**Core Competencies of Pakistan Council of Renewable Energy Technologies, Islamabad**

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| **S/N** | **Features** | **Description** |
|  | Products\* | Solar Cells, Solar Panels, Parabolic Solar Cooker, Box Type Soar Cookers, Solar Dehydrators, Solar Water Purifiers  |
|  | Facilities\*\* | Solar Panels Manufacturing Facilities from Hyper Pure Silicon To the finished Solar Panels, Micro-hydro Plant components manufacturing facilities, including Turbine & Penstock but excluding Generator & Governor. |
|  | Major Strength | Expertise/ Know-how about designing/ manufacturing, installation of Renewable Energy systems as described above.  |
|  | Designing | Capable to design solar, micro-hydro power, biogas, wind power systems and solar thermal appliances as mentioned above |
|  | Quality Assurance | Accreditation of testing labs under ISO-17025 standards is in process |
|  | Testing Facilities | Solar cells/ Solar Panels electric power assessments, Electro luminance (EL) Testing facility to diagnose workmanship quality in solar lamination process & any micro cracks in solar cells. |
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***\*PCRET is not producing these products regularly; this is batch process as per needs***

 ***\*\*The stated facilities have some shortcomings, which may be overcome through Public/ Private Partnership)***

**Pakistan Council of Renewable Energy Technologies (Data base)**

1. **PCRET Head Office Laboratories**

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| **1.1 Lamination Lab. (Fabrication of Solar PV Modules/Panels & Testing)** |
| **A** | **List of Major Equipments** | **Quantity** |
|
| **1)** | Solar PV Module Laminators1. Auto Laminator
2. YIBEI, Chinese Laminator
3. Solarex, USA Laminator
4. PCRET’s fabricated Laminator
 | 04 |
| **2)** | Solar Module Tester (GSMT-H-3A) | 01 |
| **3)** | Solar Module Tester (GEL-610) | 01 |
| **4)** | Solar Cell Tester (GSCT-3A) | 02 |
| **5)** | Solar Cell Subscriber Cutting Machine | 01 |
| **6)** | Solar Module Repairing Machine | 01 |
| **7)** | Automatic Framing Machine | 01 |
| **B** | **List of Experts** | **Designation** | **Major Field** |
| **1)** | Mr. Nadeem Zakir | Deputy Director | * Installation & commissioning of Solar Modules/Panels equipments.
* Lamination & Encapsulation of Solar Photovoltaic’s Modules/Panels as per international standard IEC-61215, 61646 & 61730.
* Testing of Solar cells & Solar modules as per international standard IEC-61215 (Sr. No. ii) & ISO-17025.
* Cutting of Solar Cells for fabrication of mobile charger, Lap-Top charger, Solar Lantern/Torch & Laser device/Sensor device for classified departments.
* Solar PV systems design for on grid & off grid.
* Installation of Solar Pump for irrigation & drinking water purpose.
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| **2)** | Mr. Hashim Sheikh | Deputy Director | --do-- |
| **3)** | Mr. Akram Warsi | Assistant Director | --do-- |
| **4)** | Mr. Muhammad Omer | Overseer | --do-- |
| **5)** | Mr. Amir Rasheed | Technical Assistant | --do-- |
| **6)** | Mr. Saboor Abbassi | Technical Assistant | --do-- |

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| **C** | **Services being provided:** |
|  | **a.** | **Testing/Analytical:**  i**.** Testing of Solar PV Panelsii. Cutting of Solar celliii. Lamination/Encapsulation of Solar PV modules |
| **c.** | **Training: i.** PCRET imparts training to private Sectors on Renewable Energy Technologies.ii. Internship on Lamination/Encapsulation of solar PV modules.iii. Internship on Solar PV System design, Visitor’s ( Universities, colleges & Industrial) etc |
| **D** | **Pilot Plant Facility** |
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| **1.** | * **Up gradation of facilities to produce silicon solar module up to 80 kilowatt annual capacity (PSDP Project)**

The laboratory of the council are equipped with facilities for producing silicon Ingot, wafers, solar cells and modules. This project has been designed to upgrade the facilities to produce 80 kilowatt photo voltaic modules per year.Presently lamination lab is one of the sophisticated and latest auto equipments, All these equipments of lamination lab has been installed, commissioned & ready to produce 03 Megawatt annual production of solar PV modules in one/single shift as per international standard IEC-61215, 61646 & 61730. |

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| **1.3 Crystal Growth** |
|  **A** | **List of major equipments** | **Quantity** |
|
| **1)** | KAYEX-CZ CG-6000 (Digital) | 01 |
| **2)** | KAYEX-CZCG-6000 (Analog) | 01 |
| **3)** | UPS 400 KVA | 01 |
| **4)** | Diesel Generator 500 KVA | 01 |
| **B** | **List of Experts** | **Designation** | **Major Field** |
| **1)** | Mr. Nadeem Zakir | Deputy Director | Crystal Growing (CZ-Method) |
| **2)** | Mr. Muhammad Yaqoob | Technical Assistant | Technical Supporting Staff |
|  | **Services** being provided:1. **Testing / Analytical: (**Crystal growing (Silicon Ingot)
2. **Training :** i**.** PCRET creates awareness amongst general public for promoting of renewable energy technologies.

ii. PCRET imparts training to private sector for their capacity building in renewable energy technologiesiii. PCRET organizes Training on Renewable Energy Technologies, Internship on Silicon Growing System, Visitor’s ( Universities, colleges & Industrial) |

