



R F D

Results Framework Document

for

NATIONAL INSTITUTE OF WIND ENERGY

[Formerly Centre for Wind Energy Technology [C-WET]]

(An Autonomous R&D Institution under the Ministry of New and Renewable Energy, Government of India)

(2015 – 2016)

Results Framework Document (RFD) for National Institute of Wind Energy (NIWE)

(2015-2016)

Section 1: Vision, Mission, Objectives and Functions

VISION:

- To act as a technical focal point and provide total solutions in the area of wind energy technologies to all stake-holders in the wind sector.

MISSION:

- To be a knowledge based institution of high quality and dedication.
- Offers services and seek to find total solutions for the major stakeholders across the entire spectrum of the wind energy sector.
- Support the wind turbine industry in achieving and sustaining quality such that products of the highest quality and reliability are installed.
- Strongly support the wind turbine industry in developing the know-how and know-why and promoting export of products and services.

OBJECTIVES:

- To promote and carry-out research and development programmes in coordination with other institutions.
- To undertake and offer various value added services to customers/ stake holders in the area of wind resource, testing and certification.
- To undertake/ facilitate human resource development programmes for the personnel needed in the wind energy sector.
- To carry out any other activity in the field of Renewable Energy under R&D as may be assigned by Ministry of New and Renewable Energy.

FUNCTIONS:

- Conduct wind / solar resource assessment studies across the country for the healthy and orderly growth of wind / solar energy sector in the country
- To promote/ carryout research relevant programs in the field of wind energy in coordination with other institutions.
- Provide testing and certification/ empanelment services both for large and small wind turbines
- Human resource development in the field of wind energy



Inter se Priorities among Key Objectives, Success indicators and Targets (2015 – 2016)

Objectives	Weight	Action	Success indicator	Unit	Weight	Target Criteria Value				
						Excellent	Very Good	Good	Fair	
			Committed			100%	90%	80%	70%	Poor
1. To promote and carry-out research and development programmes in coordination with other institutions	40	A. NO. OF ONGOING PROJECTS (R&D) 1.A Novel hybrid system for supplying isolated loads with FPGA based energy management scheme- NIT, Tiruchirappally (The second phase was not taken up as the project ended with phase-I) Milestone-2: • Algorithm for FPGA based D-Statcom control • Experimental Results of D-Statcom using laboratory set-up • Design Values and Documents. • Status of the procurement of the components/equipment as per the proposal. • Journal/conference publications from the outcome of the work. • Identification and interaction with the wind-turbine manufacturer(s).	1	No.	8	1	-	-	-	-

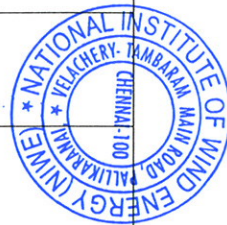


Objectives	Weight	Action	Success indicator	Unit	Weight	Target Criteria Value			
						Excellent 100%	Very Good 90%	Good 80%	Fair 70%
		Milestone-3: ➤ Installation report of the complete system in the laboratory and associated experimental results. ➤ Report and Observations on case studies. ➤ Status of the procurement of the components / equipment as per the proposal. ➤ Journal / conference publications from the outcome of the work. ➤ Collaboration with the Manufacturer for the installation of the WRIG based Wind turbine for Phase-II of the project.	1 Committed	No.		1	-	-	-
		B. NO. OF ONGOING PROJECTS (Wind Resource)			20				
		1. Offshore WRA at Dhanushkodi	500	MW		500	450	400	350
		2. Internal R & D Project – WRA – Ennore port	100	MW		100	90	80	70
		3. Wind Shear Study using 120m Mast	250	MW		250	225	200	175
		4. Repowering of existing wind farms in the state of Tamil Nadu.	500	MW		500	450	400	350
		5. Design and Development of a Photonic system for real time remote monitoring of wind and other air parameters	1	No		1	-	-	-
		6. Preparation of Micro level wind Atlas	1	No		1	-	-	-
		7. Wind Power Forecasting	1	No		1	-	-	-



