

वार्षिक रिपोर्ट ANNUAL REPORT 2018-19



नीवे NIWE

राष्ट्रीय पवन ऊर्जा संस्थान NATIONAL INSTITUTE OF WIND ENERGY

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

ANNUAL REPORT 2018-19



नीवे NIWE

NATIONAL INSTITUTE OF WIND ENERGY

AN AUTONOMOUS R&D INSTITUTION, MNRE, GOVERNMENT OF INDIA
CHENNAI - 600 100

GOVERNING COUNCIL - NIWE

CHAIRMAN



Shri. Anand Kumar, I.A.S.
Secretary, MNRE & Chairman, GC, NIWE
(42nd & 43rd GC)

MEMBERS



Ms. Gargi Kaul, I.A.&A.S.
Additional Secretary & Financial Adviser
MNRE
(42nd GC)



Shri. Arun Kumar, I.A.S.
Additional Secretary & Financial Adviser
MNRE
(43rd GC)



Shri. Kuljit Singh Popli
Chairman and Managing Director
IREDA
(42nd GC)



Shri. Praveen Kumar, I.A.S.
Chairman & Managing Director
IREDA
(43rd GC)



Shri. B.P. Yadav, I.A.&A.S.
Joint Secretary (Wind Energy)
MNRE
(42nd & 43rd GC)



Shri. Mohammed Nasimuddin, I.A.S.
Principal Secretary to Government
Energy Department
(42nd & 43rd GC)



Shri. Raj Gopal, I.A.S.
Principal Secretary
Energy & Petrochemicals Dept, Gujarat
(42nd GC)



Shri Pankaj Joshi, I.A.S.
Principal Secretary
Energy & Petrochemicals Dept, Gujarat
(43rd GC)



Dr. Raj Kumar
Deputy Director (EPSA)
Space Application Centre
(42nd & 43rd GC)



Shri. S.K. Soonee
Advisor & Former CEO
Power System Operation Corporation Ltd.
(42nd & 43rd GC)



Dr. Nagesh R. Iyer
Former Director
CSIR-SERC
(42nd & 43rd GC)



Shri. Sunil Jain
Chairman
WIPPA
(42nd & 43rd GC)



Shri. Tulsi R Tanti
Chairman
IWTMA
(42nd & 43rd GC)

MEMBER SECRETARY



Dr. K. Balaraman
Director General, NIWE
(42nd & 43rd GC)

CONTENTS

Page	Description
Section-1	THE ORGANISATION
07	From Director General's Desk
11	The Charter
12	NIWE's Highlights
Section-2	TOWARDS MISSION AND OBJECTIVES
17	Wind Solar Resource Measurements / Offshore (WSOM)
24	Testing and Research Station (T&R)
27	Research and Development (R&D), Resource Data Analytics and Forecasting (RDAF)
31	RE Projects & SRRA
35	Certification and Information Technology (C&IT)
37	Standards and Regulation (S&R)
41	Skill Development and Training (SDT)
53	Finance and Administration (F&A)
Section-3	OUTREACH ACTIVITIES
59	NIWE Staff - External Membership
60	Agreement Signed
62	Awards
63	Visits Abroad
64	Important visitors to NIWE
Section-4	THE MANAGEMENT
69	NIWE Team (Work Force)
72	Committee Members
77	Staff Promotion

Section - 1

THE ORGANISATION

- **From Director General's Desk**
- **The Charter**
- **NIWE's Highlights**



Dr. K. Balaraman
Director General

From the Director General's Desk . . .

The year 2018-19 was significant as National Institute of Wind Energy (NIWE) continued to make contributions towards sustained development in wind energy sector in the country and overseas. It is combination of individual excellence and team work that makes the organization great. I am privileged to be part of the NIWE team and I thank our colleagues for their unstinted support and commitment in achieving excellence. It is our privilege to present the Annual Report of NIWE for the year ending 31st March 2019. The report summarizes the significant contributions made by the institution on various facets of wind turbine technology and the wind sector. I take this opportunity to acknowledge the efforts and contributions of the entire NIWE team that has given life and substance to this report.

NIWE has taken its first international project during the year by signing an agreement with Energoimport, Cuba for the preparation of technical and economic feasibility report for setting up of Rio Seco-1 Wind Farm, with capacity of 50 MW of electric power generation to be financed under the line of credit of Government of India. As per the agreement, NIWE would carry out evaluation of the wind resource and investigation of the site, preparation of the report on the wind characteristics of the region/site, design and engineering of the wind farm layout and economic analysis.

NIWE has bagged Golden award under Category –IV from Department of Administrative Reforms and Public Grievances (DARPG) for outstanding research on Citizen Centric Services by Academic Research Institutions for the forecast project of Tamil Nadu and the award was presented by Secretary, DARPG, Ministry of Personnel, Public Grievances and Pensions, Government of India.

Other significant contribution during the current year is the launch of mobile app SWurja which provides information of wind and solar resource across the country. Hon'ble Minister Shri. R.K. Singh launched the mobile app on the occasion of 2nd Global RE-Invest conference &



exhibition held during 3rd to 5th October 2018 in NCR at Greater Noida . The mobile app features the wind, solar and hybrid maps of India alongwith relevant wind and solar data. By selecting a location on the map, wind and solar data can be retrieved and viewed. The app is a green energy tool which provides important information like installable wind and solar capacity, annual energy generation, financial savings, reduction in carbon emission, etc., for any desired location through earthy navigable google map.

This year also marks the centenary birthday celebration of Prof. Anna Mani who was a pioneer in wind and solar resource assessment in the Country. As part of the celebration on 30th August 2018, the resource assessment experts had gathered and discussed the path traversed in onshore & offshore meteorology and its place of relevance in the future of Country's ambitious target of 175 GW.

In order to understand the wind potential in unexplored areas, we have established 18 numbers of wind monitoring stations in the North East and other parts of the country. The use of existing telecom towers for wind resource assessment studies were expanded in NE region by installing wind sensors and data collection system in 37 nos. of telecom towers. As on 31.03.2019, 108 nos. of wind monitoring stations are operational in 12 states under various wind monitoring projects funded by the Ministry of New and Renewable Energy.

Further, NIWE has completed mapping the wind potential at 120m hub height on the similar lines of the development of 100m wind potential map, at a spatial resolution of 500m, using the advanced meso-micro coupled numerical wind flow model with the corroboration of about 406 actual measurements spread all over India.

On the offshore wind development front, NIWE invited the Expression of Interest (EoI) for development of first 1000MW commercial offshore wind farm in India, off the coast of Gujarat. Onsite Geo-physical investigation to understand sub soil surface, its profile and bathymetry for 1GW offshore project at Gulf of Khambhat off Gujarat Coast have been completed. LiDAR based measurements at Gulf of Khambhat off Gujarat coast is on going and the raw data files (time series) for one year has been uploaded in NIWE website for the benefit of the stakeholders.

In order to foster better integration of wind and solar generation, NIWE has developed in-house Data management system, Indigenous wind and solar power forecasting model, Monitoring System, Web portal, Forecast simulation tools and Security system. NIWE has created an operational forecast system with simulation tools, to predict the wind power up to 7 days ahead. In order to improve the forecasting model, NIWE has signed MoU with ISRO SAC. NIWE has also developed an intra-day forecasting model and also carrying out various activities to improve/fine-tune the day ahead model. At present, NIWE is providing wind power forecasting to the States of Tamil Nadu, Gujarat, Karnataka and CTU connected wind farms of SRLDC.



During the year, NIWE have initiated PAN India research network and NIWE- Academic Associate Program (AAP). These programmes are to encourage students to choose renewable energy as their career option by providing internships in the field of renewable energy every year. NIWE-AAP provides opportunities for the students to work with scientists/engineers on NIWE's projects. 113 graduate and post graduate students have completed their internship/project work and 19 graduate and post-graduate students are presently pursuing internship and project work at NIWE in the field of wind and solar energy mentored by various subject matter experts.

NIWE has continued to offer its accredited Type testing of wind turbines and Certification services. Safety & duration test coupled with power curve measurements, safety tests were performed on small wind turbines (SWT) of SM2 (1kW) of M/s. Windstream Energy Technologies India pvt. Ltd. and vertical axis WT (5.5 kW) of M/s. Vaata Smart Ltd., as per the IEC 61400-2 and IEC 61400-12-1 at our wind turbine test station (WTTS), Kayathar. Power curve measurements of INOX 2000 kW wind turbine & Pioneer 750 kW wind turbine W49-HH60 of M/s. Para Enterprises Pvt. Ltd was also completed. Four projects on renewal of certificates of wind turbine models have been completed during this year. Two projects on revision of provisional Type Certificates of wind turbine models viz., V 39 – 500 kW & GWL 225 during the year have been completed.

Considering the need to formulate a new certification scheme for India which takes into account the latest standards, Central Electricity Authority (CEA) regulations etc., a draft Indian Wind Turbine Certification Scheme (IWTCS) prepared and submitted to Ministry of New and Renewable Energy (MNRE). This comprehensive certification scheme is the first of its kind covering various aspects of certification till the disposal of wind turbines. The scheme covers prototype certification & type certification for wind turbines; failure reporting of installed wind turbines, safety and performance assessment and de-commissioning & safe disposal of the wind turbines taking into account the relevant national and international standards (IS/IEC/IECRE) and guidelines.

NIWE is providing the continuous technical support to MNRE for all the works related to Revised Lists of Models and Manufacturers of wind turbines (RLMM). During the year, review of documentation has been carried out for 27 new wind turbine models.

On the quality front, we have successfully undergone the transition and second periodic audit and recommended for continuation of certification issued by DNV-GL. The continual improvement and maintaining the Quality Management System are ongoing.

NIWE had organized, during the year, 6 international and one national training courses in the areas of wind turbine technology and applications; wind resource assessment and wind farm

planning; design, installation and maintenance of small wind turbine under ITEC and AIFS-III programme of Ministry of External Affairs and also MNRE initiatives.

Further, NIWE organized an International workshop and a conference on small wind turbine for the first time in the country, in association with MinVayu, Auroville, Tamilnadu, Wind Empowerment, United Kingdom and Skill Council for Green Jobs, New Delhi. The workshop was attended by 119 National and International participants from 37 countries and 35 expert trainers of Wind Empowerment members from around the world supported in the practical training of making SWT. The conference was attended by 234 participants from 37 countries, which included poster session with 35 scheduled posters.

On the occasion of Global Wind Day Celebrations, NIWE conducted a one day workshop on Pan India Research Network – Industry & Academic Amalgamation at Chennai. The second IREDA-NIWE Annual Awards for wind energy was presented during our annual day celebrations. The award is to promote innovation, research & development, manufacturing, developing & harnessing wind energy at the State and National levels and to motivate individuals, stakeholder to strive for the best in the field. This year's awardees are Karnataka Renewable Energy Development Agency Limited (KREDL) for best performing state nodal agency, Malaviya National Institute of Technology, Jaipur, Rajasthan for best institution of higher learning in wind energy and Dr. Zakir Hussain Rather, Assistant Proferssor, IIT, Mumbai for best research work in wind energy.

The new initiatives and continued growth of NIWE was possible with continued co-operation and support from MNRE and the wind industry. NIWE is geared up to support the industry to achieve the National Target.

Dr. K. Balaraman
Director General



CHARTER

The National Institute of Wind Energy was established at Chennai in 1998 by the Ministry of New and Renewable Energy (MNRE) is a technical focal point for wind energy technologies. A Wind Turbine Test Station (WTTS) has also been established at Kayathar, Tamil Nadu, with the technical support and partial financial assistance from Danish International Development Agency (DANIDA), Denmark and Government of India.

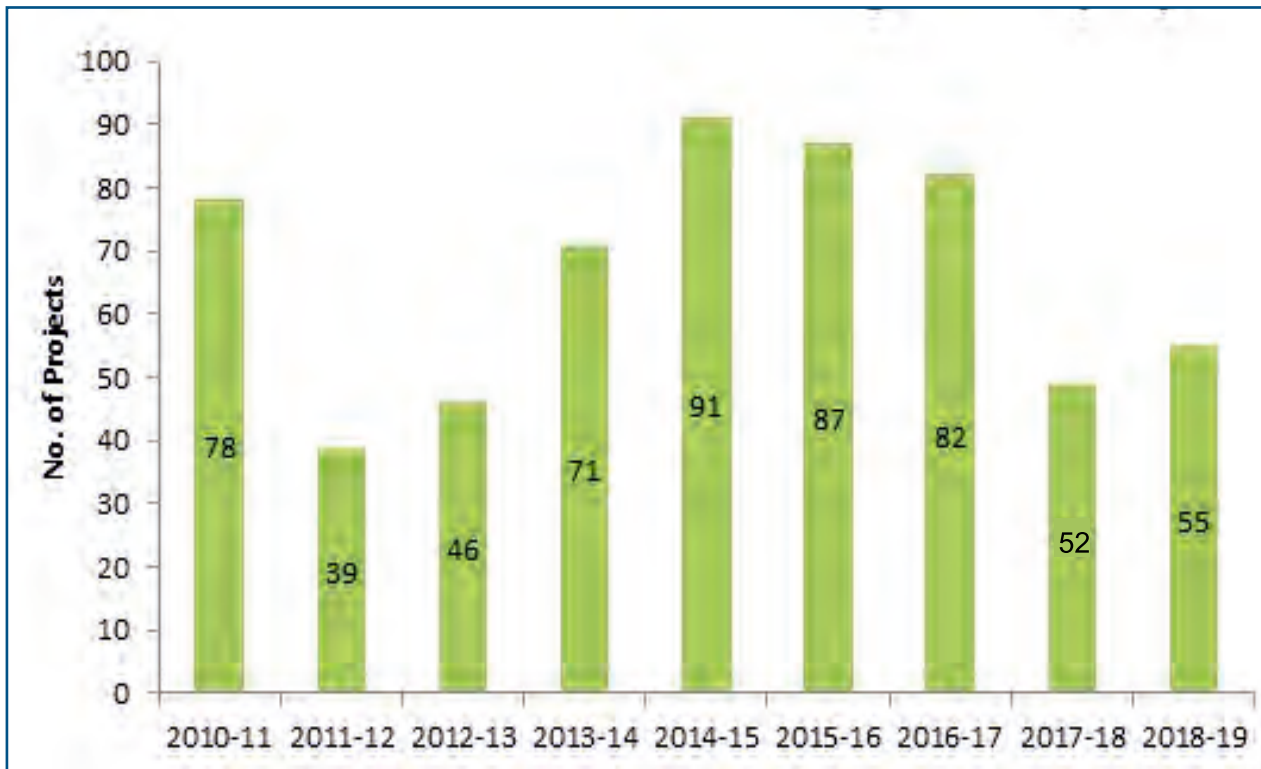
Mission

NIWE, a knowledge based institution offers services and seeks to find 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. NIWE will support the wind energy industry in developing the know-how and know-why and promoting export of products and services.

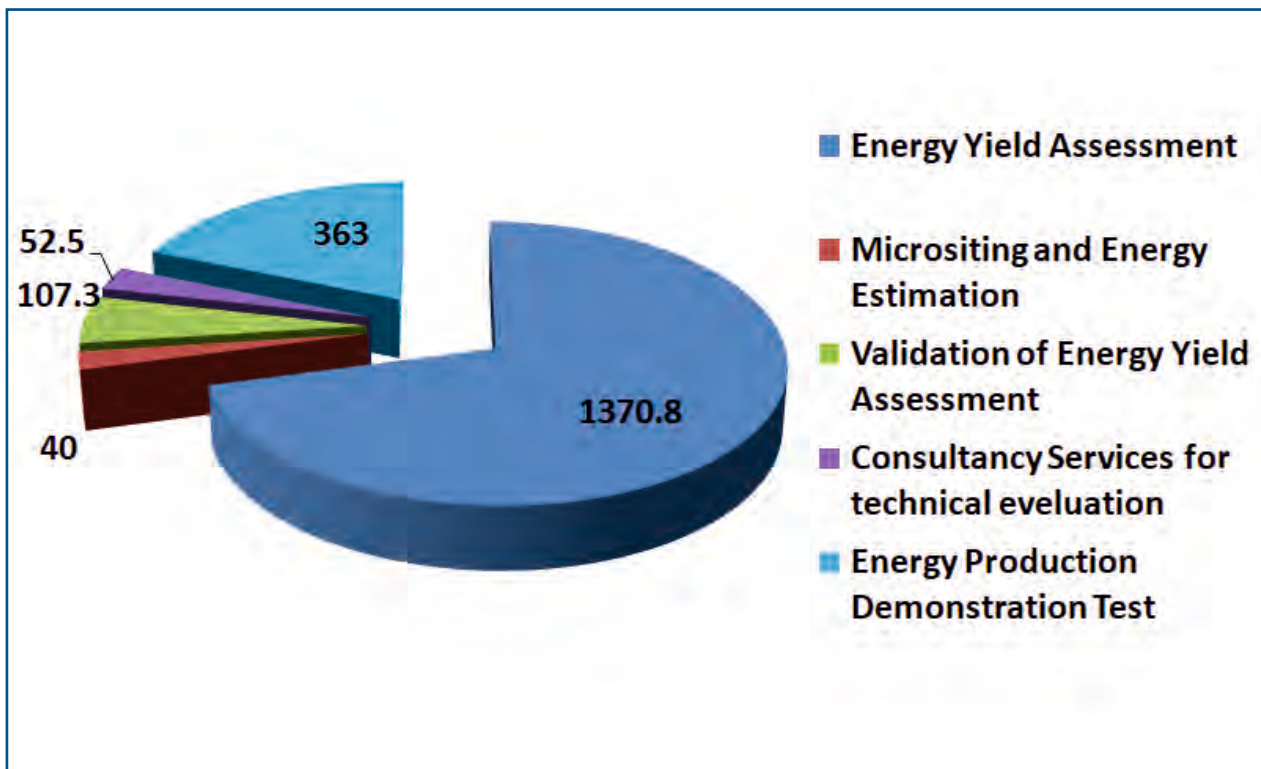
Objectives

- 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 programs to achieve and maintain reliable and cost effective technology in wind power systems.
- To analyze and assess wind resources based on the measured data from the wind masts along with the data available from various sources and prepare wind energy density maps / wind atlas / reference wind data.
- To prepare and establish Indian standards on wind turbines and to develop and implement certification system in India.
- To establish world class facilities, conduct and coordinate testing of complete wind power system and components according to internationally accepted test procedures and criteria, whereby the total performance that includes power performance, power quality, noise level, dynamics and operation and safety systems is tested according to agreed protocols.
- To accord type approval / type certification to wind turbines in accordance with Type Approval Provisional Scheme (TAPS) 2000 (Amended).
- To undertake training programs for the personnel working in the wind energy sector for both in India and abroad.
- 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.
- To carry out any other activities in the field of renewable energy for R&D as may be assigned to it by the Ministry of New and Renewable Energy (MNRE) from time to time.

