Pakistan Council of Renewable Energy Technologies,

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INTRODUCTION:

Over the last thirty years, Asia has become a major player on the global scene. Many economies have become tigers while China and India are developing more rapidly than anyone had expected. Because of these developments, electricity demand is expected to increase 10% every year until 2017. As the world wakes up to the reality of climate change, electricity will increasingly have to come from renewable sources such as wind and solar. Pakistan is in a good position to exploit these because it has abundant wind and sun.

Pakistan Council of Renewable Energy Technologies (PCRET) since its very inception has been acquiring and updating knowhow imperative for the promotion and mass propagation of Renewable Energy Technologies especially in the field of development and promotion of Biogas, Micro hydro, Solar Thermal , Solar PV and Wind Energy Technologies. The Biogas technology being promoted developed and disseminated by the Council is not only technically time tested but is highly affordable. In fact all the projects undertaken by the Council intend to promote and supplement Government policies in mitigating the sorrows of the deprived by satisfying their basic needs through a participating process. Pakistan has tremendous renewable energy potential which if tapped properly is capable of meeting the energy needs of all its population several times.

OBJECTIVES AND FUNCTIONS: -

The functions of the council are:

The major functions of the Council include:-

a) To establish facilities, and acquire expertise to conduct research for suitable renewable energy technologies.

b) To produce materials and devices for applications in the field of renewable energy.

c) To promote renewable energy technologies in the Country through PSDP projects and Pilot scale production of indigenously developed technologies.

d) To organize conferences, seminars, workshops for promotion of technologies and products, and

e) To establish national / provincial and international linkages in the field of renewable energy technologies.

REGULAR ACTIVITIES:-

PCRET regular activities mainly pertain to following areas:

a) Fabrication of solar cells PV panels of mono-crystalline structure.

b) PV system designing and installation of demonstration units for the promotion of solar energy technologies.

c) Micro hydro power plant designing after potential assessment of the site, their installation and electrification of remote area houses / cottage industries.

d) Domestic and commercial scale biogas plants designing and installation for meeting fuel energy demands and power generation for water pumping to irrigate agri-land.

e) Wind Energy system installation for electrification of remote and coastal area of the country.

f) Solar Water Heater.

g) Solar Dryers for drying of fruits and vegetables.

h) Solar Water Purifier Systems designing and installation for clean water in remote areas.

i) Provision of consultancy and testing services to private and public sector organizations.

AREAS OF INTEREST

PCRET is working for the promotion and propagation of Renewable Energy Technologies (RET) in the following fields:

- Solar Photovoltaic
- Solar Thermal
- Biogas
- Microhydro
- Wind Energy

PROVISION OF SERVICES

PCRET is providing following services to private and public sectors organizations

- Consultancy services for design and development of renewable energy systems and appliances
- Testing Services for testing of Photovoltaic (PV) Systems and components and Solar Thermal appliances etc as per international Standards.
- Training Services to users, manufacturers and installer of Renewable Energy Systems
- Any other Services related to the Renewable Energy as per requirements of the Client.

ACHIEVEMENTS OF PCRET

The following give details of dissemination and promotion of RET's by PCRET:

Project submitted and revised to be submitted in PSDP:

S. No.	Title of the projects	Starting Date	Duration in Year	Rupees (Million)
1.	Enhancement of Lab Facilities to Produce High Efficiency Silicon Solar Cells and PV Modules	July, 2016	02	58.1864
2.	Installation of 100 Micro Hydro Power Plants In Public–Private Partnership	July, 2016	02	300.005
3.	Public Training Program and Promotion of PCRET Products / Services for Accelerating the Penetration of Renewable Energy Technologies in Pakistan	July, 2016	02	31.05
4.	Installation of New Biogas Plants in Pakistan for Providing Natural Gas and Bio-Fertilizer to Rural and Sub-Urban Communities.	July, 2016	03	175.220
5.	Installation of Solar Photovoltaic System at PCRET Islamabad.	July, 2016	01	59.49
6.	Establishment of Testing bas for Solar PV Equipment / product as per Quality / Safety Standards at PCRET	July 2016	2-1/2	795.352
			Total	**1419.3034**

Project from Foreign Donors

S.	Title of the projects	Funded by	Duration	US $

No.			in Year	in Million
1.	Adaptation of PV Biogas Technologies and Establishment of Renewable Energy Lab in Pakistan for Climate Change Mitigation.	UNDP	3	40.00
1.	Establishments of photovoltaic Micro Hydropower Biogas and Wind Energy Research Labs	KOICA	3	3.00
2.				43.00

1. Project Proposal submitted to EU Research and Innovation Program Horizon 2020 for Integration of Mono Crystalline Silicon and Perovskite Solar Cells for Higher Efficiency.
2. Demonstration unit of Hybrid micro hydro power plants (Hydro Solar+ Wind) installed by with the collaboration of Pak-China joint cooperation.
3. PCRET has signed MOU with COMSATS Energy Center Lahore for carrying out advanced research in the field of Renewable Energy Technologies.
4. PCRET also signed MOU with UNIVERSITY OF PUNJAB for collaboration in the field of Biogas Technology, in this regards PCRET Lahore office will be CENTER OF EXCELLENCE for Biogas.
5. PCRET Peshawar Office is being developed as CENTER OF EXCELLENCE for Micro hydro power.
6. PC-IV submitted of the project for Up-gradation and extension of PCRET facilities at Islamabad center.
7. Fabrication and testing of Liner Fresnel Collector Based Solar Thermal Power Plants in progress.
8. Fabricated and tested new types of Solar Cookers.
9. Testing, lamination and cutting of solar cells carried out for SUPARCO, and Pakistan Army**.**
10. Fabrication of 50 of SOLAR MOBILE chargers.
11. 10-Ph.D/M. Phil students are doing research work in PCRET Laboratories in advance organic solar cells lab.

Figure -1: New Type of dual Parabolic Reflector Solar Cookers

Figure.2: View of Hybrid micro hydro demonstration units installed by Chinese experts at PCRET.

Figure 3: Solar Mobile Charger developed by PCRET

LIST OF TRAINING PROGRAMME CONDUCTED BY PCRET IN YEAR 2014-2015:

S#	Training Course	No. of Participants
1.	Three Days Training on Renewable Energy Technologies PV, Solar Thermal, Wind, Micro hydro, Biogas for Public and Private Entrepreneurs Dated: 14-09-2015 – 16-09-2015, Venue: PCRET, Islamabad	**50**

ELECTRICITY GENERATION BY RENEWABLE ENERGY PROJECTS JULY 2014-JUNE 2015 BY PCRET

Technology	Province	Villages	Capacity	Generation
Solar Energy (Photovoltaic)	All over Pakistan	NA	200 kW	438,000 kWh
Biomass (Biogas)	All over Pakistan	NA	5000 Plants of 5 cubic meter each	In term of **Electricity** generation 43.8 MWh In term of biogas production 9.125 Million Cubic Meter
Micro Hydel	KPK & Gilgit / Baltistan	NA	562 plants a total capacity of 9.00 MW	52,560 MWh