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**SHERPA POWER ENGINEERING LTD.**

**Sherpa An Overview**

**Sherpa Power Engineering Ltd**. is one of the fastest growing Electrical and Power Distribution, Equipment Company in the country, manufacturing products ranging from Sub Station Equipments, Power Factor Equipments, Basbar Trunking System, Solar Power, Stabilizer, Electric Goods and Solar Irrigation System.

**SHERPA PARTNERS:**

**SIEMENS :** Busbar Trunking System (Power Busbar), BBT

 **DAJAN :** Busbar Trunking System (Lighting Busbar)

**CHINT :** Switch, Socket, MCB, MCCB, ACB. Magnetic Contactor, Overload Relay, CT, PT, LSB, VCB, Power

 Capacitor, Filter Circuit Reactor

**HYUNDAI :** Switch, Socket, BCM, MCCB, ACB. Magnetic Contactor, Overload Relay, CT, PT, LSB, VCB, Power

 Capacitor, Filter Circuit Reactor

**SYCON :** Thyristor Module, APFC, Multifunction Meter, Reactor

**ZEZ SILCO :** Reactor / Capacitor

**TATA :** Solar Panel

**ReneSola :** Solar Panel, Grid Tie Inverter, OFF Grid Inverter

**SHAKTI :** Solar Pump Motor, Electric Pump Motor

**INVT :** Frequency Inverter

 **SHERPA :** Sub Station Equipments, Power Factor Equipments, Basbar Trunking System, Solar Power, Stabilizer, Electric

 Goods and Solar Irrigation System

**SHERPA AWARD & CERTIFICATION:**

* **“*International Star Award for Quality (ISAQ)*”** by Business Initiative Directions (BID), Spain: June 2012.
* ***Certification on Sherpa Solar Pump, Motor & Inverter* by BUET:**  March 2015.
* **Certification on Sherpa Solar Charge Controller** **by KUET**: Sep 2014 & May 2015.
* **NREL** – India Assessment of higher standard Solar Pump Water Discharge at 77Liter/Watt/Day but **SHAKTI Pump assessed Sherpa Solar Pump Water Discharge of 83 Liter/Watt/Day**

**SHERPA BOARD OF DIRECTORS:**

# Chief Advisor: - M. Ehsanul Haque

# Profile Summary:-Thirty six years of success in managing and leading top-performing Multinational and Bangladeshi Banks and Development Institutions, of which twelve years at strategic management and policy level positions. Capacity building, implementation and providing management advice on credit, governance, risk management, strategic planning, financial management for banks, financial institutions and clients. Consulting work experience with International and local Development and Commercial Agencies. Sectors include Financial Management in MSME’s, Corporate, Sustainable Energy and Skills Development. Implemented Global Best Practices” in banking in Bangladesh, Afghanistan, India and Vietnam. Have a proven track record in managing commercial, banks in various capacities starting from Management Trainee Officer to Chief Executive Officer. Global exposure in advisory, development and implementation of a wide range of business and financial policies, products and services for, micro small, medium and commercial / corporate segments. Have the experience of engaging with Central Banks of Bangladesh and Afghanistan. Provided leadership in diverse cross cultural teams, innovated financial products and effective operational processes. Improved service delivery systems, implemented core banking platforms and interfaces, managed cost efficiently, developed financial measurement systems and processes. Implemented processes to enhance customer focus and built a loyal clientele base in banks. Results focused and an effectual leader. An organized problem solver, with excellent interpersonal skills. Over the years have built lasting relationships with clients, shareholders, community leaders, regulators, multilateral, public and government agencies.

Ms. Monowara Parvin - Chairman

Mr. M. A. Taher – Managing Director

Ms. Shahnaz Begum - Director

**SHERPA ASSOCIATE ENTERPRISES:**

**Greentek Ltd.**

**Generator House**

**GEM Plant**

**Sherpa Pumps Ltd.**

**SHERPA BANKING:**

**Shahjalal Islami Bank Ltd.**

**First Security Islami Bank Ltd.**

**Dutch Bangla Bank Ltd.**

**National Credit and Commerce Bank Ltd.**

**Midland Bank Ltd.**

**Standard Chartered Bank**

**CEO’s Profile:**

**M. A. Taher**
A Bangladeshi National.

**Education:**
B.Sc (Hons), M.Sc in Physics.
Major Subjec: Electrical, Electronics, Reactor, Mechanics, Dynamics and Nuclear Physics

**Courses:**
Diploma in Pulp and Paper Technology
Institution: Qhinyen Qian Feng Paper Mills, Henan, China.

**Objective:**

Electrical Engineers, Electrical Project Evaluation, Electrical Load Calculation, Costing, Design, Drawing, Manufacturing/Assembling, Installation, Testing and Commissioning Product Deal: Sub-Station (HT Switchgear, X-Former, LT Switchgear, PFI Plant), Motor Control Centre, Star-Delta Starter, DOL, MDB, SDB, Frequency Converter, PLC Program and Control.BBT, IPS, UPS, Battery Charger, Industrial Harmonic analysis and Control. Energy Savings Management, Generating Sets. Solar Panel.

**Renewable Energy:**

Renewable Energy Project Evaluation, Electrical Load Calculation, Costing, Design, Drawing, Manufacturing/Assembling, Installation, Testing and Commissioning Product Solar Panel , Solar Charge Controller, Solar Inverter (Off-Grid/On-Grid), Solar Pumping System for Irrigation, Solar Home System, Solar Industrial System, Solar Sub-Station Solar Lighting System.

**Accomplishments:**

Engineering Experience as a Project evaluation, Load Calculation, Costing, Design, Drawing, Manufacturing/Assembling, Installation, Testing & Commissioning of Sub-Station equipments (HT Switchgear, X-Former, LT Switchgear, PFI Plant), Busbar Trunking System (BBT) ,Motor Control Centre, Star-Delta Starter, DOL, MDB, SDB, Frequency Converter, PLC Program and Control, IPS, UPS, Battery Charger, Industrial Harmonic analysis and Control, Voltage Stabilization. Energy Savings Management, Generating Sets. Product Solar Panel, Solar Charge Controller, Solar Inverter (Off-Grid/On-Grid), Solar Pumping System for Irrigation, Solar Home System, Solar Industrial System, Solar Sub-Station, Solar Lighting System.