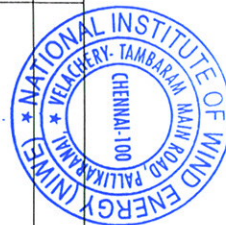
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Objectives	Weight	Action	Success indicator	Unit	Weight	Target Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
						100%	90%	80%	70%	60%
		C. NO. OF ONGOING PROJECTS (SRRA) Data collection and analysis of SRRA stations	111	No.	5	111	100	89	78	67
		Data collection and analysis from advanced measurement stations	4	No.		4	-	3	-	2
		Calibration of SRRA stations Pyranometers and Pyrheliometers	111	No.		111	100	89	78	67
		NO. OF PROJECTS COMPLETED (Wind Resource) Estimation & Validation of WPP at 100m level of 7 states in India	2000	MW	4	2000	1800	1600	1400	1200
		A. NO. OF NEW PROJECTS INITIATED (R&D)	1	No.	1	1	-	-	-	-
		B. NO. OF NEW PROJECTS INITIATED (Wind Resource) Wind power forecasting services to the wind industry by NIWE in collaboration with M/s. Vortex, Barcelona, Spain	1	No.	2	1	-	-	-	-
		NO. OF RESEARCH PAPERS PUBLISHED	1	No.		1	-	-	-	-
					40					
2. To undertake and offer various value added services to customers / stake holders in the area of Wind Resource, Testing and Certification.	35	A. NO. OF ONGOING CONSULTANCY "PAID PROJECTS" I. Large Wind Turbine (capacity ≥ 225 kW) 1. Testing of Xyron 1000 kW 2. Testing of Garuda 1700 kW	2.7	MW	10	2.7	2.4	2.1	1.9	1.6



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Objectives	Weight	Action	Success indicator	Unit	Weight	Target Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
			Committed			100%	90%	80%	70%	50%
		3. Certification / RLMM of WT	1	No.	1	1	-	-	-	-
		II. Small wind energy systems (capacity upto 15 kW)			4	4	-	3	-	2
		(1) Testing of 1 kW Wind turbine	1	No.						
		(2) Testing of 10 kW Wind turbine	1	No.						
		(3) Testing of 650 W Wind turbine	1	No.						
		(4) Testing of 15 kW Wind turbine	1	No.						
		B. NEW WIND RESOURCE POTENTIAL ASSESSMENT (Ongoing)			12					
		1. Verification Procedure of Wind Monitoring Stations	2000	MW		2000	1800	1600	1400	1200
		2. Preparing WPD Map	20.6	MW		20.6	18.5	16.5	14	12
		3. Wind Monitoring Study	100	MW		100	90	80	70	60
		4. WRA in Uncovered / New area	550	MW		550	495	440	385	330
		5. Technical Due diligence for proposed wind farms	955.50	MW		955.5	860	764	669	573
		6. Repowering of Existing wind farm	15	MW		15	14	12	10	9
		7. Pre-feasibility study	25	MW		25	23	20	18	15
		8. Wake Effect Analysis	2	MW		2	-	1.5	-	1
		9. Indicative Technical Wind Potential	6	MW		6	5	-	4	3
		C. NO. OF ONGOING CONSULTANCY "PAID PROJECTS" (SRRA)			1	6	5	-	4	3
		Data collection & analysis of MEDA stations	6	No.						
		Calibration of Solar Sensors	30	No.		30	27	24	21	18



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Objectives	Weight	Action	Success indicator	Unit	Weight	Target Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
		A. NO. OF COMPLETED CONSULTANCY "PAID PROJECTS" I. Large Wind Turbine (capacity ≥ 225 kW) 1. Testing of Xyron 1000 kW 2. Testing of Garuda 1700 kW 3. Certification / RLMM of WT	2.7 Committed	MW	2	2.7	2.4	2.1	1.9	1.6
		II. Small wind energy systems (capacity upto 15 kW) (1) Testing of 1 kW wind turbine (2) Testing of 650 W wind turbine	1 1	No. No.	1 2	1 2	- -	- -	- 1	- -
		B. NEW WIND RESOURCE POTENTIAL ASSESSMENT (Completed Projects)			2					
		1. Verification Procedure of Wind Monitoring Stations	2000	MW		2000	1800	1600	1400	1200
		2. Preparing WPD Map	15	MW		15	14	12	10	9
		3. Technical Due diligence for proposed wind farms	955.50	MW		955.5	860	764	669	573
		4. Repowering of Existing wind farm	15	MW		15	14	12	10	9
					35					
3. To undertake/ facilitate Human Resource Development programmes for the personnel needed in the Wind Energy Sector	20	Conducting International Training Courses	2	No.	5	2	-	-	1	-
		Conducting National Training Courses	2	No.	3	2	-	-	1	-
		Conducted a Special training course on "Wind Resource Assessment and Wind Energy Technology for State Nodal Agencies (SNAs)"	1	No.	1	1	-	-	-	-



