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# Pre-Feasibility Study

## (Solar (PV) Home Distribution Business)



### Small and Medium Enterprises Development Authority Government of Pakistan

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January 2020

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## 1 DISCLAIMER

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### ***Document Control***

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## 2 EXECUTIVE SUMMARY

Solar Photovoltaic (PV) is a method of converting solar energy into direct current electricity using semiconducting materials that exhibit the photovoltaic effect. Power generation from solar PV has long been seen as a clean sustainable energy technology that draws upon the planet's most plentiful and widely distributed renewable energy source, which is the sun.

The proposed product is a Solar Home (PV) System, this system will be used as a power saving feature in homes in the presence of electricity and also be used as an alternative power source in the absence of electricity hence eliminating the need for other alternative power sources such as generators and UPS. The Solar Home (PV) System will include Solar Panels, Hybrid Inverter, Charge Controller, Power Bank / Batteries and Frames.

It is proposed to be located at any of the major cities across Pakistan such as Lahore, Rawalpindi-Islamabad, Faisalabad, Multan, Karachi, Quetta, Peshawar etc.

Distribution capacity **180 kW** (kilowatt) and initial utilization **60%**

Total Cost Estimates is **Rs.3,913,125** with fixed investment **Rs.1,636,000** and working capital **Rs.2,217,125**

Given the cost assumptions, IRR and Payback are **59%** and **3.16 years** respectively.

The most critical considerations or factors for success of the project are:

- Most significant consideration(s)
  - Owner and key employees must have technical expertise & experience.
  - Financial position and credit standing of the distributor.
  - After Sales Services is also crucial in creating good personal relationships with customers.
  - Linkages development with the local market & households.
- Equally important factors:
  - Effective marketing plan for the business so that the potential customers could be reached.
  - Good customer care is vital for creating a positive image for business growth.
  - Selection of a central location based on the target market.

### 3 INTRODUCTION TO SMEDA

The Small and Medium Enterprises Development Authority (SMEDA) was established in October 1998 with an objective to provide fresh impetus to the economy through development of Small and Medium Enterprises (SMEs).

With a mission "to assist in employment generation and value addition to the national income, through development of the SME sector, by helping increase the number, scale and competitiveness of SMEs", SMEDA has carried out 'sectoral research' to identify policy, access to finance, business development services, strategic initiatives and institutional collaboration and networking initiatives.

Preparation and dissemination of prefeasibility studies in key areas of investment has been a successful hallmark of SME facilitation by SMEDA.

Concurrent to the prefeasibility studies, a broad spectrum of business development services is also offered to the SMEs by SMEDA. These services include identification of experts and consultants and delivery of need based capacity building programs of different types in addition to business guidance through help desk services.

### 4 PURPOSE OF THE DOCUMENT

The objective of the pre-feasibility study is primarily to facilitate potential entrepreneurs in project identification for investment. The project pre-feasibility may form the basis of an important investment decision<sup>1</sup> and in order to serve this objective, the document/study covers various aspects of project concept development, start-up, and production, marketing, finance, and business management.

The purpose of this document is to facilitate potential investors in **Solar (PV) Home Distribution Business** by providing them with a general understanding of the business with the intention of supporting potential investors in crucial investment decisions.

The need to come up with pre-feasibility reports for undocumented or minimally documented sectors attains greater imminence as the research that precedes such reports reveal certain thumb rules; best practices developed by existing enterprises by trial and error, and certain industrial norms that become a guiding source regarding various aspects of business set-up and it's successful management.

Apart from carefully studying the whole document one must consider critical aspects provided later on, which form basis of any Investment Decision.

## 5 BRIEF DESCRIPTION OF PROJECT & PRODUCT

A photovoltaic system employs solar panels composed of a number of solar cells to supply usable solar power. The direct conversion of sunlight to electricity occurs without any moving parts or environmental emissions during operation.

Pakistan has always been in the grip of sustainable energy scarcity. There is an ever increase in energy demand that cannot be fulfilled using the current resources. It is estimated that around 23 million Pakistani households out of 32 million have access to electricity<sup>2</sup>. According to the International Finance Corporation (IFC), 24 million households are either without grid connection are suffering from severe energy crisis<sup>3</sup>. Previous efforts to provide grid connections to households have failed due to low dense and dispersed rural areas.

Around the world, solar energy particularly, is positioned to become a new source of sustainable energy. The increased awareness towards environmental issues has prompted a new shift towards low-carbon energy alternatives that has enabled new investment in the alternate energy. “Pakistani households spend \$ 2.3 billion per annum on alternative lighting products.”<sup>4</sup> Commercial manufacturing of the PV Systems has served to decrease the cost of its components with the passage of time due to advancements in manufacturing technology, techniques and process.