**Employments:**

**05/1986 – 03/1993:
Employer: Ananta Group, 13 Shegunbagicha, and Dhaka-1000**
**Position: Project Manager**

**Key Project Implementation:**

**Ananta Paper Mills Ltd, Project Value Tk.700,00,000/-
Ananta Apparels Ltd, Project Value Tk.500,00,000/-**
**04/1993 – 12/1996:**
**Employer: MAJNAM ELECTRONICS LTD**.
Position: Managing Director

**01/1997 – 07/2007:**
**Employer: Hashem Electric Co Ltd**
Position: Technical Director

**Responsibility:**  Import, Project Evaluation, Load Calculation, Drawing, Design, manufacturing/Assembling, Installation, Testing and Commissioning of Sub-Station Equipments (HT Switchgear, X-Former, LT Switchgear, PFI Plant), PLC, Motor Control Centre, Star-Delta Starter, DOL, Submersible Pump System,Industrial Stabilizer, Soft-Starter, Frequency Inverter, Busway System, Industrial Lighting System, Energy Savings Management and all sorts of Electrical machine Protection.

**Renewable Energy:**

Renewable Energy Project Evaluation, Electrical Load Calculation, Costing, Design, Drawing, Manufacturing/Assembling, Installation, Testing and Commissioning

Product Solar Panel, Solar Charge Controller, Solar Inverter (Off-Grid/On-Grid), Solar Pumping System for Irrigation, Solar Home System, Solar Industrial System, Solar Sub-Station, Solar Lighting System.

**Key Project:**
**Bangladesh Rural Telecom Authority (BRTA):**
60 Nos x Control Cubicle with PFI and Power Distribution with DAEWOO/Korea for Telecom System
Total Project Value: Tk.1, 20,00,000/-

**Robintex Bangladesh Ltd**
(A Joint Venture by Bangladesh and German)
Volta, Rupgonj, Narayangonj.
Head Office Tel: 88-02-9139534, 88-02-9143807

**Key Equipments:** 1250KVA Sub-Station (HT Switchgear, X-Former, LT Switchgear, PFI Plant), Motor Control Centre, Star-Delta Starter, DOL, Water Level Control, Busbar Trunking System (BBT), Automatic Voltage Stabilizer.

Total Project Value: USD500,000/-

**Gazi Bhaban, Nayapaltan, Dhaka:**
1250KVA Sub-Station (HT Switchgear, X-Former, LT Switchgear, PFI Plant), MDB, SDB. Total Project Value: Tk.40,00,000/-

**Sheba Telecom Ltd (Banglalink), Dhaka:**
40 Nos x MDB for Telecom Power Distribution Including Earth Leakage and Surge Protection Device.
Total Project Value: Tk. 30,00,000/-

**Purbachal Steel Mill Ltd, Tongi, Gazipur:**2000KVA Sub-Station (HT Switchgear, X-Former, LT Switchgear, PFI Plant), MDB, SDB. Motor Drives Total Project Value: Tk.60, 00,000/-

**Comptex Bangladesh Ltd (A Joint Venture by Robintex and Youth Group)**Volta, Rupgonj, Narayangonj.
Head Office Tel: +88-02-9139534, +88-02-9143807

Product: 3MVA Sub-Station, (LT Switchgear, PFI Plant), Motor Control Centre, Star-Delta Starter, DOL, Water Level Control, Busbar Trunking System (BBT), Automatic Voltage Stabilizer.
Total Project Value: Tk.1,20,00,000/-

**Expertise:**  Import, Project Evaluation, Load Calculation, Drawing, Design, manufacturing/Assembling, Installation, Testing and Commissioning of Sub-Station Equipments (HT Switchgear, X-Former, LT Switchgear, PFI Plant), PLC, Motor Control Centre, Star-Delta Starter, DOL, Industrial Stabilizer, Soft-Starter, Frequency Inverter, Busway System, Industrial Lighting System, Energy Savings Management and all sorts of Electrical machine Protection.

**Renewable Energy:**
Renewable Energy Project Evaluation, Electrical Load Calculation, Costing, Design, Drawing, Manufacturing/Assembling, Installation, Testing and Commissioning
Product Solar Panel, Solar Charge Controller, Solar Inverter (Off-Grid/On-Grid), Solar Pumping System for Irrigation, Solar Home System, Solar Industrial System, Solar Sub-Station, Solar Lighting System.

**Key Project:**

**Import Main Object:**
Import & Distribution of Electrical and Electronics goods **Import Product:**
**Electronics:** IC, Transistor, Carbon Film Resistor, Cement Resistor, Relay, Fuse, Fuse Base, TV Jack, IC Base, Computer Peripherals.

**Electrical:** Sub-Station, Distribution Transformer, HT Switchgear, LT Switchgear, PFI Plant, Automatic Induction Voltage Regulator (AIVR), UPS, On-Line UPS, Generating Set, SLA Battery, MCB, MCCB, ACB, VCB, Frequency Inverter, Magnetic Contactor, Overload Relay, Motor Circuit Breaker etc.

**Manufacturing Objects:**
Drawing, Design, Manufacturing/Assembling, Installation, Testing and Commissioning of Sub-Station Equipments (HT Switchgear, X-Former, LT Switchgear, PFI Plant), PLC Control, Motor Control Centre, Star-Delta Starter, DOL, Industrial Stabilizer,UPS, Industrial On-Line UPS, Energy Savings Management and all sorts of Electrical machine Protection. Complete System Evaluation Drawing Design of Renewable Energy in Agricultural, Industrial & Solar Home System.

**Key Project (Electrical):**
Sheba Telecom (Pvt) Ltd (Banglalink):
40 Nos X MDB with Surge Protection and Earth Leakage for Telecom Power Distribution at BTS room.
Total Project Value Tk. 12,00,000/-

**Grameen Shakti, Mirpur-2, Dhaka**.
Product: 150 Nos X Battery Charger.
Total Project Value Tk. 15,00,000/-

**SAMS Attire Ltd, Bhuiyan TowerJamgora, Ashulia**.

**Product:** 150 KVA Sub-Station Equipments. Load Calculation, Drawing, Design, Assembling/manufacturing, Supply, Installation, Testing and Commissioning.
Total Project Value Tk. 25,00,000/-

**Product:** 630 KVA Sub-Station Equipments (HT, LT, PFI & Distribution Board).
Load Calculation, Drawing, Design, Assembling/manufacturing, Supply, Installation, Testing and Commissioning.
Total Project Value Tk. 40,00,000/-

**Peoples Telecom Ltd, Uttara, Dhaka:
Product:** 10 Nos X Long Back-up UPS for Telecom Power System.
Total Project Value Tk. 3,00,000/-

**Bangladesh Atomic Energy Commission (BAEC):**
Supply, Installation, Testing & Commissioning of 550KVA AIVR for Atomic Energy Reactor Operation.
Total Project Value Tk. 15,25,000/-