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Objectives	Weight	Action	Success indicator	Unit	Weight	Target Criteria Value				
						Excellent 100%	Very Good 90%	Good 80%	Fair 70%	Poor 60%
4. Efficient functioning of RFD systems	5	Various training programme for Human Resource development & capacity building	Committed 57	No.	7	57	51	46	40	34
		Issues of quarterly NIWE Newsletter 'PAVAN'	4	No.	4	4	-	3	-	2
					20					
		Timely submission of Draft for Approval	On-time submission	Date	2	05.03.2015	08.03.2015	09.03.2015	10.03.2015	11.03.2015
		Timely submission of Results	On-time submission	Date	1	02.05.2016	03.05.2016	04.05.2016	05.05.2016	06.05.2016
		Finalize a Strategic Plan	Finalize the strategic plan for next 5 years	Date	2	10.12.2015	15.12.2015	20.12.2015	24.12.2015	31.12.2015
					5					

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Section 3

Trend Value of the Success Indicators

Objectives	Action	Success indicator	Unit	Actual Value for FY 13/14	Actual value FY 14/15	Target Value FY 15/16	Projected Value FY 16/17	Projected Value FY 17/18
1. To promote and carry-out research and development programmes in coordination with other institutions.	Interim report for on-going projects	5	Nos.	11	3	5	4	3
		1350	MW	550	2850	1350	250	1250
	Completion report for completed projects	226	Nos.	98	170	226	228	228
	No. of New Projects Initiated	2000	MW	50	52	2000	1100	-
		2	Nos.	1	2	2	1	1
2. To undertake and offer various value added services to customers / stake holders in the area of Wind Resource, Testing and Certification.	No. of Research Papers published	0	MW	500	900	-	1000	1000
		1	Nos.	5	4	1	7	9
	No. of ongoing Consultancy "Paid Projects"	43	Nos.	24	25	43	35	37
		3674.1	MW	290.25	3530	3674.1	4000	4000
	No. of completed Consultancy "Paid Projects"	3	Nos.	15	14	3	3	5
3. To undertake/ facilitate Human Resource development programmes for the personnel needed in the Wind Energy Sector		2985.5	MW	668	2790	2985.5	3000	3000
	Conducting International Training Courses in a year	2		2	4	2	1	1
	Conducting National Training Courses in a year	2		2	2	2	1	1
	Conducted a Special training course on "Wind Resource Assessment and Wind Energy Technology for State Nodal Agencies (SNAs)"	1	Nos.	1	1	1	1	1
	Various training programme for Human Resource development & capacity building	57		1	7	57	5	5
4. Efficient functioning of RFD systems	Issues of quarterly NIWE Newsletter 'PAVAN'	4		4	4	4	4	4
	Timely submission of Draft for Approval	On-time submission	Date	-	-	15.04.2015	-	-
	Timely submission of Results	On-time submission	Date	-	-	03.05.2016	-	-
	Finalize a Strategic Plan	Finalize the strategic plan for next 5 years	Date	-	-	15.12.2015	-	-



Section 4:
Description and Definition of Success Indicators
and Proposed Measurement Methodology

Sl. No.	Success Indicator	Unit	Definition	Proposed Measurement Methodology
1.	Interim reports of ongoing projects	Nos.	Preparation of technical progress/ completion of report	Presentation and approval of performance by GC, NIWE
	Final reports of Completed Projects			
	Agreement/ MOU signing for new projects			
2	Interim reports of ongoing Consultancy paid projects	Nos.	Completion of test measurement	Preparation of report for clients. ISO/ NABL compliance
	Final reports of Completed Consultancy Projects		Final reports submitted to customer/ clients	Report to client
	Agreement/ MOU signing for new projects		Agreement/ MOU to be signed with Customer/ client	Agreement to client
3	Conducting International Training Courses in a year	Nos.	Conduction of International Training Courses	Successful completion of programmes and award of certificate to the participants
	Conducting National Training Courses in a year		Conduction of International Training Courses	Successful completion of programmes and award of certificate to the participants
	Issues of quarterly NIWE Newsletter 'PAVAN'		Preparation of quarterly newsletter 'PAVAN'	Circulation of 'PAVAN' in public domain and in hardcopy.



Section 5:

Specific Performance Requirements from other Departments

The performance under various programmes is critically dependent on other Departments / Organisations as mentioned below:

State Nodal Agencies:	Assisting technically WRA activities in various Indian States/ UT
Ministry of External Affairs	Funding under ITEC program to train International Participants in the field of Wind Energy
Ministry of New and Renewable Energy	(i) Funding for R&D/WRA projects (ii) CFA for office expenditure / capital expenditure etc.




Section 6

Outcome/Impact of Department/Ministry

ENVIRONMENT IMPACT

Currently 13 models of small wind turbines have been empanelled based on NIWE testing to be used in places which are off grid. Use of renewable generation reduces the carbon footprint.

SOCIAL IMPACT

Small wind turbines together with SPV system can cater to the electricity needs of the rural populace of the country thereby improving their living standards / quality of life.

IMPACT ON COUNTRY

Small wind turbine can serve as a source of electricity to remote locations which do not have grid connectivity.

