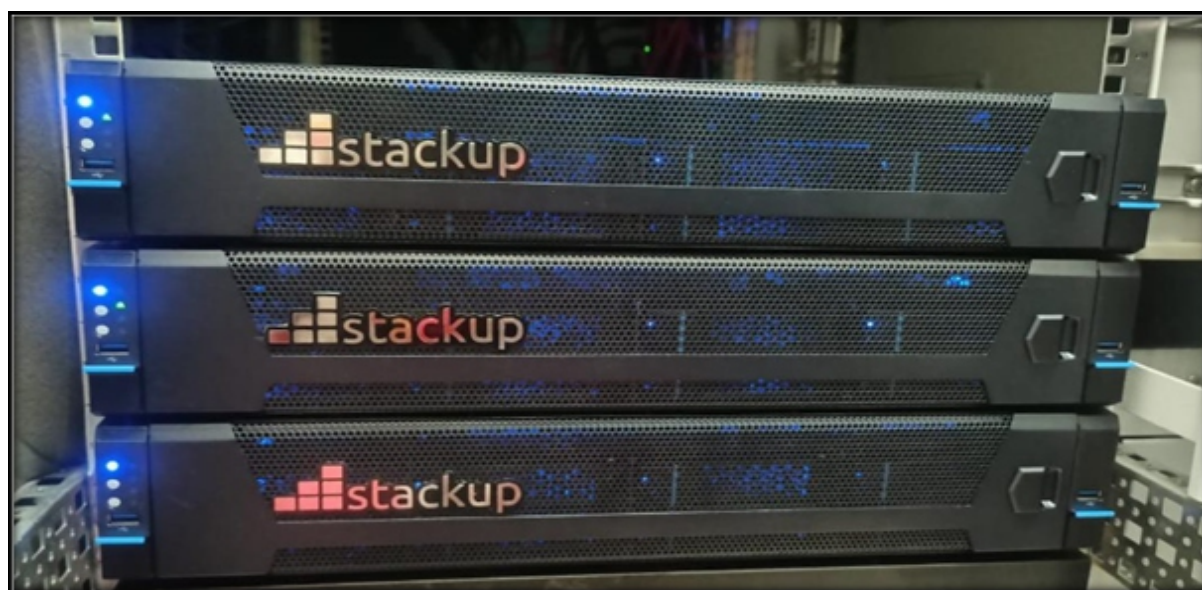
- The 20 m Wind Atlas Map web application was developed and published.



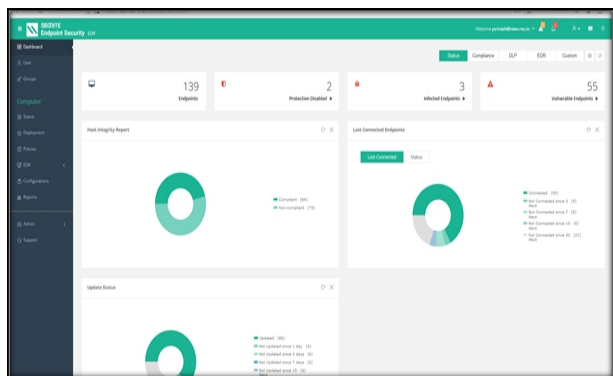
- Integration of the 20 m,120 m,150 m, Solar and Hybrid Map portals under single resource map portal has been successfully completed.
- Based on suggestion from the user division, version 1.0 of the single window clearance portal for the offshore wind projects for offshore projects has been developed.



- Provided Wind and Solar resource map inputs to Gatishakti Portal.
- Initiated design and development of NIWE website in line with GIGW guidelines.
- Hyper Converged Infrastructure (HCI) system has successfully installed and migrated various Virtual Machine's (VM) to new HCI.



- New endpoint security software has been successfully installed to protect endpoint devices and VMs from cyberattacks.
- Restructuring of Video conference hall, audio and video devices was successfully completed at NIWE, Chennai.



- Establishment of Video conference hall was successfully completed at NIWE Kayathar.
- Establishment of Video Seminar Hall /Training hall was successfully completed at NIWE Kayathar.



- Completed the purchase of various IT devices, software and its renewal for FY 2023-2024.
- Initiated the restructuring of LAN.
- Continued to take the backups of VM's and maintain the backup software, Backup storage and Operational Storage.
- Prepared tender documents for the procurement of new hardware, software and AMC services.
- Continued to maintain IT Infrastructure to keep servers, storage, systems and software operational.
- Continued to provide IT support for users at NIWE and its stakeholders.





SKILL DEVELOPMENT & OUTREACH

- **Training**
- **Prof. Anna Mani Information Centre**
- **Events**
- **Papers and Publications**
- **International Meetings / Training**
- **Visitors**

Training

NIWE is dedicated to advancing skill development in the wind energy sector through a multifaceted approach. By offering comprehensive training programs and engaging with communities, NIWE is playing a crucial role in building a skilled workforce capable of driving the growth and sustainability of wind energy in India and beyond. The following are the activities of the Skill Development and Training (SDT) Division during 2023-24:

Training Courses

One of the major activities of the SDT Division is conducting training courses for National and International participants on various aspects of Wind Energy Technology and project development. The Division has successfully organized 59 National and 48 International Training courses since 2004. Till now 2188 national participants from all parts of the country and 1085 international professionals from 102 countries were trained.

During the year 2023-24, a total of 7 training courses were conducted (3 international and 4 national training courses).

International Training Course

NIWE has been conducting training courses under Indian Technical and Economic Cooperation (ITEC) programme sponsored by Ministry of External Affairs (MEA), Government of India. During the period 2023-24, the following 3 training courses have been conducted.

Twenty Seventh International Training Course on Wind Turbine Technology and Applications

The SDT division has conducted the 27th International Training Course on "Wind Turbine Technology and Applications" during 04.10.2023 to 20.10.2023 sponsored by MEA under ITEC programme. 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. 23 participants attended the



Shri. Dinesh Jagdale, Joint Secretary, MNRE delivering the Inaugural Address

course from 13 ITEC countries, Cambodia, Eritrea, Ethiopia, Ghana, Kenya, Morocco, Mozambique, South Sudan, Sri Lanka, Tajikistan, Uganda, Uzbekistan and Vietnam.

The course was inaugurated by Shri. Dinesh Jagdale, Joint Secretary, MNRE in the presence of Dr. Prabir Kumar Das, Scientist, MNRE, Dr. Rajesh Katyal, Director General, NIWE, Dr. K. Boopathi, Director & Division Head, WRA, NIWE and Course Coordinator, Dr. P. Kanagavel, Director & Division Head, SDT & IM, NIWE.

During the 18 day course, 19 classroom lectures were scheduled apart from study visits to wind farm and wind turbine manufacturing factory. The participants were taken for a factory visit to M/s. Siemens Gamesa Renewable Energy Pvt. Ltd., Mamandur, Tamilnadu. The participants were taken on a study



Dr. Rajesh Katyal, Director General, NIWE distributing the Course Certificate

visit to the southern part of Tamil Nadu to visit Wind Turbine Test Station at Kayathar, Transformers Workshop at Apollo Transformers & Filters Limited, Nagercoil, Operation and Maintenance of Wind Turbines at RS Windtech Engineering Limited, Nagercoil and Centralized Monitoring Station at Suzlon Global Services Limited, Thattaparai.

Dr. Rajesh Katyal, Director General, NIWE distributed the course certificates to all the participants during the Valedictory Function held on 20th October 2023.

Twenty Eighth International Training Course on “Wind Turbine Technology and Applications”

The SDT division has conducted the 28th International Training Course on “Wind Turbine Technology and Applications” during 29th November to 15.12.2023, sponsored by MEA under ITEC programme. 21 participants attended the course from 12 ITEC countries, Eritrea, Ethiopia, Fiji, Ghana, Kenya, Lesotho, Mozambique, Myanmar, Sri Lanka, Thailand, Turkmenistan and Uganda.

The course was inaugurated by Shri. S.A. Mathew, Director and Division Head, Certification and IT Division, NIWE in the presence of the Course Coordinator, Dr. P. Kanagavel, Director & Division Head, SDT Division, NIWE along with the training participants.



Inauguration of the Course

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 through 19 classroom lectures apart from study visits to wind turbine training facility and wind turbine manufacturing factory.

As part of the course, Renewable Energy facilities available in NIWE campus, such as, Water Pumping

Windmill, Vertical and Horizontal Axis Small Wind Turbines, Wind-Solar Hybrid System, Wind Turbine Nacelle Assembly facility, Metrological Mast, Biogas Plant and SRRA Station and Wind Energy Training Systems were shown to the participants.

The participants were taken to the 1) Training facilities of M/s. Vestas Wind Technology India Pvt. Ltd., Ammapettai, which provided valuable insights into the various components and its finer points in the installation and maintenance of wind turbine. 2) Study visit to CSIR-Structural Engineering Research Centre, Taramani where they were shown the wind engineering laboratory consisting of a state-of-the-art Boundary Layer Wind Tunnel (BLWT) facility and Advanced Seismic Testing and Research laboratory (ASTaR), the state-of-the-art facility incorporating all major seismic technologies that involve critical seismic engineering issues. 3) Factory visit to M/s. Siemens Gamesa Renewable Energy Pvt. Ltd., Mamandur, where they had a chance of seeing the wind turbine nacelle assembling, and other connected equipment like hub and gear train with respect to wind turbine from the industry experts who are actually in the field.

The valedictory function was conducted on 15.12.2023. Shri. S.A. Mathew, Director and Division Head, Certification & IT, NIWE distributed the course certificates to all the participants. The participants had shared their views and appreciated MEA, MNRE, NIWE and Government of India for conducting the course and also thanked the coordinator Dr. P. Kanagavel, Director and Head, SDT, NIWE and NIWE staff.



Shri. S.A. Mathew distributing the Course Certificate

Twenty Ninth International Training Course on "Wind Turbine Technology and Applications"

The SDT Division has conducted the 29th International Training Course on "Wind Turbine Technology and Applications" during 24.01.2024 to 09.02.2024, sponsored by MEA under ITEC programme.



Shri S.A. Mathew delivering Inaugural Address

28 participants attended the course from 11 ITEC partner countries, Eritrea, Ethiopia, Ghana, Kenya, Lebanon, Malawi, Maldives, South Sudan, Sri Lanka, Tunisia and Zimbabwe.

During the 18 days course, 19 classroom lectures were scheduled apart from study visits to wind farm and wind turbine manufacturing factory. The participants were taken on a study visit to the southern part of Tamil Nadu to visit Wind Turbine Test Station at Kayathar, where they got an exposure on small and large wind turbine testing facilities apart from visiting the facilities of Gearbox repairs at Narayana Wind Power Pvt. Ltd., Aralvaimozhi, operation and maintenance of wind turbines at RS Windtech Engineering Limited, Aralvaimozhi, data collection and electrical support at Wind World Clean Energy Forever, Manur and centralized monitoring station at Suzlon Global Services Limited, Thattaparai, Tamilnadu.

Participants visited and enjoyed the cultural visit at the Southern tip of India which comprises of the Thiruvalluvar Statue and Vivekananda Rock Memorial, Kanyakumari, Tamilnadu.

The participants were taken to the training facility of M/s. Vestas Wind Technology India Pvt. Ltd., Ammapettai, Tamilnadu, which provided valuable insights into the various components and its finer points in the installation and maintenance of wind turbine. The participants were also taken for a visit to CSIR-Structural Engineering Research Centre, Taramani, Chennai, Tamilnadu where they were initially shown the wind engineering laboratory consisting of a state-of-the-art Boundary Layer Wind Tunnel (BLWT) facility, one of the largest boundary layer wind tunnels available in the country.



29th ITEC Course participants at the Wind Turbine Test Station, Kayathar



29th ITEC Course participants at Narayana Wind Power Pvt. Ltd., Aralvaimozhi



29th ITEC Course participants at RS Windtech Engineering Pvt. Ltd, Aralvaimozhi



29th ITEC Course participants at Suzlon Global Services Ltd., Thattaparai

Ms. Abhilasha Joshi, Additional Secretary, Ministry of External Affairs, Government of India was the Chief Guest for the valedictory function that was held on 09.02.2024 and distributed the course certificates to all the participants. The course was appreciated by each of the participant stating that it encouraged a positive learning environment and found it very effective and beneficial.



29th ITEC Course : Glimpse of Valedictory Function

National Training Course

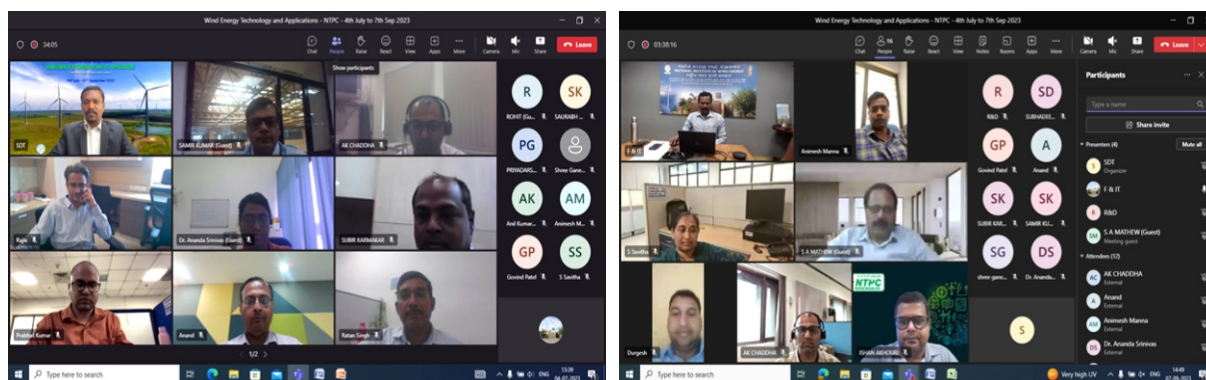
NIWE has been conducting training courses for national participants and during the period 2023-24, the following 4 training courses both online and physical mode have been conducted. The course has given a picture of complete know-how and pave the way to go about setting up financially viable wind farm projects.