Pakistan predominantly requires alternate sources of energy to both deal with the environmental challenges and the energy shortage. This feasibility study explores the opportunity that exists in the Home (PV) Distribution Business, in Pakistan. Hybrid Systems are more appealing because of the flexibility to connect along with the national grid electricity connection. So will enable the consumers to utilize the solar energy as an energy saving option in the presence of the electricity as well as to provide as a backup power in the absence of electricity in the day times with the ability to charge the batteries that will provide backup in the nights.

Following are the key parameters for the proposed distribution unit:

- **Technology:** There are three types of Solar (PV) Systems widely available:
  - The first type is the Grid Tied Systems that are connected to the utility power grids, which is an alternative power generation method like the hydel or fuel or gas generators used by power companies to meet the

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<sup>2</sup> NEPRA. 2017. “Decision of Authority in the Matter of Solar PV Power Generation Tariff.”

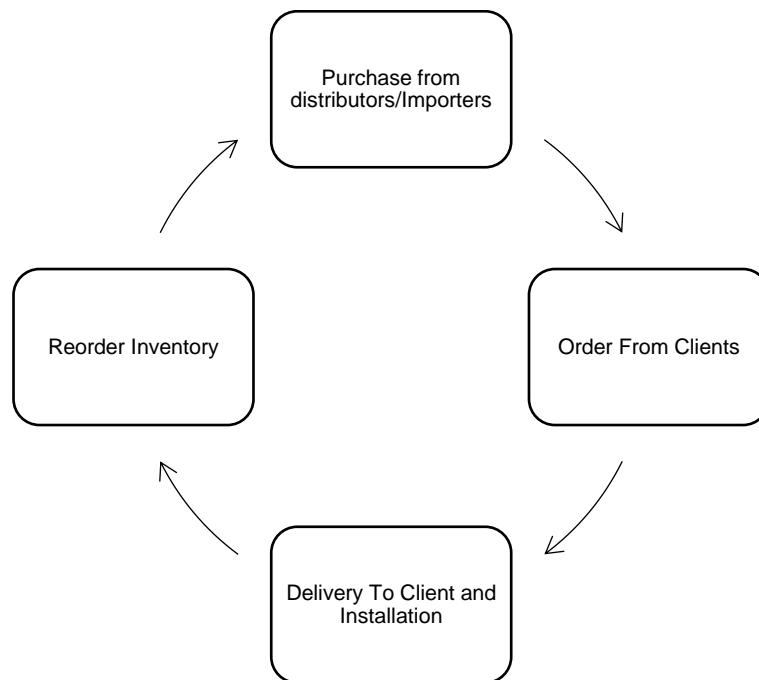
<sup>3</sup> IFC. 2015. “Pakistan Off-Grid Lighting Consumer Perceptions: Study Overview.”

<sup>4</sup> Pakistan Off-Grid Lighting Consumer Perceptions Study 2015, (IFC) World Bank Group

needs of the area or city or country and they will only work in the presence of sunlight.

- The second type is the Off-Grid PV System that are also known as stand-alone Systems. This type of Systems are not connected to the grid and it requires batteries. The batteries ensure the availability of electricity even in the absence of sunlight. These types of systems are mainly used in the remote areas, which are not in the reach of national power distribution.
  - The third type is the Hybrid PV Systems, it is best suited for households because of the flexibility to connect along with the national grid electricity connection.
- **Location:** This distribution business can be located in all most anywhere in Pakistan, especially in urban cities like Karachi, Lahore and Islamabad.
  - **Product:** This distribution business would buy the Hybrid PV Systems from the importers which would be distributed to the end consumers. Installation services would also be provided by the proposed business unit.
  - **Target Market:** The target market for the proposed business consists of three segments. The proposed segments are household consumers, small to medium sized businesses and organizations, and educational institutions located in urban centres such as Karachi, Lahore and Islamabad.
  - **Employment Generation:** The distribution unit would generate both direct and indirect employment. Direct employment would be provided to 6 people. These would include one person who would look after the accounts and answer calls, two people who would deal with purchasing and selling, one driver, and two people with technical skills who would install the PV Systems for the consumers. The proposed distribution unit would also generate business for importers as well.

## 5.1 Distribution Process Flow



- **Stage 1:** Minimum inventory is maintained to fulfil the demand on time
- **Stage 2:** Demand from clients analyzed
- **Stage 3:** Delivery and Installation at the premises of clients takes place
- **Stage 4:** Reorder of inventory according to demand

## 5.2 Installed and Operational Capacities

The operational capacity of this pre-feasibility is 10 kW per month. The assumed operational capacity during the first year of operations is 100%.

