Renewable Energy Report

India

Asian and Pacific Centre for Transfer of Technology
Of the United Nations – Economic and Social
Commission for Asia and the Pacific (ESCAP)

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Renewable Energy Cooperation-Network for the Asia Pacific
An Initiative of the
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UNITED NATIONS ESCAP
Economic and Social Commission for Asia and the Pacific

Disclaimer

This report was prepared by Dr. S. Gomathinayagam, nominated by MNRE, GOI from India, Executive Director, Centre for Wind Energy Technology, Chennai, India 600100, based on a Letter of Agreement (LOA: No. 2012-0032 of September 2012) with the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). This assignment is executed through a consultancy contract given by the Asian and Pacific Centre for Transfer of Technology (APCTT) of the United Nations ESCAP.

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The addresses , contact persons, contact numbers have been included as is where is condition from the available source. The activities of the institutions, companies, and laboratories might have more updated details which could not be verified for want of lead time to prepare this report.

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1.0 Executive Summary

India with its cumulative installed capacity in August 2012 of grid connected renewable power of 25858MW has the privileged status of one among the very few countries in the world having an exclusive cabinet ranked ministry which is the Ministry of New and Renewable Energy (MNRE), under Government of India. Wind, small hydro, biomass, bagasse cogeneration, waste to energy , solar (SPV) make the renewable distribution in the country with a dominant share by wind 17967MW, and the other shares respectively are 3434MW, 1209MW, 2109MW, 94MW, with 1044MW for solar (SPV) . In the Off-Grid market biomass gassifiers dominate at 138MW while the net installed capacity off Grid enewable is pegged at 757MW.

With its billion population, India deprives 40% of its people grid connected power and even those who are grid connected have numerous power cuts due to ever growing demand for power. India is left with no other better option than going renewable to meet not only the peak demand but also to provide power for all. APCTT through a letter of Agreement (LOA) has sought the preparation of this documentation in relatively short notice to facilitate net working of institutions involved in renewable energy and the sharing of the best practices in it's member countries in Asia, in a specific classified template format.

In what is compiled is mostly public domain information either available openly or made access possible upon request. Excepting those which are linked to Government of India or the state Governments the spread of research and stakeholders in renewable energy in India has been highly isolated lacking a unified consortium approach to share knowledge openly and facilitate technology transfer. Since the details of focus areas vary considerably with different technologies, regions, IPR regime, commercialization status, as mandated in the letter of agreement the names of institutions and their contact information to the best of available access is presented.

India commits to its friendly countries to assist their renewable energy programmes so that together we focus on a greener, cleaner and sustainable energy access to humanity, with mutual benefits of Indo-ASEAN technology transfer.

Dr.S.Gomathinayagam

2.0 List of Research & Development Institutions and Organisations and NGO's

Company/Research Institute/ NGO	Main-line of activity	Website
A) Solar		
Centre for Wind Energy Technology (C-WET)	Wind energy	http://www.cwet.tn.nic.in
Ministry of New and Renewable Energy (MNRE), GOI.	Renewable Energy	www.mnre.gov.in
National Physics Laboratory (NPL)	Physical sciences	http://www.nplindia.org/
Bharat Heavy Electricals Limited (BHEL)	Heavy electrical equipment industry	http://www.bhel.com/
** Central Power Research Institute (CPRI)	Electrical equipment testing, certification & power research including renewables.	www.cpri.in
Department of Science and Technology (DST)	Science & technology	http://www.dst.gov.in/scientificprogramme/t-d-solar-energy.htm
Indian Association for the Cultivation of Science (IACS)	Basic sciences research	http://www.iacs.res.in/eru/
National Centre for PV Research and Education (NCPRE)	PhotoVoltaic (PV) research	http://www.ncpre.iitb.ac.in/
NTPC Energy Technology Research Alliance (NETRA)	Power generation	http://www.ntpc.co.in/
Solar Energy Centre (SEC)	Solar energy technologies	http://www.mnre.gov.in/sec/sec-objective.htm
Solar Energy Society of India (SESI)	Renewable energy	http://www.sesi.in/
B) Wind		
Centre for Wind Energy Technology (C-WET)	Wind energy	http://www.cwet.tn.nic.in
** National Aerospace Laboratories (NAL)	Wind Turbine blade design and manufacturing	http://www.nal.res.in/

C) Small Hydro		
National Hydro Power Corporation (NHPC)	Hydroelectric power	http://www.nhpc.co.in
Alternate Hydro Energy Centre (AHEC)	Small hydropower development	http://ahec.org.in
Jyoti Ltd.	Hydraulic engineering equipment	http://www.jyoti.com/
D) Biomass Power		
Sardar Patel Renewable Energy Research Institute (SPRERI)	Research and development of renewable energy	http://www.spreri.org/
National Botanical Research Institute (NBRI)	Plant sciences	http://www.nbri.res.in/
Combustion gasification and Propulsion laboratory (CGPL)	Research and developmental activity in the field of bio-resource	http://www. cgpl.iisc.ernet.in/
Radhe Renewable Energy Pvt. Ltd.	Biomass power Production	http://www.radheenergy.com/

A) Solar

i) Ministry of New and Renewable Energy, Government of India

As a scientific Ministry coordinates 169 R&D projects carried out with multi-institutional partnership, with a cumulative budgeted financial support of US$100Million during 2007-2012, in all renewable technologies covering, solar thermal, heat pump, Solar Photovoltaics, Bio-energy, bio-mass, cook stove, biogas, bio-fuel, wasteto Energy, hydrogen generation, fuel cells, and wind energy

Address Ministry of New and Renewable Energy
B-14, CGO Complex, Lodhi Road,
New Delhi - 110003,
Telefax : 0091-11-24360331

Contact Person

Mr Gireesh Pradhan, Secretary
Tel: 0091-11-24361481
Secy-mnre@nic.in

Mr.Alok Srivastava , Joint Secretary
Tel: 0091-11-24361027

Srivastava.alok@nic.in

Mr. Tarun Kapoor, Joint secretary (Solar)
Tel: 0091-11-24360359
tarun.kapoor@nic.in

Source : http://www.mnre.gov.in/

ii. National Physics Laboratory (NPL)

The National Physical Laboratory is one of the leading research laboratories in India in the field of physical sciences. Established in 1947, it is one of the oldest laboratories of the Council of Scientific and Industrial Research.
It has developed core competencies in standards, apex level calibration, engineering materials, electronic materials, materials characterization, radio and space physics, global change and environmental studies, low temperature physics, and instrumentation.

Key research topics include:

- Development of a mechanical load test system for PV modules
- Determination of front surface recombination velocity of silicon solar cells using the short-wavelength spectral response
- Dynamic and static characteristics of n+-pp+ structure based silicon solar cells
- An improved process for the preparation of semiconducting thin films useful for fabricating solar cells and other semiconducting devices

Contact Information

Address	National Physical Laboratory, Dr. K.S. Krishnan Marg, New Delhi - 110012
Phone/Fax	Phone - +91-11-45609212
	Fax - +91-11-45609310
Email	root@nplindia.org
Website	http://www.nplindia.org/
Contact Person	- Director / NPL or Dr.Sushil Kumar, Scientist.

iii. Bharat Heavy Electricals Limited (BHEL)

BHEL is the largest engineering and manufacturing enterprise in India in the energy-related/infrastructure sector, today. BHEL was established more than 40 years ago, ushering in the indigenous Heavy Electrical Equipment industry in India - a dream that has been more than realized with a well-recognized track record of performance. The company has been earning profits continuously since 1971-72 and paying dividends since 1976-77.

BHEL's operations are organised around Power, Industry - including Transmission, Transportation and Renewable Energy. It has its corporate R&D Division located at Hyderabad. BHEL has installed equipment for over 100 GW of power generation - for utilities, captive consumption and industrial users.

Key research topics/areas include:

- Performance Estimation Facility for Solar Geysers
- Single chamber deposition based on simple process for large-area double-junction a-Si modules
- Development of silicon nitride anti-reflection coating for crystalline and multi-crystalline silicon solar cells by PECVD
- Development of low-cost encapsulants for double-junction a-Si modules
- Field evaluation of double-junction a-Si modules
- Process development for efficiency improvement of double-junction a-Si modules

Contact Information

Address	BHEL House Siri Fort, New Delhi – 110049
	Phone/Fax Phone - +91 11 66337000
	Fax - +91 11 26493021
Email	query@bhel.com
Website	http://www.bhel.com/

iv. Department of Science and Technology (DST)

Department of science & technology (DST) was established in May 1971, with the objective of promoting new areas of science & technology and to play the role of a nodal department for organising, coordinating and promoting science & technology activities in the country.

Department of Science and Technology (DST) is primarily mandated with promotion of R&D activities. Accordingly, DST's initiative on Solar Energy aims to enable knowledge based R&D activities for entire gamut of solar technologies, including balance of systems. This is expected to be achieved through nurturing of R&D groups, formation of consortia and setting up of State-of-art facilities. Solar Energy utilization for applications both for power as well as other than power generation with a view to provide convergent technology solutions under real-life conditions are being explored and assessed. DST in recent times has made foray in the area of solar energy through various parallel independent initiatives with distinct objectives.

- Fields of operation include
- Precompetitive research and technology upgradation

- Basic research and disruptive technologies
- Enabling R&D for solar technology

Contact Information

Address	Department of Science & Technology Technology Bhavan, New Mehrauli Road, New Delhi – 110016 Phone/Fax Phone - +91-11-26567373,26862418 Fax - +91-11-26864570, 26862418
Email	dstinfo@nic.in
Website	http://www.dst.gov.in/scientific-programme/t-d-solar-energy.htm

v. Indian Association for the Cultivation of Science (IACS)

The Indian Association for the Cultivation of Science, established in July 1876, is a national institution for higher learning whose primary purpose is to foster high quality fundamental research in frontier disciplines of the basic sciences.

IACS is an autonomous institution controlled by a General Body and Governing Council. IACS receives funds from the Department of Science and Technology (DST), Government of India and Government of West Bengal, many Public agencies (DST, CSIR, DAE, MNRE, etc.), Private Companies as well as Foreign sources (NSF, UNDP, Japan, European Union, Sweden etc.). A number of specific projects raised by individual scientists or groups of scientists are being supported by different funding agencies such as CSIR, DAE, DNES, DST, DOS, DSIR, ICMR, INSA, NSF, UGC and UNDP.

The main thrust of the Energy Research Unit is in the areas of development of materials and fabrication technology for Thin Film Silicon Solar Cells. Highlights of the activities and results achieved are given below:

- Fabrication of a-Si solar cells
- Development of a-Si and related materials
- Development of polycrystalline silicon films for application in solar cells
- Transparent conducting oxide
- Computer modelling of a-Si based semiconductor devices
- Establishment of spectral response measurement system

Contact Information

Address	2A & 2B, Raja S C Mullick Road, Kolkata – 700032, West Bengal Phone/Fax Phone - +91-33-24734971,24735374 Fax - +91-33-24732805
Email	helpdesk@iacs.res.in
Website	http://www.iacs.res.in/eru/

vi. Centre for Renewable Energy and Environment Development (CREED)

CREED is an umbrella agency setup under the prestigious Birla Institute of Technology & Science (BITS), Pilani. The primary objectives of the centre are to:

- Conceive, develop, and implement renewable energy applications and environment protection projects
- Develop courses and organize awareness creation programs
- Collaborate with national and international organizations and institutions in the areas of renewable energy education, training and technology development. The Centre is presently collaborating with MNRE, IREDA, REDA, ARTES Institute, of Flensburg University, Germany, and CEER of SPIC Science Foundation, Chennai

The centre is actively involved in:

- Setting up performance evaluation of parabolic solar cookers
- Solar hot water system
- Solar still and fuel cells
- Setting up of an Energy Park

Contact Information

Address	Birla Institute of Technology and Science (BITS, Pilani) Vidya Vihar Campus, Pilani Rajasthan – 333031
Phone/Fax	Phone - +91-1596-515492 Ext. 417/225
Email	mssoni@bits-pilani.ac.in
Website	http://www.iacs.res.in/eru/

vii. National Centre for PV Research and Education (NCPRE)

The National Centre for Photovoltaic Research and Education (NCPRE) at IIT Bombay was launched in 2010 and is a part of the Jawaharlal Nehru National Solar Mission of the Government of India.

The objective of the centre is to be the one of the leading PhotoVoltaic (PV) research and education centres in the world within the next decade. NCPRE aims to create and execute the blueprint for human resource development for PV in India.

The centre envisages both basic and applied research activities. The basic research activities include silicon solar cell fabrication, characterization, energy storage, new materials and novel PV structures. Development of power electronic interfaces for solar PV systems, new product designs, technology assessment and broader issues like sociological and environmental impact are an important part of the activities of the centre.

Eventually, NCPRE aims to make solar PV a cost-effective and relevant technology for meeting a significant part of the energy needs of India.

The chief areas of research include:

- Fabrication of c-Si solar cells with more than 20% cell efficiency
- Enhanced efficiency on semiconductor sensitized solar cells
- Near unity power factor grid connected solar PV system with MPPT
- Development of innovative concepts in thin film PV technology for production cost reduction and enhanced reliability
- Increasing yield
- Increasing life of PV product

Contact Information

Address	Department of Energy Science & Engineering Room No. 311A Mechanical Engg. Indian Institute of Technology Bombay Powai Mumbai - 400076 Maharashtra
Phone/Fax	Phone - +91-22-25767895
Email	ncpre@iitb.ac.in
Website	http://www.ncpre.iitb.ac.in/
Contact Person:	Prof.J.Vasi, Prof.Chetan S.Solanki

viii. NTPC Energy Technology Research Alliance (NETRA)

NTPC, India's largest power company, was set up in 1975 to accelerate power development in India. It is emerging as an 'Integrated Power Major', with a significant presence in the entire value chain of power generation business.

The company ranked 341st in the '2010, Forbes Global 2000' ranking of the world's biggest companies. With a current generating capacity of 34,854 MW, NTPC has embarked on plans to become a 75,000 MW company by 2017.

Being a technology-driven company, it is fully aligned to the needs of adapting to emerging technologies and upgrading the technologies through R&D. Towards this, the company has a multi-pronged approach. NETRA has come into existence in 2009 after merging of the R&D centre (established in 1981) and Energy Technologies.

Some of the key initiatives taken by NETRA include:

- Setting up of a solar energy research facility at Greater Noida
- Establishment of solar radiation measurement centre
- Prototype evaluation facility for solar thermal HVAC system
- Design & engineering centre for solar thermal energy utilization

Contact Information

Address	Program Office (NETRA) NTPC Limited E 3, Ecotech II, Udyog Vihar, Greater Noida -201308, Uttar Pradesh.
Phone/Fax	Phone - +91-120-2356593 Fax - +91-120-2356504
Email	ashwiniksinha@ntpceoc.co.in
Website	http://www.ntpc.co.in/

ix. Solar Energy Centre (SEC)

The Solar Energy Centre (SEC), established in 1982, is a dedicated departmental unit of the Ministry of New and Renewable Energy, Government of India for development of solar energy technologies and to promote its applications through product development. Very soon 'SEC' will be an autonomous organization under the ministry (MNRE), Government of India.

Key areas of activity include:

- Solar resource assessment
- Technology assessment
- Testing and standardization of solar devices
- Development of national standards for solar energy products
- Establishment of testing protocol for solar thermal and solar PV devices
- R&D activity related to development of solar thermal systems and design software
- Interactive Research and Development for establishing solar passive architecture concepts into the building architecture

The Solar Energy Centre invites individual professionals working in solar energy or institutions having an interest in similar activities to build-up a mutually beneficial relationship through joint projects which could exploit each other's strengths. The Centre has been working jointly on a number of projects with National Institutions such as the IITs, the NPL, the Indian Agricultural Research Institute, the Energy & Resources Institute, etc. It is also collaborating with reputed international institutions such as the National Renewable Energy Laboratories (NREL) of USA in the photovoltaic area; University of Stuttgart, Germany in the area of solar thermal testing; and with Inter-solar Centre of Moscow in the area of solar energy.

Contact Information

Address	Solar Energy Centre MNRE, B-14, CGO Complex, Lodhi Road, New Delhi – 110003
Phone/Fax	Phone - +91-11-24360331
Email	sec@nic.in
Website	http://www.mnre.gov.in/sec/sec-objective.htm

x. Solar Energy Society of India (SESI)

The Solar Energy of India (SESI), established in 1976, and having its Secretariat in New Delhi, is the Indian Section of the International Solar Energy Society (ISES). Its interests cover all aspects of renewable energy, including characteristics, effects and methods of use, and it provides a common ground to all those concerned with the nature and utilization of this renewable non-polluting resource.

The Society is interdisciplinary in nature, with most of the leading energy researchers and manufacturers of renewable energy systems and devices of the country as its members. High academic attainments are not a prerequisite for membership and any person engaged in research, development or utilization of renewable energy or in fields related to renewable energy and interested in the promotion of renewable energy utilization can become a member of the society.

The chief objectives and activities include:

- Collecting, compiling, and disseminating information relating to renewable energy
- Organizing seminars and conferences, by publishing books, memoirs, journals and proceedings in the field of renewable energy
- Establishing formal education curriculum in collaboration with other institutions
- Establishing renewable energy centres in collaboration with Corporates, NGOs, Foundations, individuals and government bodies
- Collaborating and co-operating with other scientific societies, institutions, and academies in the country and abroad for research, development, and furtherance of renewable energy utilization

Contact Information

Address	Solar Energy Society of India A-14, Mohan Cooperative, Industrial Estate, Mathura Road, New Delhi – 110044
Phone/Fax	Phone - +91-11-65649864, 26959759
Email	info@sesi.in
Website	http://www.sesi.in/

B) Wind

i. Centre for Wind Energy Technology (C-WET)

Centre for Wind Energy Technology (C-WET) has been established in Chennai in the year 1998, as an autonomous R&D institution by the Ministry of New and Renewable Energy (MNRE), Government of India. It is a knowledge-based institution of high quality and dedication, offers services and seeks to find complete solutions for the kinds of difficulties and improvements in the entire spectrum of the wind energy sector by carrying out further research. It has a Wind Turbine Test Station (WTTS) at Kayathar with the technical & partial financial support by DANIDA, Govt. of Denmark.

The R&D unit of C-WET focuses on the innovations in development of components as well as sub-systems of wind turbines in association with other R&D Institutions and Industry. The R&D activities are classified into five generic areas, namely:

- Improvement in performance of existing wind turbine installations
- Research support for wind resource assessment & Solar radiation resource assessment.
- Manpower Training and HRD
- Technology support to wind power industry
- Research and advanced technology development

Some of the projects currently being executed by C-WET are:

- Development and validation of design methodologies and design tools for low and moderate wind regimes
- Testing of small wind turbines
- Modeling of Interconnection of wind turbines with the grid
- Parameterization of flow distortion around the wind turbine nacelle

Contact Information

Address	Centre for Wind Energy Technology (C-WET) Velachery - Tambaram Main Road Pallikaranai, Chennai - 600 100 Tamil Nadu
Phone/Fax	Phone - +91-44-22463982, 22463983, 22463984
Email	info@cwet.res.in
Website	http://www.cwet.tn.nic.in

ii. National Aerospace Laboratories (NAL)

Some of the key areas of R&D include:

- Wind Solar Hybrid System

Contact Information

Address	National Aerospace Laboratories, PB 1779, Bangalore 650017. India
Phone/Fax	Phone - +91-80-25086019/20
Email	
Website	http://www.nal.res.in

C) Small Hydro

i. National Hydro Power Corporation (NHPC)

NHPC Limited (Formerly known as National Hydroelectric Power Corporation Ltd.), a government of India Enterprise, was incorporated in the year 1975 with an objective to plan, promote and organise an integrated and efficient development of hydroelectric power in all aspects. Later on NHPC expanded its objectives to include development of power in all its aspects through conventional and non-conventional sources in India and abroad.

Initially, on incorporation, NHPC took over the execution of Salal Stage-I, Bairasiul and Loktak Hydro-electric Projects from Central Hydroelectric Project Construction and Control Board. Since then, it has executed 14 projects with an installed capacity of 5295 MW on ownership basis including projects taken up in joint venture. NHPC has also executed 5 projects with an installed capacity of 89.35 MW on turnkey basis. Two of these projects have been commissioned in neighbouring countries i.e. Nepal and Bhutan.

The R&D division of NHPC was established in May 1997 with a vision to tackle the chronic problems being faced by power stations & also to implement the latest technological advances in execution & operation of hydroelectric projects.

Some of the thrust areas of their R&D activity include:

- Development of hydro suction
- Research on preventive measures against silt erosion of underwater components
- Use of advanced CFD techniques to analyse flow pattern in water conduction system. CFD analysis of penstock of Baira-Siul and Lotak power stations

Address	N.H.P.C Office Complex Sector-33, Faridabad – 121003, Haryana
Phone/Fax	Phone - +91-129-2278421 Fax - +91-129-2277941
Email	webmaster@nhpc.nic.in
Website	http://www.nhpc.co.in

ii. Alternate Hydro Energy Centre (AHEC)

Alternate Hydro Energy Centre, an academic centre of Indian Institute of Technology, Roorkee was established in the year 1982.

AHEC has been providing professional supports in the field of small hydropower development covering planning, detailed project reports, detailed engineering designs and construction drawings, technical specifications of turnkey execution/equipment supply, refurbishment, renovation and modernisation of SHP stations, techno-economic appraisal, R&D/monitoring of projects, remote sensing and GIS based applications. Furthermore, it has provided technical support to over 25 different state and central government organizations for SHP development.

AHEC has developed two new designs of water mill for grain grinding namely:

- A horizontal open-cross flow turbine
- A water mill used for grinding grains (Patent no. 231697)

Some of the key activities of AHEC include:

- Development of a real time simulator for SHP for training
- In the process of establishing an international level hydro turbine laboratory with a view to conduct research on hydro turbines and other hydro mechanical equipment
- Preparing the standards, guidelines for SHP through consultative process

Contact Information

Address	Alternate Hydro Energy Centre Indian Institute of Technology Roorkee Roorkee-247667, Uttarakhanda Phone/Fax Phone - +91-1332-274254, 285213 Fax - +91-1332-273517, 273560
Email	ahec@iitr.ernet.in
Website	attp://ahec.org.in

iii. Jyoti Ltd.

The Jyoti Group of Companies is a conglomeration of industrial units involved in manufacturing and marketing a wide range of electrical and hydraulic engineering equipment used extensively in the vital sectors of national and international economy.