NIWE'S HIGHLIGHTS

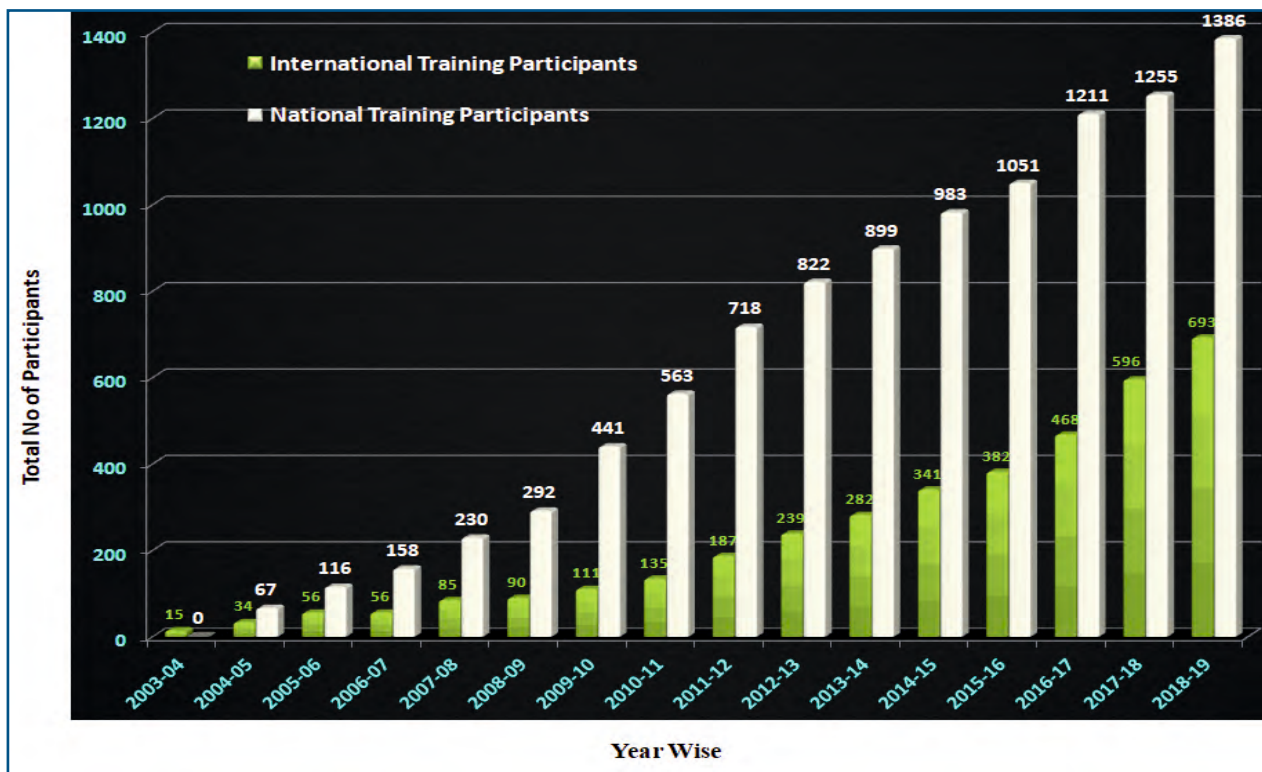


Verification of Wind Monitoring Station Projects

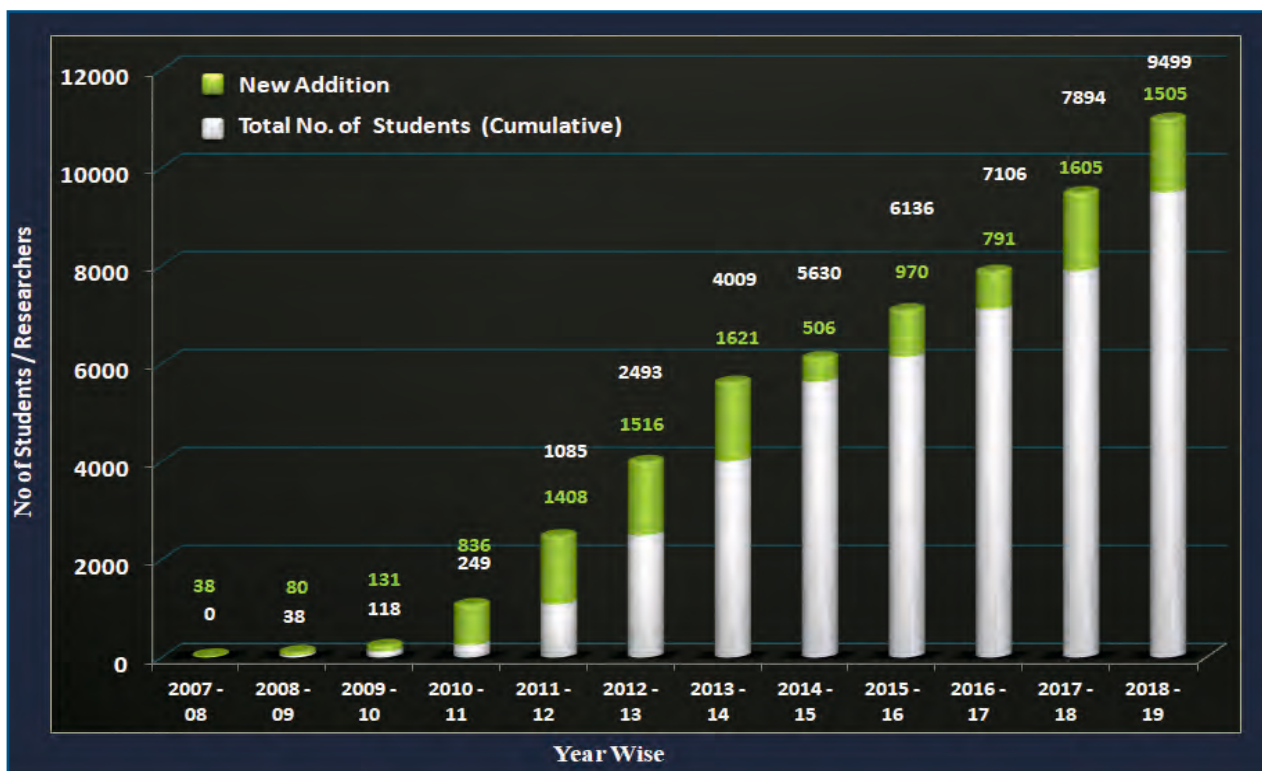


Wind Resource Projects in MW





National and International Training Courses



School & College Student's visits (cumulative & addition)



ANNUAL REPORT 2018-19



नीवे NIWE

NATIONAL INSTITUTE OF WIND ENERGY

AN AUTONOMOUS R&D INSTITUTION, MNRE, GOVERNMENT OF INDIA
CHENNAI - 600 100

GOVERNING COUNCIL - NIWE

CHAIRMAN



Shri. Anand Kumar, I.A.S.
Secretary, MNRE & Chairman, GC, NIWE
(42nd & 43rd GC)

MEMBERS



Ms. Gargi Kaul, I.A.&A.S.
Additional Secretary & Financial Adviser
MNRE
(42nd GC)



Shri. Arun Kumar, I.A.S.
Additional Secretary & Financial Adviser
MNRE
(43rd GC)



Shri. Kuljit Singh Popli
Chairman and Managing Director
IREDA
(42nd GC)



Shri. Praveen Kumar, I.A.S.
Chairman & Managing Director
IREDA
(43rd GC)



Shri. B.P. Yadav, I.A.&A.S.
Joint Secretary (Wind Energy)
MNRE
(42nd & 43rd GC)



Shri. Mohammed Nasimuddin, I.A.S.
Principal Secretary to Government
Energy Department
(42nd & 43rd GC)



Shri. Raj Gopal, I.A.S.
Principal Secretary
Energy & Petrochemicals Dept, Gujarat
(42nd GC)



Shri Pankaj Joshi, I.A.S.
Principal Secretary
Energy & Petrochemicals Dept, Gujarat
(43rd GC)



Dr. Raj Kumar
Deputy Director (EPSA)
Space Application Centre
(42nd & 43rd GC)



Shri. S.K. Soonee
Advisor & Former CEO
Power System Operation Corporation Ltd.
(42nd & 43rd GC)



Dr. Nagesh R. Iyer
Former Director
CSIR-SERC
(42nd & 43rd GC)



Shri. Sunil Jain
Chairman
WIPPA
(42nd & 43rd GC)



Shri. Tulsi R Tanti
Chairman
IWTMA
(42nd & 43rd GC)

MEMBER SECRETARY



Dr. K. Balaraman
Director General, NIWE
(42nd & 43rd GC)

CONTENTS

	Page	Description
Section-1		THE ORGANISATION
	07	From Director General's Desk
	11	The Charter
	12	NIWE's Highlights
Section-2		TOWARDS MISSION AND OBJECTIVES
	17	Wind Solar Resource Measurements / Offshore (WSOM)
	24	Testing and Research Station (T&R)
	27	Research and Development (R&D), Resource Data Analytics and Forecasting (RDAF)
	31	RE Projects & SRRA
	35	Certification and Information Technology (C&IT)
	37	Standards and Regulation (S&R)
	41	Skill Development and Training (SDT)
	53	Finance and Administration (F&A)
Section-3		OUTREACH ACTIVITIES
	59	NIWE Staff - External Membership
	60	Agreement Signed
	62	Awards
	63	Visits Abroad
	64	Important visitors to NIWE
Section-4		THE MANAGEMENT
	69	NIWE Team (Work Force)
	72	Committee Members
	77	Staff Promotion
Section-5		FINANCE REPORT
	81	Balance Sheet
	82	Income and Expenditure
	83	Receipts and Payments
	85	Schedules
	102	Auditor's Report

Section - 1

THE ORGANISATION

- **From Director General's Desk**
- **The Charter**
- **NIWE's Highlights**



From the Director General's Desk . . .

Dr. K. Balaraman
Director General

The year 2018-19 was significant as National Institute of Wind Energy (NIWE) continued to make contributions towards sustained development in wind energy sector in the country and overseas. It is combination of individual excellence and team work that makes the organization great. I am privileged to be part of the NIWE team and I thank our colleagues for their unstinted support and commitment in achieving excellence. It is our privilege to present the Annual Report of NIWE for the year ending 31st March 2019. The report summarizes the significant contributions made by the institution on various facets of wind turbine technology and the wind sector. I take this opportunity to acknowledge the efforts and contributions of the entire NIWE team that has given life and substance to this report.

NIWE has taken its first international project during the year by signing an agreement with Energoimport, Cuba for the preparation of technical and economic feasibility report for setting up of Rio Seco-1 Wind Farm, with capacity of 50 MW of electric power generation to be financed under the line of credit of Government of India. As per the agreement, NIWE would carry out evaluation of the wind resource and investigation of the site, preparation of the report on the wind characteristics of the region/site, design and engineering of the wind farm layout and economic analysis.

NIWE has bagged Golden award under Category –IV from Department of Administrative Reforms and Public Grievances (DARPG) for outstanding research on Citizen Centric Services by Academic Research Institutions for the forecast project of Tamil Nadu and the award was presented by Secretary, DARPG, Ministry of Personnel, Public Grievances and Pensions, Government of India.

Other significant contribution during the current year is the launch of mobile app SWurja which provides information of wind and solar resource across the country. Hon'ble Minister Shri. R.K. Singh launched the mobile app on the occasion of 2nd Global RE-Invest conference &



exhibition held during 3rd to 5th October 2018 in NCR at Greater Noida . The mobile app features the wind, solar and hybrid maps of India alongwith relevant wind and solar data. By selecting a location on the map, wind and solar data can be retrieved and viewed. The app is a green energy tool which provides important information like installable wind and solar capacity, annual energy generation, financial savings, reduction in carbon emission, etc., for any desired location through earthy navigable google map.

This year also marks the centenary birthday celebration of Prof. Anna Mani who was a pioneer in wind and solar resource assessment in the Country. As part of the celebration on 30th August 2018, the resource assessment experts had gathered and discussed the path traversed in onshore & offshore meteorology and its place of relevance in the future of Country's ambitious target of 175 GW.

In order to understand the wind potential in unexplored areas, we have established 18 numbers of wind monitoring stations in the North East and other parts of the country. The use of existing telecom towers for wind resource assessment studies were expanded in NE region by installing wind sensors and data collection system in 37 nos. of telecom towers. As on 31.03.2019, 108 nos. of wind monitoring stations are operational in 12 states under various wind monitoring projects funded by the Ministry of New and Renewable Energy.

Further, NIWE has completed mapping the wind potential at 120m hub height on the similar lines of the development of 100m wind potential map, at a spatial resolution of 500m, using the advanced meso-micro coupled numerical wind flow model with the corroboration of about 406 actual measurements spread all over India.

On the offshore wind development front, NIWE invited the Expression of Interest (EoI) for development of first 1000MW commercial offshore wind farm in India, off the coast of Gujarat. Onsite Geo-physical investigation to understand sub soil surface, its profile and bathymetry for 1GW offshore project at Gulf of Khambhat off Gujarat Coast have been completed. LiDAR based measurements at Gulf of Khambhat off Gujarat coast is on going and the raw data files (time series) for one year has been uploaded in NIWE website for the benefit of the stakeholders.

In order to foster better integration of wind and solar generation, NIWE has developed in-house Data management system, Indigenous wind and solar power forecasting model, Monitoring System, Web portal, Forecast simulation tools and Security system. NIWE has created an operational forecast system with simulation tools, to predict the wind power up to 7 days ahead. In order to improve the forecasting model, NIWE has signed MoU with ISRO SAC. NIWE has also developed an intra-day forecasting model and also carrying out various activities to improve/fine-tune the day ahead model. At present, NIWE is providing wind power forecasting to the States of Tamil Nadu, Gujarat, Karnataka and CTU connected wind farms of SRLDC.



During the year, NIWE have initiated PAN India research network and NIWE- Academic Associate Program (AAP). These programmes are to encourage students to choose renewable energy as their career option by providing internships in the field of renewable energy every year. NIWE-AAP provides opportunities for the students to work with scientists/engineers on NIWE's projects. 113 graduate and post graduate students have completed their internship/project work and 19 graduate and post-graduate students are presently pursuing internship and project work at NIWE in the field of wind and solar energy mentored by various subject matter experts.

NIWE has continued to offer its accredited Type testing of wind turbines and Certification services. Safety & duration test coupled with power curve measurements, safety tests were performed on small wind turbines (SWT) of SM2 (1kW) of M/s. Windstream Energy Technologies India pvt. Ltd. and vertical axis WT (5.5 kW) of M/s. Vaata Smart Ltd., as per the IEC 61400-2 and IEC 61400-12-1 at our wind turbine test station (WTTS), Kayathar. Power curve measurements of INOX 2000 kW wind turbine & Pioneer 750 kW wind turbine W49-HH60 of M/s. Para Enterprises Pvt. Ltd was also completed. Four projects on renewal of certificates of wind turbine models have been completed during this year. Two projects on revision of provisional Type Certificates of wind turbine models viz., V 39 – 500 kW & GWL 225 during the year have been completed.

Considering the need to formulate a new certification scheme for India which takes into account the latest standards, Central Electricity Authority (CEA) regulations etc., a draft Indian Wind Turbine Certification Scheme (IWTCS) prepared and submitted to Ministry of New and Renewable Energy (MNRE). This comprehensive certification scheme is the first of its kind covering various aspects of certification till the disposal of wind turbines. The scheme covers prototype certification & type certification for wind turbines; failure reporting of installed wind turbines, safety and performance assessment and de-commissioning & safe disposal of the wind turbines taking into account the relevant national and international standards (IS/IEC/IECRE) and guidelines.

NIWE is providing the continuous technical support to MNRE for all the works related to Revised Lists of Models and Manufacturers of wind turbines (RLMM). During the year, review of documentation has been carried out for 27 new wind turbine models.

On the quality front, we have successfully undergone the transition and second periodic audit and recommended for continuation of certification issued by DNV-GL. The continual improvement and maintaining the Quality Management System are ongoing.

NIWE had organized, during the year, 6 international and one national training courses in the areas of wind turbine technology and applications; wind resource assessment and wind farm

planning; design, installation and maintenance of small wind turbine under ITEC and AIFS-III programme of Ministry of External Affairs and also MNRE initiatives.

Further, NIWE organized an International workshop and a conference on small wind turbine for the first time in the country, in association with MinVayu, Auroville, Tamilnadu, Wind Empowerment, United Kingdom and Skill Council for Green Jobs, New Delhi. The workshop was attended by 119 National and International participants from 37 countries and 35 expert trainers of Wind Empowerment members from around the world supported in the practical training of making SWT. The conference was attended by 234 participants from 37 countries, which included poster session with 35 scheduled posters.

On the occasion of Global Wind Day Celebrations, NIWE conducted a one day workshop on Pan India Research Network – Industry & Academic Amalgamation at Chennai. The second IREDA-NIWE Annual Awards for wind energy was presented during our annual day celebrations. The award is to promote innovation, research & development, manufacturing, developing & harnessing wind energy at the State and National levels and to motivate individuals, stakeholder to strive for the best in the field. This year's awardees are Karnataka Renewable Energy Development Agency Limited (KREDL) for best performing state nodal agency, Malaviya National Institute of Technology, Jaipur, Rajasthan for best institution of higher learning in wind energy and Dr. Zakir Hussain Rather, Assistant Proferssor, IIT, Mumbai for best research work in wind energy.

The new initiatives and continued growth of NIWE was possible with continued co-operation and support from MNRE and the wind industry. NIWE is geared up to support the industry to achieve the National Target.

Dr. K. Balaraman
Director General



CHARTER

The National Institute of Wind Energy was established at Chennai in 1998 by the Ministry of New and Renewable Energy (MNRE) is a technical focal point for wind energy technologies. A Wind Turbine Test Station (WTTS) has also been established at Kayathar, Tamil Nadu, with the technical support and partial financial assistance from Danish International Development Agency (DANIDA), Denmark and Government of India.

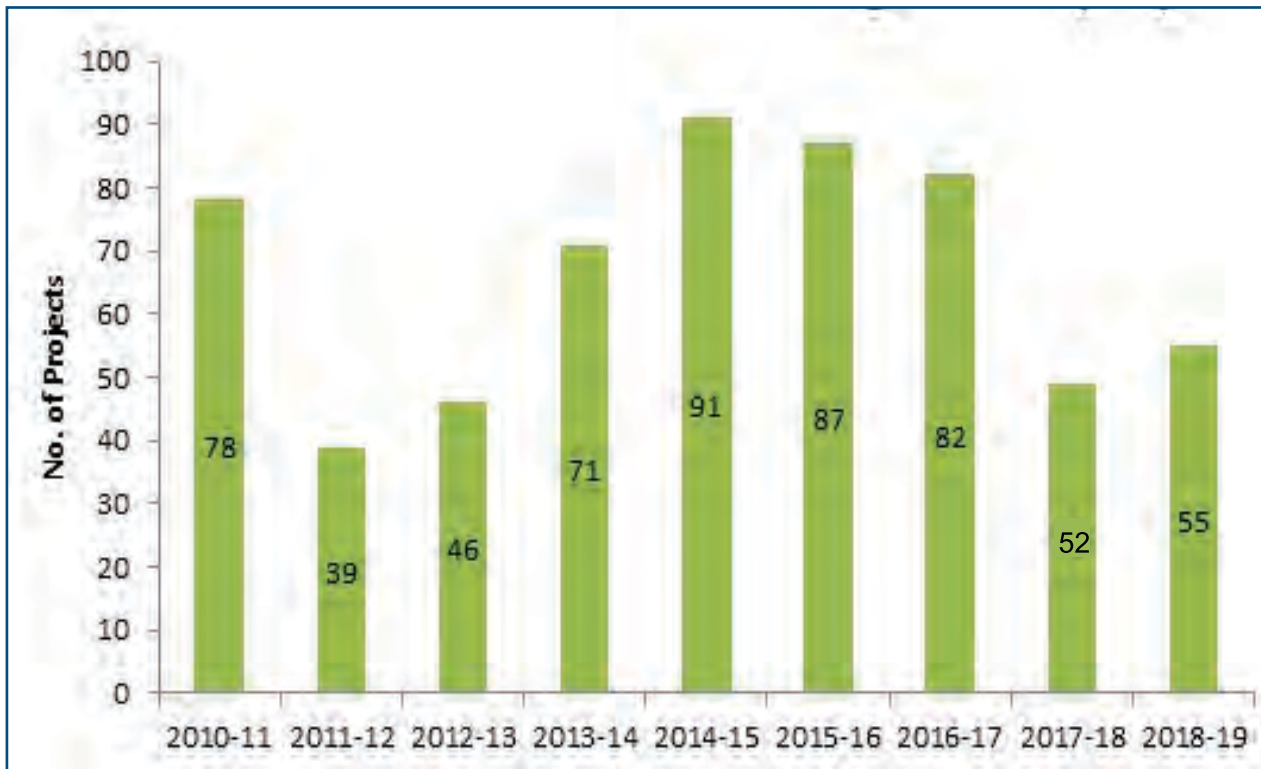
Mission

NIWE, a knowledge based institution offers services and seeks to find 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. NIWE will support the wind energy industry in developing the know-how and know-why and promoting export of products and services.

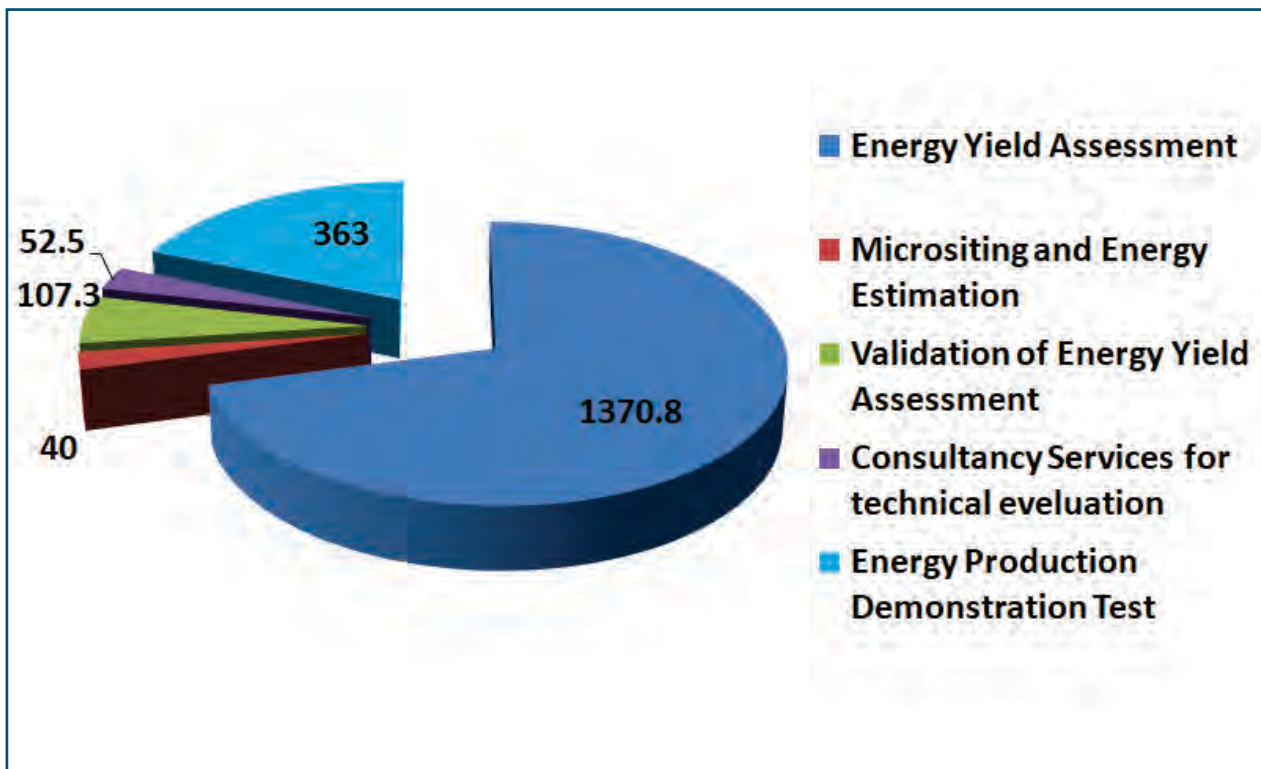
Objectives

- 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 programs to achieve and maintain reliable and cost effective technology in wind power systems.
- To analyze and assess wind resources based on the measured data from the wind masts along with the data available from various sources and prepare wind energy density maps / wind atlas / reference wind data.
- To prepare and establish Indian standards on wind turbines and to develop and implement certification system in India.
- To establish world class facilities, conduct and coordinate testing of complete wind power system and components according to internationally accepted test procedures and criteria, whereby the total performance that includes power performance, power quality, noise level, dynamics and operation and safety systems is tested according to agreed protocols.
- To accord type approval / type certification to wind turbines in accordance with Type Approval Provisional Scheme (TAPS) 2000 (Amended).
- To undertake training programs for the personnel working in the wind energy sector for both in India and abroad.
- 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.
- To carry out any other activities in the field of renewable energy for R&D as may be assigned to it by the Ministry of New and Renewable Energy (MNRE) from time to time.