**Givensee Group of Industries**
Project-1: Givensee Garments Ltd
**Product:** 630 KVA Sub-Station Equipments(HT,LT, PFI , 11kV XLPE Cable for Power Transmission up to 1km & Distribution Board). Load Calculation, Drawing, Design, Assembling/manufacturing, Supply, Installation, Testing and Commissioning.
Project Value: USD89250/- (CFR Chittagong)
 **Project :** **Zahintex 3 & 4
Product:** 630 KVA Sub-Station Equipments(HT,LT, PFI , 11kV XLPE Cable for Power Transmission up to 1km & Distribution Board). Load Calculation, Drawing, Design, Assembling/manufacturing, Supply, Installation, Testing and Commissioning
Project Value: USD89250/- (CFR Chittagong)

**Project:** **Masuma Khatun Textile Mills Ltd
Product:** 630 KVA Sub-Station Equipments(HT,LT, PFI , 11kV XLPE Cable for Power Transmission up to 1km & Distribution Board). Load Calculation, Drawing, Design, Assembling/manufacturing, Supply, Installation, Testing and Commissioning
Project Value: USD89250/- (CFR Chittagong)

**Project:** **Masuma Khatun Textile Industries Ltd**
**Product:** 800 KVA Sub-Station Equipments(HT,LT, PFI , 11kV XLPE Cable for Power Transmission up to 1km & Distribution Board). Load Calculation, Drawing, Design, Assembling/manufacturing, Supply, Installation, Testing and Commissioning.
Project Value: USD89250/- (CFR Chittagong)

Project : *Hotapara Garments Ltd*
Product: 800 KVA Sub-Station Equipments(HT,LT, PFI , 11kV XLPE Cable for Power Transmission up to 1km & Distribution Board). Load Calculation, Drawing, Design, Assembling/manufacturing, Supply, Installation, Testing and Commissioning.

Project Value: USD89250/- (CFR Chittagong)

**Project : Givensee Garments Accessories Ltd**
Product: Automatic Induction Voltage Regulator (AIVR) for Precision Voltage Stabilization Complete Load Calculation, Drawing, Design, Assembling/manufacturing, Supply, Installation, Testing and Commissioning.
Project Value: USD20,500/- (CFR Chittagong)

**Project: Givensee Garments Accessories Ltd**
Product: Automatic Induction Voltage Regulator (AIVR) for Precision Voltage Stabilization Complete Load Calculation, Drawing, Design, Assembling/manufacturing, Supply, Installation, Testing and Commissioning.
Project Value: USD20,500/- (CFR Chittagong)

**Projects : Section Seven Apparels Ltd**
(A Joint Venture by Bangladesh and Japan)
Plot No#21-26, Sector#3,Road # 4, Cepz,Chittagong-4223

**Key Equipments:** 1250KVA Sub-Station (HT Switchgear, X-Former, LT Switchgear, PFI Plant), Motor Control Centre, Star-Delta Starter, DOL, Water Level Control, Busbar Trunking System (BBT), Automatic Voltage Stabilizer.
Total Project Value: USD120,000/-

**Renewable Power Projects:**

1. **Sherpa Solar Irrigation Pumping Project**Dhankhali Project-1
Vill & Post: Dhankhali
Upazila: Kolapara
Dist: Potuakhali
Solar Panel Capacity: 8880Wp
Pump Capacity:7.5kW, Inverter Capacity: 7.5kW
Water Discharge: 800000 Litre/Day

**2.Sherpa Solar Irrigation Pumping Project**
Gilatola Project-1
Vill: Gilatola, Post: Londa
Union: Dhankhali
Upazila: Kolapara
Dist: Potuakhali
Solar Panel Capacity: 8880Wp
Pump Capacity:7.5kW, Inverter Capacity: 7.5kW
Water Discharge: 800000 Litre/Day
Sherpa Solar Irrigation Pumping Project
Choto Nilgonj Project-1
Vill: Chotonilgonj, Post: Cholavangha
Union: Amtoli, Upazila: Amtoli
Dist: Borguna
Solar Panel Capacity: 8880Wp
Pump Capacity:7.5kW, Inverter Capacity: 7.5kW
Water Discharge: 800000 Litre/Day

**Selected Consultancies:**
Partex Rotor Spinning Ltd for Sub-Station, Power Distribution and BBT with Power Control Centre.
Project Value USD: 95,000/-

**HA-MEEM Group:**
Power Distribution and BBT with Power Control Centre.
Project Value USD: 265,000/-

Computer Software Knowledge:
**Windows 95, Windows 2000, NT, MS Word, MS Excel. Auto Cad.**

Membership of Professional Society:
Graduate Member: Bangladesh Computer Society.

**SHERPA PRODUCTS**

**Substation Equipments:**

 **HT Switchgear**
We are instrumental in manufacturing an extensive range of Switchgears and Circuit Protection Systems for our esteemed clients. These products are suitable for regulating the flow of current and voltage in different transmission lines. Furthermore, the availability of these products in varied specifications has enabled us to associate ourselves with various industries for different applications.

The Metalclad AC Switchgear designed in accordance with the highest grade of metalclad type tested by the standard of IEC 60298.
 **The product features:**
• Compact structure
• High security
• Reliable and convenient for repair at rated voltage 6kV~35kV
• Rated current 630A~4000A
• 3-Phase
• 50Hz to receive & distribute electric energy

 **LT Switchgear**
We offer LT panel. Our range of LT Panel consists of LT Control Panel and Electrical LT Panel. Our LT Panel is a well example of excellence, performance and reasonable. We keep an uncompromising endeavor towards Perfection, quality and customer satisfaction in manufacturing our LT Panel.

The LT switchgear is used in the distribution system at rated voltage 380/415/660 VAC, 3 phase, 50 Hz at rated current up to 10000A for distribution and control of electric energy. The high breaking capacity and a rated short time withstand current up to 50 KA. The circuit scheme features flexibility, convenient contribution, wide variety and unique structure.