The company's first project was a 4x50 kW project based on Francis turbines with a design head of 23m at Himachal Pradesh in 1961. The company offers a full range of hydro turbines and other auxiliary equipment. Furthermore, it also offers complete concept to commissioning services like designing, manufacture, supply erection and commissioning of hydro projects for different heads and outputs with wide range of turbines including Kaplan, Francis, Pelton, Turgo impulse turbines.

The group is also involved in indigenous design of India centric permanent magnet wind turbine generator with a PPP (Public Private Partnership) mode duly finance by Technology Development board (TDB) of Department of Science & Technology.

The R&D Centre, a first of its kind in India, to be set up in Private Sector in 1964, has enabled Jyoti to offer technology products to the market. The R&D centre has enabled the company to:

- Develop various hydraulic models
- Upgrade the product range
- Obtain self-sustainability and become a pioneer in design, manufacture, supply and installation of various types of hydro turbines

Contact Information

Address	Nanubhai Amin Marg Industrial Area, P.O. Chemical Industries, Vadodara – 390003, Gujarat
Phone/Fax	Phone - +91-265-3054631
Fax -	+91-265-2281871, 2280671
Email	jyotiltd@jyoti.com
Website	http://www.jyoti.com/

D. Biomass Power

i. Sardar Patel Renewable Energy Research Institute (SPRERI)

Sardar Patel Renewable Energy Research Institute (SPRERI) was established in January 1979. SPRERI is a non-profit autonomous organization and is recognized as a Scientific and Industrial Research Organization (SIRO) by the Department of Science & Technology, Govt. of India.

The goals of the institution are:

- Research and development of renewable energy systems and practices which are technically and economically sound and that can reduce the dependence of industry and rural sector on fossil fuels
- Demonstration of renewable energy technology successfully integrated into the user systems
- The development and demonstration of techniques to reduce energy losses and energy intensity in processes and plants
- To act as an independent agency for high quality testing of energy and environment protection systems
- To develop and maintain effective arrangements to transfer RE technology for commercialization
- To develop cooperative/joint R&D programmes with reputed R&D organizations in the country and outside

Some of the key technologies to emerge from the R&D unit include:

- Conversion of kitchen residues to biogas and manure
- Open core down draft gasifier systems
- Biomass combustor-cum-hot air generator
- Inverted down draft gasifier type biomass cook stoves
- Movable platform type wood cutter for preparing feedstock for gasifier

Contact Information

Address	Sardar Patel Renewable Energy Research Institute Post Box No: 2 Vallabh Vidhyanagar, Gujarat - 388 120
Phone/Fax	Phone - +91-2692-235011, 231332
Fax -	+91-2692-237982
Email	info@spreri.org
Website	http://www.spreri.org/

ii. National Botanical Research Institute (NBRI)

The National Botanical Research Institute (NBRI) - is amongst one of the constituent national research laboratories and institutes of the Council of Scientific and Industrial Research (CSIR), New Delhi. Originally set up as the National Botanic Gardens (NBG) by the State Government of Uttar Pradesh (U.P.), it was taken over by the CSIR in
1953. Though, initially engaged in research work in the classical botanical disciplines, the NBG went on laying an increasing emphasis, in keeping with the national needs and priorities in the field of plant sciences, on its applied and developmental research activities.

The scopes of work of the institute are:

- Basic and Applied Botanical, Horticultural and related Phyto-chemical research on Plants and Plant Products

- Development of Production Technologies for New Plant Sources of commercial importance

- Building up Germ Plasm Collections of Economic Plants

- Providing Expertise and Assistance for Identification, Supply and Exchange of Plants and Propagules, Garden Layout and Landscaping

- Collection and Dissemination of Scientific and Technical Information on Economic Plants as well as on the R & D Activities of the Institute, through publication of scientific and popular literature

Key research areas include:

- Energy plantation for production of biomass for power generation. Currently being implemented in two phases – I & II
- Technology for creation of renewable energy sources on sub - standard soil sites
- Bamboo production on wastelands

Contact Information

Address	National Botanical Research Institute Rana Pratap Marg Lucknow – 226001 Uttar Pradesh
Phone/Fax	Phone - +91-522-2205848
Email	director@nbri.res.in
Website	http://www.nbri.res.in/

iii. Combustion gasification and Propulsion Laboratory (CGPL)

The Combustion, Gasification and Propulsion Laboratory (CGPL) at the Indian Institute of Science (IISc), is involved in innovative research and developmental activity in the field of Bio-resource in addition to frontier work in Aerospace propulsion. Besides fundamental studies, this laboratory has developed techniques of gasifying a wide range of biomass including agro-residues. These techniques have been perfected into small independent power plants, which could serve thermal or electricity needs of industry or rural society.

The primary areas of research include:

- Biomass gasification
- Biomass stoves
- Biomass gasification (for heat and power)
- Biomass resource assessment
- Precipitated silica

Emerging research currently being carried out at the facility includes:

- Torrefaction of bamboo
- Precipitated silica from rice husk ash – IPSIT process
- Optimization studies of turbocharger for producer gas engines

• Adaptation and testing of various models and make of gas engines

• Oxygen gasification

• Development of improved biomass stoves

Contact Details

Address	Department of Aerospace Engineering Indian Institute of Science Bangalore – 560012 Karnataka
Phone/Fax	Phone - +91-522-2205848
Email	office@aero.iisc.ernet.in
Website	http://www. cgpl.iisc.ernet.in/

iv. Radhe Renewable Energy Pvt. Ltd.

Radhe Renewable Energy Development Pvt. Ltd. is a flagship company of the Radhe Group of Energy founded in 1998 with their headquarters in Rajkot, Gujarat, India. The company is engaged in development, designing, supplying, installing and serving turnkey energy projects mainly based on biomass power production.

RREDPL has an in-house R&D centre recognized by Government of India which is developing new applications. The R&D centre has facilities to undergo testing of solid, liquid and gaseous fuels.

The centre primarily carries out research in the following fields:

• Fluidized bed gasifier

• Solid fuel to liquid

• Algae to liquid fuel

• Efficient dryers

Contact Information

Address	Plot No: 2621 / 2622 Road No. - D/2 Gate No. 1, Lodhika G.I.D.C. Metoda, Kalavad Road Rajkot
Phone/Fax	Phone - +91-2827-287888, 287889
Fax -	+91-2827-287887
Email	info@radheenergy.com
Website	http://www.radheenergy.com/

3.0 List of Academic Institutions

Academic Institutions offering capacity Building Programmes in the field of Renewable Energy (Including Undergraduate and Postgraduate Level programmes in Renewable Energy)

S.No	Academic Institutions	Adderess
1.	The Energy and Resource Institute (TERI)	Darbari Seth Block, IHC Complex, Lodhi Road, New Delhi - 110 003, INDIA Tel. (+91 11) 2468 2100 and 41504900 Fax (+91 11) 2468 2144 and 2468 2145 For general inquires contact mailbox@teri.res.in Source: http://www.teriin.org/index.php Contact Person: Ms.Akanksha Chaurey
2.	Akal Institute of Renewable Energy Research (AIRER)	Eternal University, Baru Sahib, Via Rajgarh, Distt. Sirmour, Himachal Pradesh-173101 Mobile 09816400641,9805098724,9805098720 Landline Phone : 01799-276012 Fax : 01799-276006 E-mail : admissions@eternaluniversity.edu.in contact@eternaluniversity.edu.in
3.	NB Institute for Rural Technology (NBIRT"ARKA-NEER" SEKERKOTE)	TRIPURA P.S.- Amtali, West Tripura PIN - 799130 Phone :- (0381)2360805 / 2360973 E-mail ID: - nbirt@hub.nic.in, kolkata@nbirt.org.in Source :http://www.nbirt.org.in/
4.	Periyar Maniyammai University	Contact Information The Registrar Periyar Maniammai University Periyar Nagar Vallam T Thanjavur-613403, INDIA Ph:04362 -264600 Fax :04362 -264660 Email: registrar@pmu.edu Spurce : www.pmu.edu

5.	Rajasthan Technical University, Kota	Prof. R.P. Yadav Vice-Chancellor Rawatbhata Road Kota - 324010 Ph: 0744 -2473001/ 0744-2473861 Fax : 0744-2473002 Email : vcofficertu@yahoo.co.in Source : http://www.rtu.ac.in/main/index.php
6.	Sam Higginbottom Institute of Agriculture, Technology & Sciences (SHIATS),	Contact information Post. Agriculture Institute, Allahabad 211007 Uttar Pradesh, India. Ph. +91 532 2684281 Fax- +91 532 2684394 E-mail: registrar@shiats.edu.in Prof. (Dr.) Jetti A. Oliver , Chairman, SHECS & Chancellor of the University http://www.shiats.edu.in/
7.	Kurukshetra University	Kurukshetra Haryana, India Pin – 136119 Enquiry: 01744-238169 Enquiry: 01744-238518 http://www.kuk.ac.in/index.php
8.	College Of Technology And Engineering, Udaipur	College of Technology and Engineering M P University of Agriculture and Technology UDAIPUR-313 001 Udaipur, Rajasthan Phone: 0-2412533 Fax: 0-2471056 Email: dean@ctae.ac.in http://www.ctae.ac.in/
9.	Amrita Vishwa Vidyapeetham (Amrita Centre for Nano-Sciences (ACNS))	Ettimadai, Coimbatore - 641 105. Phone: +91(422) 2685000 Fax: +91(422) 2656274 Email: univhq@amrita.edu http://amrita.edu/contact-us.php Contact: Prof.Shantikumar Nair, Dr.K.K.Sasi

10.	The National Institute of Engineering	The National Institute of Engineering Mananthavady Road, Mysore – 570008. Karnataka, India Tel: +91 821 2480475 Fax: +91 821 2485802 http://www.nie.ac.in/about/reaching-nie/
11.	Anna University (Centre for Energy Studies)	Anna University Sardar Patel Road Chennai 600 025 Tamilnadu India Ph :044 22351445 E-mail : registrar@annauniv.edu http://www.annauniv.edu/index.php# Contact: Prof Dr.R.P.Kumudini Devi, Dr.P.Somasundaram
12.	Jadavpur University, Kolkata	Jadavpur University, Kolkata Jadavpur University, 188 Raja S. C. Mullick Road, Jadavpur, Kolkata - 32. Kolkata, West Bengal Phone: 0-24146666 Fax: 0-24137121 Email: govsec@wb.nic.in http://www.jadavpur.edu/
13.	Symbiosis International University	Symbiosis International University Gram: Lavale , Tal: Mulshi, Dist: Pune Pin: 412115 Enquiry: + 91-20-39116200 / 39116208 / 39116209 Fax. No.: +91 20 39116206 Web Site: www.siu.edu.in
14.	College Of Agricultural Engineering & Technology, Junagadh	College Of Agricultural Engineering & Technology, Junagadh College of Agricultural Engineering & Technology Junagadh Agricultural University Motibag, Junagadh- 362001 Gujarat(India) Junagadh, Gujarat Phone: 0-2671018 Fax: 0-2671018 Mobile: 98791 04668 Email: ncpatel@jau.in http://www.jau.in/caet/index.asp
15.	Apex College Of Management, New	Apex College Of Management, New Delhi

	Delhi	840, Chirag Delhi, New Delhi - 110017, New Delhi, Delhi Phone: 0-29254650 Email: manish.ahlawat@gmail.com http://www.apexcollege.org/
16.	Dr. D. Y. Patil University, Pune	Dr. D. Y. Patil University, Pune Address: Dr. D. Y. Patil University Sant Tukaram Nagar, Pimpri, Pune- 411018 Pune, Maharashtra Contact Details: Phone: 020-27420069 Fax: 020-27420010 Email: info@dypatiluniversity.or g Web Site: http://www.dypatiluniversity.org/
17.	Andhra University College Of Engineering, Visakhapatnam	College of Engineering (Autonomous), Andhra University, Visakhapatnam - 530 003, Visakhapatnam, Andhra Pradesh Contact Details: Phone: 0891-2844771 Fax: 0891-2747969 Email: principal@aucevizag.ac.in Web Site: http://www.andhrauniversity.info
18.	National Institute Of Technology, Tiruchchirappalli	National Institute of Technology Tanjore Main Road, National Highway 67, Tiruchirappalli - 620015, Tiruchchirappalli, Tamil Nadu Contact Details: Dr.S.Kumaran Phone: 0431-2503011, Fax: 0431-2500133 Email: deanac@nitt.edu Web Site: http://www.nitt.edu/
19.	The Indian Institute Of Information Technology Allahabad, Allahabad	The Indian Institute Of Information Technology Allahabad, Allahabad Address: The Indian Institute of Information Technology Deoghat, Jhalwa, Allahabad - 211011 Allahabad, Uttar Pradesh Contact Details: Phone: 0532-2922000

		Fax: 0532-2430006 Email: contact@iiita.ac.in Web Site: http://www.iiita.ac.in
20.	SRM University	Srm University Address: SRM University SRM Nagar, Kattankulathur - 603 203, Kancheepuram District Kanchipuram, Tamil Nadu Contact Details: Phone: 044-27452270 Fax: 044-27452343 Email: registrar@srmuniv.ac.in Web Site: http://www.srmuniv.ac.in
21.	SASTRA University	Sastra University Address: Tirumalaisamudram, Thanjavur-613402. Thanjavur, Tamil Nadu Contact Details: Phone: 04362-264101 Fax: 04362-264120 Email: admissions@sastra.edu Web Site: http://www.sastra.edu
22.	VIT University	VIT University Address: Vellore - 632 014 Vellore, Tamil Nadu Contact Details: Phone: 0416-2202157 Fax: 0416-224554 Mobile: Enter Mobile no Email: chancellor@vit.ac.in Web Site: http://www.vit.ac.in
23.	Birla Institute Of Technology & Science	Birla Institute Of Technology & Science Address: Birla Institute of Technology and Science (BITS, Pilani) Vidya Vihar Campus Pilani PIN Code - 333031 Jhunjhunun, Rajasthan Contact Details: Phone: 01592-245073 Fax: 01592-244183

		Email: admnoc@bits-pilani.ac.in Web Site: http://www.bits-pilani.ac.in
24.	National Institute Of Technology Surathkal	National Institute Of Technology Surathkal Address: National Institute of Technology Karnataka, Surathkal, Srinivasnagar PO, Mangalore, Dakshina Kannada District- 575 025. Surathkal, Karnataka Contact Details: Phone: 0824-2474000 Fax: 0824-2474033 Email: registrar@nitk.ac.in Web Site: http://www.nitk.ac.in
25.	Rashtrasant Tukdoji Maharaj Nagpur University	Rashtrasant Tukdoji Maharaj Nagpur University Address: Rashtrasant Tukadoji Maharaj Nagpur University, Chhatrapati Shivaji Maharaj Administrative Premises, Ravindranath Tagore Marg, Nagpur 440001. Nagpur, Maharashtra Contact Details: Phone: 0712-2525417 Fax: 0712-2532841 Email: vc@nagpuruniversity.org Web Site: http://www.nagpuruniversity.org
26.	University College Of Engineering	University College Of Engineering Address: University College of Engineering Osmania University, Hyderabad - 500 007, Hyderabad, Andhra Pradesh Contact Details: Phone: 040-27098254 Fax: 040-27682384 Email: webmaster@uceou.edu Web Site: http://www.uceou.edu
27.	Sreenidhi Institute Of Science And Technology	Sreenidhi Institute Of Science And Technology Address: Sreenidhi Institute of Science and Technology, Yamnampet, Ghatkesar,

		Hyderabad - 501 301. Hyderabad, Andhra Pradesh Contact Details: Phone: 040-27631236 Fax: 040-27640394 Mobile: 9848981810 Email: ktmahi@yahoo.com Web Site: http://www.snist.com
28.	Dr B R Ambedkar National Institute Of Technology	Dr B R Ambedkar National Institute Of Technology Address: National Institute of Technology Jalandhar N.I.T. Post Office Jalandhar - 144 011 India Jalandhar, Punjab Contact Details: Phone: 0181-2690301 Fax: 0181-2690320 Email: admin@nitj.ac.in Web Site: http://www.nitj.ac.in
29.	Mumbai University Institute Of Chemical Technology	Address: Mumbai University Institute of Chemical Technology, Nathalal Parikh Marg, Matunga, Pin-400019, Mumbai, Maharashtra Contact Details: Phone: 022-33611111 Fax: 022-33611020 Email: uaa@udct.org Web Site: http://www.udct.org/
30.	Gandhi Institute Of Technology And Management	Gandhi Institute Of Technology And Management Address: Gandhi Institute of Technology and Management, Gandhi Nagar, Rushikonda - 530045 Visakhapatnam, Andhra Pradesh Contact Details: Phone: 0891-2790202 Fax: 0891-2790399 Email: registrar@gitam.edu Web Site: http://www.gitam.ac.in/

31.	Karunya University	Karunya University Address: Karunya University Karunya Nagar, Siruvani, Coimbatore - 641 114 Coimbatore, Tamil Nadu Contact Details: Phone: 0422-2614300 Fax: 0422-2615615 Web Site: http://karunya.edu
32.	Indian Institute Of Technology	Indian Institute Of Technology Address: Indian Institute of Technology Kanpur, Pin Code: 208016 Kanpur, Uttar Pradesh Contact Person: Dr.S.Sundar Kumar Iyer. Phone: 0512-259 0151 Fax: 0512-2590465 Mobile: 9450605039 Email: sgd@iitk.ac.in Web Site: http://www.iitk.ac.in
33.	Institute Of Technology	Institute Of Technology Address: Banaras Hindu University, Varanasi - 221005 Varanasi, Uttar Pradesh Contact Details: Prof.O.N.Srivastava Phone: 0542-2307007 Fax: 0542-2369162 Web Site: www.itbhu.ac.in
34.	Koneru Lakshmaiah University	Koneru Lakshmaiah University Address: Koneru Lakshmaiah University, Green Fields, Vaddeswaram, Guntur(Dist). Pin code : 522 502. Vaddeswaram, Andhra Pradesh Contact Details: Phone: 0863-246948 Fax: 0863-247249 Email: chairman@klce.ac.in Web Site:

		http://www.kluniversity.in
35.	Indian Institute Of Technology	Indian Institute Of Technology Address: Indian Institute of Technology, Kharagpur-721 302, Kharagpur, West Bengal Contact Details: Prof.Debabrata Das. Phone: 03222-255221 Fax: 03222-255303 Email: registrar@hijli.iitkgp.er net.in Web Site: http://www.iitkgp.ac.in
36.	Sathyabhama University	Sathyabhama University Address: Sathyabhama University Jeppiaar Nagar,Old Mamallapuram Road, Chennai- 600 119. Chennai, Tamil Nadu Contact Details: Phone: 044-24503150 Fax: 044-24502344 Email: jprsatya@vsnl.com Web Site: http://www.sathyabamauniv.ac.in
37.	Manipal Institute Of Technology	Manipal Institute Of Technology Address: Manipal Institute of Technology Manipal - 576 104 Manipal, Karnataka Contact Details: Phone: 08252-2571060 Fax: 08252-2571071 Mobile: 8202922323 Email: reg.mahe@manipal.edu Web Site: http://www.manipal.edu/mit
38.	Maulana Azad National Institute Of Technology	Maulana Azad National Institute Of Technology Address: Bhopal - 462051 Bhopal, Madhya Pradesh Contact Details: Phone: 00755-5206006

		Fax: 00755-2670562 Email: info@manit.ac.in Web Site: http://manit.ac.in
39.	International Institute Of Information Technology	International Institute Of Information Technology Address: International Institute of Information Technology Gachibowli, Hyderabad 500 032 Hyderabad, Andhra Pradesh Contact Details: Phone: 040-66531000 Fax: 040-66531413 Email: query@iiit.ac.in Web Site: http://www.iiit.net
40.	Amity Institute Of Biotechnology	Amity Institute Of Biotechnology Address: Sector-125, Expressway, Noida-201 303 Noida, Uttar Pradesh Contact Details: Phone: 0120-24392195 Fax: 0120-4392225 Email: admissions@amity.edu Web Site: http://www.amity.edu/aib
41.	Indian Institute Of Technology	Indian Institute Of Technology Address: Indian Institute of Technology Madras I.I.T. Post Office Chennai - 600 036 Chennai, Tamil Nadu Contact Details: Prof.S.Ramaprabhu Phone: 044-22578133 Fax: 044-22570509 Email: tppro@iitm.ac.in Web Site:www.iitm.ac.in
42.	Jawaharlal Nehru University	Jawaharlal Nehru University Address: Jawaharlal Nehru University, New Mehrauli Road, New Delhi 110067. New Delhi, Delhi Contact Details: Phone: 011-26742676

		Fax: 011-26742580 Email: webmaster@mail.jnu.ac.in Web Site: http://www.jnu.ac.in
43.	National Institute Of Pharmaceutical Education And Research	National Institute Of Pharmaceutical Education And Research Address: National Institute of Pharmaceutical Education and Research (NIPER) Sector 67, Phase X, S.A.S. Nagar, Pin-160062, Mohali, Punjab Contact Details: Phone: 0172-2214682 Fax: 0172-2214692 Web Site: http://www.niper.gov.in
44.	Cape Renewable Energy and Research centre , CRERC, (Wind energy O&M HRD, Solar)	Cape Renewable Energy and Research centre , CRERC, Cape Institute of Technology, Levengipuram, Rajakrishnapuram Post, Near Azhagappapuram, Tirunelveli district, Tamil Nadu , India 627114 Phone: 0091-4652-266076 (or) 268077 Fax: 0091-4652-266076 Contact: Shri.I.Krishnapillai, The Chairman and the Managing Trustee Web: www.capeitech.org
45.	Indian Institute of Technology, Bombay (solar Thermal, SPV)	Indian Institute of Technology, Bombay, Powai, Mumbai, India 400076. Contact persons: Prof.J.K.Nayak, Dr.S.L.Bapat, Prof.M.V.Rane, Prof R.O.Dusane , Prof.Anuradda Ganesh
46.	WRST, Mumbai (solar Thermal with storage)	World Renewal Spiritual Trust 121 Mahatma Gandhi Road, 1st FloorFort, 400 023 (Bombay)Contact: Ramesh Shah, Managing Trustee Tel: +91-22-22625825/26Fax: +91-22-22623919 Email: rameshah@gmail.com Mr.Golo, Advisor, WRST, Mumbai

47.	Sun Borne Energy Technologies Pvt. Ltd., Gurgaon, (Solar Thermal)	Sun Borne Energy Technologies Pvt. Ltd., Gurgaon,
48.	CEPT University, Ahmedabad (Solar Thermal)	CEPT University, Ahmedabad Prof. N.K.Bansal & Mr.Rajan Rawal
49.	ATE Private Limited, Pune	ATE Enterprises Private Limited, Pune Contact person: Dr.Vishal Sardeshpande
50.	Indian Institute of Technology, New Delhi Centre for Energy Studies (solar Thermal)	Indian Institute of Technology Delhi, Hauz Khas, New Delhi 110016. Contact persons: Prof.S.C.Mullick, Prof.V.K.Vijay, Prof.Satyawati Sharma, Prof.L.M.Das, Prof.S.Basu
51.	School of Energy Studies, Department of Physics, University of Pune, Pune 411007.	University of Pune, Pune 411007. Contact Person: Dr.Sandesh R.Jadkar
52.	Cochin University of Science & Technology, Cochin	Cochin University of Science & Technology, Cochin Contact Person: Dr.K.P.Vijaykumar
53.	Centre of Excellence for Green Energy and Sensor Systems, Bengal Engineering & Science University	Centre of Excellence for Green Energy and Sensor Systems, Bengal Engineering & Science University, Kolkata. Contact : Prof.H.Saha.
54.	Indian Institute of Chemical Technology, Hyderabad (IICT)	Indian Institute of Chemical Technology, Hyderabad Contact: Dr.L.Giribabu, Mr.Johny Joseph, Dr.Gangagni Rao
55.	National Chemical Laboratory (NCL), Pune.	National Chemical Laboratory (NCL), Pune.