## 6 CRITICAL FACTORS

The main critical success factors that affect the decision to invest in the proposed business setup are:

- Financial position and credit standing of the distributor.
- Effective marketing plan for the business so that the potential customers could be reached.
- After sale services is also crucial in creating good personal relationships with customers.
- Owner or key employees must have technical expertise & experience.



- Selection of a central location based on the target market.
- Good customer care is vital for creating positive image for business growth.
- Linkages development with the local market & households.
- For meeting customer demands in timely manner, placing orders at least 3 weeks before running out of stock is very important.
- The average lead time is 20-days: 16 days shipping time, 2 days clearance from customs and around 2 days for transporting to warehouse therefore in absence of inventory, timeline should be kept in mind before making any commitment.

## 7 GEOGRAPHICAL POTENTIAL FOR INVESTMENT

Pakistan's geography is most favorable to exploitation of solar energy as it is sixth most fortunate country in the world in terms of solar irradiance and where sunshine availability is 8-10 hours per day over much of the plains of Sindh, Baluchistan and Southern Punjab.

Solar energy intensity in Sun Belt of Pakistan is approximately 1,800-2,200 Kwh per square meter per day, which is the most favorable for exploitation of solar energy. Potential capacity for installation of solar photovoltaic power by some estimates is 1,600 GW, which is 40 times greater than present consumption. Based on range of currently possible conversion efficiencies in area of one sq. km has potential to produce 40-55MW power and can generate revenue conservatively estimated at Rs. 1 billion per month at current average tariffs of Rs. 10 per Kw per hour.

Since solar power is available only during times of sunshine, it can at most meet up to 30% of daily consumption without need for energy storage such as in underground salt deposits. Wasteland and desert of Thar, lower Sindh & Baluchistan are prime contenders to establish large solar farms with capacities of generating more than 250 Gigawatts electric power to meet energy shortfall over coming decades.

## 8 POTENTIAL TARGET CUSTOMERS

The PV system consumers are increasing in Pakistan as more people are shifting from fuel generators to solar power for power needs. The potential customers are segmented into following groups: Small Businesses and Organizations: Small businesses operating in areas with disrupted electricity supply opt for solar power systems for their electricity needs. Organizations including Health facilities, Government offices and NGOs operating in remote rural areas with no grid power access also install PV systems to meet their electricity needs. Such customers are found both in rural as well as urban areas of Pakistan. Households: Household consumers with adequate buying power prefer PV systems over power generators. People from urban centers of Punjab and Sindh are especial target with huge potential as these areas get maximum amount of sunlight. The affordability of such consumers

is also high as the PV systems cost quite high. However, individual households may order PV systems from across the country. Educational Institutions: Schools and colleges operating in rural areas with no grid power supply install PV systems to meet their requirements.

## 9 PROJECT COST SUMMARY

A detailed financial model has been developed to analyze the commercial viability of this project. Various costs and revenue related assumptions along with results of the analysis are outlined in this section.

### 9.1 Project Economics

All the figures in this financial model have been calculated for estimated revenue of Rs.29.3 million in the year one. The capacity utilization is work out at 100%.

The following table shows internal rate of return, payback period and net present value of the proposed venture:

**Table 9.1: Project Economics**

Description	Details
Internal Rate of Return (IRR)	59%
Payback Period	3.16 years
Net Present Value	Rs.13,347,432

### 9.2 Project Financing

Following table provides details of the equity required and variables related to bank loan:

**Table 9.2: Project Financing**

Description	Details
Total Equity (100%)	Rs.3,913,125

### 9.3 Project Cost

Following fixed and working capital requirements have been identified for operations of the proposed business. Working capital is estimated to be Rs. 10,919,996 to meet the initial requirements of operating the business. The requirement is based on the cost for four months of the items shown in the table below for working capital:

**Table 9.3: Project Cost**

Description	Cost (Rs.)
<b>Capital Cost</b>	
Furniture & Fixture	206,000
Office Equipment	105,000
Office Vehicle	1,100,000
Pre-operating costs	225,000
<b>Total Capital Cost</b>	<b>1,636,000</b>
<b>Working Capital</b>	
Raw Material Inventory	1,492,125
Up-front Building Rent	480,000
Up-front insurance payment	55,000
Cash	250,000
<b>Total Working Capital</b>	<b>2,277,125</b>
<b>Total Project Cost</b>	<b>3,913,125</b>