**TRANSFORMER:**

**Distribution Transformer**

**Oil Immersed Transformer**

**Power Transformer**

**Specification:**
Capacity: 10 MVA ~ 500 MVA
Rated primary voltage: 53 KV ~ 500KV
Rated secondary voltage: 33 KV ~ 132 KV
No of Phase: 3
Frequency: 50/60 Hz
The power transformer has a series of reform on materials, technology and structure. It is suitable for power plant, substation, large scale industrial and building system and so on. The products meet the standards of IEC 76 /IEC 60076

**Features:**
• Economic and efficient. Reduce a network loss and installation cost.
• Small and light weight
• Low noise
• Safety in operation

**DRY TYPE TRANSFORMER**

**Features:**
• Real Maintenance-Free
• Absence of Fire Risk and Good Adaptability
• Compact Construction & Simple Located and Ingeniously Construction
• Minimum Loss
• Low Noise
• Strong Overload Capacity
• Resistive to Short Circuit
• High Insulation Ability Under Over Voltage Condition
• Mounted In Sites With Adverse Circumstances
• In Case Of Forces Air Cooling, The Rated Capacity Can Be Increased

**Technical Parameter**
• Standard: GB/T10228,GB6450,IEC726,DIN42523
• Insulation Level: LI75CA35/LI0AC3
• Connection: Yyn0 or Dyn11
• Rated HV: 10(10.5,11,6,6.3)kV, 20kV, 35kV
• Rated LV: 0.4kV
• Rated Capacity: From 30kVA to 2500kVA
• Transformer shell is optional, its production class is Ip20 or IP23
• Wind-cool system is also optional
• Temperature control system is also optional

**CAST RESIN TRANSFORMERS**

Thanks to the long experience of SHERPA and to the sophisticated calculation and design techniques used, our transformers for distribution, rectification and traction can be provided in a very large range of sizes, primary and secondary tensions, insulation classes and losses.
Following tables present the technical features of some transformers in our production range. They were chosen according to norm requests and to market preferences in power distribution sector for the main industrial countries. Different powers, as well as different primary and secondary tensions, are nonetheless part of our production range and application experience. In this case it is useful to get in contact with us for technical data confirmation.

**Technical characteristics of SHERPA transformers**1. HV windings in coils of aluminium band, cast in resin under vacuum.
2. Core composed of three columns made in grain oriented magnetic steel sheets, also available with much reduced losses.
3. LV windings of aluminium foil and insulation material, impregnated under vacuum.
4. LV connections at the top (standard production), or at the bottom (on request).
5. HV connections also available with Elastimold elbow connectors.
6. Spacers with rubber inserts reduce vibration transmission between core and windings, hence reducing transformer working noise.
7. Off load tap changing links on the HV winding allow step by step regulation to suit supply voltage.
8. Main structure and trolley frame manufactured of robust painted steel.
9. Rollers adaptable in two perpendicular directions.
10. The epoxy resin insulation has a high inflammability point and high self extinguishing characteristics, making the transformer maintenance-free.
11. The operating temperature is controlled with Pt100 or PTC probes, placed in each of the LV windings.
12. Lifting lugs for safe lifting on 4 points.
13. On request LV connection ready for Zucchini busbars.
14. The frame is ready to install an integral steel enclosure.
15. Insulating materials for class F products, winding over temperature of 100° K.

**SHERPA designs and manufactures CRTs for:

Distribution of electrical energy**
• Hospitals
• Shopping Centre’s
• Airports
• Industrial applications in general
• Steel mills

**Conversion and rectification 6/12/24 pulses**
• Air conditioning systems (HVAC)
• UPS and no-break power system
• Railways, underground railways and tramlines
• Lifting and pumping plants
• Industrial plants with AC / DC converters.
• Welding lines
• Induction furnaces
Step up transformers
• Wind generation parks
• Cogeneration plants

**DEFINITION

RATINGS**A dry-type transformer is one in which the magnetic circuit and the windings are not immersed in an insulating liquid, IEC 726.
 **SCOPE**This catalogue refers to cast-resin transformers with rated power levels between 100 and 2500 kVA, with higher voltage for the material, up to and including 36 kV. In addition, Electrical Power Systems manufactures transformers up to 5000 kVA in the 36 kV series.
 **GENERAL CHARACTERISTICS**The general details of our transformers are the follows: three-phase, continuous operation, indoor installation, degree of protection IP00, frequency 50 Hz, AN cooling, thermal Class F.
 **MANUFACTURING STANDARDS**The transformers described in this catalogue are designed and tested in accordance to the European Union Harmonisations Documents HD 538 and HD 464 as well as IEC 726, IEC 76 standards. However, and by request, they can be manufactured according to other national or international standards.
 **RATINGS**A dry-type transformer is one in which the magnetic circuit and the windings are not immersed in an insulating liquid, IEC 726.
160 – 250 – 315 – 400 – 500 – 630 – 800 – 1000 – 1250 – 1600 – 2000 – 2500 – 3150 kVA
 **HIGH VOLTAGE**This material is designed for voltages of ≤ 36. Specific figures are not given for this parameter because of the wide variety of voltages used. Transformers can be supplied on demand to run at two different primary voltages.
 **LOW VOLTAGE**The no load voltage is allocated at 400 V, though other voltages can be supplied on demand.
When usage requires two voltages, transformers with two simultaneous voltages can be supplied.
In this case no-load voltages are set to 400 and 231 V.
 **VECTOR GROUP**The connections normally used are as follows:
• For rated power levels of 160 kVA or less: Yzn11 or Dyn11
• For rated power levels 160 kVA: Dyn11.
 **TEMPERATURE RISE**The connections normally used are as follows:
• For rated power levels of 160 kVA or less: Yzn11 or Dyn11
• For rated power levels 160 kVA: Dyn11.

**INSULATION LEVELS**As per IEC 76, BS 171 and VDE 532 standards these are set in accordance with the highest voltage for the material, being the level immediately above the rated voltage.
SNO-Energietechnik transformers are in the F insulation class, which, according to IEC 726, have a temperature rise of 100 K.
 **ADVANTAGES OF CAST RESIN TRANSFORMERS**
Cast resin transformers have the following advantages:
• Self-extinguishing
• In case of fire outside the transformer but which affects it, it burns only with difficulty and with poor flame, which rapidly dies out when the source of fire ceases.
• High Thermal inertia
• Due to a greater mass than equivalent transformers in liquid, the time constant is much greater, so that there is a better tolerance of overloads of short duration.
• Compactness
• The only components being the magnetic circuit, the windings and the fixing elements, the design is very compact, thus it is a robust assembly and vibration-proof. This makes transformers ideal for installation in mobile material.
• Good resistances to short-circuits
• As a result of the cast resin which surrounds the conductors as well as linking them strongly together, resistance to the electrodynamics forces generated in a short-circuit is very high. Again, as the density of current is lower than that the transformers with liquid, the maximum transient temperature reached in a short circuit is much lower than the limits specified in IEC 76.
• Reduced maintenance
• All that required is to clean dust off the surfaces, should it occur
• Easy Installation
• Protection against contacts is sufficient, since there is no need for a deposit to hold the liquid, nor brickwork installation

**CONSTRUCTION DETAILS
I- MAGNETIC CIRCUIT**

This is made in oriented grain cold rolled magnetic sheet with low losses, covered on both sides with a fine coat of inorganic insulation material. The cross-section is identical for legs and yokes with a step-ped shape. The number of steps used is according to the rated power.
The 45°C type of joints used for the union between legs and yokes and the absence of bolts going through the yokes gives resulting low no load losses.
Both the legs and yokes are bound with special insulating heat-shrink tape, which makes for compact assembly and low vibration, reducing the noise level. As a finish, a thick coat of compact resin is applied to the entire exterior surface of the magnetic circuit, ensuring a permanent low noise level and preventing rust.
**III- HIGH VOLTAGE WINDING**This is made in oriented grain cold rolled magnetic sheet with low losses, covered on both sides with a fine coat of inorganic insulation material. The cross-section is identical for legs and yokes with a step-ped shape. The number of steps used is according to the rated power.
The 45°C type of joints used for the union between legs and yokes and the absence of bolts going through the yokes gives resulting low no load losses. Both the legs and yokes are bound with special insulating heat-shrink tape, which makes for compact assembly and low vibration, reducing the noise level.
As a finish, a thick coat of compact resin is applied to the entire exterior surface of the magnetic circuit, ensuring a permanent low noise level and preventing rust.