56.	Central Electro Chemical Research Institute (CECRI), Karaikudi, Tamilnadu, India. (Batteries for SPV)	Central Electro Chemical Research Institute (CECRI), Karaikudi, Tamilnadu, India. Contact: Mr.S.Ambalavanan, Dr.Sheela Berchmans
57.	Central Salt and Marine Chemicals Research Institute, CSIR, Bhavnagar, Gujarat. (Bio Fuel)	Central Salt and Marine Chemicals Research Institute, CSIR, Bhavnagar, Gujarat. Contact: Mr.M.R.Gandhi.
58.	Department of Forestry and Environmental Sciences, University of Agricultural Sciences, GKVK Campus, Bangalore 560056.	Department of Forestry and Environmental Sciences, University of Agricultural Sciences, GKVK Campus, Bangalore 560056. Contact: Dr.Balakrishna Gowda, Mr.G.C.Vijaya Kumar.
59.	Phycospectrum Environmental Research Centre, Madras Institute of Magnetobiology, Chennai	Phycospectrum Environmental Research Centre, Madras Institute of Magnetobiology, Chennai Contact Person : Dr.V.V.Subramanian
60.	** National Environmental Engineering Research Institute, Pilani	National Environmental Engineering Research Institute, Pilani
61.	National Institute for Interdisciplinary Science and Technology (NIIST), CSIR, Thiruvananthapuram 695019.	National Institute for Interdisciplinary Science and Technology (NIIST), CSIR, Industrial Estate (PO), Thiruvananthapuram 695019. Phone: 0471-2515388, 2515262 Fax: 0471 – 2491712 Contact Person: Dr.V.B.Manilal
62.	CSIR-Institute of Minerals and Materials Technology, Bhubaneswar 751013.	CSIR-Institute of Minerals and Materials Technology, Bhubaneswar 751013. Contact : Mr.S.Khuntia, Chief Scientist, Dr.Yatendra S Chaudhary, Dr.Laxmidhar Besra
63.	Indian Institute of Technology, Guwahati.	Indian Institute of Technology, Guwahati 781039. Assam. Contact: Dr.V.S.Moholkar, Dr.P.Muthukumar.
64.	Central institute of Mining and Fuel Research, Dhanbad	Central institute of Mining and Fuel Research, P.O. FRI, Dhanbad 828108. Contact : Dr.Sudip Maity.

65.	National Institute of Technology, Rourkela, Orissa.	National Institute of Technology, Rourkela 769008, Orissa. Contact Person : Dr.Abanti Sahoo.
66.	University of Petroleum and Energy Studies, Dehradun	University of Petroleum and Energy Studies, Energy Acre, Bidholi, Prem Nagar, Dehradun 248007. Contact: Mr.N.Raje, Dr.A.K.Tiwari, Prof.Mukesh Saxena.
67.	Electrical Research and Development Association (ERDA), Vadodara, Gujarat	Electrical Research and Development Association (ERDA), Vadodara, Gujarat Contact: Dr.V.Shrinet, Dr.G.S.Grewal
68.	Indian Institute of Technology, Hyderabad	Indian Institute of Technology, Hyderabad Contact: Dr.CH.Subrahmaniam
69.	Centre for Materials for Electronics Technology (C-MET), Pune	Centre for Materials for Electronics Technology (C-MET), Pune Contact: Dr.B.B.Kale
70.	Centre for Fuel Cell Technology, Chennai	Centre for Fuel Cell Technology, Chennai Dr.K.S.Dhathatreyan, Dr.Rajalakshmi
71.	Annamalai University, Annamalai Nagar.	Annamalai University, Annamalai Nagar 608002. Contact: Dr.C.G.Saravanan.
72.	University of Calcutta	University of Calcutta, 92 – A.P.C. Road, Kolkata – 700009, West Bengal Contact: Dr.Patit Paban Kundu, Dr.Dipankar Chattopadhyay
73.	Centre for Energy and Sustainable Resources, RMK Engineering College	Centre for Energy and Sustainable Resources, RMK Engineering College, Kavarapettai, Chennai Contact: Dr.A.Jagadeesh, Dr.C.Chellamuthu

74.	Park College of Engineering and Technology, Coimbatore	Park College of Engineering and Technology, NH-47, Avinashi Road, Kaniyur, Coimbatore 641659. Contact: Dr.A.P.Haran, Prof.Captain.Chari.
75.	PSG College of Technology, Coimbatore	PSG College of Technology, Peelamedu, Coimbatore 641004. Contact: Dr.R.Rudramoorthy

4.0 List of Non-Governmental Organizations

S.No	Non- Governmental Organization	Communication Address
1.	Renewable Energy Centre Mithradham	Chunangamveli, Aluva / Kerala, India Contact Information Dr. George Peter Pittappillil, Director Mithradham Renewable Energy Centre Mithradham, Chunangamveli, Aluva, Kochi, 683112 Kerala, India e-mail: director@mithradham.org Tel.: +91(0)484 2839185 Fax.: +91(0)484 2838441 Source : www.mithradham.org/live/contact.php
2.	Technology Informatics Design Endeavour (TIDE)	Technology Informatics Design Endeavour (TIDE) #19, 9th cross, 6th main Malleswaram Bangalore 560003 India Phone : 91 80 23315656/91 80 23462032 Fax :91 80 23344555 Email : tide@vsnl.com / info@tide-india.org Source : http://tide-india.org/
3.	Decentralised Energy Systems (I) Pvt. Ltd.	Decentralised Energy Systems (I) Pvt. Ltd. DESI Power, INDIA No.4, 2nd Floor, Above Amanath Cooperative Bank 4th Main, KHM Block, R.T.Nagar Main Road, Bangalore - 560080, India PH :+ 91-80-41328160/ 23431346 / 23431348 FAX :+ 91-80-23431353 Email :desipower@airtelbroadband.in / desipower@vsnl.com Source : http://www.desipower.com/default.htm
4.	Appropriate Rural Technology Institute (ARTI)	Appropriate Rural Technology Institute (ARTI) 2nd Floor Maninee Apartments, Survey No.13, Dhayarigaon Pune Maharashtra - 411 041 Email: contact@arti-india.org PH :91-20-24392284

		FAX :91-20-24390348 Appropriate Rural Technology Institute's Rural Entrepreneurship Development Center (ARTI - REDC) Ganeshnagar, Phaltan-Baramati Road Phaltan 415 523. Maharashtra INDIA Ph: 091-02166-249874 Source : http://www.arti-india.org/
5.	Husk Power Systems	Husk Power Systems Pvt. Ltd. Opp. Shiv Mandir, Near National Seed Corporation, Shastri Nagar Market, Sheikhpura, Patna- 800 014 Bihar, India Phone: +91 (612) 2283333 Email :pandey@huskpowersystems.com http://www.huskpowersystems.com
6.	Rural Renewable Urja Solutions pvt.Ltd	Rural Renewable Urja Solutions pvt.Ltd East 1-7,Rest Camp, Dehradun - 248001, Uttarakhand , India Branch Office : #204, Plot- 24, Sector - 10 Dwarka New Delhi - 110075, India Mobile : 91-9810309862 Email : info@renewableurja.com http://www.renewableurja.com
7.	Gram Oorja Solutions Pvt Ltd	Gram Oorja Solutions Pvt Ltd 501 Glacis Linking Road Khar West 400052 Mumbai, India Phone: 9867163213 Email: rahul@gramoorja.in Website: http://www.gramoorja.com

8.	Prayas Energy Group	Prayas Energy Group PRAYAS Initiatives in Health, Energy, Learning and Parenthood Amrita Clinic, Athawale Corner, Karve Road, Pune 411004, INDIA. Tel.: +91-20- 25420720, Fax: +91-20-2542 0337 E-mail: prayasenergy@vsnl.net Web site: www.prayaspune.org
9.	Gram Vikas	Gram Vikas, Mohuda, Berhampur-760002,Orissa, India, Ph.+91-680-2261866 to 2261869, Fax : +91-680-2261862 http://gramvikas.org/index.php
10.	Agragamee	Agragamee Kashipur - 765015 Rayagada, Orissa Ph :06865255009,06742551 Contact: Achyut Das (Director) Mobile Number: Not Available E-mail: agragami@sancharnet.in Source: http://www.ngoportal.org
11.	Small scale sustainable infrastructure development	Small Scale Sustainable Infrastructure Development Fund No. 700, Ground Floor 15th Cross, 24th Main J P Nagar 2nd Phase Bangalore – 560078 Ph :+91 (0)80-65902558 or +91 (0)80-26594880 Email: info@s3idf.org www. http://s3idf.org/
12.	Society for Environmental Communications	Society for Environmental Communications 41, Tughlakabad Institutional Area New Delhi - 110062, India Phone No: +91 - 11 - 91-11 29955124, 29956110,

		29956394; Fax No: +91 - 11 - 29955879 E-mail: editor@downtoearth.org.in http://www.downtoearth.org.in/
13.	(Ssewa)Simlapal Socio Economic Welfare Association	(Ssewa)Simlapal Socio Economic Welfare Association AT-Simlapal Bankura, West Bengal Ph :+9103243-262287 Contact: Bipad Taran Roy (Chief Functionary) Mobile Number: +919434523868 E-mail: ssewa.simlapal@gmail.com Website: http://ssewa.org Source :http://www.ngoportal.org/ngo-database
14.	"SPECTRUM" (Society for Promotion of Environmental Consciousness and Natural Res	"SPECTRUM" (Society for Promotion of Environmental Consciousness and Natural Res Op: Water Treat Plant, Convent Rd ,Haflong, DimHaso,788819,M: 9957251410 E: spectrum.org.india@gm North Cachar Hills, Assam 03673-237521 Contact: Bankim Haflongbar (Chief Functionary) E-mail: spectrum.org.india@gmail.com Source : http://www.ngoportal.org
15.	Rukhali Vikas Sansthan	Rukhali Vikas Sansthan Thanvi Photocopier, Behind Court Pali, Rajasthan 02925-222657,9413608 Contact: K.K.VYAAS (Chief Functionary) E-mail: vyaas_kk@in.com Source: http://www.ngoportal.org/ngo-database
16.	Saran Urja Evam Paryavaran Sangathan	Saran Urja Evam Paryavaran Sangathan Regd. Office - At-Najiba , P.O.- Pipra ,P.s.- Baniya Pur Saran, Bihar Ph :06159273337,99346531

		Contact: Shyam Bihari Pd. Yadav (Chief Functionary) E-mail: saups2009@yahoo.com Source : http://www.ngoportal.org/ngo-database
17.	Sustainable Life Trust	Sustainable Life Trust 3/645, kaliappa chetty street, pidamaneri,dharmapuri Dharmapuri, Tamil Nadu 0-4342281970,9786798 Contact: S.PRADAPAN (Chief Functionary) E-mail: sustainablelifetrust@gmail.com http://www.ngoportal.org
18.	Suryanagar Centre for Energy and Environment	Suryanagar Centre for Energy and Environment Balia, P.O : Anukhal, dist : Burdwan - 713122, M:9002549582 Bardhaman, West Bengal 03454 - 258217 Contact: Purnendu Chakraborty (Chief Functionary) E-mail: purnendu60@gmail.com Source : http://www.ngoportal.org/ngo-database
19.	Institute for Youth and Development	Institure for Youth and Development No. 97, 17th 'B' Main, 5th block, Koramangala Bangalore - 560095. Karnataka, INDIA Ph: +91 (0)80 25530597, 25533989 Fax: 080-25530597 E-mail: iydblr@gmail.com http://www.iyd.org.in
20.	Foundation for the Utilization of the Solar Energy and Research Centre	Foundation For The Utilization Of The Solar Energy And Research Centre C/o. Shri Kiritbhai Gordhanbhai Patel, 72, Patel Corporation Society Ghodasar, Maninagar Ahmedabad-380 050

		Ph : 079-23287263/ 9825300351 Fax : 079-23287265 www.charity.org.in/
21.	Islanders Sangathan Manch	Islanders Sangathan Manch 8- Pankaj Deep Bhawan, VIP Road, Port Blair, Andaman & Nicobar Islands Port Blair Ph :03192-230751 Mobile No. 9176477757 Email : madhukrishan.777@gmail.com www. http://connectbillions.in/cb-ngo-details.php?ngo_id=3
22.	NERI - Navreet Energy Research and Information	NERI - Navreet Energy Research and Information 799/28, Barath Colony, Rohrak Haryana Tel:03602211390
23.	Bharat Integrated Social Welfare Society	Bharat Integrated Social Welfare Society Budharaja,Distt.Sambalpur Sambalpur-768004 Orissa Tel:+91-6632533597 Mobile 9861016663 Email:office @biswa.org http://www.biswa.org
24.	Impact India Foundation	Impact India Foundation Nhava House, 65 Maharshi Karve Road, Marine Lines, Mumbai: 400 002. India. Phone: (91-22) 6633 9605 / 6633 9606 / 6633 9607 / 6633 9608 Fax: (91-22) 2201 0594 Email: info@impactindia.org Website: www.impactindia.org
25.	Auroville Centre for Scientific Research (CSR)	Auroville Centre for Scientific Research (CSR) Auroville, Tamil Nadu, 605101

		India Email: webmaster@auroville.org.in csr@auroville.org.in www. http://www.auroville.org/research/csr/csr.htm#top
26.	The Andhyodaya	The Andhyodaya M.C. Road, Angamaly P.O., Ernakulam District 683572 Kerala India Ph :+91 04842453548 Email: andhyodaya@gmail.com http://www.theandhyodaya.org
27.	EAI – Energy Alternatives India	EAI – Energy Alternatives India C/O Clixoo Solutions Private Limited 4th floor,MKM Chambers New no:42, Old no:154 & 155 Kodambakkam High Road Nungambakkam Chennai – 600034, Tamilnadu, India Contact-number : + 91 90435 39679 Email : admin@eai.in http://www.eai.in/contact-us
28.	Solar Energy Society of India	Solar Energy Society of India Plot No.30, Road No.5, Jubilee Hills Society, Hyderabad - 500 033, India 500 033 Telephone: 0091-40-55977554 FAX: 0091-40-23547137 http://www.ises.org/india
29.	The Centre for Materials for Electronics	The Centre for Materials for Electronics Hyderabad Laboratory Dr. T.L.PRAKASH Director C-MET, IDA Phase II, Cherlapally HCL (PO) Hyderabad - 500 051 Tel: 040-27265673 27267309 Fax: 040-27261658 email: tlprakash@cmet.gov.in

		prakashtl@yahoo.com
30.	Nimbkar Agricultural Research Institute	Nimbkar Agricultural Research Institute Tambmal, Phaltan-Lonand Road, P.O.Box 44, Phaltan - 415523, Maharashtra, India Phone Number (91)-2166-220945 (91)-2166-222396 Fax Number : (91)-2166-225246 Email :nariphaltan@gmail.com nariphaltan@nariphaltan.org http://www.nariphaltan.org/nari/
31.	The Combustion,Gasification and Propulsion Laboratory (CGPL) at the Indian Institute of Science (IISc)	The Combustion,Gasification and Propulsion Laboratory (CGPL) at the Indian Institute of Science (IISc) Cgpl, Dept Of Aero, Indian Institute Of Engineering, Banaglore, Karnataka India 560012 Telephone: +91-80-23600536 FAX: +91-22-23601692 http://cgpl.iisc.ernet.in/site/Default.aspx
32.	Indian Wind Energy Association	Indian Wind Energy Association PHD House, 3rd Floor Opp. Asian Games Village August Kranti Marg, New Delhi 110016 Telefax: +91 11 26523042 E-mail: manish@inwea.org http://www.inwea.org/contactus.htm
33.	Habitat for humanity India	Habitat for humanity India CNI Bhavan, 3rd Floor No. 16, Pandit Pant Marg, New Delhi - 110 001 Tel: 011-23753493/94, Fax : 011-23753495, Email: info@hfhindia.org http://habitatindia.in
34.	European Business and Technology Centre	European Business and Technology Centre ICC Building, 6th floor No. 4, India Exchange Place Kolkata 700 001 E-mail: kolkata@ebtc.eu

		Tel: +91 33 4017 2500 Fax: +91 33 4017 2599 Regional Manager: Mr. Suman Lahiri E-mail: lahiri@ebtc.eu Mob: +91 98 306 44608
35.	Asian and Pacific Centre for Transfer of Technology of the United Nations Economic and Social Commission for Asia & the Pacific (APCTT – UN-ESCAP)	Asian and Pacific Centre for Transfer of Technology of the United Nations Economic and Social Commission for Asia & the Pacific APCTT Building C-2 Qutab Institutional Area P.O.Box - 4575 New Delhi - 110 016 India Telephone: +91-11-26966509 +91-11-26856276 Fax: +91-11-26856274 http://recap.apctt.org

5.0 List of Ministries and State / Central Government Agencies

S.No	Nodal Agency	Communication Address
1.	Andhra Pradesh New & Renewable Energy Development Corporation of Andhra Pradesh Ltd. (NREDCAP)	New & Renewable Energy Development Corporation of Andhra Pradesh Ltd. (NREDCAP) Regd.Office:5-8-207/2, Pisgah Complex, Nampally, Hyderabad - 500 001. Tel. off: +91-40-2320 2391 Grams: "NREDCAP" Fax: 040-23201666 Email: info@nedcap.gov.in, nedcap@ap.nic.in Source : www.nedcap.gov.in Contact person Sri M. Kamalakar Babu, M.Sc., BL VC & Managing Director Email: vc@nedcap.gov.in
2.	Arunachal Pradesh Arunachal Pradesh Energy Development Agency	Arunachal Pradesh Energy Development Agency P.B.No.141, Urja Bhavan, Tadar Tang Marg, Itanagar – 791 111 T : 0360-211160, 216937 F : 0360-214426 Contact person Mr. Marki.Loya, Director E : apetita@sancharnet.in, Source : www.apedagency.com
3.	Assam Assam Energy Development Agency	Assam Energy Development Agency BIGYAN BHAWAN, Near IDBI Building, ABC, G. S. Road, GUWAHATI 781005 Telefax: +91-361-2450147, 2450646, 2464618 Telefax: +91-361-2464617. Email : assamrenewable@gmail.com

		Source :http://www.assamrenewable.org
4.	Bihar Bihar Renewable Energy Development Agency	Bihar Renewable Energy Development Agency 3rd Floor, Sone Bhavan, 'Birchand Patel Marg", Patna - 800001 Phone No: +91-612-2507734 Fax No: +91-612-2506572 Email: breda@indiatimes.com Source : http://www.breda.in/
5.	Chhattisgarh Chhattisgarh State Renewable Energy Development Agency (CREDA)	Chhattisgarh State Renewable Energy Development Agency (CREDA) 2nd Floor, C.G. State Electricity Regulatory Commission Building Irrigation Colony, Shanti Nagar, Raipur- 492001, Chhattisgarh Ph: 0771-4019227, 4019228, 4019225 Fax: 0771-4268389 Email: credacg@credacg.org Source :http://www.credacg.org Contact person Shri S. K. Shukla, Director, Tel:0771-401922 Email :mrshailendra.shukla@gmail.com
6.	Goa Goa Energy Development Agency	Dr. N.P.S. Varde Member Secretary Goa Energy Development Agency DST&E Building, 1st Floor, Saligo Plateau Opp. Saligao, Bardez Goa – 403 511 TeleFax : 0832 - 2407194 Email : gedagoa@yahoo.com
7.	Gujarat Gujarat Energy Development Agency (GEDA)	Gujarat Energy Development Agency (GEDA 4th Floor, Block No.11 & 12 Udyog bhawan,Sector-11. Gandhi Nagar-382017 Gujarat TeleL079)-23247086/89 Fax: 23247090,

		E.mail: info[at]geda[dot]org[dot]in Source : http://www.geda.org.in Contact Person The Director GEDA Email: director@geda.org.in
8.	Haryana Haryana Renewal Energy Development Agency (HAREDA)	Director Haryana Renewal Energy Development Agency (HAREDA) SCO 48, Sector 26 Chandigarh – 160 019 Tel: 0172- 2791917 ,2790918, 2790911(O), 2794185 (R), Fax: 0172-2790928 Email : hareda@chd.nic.in http://www.hareda.gov.in
9.	Himachal Pradesh Himachal Pradesh Energy Development Agency (HIMURJA)	Chief Executive Himachal Pradesh Energy Development Agency (HIMURJA) HIMURJA, SDA Complex, Kasumpti, Shimla-171009. Tele:0177-,2620365 (O) 2620371 (R) Fax: 0177-2620365. E Mail: himurja@hp.nic.in http://himurja.nic.in
10.	Jammu And Kashmir Jammu & Kashmir Energy Development Agency (JAKEDA)	Chief Executive Officer Jammu & Kashmir Energy Development Agency (JAKEDA) 12 BC Road, Rehari, Jammu. Tele:0191 - 2546495, 2552725(R), (Fax) : 2546495 Dharrilla, Raj Bagh Srinagar Tele Fax: 0194-2479791
11.	Jharkhand Jharkhand Renewable Energy Development Agency	Director Jharkhand Renewable Energy Development Agency 328 B, Road No.4 Ashok Nagar Ranchi – 834 002. Tel: 0651-2246970