### 9.4 Space Requirement

The space requirement for the proposed PV Systems distribution business is estimated considering two facilities including a management office and a store. Details of space requirement and cost related to building are given below:

**Table 9.4: Space Requirement**

Description	Estimated Area (Sq ft)	Unit Cost (Rs.)	Total Cost (Rs.)
Rented Space	2,000	20	40,000
<b>Total</b>			<b>40,000</b>

## 9.5 Furniture & Fixtures Requirement

Details of the furniture and fixture required for the project are given below:

**Table 9.5: Furniture & Fixture**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Computer Table and Chair	01	25,000	25,000
Tables	02	15,000	30,000
Chairs	08	7,000	56,000
Air Conditioners	01	85,000	85,000
Electrical wiring & lighting	10	1,000	10,000
<b>Total</b>			<b>206,000</b>

## 9.6 Office Equipment Requirement

Following office equipment will be required for PV Systems distribution business:

**Table 9.6: Office Equipment**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Computers	01	75,000	75,000
Printer	01	15,000	15,000
Tablet	01	15,000	15,000
<b>Total</b>			<b>105,000</b>

## 9.7 Human Resource Requirement

In order to run operations of PV Systems distribution business smoothly, details of human resources required along with number of employees and monthly salary are recommended as under:

**Table 9.7: Human Resource Requirement**

Description	No. of Employees	Salary per month per Person (Rs.)	Total Monthly Salary (Rs.)
CEO/ Owner	01	50,000	50,000
Sales Representative	02	30,000	60,000
Installer	02	30,000	60,000
Administrator	01	20,000	20,000
Driver	01	17,500	17,500
Security Guard	01	17,500	17,500
<b>Total</b>	<b>08</b>		<b>187,500</b>

### 9.8 Utilities and other costs

An essential cost to be borne by the project is the cost of electricity, telephone and internet. The electricity expenses are estimated to be around Rs.17,228 per month, telephone expenses are estimated to be around Rs.5,000 per month including internet expenses. Furthermore, promotional expense being essential for marketing of PV Systems distribution business is estimated as 5% of sales.

### 9.9 Revenue Generation

Sales price is taken on the 30% margin on the average cost of the all components. Based on the approx. capacity utilization of 60% for PV distribution, revenue during the first year of operations is estimated as under:

**Table 9.9: Revenue Generation – Year 1**

Description	No. of Units Procure (kW)	Remaining Inventory (kW)	Units available for Sale (kW)	Sale Price / kW (Rs.)	Sales Revenue (Rs.)
Solar (PV) Systems	108	5	115	224,900	24,289,200
<b>Total</b>					<b>24,289,200</b>

## 10 CONTACT DETAILS

### 10.1 Raw Material Suppliers

#### Raw Material Supplier -1

<b>Name of Supplier</b>	Nizam Energy Pvt LTD.		
<b>Address</b>	G-30/4 KDA Scheme No. 5, Block 8, Clifton, Karachi		
<b>Phone</b>	021-35360583	<b>Fax</b>	+92-21-3536-0584
<b>E-mail</b>	sales@nizamenergy.com		
<b>Website</b>	www.nizamsolar.com		

#### Raw Material Supplier -2

<b>Name of Supplier</b>	Reon Energy Solutions		
<b>Address</b>	3 <sup>rd</sup> Floor Dawood Center, MT Khan Road, Karachi		
<b>Phone</b>	021-3563220009	<b>Fax</b>	N/A
<b>E-mail</b>	info@reonenergy.com		
<b>Website</b>	www.reonenergy.com		

#### Raw Material Supplier -3

<b>Name of Supplier</b>	Tesla Solar		
<b>Address</b>	81-G, Street 6, I-10/3, Islamabad		
<b>Phone</b>	03218375278	<b>Fax</b>	N/A
<b>Website</b>	www.tesla-pv.com		