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| 1.4**: Solar Thermal, PV and Thermal Testing Wafering and Mechanical Workshop.** |
| A | **List of Major Equipment** | **Quantity****In Number** |
|
|  | Wire saw machine mayer berger  | 01 |
|  | Squarer machine  | 01 |
|  | Tail and head cutter | 01 |
|  | Digatron battery testing system | 01 |
|  | Fluke scope meter 199-c | 01 |
|  | Fluke hygrometer 971 | 01 |
|  | Environmental chamber | 01 |
|  | Spi array tester | 01 |
|  | Pv module tester | 01 |
|  | Hipot dielectric analyzer 7650 | 01 |
|  | Midtronics battery analyzer | 01 |
|  | Ibex battery quality tester | 01 |
|  | Oscilloscope Dso 3202 | 01 |
|  | Illuminometer jim-100 | 01 |
|  | Luxmeter ms-1500 | 01 |
|  | Solar thermal testing system | 01 |
|  | Keithley 2000 multimeter with accessories | 01 |
|  | Scope meter tektronix | 01 |
|  | Specific gravity meter | 01 |
|  | Vertical milling machine | 01 |
|  | Universal milling machine | 01 |
|  | Lethe machine 2.5 feet bed | 02 |
|  | Lethe machine 5 feet bed | 02 |
|  | Binding machine | 01 |
|  | Fix drill machine | 01 |
|  | Serial 4,8 and 9 are presently out of order. |
| B | **List of Experts** | **Designation**  | **Major Field** |
| 1 | Mr. Saeed Hussain | Deputy Director | Solar Thermal |
| 2 | Mr. Muhammad Akram | Assistant Director | Solar PV and Thermal Testing |
| 3 | Mr. Muhammad Hussain | Assistant Director | Mechanical Workshop |
| 4 | Mr. Abdul Wahid Baig | Technical Assistant  | Mechanical Solar Thermal |
| 5. | Mr. Safdar Ali Soomro | Technical Assistant  | Solar PV and Thermal Testing |
| C | **Services being provided:** |
|  | **a.** | **Testing / Analytical:** PCRET Solar testing lab certification with PNAC is under process) |
|  | **b.** | **Training:** i.PCRET creates awareness amongst general public for promoting of renewable energy technologies.ii. PCRET imparts training to private sector for their capacity building in renewable energy technologies**.** |

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| **2.1 Regional Office Peshawar** |
| **A** | **List of major equipments** | **Quantity** |
|
| **1)** | Centre Lath Machine (500 m) | 02 |
| **2)** | 3 Roll plate Bending Machine | 01 |
| **3)** | Turbine balancing machine | 01 |
| **4)** | Surface Grinder | 01 |
| **5)** | Universal Milling Machine | 01 |
| **6)** | Gantry Crane | 01 |
| **7)** | Hydraulic Press Machine Dak | 01 |
| **8)** | Sheet Sharing Machine | 01 |
| **9)** | Stand Drill Machine | 02 |
| **10)** | Welding Plant | 01 |
| **11)** | Gas Welding | 01 |
| **12** | Generators | 06 |
|  | Serial 12 is presently out of order. |
| **B** | **List of Experts** | **Designation** | **Major Field** |
| **1)** | Mr. Inayatullah Shah | In charge/Assistant Director | Installation of Micro hydel plants.Installation of biogas plants |
| **2)** | Mr. Sabz Ali | Assistant Director | --do-- |

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| **C** | **Services bing provided:** |
|  | **a.** | **Consultancy (** Biogas plants in installed on self finance) |

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| **2.2 Regional Office Karachi** |
| **A** | **List of major equipments** | **Qty** |
|
| **1)** | Lath Machine | 02 |
| **2)** | Soil Block Machine | 01 |
| **3)** | Briqueting Machine | 01 |
| **4)** | Surf Mixing Machine | 02 |
| **5)** | Honda Generator Japan | 01 |
|  | **Serial 1 and 5 are presently out of order.** |
| **B** | **List of Experts** | **Designation** | **Major Field** |
| **1)** | Mr. Abdul Hameed Saand | In charge/Assistant Director | Installation of Wind Turbines.Installation of Biogas Plants |
| **2)** | Mr. Imtiyaz Ali Khan | Overseer | --do-- |
| **3)** | M. Niaz | Site Supervisor | --do-- |

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| **C** | **Services being provided:** |
|  | **b.** | **Consultancy (** Biogas Plants Self Finance) |
| **Regional Office Lahore,**  |

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| **B** | **List of Experts** | **Designation** | **Major Field** |
| **1)** | Mr. Khalid Nazir | In charge/ Assistant Director | Installation of Biogas plants |
| **2)** | Mr. Hafiz ur Rehman | Machinist | --do-- |
| **3)** | Mr. Imtiaz Hussain shah | Field Supervisor | Field officer |

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| **C** | **Services being provided:** |
|  | **a.** | **Consultancy (**Biogas plantsSize=3-5 cm³ (Qty 10) Size=10-90 cm³ (Qty 03 |

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| **2.4 Regional Office Quetta** |
| **B** | **List of Experts** | **Designation** | **Major Field** |
| **1)** | Mr. M Nabi Khan | In charge/Assistant Director | Installation of Wind Turbines.Installation Of Biogas Plants |