		Fax 0651-2240665 Email : info@jreda.com Source : http://www.jreda.com/
12.	Karnataka Karnataka Renewable Energy Development Agency Ltd. (KREDL)	The Managing Director Karnataka Renewable Energy Development Agency Ltd. (KREDL #19, Major Gen. A.D. Loganadan INA Cross, Queen's Road, Bangalore - 560 052, Karnataka Tel : 080 - 2282221 / 2208109 / 2207851 FAX : 080 2257399. EMail : kredlnce@mantraonline.com Source: http://www.indiabuildinginfo.com/virtual-clean/kredl/kredl.htm
13.	KERALA Agency for Non-Conventional Energy and Rural Technology (ANERT),	The Director Agency for Non-Conventional Energy and Rural Technology (ANERT), Thycaud Thiruvananthapuram Kerala – 695 014 Ph: 0471-2333124 Fax: 0471-2339853 Email: anert@vsnl.com anilanert@gmail.com website : http://education.vsnl.com/anert/
14.	Madhya Pradesh Madhya Pradesh Urja Vikas Nigam Ltd. (MPUVN)	The Managing Director Madhya Pradesh Urja Vikas Nigam Ltd. (MPUVN) Urja Bhavan, Link Road No.2, Shivaji Nagar, Bhopal - 462016, Madhyapradesh. Tel : 0755 - 2553595 / 2556566 / 2767276 / Fax : 0755 - 2553122 / 2558417 Email : mdurjanigam@rediffmail.com,cmpuvn@bsnl.in website : http://www.mprenewable.nic.in/
15.	Maharashtra Maharashtra Energy	The Director General Maharashtra Energy Development Agency (MEDA

	Development Agency (MEDA)	MHADA Commercial Complex, II floor, Opp: Tridal Nagar, Yerwada Pune - 411 006 Maharashtra. Tel : 020 - 26614393 / 26614403 / 26615031 Fax : 020 – 26615031 Email : dg@mahaurja.com website : http://www.mahaurja.com
16.	Manipur Manipur Renewable Energy Development Agency (MANIREDA)	Director Manipur Renewable Energy Development Agency (MANIREDA) Department of Science, Technology Sai Road, Takyelpat Imphal-795001 Tel: 0385-2222685;/ 2453685 FAX: 91-385-224930 Email : mlou_singh[@yahoo.com
17.	Meghalaya Meghalaya Non-conventional & Rural Energy Development Agency (MNREDA)	The Director Meghalaya Non-conventional & Rural Energy Development Agency (MNREDA) Lower Lachaumiere, Opp. P&T Dispensary, Near BSF Camp (Mawpat), Shillong – 793 012 Fax : 0364 – 2533343 TeleFax : 0364 - 2537343 Email: mnreda_shg@bsnl.in http://mnreda.gov.in/
18.	Mizoram Zoram Energy Development Agency (ZEDA)	The Director Zoram Energy Development Agency (ZEDA) ZEDA Building, Above 132 KV Sb - Station, Zuangtui (P.O), Zemabawk, Aizawl, Mizoram – 796 017 Tel : 0389 - 2350664 / 2350665 Fax : 0389 - 2350664 Website : http://zeda.mizoram.gov.in/
19.	Nagaland Nagaland Renewable Energy Development Agency (NREDA)	The Project Director Nagaland Renewable Energy Development Agency (NREDA)

		C/o. Directorate of Rural Development Nagaland Secretariat, Kohima, Nagaland - 797 001. Telefax : 0370 - 2271190
20.	Orissa Orissa Renewable Energy Development Agency (OREDA)	Orissa Renewable Energy Development Agency (OREDA) S/59, Mancheswar Industrial Estate, Bhubaneswar – 751 010 Tel : 0674 - 2580660 / 2580258 / 2580558 / 2580698 (O), Fax : 0674 - 2586368 Contact Person P.K Mohan Chief Executive OREDA Email :-ceoreda@oredaorissa.com Ph -0674-2588260 Website : http://www.oredaorissa.com/
21.	Punjab Punjab Energy Development Agency (PEDA)	The Chief Executive Punjab Energy Development Agency (PEDA) Solar Passive Complex, Plot. no. 1 & 2, Sector-33D, Chandigarh, Pin code :160020 Ph. no: 0172-2663382,28 Fax: 0172-2662865 Email : peda@glide.net.in Website : http://peda.gov.in/eng/index.html
22.	Rajasthan Rajasthan Renewable Energy Corporation Limited (RRECL)	The Chairman & Managing Director, Rajasthan Renewable Energy Corporation Limited (RRECL) (Incorporating formely REDA and RSPCL) E-166, Yudhister Marg, 'C' Scheme Jaipur – 302 001 Tel : 0141 - 2225859, 2221650, 2229055 Fax : 0141 - 2226028 Email : rrec_jai@yahoo.co.in Website : http://www.rrecl.com/ Contact person The Chairman & Managing Director,

		Email :chief@peda.gov.in
23.	Sikkim Sikkim Renewable Energy Development Agency, (SKM)	The Director Sikkim Renewable Energy Development Agency, (SKM) Development Agency Tashlang Secretariat, Annexi-II, Gangtok, Sikkim – 737 101 Tel : 03592 - 221127 Fax : 03592 - 229810 Email : slg_sreda@sancharnet.in
24.	Tamilnadu Tamilnadu Energy Development Agency (TEDA)	The Chairman & Managing Director Tamilnadu Energy Development Agency (TEDA) EVK Sampath Maaligai, 5th Floor, 66/67, College road, Chennai – 600 006 Tel : Ph: 28222973 Email: info@teda.in, teda@dataone.in Website : http://www.teda.gov.in/ Contact person Thiru. Sudeep Jain IAS., Chairman & Managing Director Ph:28224830, 28236592 Fax: 28222971 Email: cmdteda@gmail.com
25.	Tripura Tripura Renewable Energy Development Agency	The Director Tripura Renewable Energy Development Agency 2nd Floor, Vigyan Bhawan, Pandit Nehru Complex Gorkhabasti, Agartala, Tripura - 799006. Tel : 03821 - 225900 / 2326139. Tele-Fax : 03821 - 225900. Email : tredaagt@yahoo.co.in Website : http://treda.nic.in/
26.	Utter Pradesh Non-conventional Energy Development Agency (NEDA),	The Director Non-conventional Energy Development Agency (NEDA), Vibhuti Khand, Gomti Nagar Lucknow – 226 010 Tel : 0522 - 2720876, 2720894 Fax : 0522 - 2720779, 2720829 Email : gmnedalkw@dataone.in

		www.http://neda.up.nic.in/
27.	Uttranchal Uttranchal Renewable Energy Development Agency (UREDA)	The Director Uttranchal Renewable Energy Development Agency (UREDA) Secretariat Compound Subhash Road Dehradun-248001 Phone Nos: 0135-2713739, 2713742 Fax : 0135 - 2521553 Source :http://ua.nic.in/uk.gov.in/
28.	West Bengal West Bengal Renewable Energy Development Agency	The Director West Bengal Renewable Energy Development Agency Bikalpa Shakti Bhavan Plot No. J- 1/10, EP& GP Block R Sector – V, Salt Lake Electronics Complex Kolkata - 700 091 West Bengal, India Tel : 033 - 23575038, 5348 Fax : 033 23575347, 5037 E-Mail : wbreda@cal.vsnl.net.in Website : http://www.wbreda.org/
29. List of Union Territories in India		
30.	Andaman & Nicobar Islands Agriculture Union Territory, Andaman & Nicobar Islands, Port Blair	Director, Agriculture Union Territory, Andaman & Nicobar Islands, Port Blair Minstry of Food Processing Industries, Panchsheel Bhavan,August Kranti Marg, New Delhi-110 049 Phone: 011-26494032 Fax:: 011-26492176 http://mofpi.nic.in/default.aspx
31.	DADRA & NAGAR HAVELI	DADRA & NAGAR HAVELI The Development and Planning Officer Administration of Dadra & Nagar Haveli Silvassa. Tel : + 91 - 260 – 642070 Website : http://dnh.nic.in/

32.	Delhi	The Executive Officer EE & REM Centre Delhi Transco Ltd. 2nd floor, SLDC Building, Minto Road New Delhi-110002 Tel : + 91 - 11 - 23234994, Fax : + 91 - 11 - 23231886 Website : http://www.delhitransco.gov.in/
33.	Lakshadweep Administration of Union Territory of Lakshadweep	The Executive Engineer Administration of Union Territory of Lakshadweep Department of Electricity Kavarathi – 682 555 Tel : 04896 - 262127 Fax : 04896 - 262936 / 262140 website : http://lakpower.nic.in/
34.	Leh-Ladakh Ladakh Renewable Energy Development Agency	The Project Director Ladakh Renewable Energy Development Agency, Dak Bungalow, Leh, Ladakh-194101 Telephone: ++91 (0)19 82255733 Email: lredaleh@gmail.com http://ladakhenergy.org/contact/
35.	Pondicherry Renewable Energy Agency	Renewable Energy Agency, Pondicherry No.10, IInd Main Road, Elango Nagar, -605011 Puducherry -605011 +91 – 4132244319 Email :pdreap@dataone.in www.pon.nic.in
36.	Chandigarh Chandigarh Administration	The Director (Science & Technology) Chandigarh Administration Additional Town Hall Building, 2nd Floor, Sector-17 C, Chandigarh Tel : + 91 - 172 - 2745502 / 2744235 Fax : + 91 - 172 - 2740005 Website : http://chandigarh.gov.in/

6.0 List of Consulting Organizations/Consultants

S.No	Consultants/Wind, Solar, Biomass, Mini-hydro	Address
	Wind Energy Consultants	
1.	Centre for Wind Energy Technology (C-WET) (Wind & Solar)	Centre for Wind Energy Technology (C-WET) (An Autonomous Research and Development Institution under the Ministry of New and Renewable Energy) Government of India Velachery - Tambaram Main Road Pallikaranai, Chennai - 600 100 Phone / EPABX : +91 - 44 - 2246 3982/ 2246 3983 / 2246 3984 / 2900 1162 / 2900 1167 / 2900 1195 Fax : +91 - 44 - 2246 3980 http://www.cwet.tn.nic.in/html/contactus.html
2.	3Tier India Pvt.Ltd (Renewables)	3TIER India T-2, Farhaan Centre # 24/1, Walkers lane, Langford Road Cross Richmond Town Bangalore- 560025. Karnataka, India Phone: +91 80 40918220 Fax: +91 80 40918222 http://www.3tier.com/en/contact/
3.	Det Norske Veritas DNV (Renewables)	Det Norske Veritas DNV H. No- 8-2-618/2 First Floor Reliance Humsafar Building Road No-11 Banjara Hills Hyderabad : 500034 Andhra Pradesh ,India . Ph:(40) 44745555 Email : venkata.emani@dnv.com, venkata.emani@dnv.com www.dnv.com
4.	Garrad Hassan India Pvt.Ltd (Renewables)	Garrad Hassan India Private Limited No. 494, 2nd floor, U.P. Royal Building, 4th Cross, Sampige Road, Malleshwaram, Bangalore - 560 003 Email : gl-garradhassan.com http://www.gl-garradhassan.com/en/aboutus.php
5.	Consolidated Energy Consultants Ltd	Consolidated Energy Consultants Ltd. (An ISO : 9001 : 2008 Certified Company)

	(Wind)	ENERGY TOWER, 64, B-Sector, Kasturba Nagar, Bhopal-462023 Telephone No. : (91) 755- 4058931, 2600241-43 , Fax : (91) 755- 2600240 Email : cecl@airtelmail.in Source: http://www.windpowerindia.com/index.php?option=com_content&view=article&id=5&Itemid=31
6.	ITCOT consultancy and Service Ltd (Wind, Solar, Biomass, Waste to Energy)	ITCOT Consultancy & Services Ltd. The Registered and Administrative Office 50-A, Greams Road Murugesa Naicker Complex, Chennai 600 006 Phone : 044-2829 0324 / 4293 6800 / 6801 Fax : 044-2829 3512 Email : itcot@vsnl.com Out-Station Offices ITCOT Consultancy & Services Ltd. 207, Sangeet Plaza Marol Maroshi Road Marol, Andheri East Mumbai 400 059 Contact Person : Mr. Chandrakanth A Patil Loan Resolution Consultant Ph : 022-65244440 / Tele Fax: 022-29204456 ITCOT Consultancy & Services Ltd. 407, Akashdeep Building 26-A, Barakhamba Road Connaught Place, Delhi - 110 001 Contact Person : Mr.Anurag Nigam Ph: 011-23327226, Mobile: 09911848760, Fax: 011-23752989 Source: http://www.itcot.com/
7.	The Energy and Research Institute	TERI (The Energy and Resources Institute), Darbari Seth Block, IHC Complex, Lodhi Road, New Delhi - 110 003, INDIA Tel. (+91 11) 2468 2100, 41504900 Fax (+91 11) 2468 2144 and 2468 2145, E-mail mailbox@teri.res.in Source: http://www.teriin.org/index.php
8.	Mitcon Constants Services Ltd	MITCON Consultancy & Engineering Services Ltd. 1st floor, "Kubera Chambers" Shivajinagar, Pune 411 005,

		Maharashtra (INDIA) Tel: +91-20-2553 4322, 2553 3309 Fax: +91-20-2553 3206 Email: mitconmail@gmail.com Dr. Pradeep Bavadekar Managing Director. MITCON Consultancy & Engineering Services Ltd., Kubera Chambers, Shivajinagar, Pune - 411 005, Maharashtra (INDIA) Tel:. +91-20-66289152 , 2553 3309 Fax:. +91-20-2553 3206 Mobile:. +91-98220 14039 Email ID mitconmail@gmail.com drbavadekar@yahoo.com pradeep.bavadekar@gmail.com Source: http://www.mitconindia.com/
9.	Resurge Energy Pvt.Ltd	Resurge Energy Pvt. Ltd. 2, Shantivan-1/A, Raheja Township, Malad East, Mumbai-400 097 T : 022–28793686 / 8636 F : 022–28798636 E : info@resurgegroup.com W: www.resurgegroup.com Cont.: Mr. Parish Gupta Source: http://www.windpowerindia.com/Address/Resurge.htm
10.	Sri Ganesh Wind Power Engineers Pvt. Ltd	Sri Ganesh Wind Power Engineers Pvt. Ltd., 7-1/B2, Main Road, Near Muppandal Devi Temple, Aralvoimozhi, Kanyakumari District Phone no : (04652) 262134 Fax no : (04652) 262004 Email : ganeshengg@sancharnet.in admin@ganwinpo.com Source: http://www.ganwinpo.com/

11.	Shah Energy Inc.	HEAD OFFICE & TOWER MANUFACTURING UNIT 37, Shah Mansion Opp Clock Mast, Station Road Davanagere – 577 001 Karnataka, India Ph: + 91-8192-232 110/ 272 361 Fax : + 91-8192-253 881 Source: http://www.shahenergy.com/
12.	Victory Wind Farm Services Pvt. Ltd	Victory Wind Farm Services Pvt. Ltd Block 'D', First Floor, "Rafflesia", Plot No.9, Main Road, Kamakoti Nagar, Pallikaranai, Chennai-600100. Fax: +91 44-2246 1537, Tel: +91 44-2246 1548, Email: vwschn@yahoo.com, Source: http://victorywind.in/contact_us
13.	World Institute Of Sustainable Energy	WORLD INSTITUTE OF SUSTAINABLE ENERGY Plot No.44, Hindustan Estates, Road No. 2, Kalyani Nagar, Pune - 411 006, Maharashtra, India. Tel.: +91-20-26613832, 26613855, Fax: +91-20-26611438, E-mail: cwp@wisein.org, Web: www.wisein.org
14.	EAI - Energy Alternatives India	EAI - Energy Alternatives India C/O Clixoo Solutions Private Limited 4th floor,MKM Chambers New no:42, Old no:154 & 155 Kodambakkam High Road Nungambakkam Chennai – 600034, Tamilnadu, India Contact-number : + 91 90435 39679 Email : madhavanv@eai.in http://www.eai.in/ref/services/consulting.html
15.	Enercon (India) Limited Tower (Prestressed concrete wind tower)	Enercon (India) Limited Tower Plot No. A - 9, CTS No. 700 Veera Industrial Estate Veera Desai Road Next to Bhagavati House Andheri (West) Mumbai 400 053 India

		Tel: 022 - 66924848 Fax: 022 – 66990940 Email: eil.marketing@enerconindia.net http://www.enerconindia.net/financial-consultancy.jsp
16.	NR Engineers (India) Pvt. Ltd., (Renewables)	NR Engineers (India) Pvt. Ltd., 23 & 35, Second Street Sriram Nagar, Porur, Chennai - 600 116, Tamil Nadu, India. Phone : +91 44 4284 0336, 37 Mobile : +91 98400 14634 Fax : +91 44 2258 2816 Email : knr@knrengineers.com http://www.knrengineers.com/contactus.php
17.	Zenith Energy Services (P) Ltd., (Renewables)	Zenith Energy Services (P) Ltd., 10-5-6/B, My Home Plaza, Masab Tank, HYDERABAD-500 028. A.P., (India) http://www.zenithenergy.com/contact-us.html
18.	SGS India (Solar/Wind)	SGS India SGS House 4B Adi Shankaracharya Marg Vikhroli (West) Mumbai, 400083 India Tel: +91 98670 19105 Fax: +91 22 66408829 http://www.sgsgroup.in
19.	Resolve Energy Consultants (Renewables)	Resolve Energy Consultants 98, V M Street, Mylapore, Mylapore Chennai, Tamil Nadu 600004 044 42163333 Contact Person Giridaran Srinivasan Phone +91- 98847-27147 Email : giridaran@re-solve.in http://www.re-solve.in/contact-us/

20.	Suzlon Energy Ltd (Wind)	One Earth, Opp. Magarpatta City, Hadapsar, Pune 411028 India. Tel.:+91-20-67022000 / 61356135 / 67202500 Fax: +91-020-67022100 / 67022200 For Media and communications contact : suzloncorpcomm@suzlon.com Source: http://www.suzlon.com
21.	RRB Energy Ltd (Wind)	REGISTERED OFFICE CUM WORKS RRB Energy Limited GA-1/B-1 Extension, Mohan Co-operative Industrial Estate Mathura Road, New Delhi – 110 044' India Telephone: 91-11-40552222 Fax: 91-11-40552200 E-mail: pawanshakthi@rrbenergy.com Source: http://www.rrbenergy.com/
22.	BF Utilities Ltd. (Renewables)	BF Utilities Ltd. Mundhwa, Pune 411036. Tel : (020) 6704 2616 Email : bfutilitiesltd@vsnl.net Source: http://www.bfutilities.com
23.	Maharashtra Seamless Limited (MSL)	JINDAL CORPORATE CENTRE Plot No 30, Institutional Sector-44, Gurgaon - 122001 Haryana (India) Tel. : +91 124 2574325 / 26, 4624000 Fax : +91 124 2574327 Email : contact@mahaseam.com Website: www.jindal.com
24.	Veer Energy Ltd. (Renewables)	VEER ENERGY LTD. 629-A, Gazdar House, 1st Flr, Near Kalbadevi Post Office, J.S.S. Marg, Mumbai: 400002 Tel no. 022-22072641/42/43 Fax No. 022-22072644 Email : info@veerenergy.com http://www.veerenergy.com/

25.	KENERSYS INDIA Pvt Ltd (Wind)	KENERSYS INDIA Pvt Ltd Business Plaza next to Westin Hotel 7th Floor, 36/3B, North Main Road Koregaon Park Annexe Pune – 411001 · Maharashtra · India Phone: +91 20 3047 3100 Fax: +91 20 3047 3130 E-Mail: info_india@kenersys.com http://www.kenersys.com/Contact.9.0.html
26.	Goyal MG Gases Pvt. Ltd (Renewables)	Goyal MG Gases Pvt. Ltd A-38 (First Floor), Mohan Co-operative Industrial Estate, Main Mathura Road, New Delhi –110 044 Ph: 011-26991470-74, 011-41628141 to 43, 011-40512301- 02 Fax: 011-26991479, 011-41628144 E-mail: corporate@goyalgroup.com Web: www.goyalgroup.com
27.	Canyon Consultancy Pvt. Ltd (Renewables)	'Canyon Consultancy Pvt. Ltd Subhashree Complex Flat No 201, Gobinda Prasad Bomikhal, Near Durga Mandap Bhubaneswar–751010 Landline : +91674-2371712, Cell : +91-9658748142 info@canyonconsultancy.com chandrashekhar.mishra@canyonconsultancy.com www.canyonconsultancy.com http://www.canyonconsultancy.com
28.	Ravi Energie Pvt. Ltd (Renewables)	Ravi Energie Pvt. Ltd. - India Telefax: +91 265 236 1740 / 222 6069 abc@ravienergie.com http://www.ravienergie.com
29.	OES Consulting (Renewables)	OES Consulting OES Consulting 2nd Floor, FBD House Fels Point Tralee Co. Kerry Phone: 066-712 83 21 Fax: 066-71800 61

		Email: info@oes.ie http://www.oes.ie/
30.	Indian Wind Energy Association (Renewables)	Indian Wind Energy Association PHD House, 3rd Floor Opp. Asian Games Village August Kranti Marg, New Delhi 110016 Telefax: +91 11 26523042 E-mail: manish@inwea.org
31.	Indian Wind Turbine Association	5th Floor, Meridian House 121/3, TTK Road, Manickam Avenue Alwarpet, Chennai – 600018, India. Tel : +91-44-43015773 Tel / Fax : +91-44-43015773 Email : director@indianwindpower.com secretary@indianwindpower.com Website : www.indianwindpower.com
32.	Vaigunth Ener Tek (P) Ltd. (Small Wind / Solar Hybrid)	C1/20, Rajesh Nagar 1st Main Road, Narayanapuram, Pallikaranai, Chennai-100, Tamil Nadu India 600100 (+91)44-45575552 / 45575559, 0091-4652-258616 FAX: 0091-44-45575551 www.v-enertek.com
33.	Trueskill Energen Pvt Ltd	#125, 1st Main, Domlur 2nd Stage, , Bangalore, Karnataka India 560071 TelePhone: +91 80 4125 6925 www.energen.biz
34.	Globalbrains	14/2, Kirancomplex, Yelenahalli Main Road, Hulimahu, Bangalore, Karnataka India 560068 (080) 26482325, FAX: 09480333703 http://www.globalbrains.in
35.	Luminous Renewable Energy Solutions Private Limited (Small Wind / Solar Hybrid)	Gat No. 1569/8, Vadki Village, Off Pune Saswad Road, Pune, Maharashtra India 412308 +91 (020) 64011044, 65110453 to 460, FAX: +91 (020) 30580676 Web Site: www.windsolarzone.com