Customized Online Training Course specially for the officials of M/s. NTPC Limited

The SDT Division has conducted the customized online training course on “Wind Energy Technology and its Applications” specially for the officials of M/s. NTPC Limited held during 04.07.2023 to 07.09.2023. The training course was attended by 18 participants. The online course was held on Tuesdays and Thursdays of every week at 3 hours of class per day.

The course addressed all the aspects of wind energy technology with 36 lectures on various topics. The course contents of the training were handled by Scientists / Engineers of NIWE who have many years of experience in the field.

During the valedictory function, Dr. P. Kanagavel, Director and Head, SDT Division, NIWE provided the course summary and released the assessment score of the participants and NTPC officials expressed their appreciation and thanks to all the faculties, organizing team and NIWE. The course structure and organization of training was highly appreciated by the participants. The participants were very much satisfied with the quality of lectures and support from the organizing team throughout the course.



*Customized online training course specially for the officials of M/s. NTPC Limited
Participants during the Inaugural Function*

Participants during the Valedictory Function

Special Training Course for the officials of M/s. Renew Power Pvt. Ltd.

Special Training Course on “Wind Energy Technology” for the 28 officials of Renew Power Pvt. Ltd. from 25.09.2023 to 30.09.2023. The Training course covered all aspects of wind power, including wind resources assessment, project implementation and operations & maintenance. The lectures during the course were delivered by the experienced scientists and engineers of NIWE. The training sessions



Dr. Rajesh Katyal, DG, NIWE inaugurating the Special Training Course of Renew Power Pvt. Ltd.

consisted of classroom lectures and study visits to wind farms at WTTS, Kayathar, RS Windtech Engineers (P) Ltd, Aralvoimozhi, Apollo Transformers & Filters, Kavalkinaru and Suzlon CMS, Tirunelveli, Tamilnadu.



Group photo of Special Training Course of Renew Power Pvt. Ltd. after receiving the course certificate

Special Training Course for the officials of M/s. Renew Power Pvt. Ltd.

The Skill Development and Training Division of NIWE had conducted the special training course on "Wind Energy Technology" for the officials of M/s. Renew Power Pvt. Ltd. held during 08.01.2024 to 13.01.2024. The course addressed all aspects of Wind Power starting from what is wind to wind resources assessment, project implementation and operations & maintenance aspects in a focused manner along with financial and policy aspects towards going in for economically viable wind farm projects. 45 numbers of officials working in different facets of wind projects had participated enthusiastically in the course.



Dr. Rajesh Katyal delivering the Inaugural address of Special Training Course for the officials of M/s. Renew Power Pvt. Ltd.

The participants visited the Renewable Energy facilities available in NIWE. They were also taken to the southern part of Tamil Nadu to visit Wind Turbine Test Station at Kayathar, where they got an exposure on small and large wind turbine testing process. They also had a live feel of Transformers & Generator Assembly at Apollo Transformer & Engineering Pvt. Ltd., Tirunelveli, Operation and Maintenance



Special Training Course for the officials of M/s. Renew Power Pvt. Ltd. participants at Wind Solar Hybrid System, WTTS, Kayathar



Special Training Course for the officials of M/s. Renew Power Pvt. Ltd. participants at RS Windtech Engineering Pvt. Ltd., Aralvaimozhi



Special Training Course for the officials of M/s. Renew Power Pvt. Ltd. participants at Apollo Transformer & Engineering Pvt. Ltd.



Special Training Course for the officials of M/s. Renew Power Pvt. Ltd. participants at Suzlon CMS, Thattapaarai

facilities of Wind Turbines at RS Windtech Engineering Pvt. Ltd., Aralvaimozhi and CMS SCADA facilities at Suzlon Global Services Limited, Thattapaarai.

After the visits, the certificates were distributed to the participants on 13.01.2024. All the participants appreciated the classroom lectures, renewable facility visit and study visits arranged by NIWE as part of the course.



Group Photo of Special Training Course for the officials of M/s. Renew Power Pvt. Ltd. participants after receiving the Course certificate

Twenty Fifth National Training Course on "Wind Energy Technology"

The SDT Division has conducted the 25th National Training Course on "Wind Energy Technology" held during 21.02.2024 to 23.02.2024 to address all aspects of Wind Power starting from introduction to



Dr. P. Kanagavel inaugurating the 25th National Training Course

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 50 participants from 9 States viz. Tamil Nadu, Delhi, Gujarat, Haryana, Jharkhand, Karnataka, Kerala, Maharashtra and Odisha.

The training course was inaugurated by Dr. P. Kanagavel, Director & Head, SDT Division, NIWE with the participants in absentia of the DG, NIWE. During the 3 days course, 11 classroom lectures were scheduled.



Dr. P. Kanagavel distributing the Course Certificate of 25th National Training Course

The participants visited the Renewable Energy facilities available in NIWE campus for practical exposure, and had an opportunity to understand the Vertical and Horizontal Axis Small Wind Turbines, Wind-Solar Hybrid System, Wind Turbine Nacelle Assembly facility, Meteorological Mast, Biogas Plant and SRRA Station and Wind Energy Training Systems.

During the Valedictory Function, the participants expressed their appreciation to NIWE for organizing the training course. Thereafter, Dr. P. Kanagavel, Director & Head, SDT Division, NIWE thanked the participants for their appreciation and distributed the Course Certificates to the participants.



Group photo of the participants of the 25th National Training Course

Vayumitra Skill Development Programme (VSDP)

MNRE has assigned NIWE as the nodal agency to implement "Vayumitra Skill Development Program (VSDP)" in eight windy states and Kerala. The objective of the programme is to create skilled workforce for the Indian wind energy sector especially the trained manpower for the operation & maintenance of wind farms in the country as per the industry demand/needs so as to achieve the Government of India targets.

Under VSDP the following three major areas / job levels were identified namely (1) O&M Electrical & Instrumentation Technician—WPP (SGJ/Q1503) (2) O&M Mechanical Technician—WPP (SGJ/Q1502) and (3) Site Surveyor—WPP (SGJ/Q1202). Under VSDP, a total of 5010 participants are proposed to be trained through Training of Participants (ToP). The ToP training courses are being conducted through 22 identified institutions located close to the Wind Farms of windy States. To train the

participants, NIWE will conduct Training of Trainers (ToT) programme and train 690 trainers who will train the participants.

Status of the VSDP Activities

NIWE has designed an exclusive VSDP web portal (<https://vsdp.niwe.res.in/>) [with all requisite content and features](#). NIWE had also identified 13 Training Centers through the release of EoI for the financial year 2022-23. Facilitator guide for ToT participants has been procured from National Instructional Media Institute (NIMI), Chennai and distributed to all the trainers who have attended the ToT programme. "Participants Handbook" for ToP programme has been prepared through NIMI, Chennai and soft copy of the same has been given to all the TPs for circulation to participants.

Training of Trainers (ToT) Programme

Seven batches of Training of Trainers (ToT) programme has been successfully completed and 196 trainers have been trained. A total of 136 participants from institutions and 60 participants from Wind industry have attended the ToT programmes. All the 196 participants have been assessed by Skill Council for Green Jobs (SCGJ) and were awarded Certificate by National Skill Development Corporation (NSDC) of Ministry of Skill Development and Entrepreneurship (MSDE), Government of India.

Training of Participants (ToP) programme

1050 Participants have been already trained through 35 batches of ToP during 2022-23. During the period from April 2023 to March 2024, 31 batches have been completed and trained 930 participants. Till now, a total of 66 ToP batches were completed and trained 1980 participants.

NIWE has initiated the following activities

- Physical and desk verification of participants who got placement in different wind industries within the country.
- Released 2nd EoI for the selection of 22 training partners from 9 windy states of India for the FY 2024-25.
- Processed the bills and documents submitted by the Training Partners who have conducted ToP programs and released an amount of Rs. 2.25 crore.
- Revised Guideline for conducting Vayumitra Skill Development Programme has been framed and submitted for approval.
- Monitoring of all the ToP batches vide public IP based camera and AEBAS attendance system.
- The 4th and 5th meeting of the committee constituted by MNRE to monitor and review Vayumitra Skill Development Programme held on 09.06.2023 and 10.11.2023 respectively and reviewed the VSDP activities.



Glimpse of ToT Programme



Group photo of Training of Participants at TUV Rheinland NIFE Academy Pvt. Ltd., Pollachi



Group photo of ToT Programme Participants, 6th ToT programme at Courtallam, Tamilnadu



Group photo of Training of Participants at TUV Rheinland NIFE Academy Pvt. Ltd., Pollachi, Tamilnadu

NIWE as an Awarding Body and Assessment Agency of NCVET

Indian wind energy sector is in compelling need to create mass trained / skilled manpower to achieve the targets fixed by the Government of India and become the global leader in the sector. As Wind Energy is a multi-disciplinary subject and requires expertise to handle the Awarding and Assessment functions to ensure quality process, NIWE has all the needed expertise and hence had approached National Council for Vocational Education and Training (NCVET), Government of India, New Delhi for

dual category of both Awarding Body and Assessing Agency. After undergoing a lot of documentation and formalities, NIWE was granted provisional status of Awarding Body on 29.08.2022. To get the necessary dual recognition, NCVET had insisted NIWE to own at least one Qualification Pack (QP) pertaining to the sector. Accordingly, a QP on “Wind Farm Engineer” for 540 hours duration was developed and submitted to NCVET for approval. The approval for grant of QP was completed and fulfilled during the 35th NSQC meeting held in February, 2024 and for doing the necessary inclusions in the National Qualification Register (NQR). The agreement of understanding between NCVET and NIWE pertaining to this recognition is to be signed shortly. After the signing of agreement, NIWE can conduct Training courses and Award certificates with the support of NCVET.



Prof. Anna Mani Information Centre

NIWE Library named after renowned meteorologist "Prof. Anna Mani" as Information Centre has about 2718 books on renewable energy in general and wind energy in particular with allied subjects. It includes books on Energy and environment, sustainable development, all engineering disciplines, science, management and personality development. NIWE's Library has also subscribed to all major National and International Journals & Magazines as well as print + online related to wind energy and other allied engineering disciplines. It is also having around 832 Standards, 365 technical reports, 460 conference proceedings and 170 annual reports and other information resources like Wind Atlas and data books, Maps, Manuals, souvenirs, Digital resources, etc.

NIWE Library has been computerised with library automation software and Online Public Access Catalogue (OPAC) facility is also made available. Apart from this NIWE has the distinction of having membership with 2 of the premier institutions (Viz) IIT & DELNET. Interested students / research scholars / academicians / public can access NIWE's Library with prior permission, free of cost without borrowing.

In addition to the above, NIWE had 1672 visitors who had visited the library and a total number of 78 books were issues during this year. The number of dailies Purchased during the year was 11 newspaper covering 3 languages (viz) English, Hindi and Tamil.

List of collection in NIWE Library- Prof. Anna Mani Information Center	
Books	2261
Standards (Hard Copy, CD ROM & PDF)	832
Technical Report	365
Annual reports	170
Manuals	33
Conference /Proceedings	460
Non-Book Materials	166
Subscribed Periodicals	23
International Journal	05
International Magazine	02
National Journal	05
National Magazine	08
Membership	03

Events

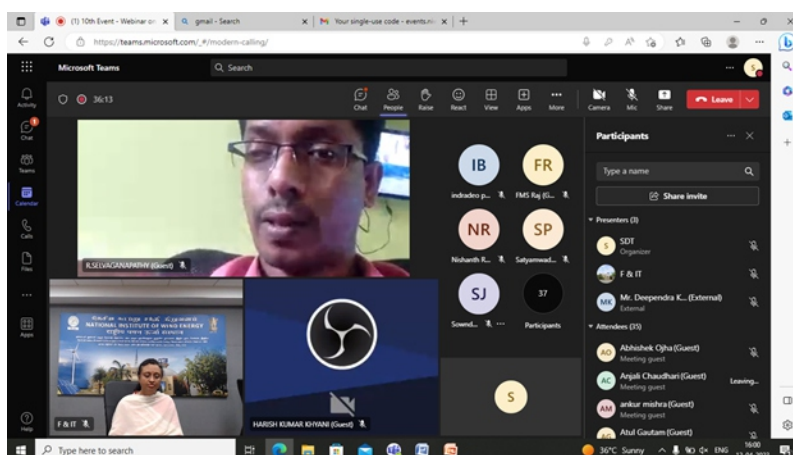
Azadi ka Amrit Mahotsav 2022-23

NIWE with the support of MNRE had successfully conducted sixteen events to commemorate 75 years of progressive Independent India (Azadi Ka Amrit Mahotsav). The announcement about the event carrying the instructions was hosted in NIWE website and circulated through Social Media pages along with the Flyer. The event was conducted online, enabling large number of participants to take part in the Webinar.

The tenth, twelfth, fourteenth, fifteenth and sixteenth events were of webinar in nature, the speakers gave a detailed presentation on different aspects of the respective theme. It was followed by Q&A session, which was open for the participants to chat and interact with the speakers. All the doubts and queries raised by the participants were clearly explained and clarified by the speaker. The answers were very useful to the participants to have a feel about the sector. The participants were very much satisfied with the presentation and had reciprocated the same by appreciating and thanking the speaker and NIWE/MNRE.

TENTH EVENT - "Webinar on Grid Integration of Renewable Energy"

The tenth event, "Webinar on Grid Integration of Renewable Energy" by Smt. Deepa Kurup, Additional Director & Division Head (RE-Grid Integration) & Division Head (In-charge) (R&D), NIWE was successfully conducted on 12.04.2023. 211 candidates had registered and 75 participants had attended the event.



10th Event on Webinar on Grid Integration of Renewable Energy

ELEVENTH EVENT - "Awareness Programme on Wind Energy for School Teachers"

The eleventh event, "Awareness Programme on Wind Energy for School Teachers" was successfully conducted on 28.04.2023. 61 registrations were received and 52 teachers attended the Event.

As part of the event, a lecture was presented by Dr. P. Kanagavel, Director and Head, SDT & IM Division, on the foundation and basic principles of green energy which included the concept of greenhouse effect and global warming and how it affects our environment. Also basics on wind energy technology was explained during the lecture. The participants had evinced great interest on the subject and many doubts were clarified during the session. The event was very helpful to the participants and created a valuable forum for dialogue and open exchange of views.