**II- LOW VOLTAGE WINDING**

Normally this winding is made with a bare-strip form conductor, although with low power levels a rectangular wire insulated with NOMEX is also used. In both cases insulating material pre impregnated with epoxy resin is used between the layers which, in polymerizing, unites the conductors among themselves, producing a compact assembly with high resistance to the stress developed during a short-circuit.
This type of windings allows the insertion of one or more axial ducts, which facilitates the rapid dissipation of beat and the absence of hot points. Finally, the finished coil is impregnated with epoxy resin which, once polymerized, gives it strong resistance against damp.

**V- STRUCTURAL ELEMENTS**
This winding is carried out with two different types of conductors: bare strip or enamelled wire. Strip windings are formed by several coils or disks made one after another in a continuous process. The turns, their insulations, the taps and the different positions are fully programmed, controlled, and directed through a computer integrated into the automatic winding machine itself. Enamelled wire conductor windings are also made in “wafers” each one formed of several layers, between which insulating material is interleaved.

**IV- CASTING PROCESS**

The resin used by SNO-Energietechnik is of epoxy type with thermal class „F“, for a temperature rise of 100 K (maximum temperature of insulating system 155°C) The casting system prepared for our manufacturing installation contemplates the use of four principal components:

• Epoxy resin
• Filler material
• Hardener
• Coloring

The casting process, the dosage of components and the different steps from moulding to polymerization. The mixture of resin and hardener, with the filler material, is degassed under vacuum and at controlled temperature, before a final mixing and introduction into the moulds under vacuum. The high technology of our casting station and the quality of the components used enables us t manufactures cast coils with practically total absence of partial discharges.

The structural fixing elements, both the tightening beams and the support and transport frames, are made of steel sections. In order to eliminate vibration, layers of resilient material are interleaved between the magnetic circuit and the structural elements and also between the windings and supporting parts. This means that the expansion of the coils produced by increases of temperature is absorbed, as well as the vibration of the magnetic sheet due to construction.
 **VI- CONNECTIONS**

The High Voltage connection terminals are located at the front of the transformer and those for
Low Voltage are the top.
The High Voltage terminals are of tinned copper with a hole of 14 mm diameter.
The Low Voltage terminals are always flag-type terminals with two or more holes 14 mm.

**HIGHEST VOLTAGE FOR MATERIAL 12kV**Rated Power 160 – 3150 kVA
Rated Voltage HV 10 kV
Primary voltage tappings 2 x +/-2, 5%
Rated voltage LV 0, 4 kV no load
Frequency 50 Hz
Insulation level HV/LV LI 60-AC28/- AC3 [kV]
Thermic class F/F (HV/LV)
Degree of protection IP00 (Indoor)
Winding material HV: AL, LV: AL
Type of cooling AN
Installation < 1000 m a.s.l.
Ambient temperature 40°C

**HIGHEST VOLTAGE FOR MATERIAL 24kV**Rated Power 160 – 3150 kVA
Rated Voltage HV 20 kV
Primary voltage tappings 2 x +/-2, 5%
Rated voltage LV 0, 4 kV no load
Frequency 50 Hz
Insulation level HV/LV LI 95-AC50/- AC3 [kV]
Thermic class F/F (HV/LV)
Degree of protection IP00 (Indoor)
Winding material HV: AL, LV:AL
Type of cooling AN
Installation < 1000 m a.s.l.
Ambient temperature 40°C

**BASIC EQIUPMENT**Includes in all transformers supplied:
• Rating plate
• 4 lifting lugs
• 4 towing holes
4 two-way, 90°directional wheels

**OPTIONAL ACCESSORIES**• Monitoring equipment with temperature indication and alarm and tripping contacts
• Forced cooling equipment
• Plug-in connections
• Device for tapping changeover
• Metal casing, protection IP31

**VENTILATION**

In order to avoid excessive and damaging heating, and for correct operation, it is essential to dissipate the thermal energy produced by the transformer during operation.
The natural circulation of air is directed from the lower part to the upper (chimney effect) and the dimensions of the openings are according to the losses to be dissipated and the temperature of the air entering and leaving the cell. The lower opening must be located close to the transformer, as low as possible, while the upper one must have a cross-section 15% greater to compensate for the lesser density of the hot air.

**Equipment for quality assurance type tests:** Lightning impulse test
 Partial discharge measurement
 Noise level measurement
 Heat run test♣
 Zero phase sequence impedance
 capacity♣

**Environment Tests**No condensation on the transformer, negligible pollution. Installation in dry and clean ambient.
HV coil of a 1600 kVA transformer, after a Class F1 fire resistance test.
Occasional condensation and little pollution.
The transformer is subject to severe condensation or to heavy pollution or to a combination of both.
Climatic Tests
The transformer is unsuitable for operation at temperatures below - 5°C but may be exposed to –25°C during transportation and storage.
The transformer is suitable for operation, transport and storage down to –25°C.
Fire Behavior Test
No fire hazard is envisaged and no measures to limit the flammability are taken.
The transformer is subject to fire hazard and a restricted flammability is required. Self-extinction of fire shall take place within a specified time period.

**Accessories on Request

• Steel enclosures, fixed to the transformer**Protection degree IP21 - IP31 - IP23
Insulation class 12 - 17, 5 - 24 kV

**• Steel enclosures, fixed to the floor**Protection degree IP21 - IP31 - IP23
Insulation class 12 - 17, 5 - 24 kV
On specific customers request Version for external installation available.