36.	Tachometric Controls	S. No. 50/10/12, Post. Narhe, Pune, Maharashtra India 411041 TelePhone: +91-20-24391385, FAX: +01-20-24391179
37.	KayPee Engineers	12, Monidan Apartment, Mulgaon Church Road, Tamtalao, VASAI CiTY, Maharashtra India 401201 +91-250-2327226; +91-9422475411 kpengineers.co.in
38.	Sun & Wind Energy India Private Limited	Corporate Office:, Pune, Maharashtra India 411007 TelePhone: +91 20 20250451 http://www.sunnwindhk.com
39.	Kanumuri Foundation	27-2-751, A. C. Nagar, Nellore, Andhra Pradesh India 524002 TelePhone: +91-9963014208
40.	VRG Energy India Pvt. Ltd	128, Backbone Shopping Center, Mayani Chowk, Chandresh Nagar Main Road, Rajkot, Gujarat India 360004 +91-281-3040882 FAX: +91-281-3040882 vrgsolarwaterpump.tradeindia.com
Solar Energy Consultants		
41.	PROCON ENGINEERS	PROCON ENGINEERS (Division of Nimoto Consulting Engineers Pvt. Ltd.) 202-A, Dosti Pinnacle, Plot No. E-7, Road No. 22, Wagle Industrial Estate, Maharashtra. India Phone: 91- 022- 64570461/ 64570462 Email: projects@proconengineers.org http://www.proconengineers.org/
42.	Thermax Limited, Pune	Thermax Limited, Pune Contact Person: Dr.R.R.Sonde
43.	Tata Power Solar Systems Limited	Tata Power Solar Systems Limited 78, Electronics City, Phase I Hosur Road Bangalore - 560 100 India Tel: 91 80 6777 2000, 3000 Fax: 91 80 6777 2252 Technical Support: +91 80 4070 2213 Customer Care: +91 80 4070 2440

		Email: care@tatapowersolar.com Source: http://www.tatapowersolar.com/
44.	Jain Irrigation Systems Ltd	Registered office Jain Plastic Park, N.H. No. 6, P.O. Box : 72, Jalgaon 425001. (India) Source: http://www.jains.com
45.	Wipo Ecoenergy	Wipo Ecoenergy SJP 1, D Block, Dodda Kannelli, Sarjapur Road, Bangalore – 560035. India. Phone : +91-080-2844-0011 Fax : +91-080-3991-6400 Email : sales.ecoenergy@wipro.com http://www.wiproecoenergy.com/# Service : service.ecoenergy@wipro.com
46.	INDOSOLAR LIMITED	INDOSOLAR LIMITED Regd. Office: C-12, Friends Colony (East), New Delhi-110065 Tel : +91 -11 -2684 1375; +91 -11 -2684 1375; 2631 1706; Fax : +91-11-2684 3949 Email : info@indosolar.co.in http://www.indosolar.co.in/contact.html
47.	Entegra Infrastructures Ltd	Entegra Infrastructures Ltd Ms.Rekha Jagdale 4th Floor Harchandrai House Maharshi Karve Road Marine Lines (E) Mumbai – 02 Ph: 022-66044242 Fax: 022-66550320 Email :rekha@entegra.co.in http://www.entegra.co.in/
48.	EPIC Energy Ltd	EPIC Energy Ltd Andheri 304 - A Wing, Winsway Complex, Old Police Lane, Andheri(East). Mumbai 400 069.

		Tel.: +91-22- 26848347 +91-22- 26848347 E-mail: info@epicenergy.biz http://www.epicenergy.biz/
49.	Ammini Solar Pvt Ltd	Ammini Solar Pvt Ltd Plot No. 33-37, KINFRA Small Industries Park St. Xaviers College Post Trivandrum 695 582, Kerala, India Phone +91 471 3060200 +91 471 2490508 Email: solar@ammini.com http://www.ammini.com/
50.	ATR Solar India	ATR Solar India No.1, RMR Complex, 2nd Floor, North Gate, SS Colony, (Opp. Devaki Scans) MADURAI - 625 010 TAMILNADU Mobile: 98432 65400, 93444 53444 Tel : +91-452- 3025400, Fax: +91-452- 3025400 Email: atrsolar@gmail.com Web: www.atrsolar.com
51.	BHAMBRI ENTERPRISES	BHAMBRI ENTERPRISES 794, Joshi Road Karol Bagh, New Delhi - 110005, India Phone : 91-11-23541114/65388606 Fax : 91-11-23541114/41544699 Contact Person Mrs. Ruchi Bhambri (Director) Mobile : +919811759494 http://www.bhambriexim.com/contact-us.html
52.	DEEPA SOLAR LIGHTING SYSTEMS	DEEPA SOLAR LIGHTING SYSTEMS No.4, 80 feet ring road, Next to BDA complex Nagarbavi 2nd stage Bangalore - 560072, India +91 080 23188480 +91 080 23188483 Fax :23188481 Email :info@deepasolar.com sales@deepasolar.com

		http://www.deepasolar.com/
53.	Enolar Systems Marketing Pvt. Ltd.	Enolar Systems Marketing Pvt. Ltd. Office: # 916, 3rd Main Road, Vijayanagar Bangalore - 560 040, Karnataka, India. Phone: 91-80-23388792 E-mail: enolar@gmail.com / solarpradeep@gmail.com http://www.enolar.com/home.html
54.	Bajaj Groups - Sunsoko Solar	SUNSOKO, C/o- Bajaj Electricals Ltd. Dilip Patra 205, Bakshi House, Nehru Place, New Delhi - 19, India, New Delhi - 110019, Mobile-91-11-9899424681, New Delhi - (MBL-9899424681) India 110019 TelePhone: 91-011-9899424681 FAX: 91-11-27224236 dilip_patra1980@yahoo.com Web Site: http://www.sunsoko.com
55.	Environze Global Limited	Environze Global Limited Mr. Pawan Gupta 110, Laxmi Deep Tower, New Delhi 110092, New Delhi India 110092 TelePhone: 9811777729, FAX: +91 11 22452292 Web Site: http://environze.com
56.	Optimal Energy	Optimal Energy Module No. G 03, FR 04 & 05 Shilpangan 1 LB1, Sector III Salt Lake City Kolkata 700 098, India Phone :(+) 9133 2335 4847 Fax :(+) 9133 2335 4846 Email :enquiries@ops-india.com http://www.ops-india.com/
57.	Solar Technologies & Services Pvt. Ltd	Solar Technologies & Services Pvt. Ltd 5th Floor, Vallamttam Estate Ravipuram, M.G. Road, Kochi 682015, Kerala. India Tel: +91 484 366572 Email :solartech@vsnl.com http://www.enfsolar.com/directory/installer/2844
58.	Maharishi Solar Technology (P) Ltd. (SPV)	Maharishi Solar Technology (P) Ltd. Maharishi House, A - 14, Mohan Estate, Mathura Road, New Delhi - 110 044 Ph : +91-11-26959800, +91-11-40909090/91

		Fax : +91-11-26959669, +91-11-26836682 Email : solar@maharishi.net http://www.maharishisolar.com Contact Person: Dr.R.N.Shreenath.
59.	Indo engineering Projects Corporation	Mr. SUSHIL PATIL - Director IEPC, 30I, "SHRIKA PLAZA" in front of Kachore Lawn, Manish Nagar, Nagpur- 440 015 (Maharashtra) INDIA. Ph:+91 - 712 - 6646415, 16, 17 Cell : +91 - 9503 151 353 Email : iepc@iepcindia.com, iepcpower@iepcindia.com Website : www.iepcindia.com
60.	Gkar (India) Power Systems Pvt Ltd	Gkar (India) Power Systems Pvt Ltd AC 22-B SIDCO Industrial Estate Chennai (+91) 44 - 4359 5450 www.gkarindia.com
61.	Solar Wiz Asia Pvt Ltd	51, Bridhavan Road, Fairlands, Salem, Tamil Nadu India 636004 TelePhone: +919362116663, FAX: +91 427 2449190 www.solarwizasia.com
62.	CONTURA SOLAR (INDIA) Pvt. Ltd.	Trichy, Tamilnadu India 620019 +91-9994921997, +91-431-2441383 FAX: +91-431-2441095 www.conturaindia.com
63.	Malaviya Energy Consultancy	102, 1st floor Karachiwala Complex, 16, M. G. Road, Pune, Maharashtra India 411001 +91-20-26833399, +91-9890033399
64.	Kanumuri Foundation	27-2-751, A. C. Nagar, Nellore, Andhra Pradesh India 524002 TelePhone: +91-9963014208
65.	Daksh Energy Systems	#95/W, Annupuram, ECIL Post, Hyderabad, Andhra Pradesh India 500062 TelePhone: +91-9885329900, FAX: +91-40-27162719 www.solarindia.net
66.	Chandradeep Solar	L-3/2 Regent Estate, Calcutta, West Bengal India 700092 TelePhone: 0091--33---65688885, FAX: 0091-33—24728414
67.	VRG Energy India Pvt. Ltd	128, Backbone Shopping Center, Mayani Chowk, Chandresh Nagar Main Road, Rajkot, Gujarat India 360004 +91-281-3040882 FAX: +91-281-3040882 vrgsolarwaterpump.tradeindia.com

Biomass		
68.	Auro Mira Energy Co P Ltd	Auro Mira Energy Co P Ltd "Auro Mira House"; No.29, Shafee Mohamed Road, Thousand Lights, Chennai – 600 006 Ph # +44-2820 9800; Fax # +44-2820 9897 www.auromiraenergy.in/contact-us.html
69.	Zenith Energy Services (P) Ltd.,	Zenith Energy Services (P) Ltd., 10-5-6/B, My Home Plaza, Masab Tank, HYDERABAD-500 028. A.P., (India) http://www.zenithenergy.com/contact-us.html
70.	Husk Power Systems Pvt. Ltd.	Husk Power Systems Pvt. Ltd. Opp. Shiv Mandir, Near National Seed Corporation, Shastri Nagar Market, Sheikhpura, Patna- 800 014 Bihar, India Phone: +91 (612) 2283333 http://www.huskpowersystems.com
71.	Moserbaer Photo Voltaic Ltd (Solar)	43B, Okhla Industrial Estate, Phase - 3, New Delhi - 110020.India. Tel. +91-11-40594444, 26911570 / 74 Fax :+91-11-41635211, 26911860 http://www.moserbaersolar.com/
72.	Netel India Ltd	Registered Office : Liberty Building, Sir V. Thackersey Marg, Mumbai - 400 020, India. Tel. : +91 22 2205 6823 Fax : +91 22 2208 2113 Corporate Office : S. V. Road, Manpada, Thane - 400 610, India Tel. : +91 22 3255 2339 Fax : +91 22 2589 0976 Email : sales@netel-india.com http://www.netel-india.com/
73.	GPR Power Companies	GPR Group Of Companies Plot No.76, VGN Mahalakshmi Nagar,Extension 5, 2nd Main Road,Thiruverkadu,Chennai-600077

		Ph: 044-26800010,26800210 Telefax: 044-26800085 Email: gprgroupmktg@gmail.com http://www.gprpower.com
74.	ABI Energy Consultancy Services Pvt Ltd	22, Subramanian Nagar 2nd Street Rengarajapuram, Kodambakkam, Chennai 600 024 India (+91) 44 - 6538 3966, (+91) 44 - 2480 2416 www.abienergy.com http://www.eco-web.com
75.	Canyon Consultancy Pvt. Ltd	'Canyon Consultancy Pvt. Ltd Subhashree Complex Flat No 201, Gobinda Prasad Bomikhal, Near Durga Mandap Bhubaneswar–751010 Landline : +91674-2371712, Cell : +91-9658748142 info@canyonconsultancy.com ritikesh.garg@canyonconsultancy.com www.canyonconsultancy.com http://www.canyonconsultancy.com
76.	INTEC Heating Solutions Pvt. Ltd.	INTEC Heating Solutions Pvt. Ltd. B - 410/A, Galleria Opp. Bayer House, Hiranandani Gardens Powai, Mumbai - 400 076 India Tel./Fax: + 91 22 25942292 E-Mail: bharat.k@intec-energy.de http://www.intec-energy.com
77.	Hi-TECH Engineering Corporation India Private Limited.	Hi-TECH Engineering Corporation India Private Limited. G-16, 17, MIDC, Baramati-413133, District : Pune, Maharashtra, India. Phone : +91-2112-244252, 244488, 243646. Fax : +91-2112-243229 E-mail : info@hitecheng.in http://www.hitecheng.in/
78.	BIO-ENERGY COUNCIL OF INDIA	BIO-ENERGY COUNCIL OF INDIA 704 - Shitiratna, Panchwati, Ellisbridge Ahmedabad - 380006, India. Tel : +91 79 66309332

		Fax : +91 79 6630 9334 http://www.bioenergyindia.org/ContactUs.aspx
79.	N.S. THERMAL ENERGY PVT. LTD.	N.S. THERMAL ENERGY PVT. LTD. 308, Kale Ram Chambers, East Guru Angad Nagar Laxmi Nagar,Vikas Marg Extension Delhi -110092, INDIA Phone: 011-22052866 Fax: 011-22023661 E mail: info@nsthermalenergy.com, nsconstructions69@yahoo.in http://www.nsthermalenergy.com/
80.	Society For Rural Initiatives For Promotion Of Herbals	Society For Rural Initiatives For Promotion Of Herbals B-132, Sainik Basti, Churu-Rajasthan, Rajasthan India 331001 Telephone: +91 1562 255575, +91 9414095700 FAX: +91 1562 255575 Email :info@jatrophaworld.org http://www.jatrophaworld.org/
81.	GP Green Energy Systems Pvt. Ltd.	GP Green Energy Systems Pvt. Ltd. BH 114, Salt Lake, Kolkata-700091, India. Telefax : +91 33 23210809 / +91 33 23580114, Email : info@gpenergy.net http://gpenergy.net/cms.php?cid=29#
82.	Green India Renewables Pvt. Ltd.	Green India Renewables Pvt. Ltd. Photovoltaics 57/804, Mahakavi.G.Road, 682011 IN- Cochin India Tel.: 0091-484-2382531/32 Fax: 0091-484-2382531 www.solarserver.com
83.	Transparent Energy Systems Pvt.Ltd	Address: 1st Floor,Pushpa Heights, Bibwewadi Corner,Pune – 411037, Maharashtra, India Tel.: +91-20-24211347/24215665/24212390 Fax: +91-20-24212533 Email: info@tespl.com http://www.tespl.com/
84.	Abets	Cgpl, Dept Of Aero, Indian Institute Of Engineering, Banaglore, Karnataka India 560012

		+91-80-23600536, FAX: +91-22-23601692 cgpl.iisc.ernet.in
85.	AZ Green Energy Parks Pvt Ltd	#40 80ft Road Indiranagar, Bangalore, Karnataka India 560005 TelePhone: +919880198080 azgreenenergy.in
86.	Immense Vision	L/7, Suramya Complex, Dumas Road, Beside Lake view garden, Piplod, Surat, Gujarat India 395007 TelePhone: +912613927919/21 http://immensevision.com
Small Hydro Power		
87.	Lifeway Solar Devices Pvt. Ltd.	Lifeway Solar Devices Pvt. Ltd. 1st Floor, Central Arcade, Azad Road, Cochin - 682 017, Kaloor, Cochin Kerala, India. Tel:0091 - 484 -2346376, 3245590 Fax: 0091 - 484- 4046242 Email :info@lifewaysolar.com /info@lifewaysolar.com http://www.lifewaysolar.com/contact.html
88.	Zenith Energy Services (P) Ltd.,	Zenith Energy Services (P) Ltd., 10-5-6/B, My Home Plaza, Masab Tank, HYDERABAD-500 028. A.P., (India) http://www.zenithenergy.com/contact-us.html
89.	AURO MIRA ENERGY CO P LTD	AURO MIRA ENERGY CO P LTD “AURO MIRA HOUSE”; NO.29, SHAFEE MOHAMED ROAD, THOUSAND LIGHTS, CHENNAI – 600 006 Ph # +44-2820 9800; Fax # +44-2820 9897 http://www.auromiraenergy.in/contact-us.html
90.	Canyon Consultancy Pvt. Ltd	'Canyon Consultancy Pvt. Ltd Subhashree Complex Flat No 201, Gobinda Prasad Bomikhal, Near Durga Mandap Bhubaneswar–751010 Ph: +91674-2371712, Cell : +91-9658748142 Email:info@canyonconsultancy.com ritikesh.garg@canyonconsultancy.com http://www.canyonconsultancy.com

91.	Ravi Energie Pvt. Ltd	Ravi Energie Pvt. Ltd. - India Telefax: +91 265 236 1740 / 222 6069 abc@ravienergie.com http://www.ravienergie.com
92.	Nimbkar Agricultural Research Institute	Nimbkar Agricultural Research Institute Tambmal, Phaltan-Lonand Road, P.O.Box 44, Phaltan - 415523, Maharashtra, India Ph: (91)-2166-220945 (91)-2166-222396 Fax : (91)-2166-225246 Email: nariphaltan@gmail.com nariphaltan@nariphaltan.org http://www.nariphaltan.org/nari/
93.	Maadurga Thermal Power Company Ltd	Maadurga Thermal Power Company Ltd 2nd floor, CADD centre building Madhupatna square Cuttack-753010 (Orissa) Ph- 0671-2346844 Fax – 0671-234284 Email :corporate@mtpcl.in www. www.mtpcl.in
94.	HIQ POWER ASSOCIATES PRIVATE LIMITED	HIQ POWER ASSOCIATES PRIVATE LIMITED New No.12, Old No. 124A K.R Building, 1st floor, L.B. Road, Adyar,Chennai – 600 020. Phone Nos: 044-24456757/24454566 Fax : 044-24450202. E-mail : hiqpower@gmail.com Website: www.hiqpower.com
95.	The Tarini Group of Companies	The Tarini Group of Companies Head Office D2 , Amar Colony, Lajpat Nagar - IV, New Delhi -110024 Ph. : +91 11 26223630/34 Fax : +91 11 26477996 Email : tarini@nde.vsnl.net.in http://www.tariniinfra.com/
96.	Strategic Counselling Group- Harness the power of water	Strategic Counselling Group- D 449, Sector 4, Phase II, New Shimla,

		Near DAV School, Shimla 171 009, H.P., India Phone/Fax: +91 177 267 2945 Email: info@scg-india.com http://www.scg-india.com/
97.	Alternate Hydro Energy Center	Alternate Hydro Energy Center IIT Roorkee Roorkee, Uttarakhand India Tel: +91-1332-274254,285213 Fax: +91-1332-273517,273560 Email: ahec@iitr.ernet.in, aheciitr@gmail.com http://www.iitr.ac.in/departments/AH/pages/About_Us+History.html
98.	Vaisnavi Hydro Power Consultancy Services	Vaisnavi Hydro Power Consultancy Services Registered Head Office: Vaisnavi Hydro Power Consultancy Services Basal Road, Tehsil & Distt Solan, Himachal Pradesh, INDIA. Mobile No.: +91-94180-00303, +91-94184-69455, +91-94180-96464 http://www.vaisnavihydropower.com/contactus.html
99.	Raychem Rpg Private Limited	Raychem Rpg Private Limited RPG House 463, Dr. A.B. Road, Worli, Mumbai - 400 030 Tel. : 022 24937485 / 6, 39509400 Fax : 022 24938879 Email: raychem@raychemrpg.com http://www.raychemrpg.com/index.php

7.0 List of Technology Commercialization Agencies / Technology Business Incubators

S.No	Institutions / Organizations	Address
	Wind Energy	
1.	Indian Renewable Energy Development Agency Limited (IREDA)	India Habitat Centre Complex, Core-4A, East Court 1st Floor, Lodi Road New Delhi – 110 003. Tel: +91.11.24682214-21 Fax: +91.11.24682202 Email: cmd@ireda.gov.in Registered Office India Habitat Centre, East Court Core-4A, 1st Floor, Lodhi Road New Delhi - 11 00 03 Tel: +91 11 24682206 - 24682219 Fax: +91 11 24682202 Contact Person K. S. Popli, Director (Technical) Tel. (O:) +91 11 24682204 Fax : +91 11 24682205 Extn. 130 www.ireda.gov.in
2.	Centre for Wind Energy Technology (C-WET)	Velachery - Tambaram Main Road Pallikaranai, Chennai - 600 100 Phone / EPABX : +91 - 44 - 2246 3982/ 2246 3983 / 2246 3984 / 2900 1162 / 2900 1167 / 2900 1195 Fax : +91 - 44 - 2246 3980 http://www.cwet.tn.nic.in E-mail : info@cwet.res.in Contact Person Dr.S.Gomathinayagam Executive Director Pho:91-44-22463981/3991 Email: ed@cwet.res.in

		Wind Turbine Test Station (WTTS) & Wind Turbine Research Station (WTRS) TNEB Wind Farm, Ayynaryuthu - Sub Station Kayathar Devarkulam Road Koilpatti Taluk, Kayathar - 628 952 Tuticorin Dist., Tamil Nadu Phone : +91 - 4632 - 261751/ 261752/ 261931 Fax : +91 - 4632 – 261751 http://cwet.res.in
3.	Alternate Hydro Energy Centre, IITR (AHEC)	Indian Institute of Technology Roorkee, Roorkee-247667,Uttarakhand, INDIA Telephone : (+91 1332) 274254, 285213 FAX : (+91 1332) 273517, 273560 Contact Information Postal address ; Alternate Hydro Energy Centre (AHEC) Indian Institute of Technology Roorkee Roorkee-247667, Uttarakhand, INDIA Email : hec@iitr.ernet.in, aheciitr@gmail.com www.ahec.org.in WWW.http://www.iitr.ac.in
4.	Green Rating for Integrated Habitat Assessment (GRIHA)	The Programme Manager Association for Development and Research of Sustainable Habitats (ADaRSH) The Energy and Resources Institute (TERI) 1st Floor, A - 260, Defence colony, New Delhi - 110024 Tel. - (+91 11) 46444500/24339606-08 Helpline no. - (+91 11) - 40589139 Fax - (+91 11) 2468 2144,2468 2145 E-mail info@grihaindia.org http://www.grihaindia.org/index.php
5.	Confederation of Indian Industry(CII)	Confederation of Indian Industry(CII) C Banerjee [Director General] Confederation of Indian Industry CII Central Office Mantosh Sondhi Centre 23 Institutional Area