## 11 USEFUL WEB LINKS

Small & Medium Enterprises Development Authority (SMEDA)	<a href="http://www.smeda.org.pk">www.smeda.org.pk</a>
Government of Pakistan	<a href="http://www.pakistan.gov.pk">www.pakistan.gov.pk</a>
Ministry of Industries & Production	<a href="http://www.moip.gov.pk">www.moip.gov.pk</a>
Ministry of Education, Training & Standards in Higher Education	<a href="http://moptt.gov.pk">http://moptt.gov.pk</a>
Government of Punjab	<a href="http://www.punjab.gov.pk">www.punjab.gov.pk</a>
Government of Sindh	<a href="http://www.sindh.gov.pk">www.sindh.gov.pk</a>
Government of Khyber Pakhtunkhwa	<a href="http://www.khyberpakhtunkhwa.gov.pk">www.khyberpakhtunkhwa.gov.pk</a>
Government of Balochistan	<a href="http://www.balochistan.gov.pk">www.balochistan.gov.pk</a>
Government of Gilgit Baltistan	<a href="http://www.gilgitbaltistan.gov.pk">www.gilgitbaltistan.gov.pk</a>
Government of Azad Jamu Kashmir	<a href="http://www.ajk.gov.pk">www.ajk.gov.pk</a>
Trade Development Authority of Pakistan (TDAP)	<a href="http://www.tdap.gov.pk">www.tdap.gov.pk</a>
Security Commission of Pakistan (SECP)	<a href="http://www.secp.gov.pk">www.secp.gov.pk</a>
Federation of Pakistan Chambers of Commerce and Industry (FPCCI)	<a href="http://www.fpcci.com.pk">www.fpcci.com.pk</a>
State Bank of Pakistan (SBP)	<a href="http://www.sbp.org.pk">www.sbp.org.pk</a>
Punjab Small Industries Corporation	<a href="http://www.psic.gop.pk">www.psic.gop.pk</a>
Sindh Small Industries Corporation	<a href="http://www.ssic.gos.pk">www.ssic.gos.pk</a>
Pakistan Horticulture Development and Export Company (PHDEC)	<a href="http://www.phdec.org.pk">www.phdec.org.pk</a>
Punjab Vocational Training Council (PVTC)	<a href="http://www.pvtc.gop.pk">www.pvtc.gop.pk</a>
Technical Education and Vocational Training Authority (TEVTA)	<a href="http://www.tevta.org">www.tevta.org</a>
Pakistan Readymade Garment Technical Training Institute	<a href="http://www.prgmea.org/prgtti/">www.prgmea.org/prgtti/</a>
Livestock & Dairy Development Department, Government of Punjab.	<a href="http://www.livestockpunjab.gov.pk">www.livestockpunjab.gov.pk</a>
Punjab Industrial Estates (PIE)	<a href="http://www.pie.com.pk">www.pie.com.pk</a>
Faisalabad Industrial Estate Development and Management Company (FIEDMC)	<a href="http://www.fiedmc.com.pk">www.fiedmc.com.pk</a>