**• Ventilation fans**For temporary rating increase +30% or +40%
Complete with fans control units

**• Temperature monitoring units**For Pt100 probes
For PTC probes

**• HV elbow connectors, Elastimold type

• Ant vibration devices**For extra reduction noise level
Installation under the rollers
Installation on the floor

**• Surge arrestors**For a complete protection of the transformer.

**• Bars shift on request**

**POWER FACTOR EQUIPMENTS:**

**POWER CAPACITOR**

Detuned Capacitor – Blank

Capacitor switching Contactor - Blank

Harmonic Filter Reactors - Blank

Harmonic Analyzer – Blank

Automatic Induction Voltage Regulator (AIVR) – PDF

**BASBAR TRUNKING SYSTEM:**

Sherpa Power Engineering Ltd is a leading technology-driven engineering offers widest range of Busbar trunking system in Bangladesh. Each product in the BBT range carries the reliability and accuracy, and is backed by prompt after-sales service. For your offices, commercial & residential building and industrial installation Sherpa have a variety of BBT for complete reliable power and distribution.
Bus bar trunking system (BBT) performs the function of transporting current from one point to another point. Traditionally cables were used for the transportation of current but BBT goes beyond what cables do. BBT have a tap off outlet for power to switchgear for further distributing of power to the electrical loads.
In comparison with cable, BBT can thus serve as a distribution panel at different stage and floor of the building. BBT continues a single system to replace cables as well as distribution boards at floor level for building, commercial &industrial uses.

**Lighting Busbar Trunking**

Ratings: 16A~250A, 380V~600VAC, 3-Phase, 50/60Hz
The Lighting busbar trunking offers a simple and cost effective alternative to cable when installing lighting systems in commercial and industrial environments. When compared to traditional trunking and cabling systems, lighting busbar can substantially reduce installation time thereby making significant cost savings. It is used in Industrial buildings, garages, workshops, farm buildings, logistic centers, green house. Commercial centre, Hyper/supermarket, department store, Tertiary buildings, exhibition hall, conference centre

**POWER BBT**

**Power Busbar Trunking**

Ratings: 100A~6300A, 380V~600VAC, 3-Phase, 50/60Hz
Power Busbar Trunking product is adopting oversea countries advance technology, developing accord with our country's situation.
Power BBT is applied to the connection from power transformer to main distribution panel or from main panel to sub-panel.
It is widely used in indoor car packing place, Supermarket, Shopping mall, Exhibition hall, Stadium, Library, Hospital, Bus station, Dock, Airport, Modern office building, Tunnel, Factory workshop and other big location lighting power supply etc.

**CUTTING TROLLEY**

**Trolley Busbar –** Blank

Industrial Lighting System

**ELECTRIC GOODS:**

**FREQUENCY INVERTER (MOTOR DRIVES)**

* Light (Layout Lighting Sherpa), Air Circuit Breaker (ACB) – PDF Catalog
* Switch, Socket MCCB-S (Moulded Case Circuit Breaker (MCCB) – PDF Image
* MOULDED CASE CIRCUIT BREAKER (MCCB)
* MINIATURE CIRCUIT BREAKER (MCB)

**SHERPA COMPLETED PROJECTS:**

**SOLAR IRRIGATION PUMPING SYSTEM (SIPS)**

**Project 01:**
Firms Name: Resource Development Foundation (RDF)
Dhanakhali Project 1
Dhankhal, Potuakhali

Solar Panel Capacity: 8880 Wp
Pump Capacity: 7.5 kW
Inverter Capacity: 7.5 kW
Water Discharge: 650000 liter / Day

**Project 2:**
Firm name: Resource Development Foundation (RDF)

Gilatola Project 1
Gilatola, Potuakhali
Solar Panel Capacity: 8880 Wp
Pump Capacity: 7.5 kW
Inverter Capacity: 7.5 kW
Water Discharge: 650000 liter / Day

**Project 3:**
Firm name: Resource Development Foundation (RDF)

Choto Nilgonj Project 1
West Nilgonj, Borguna
Solar Panel Capacity: 8880 Wp
Pump Capacity: 7.5 kW
Inverter Capacity: 7.5 kW
Water Discharge: 650000 liter / Day

**Project 4:**
Firm name: Survivors Welfare Foundation (SWF)

Shikahrpur Project
Shikharpu, Panchagarh
Solar Panel Capacity: 9600 Wp
Pump Capacity: 7.5 kW
Inverter Capacity: 7.5 kW
Discharge: 500000 liter / Day

**SHERPA Ongoing and Upcoming projects:**

**SOLAR IRRIGATION PUMPING SYSTEM (SIPS)**

**Project 1:**
**Firm name: Resource Development Foundation (RDF)**

**Dhankhali project 2**
Dhankhali, Patuakhali
Solar Panel Capacity: 8880 Wp
Pump Capacity: 7.5 kW
Inverter Capacity: 7.5 kW
Water Discharge: 650000 liter / Day

**Gilatoal Project 2**
Gilatola, Patuakhali

Solar Panel Capacity: 8880 Wp
Pump Capacity: 7.5 kW
Inverter Capacity: 7.5 kW
Water Discharge: 650000 liter / Day

**Project 3:**
**Firm name: Resource Development Foundation (RDF)**

**Choto Nilgonj Project 2**
East Nilgonj, Borguna

Solar Panel Capacity: 8880 Wp
Pump Capacity: 7.5 kW
Inverter Capacity: 7.5 kW
Water Discharge: 650000 liter / Day

**Required information from SIP suppliers:**

1. **Information of implemented pump projects in Bangladesh (under IDCOL SIP program):**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl. No.** | **Project Name** | **Project Location:** | **Contact Person** |
| 1 | Jugindermath -1 | Vill: Basbari, PO:Gangni PS: Gangni, Dost : Meherpur.  | Juel. 01714709245Nayem. 01716147777Masud. 01733065601 |
| 2 | Saharbati-1 | Vill: Basbari, PO:Gangni PS: Gangni, Dost : Meherpur. |
| 3 | Saharbati-2 | Vill: Basbari, PO:Gangni PS: Gangni, Dost : Meherpur. |
| 4 | Saharbati-3 | Vill: Basbari, PO:Gangni PS: Gangni, Dost : Meherpur. |
| 5 | Noapara-1 | Vill: Noapara, PO: Mirpur, PS: Mirpur, Dist: Kushtia. |
| 6 | Chitolia-1 | Vill: Chitolia, PO: Chitolia, PS: Mirpur, Dist: Kushtia |
| 7 | Chitolia-2 | Vill: Chitolia, PO: Chitolia, PS: Mirpur, Dist: Kushtia |
| 8 | Manikdia-1 | Vill:Manikdia, PO: Hatboalia, PS: Gangni, Dist: Meherpur |
| 9 | Manikdia-3 | Vill:Manikdia, PO: Hatboalia, PS: Gangni, Dist: Meherpur |
| 10 | MAnikdia-5 | Vill:Manikdia, PO: Hatboalia, PS: Gangni, Dist: Meherpur |
| 11 | Amtoil | Vill:Manikdia, PO: Hatboalia, PS: Gangni, Dist: Meherpur |
| 12 | Ruyerkandi-1 | Vill: Manikdia, PO: Hatboalia, PS: Gangni, Dist: Meherpur |
| 13 | Ruyerkandi-2 | Vill: Manikdia, PO: Hatboalia, PS: Gangni, Dist: Meherpur |
| 14 | Jutiadanga-1 | Vill:Jutiadanga, PO: Hatboalia, PS: Mirpur, Dist: Kushtia. |
| 15 | Jutiadanga-2 | Vill:Jutiadanga, PO: Hatboalia, PS: Mirpur, Dist: Kushtia. |
| 16 | Samanta-1 | Vill: Beliati, PO: Hamanta, PS: Moheshpur, Dist: Jhenaidah | Khairul. 01923969566 |
| 17 | Samanta-2 | Vill: Beliati, PO: Hamanta, PS: Moheshpur, Dist: Jhenaidah |