Dr. P. Kanagavel delivering the lecture on Awareness Programme on Wind Energy for School Teachers

The participants were also taken for a visit to the Renewable Energy facility available in the NIWE campus, which included Wind and Solar Measurement station, wind turbine nacelle, Water Pumping Wind Mill, Wind —Solar Hybrid System and Solar Calibration Laboratory.



*Awareness Programme on Wind Energy for School Teachers
Visit to the Solar Radiation Resource Assessment Station*



Explaining the working principles of LiDAR



*Awareness Programme on Wind Energy for School Teachers
Visit to the Biomass Plant*

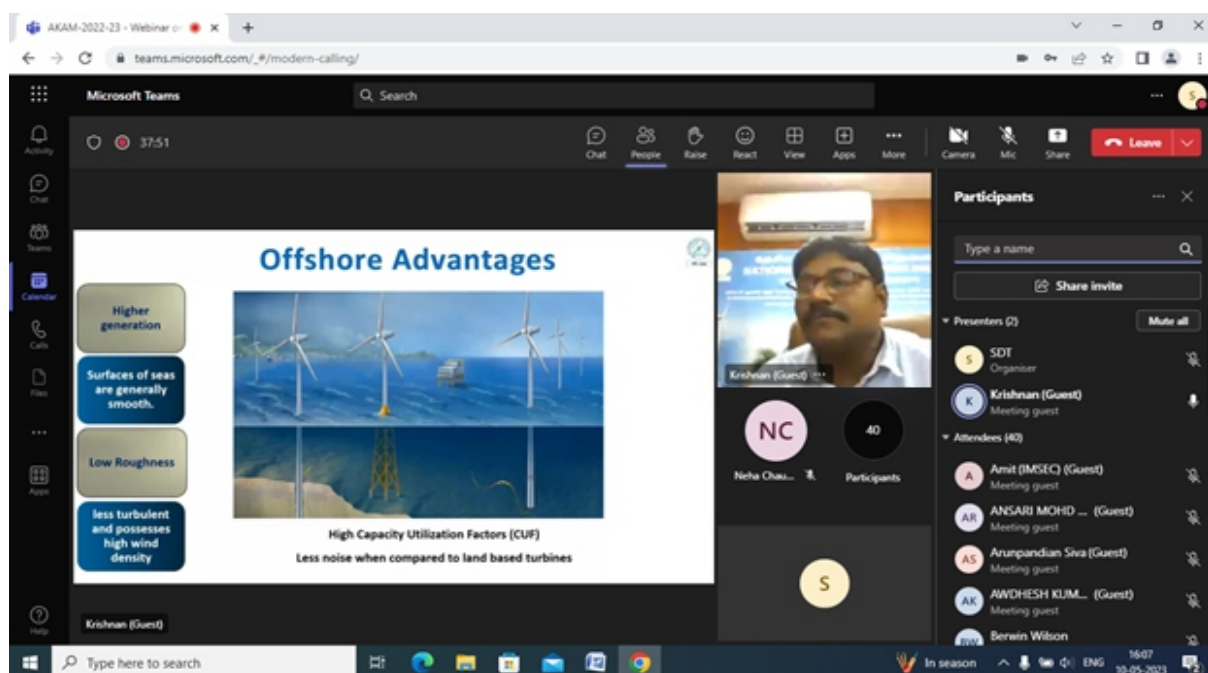


Participants in front of Calibration Laboratory

The participants were very much satisfied by the quality of the content they got from the programme, campus visit and expressed thanks to NIWE and MNRE for arranging the event under the Azadi Ka Amrit Mahotsav.

TWELFTH EVENT - “Webinar on Offshore Wind Energy”

The twelfth event, “Webinar on Offshore Wind Energy” by Shri. B. Krishnan, Assistant Director (Technical) Offshore & Data Analytics Unit, NIWE was successfully conducted on 10.05.2023. 207 candidates had registered and 72 participants had attended the event.



Webinar on Offshore Wind Energy in progress

THIRTEENTH EVENT - “Interactive Session with Wind Industry Experts”

The thirteenth event, “Interactive Session with Wind Industry Experts” was successfully conducted on 26.05.2023. 290 candidates had registered and 110 participants had attended the event.

Programme Schedule

Date & Time	Theme of Interactive Session	Panel Members
26.05.2023 4.00 - 5.00 pm IST	Interactive Session with Wind Industry Experts on the topic "Harnessing 140 GW Wind installed capacity by 2030 in India"	Shri. A. S. Karanth, Wind Energy Consultant
		Dr. R. Kumaravel MD - Country Manager, Wind Guard
		Shri. Rahul Rawat*, Scientist C, MNRE
		Dr. K. Boopathi ** Director & Division Head, OWD, DAF & IT, NIWE

*/** Both the experts could not join the discussion due to unavoidable official exigency. However, Dr. P. Kanagavel, Director & Division Head, NIWE joined the panel discussions.

The session was very lively and interactive. The panel members shared their inputs on the topic, "Harnessing 140 GW Wind Installed capacity by 2030 in India" through a presentation followed by Q&A session and the participants evinced interest in raising questions and clarifying their doubts.

The team of experts who have worked in various wind energy projects, took part in the discussions and it was an excellent forum for the stakeholders to understand the various issues and challenges faced towards the roadmap on the topic and the future achievements in India.

The event has provided a wonderful learning experience for the participants for the project development in harnessing 140 GW wind installed capacity by 2030 in India. All the participants were satisfied with the knowledge transferred through the panel discussion on different aspects of the roadmap of the topic and expressed their happiness to NIWE and MNRE for arranging the Interactive Sessions with the Wind Industry Experts under the events of Azadi ka Amrit Mahotsav.



Interactive Session of Wind Industry experts

FOURTEENTH EVENT - "Webinar on Forecasting of Renewable Energy Production"

The fourteenth event, "Webinar on Forecasting of Renewable Energy Production" by Shri. A.G. RANGARAJ, Deputy Director (Technical) & Unit Chief, Forecasting & Information Technology, NIWE was successfully conducted on 23.06.2023. 75 candidates had registered and 51 participants had attended the event.

Webinar in progress on Forecasting of Renewable Energy Production

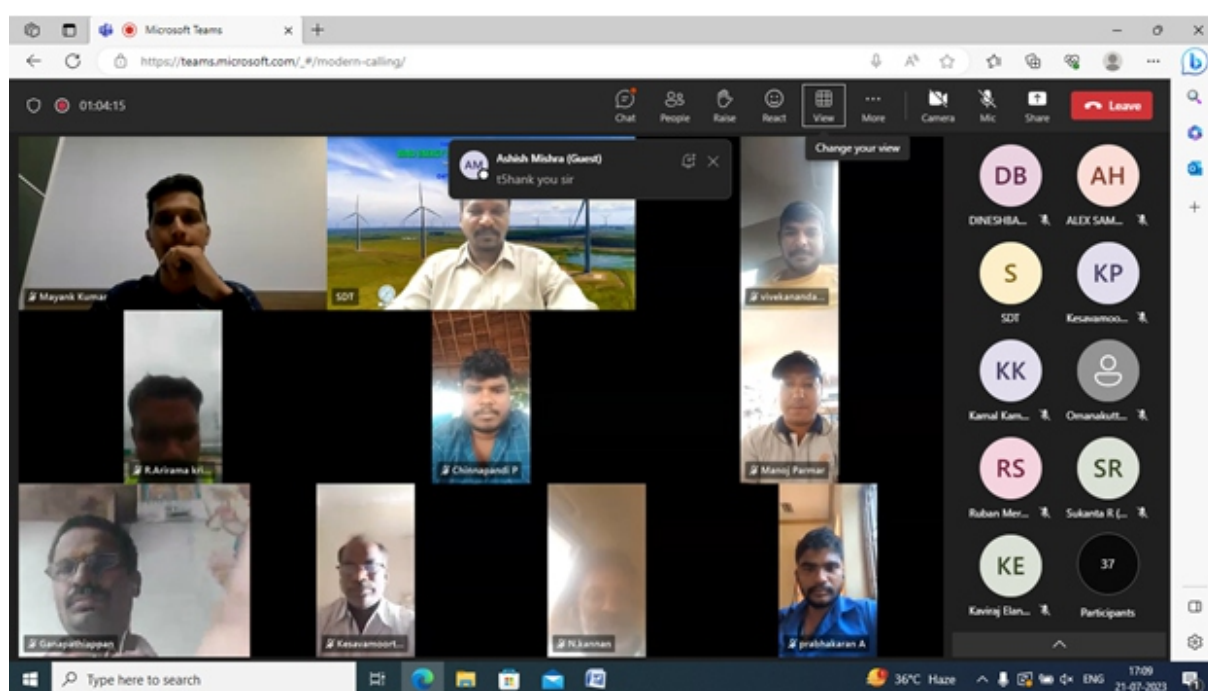
FIFTEENTH EVENT - "Webinar on Research Opportunities in Wind Energy"

Webinar on Research Opportunities in Wind Energy

The fifteenth event, “Webinar on Research Opportunities in Wind Energy” by Smt. M.C. LAVANYA, Deputy Director (Technical) & Unit Chief, R&D, NIWE was successfully conducted on 12.07.2023. 121 candidates registered and 55 participants have attended the event.

SIXTEENTH EVENT - “Webinar on Skill Development and Reskilling for Wind Sector”

The sixteenth event, “Webinar on Skill Development and Reskilling for Wind Sector” by Dr. P. KANAGAVEL, Director & Head, Skill Development and Training, NIWE was successfully conducted on 21.07.2023. 95 candidates registered and 53 participants have attended the event.



16th Event - Webinar on Skill Development and Reskilling for Wind Sector

NINTH EVENT - “Technical Paper Presentation pertaining to Wind Energy for Postgraduate Engineering Students”

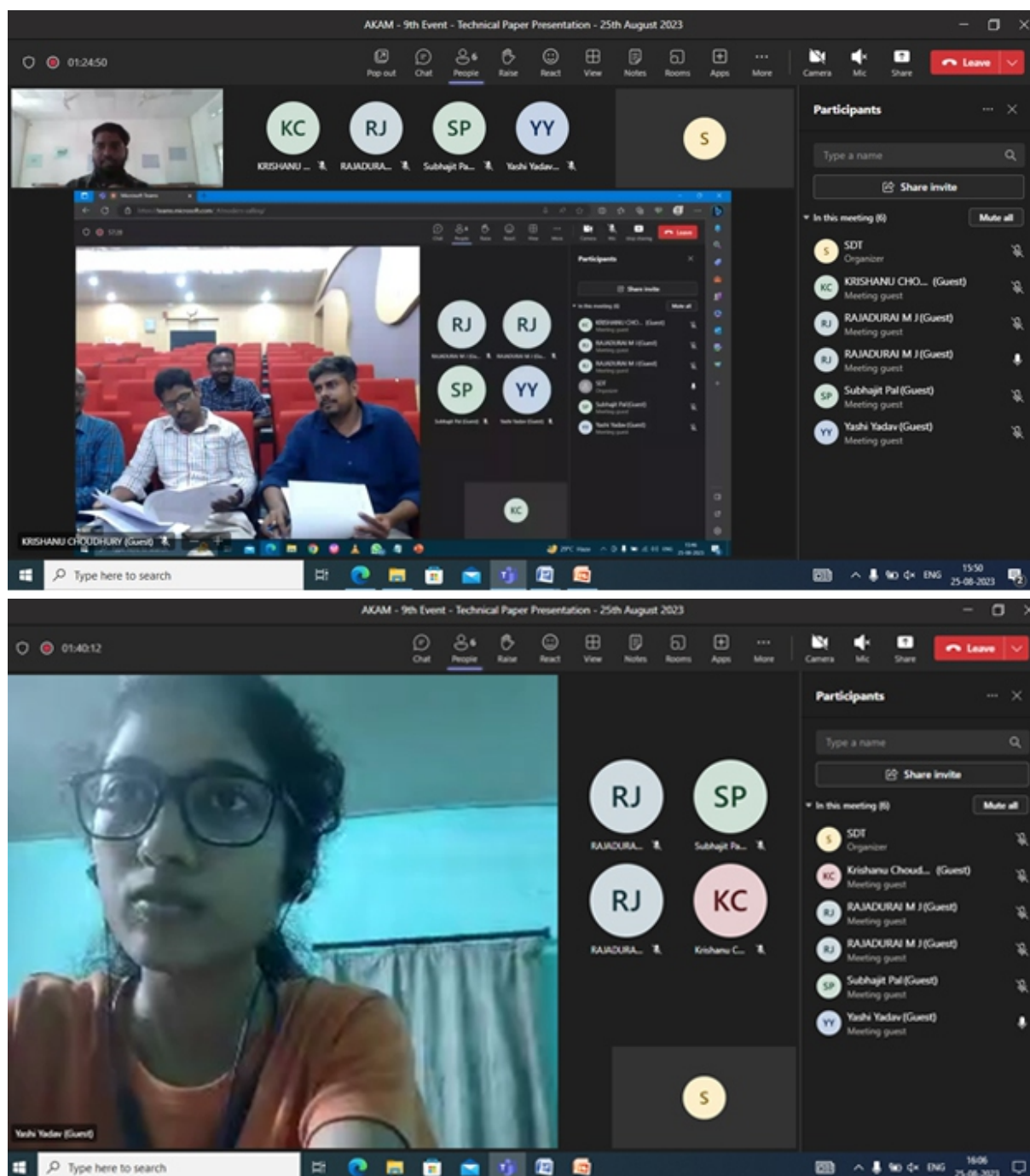
The ninth event, “Technical Paper Presentation pertaining to Wind Energy for Postgraduate Engineering Students” on the topic “Emerging Trends in Wind Energy” was successfully conducted on 25.08.2023. 11 registrations were received and only 4 participants had submitted the full length paper for presentation.

A committee reviewed the papers submitted and selected 4 papers for presentation in the event held on 25.08.2023. All the 4 selected participants were asked to present the submitted papers in front of the Review Committee for evaluation and to select the Best Paper Award. Out of the 4 selected participants, only 3 have presented the papers with detailed explanations. The deliberations were lively with apt presentations and effective interactions. The committee members asked many questions and provided fruitful tips to the participants leading to improving the quality and technical aspect of the papers.

