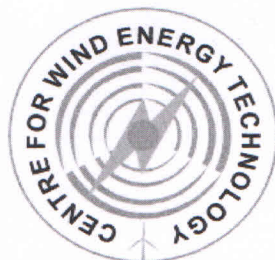


Dr. A. B.



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R F D

Results Framework Document

for

CENTRE FOR WIND ENERGY TECHNOLOGY

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

(2014 – 2015)
(01.03.2014 to 30.04.2015)



11/3/14

Results Framework Document (RFD) for Centre for Wind Energy Technology (C-WET)

(2014-2015)

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



Section 2

Inter se Priorities among Key Objectives, Success indicators and Targets (2014 – 2015)

Objectives	Weight	Action	Success indicator	Unit	Weight	Target Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
			Committed			100%	90%	80%	70%	60%
1. To promote and carry-out research and development programmes in coordination with other institutions	40	A. No. of ongoing projects (R&D)		Nos.	15	2	-	-	1	-
		1. Study and control of weak grid connected matrix converter based DFIG system-SSN College of Engineering - Additional hardware implementation of common model elimination techniques in matrix converter 2. A Novel hybrid system for supplying isolated loads with FPGA based energy management scheme-NIT, Tiruchirappally - Algorithm for FPGA based D-Statcom control; Experimental results of D-Statcom using laboratory set up; Design documents; identification and interaction of wind turbine manufacturers	1							



Results Framework Document of C-WET (2014-2015)

Objectives	Weight	Action	Success indicator	Unit	Weight	Target Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
			Committed			100%	90%	80%	70%	60%
B. NO. OF ONGOING PROJECTS (Wind Resource) 1. Offshore WRA at Dhanushkodi. 2. Wind Turbine Wake Modeling (CFD & Linear) and validation with in-situ measurements. 3. WRA in uncovered / new areas & Complex terrains at 30m level in the state of Tamil Nadu. 4. Study analysis and validation of flow modeling tools by installing 5 nos of 50m mast in complex terrain. 5. Wind Power Forecasting (Vortex). 6. Wind Flow Characteristics study in mountain. 7. Wind Flow Characteristics study in Pass. 8. Internal R&D Project- WRA at Ennore port.			1	Nos.	8	8	7	6	5	4
			1							
			1							
			1							
			1							
			1							
			1							
			1							
C. NO. OF ONGOING PROJECTS (SRRA) Solar Radiation Resource Assessment of India. • To assess the ground data of solar radiation.			1	No.	2	1	-	-	-	-
			1							



Results Framework Document of C-WET (2014-2015)

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Results Framework Document of C-WET (2014-2015)

Objectives	Weight	Action	Success indicator Committed	Unit	Weight	Target Criteria Value				
						Excellent 100%	Very Good 90%	Good 80%	Fair 70%	Poor 60%
		B. No. of projects completed (Wind Resource) 1. Development of Wind Forecasting Model with Special reference to Complex terrains	1	No.	8	1	-	-	-	-
		A. No. of new projects initiated (R&D)	1	No.	1	1	-	-	-	-
		B. No. of new projects initiated (Wind Resource) 1. Collection of Long term data from the existing 50/80m mast installed across the country. 2. Collection of Wind Turbine Coordinate across the country.	1 1	No.	4	2	-	-	1	-
		No. of research papers published	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 paid consultancy projects I. Large Wind Turbine (capacity ≥ 225 kW) (1) Power Quality measurements (2) Testing of Xyron 1000 kW (3) Testing of Inox 2000 kW (4) Field Test of Garuda 700 kW (5) Testing of Garuda 1700 kW (6) Certification / RLMM of WT	1 1 1 1 1 1	Nos.	15	12	11	10	8	7



Results Framework Document of C-WET (2014-2015)

Objectives	Weight	Action	Success indicator	Unit	Weight	Target Criteria Value			
						Excellent	Very Good	Good	Poor
			Committed			100%	90%	80%	60%
II. Small wind energy systems (capacity 1 to 10 kW)		(1) Testing of 1 kW Wind turbine	2						
		(2) Testing of 10 kW Wind turbine	1						
		(3) Testing of 650 W Wind turbine	1						
		(4) Testing of 3.2 kW Wind turbine	1						
		(5) Testing of 5 kW Wind turbine	1						
B. NO. OF ONGOING CONSULTANCY "PAID PROJECTS" (Wind Resource) (capacity)				Nos.	15	227	204	182	136
		1. Verification Procedure of Wind Monitoring Stations	50						
		2. Preparing WPD Map	3						
		3. Wind Monitoring Study	4						
		4. WRA in Uncovered / New area and Estimation and Validation of Wind Power Potential at 100m level of 7 states in India	170						
		1. Technical Due diligence for the proposed wind farms	600	MW		630	567	504	378
		2. Repowering of Existing wind farm	30						