1. **Information of implemented pump projects in Bangladesh (outside IDCOL SIP program):**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl. No.** | **Project Location** | **Pump Capacity (kW)** | **Project Location** | **Contact Person** |
| 18 | Borguna | 5.5  | 8880 | 400000 | 12.0 | RDF | 2011 |   |
| 19 | Borguna | 5.5  | 8880 | 400000 | 12.0 | RDF | 2011 |
| 20 | Potuakhali | 5.5  | 8880 | 400000 | 12.0 | RDF | 2011 |
| 21 | Potuakhali | 5.5  | 8880 | 400000 | 12.0 | RDF | 2011 |
| 22 | Potuakhali | 5.5  | 8880 | 400000 | 12.0 | RDF | 2011 |
| 23 | Potuakhali | 5.5  | 8880 | 400000 | 12.0 | RDF | 2011 |
| 24 | Panchagarh | 7.5 | Vill: Shikarpur, PO: Benghari, PS: Boda, Dist: Panchaghar | Md. Nazrul Islam 01722842589 |
| 25 | Panchagarh | 7.5 | Vill: Suvasujan, PO: Benghari, PS: Boda, Dist: Panchaghar | Labu. 01710047545 |
| 26 | Panchagarh | 7.5 | Vill: Suvasujan, PO: Benghari, PS: Boda, Dist: Panchaghar |
| 27 | Panchagarh | 7.5 | Vill:Islampur, PO: : Benghari, PS: Boda, Dist: Panchaghar | Lutfor. 01716125493 |
| 28 | Panchagarh | 7.5 | Vill:Islampur, PO: : Benghari, PS: Boda, Dist: Panchaghar |
| 29 | Panchagarh | 7.5 | Vill:Amtoli Kazipara, PO:Amtoli, PS: Boad, Dist: Panchaghar | Torikul 01822882673 |
| 30 | Panchagarh | 7.5 | Vill:Amtoli Kazipara, PO:Amtoli, PS: Boad, Dist: Panchaghar |
| 31 | Panchagarh | 3.7 | Vill: Shipahi Hat, PO & PS: Sadar, Dist: Panchaghar | Nikhil 01788030652 |
| 32 | Panchagarh | 3.7 | Vill & PO: Rotnibari, PS:Sadar, Dist: Panchaghar. | Rasel 01719347394 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sherpa Solar Irrigation Pumping System (Turn-Key Project)** |  |  |  |  |  |
| **Implimented Project Detail** |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **SL** | **Project Detail** | **Sponsor** | **Finance** | **Pump**  | **Inverter**  | **PV**  | **Diacharge** |
| **No** |  |  |  **By** | **in kW** | **in kW** | **Wp** | **Liter/Day** |
| 33 | Choto Nilgonj Irrigation Pumping Project -1 Vill: Chotonilgonj, Union: Amtoli,Upazila: Amtoli Dist: Borguna | Resource Development Foundation (RDF) | Bangladesh Bank(BB) | 5.5 Kw | 7.5 Kw | 8880 Wp |  400,000  |
| 34 | Choto Nilgonj Irrigation Pumping Project -1 Vill:Chotonilgonj, Union: Amtoli,Upazila: Amtoli Dist: Borguna | Resource Development Foundation (RDF) | Bangladesh Bank(BB) | 5.5 Kw | 7.5 Kw | 8880 Wp |  400,000  |
| 35 | Gilatola Irrigation Project-1,Vill: Gilatola, Union: Dhankhali,Upazila: Kolapara, Dist: Potuakhali. | Resource Development Foundation (RDF) | Bangladesh Bank(BB) | 5.5 Kw | 7.5 Kw | 8880 Wp |  400,000  |
| 36 | Gilatola Irrigation Project-2,Vill: Gilatola, Union: Dhankhali,Upazila: Kolapara, Dist: Potuakhali. | Resource Development Foundation (RDF) | Bangladesh Bank(BB) | 5.5 Kw | 7.5 Kw | 8880 Wp |  400,000  |
| 37 | Dhankhali Solar Irrigation Pumping Project -1 Vill: Dhankhali UP: Dhankhali PS: Kalapara Dist: Patuakhali | Resource Development Foundation (RDF) | Bangladesh Bank(BB) | 5.5 Kw | 7.5 Kw | 8880 Wp |  400,000  |
| 38 | Dhankhali Solar Irrigation Pumping Project -2 Vill: Dhankhali UP: Dhankhali PS: Kalapara Dist: Patuakhali | Resource Development Foundation (RDF) | Bangladesh Bank(BB) | 5.5 Kw | 7.5 Kw | 8880 Wp |  400,000  |
| 39 | Shikarpur Solar Irrigation Project,Vill: Shikarpur UP: Benghari PS: Boda,Dist: Panchagar. | Shikarpur Krishok Somobai Somitee | Mutual Trust Bank Ltd. (MTBL) | 7.5 Kw | 7.5 Kw | 9600 Wp |  600,000  |
| 40 | Suvasujan Solar Irrigation Project -1,Vill: Suvasujan UP: Benghari PS: Boda,Dist: Panchagar. | Suvasujan Krishok Somobai Somitee | Mutual Trust Bank Ltd. (MTBL) | 7.5 Kw | 7.5 Kw | 9760 Wp |  600,000  |
| 41 | Suvasujan Solar Irrigation Project -2,Vill: Suvasujan UP: Benghari PS: Boda,Dist: Panchagar. | Suvasujan Krishok Somobai Somitee | Mutual Trust Bank Ltd. (MTBL) | 7.5 Kw | 7.5 Kw | 9760 Wp |  600,000  |
| 42 | Islampur Solar Irrigation Project -1,Vill: Islampur UP: Benghari PS: Boda,Dist: Panchagar. | Islampur Krishok Somobai Somitee | Mutual Trust Bank Ltd. (MTBL) | 7.5 Kw | 7.5 Kw | 9760 Wp |  600,000  |
| 43 | Islampur Solar Irrigation Project -2,Vill: Islampur UP: Benghari PS: Boda,Dist: Panchagar. | Islampur Krishok Somobai Somitee | Mutual Trust Bank Ltd. (MTBL) | 7.5 Kw | 7.5 Kw | 9760 Wp |  600,000  |