EVENTS

The Review committee after detailed deliberations recommended the following Three Papers in order of merit for issue of certificates:

- **Mr. Rajadurai .M.J** -"Wind Farm Layout Optimization through effective Micrositing"
- **Mr. Krishanu Choudury** and **Mr. Subhajit Pal** - "IOT Enabled Wind Energy Harvesting System with CVT and Regenerative Breaking"
- **Ms. Yashi Yadav** - Renewable Wind Energy: The New Frontier of Sustainable Development in India"



Glimpse of Technical Paper Presentation

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 April 2023 to March 2024, the following visits were and coordinated.

S.No.	Institution Name	No. of Students	No. of Staff	Visited on
1	Jerusalem College of Engineering, Chennai	58	2	18.04.2023
2	Jerusalem College of Engineering, Chennai	59	2	20.04.2023
3	Jerusalem College of Engineering, Chennai	57	2	25.04.2023
4	Jerusalem College of Engineering, Chennai	57	2	28.04.2023
5	Mohamed Sathak AJ College of Engineering, Egathur	59	2	03.05.2023
6	Jerusalem College of Engineering, Chennai	72	2	10.05.2023
7	Jerusalem College of Engineering, Chennai	59	2	12.05.2023
8	Jerusalem College of Engineering, Chennai	57	2	16.05.2023
9	Jerusalem College of Engineering, Chennai	57	2	18.05.2023
10	Vellore Institute of Technology (VIT), Chennai	60	1	23.05.2023
11	Vellore Institute of Technology (VIT), Chennai	60	2	01.06.2023
12	Training participants of NITTTR, Chennai	7	1	22.06.2023
13	Veltech Ranganathan Dr Sagunthala R&D Institution, Chennai	60	2	18.08.2023
14	Veltech Multitech Ranganathan Dr Sagunthala R&D Institution, Chennai	59	2	23.08.2023
15	Veltech Multitech Ranganathan Dr Sagunthala R&D Institution, Chennai	58	2	24.08.2023
16	Kids Central School, Navalur, Chennai	65	5	25.08.2023
17	Sathyabama Institute of Science & Technology, Chennai	59	2	30.08.2023
18	Sathyabama Institute of Science & Technology, Chennai	60	2	31.08.2023

EVENTS

S.No.	Institution Name	No. of Students	No. of Staff	Visited on
19	SRM Institute of Science and Technology, Chennai	48	2	12.09.2023
20	Mohamed Sathak AJ College of Engineering, Egathur, Chennai	53	2	16.11.2023
21	International Participants - National Productivity Council, Chennai	21	1	14.12.2023
22	SRM Institute of Science and Technology, Kattankulathur, Chennai	21	1	15.12.2023
23	Jerusalem College of Engineering, Chennai	61	3	13.02.2024
24	Jerusalem College of Engineering, Chennai	61	2	15.02.2024
25	Jerusalem College of Engineering, Chennai	56	2	27.02.2024
26	Jerusalem College of Engineering, Chennai	60	3	29.02.2024
27	Jerusalem College of Engineering, Chennai	60	3	05.03.2024
28	Jerusalem College of Engineering, Chennai	53	3	07.03.2024
29	Jerusalem College of Engineering, Chennai	58	2	12.03.2024
30	Training participants of NITTTR, Chennai	6	1	12.03.2024
31	Jerusalem College of Engineering, Chennai	58	2	14.03.2024



Students visiting SRRA station, NIWE



Classroom Lecture of Students visit

Internship Programme

The "NIWE-Academic Associate Programme" (NIWE-AAP) aims to encourage students and provide an opportunity to choose renewable energy as their career option. To create awareness and interest in the field of renewable energy research among the young talented Sciences, Management and Engineering students, NIWE invites applications from the eligible candidates for the "NIWE-Academic Associate Programme" (NIWE-AAP). The duration of the Internship normally is between two weeks to six months. NIWE-AAP will provide opportunities for the students / post studies students / Lecturers / Professors to work with scientists/engineers on NIWE's projects.

The details of Internship during the period from April 2023 to March 2024 are given below:

S.No.	Internship Details	Total
1.	Applications received	68
2.	Students admitted	32
3.	Students completed and certificate(s) issued	32



Papers and Publications

1. "Development of a day-ahead solar power forecasting model chain for a 250 MW PV park in India" published in International Journal of Energy and Environmental Engineering – Authors : Arindam Roy, Aravindakshan Ramanan, Barun Kumar³, Chris Alice Abraham, Annette Hammer, Elena Barykina, Detlev Heinemann, Naveen Kumar, Hans-Peter Waldl, Indradip Mitra, Prasun Kumar Das, R. Karthik, K. Boopathi, K. Balaraman – DOI - 10.1007/s40095-023-00560-6 - 2023-04-01 - <https://link.springer.com/content/pdf/10.1007/s40095-023-00560-6.pdf>.
2. "Wind Characteristics of Tamil Nadu Coast towards Development of Microgrid – A Case Study for Simulation of small scale hybrid wind and Solar Energy System" published in the Ocean Engineering Journal – Authors: J. Bastin, A. Hari Bhaskaran, K.Boopathi, B. Krishnan, R. Vinod Kumar, Reddy Prasad D.M. <https://doi.org/10.1016/j.oceaneng.2023.114282>. (7th April 2024)
3. "Analysis of Higher Dimensional Converter Using Graphical Approach" published in IEEE Access – Authors: Divya Navamani.J, K.Boopathi, Jagabar Sathik, Lavanya.A – 10.1109/Access.2023.3295996. – 17th July 2023.
4. "Performance evaluation and comparative study of three 52-kW PV plants in India: a case study" – published in F1000Research – Authors: Divya Navamani.J, K.Boopathi, Lavanya.A - 31 Aug 2023, 12:1068 <https://doi.org/10.12688/f1000research.134731.1>
5. "Design and development of high gain dc-dc converter with high gain cells" paper presented in the International Conference on Signal and Data Processing (ICSDP), 2023 held at VIT Bhopal University – Authors : Divya Navamani.J, K.Boopathi.
6. "Feasibility study of offshore wind energy on the coast of Sri Lanka " Published in International journal of Green Energy – Authors: Boopathi Kadhivel, B. Krishnan, J.Bastin¹,

PAPERS AND PUBLICATIONS

Suchit Hoti, K. Balaraman. Published online: 19 Nov 2023 - <https://doi.org/10.1080/15435075.2023.2281354>

7. "Highly efficient reconfigurable double dual quadratic boost converter" published in International Journal of Electronics Letters - Authors : Divya Navamani.J, K.Boopathi – published online on 29th Jan. 2024 - <https://doi.org/10.1080/21681724.2024.2306800>



International Meetings / Trainings

- Round Table Discussion with regard to “Offshore Wind Power Evacuation for Energy Transition” as a side event of CEM at Goa held on 22.07.2023.



- WINDERGY 2023 - Session Offshore Development in India and Specific to Tamil Nadu held on 05.10.2023.



Visitors

Delegates visit to NIWE

16-06-2023

Shri Bhupinder Singh Bhalla, IAS., Hon'ble Secretary, MNRE



29-07-2023

UK's Minister of State for Climate Change, Department of Energy Security and Net Zero, Mr. Graham Stuart



VISITORS

06-09-2023

Delegates from Denmark, Columbia and South Africa



31-10-2023

H.E. May Elin Stener, Norway Ambassador



16-12-2023 **Review of NIWE & WTTS by Hon'ble Minister, Shri R.K.Singh, at Madurai**



21-12-2023 **Shri Sudeep Jain, IAS., Additional Secretary, MNRE**



29-02-2024 **DEA Team**



VISITORS

21.02.2024 Chief Managing Director, Tamil Nadu Energy Development Agency (TEDA)
& Team





FINANCE & ADMINISTRATION

Finance & Administration

World Environment Day

World Environment Day for the year 2023 was observed in NIWE on 05.06.2023. As per the instructions of Ministry of New and Renewable Energy regarding the organization of a mass mobilization campaign to celebrate World Environment Day by organizing a week-long events and programs to develop an environment-friendly lifestyle amongst the staff of the Institute and the pledge was taken by the employees of NIWE.



Glimpse of celebration of World Environment Day

On the observance of World Environment Day, an Essay Competition was conducted on 30.05.2023 on the theme "World Environment Day 2023" and cash awards were presented to the winners.

International Yoga Day

In pursuance of Ministry of Ayush, Government of India, International Yoga Day was observed on 21.06.2023 with the activities, viz., Demonstration and Practice of Yoga based on the common yoga protocol and interaction with yoga expert.

Angdaan Mahotsav (Indian Organ Donation Day)

In pursuance of Ministry of Health & Family Welfare, Angdaan Mahotsav (Indian Organ Donation Day) in line with the Azaadi Ka Amrit Mahotsav to celebrate and commemorate 75 years of Independence of India was observed on 03.08.2023. As a part of the campaign pledge taking ceremony was undertaken in a befitting manner.

Har Ghar Tiranga Campaign

In pursuance of Ministry of New & Renewable Energy, Har Ghar Tiranga has been launched to encourage the citizens to hoist the National Flag of India in their homes. As a part of the campaign all the Staff were requested to maintain highest respect to National honor and follow the instructions mentioned in the Flag Code of India and to hoist the National Flag of India in their homes from 13.08.2023 to 15.08.2023.

Independence Day

As per the precedence followed by NIWE, Independence Day was celebrated at NIWE on 15.08.2023.



77th Independence Day celebration at NIWE

Special Campaign 3.0 and Swachhta Hi Seva, 2023

Swachhta Campaign 3.0 directed all staff members to identify scrap, pending references, no.of physical files due for review and no.of e-files for review.



Observation of Swachhata Pakwada at NIWE

The Swachhata Pakwada was observed from 02.10.2023 to 31.10.2023. As a part of the observance, the Swachhata activities like cleaning of NIWE Campus at Chennai & Kayathar were carried out in a grand manner.

Vigilance Awareness Week

Vigilance awareness week for the year 2023 was observed in NIWE from 30.10.2023 to 05.11.2023 as per the instructions of Central Vigilance Commission and the pledge was taken by the employees of NIWE.

On the observance of Vigilance awareness week, an Essay Competition was conducted on 01.11.2023 on the theme "Say not to corruption; Commit to the Nation" and cash awards was presented to the winners.



Pledge taken on Vigilance Awareness Week at NIWE

Constitution Day

The Constitution Day was celebrated on 26.11.2023. As a part of the observance, the employees of NIWE have read the Preamble of Constitution of India through MyGov portal.

Republic Day

As per the precedence followed by NIWE, Republic Day was celebrated on 26.01.2024.



75th Republic Day celebration at NIWE

International Women's Day

To celebrate the spirit of women empowerment every year, the International Women's Day was celebrated on 08.03.2024 at NIWE. The Women's day was celebrated by organizing a Lecture Session on "Women Empowerment and Rights" by a legal expert.

Internal Complaint Committee (ICC) at Work Place

In accordance with GoI instructions, an Internal Complaint Committee for women for redressal of complaints concerning sexual harassment in work place has been constituted in NIWE. The committee met at regular intervals and visited all the women employees in the campus. No complaint have been reported by the individual before the Committee.

Official Language

NIWE has been an active member in the Town Official Language Implementation Committee (TOLIC), Chennai. The Hindi version of "PAVAN", the Quarterly News Bulletin of NIWE is considered a standard communication in Hindi.



Meeting of Town Official Language Implementation Committee (TOLIC) at NIWE

Hindi fortnight was celebrated in NIWE from 14.09.2023 to 03.10.2023. Various competitions like Hindi Essay writing, Handwriting, Stenography, etc. were conducted and prizes were distributed to the winners and participants.

Spoken classes are being taken in Hindi for non-Hindi speaking staff and also separate attention is being given to the staff for appearing Official Language exams.

Reservation of Policy

Liaison Officer

- **J.C. David Solomon** -- OBC
Director & Division Head, R&D, WTRS Incharge
- **Dr. K. Boopathi** -- SC/ST
Director & Division Head, WRA

Right to Information

During the year 2023-24, 21 applications were received seeking information under RTI Act, 2005 and requisite details have been given. NO appeals has been preferred against the decision of CPIO.

Implementation of Persons with Disabilities Act 1995

The following facilities are being available to Persons with Disabilities

- Though NIWE is functioning in a two storey building (where lift is not mandatory) a lift has been provided for the convenience of physically challenged.
- A separate ramp has been provided to enable use of crutches / wheel chairs.
- Low level steps laid by the side of the lift for easy access.
- Post reservation for physically handicapped as per GOI rules.







FINANCE REPORT

- **Balance Sheet**
- **Income & Expenditure**
- **Receipts & Payments**
- **Schedules**
- **Auditor's Report**

NATIONAL INSTITUTE OF WIND ENERGY
 (Formerly CENTRE FOR WIND ENERGY TECHNOLOGY)
 (An Autonomous R&D Institution under MNRE, Government of India)
 Chennai - 600 100

BALANCE SHEET AS AT 31ST MARCH, 2024

(Amount in Rs.)