## 12 ANNEXURES

### 12.1 Income Statement

<b>Statement Summaries</b>										<b>SMEDA</b>
<b>Income Statement</b>										
	Rs. in actuals									
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	23,277,150	28,851,859	34,186,206	40,298,903	47,292,278	52,157,333	57,373,066	63,110,373	69,421,410	76,363,551
Cost of goods sold	18,796,750	22,202,206	25,077,345	28,186,761	31,546,919	33,274,623	35,008,444	36,835,780	38,761,972	40,792,690
<b>Gross Profit</b>	<b>4,480,400</b>	<b>6,649,652</b>	<b>9,108,860</b>	<b>12,112,142</b>	<b>15,745,359</b>	<b>18,882,710</b>	<b>22,364,622</b>	<b>26,274,592</b>	<b>30,659,438</b>	<b>35,570,860</b>
<i>General administration &amp; selling expenses</i>										
Administration expense	1,823,100	2,000,600	2,195,381	2,409,126	2,643,682	2,901,075	3,183,527	3,493,480	3,833,610	4,206,856
Rental expense	480,000	528,000	580,800	638,880	702,768	773,045	850,349	935,384	1,028,923	1,131,815
Utilities expense	151,488	166,637	183,300	201,631	221,794	243,973	268,370	295,207	324,728	357,201
Travelling & Comm. expense (phone, fax, etc.)	88,500	97,116	106,572	116,948	128,334	140,829	154,540	169,586	186,098	204,216
Office vehicles running expense	385,000	423,500	465,850	512,435	563,679	620,046	682,051	750,256	825,282	907,810
Office expenses (stationary, etc.)	70,800	77,693	85,258	93,558	102,667	112,663	123,632	135,669	148,878	163,373
Promotional expense	465,543	577,037	683,724	805,978	945,846	1,043,147	1,147,461	1,262,207	1,388,428	1,527,271
Insurance expense	55,000	49,500	44,000	38,500	33,000	27,500	22,000	16,500	11,000	5,500
Professional fees (legal, audit, etc.)	116,386	144,259	170,931	201,495	236,461	260,787	286,865	315,552	347,107	381,818
Depreciation expense	141,100	141,100	141,100	141,100	141,100	141,100	141,100	141,100	141,100	141,100
Amortization expense	45,000	45,000	45,000	45,000	45,000	-	-	-	-	-
Property tax expense	-	-	-	-	-	-	-	-	-	-
Miscellaneous expense	615,543	742,037	865,224	1,005,628	1,165,461	1,284,723	1,413,195	1,554,515	1,709,967	1,880,963
<b>Subtotal</b>	<b>4,437,460</b>	<b>4,992,480</b>	<b>5,567,140</b>	<b>6,210,279</b>	<b>6,929,791</b>	<b>7,548,887</b>	<b>8,273,092</b>	<b>9,069,458</b>	<b>9,945,120</b>	<b>10,907,923</b>
<b>Operating Income</b>	<b>42,940</b>	<b>1,657,173</b>	<b>3,541,721</b>	<b>5,901,864</b>	<b>8,815,568</b>	<b>11,333,823</b>	<b>14,091,530</b>	<b>17,205,135</b>	<b>20,714,318</b>	<b>24,662,937</b>
Other income	-	-	-	-	-	-	-	-	-	-
Gain / (loss) on sale of assets	-	-	-	-	-	-	-	-	-	-
<b>Earnings Before Interest &amp; Taxes</b>	<b>42,940</b>	<b>1,657,173</b>	<b>3,541,721</b>	<b>5,901,864</b>	<b>8,815,568</b>	<b>11,333,823</b>	<b>14,091,530</b>	<b>17,205,135</b>	<b>20,714,318</b>	<b>24,662,937</b>
<b>Interest expense</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Earnings Before Tax</b>	<b>42,940</b>	<b>1,657,173</b>	<b>3,541,721</b>	<b>5,901,864</b>	<b>8,815,568</b>	<b>11,333,823</b>	<b>14,091,530</b>	<b>17,205,135</b>	<b>20,714,318</b>	<b>24,662,937</b>
Tax	8,588	331,435	708,344	1,180,373	1,763,114	2,266,765	2,818,306	3,441,027	4,142,864	4,932,587
<b>NET PROFIT/(LOSS) AFTER TAX</b>	<b>34,352</b>	<b>1,325,738</b>	<b>2,833,376</b>	<b>4,721,491</b>	<b>7,052,455</b>	<b>9,067,058</b>	<b>11,273,224</b>	<b>13,764,108</b>	<b>16,571,454</b>	<b>19,730,350</b>
Balance brought forward	-	34,352	272,018	3,105,394	7,826,886	14,879,340	23,946,398	35,219,622	48,983,729	65,555,184
Total profit available for appropriation	34,352	1,360,090	3,105,394	7,826,886	14,879,340	23,946,398	35,219,622	48,983,729	65,555,184	85,285,534
Dividend	-	1,088,072	-	-	-	-	-	-	-	-
Balance carried forward	34,352	272,018	3,105,394	7,826,886	14,879,340	23,946,398	35,219,622	48,983,729	65,555,184	85,285,534