| 44 | Khariza Bonogram Solar Irrigation Project,Vill: Amtoli UP: Kajaldighi PS: Boda,Dist: Panchagar. | Khariza Bonogram Krishok Somobai Somitee | Mutual Trust Bank Ltd. (MTBL) | 7.5 Kw | 7.5 Kw | 9600 Wp |  600,000  |
| 45 | Sundormoni Laskara Solar Irrigation Project,Vill: Amtoli UP: Kajaldighi PS: Boda,Dist: Panchagar. | Sundormoni Laskara Krishok Somobai Somitee | Mutual Trust Bank Ltd. (MTBL) | 7.5 Kw | 7.5 Kw | 9760 Wp |  600,000  |
| 46 | Sipahihat Solar Irrigation Project Vill: Sipahi Hat UP: Dhakamara PS: Sadar Dist: Panchagar. | Sipahihat Krishok Somobai Somitee | Mutual Trust Bank Ltd. (MTBL) | 3.7 Kw | 5.5 Kw | 6100 Wp |  300,000  |
| 47 | Rotnibari Solar Irrigation Project,Vill: Rotnibari UP: Tunirhat PS: Sadar,Dist: Panchagar. | Rotnibari Krishok Somobai Somitee | Mutual Trust Bank Ltd. (MTBL) | 3.7 Kw | 5.5 Kw | 6100 Wp |  300,000  |
| 48 | Saharbati Solar Irrigation Project-1,Vill: Saharbati UP: Saharbati PS: Gangni,Dist: Panchagar. | Resource Development Foundation (RDF) | IDCOL | 5.5Kw | 7.5 Kw | 9440 Wp |  550,000  |
| 49 | Saharbati Solar Irrigation Project-2,Vill: Saharbati UP: Saharbati PS: Gangni,Dist: Meherpur | Resource Development Foundation (RDF) | IDCOL | 7.5Kw | 7.5 Kw | 9440 Wp |  605,000  |
| 50 | Saharbati Solar Irrigation Project-3,Vill: Saharbati UP:Saharbati PS: Gangni,Dist: Meherpur. | Resource Development Foundation (RDF) | IDCOL | 7.5Kw | 7.5 Kw | 9920 Wp |  660,000  |
| 51 | Juginder Math Solar Irrigation Project,Vill: Basbari UP: Saharbati PS: Gangni,Dist: Meherpur. | Resource Development Foundation (RDF) | IDCOL | 7.5Kw | 7.5 Kw | 9440 Wp |  605,000  |
| 52 | Noapara Solar Irrigation Project,Vill: Noapara UP: Mirpur PS: Mirpur,Dist: Kustia. | Resource Development Foundation (RDF) | IDCOL | 7.5Kw | 7.5 Kw | 14160 Wp |  660,000  |
| 53 | Chitolia Solar Irrigation Project 1,Vill: Chitolia UP: Mirpur PS: Mirpur,Dist: Kustia. | Resource Development Foundation (RDF) | IDCOL | 7.5Kw | 7.5 Kw | 12800 Wp |  660,000  |
| 54 | Chitolia Solar Irrigation Project-2,Vill: Chitolia UP: Mirpur PS: Mirpur,Dist: Kustia. | Resource Development Foundation (RDF) | IDCOL | 7.5Kw | 7.5 Kw | 14160 Wp |  660,000  |
| 55 | Jutiadanga Solar Irrigation Project-1,Vill: Jutiadanga UP: Malihad PS: Mirpur,Dist: Kustia. | Resource Development Foundation (RDF) | IDCOL | 13Kw | 15 Kw | 19520 Wp |  1,250,000  |
| 56 | Jutiadanga Solar Irrigation Project-2,Vill: Jutiadanga UP: Malihad PS: Mirpur,Dist: Kustia. | Resource Development Foundation (RDF) | IDCOL | 13Kw | 15 Kw | 19520 Wp |  1,250,000  |
| 57 | Manikdia Solar Irrigation Project-1,Vill: Manikdia UP: Dhankhola PS: Gangni,Dist: Meherpur. | Resource Development Foundation (RDF) | IDCOL | 13Kw | 15 Kw | 19520 Wp |  1,275,000  |
| 58 | Manikdia Solar Irrigation Project-3,Vill: Manikdia UP: Dhankhola PS: Gangni,Dist: Meherpur. | Resource Development Foundation (RDF) | IDCOL | 13Kw | 15 Kw | 19520 Wp |  1,275,000  |
| 59 | Manikdia Solar Irrigation Project-5,Vill: Manikdia UP: Dhankhola PS: Gangni,Dist: Meherpur. | Resource Development Foundation (RDF) | IDCOL | 13Kw | 15 Kw | 19520 Wp |  1,275,000  |
| 60 | Ruyerkandi Solar Irrigation Project-1,Vill: Ruyerkandi UP: Dhankola PS: Gangni Dist: Meherpur. | Resource Development Foundation (RDF) | IDCOL | 13Kw | 15 Kw | 19520 Wp |  1,275,000  |
| 61 | Ruyerkandi Solar Irrigation Project-2,Vill: Ruyerkandi UP: Dhankola PS: Gangni Dist: Meherpur. | Resource Development Foundation (RDF) | IDCOL | 13Kw | 15 Kw | 19520 Wp |  1,275,000  |
| 62 | Amtoil Solar Irrigation Project-1,Vill: Manikdia UP: Dhankola PS: Gangni,Dist: Meherpur. | Resource Development Foundation (RDF) | IDCOL | 13Kw | 15 Kw | 19520 Wp |  1,275,000  |
| 63 | Samanta Solar Irrigation Project-1,Vill: Beliati UP: Kajirder PS:Moheshpur,Dist: Jhenaidah. | Rural Health Education & credit Organizatio | IDCOL | 15Kw | 15 Kw | 21960 Wp |  1,320,000  |
| 64 | Samanta Solar Irrigation Project-2,Vill: Beliati UP: Kajirder PS:Moheshpur,Dist: Jhenaidah. | Rural Health Education & credit Organizatio | IDCOL | 15Kw | 15 Kw | 21960 Wp |  1,320,000  |