FUND AND LIABILITIES	Schedule	As on 31st March, 2024	As on 31st March, 2023
CAPITAL ASSET FUND	1	24,63,65,402	26,23,87,933
RESERVES AND SURPLUS	2	41,08,69,009	43,04,36,105
CURRENT LIABILITIES AND PROVISIONS	3	22,26,89,432	20,38,79,951
TOTAL		87,99,23,843	89,67,03,989
ASSETS			
FIXED ASSETS			
(a) Created out of Central Governments Grants	4	21,44,34,322	22,61,66,778
(b) Out of Internal Generation Grants		3,19,31,082	3,62,21,157
CURRENT ASSETS, LOANS AND ADVANCES	5	63,35,58,439	63,43,16,054
TOTAL		87,99,23,843	89,67,03,989
SIGNIFICANT ACCOUNTING POLICIES	13		
NOTES ON ACCOUNTS	14		

For National Institute of Wind Energy

As per our Report attached
PPN and Company
 Chartered Accountants
 Firm Regn No.013623S

Sd/-
 R Girirajan
 Additional Director (F&A)

Sd/-
 Dr.Rajesh Katyal
 Director General

Sd/-
 D.Hitesh
 Partner
 Membership No.231991

NATIONAL INSTITUTE OF WIND ENERGY
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Chemical - 600 100

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MAR'2024

INCOME	Schedule	CFA - Revenue	MOM - Revenue	INISRA - Revenue	NE Region	SIRRA	NIWE - IREDA Fund	Hybridize	VAYUMITHRA	DST TARE	ITEC	TOTAL GRANTS as on 31/03/2024 (1+2+3+4+5+6+7+8+9+10)	IE as on 31/03/2024 (11+12+13)	TOTAL GRANTS as on 31/03/2023	IE as on 31/03/2023
		1	2	3	4	5	6	7	8	9	10				
Income from Services	6	-	-	-	-	-	-	-	-	-	-	-	11,39,26,095	-	11,14,82,362
Income from publication	7	-	-	-	-	-	-	-	-	-	-	-	46,100	-	-
Interest Earned	8	-	-	-	-	-	-	-	-	-	-	-	1,62,84,907	-	1,70,42,192
Other Income	9	-	-	-	-	-	-	-	-	-	-	-	57,22,597	38,141	49,92,428
Interest Earned & Other Income (Grant)	9.31.021	9,31,021	-	-	-	-	-	14,18,001	1,21,849	8,815	-	14,18,001	10,78,905	16,08,862	-
Grants from GOI	3.1	6,00,00,000	-	54,27,556	-	-	-	17,220	2,80,83,058	-	79,35,966	10,14,46,580	-	13,24,26,500	-
TOTAL (A)		6,09,31,021	-	54,27,556	-	-	-	14,35,221	2,82,04,907	8,815	79,35,966	10,39,43,486	13,59,79,699	13,40,73,503	13,35,16,992
EXPENDITURE															
Establishment Expenses	10	-	-	-	-	-	-	-	-	-	-	-	7,40,34,935	-	7,70,19,658
Consultancy Project Expenses	11 (b)	-	-	-	-	-	-	-	-	-	-	-	8,13,41,545	-	5,51,72,593
Other Administrative Expenses	11 (a)	2,90,82,400	-	-	-	-	-	-	-	-	-	2,90,82,400	-	2,96,86,098	-
Expenditure from Grants		-	14,55,877	24,33,416	-	-	-	10,160	2,80,83,058	60,000	1,44,21,809	4,64,64,320	-	1,62,91,973	-
On Advances/Deposits/ Prepaid/ EMD/SD/PG's etc.,	3.1	1,10,53,670	-	19,87,196	-	-	-	-	-	-	1,87,019	1,32,27,885	-	1,28,26,289	-
In house project expenditure		1,96,97,906	-	-	-	-	-	-	-	-	-	1,96,97,906	-	5,31,94,529	-
TOTAL (B)		5,98,33,976	14,55,877	44,20,612	-	-	-	10,160	2,80,83,058	60,000	1,46,08,828	10,84,72,511	15,53,76,480	11,19,78,889	13,21,92,241
Balance being excess of income over Expenditure (A-B)													(1,93,96,781)	2,20,94,614	13,24,741
Add: Opening Balance Bf (C)	3.1	49,278	(7,32,248)	(10,06,944)	-	(90,70,685)	1,26,18,944	5,70,599	-	3,35,000	90,02,350	1,57,66,293	-	16,23,49,965	-
Prior period adjustment	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transfer to Capital Asset Fund (D)	4	-	-	-	-	-	-	-	-	-	-	-	2,13,797	-	-
Refunded to MNRE (E)		8,98,125	-	-	-	-	1,26,18,944	17,220	1,21,849	8,815	-	1,36,64,953	-	2,58,20,465	-
Transferred to Central Nodal Agency account (F)		-	-	-	-	-	-	-	-	-	-	-	-	14,28,57,820	-
BALANCE BEING SURPLUS TRANSFERRED TO GENERAL RESERVE FUND (A-(B+D))		-	-	-	-	-	-	-	-	-	-	-	(1,96,10,578)	-	13,24,741
UN-UTILIZED GRANTS OUT OF GOVT. GRANTS FOR REVENUE EXPENDITURE (C+A-B-E)		2,48,198	(21,88,125)	(0)	-	(90,70,685)	-	19,78,440	-	2,75,000	23,29,488	(24,27,665)	-	1,57,66,294	-
SIGNIFICANT ACCOUNTING POLICIES	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NOTES ON ACCOUNTS	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-

For National Institute of Wind Energy

As per our Report attached
PPN and Company
Chartered Accountants
Firm Regn No.013623S

Sd/-
R Girirajan
Additional Director (F&A)

Sd/-
Dr. Rajesh Katyal
Director General

Sd/-
D.Hitesh
Partner
Membership No 231991

NATIONAL INSTITUTE OF WIND ENERGY
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Chennai - 600 100

RECEIPTS AND PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST MARCH,2024

RECEIPTS	FY 2023-24	FY 2022-23
	Amount (Rs.)	Amount (Rs.)
I. Opening Balances		
(a) Cheques in hand	-	-
(b) Bank balances	-	-
i) In Current Account	1,00,000	2,08,000
ii) In Savings Bank Account	9,12,23,599	38,26,78,603
iii) In Deposit Accounts	28,95,85,621	32,76,34,585
iv) Cash in hand	3,228	1,620
(c) Stamps in hand	9,467	3,705
	38,09,21,915	71,05,26,513
II. Grants Received / UnUtilised Grants		-
(a) From Government of India for Grant	15,74,43,057	22,00,00,000
(b) Grants in Aid from DST	-	3,35,000
III. Investments Withdrawn	-	-
IV. Interest Received	-	-
(a) On Bank deposits	1,69,93,341	1,56,37,118
(b) On Savings A/C	47,48,887	89,21,767
V. Other Income	-	-
(a) Fees for services Including Advances	10,29,22,425	7,20,53,052
(b) Energy receipts	1,47,96,168	-
(c) Misc. Income	10,37,406	-
VI. Amount borrowed	-	-
VII. Any other receipts	-	-
(a) Fees received in advance on Consultancy projects	-	5,92,679
(b) Security deposit / Earnest money deposits received	7,25,943	50,72,900
(c) TDS to be remitted	73,78,330	3,32,510
(d) Expenses/Salary Payable/S.Creditor/Advance	26,04,063	-
(e) Receivable from Debtors/other payments/Branch division	6,01,16,368	9,35,56,187
(f) Advances and Deposits-IE	35,499	1,28,23,220
(g) Advances and Deposits-Grants	14,18,001	-
(h) Other Liabilities	49,960	10,93,218
	37,02,69,451	43,04,17,651
TOTAL	75,11,91,365	1,14,09,44,164

For National Institute of Wind Energy

As per our Report attached

PPN and Company

Chartered Accountants

Firm Regn No.013623S

Sd/-

R Girirajan
Additional Director (F&A)

Sd/-

Dr.Rajesh Katyal
Director General

Sd/-

D.Hitesh
Partner
Membership No.231991

RECEIPTS AND PAYMENTS

NATIONAL INSTITUTE OF WIND ENERGY
(Formerly CENTRE FOR WIND ENERGY TECHNOLOGY)
(An Autonomous R&D Institution under MNRE, Government of India)
Chennai - 600 100

RECEIPTS AND PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2024

PAYMENTS	FY 2023-24	FY 2022-23
	Amount (Rs.)	Amount (Rs.)
I. Expenses		
(a) Employee related Expenses	5,08,79,120	5,48,38,516
(b) Administrative Expenses	8,97,13,713	8,09,18,911
II. Payments made against funds for various projects	-	-
Out of CFA	-	-
(a) In house R&D project expenses	5,08,49,479	7,76,36,838
Out of Grants for projects	-	-
(a) From Government of India for Grant	2,32,155	66,30,854
(b) From Government of India (Met-Ocean Measurement)	2,44,802	6,52,522
(c) From Government of India (Integrated Wind & Solar Research Assessment)	25,08,719	6,05,255
(d) From Government of India for SRRA Project	1,770	-
III. Investment and Deposits made	-	-
IV. Expenditure on Fixed assets & Capital Work-in-Progress	-	-
(a) Purchase of Fixed assets including Advances (Grants)	3,30,64,408	6,47,53,439
(b) Purchase of Fixed assets (Internal Generation)	2,13,798	-
V. Refund made during the year	-	-
(a) Balance of Grants-in-aid to Government of India	1,96,52,201	29,47,95,043
(b) Interest Earned	1,47,884	1,09,09,807
VI. Other Payments	-	-
(a) Refund of SD /PG/EMD	1,57,29,817	25,33,095
(b) Advance & Deposits from Grants	1,38,05,485	4,46,76,224
(c) Advance & Deposits from Internal Generation	-	1,48,928
(d) Payment of TDS (Grants)	25,27,641	40,77,213
(e) Payment of TDS (Internal Generation)	1,18,15,480	1,01,55,027
(f) GST remittance	38,78,356	1,34,56,701
(g) Receivable from Debtors/other payments /Branch Division	6,36,38,024	9,38,20,864
(h) Deposit to Employee benefit fund	1,57,88,541	-
VII. Changes in Working Capital	-	-
VIII. Closing Balances	-	-
(a) Cheques in hand	-	-
(b) Bank Balances:	-	-
i) In Current Account	17,20,000	1,00,000
ii) In Savings Bank Account	4,52,40,375	9,06,36,352
iii) In Deposit Accounts	32,95,60,719	28,95,85,880
(c) Cash in hand (NIWE Canteen)	4,539	3,228
(d) Stamps in hands	11,778	9,467
TOTAL	75,11,91,365	1,14,09,44,164

For National Institute of Wind Energy

As per our Report attached
PPN and Company
Chartered Accountants
Firm Regn No.013623S

Sd/-
R Girirajan
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Dr.Rajesh Katyal
Director General

Sd/-
D.Hitesh
Partner
Membership No.231991

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31ST MAR'2024

SCHEDULE 1 - CAPITAL ASSET FUND	CFA Capital	NE Region	SRRA	IE	As on 31st March, 2024	As on 31st March, 2023
Opening Balance						
Balance as at the beginning of the year	22,26,97,763	29,30,583	5,38,430	3,62,21,156	26,23,87,932	23,12,52,541
Add : Prior period adjustment	1,65,970			-	1,65,970	-
Add : Addition from Capital Grant	3,30,71,056			-	3,30,71,056	7,37,16,658
Add : Addition from Internal Revenue Generation prior years				5,798	5,798	-
Add : Addition from Capital Grants SRRA				-	-	-
Add : Addition from Capital Grants MNRE				-	-	-
Add : Addition from Capital Grants MoM				-	-	-
Add : Addition from Internal Revenue Generation				-	-	-
Less : Deletion from Internal Revenue Generation				2,08,000	2,08,000	-
Less: Deletion from Capital Grants				-	-	-
Less: Deletion from Internal Revenue Generation				-	-	-
Less: Deletion from Capital Grants SRRA				-	-	-
Less: Depreciation on assets purchased out of Grants MNRE	4,45,80,036			-	4,45,80,036	3,70,16,713
Less: Depreciation on assets purchased out of Internal generation				45,03,874	45,03,874	47,58,003
Less: Depreciation on assets purchased out of Grants SRRA			3,89,444	-	3,89,444	8,06,551
TOTAL	21,13,54,753	29,30,583	1,48,986	3,19,31,080	24,63,65,402	26,23,87,933

For National Institute of Wind Energy

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Dr.Rajesh Katyal
Director General

As per our Report attached
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Chennai - 600 100

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31ST MAR'2024

(Amount in Rs.)

SCHEDULE 2 - RESERVES AND SURPLUS	As on 31st March, 2024	As on 31st March, 2023
General Reserve Fund		
Balance at the beginning of the year (A)	42,92,23,602	42,78,98,861
Addition during the year being surplus (B)	(1,96,10,578)	13,24,741
Total (A+B)	40,96,13,024	42,92,23,602
Welfare Fund (General Reserve) (C)	12,55,985	12,12,503
TOTAL (A+B+C)	41,08,69,009	43,04,36,105

For National Institute of Wind Energy

As per our Report attached
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Chennai - 600 100