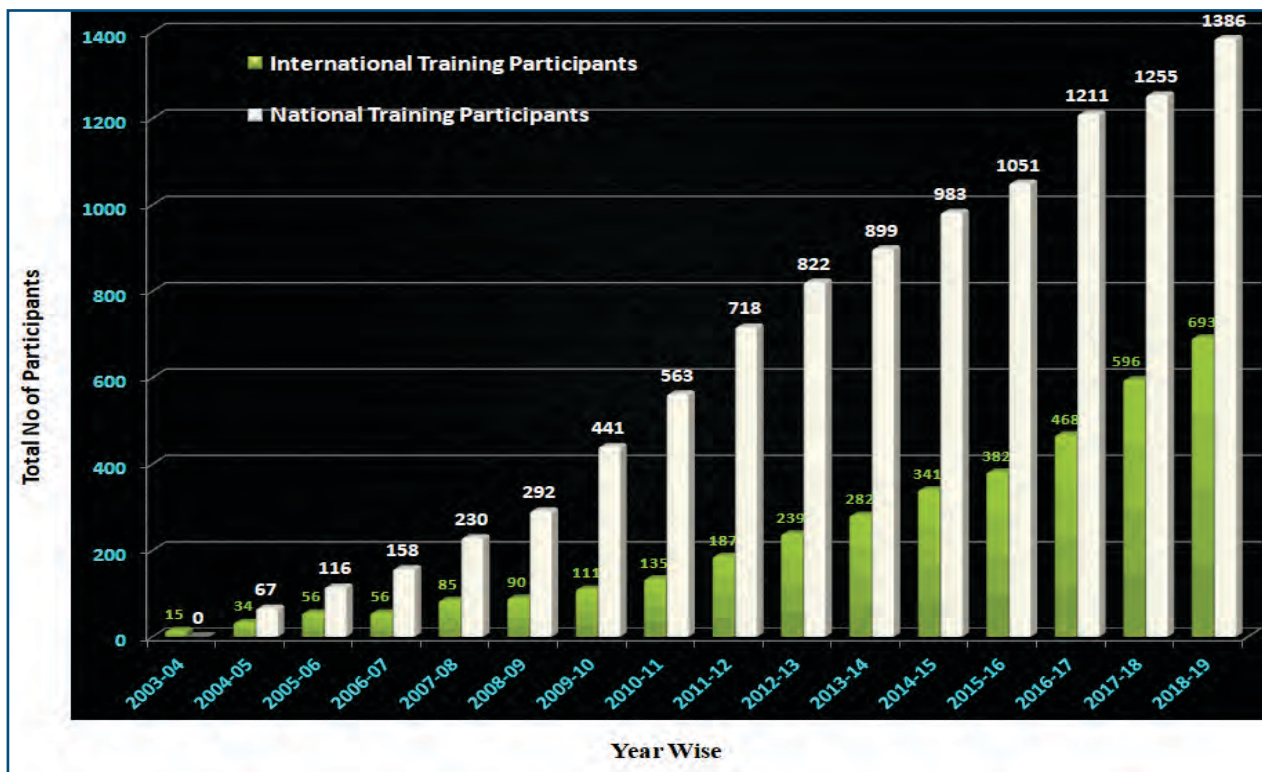
NIWE'S HIGHLIGHTS



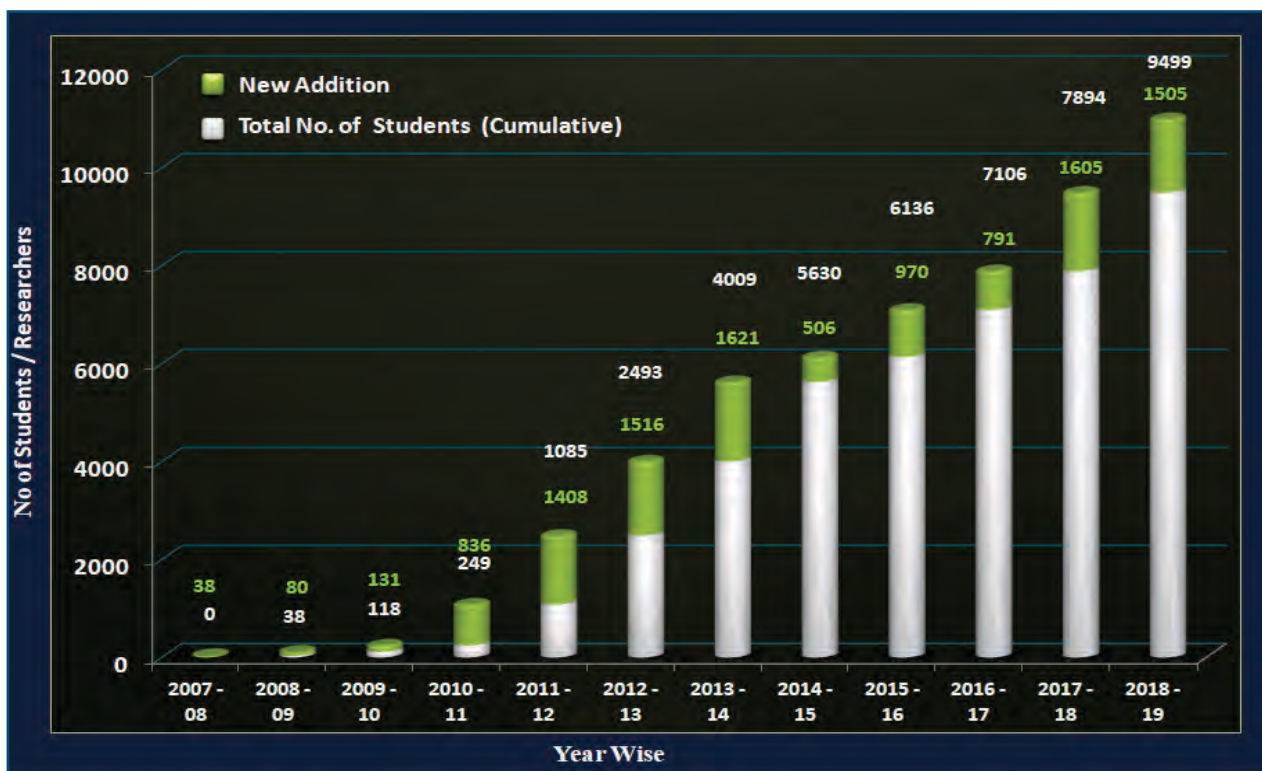
Verification of Wind Monitoring Station Projects



Wind Resource Projects in MW



National and International Training Courses



School & College Student's visits (cumulative & addition)



Section - 2

TOWARDS MISSION AND OBJECTIVES

- **Wind Solar Resource Measurements / Offshore**
- **Testing and Research Station**
- **R&D and Resource Data Analytics and Forecasting**
- **RE Projects SRRA**
- **Certification and Information Technology**
- **Standards and Regulation**
- **Skill Development and Training**
- **Finance and Administration**

WIND SOLAR RESOURCE MEASUREMENTS / OFFSHORE DIVISION

INTRODUCTION

The Wind Solar Resource Measurements & Offshore (WSOM) division is making progress in resource measurement across the country. As on 31st March 2019, 108 wind monitoring stations are operational in 12 States under various wind monitoring projects funded by the MNRE and the thrust is on WRA studies in NE region.

WRAIN UNCOVERED/NEW AREAS

Having focus on North Eastern region, 18 nos. of wind monitoring stations, under National Wind Monitoring Programme, were established as on 31.03.2019. Details of the 50m Wind Monitoring Stations (WMS) installed and commissioned are given in **Table 01**. In addition, Division has initiated Wind Resource Assessment studies on existing telecom towers of 40m height and above of M/s. Airtel & M/s. BSNL in NE region. During the year, 37 nos. WMS have been established on telecom towers in NE region and data collection on wind, solar and other various parameters are in progress.

Table 01 : Wind Monitoring Stations commissioned in North Eastern Region

Sl.No	State	No. of WMS
1	Assam	4
2	Meghalaya	4
3	Arunachal Pradesh	8
4	Manipur	1
5	Tripura	1
TOTAL		18



**50m Mast Photograph of
Bhurbanda, Assam**

Details of the telecom tower mounted WRA stations are furnished in **Table-02**:

Table 02 : State-wise telecom tower based wind monitoring stations

Sl.No.	State	No. of WMS on Telecom Towers installed
1	Meghalaya	15
2	Nagaland	7
3	Mizoram	5
4	Tripura	5
5	Arunachal Pradesh	5
TOTAL		37

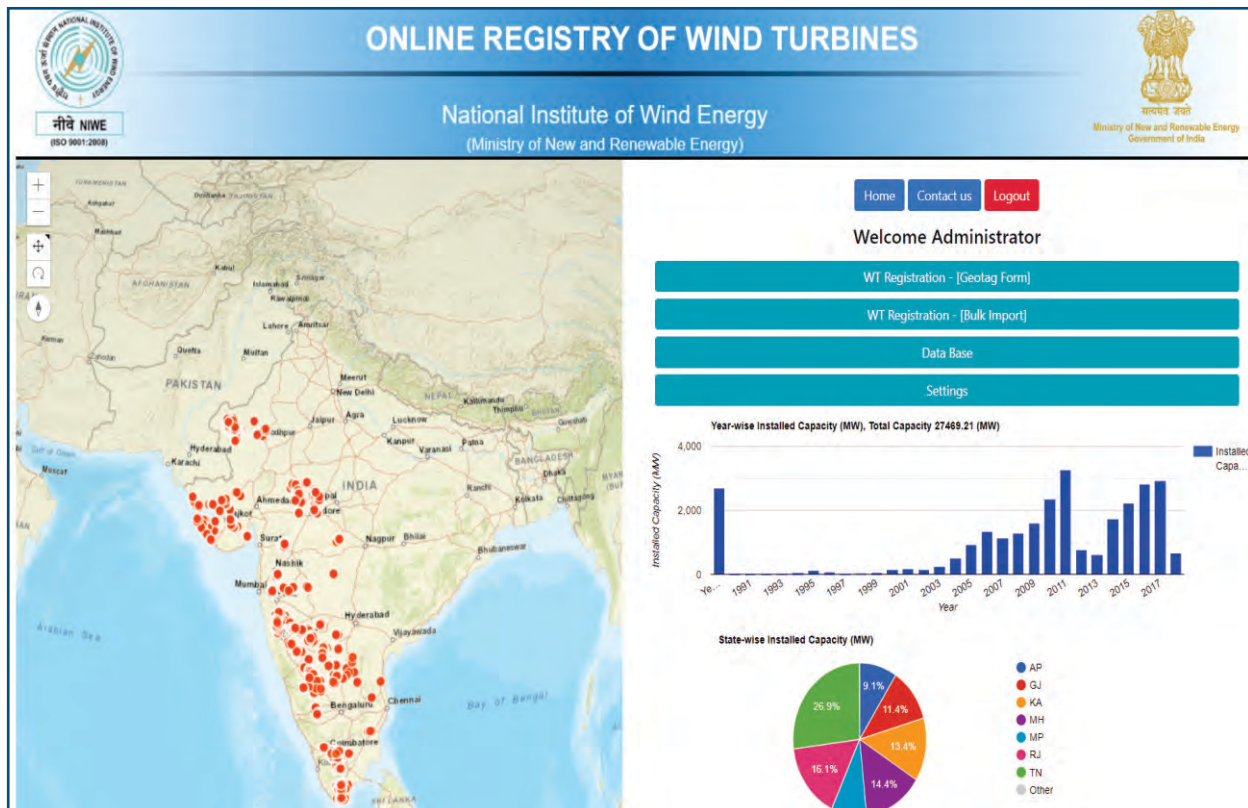
GEO-TAGGING OF WIND TURBINES INSTALLED ACROSS THE COUNTRY

As on 31st March 2019, total wind turbine installed capacity in India stands at 35.7 GW with close to 35,000 wind turbines. These

installations are mainly spread across the states of Andhra Pradesh, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu and Telangana.

As per the Guidelines for Development of Onshore Wind Power Projects released by MNRE vide F. No. 66/183/2016-WE dated 22.10.2016, NIWE directed to develop and maintain an online registry of wind turbines and collate their performance related data sets. Under this project, NIWE is developing geo-tagged data base / online registry of wind turbines installed and proposed to be installed across the country with the support of central and state agencies.

NIWE has created a centralized database of existing wind turbine installed in the country based on the data collected from SNAs and other Stakeholders. At present, data for



Geo-tagging web portal



29 GW has been collected from various stakeholders / SNA / Manufacturers and the verification process is underway.

WIND SOLAR RESOURCE ASSESSMENT

During the financial year 2018-19, 135 consultancy projects have been completed and reports have been submitted in the following areas :

- Verification Procedure of Wind Monitoring for 55 sites.
- Energy Yield Assessment for 17 sites.
- Micrositing and Energy Estimation for one site.
- Validation of Energy Yield Assessment for three sites.

- Energy Production Demonstration Test for one site.
- 61 nos. of private wind monitoring stations registered as per MNRE Guidelines.

Measurements

MNRE, has sanctioned a research project entitled “Integrated wind & solar resource assessment through mapping and measurements” to NIWE, Chennai under RDSPAC. The project envisages deployment of dedicated 100m integrated wind-solar monitoring stations in different parts of the country. Under this project, 50 numbers of 100m tall integrated wind-solar monitoring stations (in two phases) with 5 levels of instrumentation (**Fig. 1**) are to be installed in

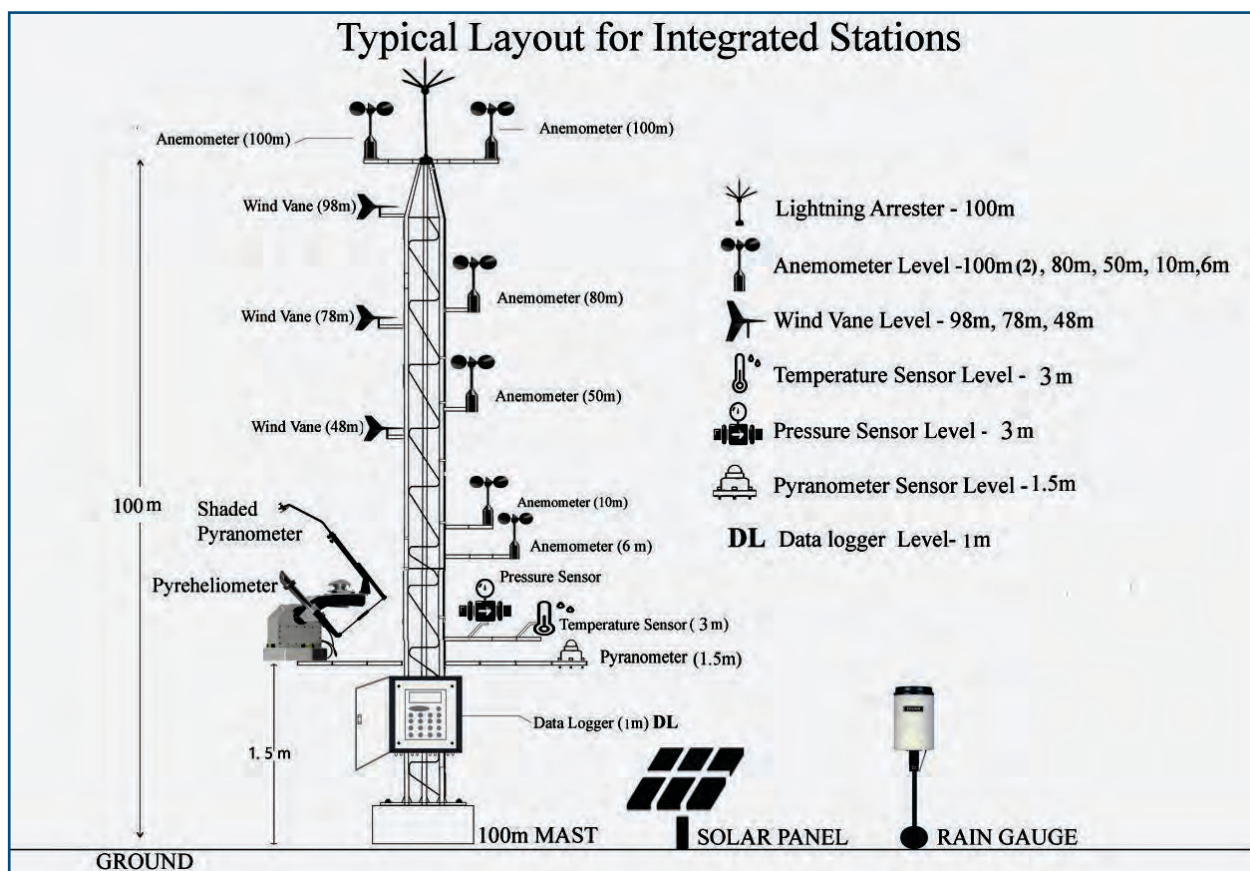


Fig. 1 - Integrated Wind Solar Monitoring Stations

the country over a period of three years. Wind resource measurements will also be carried out using SODAR along with measurements from integrated wind-solar monitoring stations concurrently for the period of requisite months for the vertical extrapolation of the mast data. Measurements carried out using integrated wind-solar monitoring station and the SODAR will be used to estimate the wind solar power potential of the country at 150m level and for the preparation of 150m wind-solar hybrid map.

The project team has carried out multi criteria

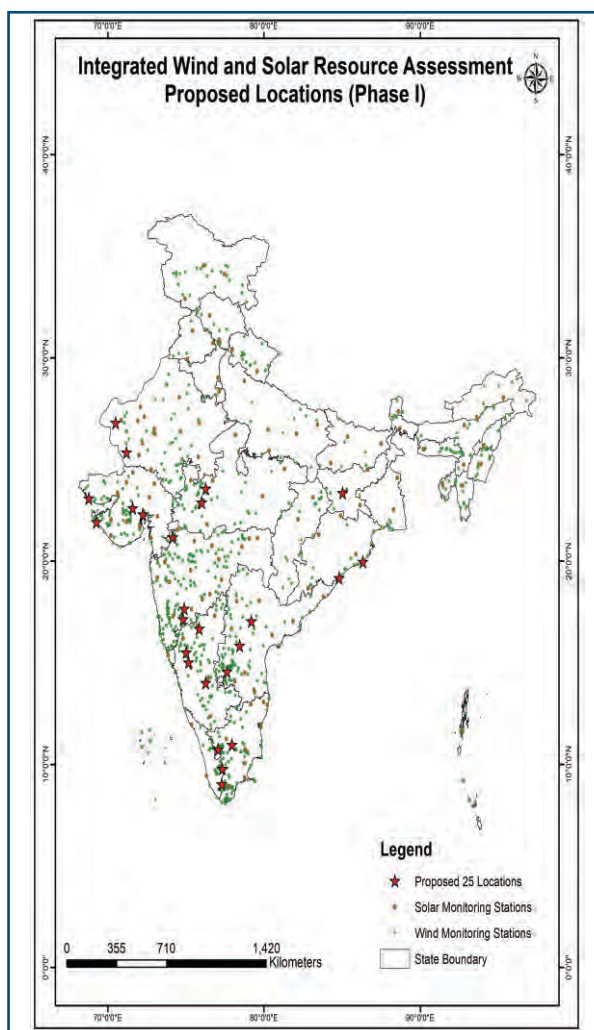
suitability analysis based on the available data sets and identified 25 Nos. of suitable locations for installation of integrated measurement stations in the States of Andhra Pradesh, Gujarat, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamilnadu and Telengana.

The proposed Wind/Solar Monitoring Stations are marked as the map showing the proposed wind solar monitoring stations.

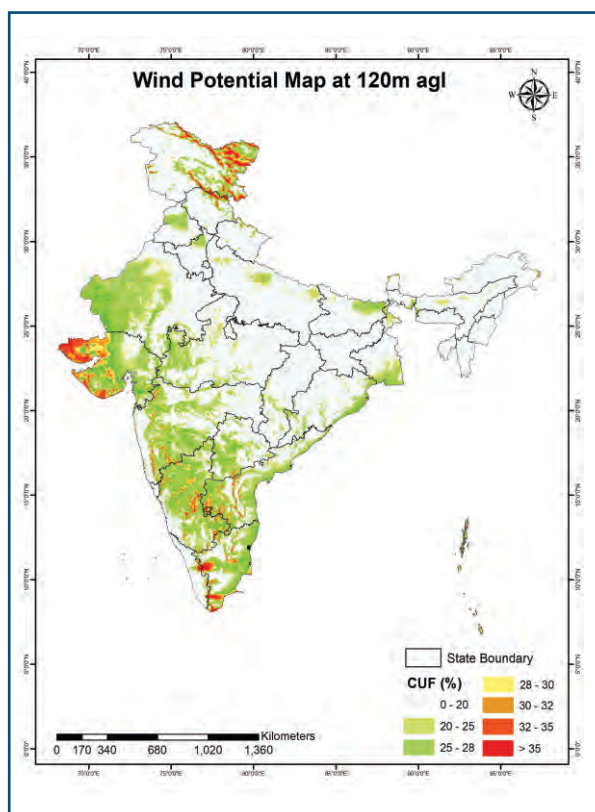
120m Wind Potential Map:

A study on high potential assessment at 120m has carried out on similar lines with the development of 100m wind potential map, at a spatial resolution of 500m, using the advanced meso-micro coupled numerical wind flow model with the corroboration of about 406 actual measurements spread all over India. Under this study, the indicative wind potential at 120m agl is estimated by excluding unsuitable area / land features. The wind potential is further stated in terms of CUF and land categories for effective decision making of the stakeholders. The un-exploited potential areas are also detailed explicitly in this report for better understanding of the new wind potential locations in the country. NIWE has also simulated a sensitivity analysis to detail the influence of the land use pattern & its suitability on the wind potential estimation.