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## 12.2 Balance Sheet

Statement Summaries											SMEDA
Balance Sheet											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Rs. in actuals										
<b>Assets</b>											
<i>Current assets</i>											
Cash & Bank	690,000	264,607	484,439	2,950,278	7,248,035	13,946,357	22,468,189	33,233,372	46,424,448	62,345,390	86,272,461
Accounts receivable	-	1,913,190	2,142,288	2,590,605	3,061,032	3,599,638	4,086,970	4,501,249	4,951,374	5,446,512	5,991,163
Finished goods inventory	-	817,250	928,067	1,048,008	1,177,720	1,317,887	1,386,443	1,458,685	1,534,824	1,615,082	1,699,695
Equipment spare part inventory	-	-	-	-	-	-	-	-	-	-	-
Raw material inventory	1,492,125	1,853,681	2,201,396	2,600,916	3,059,210	3,381,585	3,728,198	4,110,338	4,531,648	4,996,142	-
Pre-paid annual land lease	-	-	-	-	-	-	-	-	-	-	-
Pre-paid building rent	40,000	44,000	48,400	53,240	58,564	64,420	70,862	77,949	85,744	94,318	-
Pre-paid lease interest	-	-	-	-	-	-	-	-	-	-	-
Pre-paid insurance	55,000	49,500	44,000	38,500	33,000	27,500	22,000	16,500	11,000	5,500	-
<b>Total Current Assets</b>	<b>2,277,125</b>	<b>4,942,229</b>	<b>5,848,589</b>	<b>9,281,548</b>	<b>14,637,561</b>	<b>22,337,387</b>	<b>31,762,662</b>	<b>43,398,093</b>	<b>57,539,038</b>	<b>74,502,943</b>	<b>93,963,319</b>
<i>Fixed assets</i>											
Land	-	-	-	-	-	-	-	-	-	-	-
Building/Infrastructure	-	-	-	-	-	-	-	-	-	-	-
Machinery & equipment	-	-	-	-	-	-	-	-	-	-	-
Furniture & fixtures	206,000	185,400	164,800	144,200	123,600	103,000	82,400	61,800	41,200	20,600	-
Office vehicles	1,100,000	990,000	880,000	770,000	660,000	550,000	440,000	330,000	220,000	110,000	-
Office equipment	105,000	94,500	84,000	73,500	63,000	52,500	42,000	31,500	21,000	10,500	-
<b>Total Fixed Assets</b>	<b>1,411,000</b>	<b>1,269,900</b>	<b>1,128,800</b>	<b>987,700</b>	<b>846,600</b>	<b>705,500</b>	<b>564,400</b>	<b>423,300</b>	<b>282,200</b>	<b>141,100</b>	<b>-</b>
<i>Intangible assets</i>											
Pre-operation costs	225,000	180,000	135,000	90,000	45,000	-	-	-	-	-	-
Legal, licensing, & training costs	-	-	-	-	-	-	-	-	-	-	-
<b>Total Intangible Assets</b>	<b>225,000</b>	<b>180,000</b>	<b>135,000</b>	<b>90,000</b>	<b>45,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>TOTAL ASSETS</b>	<b>3,913,125</b>	<b>6,392,129</b>	<b>7,112,389</b>	<b>10,359,248</b>	<b>15,529,161</b>	<b>23,042,887</b>	<b>32,327,062</b>	<b>43,821,393</b>	<b>57,821,238</b>	<b>74,644,043</b>	<b>93,963,319</b>
<b>Liabilities &amp; Shareholders' Equity</b>											
<i>Current liabilities</i>											
Accounts payable	-	2,436,063	2,883,246	3,274,728	3,701,150	4,140,422	4,379,539	4,622,647	4,880,384	5,153,734	4,764,660
Export re-finance facility	-	-	-	-	-	-	-	-	-	-	-
Short term debt	-	-	-	-	-	-	-	-	-	-	-
Other liabilities	-	-	-	-	-	-	-	-	-	-	-
<b>Total Current Liabilities</b>	<b>-</b>	<b>2,436,063</b>	<b>2,883,246</b>	<b>3,274,728</b>	<b>3,701,150</b>	<b>4,140,422</b>	<b>4,379,539</b>	<b>4,622,647</b>	<b>4,880,384</b>	<b>5,153,734</b>	<b>4,764,660</b>
<i>Other liabilities</i>											
Lease payable	-	-	-	-	-	-	-	-	-	-	-
Deferred tax	-	8,588	44,000	66,000	88,000	110,000	88,000	66,000	44,000	22,000	-
Long term debt	-	-	-	-	-	-	-	-	-	-	-
<b>Total Long Term Liabilities</b>	<b>-</b>	<b>8,588</b>	<b>44,000</b>	<b>66,000</b>	<b>88,000</b>	<b>110,000</b>	<b>88,000</b>	<b>66,000</b>	<b>44,000</b>	<b>22,000</b>	<b>-</b>
<i>Shareholders' equity</i>											
Paid-up capital	3,913,125	3,913,125	3,913,125	3,913,125	3,913,125	3,913,125	3,913,125	3,913,125	3,913,125	3,913,125	3,913,125
Retained earnings	-	34,352	272,018	3,105,394	7,826,886	14,879,340	23,946,398	35,219,622	48,983,729	65,555,184	85,285,534
<b>Total Equity</b>	<b>3,913,125</b>	<b>3,947,477</b>	<b>4,185,143</b>	<b>7,018,519</b>	<b>11,740,011</b>	<b>18,792,465</b>	<b>27,859,523</b>	<b>39,132,747</b>	<b>52,896,854</b>	<b>69,468,309</b>	<b>89,198,659</b>
<b>TOTAL CAPITAL AND LIABILITY</b>	<b>3,913,125</b>	<b>6,392,129</b>	<b>7,112,389</b>	<b>10,359,248</b>	<b>15,529,161</b>	<b>23,042,887</b>	<b>32,327,062</b>	<b>43,821,393</b>	<b>57,821,238</b>	<b>74,644,043</b>	<b>93,963,319</b>