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31ST MAR'2024

Schedule - 4 : FIXED ASSETS

CFA Capital									
Description of Assets	Gross Block			Depreciation			Net Block		
	As on 01.04.2023	Addition	Deletion/ Adjustment	As on 31.03.2024	As on 01.04.2023	Addition	Prior Period Adjustment	As on 31.03.2024	As on 31st March, 2023
Land	1,76,10,064	-	-	1,76,10,064	-	-	-	1,76,10,064	1,76,10,064
Building	7,31,28,434	41,42,079	-	7,31,28,434	6,56,88,149	15,62,510	-	6,72,50,659	74,40,285
Furniture & Fitting	2,11,16,042	-	-	2,11,16,042	1,23,19,575	11,10,756	-	1,18,27,790	87,96,467
INSTRUMENTS & EQUIPMENTS	26,91,83,638	5,41,978	-	26,97,25,616	18,07,86,148	2,73,01,717	-	6,16,37,752	8,83,97,490
DANIDA Instruments & Computers (Free of Cost)	1,26,69,970	-	-	1,26,69,970	1,26,69,949	-	-	21	21
MINRE Asset (Free of Cost)	21,445	-	-	21,445	21,444	-	-	1	1
Computers	16,78,23,342	1,50,01,811	-	18,28,25,153	14,51,33,879	1,07,30,457	-	2,69,60,817	2,26,89,463
Vehicles	37,30,868	-	-	37,30,868	10,30,268	2,597	-	37,30,863	2,602
Infrastructure	10,36,97,970	-	-	10,36,97,970	10,36,97,970	-	-	10,36,97,970	10,36,97,970
Infrastructure Facilities	5,06,77,982	1,31,04,436	-	6,37,82,418	3,19,56,119	35,96,302	-	2,82,29,987	1,87,21,863
Books	27,39,917	2,80,752	-	30,20,669	23,37,435	2,75,700	-	4,07,534	4,02,482
Capital Work In Progress	5,86,37,012	-	-	5,86,37,012	-	-	-	5,86,37,012	5,86,37,012
TOTAL (A)	78,71,65,145	3,30,71,056	-	82,02,36,201	56,44,67,379	4,45,80,038	-	60,90,47,417	21,11,88,784
NER									
Description of Assets	Gross Block			Depreciation			Net Block		
	As on 01.04.2023	Addition	Deletion/ Adjustment	As on 31.03.2024	As on 01.04.2023	Addition	Prior Period Adjustment	As on 31.03.2024	As on 31st March, 2023
Instruments & Equipments (NER)	77,99,810	-	-	77,99,810	48,69,228	-	1,65,970	47,03,258	29,30,582
TOTAL (B)	77,99,810	-	-	77,99,810	48,69,228	-	1,65,970	47,03,258	29,30,582
SRRA USP									
Description of Assets	Gross Block			Depreciation			Net Block		
	As on 01.04.2023	Addition	Deletion/ Adjustment	As on 31.03.2024	As on 01.04.2023	Addition	Prior Period Adjustment	As on 31.03.2024	As on 31st March, 2023
Computers (USP)	62,78,287	-	-	62,78,287	62,78,286	-	-	62,78,286	1
Furniture & Fitting (USP)	2,11,16,042	-	-	2,11,16,042	1,23,19,575	-	-	1,18,27,790	87,96,467
INSTRUMENTS & EQUIPMENTS (USP)	41,52,86,273	-	-	41,52,86,273	41,52,86,272	53,593	-	41,52,86,272	1,12,189
Infrastructure Facilities (USP)	40,55,703	-	-	40,55,703	36,29,464	3,35,851	-	39,65,315	4,26,239
TOTAL (C)	42,69,00,260	-	-	42,69,00,260	42,63,61,830	3,89,444	-	42,67,51,274	5,38,430
Internal Revenue Generation									
Description of Assets	Gross Block			Depreciation			Net Block		
	As on 01.04.2023	Addition	Deletion/ Adjustment	As on 31.03.2024	As on 01.04.2023	Addition	Prior Period Adjustment	As on 31.03.2024	As on 31st March, 2023
Computers	1,22,56,127	-	-	1,22,56,127	1,22,56,127	-	-	1,22,56,127	1
WITS Land	22,22,55,058	-	-	22,22,55,058	22,22,55,058	-	-	22,22,55,058	2
INFRASTRUCTURE FACILITIES	57,01,000	-	-	57,01,000	-	-	-	57,01,000	57,01,000
Vehicle (AI)	4,98,757	-	-	4,98,757	2,76,566	49,876	-	3,26,442	2,22,191
Project Vehicle & Battery Operated Vehicle	48,74,209	-	-	48,74,209	39,83,746	3,73,054	-	43,56,800	8,90,463
Instruments & Equipments (AI)	5,30,79,361	2,08,000	-	5,32,87,361	2,40,52,793	40,15,234	-	2,80,68,027	2,52,19,334
Instruments & Equipment	4,89,77,066	2,08,000	-	4,91,85,066	2,17,22,816	39,88,649	-	2,57,11,465	2,34,73,621
Instruments & Equipment (Govt Mand)	3,900	-	-	3,900	3,900	-	-	3,900	-
Instruments & Equipment (Govt Mand)	6,97,469	-	-	6,97,469	6,97,469	-	-	6,97,469	-
Instruments & Equipment (SRRA)	44,240	-	-	44,240	44,240	-	-	44,240	-
Instruments & Equipment - TESTING	33,19,670	-	-	33,19,670	15,75,573	26,585	-	16,02,157	17,17,513
Instruments & Equipment - SRRA	28,200	-	-	28,200	-	-	-	28,200	28,200
Instruments & Equipment - SECI	37,641	5,797	-	43,438	36,482	6,957	-	36,482	1,159
Instruments & Equipments (CANTEEN)	6,12,152	-	-	6,12,152	3,79,168	65,711	-	1,67,274	2,32,984
Furniture & Fittings (IE)	1,95,720	-	-	1,95,720	48,929	-	-	48,929	1,46,791
Furniture & Fittings (CANTEEN)	29,95,10,027	2,13,797	-	26,32,88,870	26,32,88,870	45,03,874	-	26,77,92,743	3,62,21,157
Total (D)	1,52,13,75,242	3,32,84,853	-	1,55,46,60,095	1,25,89,87,307	4,94,73,356	-	1,30,82,94,691	24,63,65,404
Current year figures (A+B+C+D)	1,44,77,23,419	7,37,16,686	64,835	1,52,13,75,242	1,25,89,87,307	4,25,81,267	1,65,970	1,25,89,87,307	26,23,87,935
Previous Year Figures	-	-	-	-	-	-	-	-	23,12,92,945

For National Institute of Wind Energy

Sd/-
R. Girirajan
Additional Director (F&A)

Sd/-
Dr. Rajesh Katyal
Director General

As per our Report attached
PPN and Company
Firm Regn No.013623S

Sd/-
D. Hilesh
Partner
Membership No.231991

NATIONAL INSTITUTE OF WIND ENERGY
(Formerly CENTRE FOR WIND ENERGY TECHNOLOGY)
(An Autonomous R&D Institution under MNRE, Government of India)
Chennai - 600 100
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31ST MAR'2024

	CFA Capital	CFA Revenue	NE Region	MOM	INSRA	SRRA	NIWE REDA Fund	Hybridize	Vayumithra	DST TARE	ITEC	Total IE	As on 31st March, 2024	As on 31st March, 2023
SCHEDULE 5 - CURRENT ASSETS, LOANS & ADVANCES														
A. CURRENT ASSETS:														
Sundry Debtors												9,05,14,154	9,08,41,423	8,13,33,961
Inventories												-	-	-
Stock of Stationery		2,26,876											2,26,876	54,046
Stock of Wind Atlas Book												4,57,346	4,57,346	4,57,346
Stamps in hand		11,778										-	11,778	9,467
Bank Balances:														
In Current Account														
In Savings Bank Account	-	1,28,975	2,51,510	1,87,605	19,195	79,41,070	3,95,914	19,78,440		2,75,000	42,65,144	2,97,97,523	4,52,40,375	9,96,23,772
In Cash												4,539	4,539	3,228
In Deposit Account												32,95,60,719	32,95,60,719	28,95,85,621
Branch Division Receivables												1,64,92,402	1,65,16,925	1,57,60,856
TOTAL (A)	-	3,67,629	2,51,510	2,12,128	19,195	82,68,339	3,95,914	19,78,440	-	2,75,000	42,65,144	46,85,46,682	48,45,79,981	47,11,67,441
B. LOANS, ADVANCES AND OTHER ASSETS														
Advances and other amounts recoverable in cash														
a) Prepayments		2,37,669											2,37,669	5,642
b) Other Deposits		14,36,789										5,20,22,799	5,34,59,588	-
c) Advances	4,57,14,341	1,95,37,330	10,78,910	1,14,806	24,26,863	500					1,87,019	12,65,916	7,03,25,685	10,88,98,767
d) Consultancy WIP												14,74,240	14,74,240	3,23,10,944
e) Balance with Govt. Authority - TDS						2,93,043						2,31,82,571	2,34,81,276	2,19,33,260
TOTAL (B)	4,57,14,341	2,12,11,788	10,78,910	1,14,806	24,32,525	2,93,543	-	-	-		1,87,019	7,79,45,526	14,89,78,458	16,31,48,613
GRAND TOTAL ((A)+(B))	4,57,14,341	2,15,79,417	13,30,420	3,26,934	24,51,720	85,61,882	3,95,914	19,78,440	-	2,75,000	44,52,163	54,64,92,208	63,35,58,439	63,43,16,054

For National Institute of Wind Energy

As per our Report attached
PPN and Company
Chartered Accountants
Firm Regn No.013623S

Sd/-
R Girirajan
Additional Director (F&A)

Sd/-
Dr Rajesh Kalyal
Director General

Sd/-
D Hitesh
Partner
Membership No.231991

NATIONAL INSTITUTE OF WIND ENERGY
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SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2024
Amount in Rs.

	As on 31st March, 2024	As on 31st March, 2023
SCHEDULE 6 - INCOME FROM SALES / SERVICES		
Income from Services		
Income from Scientific & Technical Consultancy Services	7,66,68,212	7,91,15,018
Energy receipts	3,27,33,693	3,14,67,344
Income from Sales	9,99,190	
Wind Power Forecasting Receipts	35,25,000	9,00,000
TOTAL	11,39,26,095	11,14,82,362
SCHEDULE 7 - INCOME FROM PUBLICATION		
Sale of Books & Reports	46,100	
TOTAL	46,100	-
SCHEDULE 8 - INTEREST EARNED		
On Term Deposits with Scheduled Banks	1,42,44,709	1,48,89,176
On Savings Bank account with Scheduled Banks	20,40,198	21,53,016
TOTAL	1,62,84,907	1,70,42,192
SCHEDULE 9 - OTHER INCOME		
Training Fees	44,44,635	-
Miscellaneous Income	12,77,962	48,62,440
Application Fees	-	1,07,371
TOTAL	57,22,597	49,92,428
SCHEDULE 10 - ESTABLISHMENT EXPENSES		
ADMINISTRATION AND R&D STAFF		
Salaries and Allowances	6,27,81,895	6,31,19,856
Salaries and Allowances - Contract Staff	-	5,89,378
Contribution to Provident Fund (EPF)	61,15,397	63,71,200
Contribution to Pension & Gratuity (With LIC)	5,43,250	19,10,260
Leave travel concession	2,64,212	4,62,744
Children Education Allowance	8,91,000	9,45,000
Medical reimbursement	15,27,412	14,31,123
Newspaper reimbursement	1,52,610	1,70,230
Leave Salary (Contribution to LIC)	12,47,036	11,24,388
LIC Admin. Charges (Gratuity & Leave Encashment)	3,39,273	4,65,479
Encashment of Earned Leave	69,465	4,03,502
Staff welfare expenses	1,03,385	26,498
TOTAL	7,40,34,935	7,70,19,658

For National Institute of Wind Energy

As per our Report attached
PPN and Company
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Firm Regn No.013623S

Sd/-
R Girirajan
Additional Director (F&A)

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Dr.Rajesh Katyal
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SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2024

(Amount in Rs.)

SCHEDULE 11 - OTHER ADMINISTRATIVE EXPENSES	As on 31st March, 2024	As on 31st March, 2023
Advertisement and Publicity	10,87,631	17,19,685
Auditor's Remuneration	1,03,820	85,500
Bio Gas Expenses	-	24,000
Electricity and Power	46,28,775	37,35,511
Expenses on Books, Data & Periodicals	2,800	8,77,278
Expenses on Fees (Sitting Fees & Honorarium)	-	75,000
Expenses on Seminar & Meetings	15,35,529	7,79,108
Hospitality Expenses	9,410	1,23,588
Loss on Exchange Fluctuation	11,185	-
Office expenses & Maintenance	61,83,575	72,69,216
Other Expenses (Hindi Prom.,OLA Act, Bk Chrg.)	3,12,349	3,89,222
Postage & Courier	68,713	58,995
Printing and Stationery	7,76,179	3,28,794
Rates & taxes/ Licence Fee	743	14,997
Repairs (AMC etc.,)	23,34,063	21,48,130
Security Charges	86,98,918	94,84,243
Telephone and Communication Charges	2,21,914	2,39,641
Training and Development	5,000	2,60,359
Travel & Conveyance and Taxi hire	18,23,101	5,60,239
Vehicles Running and Up Keeping	6,33,556	9,21,434
Water Charges	6,45,141	5,71,158
TOTAL (A)	2,90,82,401	2,96,66,098
CONSULTANCY PROJECT EXPENSES		
Expenses on In Consultancy Projects (Total-(B))	8,13,41,545	5,51,72,583
GRAND TOTAL { (A)+(B) }	11,04,23,946	8,48,38,681

For National Institute of Wind Energy

As per our Report attached
PPN and Company
Chartered Accountants
Firm Regn No.013623S

Sd/-
R Girirajan
Additional Director (F&A)

Sd/-
Dr.Rajesh Katyal
Director General

Sd/-
D.Hitesh
Partner
Membership No.231991

NATIONAL INSTITUTE OF WIND ENERGY
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SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2024
 (Amount in Rs.)

SCHEDULE 12 - PRIOR PERIOD ADJUSTMENT	As on 31st March, 2024	As on 31st March, 2023
Prior Period Expenses/ Income	-	-
TOTAL	-	-

For National Institute of Wind Energy

As per our Report attached
PPN and Company
 Chartered Accountants
 Firm Regn No.013623S

Sd/-
 R Girirajan
 Additional Director (F&A)

Sd/-
 Dr.Rajesh Katyal
 Director General

Sd/-
 D.Hitesh
 Partner
 Membership No.231991

NATIONAL INSTITUTE OF WIND ENERGY

An Autonomous R&D Institution, MNRE, Government of India

SCHEDULE 13: SIGNIFICANT ACCOUNTING POLICIES

1. General information

- 1.1 The NATIONAL INSTITUTE OF WIND ENERGY (NIWE) formerly known as Centre for Wind Energy Technology (C-WET) is an Autonomous R&D Institution under Ministry of New & Renewable Energy, Government of India. The C-WET is formed as a Society on 18th February, 1998 and registered as a society under Section 10 of the Tamil Nadu Societies Registration Act, 1975 on 21st March, 1998 (further name change as NIWE has been incorporated and fresh certificate obtained from Registrar of Societies vide No.475 of 2014) with the object to serve as the technical focal point for Wind Power Development in India, support Research and Development Programme, assess Wind Resources, establish Standards, Testing and Certification of wind power systems, sub-systems and components and undertake Human Resource Development Programs.
- 1.2 The Department of Scientific and Industrial Research, Ministry of Science and Technology, Govt. of India, vide their letter no. 11/378/2000-TU-V dated 21.05.2015 recognized NATIONAL INSTITUTE OF WIND ENERGY as a Scientific and Industrial Research Organization for a period up to 31.03.2021 and vide their letter no. 11/378/2000-TU-V Dated 18.10.2021 recognized NATIONAL INSTITUTE OF WIND ENERGY as a Scientific and Industrial Research Organization for a period up to 31.03.2024.