A draft report has been submitted to MNRE and on approval, the same will be released for the benefit of the stakeholders. Results presented in the report are expected to serve as



Map showing the proposed Wind Solar Monitoring stations



120m Wind Potential Map

the basis for preliminary site assessment during the prospecting phase of wind project developments in the country (both Onshore and Offshore). Further, information is expected to be useful for policy makers, private players, government agencies and other stakeholders of the industry to move towards achieving the ambitious goal of 60 GW as envisaged by the government.

OFFSHORE ACTIVITIES

Expression of Interest of first offshore wind farm in India at Gulf of Khambhat, off Gujarat Coast:

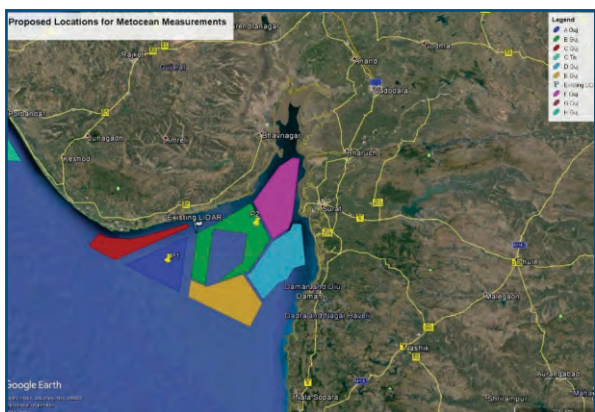
NIWE had invited Expression of Interest (EoI) for development of first 1000 MW commercial offshore wind farm in India, off the coast of Gujarat.

NIWE received 35 Expression of Interest (EoI) proposals from various stakeholders and the meeting was called under chairmanship of Joint Secretary, MNRE. Comments/inputs on draft bid documents received from prospective bidders were sent to MNRE and are under process with SECI. The requisite clearances for the offshore wind farm developed have been obtained from MoD, MHA, MEA, DoS and GMB and are awaiting clearance from Gujarat Coastal Zone Management Authority (GCZMA).

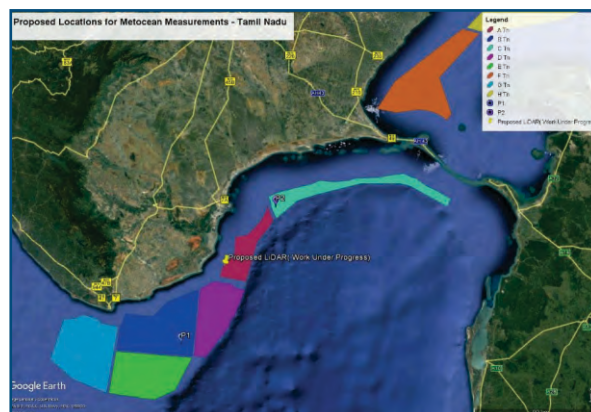
Met-Ocean measurements (Wind, Wave, Tide, Current, Water level, etc) at Gulf of Khambhat and Gulf of Mannar for fostering the growth of offshore wind in the country:

NIWE is also in the process of exploring the largest seabed areas off Gujarat and Tamil Nadu coasts with an objective to identify the potential subzones / blocks for promotion of offshore wind farm development in the country. For this purpose, it is proposed to procure four LiDARs (Two each for the states of Gujarat and Tamil Nadu) to carry out extensive wind resource assessment.

In addition to this, NIWE proposes to carry out the oceanographic / hydrographic measurements, which include water level, wave height & period, current speed & direction and other derived parameters such as significant wave height, wave period, etc., in and around the wind LiDAR platforms or suitable locations off Gujarat and Tamilnadu coasts to understand the sea-state conditions, which are envisaged as essential and necessary to design the foundation of the offshore wind



Proposed met-ocean locations in Gulf of Khambhat, Gujarat



Proposed met-ocean only one in Gulf of Mannar, Tamil Nadu

turbines. Based on the study NIWE will plan the installation activities to understand the weather window for operation and maintenance planning.

NIWE in consultation with the field experts, M/s. DNV-GL and M/s. NIOT has finalized the proposed locations for LiDAR installation off Gujarat coast. Tender for carrying out geo-technical study underneath the LiDAR locations has been floated and procurement of LiDAR is also underway.

Similarly LiDAR locations off Tamil Nadu coast on multi criteria analysis have been identified. Request for obtaining clearance from various ministries and Departments viz., MoD, MHA, MEA, DoS, and MoEF&CC have also been submitted and clearances are awaited.

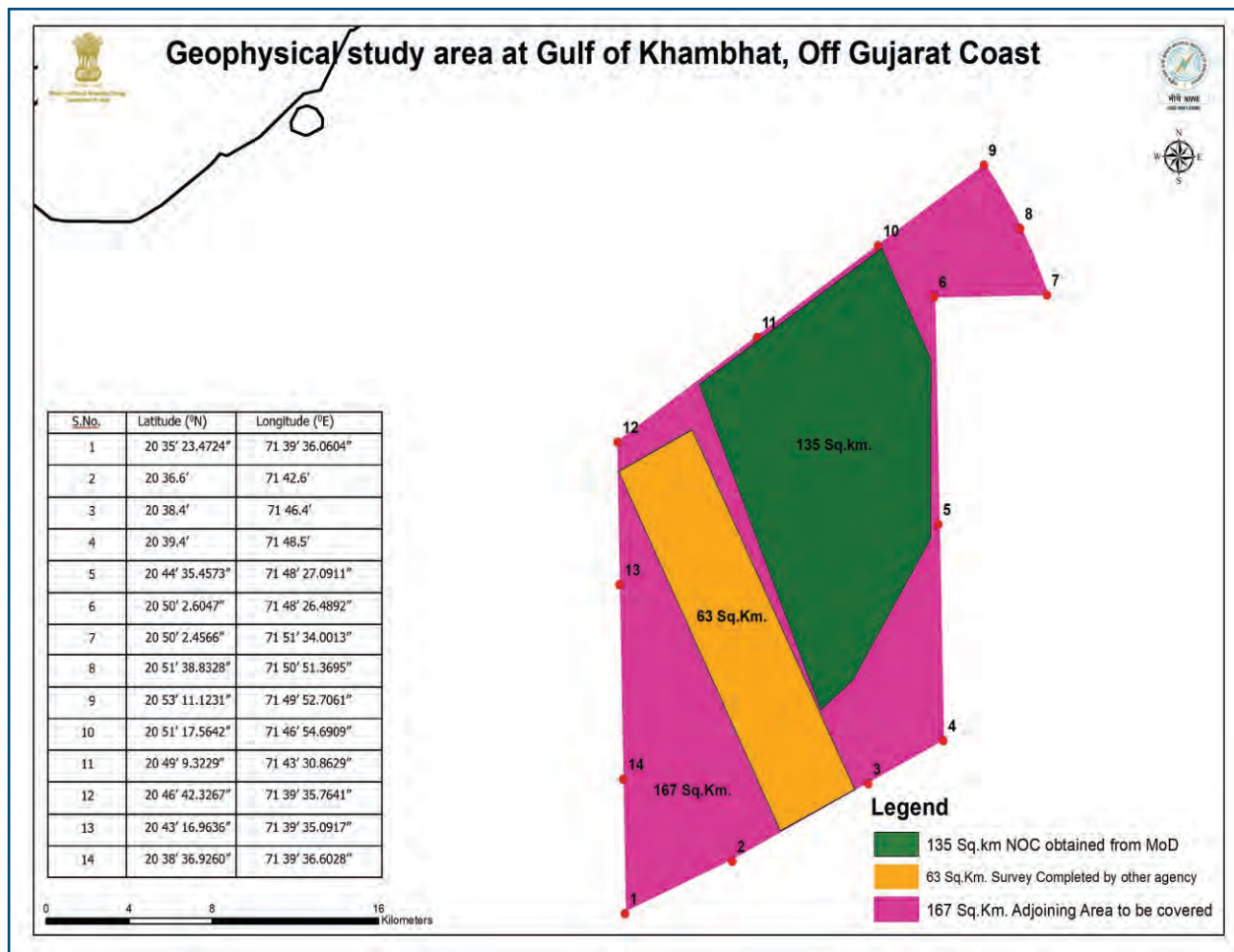
Offshore measurements off Gujarat coast

LiDAR based measurements is on going at Gulf of Khambhat off Gujarat coast and one year Raw data files (time series) of the measurement has been uploaded in NIWE website.

Geo-physical investigation at Gulf of Khambhat off Gujarat coast

NIWE has initiated Geo-physical survey at the zone B block in Gulf of Khambhat for 302 sq.km area to cover the proposed 1 GW offshore wind energy block. The survey will help in ascertaining the nature of subsurface and soil profile available at recommended depths for the design of foundation of offshore structures.

Onsite Geo-physical investigation (single beam bathymetry survey, side scan sonar, sub-bottom profiling, magnetometer survey and sediment samples) covering the entire area (302 Sq.km by NIOT + 67 Sq.km by FOWPI) for 1 GW offshore project at Gulf of Khambhat off Gujarat coast has been completed, data analysis & draft report preparation is underway. Further, it is planned to carry out geotechnical studies for about 3 to 5 borehole locations in the above areas.



Geophysical study area at Gulf of Khambhat off Gujarat Coast



TESTING & RESEARCH STATION DIVISION

INTRODUCTION

NIWE's Wind Turbine Test Station (WTTS) at Kayathar, Tamil Nadu is the Asia's largest wind turbine test station. It 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. It is also the primary lab for testing wind turbines, as per the National Lab Policy of Govt. of India. The Test Station has the following facilities:

- ISO/IEC 17025:2017 accredited Test facility and the only lab under NABL since year 2006 for wind turbine testing
- Two test beds to test Large wind turbines and can be expanded further.
- Four test beds to test small wind turbines and test beds can be expanded further on request.
- Readily available grid connection for each test bed.
- Readily available reference met masts in front of each test bed for acquiring meteorological data at the hub heights of the test turbines.
- Two control rooms, one for each test bed with state-of-art data acquisition systems and one office building.
- State-of-art data acquisition systems for measurements at the control room of each test bed.
- An office cum workshop building with support team & facilities to carry out any needed measurements support.
- Workshop equipped with adequate space to accommodate a sub-MW WTG's nacelle for instrumentation purposes.
- Availability of sensors and transducers as per the requirements of IEC standards which are stored as per the quality management system procedures.
- Availability nine 200 kW Micon, one number each of 600 kW Suzlon, 2000 kW Senvion & Inox make wind turbines' for development of new



measurements techniques and National Research.

- In-house laboratory for calibration and functionality check-up of instruments.
- In-house laboratory for data warehousing, signal conditioning, equipment's design, training calibration etc.

WTTS is presently equipped to undertake Type Testing (TT) of wind turbines and to conduct the testing of wind turbines as per the requests of customers / manufacturers and the following tests are carried out as per International standards IEC 61400-1, IEC 61400-11, IEC 61400-12-1, IEC 61400-13 and IEC 61400-21.

- Power performance measurement
- Yaw efficiency test
- Safety and functional test
- Load measurements
- User defined measurements in mechanical loads, acoustics & power quality.

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.

During the year, the following assignments were undertaken / completed.

Large Turbine Testing

- Type testing of XYRON 1000 kW wind turbine at Richadewda, Ratlam District, Madhya Pradesh of M/s. Xyron Technologies Ltd was carried out and the final test reports issued.

- Power curve measurements of INOX 2000 kW capacity wind turbine with 113 meter rotor diameter at Ranipat Village, Muli Taluk, Surendranagar (Dist), Gujarat was carried out and final test reports issued.



Instrumentation on a MW class Wind Turbine

- Power curve measurements & special Measurements for loads of Pioneer 750 kW capacity wind turbine model W49-HH60 a wind turbine with 49 meter rotor diameter at Poigai Village, Tenkasi Taluk, Tirunelveli District, Tamil Nadu of M/s. Para Enterprises Pvt. Ltd was carried out and the final test reports issued.

Small Wind Turbine Testing

- Type Testing of a Vertical Axis WT (OEM rated 5.5 kW) of M/s. Vaata Smart was carried out and test reports are issued.
- Type Testing of a vertical axis WT of M/s. Wind-Stream (OEM rated 1 kW) is at Wind Turbine Test Station (WTTS), Kayathar, is under way.

Further, Division was re-accredited by NABL as per the requirements of ISO/IEC 17025:2017 for testing (both Electrical and



Type Testing of model Vaata Smart, Vertical Axis Wind Turbine in progress at WTRS, Kayathar

Mechanical parameters) with validity from 07.03.2019 to 06.03.2021. NIWE have also started acoustics measurements and the team has participated in a Inter Laboratory Comparison of wind turbine noise measurements and received good commendation on its analysis capability.

In addition, following activities are planned for the future :

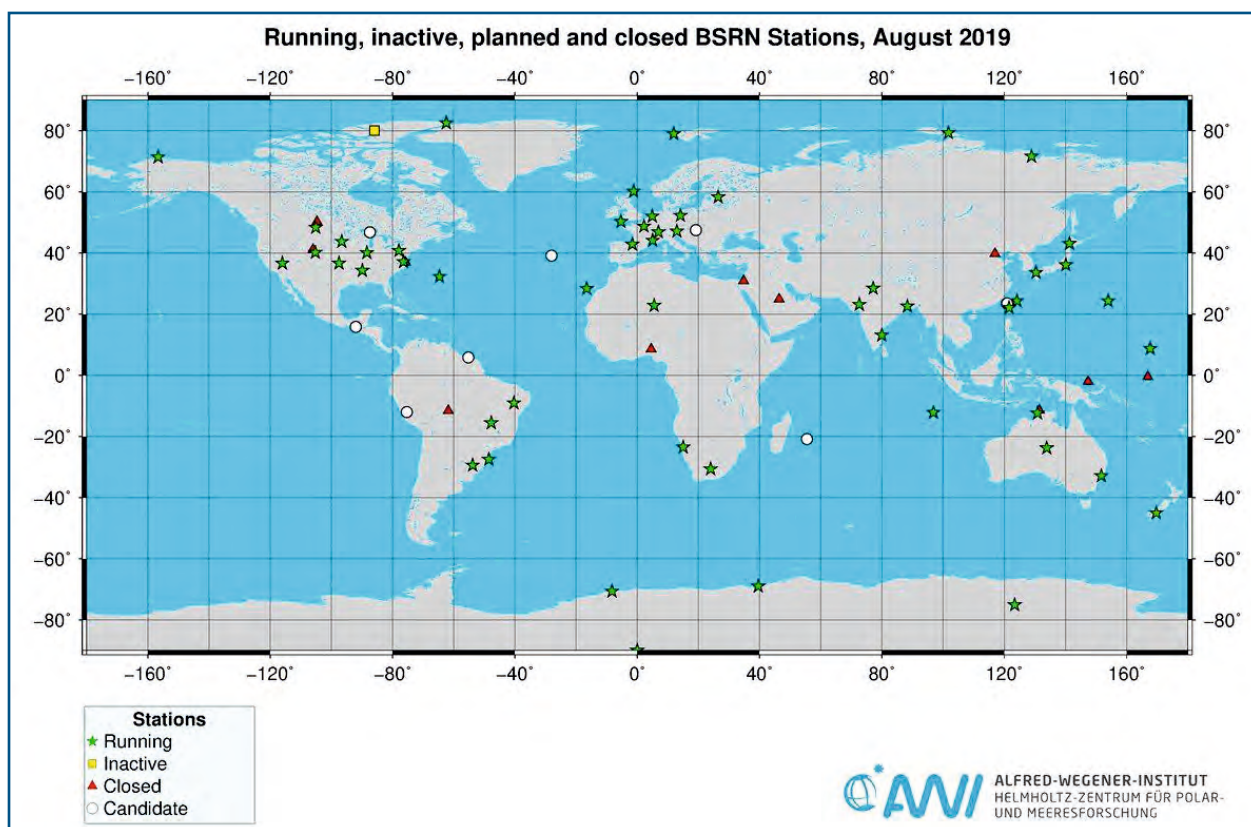
- ◆ Offshore Test Centre at Dhanushkodi for large offshore wind turbine testing.
- ◆ RE demo building at WTTS, Kayathar for housing the SWT test hub facility for blade & generator testing and maker's space is under construction by CPWD.
- ◆ Fault Ride Through (FRT) test facility & Power quality test facility.
- ◆ Capacity building in acoustics measurements.

RE PROJECTS AND SRRA DIVISION

INTRODUCTION

Solar Radiation Resource Assessment (SRRA) Division started in the year 2011 as a mission mode project fully funded by MNRE. The project was taken up in two phases, 51 Solar Radiation Resource Assessment (SRRA) stations were established in phase-I in 2011 and 60 SRRA stations along with

4 Advanced Measurement Stations (AMS) were established in phase-II in 2014. All these 115 SRRA stations are fully automatic, grid independent and record one second data and after integration transmit one minute data to the central server by GPRS. All stations measure GHI, DHI & DNI and weather parameters such as, temperature, humidity, pressure, rain fall, wind speed and wind



direction and also host of other derived parameters. Data received is quality controlled using BSRN protocol and QC data is made available to different stakeholders. AMS stations are part of the BSRN Global Network and the data are shared among member countries for climate change activities. At present BSRN global network covers 64 stations in contrasting climate zones covering a latitude of 80°N to 90°S and measures solar & atmospheric radiation with instruments of highest available accuracy and with high time resolution (1 to 3 minutes). India is among the select countries to provide the live data for the world climate research program.

PROJECT ACTIVITIES

Calibration

NIWE has two calibration laboratories at Chennai and Tiruvallur for periodic calibration of solar sensors of its SRRA network.

Details of Calibration carried out during the year 2018-19 are as follows :

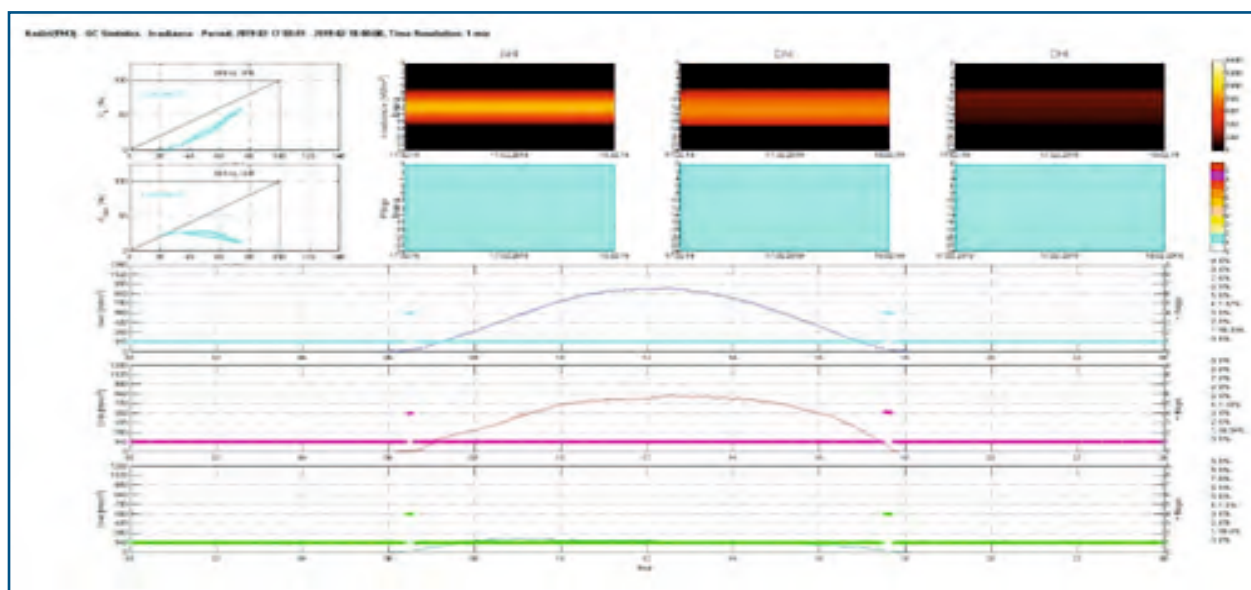


Calibration Test Laboratory

1. Calibration of 22 Pyranometers and 11 Pyrhemometers were carried out under SRRA network.
2. Calibration of seven Pyranometers were carried out under commercial mode

SRRA Data

Quality Control (QC) of measured data is the main concern of most radiometric network operation.



SRRA Data

In SRRA project, for the values of Global Horizontal Irradiance (GHI), Direct Normal Irradiance (DNI) and Diffuse Horizontal Irradiance (DHI), applied quality control (fully automatic) is based on Baseline Surface Radiation Network (BSRN) Rules by the World Meteorological Organization (WMO), elaborated by the Management and Exploitation of Solar Resource Knowledge (MESOR).

1. Quality Controlled data of 7 SRRA stations provided to 5 stakeholders under SDSAP policy.
2. PV Syst report based on SRRA data provided to 2 stakeholders under consultancy

SWURJA Mobile app

Hon'ble Minister Shri. R.K. Singh launched SWurja mobile app on the occasion of



SWURJA MobileApp demonstration to JS Wind, MNRE

2nd Global RE-Invest Conference & Exhibition held during 3rd to 5th October 2018 in NCR at Greater Noida, and the mobile app features the wind, solar and hybrid maps of India with relevant wind and solar data in each map. By selecting a location on the map, wind and solar data can be viewed. The app also features a solar AEP calculator.