		Lodi Road New Delhi-110003 Delhi India Phone : 91-11-24629994 - 7 Fax :91-11-24682229 Email : cb@cii.in http://www.cii.in
6.	Andhra Pradesh – New & Renewable Energy Development Corporatiopn of Andhra Pradesh Ltd. (NREDCAP)	Sri M. Kamalakar Babu, M.Sc., BL VC & Managing Director Email: vc@nedcap.gov.in New & Renewable Energy Development Corporation of Andhra Pradesh Ltd. (NREDCAP) Regd.Office:5-8-207/2, Pisgah Complex, Nampally, Hyderabad - 500 001. Tel. off: +91-40-2320 2391 Grams: "NREDCAP" Fax: 040-23201666 Email: info@nedcap.gov.in, nedcap@ap.nic.in http://nedcap.gov.in
7.	Arunachal Pradesh Energy Development Agency (APEDA)	Vidyut Bhawan Govt of Arunachla Pradesh, Department of India, Itanagar, 791111 http://www.arunachalpower.org.in/
8.	Assam Energy Development Agency (AEDA)	Assam Energy Development Agency BIGYAN BHAWAN, Near IDBI Building, ABC, G. S. Road, GUWAHATI 781005 Telefax: +91-361-2450147, 2450646, 2464618 Telefax: +91-361-2464617. www.assamrenewable.org
9.	Gujarat Energy Development Agency (GEDA)	Gujarat Energy Development Agency 4th floor, Block No. 11 & 12 Udyog Bhavan Sector -11 Gandhinagar-382 017, Gujarat, India Phone : +91-079-23257251, 23257252, 23257253, 23257254 Fax : +91-079-23257255, 23247097 Contact for The Director, GEDA : director@geda.org.in www.geda.gujarat.gov.in
10.	Haryana Renewable Energy Development	SCO No. 48, Sector-26, Chandigarh

	Agency (HAREDA)	Phone 0172-2790918, 2791917, 2792119 Fax 0172-2790928 email hareda@chd.nic.in, drehareda@gmail.com, drehry@gmail.com http://www.hareda.gov.in
11.	Himachal Pradesh Energy Development Agency (HPEDA)	HIMURJA (H.P. Govt. Energy Development Agency) SDA Complex, Urja Bhawan, Kasumpti, Shimla-171009. http://himurja.nic.in/ Phone; 0177 2622080 Fax No. (0177-2622635)
12.	Jharkhand Renewable Energy Development Agency (JREDA)	328/B Road No 4, Ashok NAger Ranchi, Phone: 0651 – 2246970, 2247049 Fax: 0651 – 2240665 e-mail: info@jreda.com www.jreda.com
13.	Karnataka Renewable Energy Development Ltd. (KREDL)	Karnataka Renewable Energy Development Limited # 39, "Shanthi Gruha", Palace Road, Bangalore - 560 001 Phone:080- 22207851/ 22208109. Fax:080-22257399 http://kredl.kar.nic.in/Index.asp
14.	Maharashtra Energy Development Agency (MEDA)	Maharashtra Energy Development Agency (MEDA) MHADA Commercial Complex, II floor, Opp: Tridal Nagar, Yerwada PUNE - 411 006 (Maharashtra), INDIA PHONE - 91-020-26614393 / 26614403 FAX - 91-020-26615031 http://www.mahaurja.com
15.	Meghalaya Non-Conventional & Rural Energy Development Agency (MNREDA)	Meghalaya Non-Conventional and Rural Energy Development Agency Address: Near BSF Camp, P.O. Mawpat, Shillong-793012 Phone no: 0364-2537343, email: mnreda_shg@bsnl.in http://mnreda.gov.in/
16.	Orissa Renewable Energy Development Agency (OREDA)	(Odisha Renewable Energy Development Agency) S-59 Mancheswar Industrial Estate Bhubaneswar - 751010 Anirudha Rout Chief Executive OREDA

		Email : ceoreda@oredaorissa.com Ph. No - 0674-2588260 http://oredaodisha.com
17.	Tamil Nadu Energy Development Agency (TEDA)	TamilNadu Energy Development Agency E.V.K Sampath Maaligai, 5th floor, No.68, College Road, Chennai-600 006 Ph: 28222973 Email: info@teda.in http://www.teda.in
18.	Uttar Pradesh New and Renewable Energy Development Agency (UPNEDA)	Vibhuti Khand, Gomti Nagar, Lucknow - 226010 Phone - 0522-2720829, 2720652, Fax - 0522-2720779 Email - nedaup@dataone.in, compneda@rediffmail.com Website : http://neda.up.nic.in
19.	West Bengal Renewable Energy Development Agency (WBREDA)	BIKALPA SHAKTI BHAVAN, Plot No. J- 1/10, EP& GP Block, Sector - V SALT LAKE ELECTRONICS COMPLEX KOLKATA - 700 091 WEST BENGAL, INDIA Phone No. : 2357 5038, 2357 5348, 2357 6568 Fax no.: 2357 5037, 2357 6569 Web site: www.wbreda.org
20.	Green Buildings, Biomass Cook stoves: Opportunities for Learning & Collaboration	Dr. Vinod K. Jain Director & National Project Coordinator Ministry of New and Renewable Energy Government of India Program Management Unit (PMU) Block No. 14, CGO Complex, Lodhi Road, New Delhi – 110003 Office Contact Number: 011-24369788 E-Mail: jainvk@nic.in http://www.inspirenetwork.org
21.	Chattisgarh Bio-fuel Development Authority	CHHATTISGARH BIO-FUEL DEVELOPMENT AUTHORITY MIG - 3, Indravati Colony Shanti Nagar, Raipur Telephone :- 0771-4242926 E-mail: cgbiofuel@rediffmail.com http://www.cbdacg.com
22.	Indian Institute of Science (IISc) Biomass Resource Atlas of India	Combustion, Gasification & Propulsion Laboratory (CGPL), Department of Aerospace Engineering,

		Indian Institute of Science (IISc) Bangalore - 560 012 Karnataka , INDIA Web: http://cgpl.iisc.ernet.in Phone: +91-80-23600536; +91-80-22932338 Fax: +91-80-23601692 Email:GIS Group IISc Contact Person: Dr.N.K.S.Rajan & Dr.S.Dasappa
23.	Technology Development Board (TDB)	TECHNOLOGY DEVELOPMENT BOARD Department of Science and Technology A-Wing, Ground Floor, Vishwakarma Bhavan, Shaheed Jit Singh Marg, New Delhi - 110 016 Telephone No. 26537349, 26540111 Fax No. 26531862, 26540137
24.	Solar Water Heater	Ministry of New and Renewable Energy Block - 14, CGO Complex, Lodhi Road, New Delhi - 110 003, India Website: www.mnre.gov.in
25.	International Copper Promotion Council India	International Copper Promotion Council (India) 302, Alpha , Hiranandani Business Park, Powai, Mumbai - 400076 Telephone: 91 22 66937989 Fax: 91 22 66939282 Email: info_copper@icpci.org http://www.copperindia.org
26.	Ministry of Power (MOP)	Ministry of Power, Govt. of India Shram Shakti Bhavan, Ministry of Power, New Delhi – 1 Phone: 011 - 2372-1487, 2371-0271 Fax: 2465-1895
27.	Bureau of Energy Efficiency (BEE)	Government of India, Ministry of Power 4th Floor, SEWA Bhawan R. K.Puram, New Delhi - 110 066 (INDIA) Telephone: +91 11 26179699 Fax: +91 11 26178352 Email: admin@beenet.in http://www.beeindia.in
28.	Central Electricity Regulatory Commission (CERC)	Central Electricity Regulatory Commission 3 rd & 4 th Floor, Chanderlok Building, 36, Janpath, New Delhi- 110001 Ph: 91-11-23353503 Fax: 91-11-23753923

		E-mail : info@cercind.gov.in http://cercind.gov.in
29.	NTPC Vidyut Vyapar Nigam Limited (NVVN)	NTPC Vidyut Vyapar Nigam Ltd. 7th Floor, Core 3, Scope Complex, 7 Institutional Area, Lodi Road, New Delhi-110003, INDIA Tel : 91-11- 24387741 Fax : 91-11-24362009, 24361771 http://www.nvvn.co.in
30.	Ministry of Environment & Forest (E&F)	The Secretary Government of India Ministry of Environment & Forests Paryavaran Bhavan CGO Complex, Lodhi Road New Delhi - 110 003 INDIA Telephone:+91-11- 24360605, 24360570, 24360519 email: envisect@nic.in http://moef.nic.in
31.	Federation of India Chambers of Commerce & Industry (FICCI)	FICCI Federation House Tansen Marg, New Delhi 110001 Phone: 91-11-23738760-70 Fax: 91-11-23320714, 23721504 ficci@ficci.com http://www.ficci.com
32.	The Associated Chambers of Commerce and Industry of India (ASSOCHAM)	ASSOCHAM Corporate Office, 1, Community Centre Zamrudpur, Kailash Colony, New Delhi – 110 048 Phone: 46550555 (Hunting Line) Fax: 46536481/46536482 46536497/46536498 Email: assocham@nic.in http://www.assocham.org/

8.0 List of Financial Institutions

Mr. Syed also said that the Reserve Bank of India (RBI) had directed all banks to provide loans for renewable energy projects at a concessional interest rate of 5 per cent, repayable in 5 years. A minimum generation of 600 units per day from solar power plants would save Rs.15 lakh in annual electricity cost. It would lead to a payback in not more than eight years with the solar plant having a life period of nearly 25 years
Source: http://www.thehindu.com/news/cities/Madurai/article2425957.ece

Banks and Institutions that Support Renewable Energy Financing in India

S.no	Financial Institutions	Address
1.	Centre for Wind Energy Technology (C-WET)	Velachery - Tambaram Main Road Pallikaranai, Chennai - 600 100 Phone / EPABX : +91 - 44 - 2246 3982/ 2246 3983 / 2246 3984 / 2900 1162 / 2900 1167 / 2900 1195 Fax : +91 - 44 - 2246 3980 http://www.cwet.tn.nic.in E-mail : info@cwet.res.in Contact Person Dr.S.Gomathinayagam Executive Director Pho:91-44-22463981/3991 Email: ed@cwet.res.in
2.	The Indian Renewable Energy Development Agency (IREDA)	The Indian Renewable Energy Development Agency (IREDA) India Habitat Centre Complex, Core-4A, East Court, 1st Floor, Lodi Road, New Delhi – 110 003. Tel: +91.11.24682214-21 Fax: +91.11.24682202 Email: cmd@ireda.gov.in Website :- www.ireda.gov.in Contact Person Debashish Majumdar Chairman and Managing Director Tel. (O:) +91 11 26717414 / 26717415 / 24682201 Fax : +91 11 26717416 / 24682202
3.	Solar Energy Centre	Solar Energy Centre 19th Milestone, Institutional Area Gurgaon-Faridabad Road

		Gwalpahari, Gurgaon Telefax No. : 0091-124-2579207 Email : sec@nic.in CONTACT PERSONS Dr. Bibek Bandyopadhyay Advisor & Head 0124-2579207 Email : bbibek[at]nic[dot]in Source : http://www.mnre.gov.in/centers/about-sec-2/
4.	Sardar Swaran Singh National Institute of Renewable Energy	Sardar Swaran Singh National Institute of Renewable Energy, 12th K. M. Stone, Jalandhar - kapurthala road Wadala kalan, Kapurthala - 144601 (punjab) India Email: contact@nire.res.in Phone: +91 1822 255543 / 44; Fax: +91 1822 255544 Contact Person Dr. A.K. Jain DIRECTOR Pho: 01822-255545 Email: akjain_123 @yahoo.com Source : http://www.nire.res.in/page.php?id=2
5.	Alternate Hydro Energy Centre,	Alternate Hydro Energy Centre, Indian Institute of Technology Roorkee, Roorkee-247667, Uttarakhand, INDIA Tel: Telephone: (+91 1332) 274254, 285213 FAX: (+91 1332) 273517, 273560 Email: ahec@iitr.ernet.in, aheciitr@gmail.com www. http://www.iitr.ac.in/ www.ahec.org.in
6.	Sardar Patel Renewable Energy Research Institute	Sardar Patel Renewable Energy Research Institute Sardar Patel Renewable Energy Research Institute Post Box No: 2,Vallabh Vidhyanagar, Gujarat, India-388 120,

		Telephone : 091 - 2692 - 235011, 231332 Fax : 091 - 2692 - 237982 Email : director@spreri.org , info@spreri.org http://www.spreri.org/
7.	Darbari Seth Block, IHC Complex,	Darbari seth block, ihc complex, Lodhi Road, New Delhi - 110 003. INDIA Tel. (+91 11) 2468 2100 and 41504900 Fax (+91 11) 2468 2144 and 2468 2145 For general inquires contact mailbox@teri.res.in Mr K Rajagopal Senior Manager pmc@teri.res.in Source: http://www.teriin.org/index.php
8.	NABARD	NABARD Shri P Mohanaiah Chief General Manager NABARD, Head Office Mumbai 2nd Floor, 'A' Wing, C-24, 'G' Block Bandra-Kurla Complex, Bandra (East) Mumbai 400 051 Tel : (91) 022 26524693 Fax : (91) 022 26530071 E-mail: ccd@nabard.org / pro@nabard.org http://www.nabard.org/contact.asp
9.	ICICI Bank Limited,	ICICI Bank Limited, ICICI Phone Banking Center, ICICI Bank Tower, 7th floor, Survey no: 115/27, Plot no. 12, Nanakramguda, Serilingampally, Hyderabad – 500032 India. Source : http://www.icicibank.com/
10.	Industrial Credit And Investment Corporation Of India Limited (Icici)	Industrial Credit And Investment Corporation of India Limited (ICICI) ICICI Towers, North Tower,5th Floor, Bandra-Kurla Complex, Bandra East City: Mumbai

		State: Maharashtra Pin: 400051 Phone: 99-22-6531414 Fax: 99-22-6531368/6531370 Email: damle@icici.com Web: www.icici.com
11.	Industrial Development Bank of India	Industrial Development Bank of India IDBI Bank Ltd. IDBI Tower, WTC Complex, Cuffe Parade, Colaba, Mumbai 400005 Tel: (+91-22) 2218 9111 / 6655 3355 Tel .Overseas : (+91-22) 66937000 Fax : (+91-22) 2218 1294 / 5179 / 8137 Email : customercare@idbi.co.in http://www.idbi.com/contactus.asp
12.	Industrial Finance Corporation of India	Industrial Finance Corporation of India IFCI Tower 61, Nnehru place New Delhi – 110 019 Tel :011-41792800, 41732000 Fax :011 26488471 Email :helpdesk@ifciltd.com http://www.ifciltd.com
13.	Infrastructure Development Finance Company Ltd	Infrastructure Development Finance Company Ltd KRM Tower, 8th Floor, No. 1, Harrington Road, Chetpet, Chennai - 600031 Tel: +91 44 4564 4000 Fax: +91 44 4564 4022 Email:mail@idfc.com http://www.idfc.com/our-firm/overview.htm
14.	Power Finance Corporation Ltd.	Power Finance Corporation Ltd. Power Finance Corporation Ltd. 'Urjanidhi', 1, Barakhamba Lane, Connaught Place New Delhi-110 001 Phone No.91-11-23456000 http://www.pfcindia.com/
15.	Project finance SBI	Project finance SBI State Bank of India

		Voltos House, 1st Floor, 23 J.N Heredia Marg, Bollard Estate Mumbai- 400001 Tel :022-22633369 Fax:022-2268911 Email:srinivasa.j@sbi.co.in https://www.sbi.co.in
16.	Robo India Finance	Robo India Finance 1/F, Forbes Building Charanjit Rai Marg, Fort Mumbai 400 001 India Tel: (91) 22 2203 4567 Fax: (91) 22 2203 5544 http://www.rabobank.com/
17.	Rural Electrification Corporation Ltd	Rural Electrification Corporation Ltd Core- 4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003 011 - 24365161, 24360644 Email: reccorp@recl.nic.in http://recindia.nic.in/contact.html
18.	SBI Capital Markets Ltd	SBI Capital Markets Ltd 202, Maker Tower 'E', Cuffe Parade, Mumbai - 400 005. Call : +91 (22) 2217 8300 Fax:+91 (22) 2218 8332 Email: corporate.office@sbicaps.com http://www.sbicaps.com/Main/index.aspx
19.	Small Industries development bank of India	Small Industries development bank of india SIDBI Tower 15, Ashok Marg Lucknow - 226001 Ph :- +91 - 522 - 2288547 / 48 / 49 / 50 http://www.sidbi.com/contactus.asp

The other commercial banks and financial institutions actively involved in RE financing are given below.

ADB	http://www.adb.org
DEG	http://www.deginvest.de
DBS	http://www.dbs.com
ICICI Bank	http://www.icicibank.com
IDFC	http://www.idfc.com
IFC	http://www.ifc.org
IL&FS	http://www.ilfsindia.com
IREDA	http://www.ireda.in
PFC	http://www.pfc.gov.in
Proparco	http://www.proparco.fr
Rabobank	http://www.rabobank.com
SBI	http://www.statebankofindia.com
SBI Caps	http://www.sbicaps.com
Yes Bank	http://www.yesbank.in

9.0 Policies for the Promotion of Renewable Energy, Including Incentives

Central Government

NAPCC

India is faced with the challenge of sustaining its rapid economic growth while dealing with global threat of climate change. There are some observed changes in climate parameters in India too, like increase in surface temperature by 0.4 ˚C, variation in monsoon patterns, rise in sea levels by 1.06-1.75mm per year, extreme weather conditions breaking over 130 years records, Erratic water flow in perennial rivers originating from Himalayas. Alongside, the fast depleting conventional sources of power generation have worsened the situations that prophecy of energy crisis. India, in recent times, has started emphasizing power generation from renewable sources that is either grid interactive or off grid. India actively engaged in multilateral negotiations in the UN Framework Convention on Climate Change (UNFCCC), in a positive, constructive and forward-looking manner. In order to achieve a sustainable development path that simultaneously advances economic and environmental objectives, on 30 June 2008, the National Action Plan for Climate Change (NAPCC) was framed with eight core missions:

1. National Solar Mission – renamed Jawaharlal Nehru National Solar Mission (JNNSM)
2. National Mission for Enhanced Energy Efficiency
3. National Mission on Sustainable Habitat
4. National Water Mission
5. National Mission for Sustaining the Himalayan Ecosystem
6. National Mission for a Green India
7. National Mission for Sustainable Agriculture
8. National Mission on Strategic Knowledge for Climate Change

Jawaharlal Nehru National Solar Mission (JNNSM)

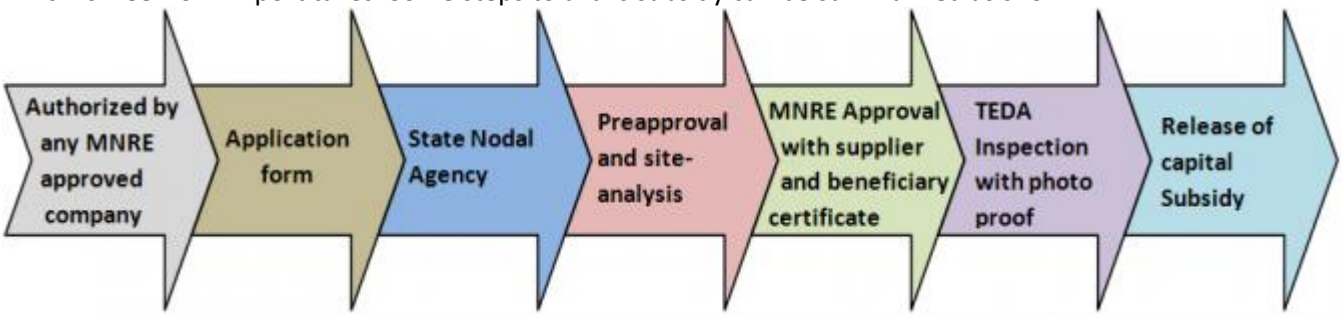
The National Solar Mission was framed to promote the use of solar energy for power generation and other application; also promoting the integration of other renewable energy technologies like biomass and wind with solar energy options. The Solar Energy can be tapped via two routes solar thermal and solar photovoltaic. Thus the framework is targeted to achieve Solar energy utilization via these routes:

NSM Phase	Utility Grid Power	Off Grid Solar	Solar Collector (sq. meters)	REMARKS
2010-13	1000-2000	200	7 million	Focus on capturing the low-hanging options in solar thermal and on promoting off-grid systems to serve populations without the access to commercial energy and modest capacity addition in grid based systems
2013-17	4000-10000	1000	15 million	Capacity will be aggressively ramped up to create conditions for up scaled and competitive solar energy penetration in the country after taking into account the experience of the initial years

2017-22	20000	2000	20 million	To create favorable conditions for solar manufacturing capability, particularly solar thermal for indigenous production and market leadership.

Tax Incentives, Subsidies and Incentives under JNNSM

Various tax exemptions, capital subsidies and incentives are available for several components and sub-components of solar energy value chain. JNNSM promotes the assembly of solar modules after import of cells which is free from import taxes. Some steps to avails subsidy can be summarized as shown:



Other benefits like Generation based incentives (GBI), 80% accelerated depreciation income tax benefits on renewable energy products including solar. Several products like Solar lanterns, street lights, blinkers and traffic signals are to be manufactured under specifications laid down by MNRE to avail capital subsidy benefits. Also the Generation based incentives and tax benefits are listed in links below:

Specifications for Solar Lanterns
Specifications for Solar street lighting
Specifications for Home Lighting Systems
Specifications for other systems
Tax incentives
Capital subsidy under different schemes
Wind Solar Hybrid
Generation Based Incentive on Grid Interactive Solar
PV Power Generation Projects
Generation Based Incentive on Grid Interactive Solar Thermal Power Generation Projects
Guidelines for Offgrid Solar applications
Offgrid refinance Scheme

Policies supporting Grid-interactive Renewable Power

National Rural Electrification Policy 2006

Rural Electrification is high time need for india where still 45 million households are un-electrified. Several goals are set under this policy:

- Access to quality and reliable electricity at reliable rates and minimum lifeline consumption of 1unit/household/day by year 2012.
- For remote villages where grid electrification is not feasible, off-grid based solutions based on stand alone systems to be taken up for supply of electricity.
- Every state to come up with rural electrification plan mapping details of electricity delivery mechanism that may be linked to district development plans and this has to be intimated to appropriate commission.