The Director of Income Tax (Exemptions), Chennai, vide order no.DIT (E) No. 2 (268) / 98-99 dated 21.10.1999, granted registration under section 12AA of the Income Tax Act, 1961, as Public Charitable Trust.
- 1.3 The Department of Revenue, Central Board of Direct Taxes, New Delhi vide their letter notification no.22/2009 (F.No.203/32/2008/ITA-II) dated 25.02.2009 has notified NATIONAL INSTITUTE OF WIND ENERGY in the category of 'OTHER INSTITUTION' partly engaged in research activities under clause (ii) of the sub-section (1) of section 35 of the Income Tax Act, 1961 with effect from 01.04.2005.

2. Accounting Convention

- 2.1 The financial statements are prepared on the basis of historical cost convention and on the accrual method of accounting.
- 2.2 The income on consultancy / professional projects is accounted on Accrual basis based on percentage of completion & the balance amount fees received is transferred to Fees / Income Received in Advance ledgers. Similarly, expenses relating to such income are transferred to Prepaid expenses ledger & accrued during the year in which is Income is declared.

3. Inventory Valuation

- 3.1 Inventories are valued at lower of cost computed on first in first out method and realizable value.
- 3.2 Stocks of Wind Atlas are valued at cost.

4. Fund Accounts

4.1 Capital Asset Fund:

Grants utilized for purchase of fixed assets are transferred to capital asset fund and depreciation is set off against these funds.

4.2 General Reserve Fund

Surplus or deficits as generated from the Scientific and Technical Consultancy activities are taken to this fund.

5. Fixed Assets

- 5.1 Fixed Assets are stated at cost of acquisition inclusive of freight, duties and taxes and incidental and direct expenses related to acquisition less depreciation.
- 5.2 NIWE creates the relative fund account by transfer of sums from Income & Expenditure account in respect of fixed assets acquired out of Internally generated funds and not covered by capital donations and/or government grants so as to exhibit the same balance under the fixed assets accounts and the capital asset fund account.
- 5.3 Grants utilized for purchase of fixed assets are transferred to capital asset fund so as to exhibit the same balance under the fixed asset's accounts and the capital asset fund account.
- 5.4 Fixed Assets received by way of non-monetary grants are capitalized at values stated, and credited to corresponding fund.

6. Depreciation

- 6.1 Depreciation is provided on straight-line method as per rates specified in the Income-Tax Act, 1961.

Tangible Assets	Percentage of Depreciation
Building (Other than residential purpose)	10
Furniture and Fitting	10
Plant & Machinery (Instrument and Equipment) & Vehicle for official purpose	15
Computers (Including Computer Software)	40
Renewable Energy Device – Wind/Solar	40
Library Books	40

- 6.2 In respect of additions to / deductions from fixed assets during the year, depreciation is considered on pro-rata basis. Library books were previously booked at 60% but as Income Tax Act, the same should be depreciated at 40%. The same is followed from FY 2022-23.
- 6.3 Assets costing Rs.5,000/- or less are fully provided for in the year of Purchase as per the uniform format of Accounts for Central Autonomous Bodies from the year 2001-2002.
- 6.4 Depreciation on assets are charged to the assets and deducted from capital asset funds.
- 6.5 The life time of the equipments such as Cup Anemometer, Wind Vane and Mast Materials ranges between 12-18 months. Hence, the same are fully written off during the year of purchase.

7. Grants-in-Aid from Government

- 7.1 Grants-in-aid from Government are accounted on realization basis and shown under the head "Un-utilized Grant".
- 7.2 Grants related to Revenue are credited in the Income and Expenditure Statement separately.
- 7.3 Grants related to specific projects are credited to the respective projects accounts and utilized for the specific project purposes.
- 7.4 Grants utilized for purchase of fixed assets are transferred to Capital Asset Fund.

8. Foreign Currency Transactions

Transactions denominated in foreign currency are accounted at the exchange rate prevailing at the date of the transaction. Foreign currency monetary assets and liabilities are translated at year end exchange rates and resultant difference if any is recognized as exchange loss or gain as the case may be.

9. Retirement Benefits

- 9.1 Gratuity liability for the employees of NIWE is covered under the Group Gratuity policy with Life Insurance Corporation of India. The contribution payable for the year towards the policy is charged off to revenue and Gratuity liability is created. Contribution paid is debited to Gratuity fund account, Gratuity fund is reduced from the Gratuity liability for the purpose of presentation in the financial statement.
- 9.2 Leave salary liability for the employees of NIWE are covered under the Group Leave Encashment Scheme policy with Life Insurance Corporation of India. The contribution payable towards the policy is charged off to revenue and leave salary liability is created.

Contribution paid is debited to leave salary fund with LIC account, liability is reduced from the fund for the purpose of presentation in the financial statement.

- 9.3 Employees Provident Fund Account of the employees of NIWE is maintained at the Office of the Regional Provident Funds Commissioner, Chennai. The contribution paid is based on the actual remuneration paid and as per Act. The same is charged off to revenue.

10. Uniform Format of Accounts for Central Autonomous Bodies

The accounts are prepared based on the Uniform Format of Accounts for Central Autonomous Bodies from the year 2001-2002.

11. The salary expenditure and project consultancy expenditure are met from the internal sources generated by NIWE. The balance of revenue after meeting the expenditure is transferred to General Reserve Fund.

NATIONAL INSTITUTE OF WIND ENERGY
An Autonomous R&D Institution, MNRE, Government of India

Schedule 14: Notes forming part of accounts**1. Contingent liabilities:**

Contingent liabilities not provided for: NIL (previous year NIL)

2. Capital commitments:

- I. Government of Tamil Nadu granted permission vide G.O. No.MS.No.89 dated 26.02.2001 to enter-upon land measuring about 4.41 acres at Survey No 657/1A2 at Pallikaranai Village, Tambaram Taluk, Kancheepuram District for construction of Campus and the same was taken possession during March, 2001. The value of land is yet to be fixed by the Government of Tamil Nadu. Pending fixation, a sum of Rs.18,56,169/- worked out on the basis of market value as per TN G.O Ms.No.206 of Revenue Department dated 19.02.1997 was taken as land value in the accounts for the year 2008-2009. The Construction of building on the aforesaid land was entrusted with CPWD and the building was taken possession during March, 2004.
- II. Tamil Nadu Energy Development Agency granted permission to enter-upon land measuring about 8.64 acres at Ayyanaruthu and Panickerkulam Village, Kovilpatti Taluk, Thoothukudi District for establishment of Wind Turbine Test Station and the same was taken possession during March, 2000. The value of land is yet to be ascertained by the Government of Tamilnadu and hence not recorded in the accounts.
- III. **Solar Radiation Resource Assessment Unit**
 - (a) Ministry of New and Renewable Energy, Delhi vide letter No.29/1/2009-10/JNNSM[ST] dt.27.07.2010 has entrusted to NIWE Chennai, the implementation of a Mission Mode Project for setting up of 50 SOLAR MONITORING STATIONS at high potential sites of solar power in the country at a cost of Rs.2484.17 lakhs to be spent over a period of 5 years.
 - (b) Ministry of New and Renewable Energy, Delhi vide letter No.29/1(3)/2011-12/JNNSM[ST] dt.30.03.2013 has entrusted to NIWE Chennai, the implementation of a Mission Mode Project for setting up of further 60 SOLAR MONITORING STATIONS at high potential sites of solar power in the country at a cost of Rs.3060.00 lakhs to be spent over a period of 5 years.
 - (c) Ministry of New and Renewable Energy, Delhi vide letter No.29/02/2015-16/JNNSM dt.30.06.2016 has Sanctioned Merger of Phase-I and II of Solar Radiation Resource Assessment (SRRA) Project and Extension as Unified SRRA Project (USP) up to March 2020.

(d) Ministry of New and Renewable Energy, Delhi vide letter No.29/02/2015-16/JNNSM dt.11.08.2020 has sanctioned Rs.2.23 Crores for Unified SRRA Project (USP) and extended up to 31.10.2020.

3. **Current Assets, Loans and Advances:**

In the opinion of the management, the current assets, loans and advances have a value on realization in the ordinary course of business equal at least to the aggregate amount shown in the Balance Sheet.

4. **Taxation:**

In view of there being no taxable income under the Income Tax Act, 1961, no provision for income tax has been considered necessary.

5. **Remuneration to Auditors:**

Audit fees, Tax Audit and Fees for Utilization Certificates - Rs. 77,000/- per annum plus taxes as applicable.

6. **Income:**

The Ministry of Non-Conventional Energy Sources vide letter no. 51/18/2000-WE (PG) dt.05.07.2002 has permitted to retain the sale proceeds of Wind Energy Resource Survey data, Handbook and Micro-survey reports and accordingly the same has been accounted as income from publication.

7. **Internal Control:**

NIWE has adequate internal control procedures in the areas of Cash, bank purchases, expenses [salaries, traveling allowance, projects, administration and other recurring/non recurring] billing for consultancy services, receipt and utilization of government grants and utilization of grants received for the specific projects, stores accounting, fixed asset verification, etc. The Additional Director [F&A] is responsible for continuously monitoring and reviewing the effectiveness of internal control procedures.

NIWE is following the Rules and Regulations contained in GFR [General Financial Rules] and DFR [Delegation of Financial Rules] as made applicable by the Governing Council of NIWE. During the financial year 2023-24, the review of internal control procedures by the Division Head [F&A] has not brought out any material lapse in the system. Besides Internal Audit is also conducted by the Auditors i.e. 3rd party Chartered Accountant registered with C&AG. Further, NIWE is an organization having the accreditation of ISO: 9001:2015 for Testing, Standards, Certification, Wind Solar Resource Measurement and Wind Turbine Test Station at Kayathar & Purchase and for Testing, Standards & Certification from National Accreditation Board for Laboratories, which has stringent monitoring systems and is subject to periodical audits by those organizations.

SCHEDULES

8. The balance of revenue after meeting the salary and consultancy project expenditure is transferred to General Reserve Account, as shown below: **(Ref: I&E)**

(Amount in Rs.)

Income generated		13,59,79,699
Less: Salary component of service functions	7,40,34,935	15,55,90,277
Consultancy Project Expenses	8,13,41,545	
Transfer to Capital fund	2,13,797	
Balance transferred to General Reserve Fund		(1,96,10,578)

9. As per the approval of 8th meeting of GC, NIWE held on 14/12/2001 & pursuant to the agreement entered into with the client /manufacturers, NIWE is entitled to retain the entire energy receipts realized and for the financial year 2023-24, a sum of Rs. 3,27,33,693 /- **(Ref: Energy Receipt - Sch.6)** has been earned.
10. The total interest income earned is Rs.1,62,84,907 /-. Out of which Rs.1,42,44,709 /-, earned from Term Deposit with Scheduled Banks and Rs.20,40,198 /- from Savings Bank account with Scheduled Banks **(Ref: Sch.8)** is shown under income and expenditure.
11. The figures shown in the accounts are rounded off to the nearest rupee.
12. The previous year figures are regrouped / reclassified wherever considered necessary to make them comparable with current year's figures.
13. Schedule 1 to 14 annexed form an integral part of Balance Sheet as at 31st March, 2024 and Income and Expenditure Account for the year ended on that date.

Signatures to Schedule 1 to 14

For NATIONAL INSTITUTE OF WIND ENERGY

Sd/-
R Girirajan
Addl. Director
(F&A)

Sd/-
Dr.Rajesh Katyal
Director General

As per our Report attached
PPN & Co
Chartered Accountants
Firm Regn No.013623S
Sd/-
D. Hitesh
Partner
Membership No.231991

Place : Chennai

Date : 28.09.2024

INDEPENDENT AUDITOR'S REPORT

To the Members of **M/S. NATIONAL INSTITUTE OF WIND ENERGY**, Survey No.657/1 A2, Velachery – Tambaram main road, Pallikaranai, Chennai – 600 100.

Report on the audit of Financial Statements**Opinion**

We have audited the accompanying financial statements of **M/S. NATIONAL INSTITUTE OF WIND ENERGY**, Survey No.657/1 A2, Velachery – Tambaram main road, Pallikaranai, Chennai – 600 100. , which comprise the Balance Sheet as at 31st March, 2024, the Statement of Income and Expenditure for the year ended, Receipts and Payments Account and a summary of the significant accounting policies and other explanatory information.

In our opinion and to the best of our information and according to the explanations given to us, the aforesaid financial statements give the information required by the Act in the manner so required and give a true and fair view in conformity with the accounting principles generally accepted in India, of the state of affairs of the Society (NIWE) as at 31st March, 2024, and its Excess of Expenditure over Income, subject to the points mentioned in “Notes Forming part of Financial Statements”.

Basis of Opinion

We conducted our audit in accordance with the Standards on Auditing (SAs). Our responsibilities under those Standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report.

We are independent of the Society (NIWE) in accordance with the Code of Ethics issued by the Institute of Chartered Accountants of India together with the ethical requirements that are relevant to our audit of the financial statements, and we have fulfilled our other ethical responsibilities in accordance with these requirements and the ICAI's Code of Ethics.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion on the Financial Statements.

Management's Responsibility for the Financial Statements

The Society (NIWE)'s management is responsible for the preparation of these financial statements that give a true and fair view of the financial position, financial performance, total comprehensive income, change in equity and cash flows of the Society (NIWE) in accordance with the accounting principles generally accepted in India, including the Accounting Standards specified.

This responsibility also includes maintenance of adequate accounting records for safeguarding the assets of the Society (NIWE) and for preventing and detecting frauds and other irregularities; selection and application of appropriate accounting policies; making judgments and estimates that are reasonable and prudent; and design, implementation and maintenance of adequate internal financial controls, that were operating effectively for ensuring the accuracy and completeness of the accounting records, relevant to the preparation and presentation of the financial statements that give a true and fair view and are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our objectives are to obtain reasonable assurance about whether the financial statements are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion.

Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with SAs will always detect a material misstatement when it exists.

Misstatements can arise from fraud or error and are considered material if, individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken based on these financial statements.