The app is a green energy tool which provides information to the user on the wind, solar &



SWURJA MobileApp

hybrid (wind & solar) resource data of any given location including roof top across the country. It provides important information in simple understandable terms for selected site or location through google map with easy navigation. It also provides useful information for general public like installable wind and solar capacity, energy generation and financial savings, reduction in carbon emission for any desired location can be accessed through the app.

New SRRA station under Consultancy:

Successfully installed and commissioned two new SRRA stations at Palakkad and Ramakkalmedu in the state of Kerala during 2018-19 under consultancy mode for Agency for Non-conventional Energy and Rural Technology (ANERT), Kerala. This increases the total number of SRRA stations to 125. Two days training program on Technical Aspects of SRRA station for MEDA and ANERT

officials was held on 23rd and 24th June 2018 at NIWE.

Performance Guarantee test for NHPC:

NHPC Limited, Faridabad, has awarded consultancy work for conducting the Performance Guarantee test (PG Test) and technical audit of 50 MW solar power project established in Batlagundu, Dindigul, Tamil Nadu to NIWE. Accordingly, the technical audit was conducted and submitted report. In addition, monthly PG Test reports to NHPC based on the data collected from the power plant to NIWE has also been submitted.

2 MWP Solar Project at IIM Thiruchirapalli

Indian institute of Management Thiruchirapalli (IIMT) awarded a project for Installation, Commission, Operation & maintenance of 2 MW Solar PV Power plant at their campus in Trichy on turnkey basis to NIWE.



CERTIFICATION AND INFORMATION TECHNOLOGY DIVISION

INTRODUCTION

Wind energy sector is continuously growing in India with the introduction of more new wind turbine models and installed capacity. Wind turbine technology is rapidly growing in India with the increased unit size and larger rotor diameter. Type Certification of wind turbines plays an important role to facilitate the orderly growth of wind energy sector.

CERTIFICATION - RENEWALS (2018-19)

Certification division has completed four projects on renewal of certificates of wind turbine models during the year.

S. No.	Manufacturer's Name	Wind Turbine Model / Capacity
1	M/s RRB Energy Limited	Pawan Shakthi-600 kW / 600 kW
2	M/s Southern Wind Farms Limited	GWL 225/225 kW
3	M/s RRB Energy Limited	V 39 – 500 kW with 47m rotor diameter / 500 kW
4	M/s RRB Energy Limited	Pawan Shakthi-600 kW / 600 kW

The issue of renewed certificate to M/s. RRB Energy Ltd. and M/s. Southern Wind Farms Ltd.



*Issuing renewed certificate to
M/s RRB Energy Limited*



*Issuing renewed certificate to
M/s Southern Wind Farms Limited*

AGREEMENT FOR CO-OPERATION

As per Ministry of New and Renewable Energy (MNRE) directives, Internationally accredited certification services are made available in India by NIWE through a tri-party co-operation agreement signed between NIWE, M/s TUV Rheinland Industrie Service GmbH, Germany, an Internationally accredited Certification Body for wind turbines and M/s TUV Rheinland (India) Private Limited. Based on the implementation experience, an amendment to the said co-operation agreement signed during the year.



Signing the second amendment to the agreement for cooperation between NIWE, TUV Rheinland India and TUV Rheinland Germany

NIWE is having continuous interaction with the TUV Rheinland on various technical matters.

PREPARATION FOR ACCREDITATION

MNRE approved National Institute of Wind Energy (NIWE) as Type Certification Body in

India for all wind related issues. The Bureau of Indian Standards (BIS) has issued the IS/IEC 61400-22:2010 Wind Turbines Part 22 Conformity Testing and Certification, which is a scheme for certification of wind turbines. Based on the above Indian Standard, the certification division is preparing documentation for obtaining accreditation for the certification services as per IS/ISO/IEC 17065:2012 standard from National Accreditation Board for Certification (NABCB), Quality Council of India. The work is ongoing.

QUALITY MANAGEMENT SYSTEM

Wind Turbine Type Certification services of NIWE are certified as per the requirements of ISO 9001: 2015 by Det Norske Veritas, Norway. During the year, certification division has successfully undergone the transition and second periodic audit and has been recommended for continuation of certification issued by DNV-GL. The continual improvement and maintaining the Quality Management System are ongoing.

RLMM ONLINE PORTAL DEVELOPMENT

Certification division has prepared a software resource specification for the development of RLMM online portal and coordinated for software development. The draft version of the software was presented to MNRE and modified based on the comments provided.

STANDARDS AND REGULATION DIVISION

INTRODUCTION

Standards & Regulation (S&R) division provides various services for the healthy and orderly growth of wind energy sector. During the year, Standards & Certification division has been bifurcated and Standards & Regulation division has been formed.

INDIAN WIND TURBINE CERTIFICATION SCHEME (IWTCS)

Considering the need to formulate a new certification scheme for India which takes into account of the latest standards, CEA regulations etc., a comprehensive certification scheme viz., Indian Wind Turbine Certification Scheme (IWTCS) was prepared. IWTCS is the first of its kind covering various aspects of certification till the disposal of wind turbines. The scheme covers prototype certification & type certification for wind turbines, failure reporting of installed wind turbines, safety and performance assessment and de-commissioning & safe disposal of the wind turbines considering the relevant National and International Standards (IS/IEC/IECRE) and guidelines.

The first draft of IWTCS was prepared and

submitted to MNRE for the review. Based on the suggestions of the committee formed by MNRE, modifications were incorporated and the revised draft IWTCS document was prepared and was hosted on website for inviting comments from all concerned stakeholders/public.

STANDARDS

Bureau of Indian Standards (BIS) is the National Standards Body which issues Indian Standards. A 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 a part of BIS ETD 42 committee, provides the technical support to BIS in all the standards related works and for preparation of Indian Standards on wind turbines. Seven Indian standards on wind turbines have already been finalized. Based on the contribution from members, during the year, two Indian standards are finalized.

During the year, Division had also organized brainstorming meeting with Type Certification

Bodies & Type Testing Laboratories on 27.11.2018 at NIWE with a focus on Indian standards preparation and type certification (TC) scheme in India.

ELECTROTECHNICAL DIVISION COUNCIL (ETDC) MEETING

Director & Head, S&R along with Director General, NIWE attended the meeting of Electrotechnical Division council (ETDC). It was attended by Chairmen of various sectional committee under the Chairmanship of DG, Bureau of Indian Standards (BIS) on 07.09.2018 at BIS Head Quarters, New Delhi.

WIND TURBINES SECTIONAL COMMITTEE (ETD 42) MEETING

During the year, S&R division organized THE 9th meeting of Wind Turbines Sectional Committee (ETD 42) of Bureau of Indian Standards (BIS) on 26.02.2019 at NIWE under the Chairmanship of DG, NIWE. In addition, S&R division provided the technical support to BIS for conducting the meeting. Director & Division Head, S&R, participated in the ETD 42 Committee meeting and explained the status of various standards related works carried out by the committee. Further, the committee formulated four working groups to review Indian standards under the convenorship of ETD 42 members. Division has been facilitating the working groups to carry out their works in review of draft Indian standards.

CONTRIBUTION TO IEC / IECRE

S&R division provides the technical support to BIS regularly on the works related to International Electrotechnical Commission



9th ETD 42 Committee Meeting

(IEC) standards by reviewing various draft IEC standards / documents and also preparing voting recommendations for those draft IEC standards / documents for IEC TC 88 Committee.

IEC has formulated a separate system for renewable energy sector viz., “IEC System for Certification to Standards relating to Equipment for use in Renewable energy Applications (IECRE system)”. Based on the efforts taken by NIWE and MNRE, BIS has already obtained the membership for India in IECRE system. S&R division is providing technical support regularly to Central Marks Department (CMD) of BIS on IECRE related works. During the year, review of draft documents of IECRE has been completed and voting recommendation for the same have been prepared and sent to BIS for further forwarding to IECRE.

IEC TC 88 AND IECRE MEETINGS

DG, NIWE and Chairman ETD 42 committee had participated in the IEC TC 88 Plenary meeting held during 16th & 17th April 2018 at Glasgow, United Kingdom. Also, as a member of REMC WG 001 “Rules and procedure” of IECRE, DG NIWE participated in WE-OMC meetings held on 19th and 20th April 2018 at

Glasgow. In addition, based on special invitation, DG, NIWE had fruitful discussions in stakeholder group (SG) meetings of SG 550 (certification bodies) and SG 551 (Test laboratories).

Subsequent to IEC/IECRE meetings & based on exchange of communications with BIS and IEC/IECRE, it has been decided to host International Electrotechnical Commission (IEC) TC 88 and IEC System for certification IECRE meetings for the first time in India during the year 2020 at Chennai jointly by BIS & NIWE.

PROTOTYPE WIND TURBINE MODELS

The amended guidelines document 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 India to carry out the type testing for obtaining type certificate and also to carry out the developmental works. S&R division provides technical support to the committee in verification of the

documentation on the prototype wind turbine models provided by various wind turbine manufacturers.

During the year, three prototype committee meetings were organized and Division had issued recommendation letters, in connection with grid synchronization for eight prototype wind turbine models with a rated capacity between 2100 kW & 2600 kW for the purpose of type testing.

QUALITY MANAGEMENT SYSTEM (QMS):

The services offered by NIWE viz., “Provision of type certification, testing and wind resource assessment services related to wind energy” are already certified as per ISO 9001:2008 by DNV GL. During the year, Quality Management System (QMS) documents were prepared for upgradation of NIWE QMS as per ISO 9001:2015. In addition, Division had organized two days workshop for NIWE officials on “Risk Assessment / Context Setting on ISO 9001:2015” conducted by M/s. DNV GL – Business Assurance India Private Limited at NIWE. Further, Division has also organized the internal audit and management review (MR) meeting as per ISO 9001:2015.

NIWE had successfully undergone transition and second periodic audit as per ISO 9001:2015 conducted by DNV GL. Accordingly, DNV GL had issued the Quality Management System certificate as per ISO 9001:2015 for NIWE.



Prototype Committee Meeting



*Workshop on Risk Assessment /
Context Setting on ISO 9001:2015*

REVISED LIST OF MODELS AND MANUFACTURERS OF WIND TURBINES (RLMM)

S&R division is providing continuous technical support to MNRE for all the works related to Revised Lists of Models and Manufacturers of wind turbines (RLMM). Review of documentation was carried out for 28 new wind turbine models during the year. Division also supported in review of updated

documentation submitted for various existing wind turbine models. Division has organized 5th RLMM committee meeting chaired by Joint Secretary (Wind) on 26.10.2018 at NIWE, Chennai. During the financial year, eight RLMM committee meetings were held under the Chairmanship of Joint Secretary (wind), MNRE.

In addition, following technical support were provided.

- ◆ Technical support for periodic inspection of manufacturing facility Site inspection of 3 wind turbine manufacturing facilities along with MNRE officials were carried out and submitted reports to MNRE.
- ◆ Technical support extended to team consisting of MNRE and NREDCAP officials on damaged wind turbine site in Andhra Pradesh.



SKILL DEVELOPMENT AND TRAINING DIVISION

INTRODUCTION

The Skill Development and Training (SDT) Division, as a focal point for information dissemination and creating skilled / trained manpower is extending its facilities and services for learning, training and upgrading the skill level not only in wind energy but also to other renewable energy sources. Division is also creating awareness among the students and general public in promoting wind energy.

TRAINING PROGRAMMES

One of the prime activities of this division is to conduct training courses for National & International participants. Division has organized 34 International Training Courses and 31 National Training courses including special and customized training courses since 2004. As on date, 1312 national participants from all parts of the country and 693 International professionals from 88 countries are trained.

During the year 2018-19, six training courses (one National and five International training courses) were conducted successfully. Lectures were delivered by experienced scientists & engineers in their respective field

of expertise from NIWE, academic and other wind energy professionals with years of experience in wind turbine industries. As part of every training course, a course material book (compilation of write-ups of all the presentations / lectures) is provided, specially prepared for the benefit of participants.

23rd National Training Course

Division had successfully conducted the five days 23rd National Training Course on “Wind Energy Technology” from 11th to 15th March 2019. The course was attended by 44 participants from 10 States (Andhra Pradesh, Gujarat, Karnataka, Kerala, Madhya Pradesh, Mizoram, Odisha, Tamil Nadu and Uttar



Shri. K.C. Dhimole inaugurating the 23rd National Training Course

Pradesh) with diverse background. The course was inaugurated by Shri. K.C. Dhimole, Technical Advisor to Chief Minister of Arunachal Pradesh..

As part of the training course, the participants were taken to the Technical and safety training centre of M/s. Vestas Wind Technology India private Limited, Nellikuppam, Chennai, where participants had a chance to see all the components of wind turbines and learned the working principals and troubleshooting aspects explained by the experienced trainers, which was the unique part of the training.



Participants of the training course

INTERNATIONAL TRAINING COURSES

22nd and 23rd International Training Course

SDT Division had conducted 22nd and 23rd ITEC international training course on “Wind Turbine Technology and Applications” from 18th July to 17th August 2018 and from 30th January to 1st March 2019 respectively, sponsored by the Ministry of External Affairs (MEA), Government of India. The course addressed all aspects of wind power, starting from introduction to wind and its technology,

wind resource assessment, installation and commissioning, operation and maintenance aspects of wind farms in a focused manner along with financial and policy aspects.

The 22nd International training course was attended by 24 participants from 14 ITEC countries (Azerbaijan, Cambodia, DR Congo, Ethiopia, Malawi, Malaysia, Mauritius, Nigeria, South Sudan, Sri Lanka, Tanzania, Uganda, Venezuela and Vietnam). The course was inaugurated by Shri. D.V. Giri, Secretary General, Indian Wind Turbine Manufacturers Association (IWTMA) including release of a course material.

The 23rd International training course was attended by 28 participants from 16 ITEC countries (Afghanistan, Cote D'ivoire, Egypt, Ethiopia, Guyana, Malawi, Mauritius, Mongolia, Morocco, Myanmar, Nigeria, Sudan, Syria, Tanzania, Togo and Uganda). The course was inaugurated by Shri. P. K. Ashok Babu, I.F.S., Head of Branch Secretariat, Regional Passport Office, Chennai.

The course content of the training were handled by Scientists & Engineers of NIWE,



Shri. P. K. Ashok Babu, I.F.S., releasing the Course Material of the 23rd training course



wind turbine industries and academic professionals, who have years of experience in the field. The syllabus of the training course designed as 8 modules to group the topics covering all aspects of wind turbine technology and applications.

- ◆ Module 1 - Introduction and wind turbine components
- ◆ Module 2 - Standards, Testing & Certification
- ◆ Module 3 - Resource Assessment
- ◆ Module 4 - Erection, commissioning and operation & maintenance
- ◆ Module 5 - Electrical systems & grid integration
- ◆ Module 6 - Energy storage and hybrid
- ◆ Module 7 - Policy and financial / economical analysis
- ◆ Module 8 - Environmental and social aspects

As part of the training course, practical exposure to all the participants were provided in the Wind resource assessment, testing and instrumentation laboratories of NIWE, explaining each and every process of the activities. A visit to large wind turbine manufacturing factory of M/s. Siemens Gamesa Renewable Energy, Chennai, were also arranged for the participants wherein they got an opportunity to listen from the industrial experts who are actually in the process of making wind turbines. As part of the training, a study visit to wind turbine test station and wind turbine research station located at Kayathar were arranged, where participants got

exposure on small and large wind turbine testing process. The participants have also visited wind farms of various capacity, models and makes during their site visit.



Participants witnessing the WT Nacelle Assembly

Shri. T. S. Tirumurti, I.F.S., Secretary (ER), Ministry of External Affairs, Government of India was the Chief Guest for the Valedictory Function of 22nd training course. He delivered valedictory address explaining about the ITEC programme emphasizing its impact created in various countries all over the world and also distributed the course certificates to all the participants.



Shri. T. S. Tirumurti, I.F.S., Secretary distributing the Certificate of 22nd Training Course

Dr. G. Giridhar, Deputy Director General, SRRA, NIWE distributed the course

certificates to all the participants of 23rd training course.

Special International Training Course on "Wind Resource Assessment & Wind Farm Planning"

SDT Division had conducted the 24 days Special International Training Course on "Wind Resource Assessment and Wind Farm Planning" from 19th September to 12th October 2018, sponsored by MEA under ITEC programme.

The course was attended by 17 participants from 11 countries (Azerbaijan, Bangladesh, DR Congo, Ethiopia, Malawi, Mauritius, Sri Lanka, Sudan, Tajikistan, Tunisia and Uganda). Three participants from IREDA, New Delhi also attended the course.

The course covered all the aspects of Wind Resource Assessment (WRA) in detail enabling the participants to go ahead with the country wide WRA programme. The course was specially designed with more hands on sessions on various aspects of WRA such as WRA techniques, site selection for wind monitoring stations (WMS), wind resource mapping, installation, instrumentation and commissioning of WMS, met mast and

modern measurement techniques including measurement using remote sensing instruments (SODAR & LiDAR), data analytics and processing, software tools for wind data analysis, design and layout of wind farm, forecasting and wind energy production, project implementation and operations & maintenance aspects of wind farms in a focused manner for the better understanding of the complete process.

A study tour was arranged for the participants to visit 120 m met mast located at Kayathar along with the climbing practice with safety equipment towards commissioning and de-commissioning of measurement sensors. The participants also had an opportunity to visit wind turbine test station to showcase the small and large wind turbine testing process along with different wind farms of various capacity, models and makes.

Course on Design, Installation and Maintenance of SWT

SDT Division had conducted the Special International Training Course on "Design, Installation and Maintenance of Small Wind Turbine" from 14th November to 14th December 2018, sponsored by MEA and the course was attended by 31 participants from 14 ITEC countries (Azerbaijan, Bangladesh, Bhutan, DR Congo, Ethiopia, Iraq, Malawi, Mauritius, Myanmar, Nepal, Niger, Morocco, Nigeria and Sudan).

The objective of the course was designed in such a way that the participants themselves design the parts / components of the small wind turbines model from the low cost and locally available materials, and also construct, Install, commission and erect the turbine to produce



Release of Course Material

power along with operation maintenance practices.

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



Ms. Jessica Rivas inaugurating the Course

The training started with a brief background about the large wind turbine technology and class room session about small wind turbine technology and status before proceeding to the practical manufacturing process of small wind turbine. A study tour to small wind turbine testing facility were arranged wherein the participants witnessed vertical and horizontal axis small wind turbines of different capacities and models.

The participants of this training had also attended 10 days International workshop on small wind turbine held during 30th October to



Participant making the electronics components for SWT

9th November 2019 where all the components of the small wind turbine were manufactured by the participants themselves. Participants had also attended 3 days International Conference on small wind turbine held during 10th to 12th December 2018 and learned about the various aspects of technology, developments, issues and solutions on SWT through different panel discussions arranged as part of the conference.

Special International Training Course on "Design, Installation and Maintenance of Small Wind Turbine" specially for African Countries

The International Training Course on "Design, Installation and Maintenance of Small Wind Turbine" specially for African Countries was conducted by the SDT Division during 15th November to 13th December 2018 sponsored by East and Southern Africa Division of Ministry of External Affairs, Government of India under India Africa Forum Summit – III (IAFS-III) programme. The training course was attended by 21 participants from 10 African countries (Botswana, Cameroon, Chad, Ghana, Ivory Coast, Liberia, Nigeria, Republic of Benin, Tanzania and Uganda).



Participants during study visit

INTERNATIONAL WORKSHOP ON SMALL WIND TURBINE

SDT division has organized the International workshop on small wind turbine during 30th November to 9th December 2018, which is a unique and first of its kind in the country. The keynote address delivered by DG, NIWE during the inaugural function.



Honorable Secretary, MNRE witnessing the SWT manufacturing process



Keynote Address by Dr. K. Balaraman

The workshop was sponsored by MNRE and organised in association with Min Vayu, Aurore Systems, Tamil Nadu, Wind Empowerment Association, United Kingdom and Skill Council for Green Jobs, New Delhi. The workshop was attended by 126 nos. of National & International participants from 37 countries



Glimpse of SWT manufacturing practical sessions

and 35 expert trainers of Wind Empowerment Association around the world supported the practical training of making SWT. Secretary, MNRE witnessing the SWT making process.

The workshop were designed in such a way that the participants themselves design the parts / components of the small wind turbines from the low cost and locally available materials. Accordingly, the participants themselves have designed and assembled all the components of SWT and erected the same with installation and commissioning practice. Participants also learned the Operation Maintenance practices.

INTERNATIONAL CONFERENCE ON SMALL WIND TURBINE

The SDT Division had successfully organized the International Conference on Small Wind Turbine during 10th to 12th December 2018 at Taj Gateway IT Express Hotel, Sholinganallur, Chennai under the sponsorship of MNRE in association with MinVayu, Auroville, Tamil Nadu, Wind Empowerment Association, United Kingdom and Skill Council for Green Jobs, New Delhi.

The conference was inaugurated by Shri. Bhanu Pratap Yadav IA&AS, Joint Secretary, MNRE on 10th December, 2018 along with Prof. Dr. K. Kasthurirangan, Chairman of the Indian Wind Power Association who was the Guest of Honour for the Inaugural Function.

The main objectives of the conference was to exchange the open source technical advances, sharing experiences and discuss global best practices to enable the technology to expand rural wind electrification globally, with a



Shri. Bhanu Pratap Yadav, JS, MNRE inaugurating the conference

particular emphasis on India. To create a network of wind turbine installers to facilitate the scaling up of the technology in remote rural areas with an emphasis on productive solutions. The conference was attended by 234 participants from 37 countries around the globe and the participants were from small and large wind turbine manufactures, developers, small-scale industries, entrepreneurs, academicians, electricity boards and state nodal agencies.