Rajiv Gandhi Gramin Vidyutikaran Yojana (RGGVY)

This scheme is being implemented by Rural Electrification Corporation for permitting stand alone systems, rural electrification, bulk power purchase & management of local distribution (through franchisee model). Under this scheme, projects could be financed with 90% capital subsidy. For households below poverty line, 100% capital subsidy would be provided as per norms of Kutir Jyoti Programme. Main provisions under this policy are to set up-

Rural Electricity Distribution Backbone (REDB): Provision of 33/11 KV (or 66/11 KV) sub-stations of adequate capacity and lines in blocks where these do not exist.

Creation of Village Electrification Infrastructure (VEI): Electrification of un-electrified villages, un-electrified habitations and provision of distribution transformers of appropriate capacity in electrified villages/ habitation(s).

Decentralised Distributed Generation (DDG) and Supply: Decentralised generation cum-distribution from conventional sources for villages where grid connectivity is either not feasible or not cost effective provided it is not covered under the programme of Ministry of Non-conventional Energy Sources for providing electricity from non-conventional energy sources under their remote village electrification programme.

REDB, VEI and DDG would also cater to the requirement of agriculture and other activities including irrigation pumpsets, small and medium industries, khadi and village industries, cold chains, healthcare, education and IT. A total of 2,11,673 villages have been electrified among which 1,19,708 previously electrified villages have been intensively electrified.

Policies supporting Off-grid renewable power

Remote Village Electrification Programme

This project covers all those villages that are not under RGGVY scheme. The decision for choosing particular technology for power generation in such remote areas is taken by state implementation agency after examination of technical feasibility and resource availability. The projects are eligible for central financial assistance and developers can propose projects under the format specified in the policy document. Out of 8722 villages sanctioned under this scheme, 6446 have been completed and 1705 villages under progress. And out of 2533 hamlets sanctioned, 1587 have been completed.

Special Area Demonstration Project Programme

The Special Area Demonstration Project Scheme of the MNRE has been introduced with an objective of demonstrating application of various Renewable Energy systems in a project mode at places of National and international importance The SADP Scheme is being implemented into two parts- Demonstration of Renewable Energy Systems at Prominent Places and the Energy Park scheme. Prominent places of national and international importance are categorized under world heritage sites, religious and educational institutions, tourist destinations, Zoos, museums, National Parks etc. Renewable energy Park scheme started in 1995, having objectives of creating awareness among rural and urban masses about the use and benefits of the renewable energy by demonstrating new and renewable energy systems and devices through working systems, cut models, LED models, blow ups etc. 30 State level renewable energy parks and 484 district level Renewable Energy Parks have been sanctioned so far.

Renewable Energy Supply for Rural Areas

This scheme was framed with the objective of developing and demonstrating commercially viable models for de-centralized energy supply in rural areas from renewable sources. The implementation partners for the programme are: Ministry of New and Renewable Energy (MNRE), National Thermal Power Corporation Limited (NTPC Limited) and Kirloskar Oil Engines Limited. The partners are to frame out the business, governance and revenue models for target areas. The project is under demonstration mode for 30 target villages in Chhattisgarh.

Renewable Energy for Urban, Industrial and Commercial Applications

The programmes implemented under this scheme are working for developing: Solar energy systems and devices (including solar thermal and solar photovoltaic systems); Energy recovery from urban, industrial and commercial wastes; and Bioenergy and cogeneration in industry.

- Under MNRE's the Energy Efficient Solar/Green Buildings Programme, GRIHA rating system is being promoted for a target of supporting 4 million sq.meter built up area during 11th Plan. So far, 117 projects with 4.98 million sq.meter built up area with 81 projects from Government Departments with 3.22 million sq. meter built up area have been registered for GRIHA certification. An independent registered society 'Association for Development and Research in Sustainable Habitats' (ADaRSH) for promotion and implementation of GRIHA rating system has been set up in the country.
- Under "Development of Solar Cities Programme" the Ministry had proposed to support 60 cities/towns for Development as "Solar/ Green Cities" during the 11th Plan period with the aim to promote the use of renewable energy in urban areas. At least one and a maximum of five cities in a State is being supported. Systems that can be installed are: Solar street lights, Solar traffic signals, Solar blinkers, Solar power packs/inverters, Solar illuminating hoardings/ Bill boards and other systems of community use as felt necessary by Implementing Agencies.

- Under the Akshay Urja programme, shops are being established in each district to make renewable energy products easily available to people and provide after sales and repair services. The programme is in operation through State Nodal Agencies . Financial support in terms of soft loans from designated banks and a maximum of 2.40 lakh as recurring grant/incentive for first two years of

operation from the Ministry is available for establishing such shops. Service Charge is also provided to SNAs. A total of 294 shops in 31 States / UTs, (including 113 Aditya Solar Shops) have been established under the scheme.

State Government

Three state governments: Rajasthan, Gujarat and Karnataka have come up with their separate solar policy. Summary of three state's solar policy is given here

State	Gujarat	Rajasthan		Karnataka
Target	PV- 365MW Thermal- 350MW		2013 2017 PV 150 MW 200 MW Thermal 150 MW 200 MW	200MW (40MW annually)
Project Capacity	2-25MW	PV: 5-10 MW; Thermal : 5-50 MW		PV: 3-10 MW; Thermal: Min 5 MW
Operative Period	30/03/2014			31/03/2016
Sale of Power Period	25 years	25 years		25 years
Sale of Power Tariff	PV Year1-12: Rs. 15.00/12.00 Year 13-25: Rs. 5.00/3.00 Thermal Year 1-12: Rs. 10.00/9.00 Year 13-25: Rs. 3.00/3.00	Tariff based competitive bidding		Tariff based competitive bidding with base price @ Rs. 14.50 /kWh (max)
Power Evacuation	66kV	33kV and above		11kV and above
Current Status	PPAs signed for about 1200 MW	Allotment in progress		Allotment in progress

Other states are planning to bring up renewable energy policy, if not a specific solar policy.

Wind Development in India- Historical Perspective (WE 20, 2011)

The policy which has been driving wind power developments in India has been the Accelerated Depreciation (AD). Even though, the Government of India has announced special schemes for those non-tax liable investors, viz. G.B.I (Generation Based Incentive), the Projects registered under GBI scheme as on date are quite few, when compared to the expectations of the Ministry of New and Renewable Energy, Government of India. The registered few projects under GBI are also triggered only by IPP (Independent Power Producers), mode developers who operate through the public / private sectors and several other Government Undertakings to invest in wind power. Even though, several of these public sectors and Government Undertakings have shown interest in investing in wind power most of them seem to hang on to the accelerated depreciation scheme of the governmental policy.

The main drivers for growth of Wind energy sector in India during past five years; are conducive policy framework and regulatory initiatives directed towards harnessing of wind energy sources, increasing prices for fossil fuel based generation, growing consumption to sustain economic growth, and some limited recognition of environmental concerns.

The growth of wind power sector can be grouped into three phases of development depending of policy shifts before and after the Electricity Act (EA) , 2003:

- Period before 1994-95 (prior to initiation of MNRE's structured policy programme)
- Era between 1995 and 2003 (With MNRE policy programme and prior to EA 2003)
- Period after 2003 (Post enactment of Electricity

Act 2003)

Period before 1994-95 (Prior to Initiation of MNRE's structured policy programme)

During the period till 1994, the wind energy sector in India was at its nascent stage of development. The Government set up demonstration projects of 100 kW - 2 MW at different locations. However, the initiatives taken during this phase put the foundation for wind energy development in coming years. The Central Government started mapping of wind potential and till date, 620 wind monitoring stations have been established in 25 states and 3 union territories. During this phase, the capacity addition growth was very slow. Till the end of financial year (FY) 1993-94, the total wind installed capacity was around 115 MW.

Period between 1994-95 and 2003 (Prior to enactment of Electricity Act 2003)

During this period, the renewable energy sector in general and the wind power sector in particular, registered significant growth in terms of capacity addition. The installed capacity increased from 115 MW at the beginning of FY 1994-95 to 1868 MW at the end of FY 2002-03. During this phase, significant wind capacity addition took place in the State of Tamil Nadu which had more than 50% share (990 MW) in the total installed capacity of 1868 MW, at the end of FY 2002-03. Most of the wind turbines installed during this phase was of 225-500 kW capacity. During this phase, manufacturing of the wind turbines also started in India. Vestas, NEG, and Enercon set up their manufacturing facility in collaboration with local

manufacturers. This era also saw the birth of largest domestic wind turbine manufacturing company, Suzlon Energy Limited.

The growth during this phase was driven by the policy support provided by the Central and State Government. The Central Government provided various fiscal and financial policies in the form of capital subsidy(only for Small Wind energy Systems-SWES), tax holiday, buy-back rate, concessional wheeling charges and banking charges, and accelerated depreciation etc. The State Governments also encouraged wind capacity addition programmes by providing various measures in the form of concessional land allotment, electricity duty exemption, schemes for exemption or deferment of sales tax for the industry etc. The wind resource development and R&D programmes by C-WET (Centre for Wind Energy Technology) laid down the foundation for growth of wind sector in coming years. C-WET as an autonomous body of MNRE, was established during this phase in 1998

Period after 2003 (Post enactment of Electricity Act 2003)

This phase can be termed as golden phase in the development history of wind sector. During the past 7 years, the installed WTG capacity has increased from 1868 MW at the beginning of FY 2003-04 to 14157 MW at the end of March, 2011, registering a compounded annual growth rate (CAGR) of about 30%. During this short span of 8 years, the wind technology has emerged as a matured technology amongst various types of renewable energy technologies. It contributes to over 10% of total generation capacity while its share amongst various renewable energy based installations constitutes over 70%. The legal clarity and certainty of regulatory principles together with conductive policy framework has ensured continued developer interests in wind sector, which has ultimately resulted into significant growth in harnessing wind energy across various States. Electricity Act 2003 has specific provisions for promotion of electricity generation from renewable energy sources and role of regulatory institutions in facilitating growth of RE capacity addition has been described in the following paragraphs.

Policy framework for growth of Wind Sector - Central Government Policies for Wind Sector:

India's renewable energy development has been fuelled by effective national and State Government policy support for both foreign and local investment in renewable energy technologies (RETs). Wind development in India began in the 1990s with various benefits in terms of fiscal and financial incentives announced by the Central Government. Incentives offered by the Central Government for wind power are in the form of tax benefits - direct and indirect. Direct tax benefits include accelerated depreciation and income tax holidays, while indirect tax benefits include exemption from excise duty and reduced custom duties. In addition, the Indian government has set up the Indian Renewable Energy Development Agency (IREDA), to provide concessional loans for renewable energy projects; and the Centre for Wind Energy Technology (C-WET) which undertakes R&D, training, certification, and testing and resource assessment for the sector. The fiscal and financial incentives schemes available to a wind energy generator under current tax regime includes,

- Accelerated Depreciation: Under section 32 of the Income Tax Act, investors can avail advantage of 'Accelerated Depreciation' of up to 80 per cent of the project cost, if the project is commissioned before September 30 of the same financial year; or 40 per cent if the project is commissioned before March 31 of the same financial year (FY).Since April 1, 2012 this accelerated depreciation benefits have been

withdrawn as per the pre-announced schedule, and a mere 15% normal depreciation has been implemented.

- Income Tax Holiday : Under section 80-1A, wind power project developers are exempted from income tax on all earnings generated from the project for period of 10 consecutive assessment years during the first 15 years of the project life. The book profit from such undertaking, however attract Minimum Alternate Tax (MAT) @18 per cent (excluding surcharge and education cess) of book profit.

Apart from the direct tax incentives under Income Tax Act 1961, several other incentives available to a wind power project developer include,

- Concessional Custom Duty on specified items
- Exemption in Excise Duty on specified devices/systems
- Exemption in Central Sales Tax and General Sales Tax on sale of renewable energy components
- Generation Based Incentive @ 50 paisa/kWh (over and above feed-in-tariff specified by the State Electricity Regulatory Commission) to the developers who do not intend to avail accelerated depreciation benefit. GBI in the 12th plan period 2012-17 is likely to be extended, but the announcement regarding this is yet to be cleared by GOI.

MNRE Incentive: Generation Based Incentive (GBI)

Ministry of New and Renewable Energy (MNRE) has announced on 17th December 2009 approval for Generation based Incentive Scheme for wind Power Project. As per the Scheme, a generation based incentive of Rs.0.50/kWh for a period of ten years to the eligible project promoters for Grid interactive Wind Power projects will be given. IREDA will disburse the Generation based incentives to the generator on half yearly basis through e-payment. This incentive will be over and above the applicable tariff approved by respective State Electricity Regulatory Commissions (SERC).

Salient Features of Generation based incentive scheme

Incentive

- Incentive of Rs. 0.50 /unit fed into the grid
- Available for a period of not less than 4 years and a maximum period of 10 years.
- Cap on incentive of Rs. 62 Lakhs per MW
- Cap on total disbursement in a year of Rs. 15.50 Lakhs / MW
- Scheme applicable to a maximum capacity limited to 4000 MW during 11th plan period
- Co-existent with Accelerated Depreciation till 2012, or till the effective date of implementation of proposed Direct Tax Code (DTC)

Eligibility

- Wind turbines commissioned after notification of GBI scheme by MNRE and on or before 31.03.2012.
- Wind generators who do not avail accelerated depreciation benefit.
- Grid connected wind generators set up for sale at tariff set by SERC/Govt, also including captive wind power projects

- Excluding Merchant Power Plants and Plants for third party sale

Financial Outlay

A budgeted specific financial outlay was given to IREDA, for execution. According to the latest statistics by IREDA, updated as on March 2011, a total number of 57 wind projects with capacity of 409 MW have been registered under the current GBI scheme . The State- wise details of the same are shown in the table below. Out of the wind energy predominant States, the highest number of wind projects registered under the scheme is from Tamil Nadu with a capacity of 185.5 MW.

State-wise data of wind Projects

State	GBI	
	No of Projects	Capacity (MW)
Tamil Nadu	30	185.45
Rajasthan	21	82.0
Karnataka	1	82.4
Gujarat	3	53.6
Andhra Pradesh	1	4.8
Maharashtra	1	0.8
Total	57	409.5

Registered under GBI scheme *Source: IREDA*

However, it would also be worthwhile to note that during the same period, i.e., from notification of the new GBI scheme till March 2011, a total of 308 projects with installed capacity 587 MW was registered with IREDA for availing the benefit under accelerated depreciation route. This continued interest shown towards accelerated depreciation scheme and a comparatively slow response to the GBI scheme signals the need for promotion of the GBI scheme through IPP (Independent Power Producers) developers with Wind so that necessary modifications if required could be made for achieving the desired objective of the scheme in a fast track mode. However as expected in the 12th plan period (April 2012 to March 2017) the accelerated depreciation scheme is withdrawn now GBI could be facilitator for the non-tax liable and IPP developers.

Legal and Regulatory framework

Electricity Act 2003

The enactment of Electricity Act 2003 has ushered in radical changes in legal and regulatory framework for the renewable energy sector. The Act provides for policy formulation by the Government of India and mandates State Electricity Regulatory Commissions to take steps to promote renewable and non-conventional sources of energy within their area of jurisdiction. In fact, Sec. 3 of EA 2003 clearly mandates that formulation of National Electricity Policy, National Tariff Policy and Plan thereof for development of power systems shall be based on optimal utilization of all resources including renewable sources of energy.

Renewable Energy related provision under Electricity Act 2003 (Section 3: Policy Formulation)

3. (1) The Central Government shall, from time to time, prepare the national electricity policy and tariff policy, in consultation with the State Governments and the Authority for development of the power system based on opimal utilization of resources such as coal, natural gas, nuclear substances or materials, hydro and renewable sources of energy.

E.A. 2003 Sec. 61: Tariff Principles

The Appropriate Commission shall, subject to the provisions of this Act, specify the terms and conditions for the determination of tariff, and in doing so, shall be guided by the following, namely:

"...

(h) The promotion of co-generation and generation of electricity from renewable sources of energy;"

E.A 2003 Sec. 86: Promotional measures for Renewable energy

(1) The State Commission shall discharge the following functions, namely: -

"(e) promote co-generation and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee;"

National Tariff Policy and National Electricity Policy framed subsequent to the Act also stipulates several conditions in respect of promotion and harnessing of renewable energy sources and mechanism for promoting use of renewable energy, time for implementation etc.

Feed in Tariff (FIT)/ Preferential tariff (PT)

State Electricity Regulatory Commissions (SERCs) under the guidance of the Electricity Act 2003 and subsequent National Tariff Policy (NTP) and National Energy Policy (NEP) have issued long term Feed-in Tariffs (FIT) orders to ensure financial obligations of RE developers. FIT mechanism is the world's most successful policy mechanism for simulating the rapid development of renewable energy. The electricity utilities are obligated to buy renewable electricity at the rates by the government or regulator. The feed-in tariff mechanism was first introduced by USA in 1978. Government of India introduced the feed-in tariff mechanism in 1995 when Ministry of New and Renewable Energy (then, Ministry of Non-conventional Energy Sources) specified the uniform feed-in tariff of Rs 2.25 per unit with an escalation of 5% per annum for all types of RE sources.

National Tariff Policy enacted under Section 3 of Electricity Act, 2003, provided for preferential tariff determination by the State Electricity Regulatory Commissions (SERCs) for different types renewable energy sources, after taking into account the potential of RE sources, impact on retail tariff etc. In the due course of time, the State Electricity Regulatory Commissions have determined the generic tariff for wind energy sources on normative basis. Out of 25 SERCs and Joint Commission around 18 SERCs have issued generic Tariff for wind energy technology. A compilation of Wind Power capacity addition across States

prior to issuance of Preferential Wind Tariff Order and Post issuance of Wind Tariff Order showed an increase of 175% at the end of FY 2010-2011.

Then it is evident that, preferential regulated tariff regime clearly had favourable impact on the Wind Energy capacity addition in the country during past the five to six years, since enactment of Electricity Act 2003 and notification of Tariff Policy during 2006. Overall 7662 MW of Wind Energy Capacity addition has taken place post issuance of Feed-in Tariff Orders by various SERCs across country.

Wind tariff order determining parameters – A review

Particulars	***Unit***	***Gujarat***	***Karnataka***	***Rajasthan***	***Maharastra***	***Tamil Nadu***
Tariff Order/Regulations		*Jan 30, 2010*	*Order Dtd, Dec 11, 2009*	*Regul. Dated Jan 2009 & order Jul 15, 2009*	*Order dtd, Nov 24, 2003 &GrIII Cases 17(3), 3,4,5 of 2002*	*Wind Tariff order for FY 2009-10 & FY 2010-11*
Capacity Utilisation factor CUF	*%*	*23%*	*26.5%*	*Site specific 20 to 21%*	*20%*	*27.1%*
Plant Life	*Years*	*25*	*-*	*25*	*-*	*20*
Capital cost	*Crores Rs/MW*	*4.62*	*4.70*	*5.25*	*4.00*	*5.35*
O&M expense	*% Project cost*	*Rs. 16.5 Lakh /MW*	*1.25%*	*1.25% base cost for power plants 3% of cost of transmission lines for Transmission lines*	*1.5% of the cost of project for first 3 years and 2% of the cost of project in the fourth year*	*O&M charges for machinery on 85% of CAPEX-1.10% O&M charges for civil works on 15% of CAPEX-0.22%*
Depreciation	*%*	*6% for the first 10 years and 2% from 11th year to 25 years*	*7% on SLM Basis*	*SLM Basis*	*--*	*4.5% on SLM Basis*

Debt:Equity	*Ratio :*	*70:30*	*70:30*	*70:30*	*70:30*	*70:30*
Interest on term Loan	*%*	*10.75%*	*11.75%*	*SBI LT-PLR+1%*	*12.5%*	*12.0%*
Interest on Working Capital	*%*	*11.75%*	*13.25% per annum*	*SBI PLR*	---	---
Return on Equity ROI	*%*	*14% (post tax)*	*16%*	*16% (Pre Tax)*	*16%*	*19.85%(pre Tax)*
Approved tariff	*Rs/unit Rs/(kw h)*	*3.56*	*3.70*	*4.28 to 4.50 site specific*	*3.5*	*3.39*

Reference : Ajit Pande's presentation, Wind power 2011 (reproduced)

Central Electricity Regulatory Commission has notified CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulation 2009 which stipulates principles for determination of preferential tariff for renewable energy technology. Specifying the capital cost norms with indexation mechanism and fixing levellised tariff upfront for the entire duration of tariff period of 13 years are main features of the methodology adopted in the regulations by CERC.

Further, CERC has classified wind power projects into four categories of wind zones and corresponding CUF based on annual mean power density measured at 50 meter hub height.

Annual Mean Wind Power Density (W/m^2)	CUF
200-250	20%
250-300	23%
300-400	27%
> 400	30%

Renewable Purchase Obligation (RPO) mechanism

While Electricity Act 2003 (Section 61 (h)) is important from the perspective of the determination of preferential tariffs, probably the most important Section in the Act from renewable perspective is Section 86 (1) (e). With careful reading, this sub-section could be easily divided into three parts:

- Suitable measures for Connectivity to the grid
- Sale of electricity to any person
- Specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee;

SERC's seem to address the issue of RPO more or less holistically. The regulations are issued after considerable deliberations and public consultations. As of date, some of the SERCs have put significant

emphasis on the last part of this important sub-Section i.e. specify percentage of electricity to be procured by the distribution licensees from the renewable sources of energy while virtually ignoring the first two parts. However, there is considerable effort by state electricity regulatory commissions to realistic declaration of RPO standards as a % of electricity generation through expert and public consultative mechanism. The requirement of land and third party sale of electricity and assurance of grid connectivity and power evacuation have not been at the moment in the % RPO declaration. If all these are considered then it would be better practice to supplement the usual public opinion n RPO. Key aspects to be addressed as part of RPO regulations include:

- Premise for specification of Percentage Specification
- Eligible Entities for applicability of Percentage
- Applicable control period
- Enforcement mechanism

Various states have issued RPO Orders or Regulations specifying percentage for mandatory renewable energy procurement obligation.

Some states maintained same level of RPO without a progressive increase every year throughout the control period while others varied either gradually or on a incremental basis from a minimum level of RE penetration. Wind being the most favoured cost effective technology it had a higher share.