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## 12.3 Cash Flow Statement

Statement Summaries											SMEDA
Cash Flow Statement											
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Rs. in actuals										
<i>Operating activities</i>											
Net profit	-	34,352	1,325,738	2,833,376	4,721,491	7,052,455	9,067,058	11,273,224	13,764,108	16,571,454	19,730,350
Add: depreciation expense	-	141,100	141,100	141,100	141,100	141,100	141,100	141,100	141,100	141,100	141,100
amortization expense	-	45,000	45,000	45,000	45,000	45,000	-	-	-	-	-
Deferred income tax	-	8,588	35,412	22,000	22,000	22,000	(22,000)	(22,000)	(22,000)	(22,000)	(22,000)
Accounts receivable	-	(1,913,190)	(229,098)	(448,317)	(470,426)	(538,606)	(487,333)	(414,279)	(450,125)	(495,137)	(544,651)
Finished good inventory	-	(817,250)	(110,817)	(119,942)	(129,711)	(140,167)	(68,556)	(72,243)	(76,139)	(80,258)	(84,613)
Equipment inventory	-	-	-	-	-	-	-	-	-	-	-
Raw material inventory	(1,492,125)	(361,556)	(347,714)	(399,520)	(458,294)	(322,375)	(346,612)	(382,140)	(421,310)	(464,494)	4,996,142
Pre-paid building rent	(40,000)	(4,000)	(4,400)	(4,840)	(5,324)	(5,856)	(6,442)	(7,086)	(7,795)	(8,574)	94,318
Pre-paid lease interest	-	-	-	-	-	-	-	-	-	-	-
Advance insurance premium	(55,000)	5,500	5,500	5,500	5,500	5,500	5,500	5,500	5,500	5,500	5,500
Accounts payable	-	2,436,063	447,182	391,483	426,422	439,272	239,117	243,108	257,737	273,351	(389,074)
Other liabilities	-	-	-	-	-	-	-	-	-	-	-
<b>Cash provided by operations</b>	<b>(1,587,125)</b>	<b>(425,393)</b>	<b>1,307,904</b>	<b>2,465,839</b>	<b>4,297,757</b>	<b>6,698,322</b>	<b>8,521,832</b>	<b>10,765,184</b>	<b>13,191,076</b>	<b>15,920,941</b>	<b>23,927,071</b>
<i>Financing activities</i>											
Change in long term debt	-	-	-	-	-	-	-	-	-	-	-
Change in short term debt	-	-	-	-	-	-	-	-	-	-	-
Change in export re-finance facility	-	-	-	-	-	-	-	-	-	-	-
Add: land lease expense	-	-	-	-	-	-	-	-	-	-	-
Land lease payment	-	-	-	-	-	-	-	-	-	-	-
Change in lease financing	-	-	-	-	-	-	-	-	-	-	-
Issuance of shares	3,913,125	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares	-	-	-	-	-	-	-	-	-	-	-
<b>Cash provided by / (used for) financ</b>	<b>3,913,125</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<i>Investing activities</i>											
Capital expenditure	(1,636,000)	-	-	-	-	-	-	-	-	-	-
Acquisitions	-	-	-	-	-	-	-	-	-	-	-
<b>Cash (used for) / provided by invest</b>	<b>(1,636,000)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>NET CASH</b>	<b>690,000</b>	<b>(425,393)</b>	<b>1,307,904</b>	<b>2,465,839</b>	<b>4,297,757</b>	<b>6,698,322</b>	<b>8,521,832</b>	<b>10,765,184</b>	<b>13,191,076</b>	<b>15,920,941</b>	<b>23,927,071</b>
Cash balance brought forward		690,000	264,607	484,439	2,950,278	7,248,035	13,946,357	22,468,189	33,233,372	46,424,448	62,345,390
Cash available for appropriation	690,000	264,607	1,572,511	2,950,278	7,248,035	13,946,357	22,468,189	33,233,372	46,424,448	62,345,390	86,272,461
Dividend	-	-	1,088,072	-	-	-	-	-	-	-	-
Cash carried forward	690,000	264,607	484,439	2,950,278	7,248,035	13,946,357	22,468,189	33,233,372	46,424,448	62,345,390	86,272,461

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## 13 KEY ASSUMPTIONS

### 13.1 Operating Cost Assumptions

Description	Details
Shift Length	12 hours
Number of shifts	2
Days operational per year	330 days

### 13.2 Product Cost Assumptions

Description	Details
Increase in cost of each component of PV System	10% per year
Promotional Expense	5% of sales
Duty rates and other charges on PV Panels, Inverters and Batteries	5.5%

### 13.3 Revenue Assumptions

Description	Details
Increase in price of PV System	10% per year
Number of kilowatts	108 kW per year
Increase in number of kilowatts	10% per year

### 13.4 Financial Assumptions

Description	Details
Debt Equity Ratio	0 : 100