The conference brought a wide national & international audience under one umbrella to build, learn and compare global small wind turbine know-how. The conference gathered together manufacturers, producers and experts from diverse energy sectors. The conference discussed various topics covering the dissemination of experiences globally with small wind turbine development, especially in developing countries and how these experiences can be applied to India and other developing countries. During the conference, the participants were involved in various session with panel discussions and poster presentations that facilitated the dissemination of best practices & experiences available

globally in small wind turbine sector. The sessions provided a valuable platform for the creation of collaborative projects between international and domestic member organizations. The panel also discussed about greening the grid challenge for urban and rural habitats in complex terrains and low windy States.

The conference also focused on sub 500 kW class wind turbine manufacturers who have done pioneering work in quality and made a niche in export market from India.

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



Dr. M.K. Surappa delivering Valedictory address

conference.

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



Glimpse of conference

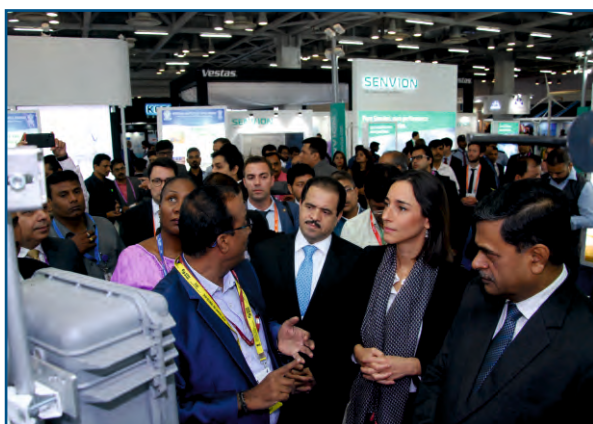
PARTICIPATION IN EXHIBITIONS

During the financial year 2018-19, NIWE had participated in the following three exhibitions and showcased its activities and services to the visitors;

- The “Government Achievements & Schemes Expo 2018” held during 27th to 29th July 2018 at New Delhi.
- The “2nd Global Re-Invest 2018” held during 3rd to 5th October 2018 in NCR at Greater Noida. Hon'ble Minister for Power & New and Renewable Energy inaugurated the NIWE Stall. NIWE stall was visited by many national and international dignitaries. The app “SWURJA” (Solar Wind Energy) was launched in the exhibition, which helps



NIWE Stall at 2nd Global Re-Invest 2018



Dr. K. Balaraman explaining the NIWE activities to the dignitaries

in finding out potential and other technical data of any particular area of India. The stall was appreciated for its design and information provided.

- The Second Global Investor Meet (TNGIM -2019) was held on 23rd to 24th January 2019 at Chennai Trade Centre.

GLOBAL WIND DAY CELEBRATIONS 2018

The Global Wind Day is a worldwide event that occurs annually on 15th June. NIWE being the technical focal point for the development of wind energy in the country has been celebrating Global Wind Day on every 15th June since 2009. On the occasion of Global Wind Day, NIWE had conducted a One Day Workshop on 'Pan India Research Network – Industry & Academic Amalgamation' at NIWE Chennai.



Global Wind Day Celebration – Gathering

NIWE'S NEWSLETTER – PAVAN

SDT Division is regularly publishing a well-received quarterly bilingual NIWE newsletter 'PAVAN', which disseminates information about the activities & services of NIWE, wind



PAVAN

energy news, technical articles and information on wind energy related events. The PAVAN aims to keep the industry professionals, students and researchers updated about the progress in wind energy sector and NIWE activities.

PROF. ANNA MANI INFORMATION CENTRE

NIWE has state-of-art Library named after renowned meteorologist 'Prof. Anna Mani' as Information Centre. The library has more than 2000 books on renewable energy in general and wind energy in particular with allied subjects. 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 350 technical reports, 420 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 computerized with automation software and online public access

catalogue (OPAC) facility. It has also membership with leading libraries like IIT, Anna University and American Library for reference purposes. Interested student's / research scholars / academicians / public can access NIWE's library with prior permission at free of cost without borrowing.

STUDENTS VISITS TO NIWE

To create awareness and to motivate towards research on wind energy, schools and college students are encouraged to visit the campus. During the year 2018-19, the following visits were coordinated by SDT Division.

SN	Name of the Institution	No.of Students	Date of Visit
1.	National Institute of Technical Teachers Training & Research (NITTR), Chennai	20	02.08.2018
2	Vel Tech, Avadi Chennai	56	03.08.2018
3	Anna University (Guindy campus)	25	25.08.2018
4	Kingston Engineering College, Vellore	78	29.08.2018
5	Ordnance Factories Institute of Learning, HVF Estate, Avadi	25	29.08.2018
6	St. John's Public School Medavakkam, Chennai	190	30.08.2018 & 31.08.2018
7	National Institute of Technical Teachers Training & Research (NITTR), Chennai	16	07.09.2018
8	Loyola-ICAM College of Engineering and Technology, Chennai	70	10.09.2018



SN	Name of the Institution	No.of Students	Date of Visit
9	Royal Global School, Guwahati, Betkucki	30	08.10.2018
10	St. John's Sr. Sec School, Chennai	77	17.10.2018
11	Ordnance Factories Institute of Learning, HVF Estate, Avadi, Chennai	18	29.11.2018
12	National Institute of Technical Teachers Training & Research (NITTR), Chennai	10	29.11.2018
13	Kalasalingam University, Srivalliputhur	55	20.12.2018
14	Sri Adhi Parasakthi College of Engineering, Vellore	44	29.12.2018
15	Prince Shri Venkateshwara Padmavathy Engg. College, Chennai	60	02.01.2019
16	National Institute of Technical Teachers Training & Research (NITTR), Chennai	25	01.03.2019
17	National Productivity Council, Chennai	15	04.03.2019

IREDA – NIWE AWARDS 2019

The second year IREDA – NIWE Annual Award for Wind energy was conferred to the respective winners with the purpose of appreciating the new innovation in wind energy sector. The Awards for the year 2019 had been planned well in advance and the invite for nominations for each category were announced through NIWE / IREDA websites, advertisement through national daily newspapers and group communications. The

categories for which the nominations received were as follows.

1. Best performing state nodal agencies for the year - Data provided by MNRE
2. Best institution of higher learning in wind energy - 05 Nos.
3. Best research work in wind energy - 27 Nos.

The selection of the awardees for all the three categories of awards were done through an eminent Jury Committee consisting of technocrats from the wind energy field and mass media. The Awards were distributed to the winners on 21st March 2019 during the Foundation Day of NIWE by Shri. Vikram Kapur, I.A.S. Additional Chief Secretary / Chairman & Managing Director, TANGEDCO in the presence of Dr. K. Balaraman, Director General representing NIWE, Shri. M. Showkat Ali Senior Manager representing IREDA and Dr. P. Kanagavel, Director and Head, Skill Development and Training Division, NIWE as Convener and Member Secretary of IREDA-NIWE Annual Award for Wind Energy 2019.

The award for the category of best performing state nodal agency for the year 2018-19 was conferred to Karnataka Renewable Energy Development Agency Limited (KREDL), Bengaluru and Shri. A. B Basavaraju, Managing Director, KREDL received the award certificate along with Rs. 1,00,000/- on behalf of KREDL, which has promoted 875 MWs of wind power projects in the Karnataka State and the state has stood first in the country for the year 2018-19.





Shri. A. B. Basavaraju receives the Best Performing SNA Award

The Award for the best institution of Higher learning in wind energy was conferred to Malaviya National Institute of Technology, Jaipur, Rajasthan and Dr. Rohit Bhakar, Head, Centre for Energy & Environment of Malaviya National Institute of Technology, Jaipur, Rajasthan received the Award certificate along with Rs. 1,00,000/- on behalf of the Institute.



Best Research Work Award

The Award for best research work in wind energy category was awarded to Dr. Zakir Hussain Rather, Assistant Proferssor, IIT, Mumbai for his research work on “Intelligent Operation and control of Modern Power Systems with large scale Renewable Energy Penetration”. Shri. Rakesh Reddy received the above Award Certificate along with Rs. 1,00,000/- on behalf of Dr. Zakir Hussain Rather,



Dr. Rohit Bhakar receives the Best Institution Award



FINANCE AND ADMINISTRATION DIVISION

INTRODUCTION

Serving as the artery connecting scientific divisions of the Institute, the F&A division activities are briefed here under :

- Budget & revised estimates for grants-in-aid, allocation & re-appropriation of funds, expenditure management & budget control, project financial management.
- Statutory compliances on GST and Income Tax etc., dealing with audits, compilation of accounts, balance sheet, laying of audited accounts on the table of Parliament.
- Framing of rules, schemes and grievance redressal, contract management, legal issues, court cases & RTI, recruitment, promotion and up-gradations.
- Statutory compliances on EPF, gratuity, contract labour, societies registration, bills of establishment, facility management, activities related to official languages, maintenance of vehicle, security and housekeeping.
- Stores & Purchase section which is part of Finance and Administration to organize procurement of items required for projects

of the Institute in time, at competitive rates consistent with requirement, availability of finance and in a transparent manner. Procurements (indigenous and imports) and service contracts.

As part of the capacity building and awareness, the following activities were undertaken during the year

TRAINING ORGANIZED

Organized one-day workshop on Right to Information by Shri. K. Govindarajulu, Joint Director, Institute of Secretariat Training and Management, DOPT, New Delhi held on 24.08.2018 and 01.12.2018.



Training on RTI

- Organized two days training programme on Tally & GST by MSME (Govt. of India) Chennai held on 02.11.2018 & 03.11.2018.

VIGILANCE AWARENESS WEEK

Vigilance awareness week for the year 2018 was observed in NIWE from 29th October to 03rd November 2018 and all the employees had taken a pledge as instructed by the Central Vigilance Commission.



Vigilance Awareness Week observance

SWACHHTA HI SEVA WEEK

Swachhta Hi Seva Week for the year 2018 was observed in NIWE. Swachhta related activities have been carried out by NIWE staff members during 01st June 2018 to 15th June 2018.



Swachhta Hi Seva Week

INTERNAL COMPLAINTS COMMITTEE (ICC) UNDER PoSH ACT

In accordance with Government instructions, an internal Complaints Committee for women

under PoSH Act for redressal of complaints concerning sexual harassment in work place was constituted in NIWE and meetings are held regularly with the concerned staff.

WOMEN'S DAY

On the eve of Women's Day, competitions such as musical chair, passing ball, connection game and craft were conducted in NIWE on 09.03.2019. Prizes were distributed to the winners during foundation day celebration.



Women's Day Competition



Women's Day Prize Distribution

WELFARE AND SAFETY MEASURES

- Organized health awareness program for the staff of NIWE on 17.12.2018, conducted by Shri V. Ravindran, Chennai.

- Organized blood donation camp at NIWE on 9th November 2018 by Rotary Blood Bank, Nanganallur, wherein 20 number of staffs donated blood.
- Fire safety mock drills have been conducted on 07.09.2018 & 12.11.2018 at NIWE for the Fire Safety awareness.

FOUNDATION DAY

Foundation day was celebrated in NIWE on 21st March 2019. On the eve of foundation day, sports activities like badminton, carrom board, chess and quiz were conducted among all staff members. Prizes were distributed to the winners.



21st Foundation Day of Celebration

OFFICIAL LANGUAGES ACT

- NIWE has been an active member in the Town Official Language Implementation Committee, Chennai. The Hindi version of PAVAN, the quarterly news bulletin of NIWE is considered a standard communication in Hindi.
- Hindi fortnight was celebrated in NIWE from 14.09.2018 to 28.09.2018. Various competitions were conducted and prizes were distributed.
- Continuous Hindi classes is being conducted in the campus of NIWE to improve upon spoken Hindi and also to prepare staff members for appearing in the examinations (Probodh / Praveen / Pragya) towards implementation of Official Language.
- During the year 2018-19, 03 our regular staff members attended Prabodh, Praveen, Pragya examination conducted by Hindi Teaching Scheme and have cleared the same.



Hindi Fortnight Celebration

INTERNATIONAL YOGA DAY

In consonance with the GoI instructions, International Yoga Day was celebrated in NIWE on 21.06.2018. As a part of celebration, Yoga session was conducted at NIWE. Yoga classes are being conducted in the campus of NIWE twice a week for all the staff members.



Yoga Practice by NIWE staff



Yoga Practice by NIWE staff

RIGHT TO INFORMATION ACT

During the year 2018-19, 27 applications were received seeking information under RTI Act, 2005 and requisite details have been given. 03 appeals have been preferred against the decision of CPIO and the same was addressed.

IMPLEMENTATION OF PERSONS WITH DISABILITIES ACT 1995

Following facilities are being available to differently abled persons.

- ◆ Though NIWE is functioning in a two storey building (where lift is not mandatory) a lift has been provided for the convenience of differently abled.
- ◆ 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.
- ◆ Reservation in posts for PWD (Persons with Disabilities) as per GoI rules.

Section - 4

THE MANAGEMENT

- **NIWE TEAM (Work Force)**
- **Committee Members**
- **Staff Promotion**

NIWE TEAM (WORK FORCE)

Sl.No.	Name	Designation
Director General's Office		
1.	Dr. K. Balaraman	Director General
2.	Anuradha Babu	Exe. Staff Officer
3.	P. Chidambaram	Jr. Exe. Assistant
4.	A. Mani	Driver
Finance & Administration (F&A) & (E&M)		
1.	D. Lakshmanan	Dy. Director General (F&A)
2.	R Girirajan	Asst. Director (F&A)
3.	K. Tamilselvi	Admin. Officer (S&P)
4.	B. Muthulakshmi	Exe. Secretary-II
5.	V. K. Sreeram	Exe. Assistant
6.	R. Sunderesan	Exe. Assistant
7.	V. Sarathkumar	Exe. Assistant
8.	K. Saranya	Jr .Exe. Assistant
9.	M. Malaravan	Transport Coordinator
10.	M. Nandakumar	Technician
11.	M. Selvakumar	Record Keeper
Wind & Solar Resource Measurements / Offshore (WSOM)		
1.	Dr. Rajesh Katyal	Dy. Director General
2.	Deepa Kurup	Addl. Director
3.	A. Haribhaskaran	Dy. Director (T)

Sl.No.	Name	Designation
4.	J. Bastin	Dy. Director (T)
5.	B. Krishnan	Asst. Director (T)
6.	R. Vinod Kumar	Jr. Engineer
7.	R. Naveen Muthu	Jr. Engineer
8.	Tamada Sankara Rao	Jr. Engineer
9.	B. Senthilkumar	Technician
Standards & Regulation (S&R)		
1.	A. Senthilkumar	Director
2.	N. Rajkumar	Addl. Director
Certification (C&IT)		
1.	S.A. Mathew	Director
2.	S. Arulselvan	Asst. Exe. Engineer
3.	S. Paramasivan	Asst. Engineer
4.	C.Stephen Jeremias	Asst. Engineer
Testing & Research Station (T&R)		
1.	J. C. David Solomon	Director
2.	M. Saravanan	Dy. Director (T)
3.	Bhukya Ramdas	Dy. Director (T)
4.	G. Arivukkodi	Asst Exe. Engineer
5.	M. Karuppuchamy	Asst. Exe. Engineer
6.	A. R. Hasan Ali	Asst. Exe. Engineer
7.	Y. Packiyaraj	Asst.Exe. Engineer
8.	T. Sureshkumar	Asst. Engineer
9.	M. R. Gunasekaran	Exe. Secretary-II
10.	K. A. Haji Abdul Ibrahim	Record Keeper
Research and Development (R&D) and Resource Data Analytics and Forecasting (RDAF)		
1.	K. Boopathi	Director
2.	A. G.Rangaraj	Dy. Director (T)
3.	M. C. Lavanya	Dy. Director (T)
4.	Yelchuri Srinath	Asst. Director (T)



Sl.No.	Name	Designation
Skill Development & Training (SDT)		
1.	Dr. P. Kanagavel	Director
2.	A. Jaseela Banu	Executive Assistant
Contract Staff in RE Projects and SRRA		
1.	Prasun Kumar Das	Asst. Director (T) (contract)
2.	R. Karthik	Asst. Director (T) (contract)
Employees on Deputation		
1.	Dr. G. Giridhar	Dy. Director General

2. NEW APPOINTEES

Sl.No.	Name	Designation	Date of Joining
1.	A. Hari Bhaskaran	Deputy Director (T)	01.06.2018
2.	V. Sarathkumar	Executive Assistant	01.10.2018
3.	A. Jaseela Banu	Executive Assistant	04.10.2018

COMMITTEE MEMBERS

MEMBERS OF GOVERNING COUNCIL AS ON MARCH 2019

1.	Anand Kumar, I.A.S., Secretary, Ministry of New and Renewable Energy	Chairman
2.	Arun Kumar, I.A.S., Additional Secretary and Financial Adviser, MNRE	Member
3.	Praveen Kumar, I.A.S., Addl. Secretary, MNRE and Chairman & Managing Director, IREDA	Member
4.	Bhanu Pratap Yadav, I.A. & A.S., Joint Secretary (Wind Energy), Ministry of New and Renewable Energy	Member
5.	Mohamed. Nasimuddin, I.A.S., Principal Secretary to Government Energy Department, Govt. of Tamil Nadu	Member
6.	Pankaj Joshi, I.A.S., Principal Secretary Energy & Petrochemicals Dept., Government of Gujarat	Member
7.	Dr. Rajkumar Dy. Director EPSA, Space Application Centre ISRO	Member
8.	S.K. Soonee Advisor & Former CEO, Power System Operation Corporation Limited and Chairman, Research Council, NIWE	Member
9.	Prof. Nagesh R. Iyer, Expert – (former Director, CSIR-SERC)	Member
10.	Sunil Jain, Chairman Wind Energy Independent Power Producers Association (WIPPA)	Member
11.	Tulsi R Tanti Chairman, Indian Wind Turbine Manufacturers Association	Member
12.	Dr. K. Balaraman, Director General, NIWE	Member Secretary



FINANCE COMMITTEE

**[Members of the Finance Committee
(To review the financial performance of the Institute)]**

1.	Financial Adviser Ministry of New and Renewable Energy, New Delhi	Chairman
2.	Principal Secretary to Govt. Energy Department, Government of Tamil Nadu, Chennai	Member
3.	Joint Secretary (WE) Ministry of New and Renewable Energy, New Delhi	Member
4.	Director General National Institute of Wind Energy, Chennai	Member
5.	Director (Wind) Ministry of New and Renewable Energy, New Delhi	Member
6.	Deputy Secretary [IFD] Ministry of New and Renewable Energy, New Delhi	Member
7.	Deputy Director General (Administration & Finance) National Institute of Wind Energy, Chennai	Member-Secretary

RESEARCH AND DEVELOPMENT COUNCIL

**[Members of the Research and Development Council of NIWE
(To guide NIWE on laying down Research direction to serve the Indian Wind Energy Sector)]**

1	S.K. Soonee Advisor & Former CEO Power System Operation Corporation Limited, New Delhi	Chairman
2	Bhanu Pratap Yadav, IAAS Joint Secretary, MNRE, New Delhi	Member
3	Dr. P.C.Pant Scientist-F, MNRE, New Delhi	Member
4	Dr. Sanjay Bajpai Advisor / Scientist 'G', Associate Head Technology Mission Division, Department of Science & Technology New Delhi	Member
5	Rajendra V Kharul Chief Executive Officer (CEO) Synergy Infrasy Management Pvt Ltd, Pune	Member
6	Dr. S. Selvi Rajan Chief Scientist & Head, Wind Engineering Laboratory Structural Engineering Research Centre (SERC) , Chennai – 600 113	Member
7	Prof. Dr. Rangan Banerjee Head of the Department, Department of Energy Science and Engineering, Indian Institute of Technology Bombay, Mumbai	Member
8	Dr. M.A. Atmanand Director, National Institute of Ocean Technology, Chennai	Member
9	Prof. Dr. Bhim Singh CEA Chair Professor & Head, Department of Electrical Engineering Indian Institute of Technology Delhi, New Delhi – 110016	Member
10	S. Jothibas Joint Director, Energy Efficiency & Renewable Energy Division Central Power Research Institute (CPRI), Bangalore	Member
11	Dr. K. Balaraman Director General, National Institute of Wind Energy, Chennai	Member
12	Dr. Rajesh Katyal Deputy Director General & Head – WSRMO National Institute of Wind Energy, Chennai	Member
13	K. Boopathi Director & Head, R&D and RDAF National Institute of Wind Energy, Chennai	Member Secretary



WOMEN'S HARASSMENT COMPLAINTS COMMITTEE

1.	Dr. Yasodha Shanmugasundaram Educationist & Ex. Vice Chancellor Mother Teresa Women's University	Chairman
2.	Dr. Aruna Dhathathreyan Retd. Chief Scientist, CSIR-CLRI	Member
3.	Dr. Vijaya Ravichandran Scientist 'F', NIOT	Member
4.	M. C. Lavanya Deputy Director (Tech.) NIWE	Member
5.	Anuradha Babu Executive Staff Officer, NIWE	Member
6.	G. Arivukkodi Assistant Executive Engineer, NIWE	Member
7.	B. Muthulakshmi Executive Secretary, NIWE	Member Secretary
8.	D. Lakshmanan Deputy Director General (F&A), NIWE	Invitee
9.	R. Girirajan Assistant Director (F&A), NIWE	Invitee

HINDI PROMOTION COMMITTEE

**[Members of the Official Language Hindi Promotion Committee
(for the purpose of promotion of Official Language Hindi in NIWE)]**

1	Dr. K. Balaraman, Director General, NIWE	Chairman
2	Dr. Rajesh Katyal, Deputy Director General & Head, WSOM, NIWE	Member
3	D. Lakshmanan, Deputy Director General & Head, F&A, NIWE	Member Secretary
4	Dr. P. Kanagavel, Director & Head, SDT, NIWE	Member
5	R. Girirajan, Assistant Director, F&A, NIWE	Member

PROTOTYPE WIND TURBINE MODELS COMMITTEE

**[Members of the Prototype Wind turbine Models Committee
as on March 2019]**

1.	Dr. K. Balaraman, Director General, NIWE	Chairman
2.	Dr.G. Giridhar, Deputy Director General & Division Head RE projects /SRRA, NIWE	Member
3.	N. Rajkumar, Joint Director, CPRI, Bangalore	Member
4.	D.V. Giri, Secretary General, IWTMA, Chennai	Member
5.	A. Senthil Kumar, Director & Head, S&R, NIWE	Member Secretary



STAFF PROMOTION

PROMOTIONS MADE DURING YEAR 2018-19

Sl. No.	Name	Present Designation Pay Level as per 7 th CPC	Promoted Designation as per 7 th CPC	Date of effect of Promotion
1.	Dr. P. Kanagavel	Scientist 'D' Level 12 [Rs.15600 - 39100 + GP Rs. 7600/- (Pre-revised)]	Scientist 'E' Level 13 [Rs.37400 - 67000 + GP Rs. 8700/- (Pre-revised)]	01.01.2019
2.	K. Boopathi	Scientist 'D' Level 12 [Rs.15600 - 39100 + GP Rs. 7600/- (Pre-revised)]	Scientist 'E' Level 13 [Rs.37400 - 67000 + GP Rs. 8700/- (Pre-revised)]	01.01.2019
3.	N. Rajkumar	Scientist 'C' Level 11 [Rs.15600 - 39100 + GP Rs. 6600/- (Pre-revised)]	Scientist 'D' Level 12 [Rs.15600 - 39100 + GP Rs. 7600/- (Pre-revised)]	01.01.2019
4.	J. Bastin	Scientist 'B' Level 10 Rs.15600 - 39100 + GP Rs. 5400/- (Pre-revised)]	Scientist 'C ' Level 11 [Rs.15600 - 39100 + GP Rs. 6600/- (Pre-revised)]	01.01.2019
5.	M. C. Lavanya	Scientist 'B' Level 10 [Rs.15600 - 39100 + GP Rs. 5400/- (Pre-revised)]	Scientist 'C ' Level 11 [Rs.15600 - 39100 + GP Rs. 6600/- (Pre-revised)]	01.01.2019

Section - 5

FINANCE REPORT

- **Balance Sheet**
- **Income and Expenditure**
- **Receipts and 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, 2019

(Amount in Rs.)