Renewable Energy Certificate (REC) Mechanism

Ministry of New and Renewable Energy (MNRE), Forum of Regulators (FOR)and the Central Electricity Regulatory Commission (CERC), taking into consideration the recommendations of (National Action Plan for Climate Change) NAPCC, have evolved a framework for implementation of REC Mechanism in India. CERC has notified Regulation on REC in fulfillment of its mandate to promote renewable sources of energy and development of a tradable market in electricity. REC is a market based instrument to promote renewable energy and facilitate RPO/RPS portfolio by inter-state exchange of REC. The framework of REC is expected to give further push to RE capacity addition. The REC mechanism seeks to address the mismatch between availability of RE. sources and the requirement of the obligated entities to meet their RPO through a national level market.

Item Description	Non Solar REC (Rs/MWh)	Solar REC (Rs/MWh)
Forbearance Price	3,900	17,000
Floor Price	1,500	12,000
At exchange Price (bid)	variable	variable

National Load Dispatch Centre (NLDC) has been nominated as a Central agency for registration of RE generators participating in the scheme. Under the REC mechanism RE generator has to sell electricity component to host distribution utility at weighted average of power purchased and remaining component as environmental attribute as REC component through power exchange. The Central Agency/NLDC would issue the REC to RE generators which will be equivalent MWh of electricity injected into the grid by the RE generators. Central Agency has issued detailed procedure for registration and also for guidelines for the State Agency for Accreditation of RE project. REC would be exchanges only in power

exchanged approved by the CERC within the band of floor price and forbearance price to be specified by the CERC.

Some issues of concern in implementation of REC mechanism

Tradable RECs have been used extensively as a successful market based policy instrument to promote renewable power in many countries, such as Australia, Japan, US, Netherlands, Denmark and UK. However, these schemes vary in detail and hence existing REC mechanism need to be evolved based on the success of such electronic certificates experience in other countries. It is interesting to see how the financial institutions respond to REC mechanism as different market model may evolve with implementation of REC. Variation under Price discovery mechanism is the major concern in REC mechanism. Long term certainty in price discovery mechanism with support of floor price would boost confidence in stakeholders to participate in such a new mechanism. In coming future price discovery of RECs in the power exchange may define the certainty of the REC market. The commencement of REC mechanism would help State to set aggressive target. Under REC mechanism price of REC component is dynamic and would be decided in the Power exchange within a pre-specified range of floor and forbearance price. As against this the fixed component, the electricity component, is an average power purchase cost (APPC) of the host utility. There are certain attempts to call bidding for the electricity component by assuming APPC as a ceiling price. Such move would increase the risk level for RE developer and may affect the financial viability of the project.

If RECs are not linked with mandatory levels of RPO in various states stipulated by Government of India to the respective state governments or the State Electricity Boards, the risk-covered REC in a tradable market mode may not happen. The expectation such mandatory levels of RPO may also need to segregate the combined RPO to WPO, SPO, BPO and so on, meaning Wind and Solar and Biomass which are different technologies having varied preferential tariff levels in various states mainly regulated by the respective SERCs, should be specifically given % penetration in the declared overall RPO of the state.

Future Policy beyond AD, RPOs, and RECs

It may be expected that when the current key driver the AD (accelerated Depreciation) is withdrawn, there could be competitive bidding for generated wind power and assurances of minimum generation with effective wind forecasting. The year-on-year cumulative growth based on the details in the annual reports of MNRE have clear indication of the conducive policy frame work of Government of India which has made possible the wind power growth in India. In 2012 it had an all time high of 3209MW installed capacity with cumulative capacity crossing the previous year level to a high of 17000MW.

With facilitative efforts such as state-wise land allocation / acquisition guidelines, logistical and grid & road infrastructure building and grid capacity up-scaling , wind forecasting, smart gird techniques for RE penetration, investment grade wind potential location identification and effective REC-RPO combinations, the annual growth rate may go up to 2500 to 5000 MW/year, with conducive policy frame work of MNRE/GOI giving various alternatives to the attractive AD-scheme. The performance of GBI, REC will require some more lead time to examine the effect of these in steering faster growth of the sector. More rigorous promotion through CDM route may also attract foreign Direct Investments (FDI) in the sector, but they need some observation time prior to disclosing conclusions. State wise policies on wind solar differed significantly in various features:

Tariff for purchase of energy & allotment of Government lands:

Use of power produced:

Duration of PPAs or Wheeling Agreements:

Power evacuation facilities:
Wheeling and Banking:
Sharing of Carbon credits:

RENEWABLE POWER POLICIES-PROGRAMME-WISE

Buy-back rate: ` /unit

S.No.	State / UT	Wind Power	Small Hydro Powe	Biomass Power
1.	Andhra Pradesh	3.50 / kwh fixed for 10 yrs	2.69 (04-05)	2.63 (05-06) Esc @ 1% for 5 yrs
	Chhatisgarh	-	-	2.71 (05-06)
5	Gujarat	3.56 fixed for 20 yrs	-	3.00 No escalation.
6.	Haryana	4.08 escalation 1.5% base year 07-08	2.25 (94-95)	4.00 –biomass 3.74 - cogen. Esc. @ 2% (base 2007-08)
7.	Himachal Pradesh	-	2.50	-
10.	Karnataka	3.70 fixed for 10 yrs	2.90	2.74-cogen. 2.88 - biomass Esc @1% for 10 yrs (base04-05)
11.	Kerala	3.14 fixed for 20 yrs	-	2.80 (2000-01) Esc @ 5% for 5 yrs
12.	Madhya Pradesh	4.03 - 3.36 (constant) Reducing @ 0.17 per yr for first four years	2.25	3.33-5.14 Esc. @ 0.03-0.08 for 20 yrs.
13.	Maharashtra	3.50 / kwh Esc. of 0.15 per yr for 13 years from DOC of the project	2.25 (99-00)	3.05- cogen. 3.04-3.43-biomass Esc @ 1% for 13 yrs
19.	Punjab	3.66 with five annual escalation @ 5% upto 2012	2.73 (98-99)	3.01 (01-02) Esc @ 3% for 5 yrs limited to 3.48
20.	Rajasthan	4.50 for Jaisalmer, Jodhpur etc. and 4.28 for pther districts (base year 08-09)	2.75 (98-99)	3.60-3.96 water-air cooled
22.	Tamil Nadu	3.39 / kwh (Levelised)	-	2.73 (2000-01)* Esc @ 5 % for 9 yrs
24.	Uttar Pradesh	-	2.25	2.86 –existing plants 2.98 –new plants Esc @ 0.04/ year
25.	West Bengal	4.00 / kwh To be decided on case to case	2.25	2.86 –existing plants 2.98 –new plants Esc @ 0.04/ year

Note: Only states which had some REs installed status are given.

While the RE policies in India vary state to state as well as implementation of central policies in every state, the incentives broadly vide a WISE(World Institute of sustainable Energy, Pune) -report are as follows:

Incentives for RE by the Central Government

- **Capital Subsidy:** Some technologies like small hydro, biomass and solar PV (off-grid) systems are provided support through capital subsidy based on installed capacity. An indexation method has been devised to calculate subsidy amounts for various technologies.
- **Accelerated Depreciation:** The Government of India currently allows accelerated depreciation at the rate of up to 80% in the first year on a written-down value (WDV) basis for equipment under Section 32, Rule 5 of the Income Tax Act.
- **Generation Based Incentive (GBI):** The Government of India had implemented a GBI scheme for grid interactive wind power projects - a GBI of Rs 0.50 per kWh, with cap of Rs.15 lakhs per MW per year, totalling Rs.62.5 lakhs per MW to be availed up to 10 years of the project life. This scheme is applicable to wind power projects not availing accelerated depreciation benefits and commissioned before 31 March 2012. However, there are no guidelines for GBI post-2012 as of now. A similar GBI scheme was offered to solar power generation projects for small capacity of 50 MW. However, the scheme was withdrawn after the introduction of JNNSM.
- **Income Tax Holiday:** Section 80 IA of the Income Tax Act offers a 10-year tax holiday within a block of first fifteen years during the life cycle of all infrastructure projects which also includes renewable energy power generation projects.
- **Excise Duty Exemption:** Government of India is offering 100% exemption in Excise Duty for most renewable energy generation project components. The components that are offered such exemption are specified under List 9 of Section No. 237 of the Central Excise Tariff Act, 1985. The normal rate of Excise Duty for such components is 16%.
- **Customs Duty Exemption:** Government of India is offering concessional Customs Duty of 5% for selected components of renewable energy generation power projects under the Customs Tariff Act, 1975 (51 of 1975). The electrical components and machinery used in renewable energy power projects attracts Customs Duty of 7.5% or 10% (depending upon components). Further, Govt. of India vide Notification No. 30/2010-Customs dated 27 February 2010 has offered concessional Customs Duty for all machinery imported for the initial setting up of a solar power generation project or facility.
- **Foreign Direct Investment:** 100% FDI investment is allowed in renewable energy generation projects.
- **Deduction in Taxable Income:** Under Section 10(23G) of the Income Tax Act, income from an infrastructure capital fund or company or a cooperative bank (from the assessment year 2002/03) by way of dividends, interest, or long-term capital gain from investments made in infrastructure business, etc., is exempt till 2012.
- **Renewable Regulatory Fund (RRF)**: All power generation projects are required to schedule the power. Any deviation from the schedule is liable to be penalised. However, wind and solar power projects are allowed limited deviation from their schedule. In order to compensate the applicable unscheduled interchange (UI) penalty to state utility because of default of RE power schedules within the allowed limits, it is proposed to create a renewable regulatory fund to compensate the same. This fund is proposed to be created by the National Load Dispatch Centre (NLDC) on the lines of UI Pool Account at the regional level. Payments on account of renewable regulatory charges, as described in the Regulations, and interest, will be credited to this account.

Incentives for RE by State Governments

Some state governments have established clean energy funds through levy of 'green cess'. Certain other incentives have also been announced in states like Maharashtra. The initiatives in the states of Maharashtra, Karnataka and Gujarat are briefly discussed here.

- **Maharashtra:** The Government of Maharashtra has levied Rs. 0.08 (eight paise) per kWh on energy consumption by commercial and industrial units. This cess generates around Rs.200 crore annually. The state government has formed the Urjankur Nidhi trust and appointed M/s IL & FS as fund manager for proper utilisation of the funds. The funds are being utilised for providing equity capital for bagasse co-generation projects and for funding power evacuation infrastructure required for evacuation of power generated from non-conventional energy generation projects.
  The Maharashtra government has recently (3 March 2011) announced 100% exemption on sugarcane purchase tax of 3% for co-operative sugar factories which will be commissioning co-generation power projects. This tax exemption will be available for a ten year period, from the commissioning of the co-generation project, or till such tax exemption amount becomes equal to the project cost, whichever is earlier.
- **Gujarat**: The Government of Gujarat has passed the 'Gujarat Green Cess Bill 2011' which proposes to levy a green cess of Rs. 0.02 (two paise) per kWh on generation of all kinds of electrical energy, including captive energy, but excluding solar energy, wind energy, bio-energy, geo-thermal energy, tidal energy and hydel energy. This cess could generate Rs.244 crore, which is proposed to be utilised for encouraging the use of renewable energy and for protection of the environment. *(Gujarat 2011)*
- **Karnataka:** The Government of Karnataka has planned to impose Rs.0.05 (five paise) per kWh as green cess on commercial and industrial consumers to generate about Rs.50 to Rs.60 crore annually. This fund is proposed to be utilised for the development of renewable energy, incubation of projects, and enhance capabilities on evacuation of wind power projects in the state.
- **Concession in open access charges/demand charges for captive RE projects:** RE projects, especially wind power projects, have low plant load factor compared to conventional power projects. However, the open access charges do not differentiate between the source of power generation. Hence, per unit of open access charges are comparatively higher for RE projects, making open access transactions unviable. Hence, to promote RE projects, some states have offered concessional open access charges for captive RE projects or waived the cross-subsidy surcharges for such transactions. States like Karnataka, Kerala, Tamil Nadu and Gujarat have offered concessional open access charges/demand charges for captive RE projects and states like Maharashtra have not imposed cross-subsidy surcharge. Some states have restricted such benefits for captive use of RE power and third party transactions are being excluded. So there is wide variation among the states in the open access charges and cross subsidy policies.

10.0 List of Major Conferences, Business-to-Business Meetings, Technology Roadshows, Exhibitions, Buyer-Seller Meets, Policy Dialogues, Workshops, Training Programmes

S.No	Conference /Workshop	Address
1.	Wind Power India 2012	Venue : Chennai Trade Centre, Chennai Organisers : IWTMA, Chennai, Global Wind Energy Council & World Institute of Sustainable Energy Start Date: 28th Nov, 2012 End Date: 30th Nov, 2012 Website: www.windpowerindia.in
2.	GRIHA – 3 Day Evaluators and Trainers Programme at Bhopal	Venue : Expert lecture theatre, Maulana Azad National Institute of Technology, Bhopal Start Date : 03 Oct 2012 End Date : 05 Oct 2012 Source : http://www.grihaindia.org
3.	Renewable Energy World Asia	Conference & Exhibition Date : 3-5 October 2012 Impact Exhibition & Convention Centre Bangkok, Thailand http://www.renewableenergyworld-asia.com/index.html
4.	MREA ST 301.02 Solar Hot Water Installation Lab	Date: October 5, 2012 to October 7, 2012 Location: 7558 Deer Rd MREA Custer, WI 54423 US Website: https://www.midwestrenew.org
5.	MREA W 401.01 Wind System Repair and Maintenance	Date: October 5, 2012 to October 6, 2012 Location: 7558 Deer Rd. Midwest Renewable Energy Association Custer, WI 54423 US https://www.midwestrenew.org/
6.	Advanced Course on Sustainable Lighting Practices	(Organized by TERI and PHILIPS) Venue: Seminar Hall, Ground Floor, TERI, IHC, Lodhi Road, New Delhi

		Start Date : 08 Oct 2012 End Date : 11 Oct 2012 Website: https://www.midwestrenew.org/
7.	MREA ST 101.09 Solar Domestic Hot Water	Date: October 8, 2012 to November 18, 2012 Location: OnlineUS Website: https://www.midwestrenew.org/
8.	MREA PV 101.11 Basic Photovoltaics	Date: October 9, 2012 to October 30, 2012 Location: 6701 Delaware St Merrillville Community Schools Merrillville, IN 46410 US
9.	European future Energy Forum	Geneva, Switzerland Date : 10-12 October Email:info@europeanfutureenergyforum.com www.europeanfutureenergyforuum.com
10.	2nd Regional conference on "Towards Urban Sustainability - The GRIHA Approach"	Venue : Suzlon One Earth, Magarpatta City, Pune Start Date : 12 Oct 2012 End Date : 13 Oct 2012 Source : http://www.grihaindia.org/
11.	TIREC 2012	Accelerating Turkey's clean energy development 16—17 October 2012, Istanbul, Turkey James Brady: Tel: +44 (0)20 3355 4205 Email: james.brady@greenpowerconferences.com http://www.greenpowerconferences.com
12.	China Wind Power 2012	Beijing, 16-18 October, 2012 http://www.ewea.org/index.php?id=43
13.	MREA SA 210.01 Whole Farm Renewable Energy Design	Date: October 20, 2012 Location: 1015 County Rd. US Wind and Sun Farm Sturgeon Bay, WI 54235 US Website: https://www.midwestrenew.org

14.	MREA PV 401.01 Advanced Photovoltaic Installation	Date: November 1, 2012 to November 5, 2012 Location: 7558 Deer Rd. Midwest Renewable Energy Association Custer, WI 54423 US Website: https://www.midwestrenew.org/
15.	Renewable Energy World Africa	Johannesburg, Republic of South Aftrica Date :6-8 november 2012 Pennwell International, Lee Catania The Water Tower, Gun Powder Mill Powdermill Lane, Waltham Abbey UK Email :ieec@pennwell.com www.renewableenergyworldafrica.com
16.	6th Renewable Energy India 2012 Expo	Date :7-9 November 2012 India Expo Centre, Greater Noida National Capital Region of Delhi, India M: +91 9871 726762 Email : Rajneesh.khattar@ubm.com http://www.renewableenergyindiaexpo.com
17.	Offshore EWEA 2012	Frankut, Germany Date : 19-21 november 2012 European Wind Energy Associations Rue d' Arton 80 / B-1040 Brussels Tel:+3222131890 Email:events@ewea.org www.ewea.org
18.	Wind Energy in Bulgaria 2012: Getting back on track"	Tuesday, 20 November 2012 09:00 - 16:00 followed by a drinks reception Venue: Sheraton Hotel Sofia Balkan, Sofia, Bulgaria http://www.ewea.org/index.php?id=2249
19.	2nd International Conference & Exhibition	Date : 28 – 30th November 2012 Venue : Chennai, India Source : http://windpowerindia.in/

20.	Intersolar India	Intersolar India Mumbai, India Date:6 – 8 December 2012 Solar Promotion International GmbH http://www.intersolar.in/en/intersolar-india.html
21.	2nd National Conference On Recent Advances In Bio-Energy Research	Sponsored by Ministry of New and Renewable Energy, Govt. of India December 7-8, 2012 (Friday & Saturday) Source : http://www.nire.res.in/page.php?id=23
22.	3rd Regional conference on "Innovations in Green Buildings - The GRIHA Approach"	Venue : Bangalore Start Date : 10 Dec 2012 End Date : 11 Dec 2012 Source : http://www.grihaindia.org/
23.	Wind Turbine Noise: From Source to Receiver	Tuesday 11 & Wednesday 12 December 2012 Saïd Business School, Oxford, UK http://www.ewea.org/index.php?id=2177
24.	Renewable Energy World Noth Conference Expo America	Long beach , CA, USA 11-13 December 2012 Pennwell Corporation 1421 S Sheridan Rd, Tulsa, OK 74112 Tel :+1-918-831-9160 Email:tthompson@pennwell.com www.renewableenergyworld-events.com
25.	MREA PV 201.07 PV Site Assessor Training	Date: December 15, 2012 Location: 222 North LaSalle St. Near North National Title Chicago, IL 60601 US Website: http://www.midwestrenew.org/

11.0 List of Public Domain Technology Databases

Engineering Journals			
S.No	Titles	Publishers	Websites
1.	Smart Grid and Renewable Energy (2010- Till Now)	Scientific Research Publishing ISSN Print: 2151-481X ISSN Online: 2151-4844	Full Text can Access http://www.SciRP.org/journal/sgre
2.	Energy and Power Engineering	Scientific Research Publishing ISSN Print: 1949-243X ISSN Online: 1947-3818	http://www.scirp.org/journal/epe
3.	Open Journal of Applied Sciences	ISSN Print: 2165-3917 ISSN Online: 2165-3925	http://www.scirp.org/journal/ojapps
4.	Modern Instrumentation	ISSN Print: 2165-9257 ISSN Online: 2165-9273	http://www.scirp.org/journal/mi
5.	Open Journal of Energy Efficiency		http://www.scirp.org/journal/ojee
6.	Computational Water, Energy, and Environmental Engineering	ISSN Print: 2168-1562 ISSN Online: 2168-1570	http://www.scirp.org/journal/cweee
7.	Engineering	ISSN Print: 1947-3931 ISSN Online: 1947-394X	http://www.scirp.org/journal/eng
8.	Wireless Engineering and Technology	ISSN Print: 2152-2294 ISSN Online: 2152-2308	http://www.scirp.org/journal/wet/
9.	World Journal of Mechanics	ISSN: 2160-049X(Print) ISSN: 2160-0503(Online)	http://www.scirp.org/journal/wjm
10.	New Journal of Glass and Ceramics	ISSN: 2161-7554(Print) ISSN: 2161-7562(Online)	http://www.scirp.org/journal/njgc
11.	Journal of Sensor Technology	ISSN: 2161-122X(Print) ISSN: 2161-1238(Online)	http://www.scirp.org/journal/jst
12.	Advances in Internet of Things	ISSN: 2161-6817(Print) ISSN: 2161-6825(Online)	http://www.scirp.org/journal/ait
13.	Journal of Quantum Information Science	ISSN: 2162-5751(Print) ISSN: 2162-576X(Online)	http://www.scirp.org/journal/jqis
14.	Journal of Electronics Cooling and Thermal Control	ISSN: 2162-6162(Print) ISSN: 2162-6170(Online)	http://www.scirp.org/journal/jectc/
15.	Modern Mechanical Engineering	ISSN: 2164-0165(Print) ISSN: 2164-0181(Online)	http://www.scirp.org/journal/mme

16.	Open Journal of Organic Polymer Materials	ISSN: 2164-5736(Print) ISSN: 2164-5752(Online)	http://www.scirp.org/journal/ojopm
17.	Circuits and Systems	ISSN: 2153-1285(Print) ISSN: 2153-1293(Online)	http://www.scirp.org/journal/cs
18.	Intelligent Control and Automation	ISSN: 2153-0653(Print) ISSN: 2153-0661(Online)	http://www.scirp.org/journal/ica
19.	Computational Water, Energy, and Environmental Engineering	ISSN: 2168-1562(Print) ISSN: 2168-1570(Online)	http://www.scirp.org/journal/cweee
20.	Energy and Power Engineering	SSN Print: 1949-243X ISSN Online: 1947-3818	http://www.scirp.org/journal/epe
21.	Journal of Software Engineering and Applications	ISSN Print: 1945-3116 ISSN Online: 1945-3124	http://www.scirp.org/journal/jsea
22.	Journal of Transportation Technologies	ISSN Print: 2160-0473 ISSN Online: 2160-0481	http://www.scirp.org/journal/jtts
23.	Journal of Surface Engineered Materials and Advanced Technology	ISSN: 2161-4881(Print) ISSN: 2161-489X(Online	http://www.scirp.org/journal/jsemat
24.	World Journal of Nuclear Science and Technology	ISSN: 2161-6795(Print) ISSN: 2161-6809(Online)	http://www.scirp.org/journal/wjnst
25.	World Journal of Nano Science and Engineering	ISSN: 2161-4954(Print) ISSN: 2161-4962(Online)	http://www.scirp.org/journal/wjnse
26.	Open Journal of Safety Science and Technology	ISSN: 2162-5999(Print) ISSN: 2162-6006(Online)	http://www.scirp.org/journal/ojsst
27.	Optics and Photonics Journal	ISSN: 2160-8881(Print) ISSN: 2160-889X(Online)	http://www.scirp.org/journal/opj
28.	Journal of Analytical Sciences, Methods and Instrumentation	ISSN: 2164-2745(Print) ISSN: 2164-2753(Online)	http://www.scirp.org/journal/jasmi
29.	Open Journal of Civil Engineering	ISSN: 2164-3164(Print) ISSN: 2164-3172(Online)	http://www.scirp.org/journal/ojce