As a part of an audit in accordance with SAs, we exercise professional judgement and maintain professional skepticism throughout the audit. We are also:

Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those assessed risks and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

Evaluate the overall presentation, structure, and content of the financial statements, including the disclosures and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

Materiality is the magnitude of misstatements in the financial statements that, individually or in aggregate, makes it probable that the economic decisions of a reasonably knowledgeable user of the financial statements may be influenced. We consider quantitative materiality and qualitative factors in (i) planning the scope of our audit work and in evaluating the result of our work; and (ii) to evaluate the effect of any identified misstatements in the financial statements.

Key Audit Matters (KAM)

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the financial statements of the current period. These matters were addressed in the context of our audit of the financial statements as a wholly, and in forming our opinion thereon.

1. Receivables – Rs. 9,77,23,832/-

During the process of audit, we found that there is a huge amount of receivables from debtors as on 31-3-24. The list is given below:

S. No	Scheme	Particulars	Amount in Rs.
1	IE	India Wind Power Ltd Ahmedabad	18,61,427
2	IE	Maharashtra Energy Development Agency (MEDA)	18,000
3	IE	Ministry of External Affairs	14,55,541
4	IE	TANGEDCO	9,39,43,595
5	IE	Wind Force Management Services Private Limited	1,18,000
6	SRRA	National Institute of Solar Energy	3,27,269
Total			9,77,23,832

2. Staff Advance Payable - Rs.5,93,117/-:

It was noticed that an amount of **Rs. 5,93,117/-** is outstanding to be paid for more than a year to staff against expenses incurred by them during the course of work. The details are given below:

S.No	Scheme	Party Name	Amount in Rs.
1	CFA -NE	Hari Baskaran	1,83,117
2	CFA -NE	B Senthil Kumar	2,19,000
3	CFA -NE	Duleswar Boruah	38,000
4	CFA -NE	R Naveen Muthu	90,000
5	CFA -NE	Aochuba Jamir	35,000
6	CFA -NE	B Senthil Kumar	28,000
	Total		5,93,117

3. Advance Received from Customers - Rs.3,31,76,393/-:

The advance amounts to **Rs.3,31,76,393/-** has been received from customers under Internal Earnings Scheme. The detailed list is given below:

S No	Particulars	Amount in Rs.
1	National Institute of Ocean Technology (IE)	2,20,00,000
2	WSOM Fees in Advance	32,05,000
3	Suzlon Global Services Limited MH	16,20,000
4	Power Wind Projects Private Limited	12,98,000
5	Hero Future Technologies (Wippa)	11,60,000
6	Fees in Advance WRA & O	10,88,984
7	Indian Renewable Energy Development Agency Ltd	10,62,000
8	GAIL India Limited - Up	6,50,000
9	United India Insurance Company Limited [S.Dr.]	4,88,529
10	VEH Jayin Renewables Private Limited	1,23,900
11	Sany Wind Energy India Private Limited	1,18,000
12	Senvion Wind Technology Private Limited	1,18,000
13	Suzlon Energy Ltd	59,000
14	National Hydro Power Corporation Limited (Haryana)	50,000
15	Iacharya Silicon Limited (Srra-Ie)	36,050
16	Pioneer Wincon Energy Systems	29,500
17	Merlin	23,600
18	Mahanadi Coalfields Limited.	17,700
19	Quadsun Technology	11,800
20	LIC Of India	10,430
21	Solarpack India LLP	5,900
Total		3,31,76,393

4. Advance paid to Suppliers – Rs.7,06,12,165/-:

The advance to supplier as on 31-3-2024 amounts to **Rs.7,06,12,165/-**. The details are given below:

S No	Scheme	Particulars	Amount in Rs.
1	IE	Fluid Control Research Institute (FCRI)	35,400
2	IE	Jost'S Engineering Co Ltd	76,700
3	IE	LIC Of India	14,30,284
4	IE	United India Insurance Co Ltd	36,828
5	CFA Revenue	CPWD (Chennai)	1,40,28,871
6	CFA Revenue	EMD International	6,88,689
7	CFA Revenue	The Eppley Laboratory Inc	6,49,425
8	CFA Revenue	WRA	7,13,733
9	CFA Revenue	Indian Institute of Technology, Goa	6,96,195
10	CFA Revenue	MNRE Projects (Pys)	19,75,586
11	CFA Revenue	Assam Energy Development Agency	4,00,000
12	CFA Revenue	Gujarat Energy Development Agency {Geda}	92,494
13	CFA Revenue	National Informatics Centre Services Inc.	43,307
14	CFA Revenue	Electronics Test & Development Centre	27,140
15	CFA Revenue	Fluid Control Research Institute (FCRI)	71,390
16	CFA Revenue	Indian Academy Of Sciences	2,500
17	CFA Revenue	SCS Corporate Solutions	11,000
18	CFA Revenue	TANGEDCO -Greening Of Rameswaram	1,18,000
19	CFA Revenue	Tolic, Chennai	16,000
20	CFA Revenue	Advance Akshar Plant	3,000

21	CFA Capital	CPWD (Coimbatore)	1,40,00,000
22	CFA Capital	CPWD (Chennai)	2,82,99,108
23	CFA Capital	CPWD Madurai	16,79,555
24	CFA Capital	Windsim As	13,31,428
25	CFA Capital	Atalon	4,04,250
26	IWSRA	Gujarat Energy Development Agency -Geda	5,96,422
27	IWSRA	Karnataka Renewable Energy Development Ltd	4,63,408
28	IWSRA	Maharashtra Energy Dev Agency (Meda)	3,90,000
29	IWSRA	M P Urja Vikas Nigam Ltd	1,20,000
30	IWSRA	NRED Cap	2,14,508
31	IWSRA	Telangana State Ren Eng Dev Cor Ltd (TSREDCL)	1,37,858
32	IWSRA	V.Periyakkal	65,000
33	IWSRA	Rajasthan Renew Energy [Pye]	1,00,000
34	IWSRA	Maharashtra Energy Dev Agency [Pye]	3,39,667
35	MOM	United India Insurance Co Ltd	92,392
36	CFA NE	Kintech	38,727
37	CFA NE	AEDA, ASSAM (WRA UN/NA NE 2016-17)	3,08,300
38	CFA NE	MNREDA, MEGHALAYA (WRA UN/NA NE 2016-17)	4,75,000
39	CFA NE	NREDA, NAGALAND (WRA UN/NA NE 2016-17)	1,71,500
40	CFA NE	Unadjusted Advances NE	2,68,500
Total			7,06,12,165

5. Creditors outstanding – Rs.32,12,834/-:

During the audit we found that the creditors outstanding as on 31-3-24 amounts to **Rs.32,41,077/-**. The details are given below:

S No	Scheme	Creditors	Amount in Rs.
1	IE	Meatech Solutions LLP	16,75,600
2	IE	Eagle Security & Personnel Service	9,10,879
3	IE	Svaryu Energy Ltd (Refex Energy Ltd)	3,19,494
4	IE	Inox Green Energy Services Ltd	1,43,430
5	IE	Divine Enterprises	46,000
6	IE	Sgs Weather & Environmental Systems Pvt Ltd	43,330
7	IE	Ex-Servicemen Security Services (Pye)	35,004
8	IE	Janani Travels	24,364
9	IE	Sree Gokulam Hotel India Pvt Ltd (Unit: Sabari Omr)	-267
10	CFA Revenue	SCS Corporate Solutions	15,000
11	SRRA	Squad 7 Security & Allied Services	28,243
Total			32,41,077

6. TDS Recoverable details not available – Rs.88,09,917/-:

During the audit it was noticed that huge balances are held in current assets as TDS recoverable from various previous years. However, there was no proper records for such balances. The details are given below:

S. No	Particulars	Amount in Rs.
1	TDS Recoverable 2014-2015 (IE)	47,47,111
2	TDS Recoverable 2015-2016 (IE)	43,99,847
3	TDS Recoverable 2017-18 (IE)	26,72,584
4	TDS Recoverable 2019-20 (IE)	-1,31,000
5	TDS Recoverable 2020-21 (IE)	12,48,407
6	TDS Recoverable 2021-22 (IE)	27,348
7	TDS Recoverable (IE)	57,824
7	TDS Recoverable 2014-15 (PRE GST SRRA-IE)	22,952
8	TDS Recoverable 2015-16 (PRE GST SRRA-IE)	3,33,780
9	Refund Received on 26 th May 2023	-47,70,390
10	TDS Recoverable 2014-2015 (USP - SRRA)	63,515
11	TDS Recoverable 2015-2016 (USP - SRRA)	88,951
12	TDS Recoverable 2017-2018 (USP - SRRA)	28,484

AUDITOR'S REPORT

13	TDS Recoverable 2017-18 (Welfare Fund)	4,135
14	TDS Recoverable 2018-19 (Welfare Fund)	5,135
15	TDS Recoverable 2019-20 (Welfare Fund)	5,969
16	TDS Recoverable 2022-23 (Welfare Fund)	5,265
Total		88,09,917

For P P N AND COMPANY

Chartered Accountants
Firm Reg No: 013623S

D.Hitesh

Partner

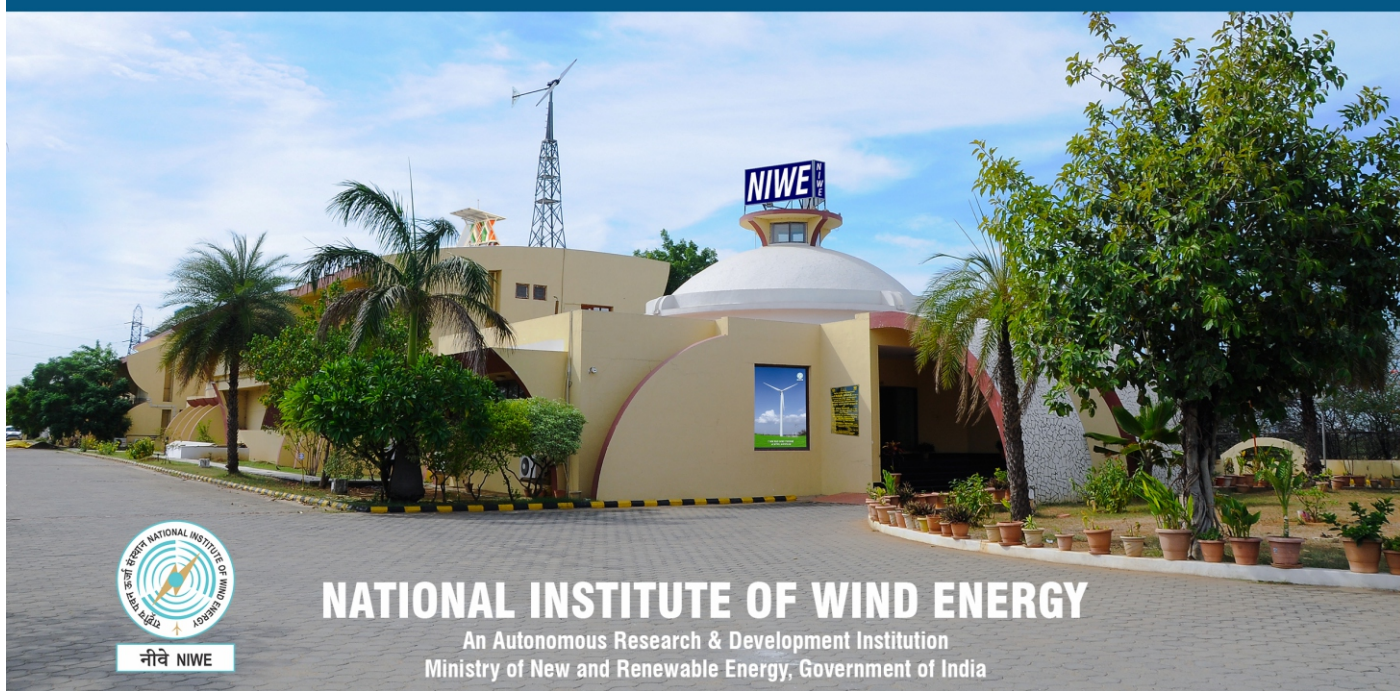
Membership No.231991

Date: 28.09.2024

Place: Chennai

UDIN:

Technical focal point for development of wind energy



NATIONAL INSTITUTE OF WIND ENERGY

An Autonomous Research & Development Institution
Ministry of New and Renewable Energy, Government of India

ACCREDITED SERVICES

Accredited Wind Turbine testing (small and Large) and certification services in accordance to the requirements of IS/ISO/IEC

STANDARDS AND REGULATION

Making of Indian standards on wind turbines and technical support to MNRE in implementation of regulatory frame work for wind turbines.

RESOURCE ASSESSMENT

Nationwide wind (on-shore and off-shore) and solar resource assessment for identification of potential locations to establish wind & solar power projects

RESEARCH AND DEVELOPMENT

State-of-the-art infrastructure including research station with wind farm, laboratory and software for academic and industrial research

SKILL DEVELOPMENT

Skill development and training for national and international professionals on all aspects of wind / solar energy technology and project developments

Vayumitra Skill Development Programme for creating Skilled Manpower for Wind Energy Sector

OFFSHORE WIND ENERGY

Nodal Agency for Offshore Wind Energy development in India

EXPERT SERVICES

- ♦ Wind Data Analytics, feasibility studies, technical due diligence, micro siting, DPR preparation for wind & solar power development
- ♦ Wind-Solar Hybrid measurements & Development
- ♦ Preparation of Wind and Solar Atlas
- ♦ Wind and Solar Power Forecasting
- ♦ Development of Wind and Solar projects
- ♦ Calibration of solar sensors

Velachery - Tambaram Main Road, Pallikaranai, Chennai - 600 100
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नीवे NIWE
ISO 9001 : 2015

राष्ट्रीय पवन ऊर्जा संस्थान NATIONAL INSTITUTE OF WIND ENERGY

नवीन और नवीकरणीय ऊर्जा मंत्रालय, अनुसंधान एवं विकास स्वायत्त संस्थान, भारत सरकार

An Autonomous R & D Institution, Ministry of New and Renewable Energy, Government of India

वेलचेरी - ताम्बरम मुख्य मार्ग, पल्लिकरनै, चेन्नई - 600 100, तमिलनाडु, भारत

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