FUND AND LIABILITIES	Schedule	31 st March, 2019	31 st March, 2018
CAPITAL ASSET FUND	1	23,07,03,992	35,04,24,350
RESERVES AND SURPLUS	2	42,67,59,782	41,30,23,641
CURRENT LIABILITIES AND PROVISIONS	3	29,65,43,319	54,22,37,855
TOTAL		95,40,07,093	1,30,56,85,846
ASSETS			
FIXED ASSETS			
(a) Created out of Central Governments Grants	4	17,88,58,380	24,43,84,510
(b) Out of Internal Generation Grants		5,18,45,612	10,60,39,840
CURRENT ASSETS, LOANS AND ADVANCES	5	72,33,03,101	95,52,61,496
TOTAL		95,40,07,093	1,30,56,85,846
SIGNIFICANT ACCOUNTING POLICIES	13		
NOTES ON ACCOUNTS	14		

For National Institute of Wind Energy

As per our Report attached
G Badri Narayana & Co.,
Chartered Accountants
Firm Regn No.010743S

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

Sd/- D Lakshmanan
Dy. Director
General (F&A)

Sd/- Dr.K.Balaraman
Director General

Shravan Gattupalli
Partner
Membership No.226441



NATIONAL INSTITUTE OF WIND ENERGY

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

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2019

(Amount in Rs.)

INCOME	Schedule	CFA - Revenue	MOM - Revenue	IWSRA - Revenue	NE Region	SRRA	TOTAL GRANTS 31/03/2019 (1+2+3+4+5)	IE 31/03/2019	TOTAL GRANTS 31/03/2018	IE 31/03/2018
		1	2	3	4	5				
Income from Services	6	-	-	-	-	-	-	10,30,84,217		14,69,76,885
Income from publication	7	-	-	-	-	-	-	1,04,670		11,917
Interest Earned	8							2,47,25,087	55,16,327	2,06,60,718
Other Income	9		-	-	-			2,74,20,560	7,90,053	2,57,56,830
Interest Earned & Other Income (Grant)	3.1	42,41,470	27,99,702.00	2,70,423	-	11,44,986	84,56,581	-		
Grants from Government of India allocated for Revenue expenditure during the year		6,56,913	-	-	-	2,12,07,201	2,18,64,114	-	7,00,00,000	
Closing stock		-	-	-	-	-	-	15,25,070		23,08,945
TOTAL (A)		48,98,383	27,99,702	2,70,423	-	2,23,52,187	3,03,20,695	15,68,59,604	7,63,06,380	19,57,15,295
EXPENDITURE										
Opening stock		-	-	-	-	-	-	23,08,945		50,03,584
Establishment Expenses	10	-	-	-	-	-	-	6,80,85,634		5,34,66,426
Consultancy Project Expenses	11 (b)	-	-	-	-	-	-	6,79,01,108		4,91,99,874
Other Administrative Expenses	11 (a)	6,47,00,115					6,47,00,115		5,83,80,241	
	3.1		1,37,305	1,37,366	98,90,562	2,80,31,005	3,81,96,238			
On Advances/Deposits/ Prepaid /EMD,SD,PG's etc.,		4,67,09,021	-	(31,287)	27,42,459	(21,34,016)	4,72,86,177	-	5,93,65,787	
Refunded to Ministry		3,17,72,408	-	-	1,51,58,940	11,90,517	4,81,21,865	-	1,60,30,508	
In house project expenditure		1,88,55,822	-	-	-	-	1,88,55,822	-	4,01,32,507	
TOTAL (B)		16,20,37,366	1,37,305	1,06,079	2,77,91,961	2,70,87,506	21,71,60,217	13,82,95,687	17,39,09,043	10,76,69,884
Balance being excess of Income over Expenditure (A-B)		-	-	-	-	-	-	1,85,63,917	8,80,45,411	
Opening Balance B/f (c)	3.1	15,60,69,849	6,00,00,000	70,00,000	2,80,25,570	1,88,15,246	26,99,10,665	-	23,31,32,206	
Prior period adjustment	12	-	-	-	-	-	-	-	-	-
Transfer to Capital Asset Fund (D)	4	-	-	-	-	-	-	49,06,858		91,39,323
Transfer to Welfare Fund		-	-	-	-	-	-	-	-	-
BALANCE BEING SURPLUS TRANSFERRED TO GENERAL RESERVE FUND {A- (B+D) }		-	-	-	-	-	-	1,36,57,059	-	7,89,06,088
UN-UTILIZED GRANTS OUT OF GOVT. GRANTS FOR REVENUE EXPENDITURE { (C+A)-B }		(10,69,134)	6,26,62,397	71,64,344	2,33,609	1,40,79,927	8,30,71,143	-	13,55,29,544	
SIGNIFICANT ACCOUNTING POLICIES	13									
NOTES ON ACCOUNTS	14									

For National Institute of Wind Energy

As per our Report attached
G Badri Narayana & Co.,
Chartered Accountants
Firm Regn No.010743S

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

Sd/- D Lakshmanan
Dy. Director
General (F&A)

Sd/- Dr.K.Balaraman
Director General

Shravan Gattupalli
Partner
Membership No.226441



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, 2019

(Amount in Rs.)

RECEIPTS	FY 2018-19	FY 2017-18
I. Opening Balances		
(a) Cheques in hand	-	-
(b) Bank balances		
i) In Current Account	13,57,22,855	20,53,693
ii) In Savings Bank Account	13,26,49,730	8,70,48,830
iii) In Deposit Accounts	59,62,50,000	56,95,00,000
iv) In Deposit Accounts (SRRA)	2,00,00,000	50,00,000
iv) Cash in hand	4,77,672	14,009
(c) Stamps in hand	-	-
	88,51,00,257	66,36,16,532
II. Grants Received / Unutilised Grants		
(a) From Government of India for Grant	6,56,913	23,00,00,000
(b) From Government of India (Met-Ocean Measurement)	-	10,00,00,000
(c) From Government of India (Integrated Wind & Sola Research Assessment)	-	3,56,00,000
(e) Sale of Fixed Assets	-	2,40,096
(f) From Government of India - North East Project	-	-
(g) From Government of India for SRRA Project	2,12,07,201	4,17,17,000
III. Investments Withdrawn		
IV. Interest Received		
(a) On Bank deposits	4,57,42,631	3,27,02,211
(b) On Bank deposits (SRRA)	11,40,565	5,45,239
V. Other Income		
(a) Fees for services Including Advances	15,55,38,037	11,13,43,488
(b) Fees for services Including Advances (SRRA)	-	1,23,62,028
(c) Income from publications	1,04,670	11,917
(d) Energy receipts	3,42,03,018	3,56,01,480
(e) Misc. Income	2,74,20,560	2,54,49,724
(f) IREDA - NIWE Award Fund	9,17,271	4,58,262
VI. Amount borrowed		
VII. Any other receipts		
(a) Security deposit / Earnest money deposits received	15,64,327	45,09,476
(b) Changes in Working Capital	-	5,50,256
	28,84,95,193	63,10,91,177
TOTAL	1,17,35,95,449	1,29,47,07,709

For National Institute of Wind Energy

As per our Report attached
G Badri Narayana & Co.,
Chartered Accountants
Firm Regn No.010743S

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

Sd/- D Lakshmanan
Dy. Director
General (F&A)

Sd/- Dr.K.Balaraman
Director General

Shravan Gattupalli
Partner
Membership No.226441



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, 2019

(Amount in Rs.)

PAYMENTS	FY 2018-19	FY 2017-18
I. Expenses		
(a) Employee related Expense	6,80,85,634	5,48,39,181
(b) Administrative Expenses	6,47,00,115	5,07,51,161
II. Payments made against funds for various projects		
Out of CFA		
(a) In house R&D project expenses	1,88,55,822	2,23,21,350
Out of Grants for projects		
(a) From Government of India for Grant	5,15,87,554	5,80,37,023
(b) From Government of India (Met-Ocean Measurement)	1,37,305	-
(c) From Government of India (Integrated Wind & Solar Research Assessment)	1,37,366	-
(d) IREDA-NIWE Award Fund	3,64,853	3,48,609
(e) From Government of India - North East Project	64,95,407	1,40,56,586
(f) From Government of India for SRRA Project	2,73,22,831	2,42,07,692
III. Investment and Deposits made		
IV. Expenditure on Fixed assets & Capital Work-in-Progress		
(a) Purchase of Fixed assets including Advances (Grants)	10,98,47,101	8,96,05,943
(b) Purchase of Fixed assets (Internal Generation)	49,23,952	91,61,481
(c) Purchase of Fixed assets (SRRA)	7,08,174	17,56,287
V. Refund of Surplus Money		
(a) Balance of Grants-in-aid to Government of India	12,45,19,235	1,60,30,508
VI. Other Payments		
(a) Refund of Security deposits / Performance Guarantee / Earnest money deposit Internal Generation	-	34,84,082
(b) Expenditure on Consultancy Projects	6,79,01,108	6,50,07,549
VI. Changes in Working Capital	22,62,964	
VII. Closing Balances		
(a) Cheques in hand	-	-
(b) Bank Balances:		
i) In Current Account	-4,57,699	13,57,22,855
ii) In Savings Bank Account	20,05,58,325	13,26,49,730
iii) In Deposit Accounts	42,56,38,666	59,62,50,000
iv) In Deposit Accounts (SRRA)	-	2,00,00,000
(c) Cash in hand (NIWE Canteen)	6,735	4,77,672
TOTAL	1,17,35,95,449	1,29,47,07,709

For National Institute of Wind Energy

As per our Report attached
G Badri Narayana & Co.,
Chartered Accountants
Firm Regn No.010743S

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

Sd/- D Lakshmanan
Dy. Director
General (F&A)

Sd/- Dr.K.Balaraman
Director General

Shravan Gattupalli
Partner
Membership No.226441



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'2019

(Amount in Rs.)

SCHEDULE 1 - CAPITAL ASSET FUND	CFA-Capital	NE Region	MOM	IWSRA	SRRA	IE	31.03.2019	31.03.2018
Opening Balance								
Balance as at the beginning of the year	13,45,89,692	-	-	-	10,98,01,937	10,60,39,840	35,04,31,469	39,92,33,180
ADD : Prior period adjustment	-	-	-	-	-	-	-	-
ADD : Addition from Capital Grant prior years	-	-	-	-	-	-	-	-
Add : Addition from Internal Revenue Generation prior years	-	-	-	-	-	-	-	-
Add : Addition from Capital Grants SRRA	-	-	-	-	7,22,531	-	7,22,531	17,52,481
Add : Addition from Capital Grants MNRE	1,72,62,990	33,95,155	-	-	-	-	2,06,58,145	89,605,579
Add : Addition from Internal Revenue Generation	-	-	-	-	-	49,23,952	49,23,952	91,39,323
Less : Deletion from Capital Grants	31,963	-	-	-	-	-	31,963	7,18,847
Less : Deletion from Internal Revenue Generation	-	-	-	-	-	-	-	-
Less : Deletion from Capital Grants SRRA	-	-	-	-	54,485	-	54,485	-
Less: Depreciation on assets purchased out of Grants MNRE	3,24,23,790	6,44,277	-	-	-	-	3,30,68,067	2,47,42,941
Less: Depreciation on assets purchased out of Internal generation	-	-	-	-	-	5,91,18,183	5,91,18,183	6,07,20,625
Less: Depreciation on assets purchased out of Grants SRRA	-	-	-	-	5,37,59,408	-	5,37,59,408	63,123,800
TOTAL	11,93,96,929	27,50,878	-	-	5,67,10,575	5,18,45,609	23,07,03,992	35,04,24,350

For National Institute of Wind Energy

As per our Report attached
G Badri Narayana & Co.,
Chartered Accountants
Firm Regn No.010743S

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

Sd/- D Lakshmanan
Dy. Director
General (F&A)

Sd/- Dr.K.Balaraman
Director General

Shravan Gattupalli
Partner
Membership No.226441



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'2019

(Amount in Rs.)

SCHEDULE 2 - RESERVES AND SURPLUS	31st March, 2019	31st March, 2018
General Reserve Fund		
Balance at the beginning of the year	41,22,12,016	33,33,05,928
Addition during the year being surplus	1,36,57,059	7,89,06,088
	42,58,69,075	41,22,12,016
Welfare Fund (General Reserve)	8,90,707	8,11,624
TOTAL	42,67,59,782	41,30,23,640

For National Institute of Wind Energy

As per our Report attached
G Badri Narayana & Co.,
Chartered Accountants
Firm Regn No.010743S

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

Sd/- D Lakshmanan
Dy. Director
General (F&A)

Sd/- Dr.K.Balaraman
Director General

Shravan Gattupalli
Partner
Membership No.226441



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'2019

(Amount in Rs.)

SCHEDULE 3 - CURRENT LIABILITIES AND PROVISIONS:	Schedule	CFA - Capital	CFA - Revenue	NE Region	MOM	IWSRA	SRRA	IE	31/03/2019	31/03/2018
A. CURRENT LIABILITIES										
Sundry Creditors for expenses:		-	-	-	-	-	-	8,25,738	8,25,738	29,17,791
Expenses payable		-	-	1,86,971	-	-	-	30,57,903	32,44,874	9,60,103
Salary Payable		-	-	-	-	-	-	33,29,801	33,29,801	34,31,772
Security Deposit, EMD & PG		1,46,27,614	-	30,92,476	15,00,000	42,59,325	-	5,74,846	2,40,54,261	11,98,418
Advances Received on Projects		-	-	-	-	-	-	8,66,56,837	8,66,56,837	5,61,24,899
Statutory Liabilities		-	3,93,859	23,297	-	-	38,724	22,27,808	26,83,688	35,50,596
Other Current Liabilities		18,56,169	-	-	-	-	-	57,781	19,13,950	27,65,006
NIWE-IREDA Award Fund		-	1,11,10,064	-	-	-	-	-	1,11,10,064	-
Welfare Fund Payable		-	-	-	-	-	-	2,125	2,125	1,975
TOTAL (A)		1,64,83,783	1,15,03,923	33,02,744	15,00,000	42,59,325	38,724	9,67,32,839	13,38,21,338	7,09,50,560
UN UTILISED GRANTS										
Central Finance Assistance MNRE (Grants-in-Aid)	3.1	(9,17,905)	(10,69,134)	2,33,609	10,45,28,866	3,70,99,051	1,40,79,927	-	15,39,54,413	46,43,91,591
TOTAL (B)		(9,17,905)	(10,69,134)	2,33,609	10,45,28,866	3,70,99,051	1,40,79,927	-	15,39,54,413	46,43,91,591
TOTAL { (A)+(B) }		1,55,65,878	1,04,34,789	35,36,353	10,60,28,866	4,13,58,376	1,41,18,650	9,67,32,839	28,77,75,751	53,53,42,151
B. PROVISIONS										
Gratuity		-	-	-	-	-	-	73,23,408	73,23,408	60,79,731
Leave Encashment		-	-	-	-	-	-	14,44,159	14,44,159	8,15,973
Bonus & Ex-gratia		-	-	-	-	-	-	-	-	0
TOTAL		-	-	-	-	-	-	87,67,568	87,67,568	68,95,704
GRAND TOTAL { (A)+(B)+(C) }		1,55,65,878	1,04,34,789	35,36,353	10,60,28,866	4,13,58,376	1,41,18,650	8,79,65,272	29,65,43,319	54,22,37,855

For National Institute of Wind Energy

As per our Report attached
G Badri Narayana & Co.,
Chartered Accountants
Firm Regn No.010743S

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

Sd/- D Lakshmanan
Dy. Director
General (F&A)

Sd/- Dr.K.Balaraman
Director General

Shravan Gattupalli
Partner
Membership No.226441



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'2019

(Amount in Rs.)

SCHEDULE 3.1 UNUTILISED GRANTS	CFA - Capital	CFA - Revenue	NE Region	MOM Capital	MOM Revenue	IWSRA Capital	IWSRA Revenue	SRRA	31/03/2019	31/03/2018
Central Finance Assistance MNRE (Grants-in-Aid)										
Balance as at the beginning of the year	16,87,66,164	15,60,69,849	2,80,25,570	4,00,00,000	6,00,00,000	2,86,00,000	70,00,000	1,88,15,246	50,72,76,829	32,45,00,806
Add : Grants received during the year	-	6,56,913	-	-	-	-	-	2,12,07,201	2,18,64,114	41,13,95,235
Less: Refund to Ministry during the year	7,63,97,370	31,772,408	1,51,58,940	-	-	-	-	11,90,517	12,45,19,235	1,60,30,508
Add : Misc. Income on Grants	-	5,31,996	-	-	-	-	-	4,421	5,36,417	7,90,053
Add : Interest Earned on Grants	1,10,36,769	37,09,474	-	18,66,469	27,99,702	13,34,707	2,70,423	11,40,565	2,21,58,109	1,24,80,769
Add : Interest Accrued on Grants	4,63,031	-	-	-	-	-	-	-	4,63,031	-
Add: Profit on Sale of Assets	(21,514)	-	-	-	-	-	-	-	(21,514)	2,26,132
Less: Grants from Government of India allocated for Revenue expenditure	-	6,47,00,115	6,495,407	-	1,37,305	-	1,37,366	2,73,22,831	9,87,93,024	8,69,70,301
Less : Expenditure relating to Grants from Government of India for the inhouse projects during the year	-	18,855,822	-	-	-	-	-	-	18,855,822	40,132,507
Less:transfer to capital asset fund	17,231,027	-	3,395,155	-	-	-	-	708,174	21,334,356	88,182,939
Less:transfer to Income & Expenditure	-	-	-	-	-	-	-	-	-	-
Add: Transferred from Earmarked Projects	-	-	-	-	-	-	-	-	-	-
TOTAL (A)	8,66,16,054	4,56,39,887	29,76,068	4,18,66,469	6,26,62,397	2,99,34,707	71,33,057	1,19,45,911	28,87,74,549	51,80,76,741
Add: Expenses Payable	-	60,07,689	-	-	-	-	43,495	4,13,242	64,64,426	11,32,657
Add: Security Deposits & Performance Guarantee	6,87,900	-	-	-	-	-	-	15,98,582	22,86,482	1,48,26,496
Add: Sundry Creditors	9,99,060	11,31,436	-	-	-	-	-	(197)	21,30,299	8,78,509
Less: Advances paid	8,92,20,919	4,87,98,887	27,42,459	-	-	-	12,208	34,000	14,08,08,473	6,58,07,024
Add: Other Current Liabilities (EMD)	-	-	-	-	-	-	-	-	-	-
Add: Salary Payable / EPF Payable	-	-	-	-	-	-	-	1,56,889	1,56,889	2,48,772
Less: Deposits	-	40,33,470	-	-	-	-	-	500	40,33,970	42,54,046
Less: Prepaid Expenses	-	10,15,789	-	-	-	-	-	-	10,15,789	7,10,514
TOTAL (B)	(8,75,33,959)	(4,67,09,021)	(27,42,459)	-	-	-	31,287	21,34,016(13,48,20,136)	(5,36,85,150)	(5,36,85,150)
GRAND TOTAL { (A)+(B) }	(9,17,905)	(10,69,134)	2,33,609	4,18,66,469	6,26,62,397	2,99,34,707	71,64,344	1,40,79,927	15,39,54,413	46,43,91,591

For National Institute of Wind Energy

As per our Report attached
G Badri Narayana & Co.,
Chartered Accountants
Firm Regn No.010743S

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

Sd/- D Lakshmanan
Dy. Director
General (F&A)

Sd/- Dr.K.Balaraman
Director General

Shravan Gattupalli
Partner
Membership No.226441



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

(Amount in Rs.)