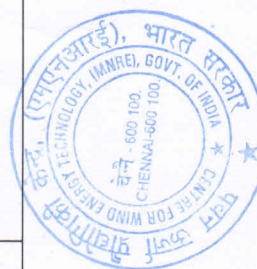


Objectives	Weight	Action	Success indicator	Unit	Weight	Target Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
			Committed			100%	90%	80%	70%	60%
		C. NO. OF ONGOING CONSULTANCY "PAID PROJECTS" (SRRA)	1	No.	1	1	-	-	-	-
		1. Installation of four Solar radiation Monitoring sites for MEDA (Maharashtra Energy Development Agency), Pune - To carry out ground data collection of solar radiation and weather parameters - Networking of SRRA stations for transmitting the data from sites to the servers located at MEDA, Pune and at C-WET, Chennai. - To assess and analyze the data of solar radiation levels and to furnish /declare deliverables.								
		A. No. of completed paid consultancy projects		Nos.	2	8	7	6	5	4
		I. Large Wind Turbine (capacity ≥ 225 kW) - Power Quality measurements - Testing of Xyron 1000 kW - Testing of Inox 2000 kW - Field Test of Garuda 700 kW - Testing of Garuda 1700 kW - Certification /RLMM of WT	1 1 1 1 1 1							



Results Framework Document of C-WET (2014-2015)

Objectives	Weight	Action	Success indicator	Unit	Weight	Target Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
			Committed			100%	90%	80%	70%	60%
3. To undertake/ facilitate Resource development programmes for the personnel needed in the Wind Energy Sector	20	II. Small wind energy systems (capacity 1 to 10 kW) (1) Testing of 1 kW Wind turbine (2) Testing of 5 kW Wind turbine	1 1							
		B. NO. OF COMPLETED CONSULTANCY "PAID PROJECTS" (Wind Resource) 1. Verification Procedure of Wind Monitoring Stations 2. Preparing WPD Map	47 3	Nos.	2	50	45	40	35	30
		3. Technical Due diligence for proposed wind farms 4. Repowering of Existing wind farm	600 30	MW		630	567	504	441	378
					35					
		Conducting International Training Courses	2	Nos	8	2	-	-	1	-
		Conducting National Training Courses	2		7	2	-	-	1	-
		Conducted a Special training course on "Wind Resource Assessment and Wind Energy Technology for State Nodal Agencies (SNAs)"	1		1	1	-	-	-	-
		Issues of quarterly C-WET Newsletter 'PAVAN'	4		4	4	-	3	2	-
					20					



Results Framework Document of C-WET (2014-2015)

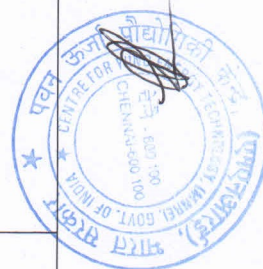
Objectives	Weight	Action	Success indicator	Unit	Weight	Target Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
4. Efficient functioning of RFD systems	5	Timely submission of Draft for Approval	Committed	Date	2	100%	90%	80%	70%	60%
		On-time submission	On-time submission	Date	1	05.03.2014	08.03.2014	09.03.2014	10.03.2014	11.03.2014
		Timely submission of Results	On-time submission	Date	1	02.05.2015	03.05.2015	04.05.2015	05.05.2015	06.05.2015
		Finalize a Strategic Plan	Finalize the strategic plan for next 5 years	Date	2	10.12.2014	15.12.2014	20.12.2014	24.12.2014	31.12.2014



Section 3

Trend Value of the Success Indicators

Objectives	Action	Success indicator	Unit	Actual Value for FY 12/13	Actual value FY 13/14	Target Value FY 14/15	Projected Value FY 15/16	Projected Value FY 16/17
1. To promote and carry-out coordinate carryout research and development programmes in coordination with other institutions.	Interim report for on-going projects	11	Nos.	7	12	11	11	11
	Completion report for completed projects	4	Nos.	-	2	4	1	1
	No. of New Projects Initiated	3	Nos.	-	3	3	3	3
	No. of Research Papers published	1	Nos.	-	4	1	1	1
	No. of ongoing Consultancy "Paid Projects"	239	Nos.	115	147	239	257	265
	No. of completed Consultancy "Paid Projects"	630	MW	67	80.25	630	700	750
2. To undertake and offer various value added services to customers / stake holders in the area of Wind Resource, Testing and Certification.	No. of completed Consultancy "Paid Projects"	57	Nos.	171	97	57	65	53
	Conducting International Training Courses in a year	630	MW	163.25	587.45	630	650	700
	Conducting National Training Courses in a year	2	Nos.	2	2	2	2	2
	Conducted a Special training course on "Wind Resource Assessment and Wind Energy Technology for State Nodal Agencies (SNAs)"	1		1	1	1	1	1
	Issues of quarterly C-WET Newsletter 'PAVAN'	4		4	4	4	4	4
	Timely submission of Draft for Approval	On-time submission		-	-	15.04.2013	-	-
4. Efficient functioning of RFD systems	Timely submission of Results	On-time submission	Date	-	-	03.05.2014	-	-
	Finalize a Strategic Plan	Finalize the strategic plan for next 5 years	Date	-	-	15.12.2013	-	-



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,C-WT
	Final reports of Completed Projects			
	Agreement/ MOU signing for new projects			
2	Interim reports of ongoing projects	Nos.	Completion of test measurement	Preparation of report for clients. ISO/ NABL compliance
	Final reports of Completed 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 C-WET 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 C-WET 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.