SCHEDULE - 4 FIXED ASSETS

Description of Assets	Gross Block		Depreciation		Net Block	
	As on 01.04.2018	Addition Deletion/ Adjustment	As on 31.03.2019	As on 01.04.2018	Total as on 31.03.2019	As on 31.03.2019
CENTRAL FINANCIAL ASSISTANCE (CFA)						
Land	1,15,79,939	-	-	-	-	1,15,79,939
Building	7,31,28,434	-	7,31,28,434	5,70,10,143	19,88,520	1,41,29,771
Furniture & Fitting	1,21,52,023	5,55,979	1,27,08,002	96,83,525	6,03,123	24,21,354
Instruments & Equipments	13,55,67,336	47,47,662	14,00,75,984	6,46,55,269	1,52,00,234	24,68,498
DANIDA Instruments & Computers (Free of Cost)	1,26,69,970	-	1,26,69,970	12,669,949	-	7,09,12,067
MNRE Asset (Free of Cost)	21,445	-	21,445	21,444	-	21
Computers	11,29,19,326	71,10,517	12,00,29,843	97,539,458	1,09,93,237	21
Vehicles	42,16,143	-	42,16,143	2,937,575	2,97,047	1
R&D Wind Turbine	10,98,26,430	-	10,98,26,430	109,826,415	-	1,53,79,868
Infrastructure Facilities	3,17,36,409	2,74,052	3,20,10,461	14,891,105	26,52,106	12,78,568
Books	-	14,29,742	14,29,742	-	6,89,523	15
Capital Work In Progress	-	31,45,038	31,45,038	-	-	1,68,45,304
TOTAL (A)	50,38,17,455	1,72,62,990	52,08,41,431	36,92,34,883	3,24,23,790	2,14,167
Previous Year Balance	41,57,53,782	8,96,05,579	50,40,05,741	34,53,15,001	2,47,42,941	6,34,773
Out of Govt. Grants (NER) Instruments & Equipment	-	33,95,155	3,395,155	-	6,44,277	-
TOTAL (B)	33,95,155	33,95,155	-	6,44,277	644,277	27,50,878
Solar Radiation Resource Assessment - Unified Solar Project (SRRA)						
Out of Govt. Grants (SRRA) USP						
Computers (USP)	76,49,112	1,26,887	77,75,999	65,72,899	7,14,994	4,88,106
Furniture & Fitting (USP)	12,56,397	23,600	12,79,997	6,98,214	1,20,664	4,61,120
Instruments & Equipments (USP)	41,45,83,432	5,72,044	41,51,00,991	30,88,55,925	5,25,58,305	10,57,27,507
Infrastructure Facilities (USP)	40,55,703	-	40,55,703	16,15,669	4,05,573	20,34,461
TOTAL (C)	42,75,44,644	7,22,531	42,82,12,690	31,77,42,707	5,37,99,536	5,67,10,576
Previous Year Balance	42,58,20,936	17,56,287	42,75,44,644	25,46,47,680	6,31,23,800	10,98,01,937
						17,11,73,256



Chennai - 600 100

SCHEDULE - 4 FIXED ASSETS (continuation)

(Amount in Rs.)

Description of Assets	Gross Block			Depreciation			Net Block	
	As on 01.04.2018	Addition	Deletion/ Adjustment	As on 31.03.2019	As on 01.04.2018	Addition	Total as on 31.03.2019	As on 31.03.2019
				Out of Internal Generation (IE)				
Computers	1,18,00,897	3,69,930	-	1,21,70,827	1,15,68,017	2,33,802	-	2,32,880
R&D Wind Turbine	22,22,55,060	-	-	22,22,55,060	13,97,46,862	5,75,20,000	-	8,25,08,198
WTTS Land	57,01,000	-	-	57,01,000	-	-	-	57,01,000
INFRASTRUCTURE FACILITIES	4,98,757	-	-	4,98,757	27,185	49,876	-	4,71,572
Vehicle (All)	23,87,184	24,87,025	-	48,74,209	17,44,553	3,45,926	-	6,42,631
Instruments & Equipments (All)	2,29,56,123	20,04,506	-	2,49,60,629	66,58,111	9,37,025	-	1,62,98,012
Instruments & Equipment		17,094		17,094		5,208		11,886
Furniture & Fittings	3,39,875	45,397	-	3,85,272	1,54,328	26,346	-	1,85,547
Books	-	-	-	-	-	-	-	-
Grand Total (D)	26,59,38,896	49,23,952	-	27,08,62,848	15,98,99,056	5,91,18,183	- 21,90,17,239	10,60,39,840
Previous Year Balance	25,68,17,015	91,61,481	39,600	26,59,38,896	9,91,95,875	6,07,20,625	- 15,98,99,056	15,76,21,143
Current Year								
Figures (A+B+C+D)	1,19,73,00,995	2,63,04,629	2,93,499	1,22,33,12,125	84,68,76,646	14,59,85,786	- 99,26,08,137	35,04,24,349
Previous Year Figures	1,09,83,91,733	10,39,18,502	14,25,799	1,20,08,84,436	69,91,58,556	14,92,31,643	- 84,77,09,209	39,92,33,180

Deletion Notes: Old dysfunctional and unserviceable items disposed of under buy back mode as per Ruule 176 of GFR, 2017 [Fire Extinguisher - 33 Nos. (Rs.43,660/- 2 tonne Air Conditioners - 5 nos [Rs.2,49,839/-]) refer net block "Deletion/Adjustment".

For National Institute of Wind Energy

As per our Report attached
G Badri Narayana & Co.,
Chartered Accountants
Firm Regn No.010743S

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

Sd/- D Lakshmanan
Dy. Director General (F&A)

Sd/- Dr.K.Balaraman
Director General

Shravan Gattupalli
Partner
Membership No.226441

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

SCHEDULE - 5 CURRENT ASSETS, LOANS & ADVANCES

(Amount in Rs.)

SCHEDULE 5 - CURRENT ASSETS, LOANS & ADVANCES	CFA-Capital	CFA-Revenue	NE Region	MOM	IWSRA	SRRA	IE	Welfare Fund	31.03.2019	31.03.2018
A. CURRENT ASSETS:										
Sundry Debtors	-	2,81,967	-	-	-	3,27,269	5,22,20,360	-	5,28,29,596	3,00,80,233
Inventories										
Stock of Stationery	-	1,73,40	1,73,407	-	-	-	-	-	-	2,05,652
Stock of Stores and Spares	-	-	-	-	-	-	4,57,346	-	4,57,346	4,57,346
Stock of Wind Atlas Book	-	-	-	-	-	-	-	-	-	-
Cheques in hand	-	-	-	-	-	-	-	-	-	-
Stamps in hand	-	1,856	-	-	-	-	-	-	1,856	24,319
Closing Stock	-	-	-	-	-	-	15,25,070	-	15,25,070	23,08,945
Bank Balances:										
With Scheduled Banks:										
In Current Account	-	-	-	-	-	-	(4,57,699)	-	(4,57,699)	13,57,22,855
In Savings Bank Account	1,36,51,010	-	28,28,879	10,60,28,866	4,13,58,376	1,74,83,907	1,89,70,228	1,31,437	20,04,52,703	13,26,49,730
In Cash	-	-	-	-	-	-	6,735	-	6,735	4,77,672
In Deposit Account	-	1,00,00,000	-	-	-	-	41,48,88,666	7,50,000	42,56,38,666	61,62,50,000
TOTAL (A)	1,36,51,010	1,04,57,230	28,28,879	10,60,28,866	4,13,58,376	1,78,11,176	48,76,10,706	8,81,437	68,06,27,680	91,81,76,751
B. LOANS, ADVANCES AND OTHER ASSETS										
Advances and other amounts recoverable in cash or in kind or for value to be received:										
a) On Capital Account	-	-	-	-	-	-	-	-	-	-
a) Prepayment	-	-	-	-	-	-	5,25,687	-	5,25,687	19,50,122
b) Interest accrued on term deposits	4,72,168	-	-	-	-	-	32,89,773	-	37,61,941	48,56,511
c) Advance	-	-	20,54,500	-	-	-	75,42,419	-	95,96,919	42,75,929
d) Consultancy WIP	-	-	-	-	-	-	50,82,655	-	50,82,655	46,86,309
e) Balance with Govt. Authority - TDS	-	2,70,044	-	-	-	3,50,691	2,30,78,214	9,270	2,37,08,218	2,13,15,874
TOTAL (B)	4,72,168	2,70,044	20,54,500	-	-	3,50,691	3,95,18,749	9,270	4,26,75,421	3,70,84,745
GRAND TOTAL { (A)+(B) }	1,41,23,179	1,07,27,273	48,83,379	10,60,28,866	4,13,58,376	1,81,61,867	52,71,29,454	8,90,707	72,33,03,101	95,52,61,496

For National Institute of Wind Energy

As per our Report attached
G Badri Narayana & Co.,
Chartered Accountants
Firm Regn No.010743S

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

Sd/- D Lakshmanan
Dy. Director General (F&A)

Sd/- Dr.K.Balaraman
Director General

Shravan Gattupalli
Partner
Membership No.226441



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 INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2019

(Amount in Rs.)

SCHEDULE 6 - INCOME FROM SALES / SERVICES	FY 2018-19	FY 2017-18
Income from Services		
Income from Scientific & Technical Consultancy Services	6,88,81,199	11,13,75,405
Energy receipts	3,42,03,018	3,56,01,480
TOTAL	10,30,84,217	14,69,76,885
SCHEDULE 7 - INCOME FROM PUBLICATION		
Sale of Books & Reports	1,04,670	11,917
TOTAL	1,04,670	11,917
SCHEDULE 8 - INTEREST EARNED		
On Term Deposits with Scheduled Banks	2,24,51,939	1,77,61,445
On Savings Bank account with Scheduled Banks	22,73,148	28,99,273
TOTAL	2,47,25,087	2,06,60,718
SCHEDULE 9 - OTHER INCOME		
Interest Received	17,952	26,887
Participation Fees	2,38,24,754	1,65,16,042
Registration Fees	3,30,000	4,41,186
Miscellaneous Income	31,75,472	87,72,715
Application Fees	72,382	-
TOTAL	2,74,20,560	2,57,56,830
SCHEDULE 10 - ESTABLISHMENT EXPENSES		
ADMINISTRATION AND R&D STAFF		
Salaries and Allowances	4,96,72,569	4,56,89,596
Salaries and Allowances - Contract Staff	8,82,889	-
Bonus & Ex-gratia	-	(1,34,994)
Contribution to Provident Fund (EPF)	46,69,325	40,97,102
Contribution to Pension & Gratuity (With LIC)	72,79,514	57,26,328
Incentives to Employees	10,000	20,000
Leave travel concession	18,86,300	1,05,041
Children Education Allowance	2,02,500	5,31,264
Medical reimbursement	7,66,922	8,50,111
Newspaper reimbursement	1,23,073	26,471
Leave Salary (Contribution to LIC)	16,45,312	19,84,163
LIC Admin. Charges (Gratuity & Leave Encashment)	4,20,643	1,54,336
LIC Admin. Charges (Leave Encashment)	-	2,21,124
Special Incentives	-	31,138
Staff welfare expenses	43,200	5,18,042
Earned Leave Encashment (For LTC)	4,83,387	62,603
Employer Contbn to Lease Rent	-	23,910
Employees Contbn to Lease Rent	-	34,290
Special Incentives - Reversal of Provision	-	(64,74,100)
TOTAL	6,80,85,634	5,34,66,426

For National Institute of Wind Energy

As per our Report attached
G Badri Narayana & Co.,
Chartered Accountants
Firm Regn No.010743S

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

Sd/- D Lakshmanan
Dy. Director
General (F&A)

Sd/- Dr.K.Balaraman
Director General

Shravan Gattupalli
Partner
Membership No.226441



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 INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2019

(Amount in Rs.)

SCHEDULE 11 - OTHER ADMINISTRATIVE EXPENSES	FY 2018-19	FY 2017-18
Advertisement and Publicity	6,73,347	3,84,456
Auditor's Remuneration	75,000	70,000
Bio Gas Expenses	22,938	31,000
Electricity and Power	25,30,040	32,59,719
Expenses on Books, Data & Periodicals	13,16,296	25,84,239
Expenses on Fees (Sitting Fees & Honorarium)	4,04,400	1,43,000
Expenses on Seminar & Meetings	88,37,572	43,08,051
Guest House Maintenance	-	10,685
Hospitality Expenses	4,21,825	1,84,059
Ineligible Input Tax Credit - GST	73,54,084	91,85,636
Loss on Exchange Fluctuation	29,403	-
Office expenses & Maintenance	1,90,11,651	1,73,58,038
Other Expenses (Hindi Prom., OLA Act, Bk Chrg.)	5,31,398	3,35,340
Parliamentary / Standing Committee Expenses	10,77,730	6,04,613
Postage & Courier	2,75,790	2,67,464
Printing and Stationery	17,53,456	17,54,588
Professional Charges	8,28,442	8,04,992
Rates & taxes/ Licence Fee	17,93,367	21,91,391
Repairs (AMC etc.,)	58,64,486	41,04,296
Security Charges	43,01,253	61,49,815
Telephone and Communication Charges	9,06,474	17,47,642
Training and Development	16,76,527	9,04,443
Travel & Conveyance and Taxi hire	38,00,310	5,48,188
Vehicles Running and Up Keeping	7,22,130	7,91,552
Water Charges	4,92,196	6,57,035
TOTAL (A)	6,47,00,115	5,83,80,242
CONSULTANCY PROJECT EXPENSES		
Expenses on consultancy project (B)	6,79,01,108	4,91,99,874
GRAND TOTAL {(A)+(B)}	13,26,01,223	10,75,80,116

For National Institute of Wind Energy

As per our Report attached
G Badri Narayana & Co.,
Chartered Accountants
Firm Regn No.010743S

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

Sd/- D Lakshmanan
Dy. Director
General (F&A)

Sd/- Dr.K.Balaraman
Director General

Shravan Gattupalli
Partner
Membership No.226441



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 INCOME & EXPENDITURE ACCOUNT AS AT 31ST MARCH 2019

(Amount in Rs.)

SCHEDULE 12 - PRIOR PERIOD ADJUSTMENT	31 st March, 2019	31 st March, 2018
Prior Period Expenses/ Income	-	-
TOTAL	-	-

For National Institute of Wind Energy

As per our Report attached
G Badri Narayana & Co.,
Chartered Accountants
Firm Regn No.010743S

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

Sd/- D Lakshmanan
Dy. Director
General (F&A)

Sd/- Dr.K.Balaraman
Director General

Shravan Gattupalli
Partner
Membership No.226441

NATIONAL INSTITUTE OF WIND ENERGY

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

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. 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 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	60



- 6.2 In respect of additions to / deductions from fixed assets during the year, depreciation is considered on pro-rata basis.
- 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.

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.

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.75,000/- 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 Deputy Director General [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 2018-19, the review of internal control procedures by the Deputy Director General [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 Resource Assessment, 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.

8. (a). Stock in Hand (Internal Earnings):-

The Centre has taken list of inventory spares during the current year and valued it at cost as detailed below:

Instrument Name	QTY	Amount (Rs)
Data Logger	4	7,05,367
Pressure	11	2,33,068
Pyranometer	3	60,551
Rain Gauge	1	18,715
Relative Humidity	1	31,239
Wind Vane	8	4,76,130
Total	95	15,25,070

The above stocks of spares are accounted in the financial statements as Closing Stock in Income & Expenditure Statement. They were purchased out of Internal Earnings.

(b) Stock in Hand (CFA):-

The Centre has the following instruments & Equipments and its spares which are neither classifiable as assets (because, they are not long term benefits) nor as stocks in hand (because they have recurring nature of usage for short period of time beyond 12 months after re-calibration) were purchased during previous years and valued it at cost as detailed below:

Instrument Name	QTY	Amount (Rs)
Anemometer	34	18,73,995
Data Logger	4	5,51,734
Instrument – Dhanuskodi	7	6,07,452
Pressure	13	3,13,777
Pyranometer	40	6,20,511
Rain Gauge	1	17,545
Relative Humidity	5	1,14,533
Temperature Sensor	11	41,633
Wind Vane	71	41,35,823
Total	186	82,77,003

The above instruments & Equipments and its spares are accounted in the financial statements of the respective year of purchase and expended in that year itself as they were purchase out of Grants received in various years and contain partly used/yet to be installed in the masts.



9. 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		15,68,59,604
Less: Salary component of service functions	6,80,85,634	14,32,02,545
Consultancy Project Expenses	6,79,01,108	
Transfer to Capital fund	49,06,858	
Stock of Materials	23,08,945	
Balance transferred to General Reserve Fund		1,36,57,059

10. 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 2018-19, a sum of Rs.3,42,03,018/- (**Ref: Energy Receipt - Sch.6**) has been earned.
11. The total interest income earned is Rs.2,47,25,087 /-. Out of which Rs.2,24,51,939/-, earned from Term Deposit with Scheduled Banks and Rs.22,73,148/- from Savings Bank account with Scheduled Banks (**Ref: Sch.8**) is shown under income and expenditure.
12. The figures shown in the accounts are rounded off to the nearest rupee.
13. The previous year figures are regrouped / reclassified wherever considered necessary to make them comparable with current year's figures.
14. Schedule 1 to 14 annexed form an integral part of Balance Sheet as at 31st March, 2019 and Income and Expenditure Account for the year ended on that date.

Signatures to Schedule 1 to 14

For **NATIONAL INSTITUTE OF WIND ENERGY**

For **G. Badri Narayana & Co**

Chartered Accountants

Firm Regn No.010743S

R Girirajan

Asst.Director(F&A)

D Lakshmanan

Dy.Director
General (F&A)

Dr.K.Balaraman

Director General

Shravan Gattupalli

Partner
Membership No. 226441

Place: Chennai – 600 100





The Chairman
Governing Council
National Institute of Wind Energy
Chennai – 600 100

INDEPENDENT AUDITORS' REPORT

Sir,

We have audited the attached financial statements of National Institute of Wind Energy (NIWE) formerly known as Centre for Wind Energy Technology (C-WET), Velachery – Tambaram, Pallikaranai, Chennai, which comprise the Balance sheet as at 31.03.2019, the Income & Expenditure Account and the Receipts and Payments Account for the year then ended and a summary of significant accounting policies and other explanatory information.

Management's Responsibility:

NIWEs' Management is responsible for the preparation of these financial statements that give a true and fair view of the financial position, financial performance and receipts and payments of the NIWE in accordance with the Accounting Standards issued by the Institute of Chartered Accountants of India. This responsibility also includes maintenance of adequate accounting record in accordance with the provisions of the Indian laws applicable to NIWE for safeguarding the assets of the Institution 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.

Auditors' Responsibility:

Our responsibility is to express an opinion on these financial statements based on our audit.



We have taken into account the provisions of the Indian law's applicable to NIWE, the accounting and auditing standards and matters which are required to be included in the audit report under the provisions said Indian laws and the Rule made there under.

We conducted our audit in accordance with the Standards on auditing issued by the Institute of Chartered Accountants of India. Those standards require that we comply with the ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatements.

An audit involves performing procedures to obtain audit evidence about the amounts and the disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal financial control relevant to NIWEs' preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the NIWEs' internal finance control.

An audit also includes evaluating the appropriateness of the accounting policies used and reasonableness of the accounting estimates made by the management, as well as evaluating the overall presentation of financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion

Opinion:

- a) In our opinion and to the best of our information and according to the explanations given to us, the aforesaid financial statements, including the Balance Sheet, Income & Expenditure Account and Receipts and Payments Account dealt with by this report read together with schedules, accounting policies and notes thereon give a true and fair view in conformity with the accounting principles generally accepted in India:
 - i. In the case of Balance Sheet, of the state of affairs of the above mentioned Institution as at 31st March, 2019;
 - ii. In the case of Income & Expenditure account of the Excess of Income over expenditure of this Institution for the year ended on that date; and
 - iii. In the case of Receipts and payments Account of the Receipts and Payments of this Institution for the year ended on that date



Report on Other Legal and Regulatory Requirements

We report that:

- We have obtained all information and explanations which to the best of our knowledge and belief were necessary for the purpose of our audit
- In our opinion, proper books of account have been kept by the above mentioned Institution so far as appears from our examination of the books;
- The Balance Sheet, Income & Expenditure Account and Receipts and Payments Account referred to in this report are in agreement with the books of accounts;
- In our opinion the Balance Sheet, Income and Expenditure Account and Receipts and Payments Account dealt with by this report are prepared in accordance with the applicable Accounting Standards issued by the Institute of Chartered Accountants of India.
- According to the information and explanations given to us, in respect of statutory dues, NIWE has generally been regular in depositing statutory dues, including Provident Fund, Income-tax, Goods & Service Tax as well as compliance of the respective laws and other material statutory dues applicable to it with the appropriate authorities.

Place: CHENNAI
Date: 04-09-2019



For *G Badri Narayana & Co*
Chartered Accountants
(Firm Registration No: 010743S)

Gattupalli Shravan
Partner
M No: 226441





नीवे NIWE

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

Velachery - Tambaram Main Road, Pallikaranai, Chennai - 600 100, Tamil Nadu India

Phone / दूरभाष : +91-44-22463982 / 22463983 / 22463984 Fax / फैक्स : +91-44-22463980

E-mail / ईमेल : info.niwe@nic.in Website / वेबसाइट : <http://niwe.res.in>