



**Pre-feasibility Study**

# **HOUSEHOLD SOLAR SYSTEM DISTRIBUTION**

**November 2023**

“*The figures and financial projections are approximate due to fluctuations in exchange rates, energy costs, and fuel prices etc. Users are advised to focus on understanding essential elements such as production processes and capacities, space, machinery, human resources, and raw material etc. requirements. Project investment, operating costs, and revenues can change daily. For accurate financial calculations, utilize financial calculators on SMEDA’s website and consult financial experts to stay current with market conditions*”

**Small and Medium Enterprises Development Authority**  
Ministry of Industries and Production  
Government of Pakistan

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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 power saving feature in homes in the presence of electricity and also to be used as 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.

The business can be established at any of the major cities across Pakistan such as Karachi, Hyderabad, Sukkur, Larkana, Multan, Lahore, Faisalabad, Gujranwala, Sialkot, Rawalpindi, Quetta, Peshawer, Mirpur and Islamabad etc.

Distribution capacity **216 kW** (kilowatt) and initial utilization **60%**

Total Investment in the business is estimated to be **Rs.4,311,200** with fixed investment of **Rs. 1,200,000** and working capital requirement of **Rs.3,111,200**.

Given the cost assumptions IRR and Payback are **46%** and **3.84 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 relationship 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 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 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 **Household Solar Distribution** 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.

According to the International Renewable Energy Agency (IRENA), the Pakistan solar energy market is expected to grow rapidly. The market size is projected to increase from 1.3 GW in 2023 to 9.77 GW by 2028, with a compound annual growth rate (CAGR) of 49.68% during this period. This growth is indicative of the increasing popularity and potential of solar energy in Pakistan. The Pakistani government has been actively promoting solar energy. In September 2022, it approved the National Solar Energy Initiative, with a goal of producing 10,000 MW of electricity through solar energy projects. This initiative is aimed at reducing the reliance on costly diesel and furnace oil imports, which will not only lead to cost savings but also drive demand in the utility sector.

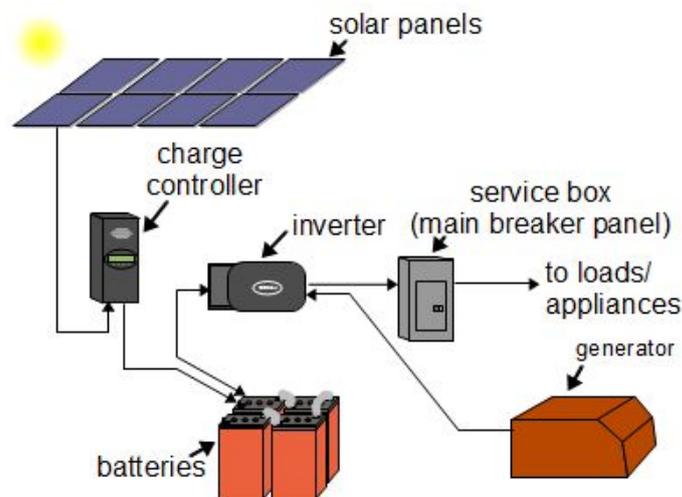
Around the world, solar energy particularly, is positioned to become a new source of sustainable energy. The increased awareness towards environmental issues has prompted a new shift towards low-carbon energy alternatives that has enabled new investment in the alternate energy. “Pakistani households spend \$ 2.3 billion per annum on alternative lighting products.”<sup>2</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. The Alternative Energy Development Board (AEDB) is offering net metering and feed-in tariffs to encourage residential and commercial solar installations. This incentivizes individuals and businesses to invest in solar energy, beyond large-scale ground photovoltaic projects.

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 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. These types 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.



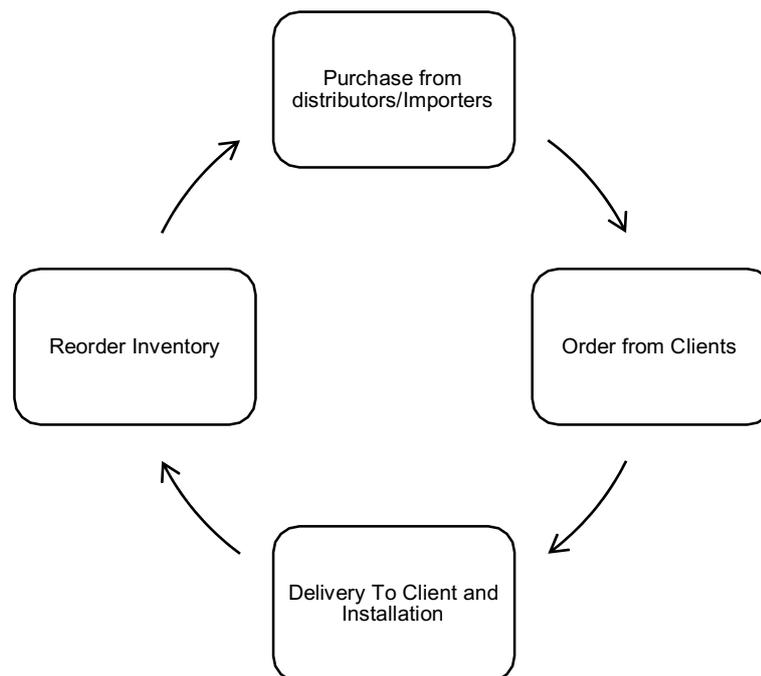
**Fig 01: Off-Grid PV System**



**Fig 02: On-Grid / Hybrid PV System**

- **Location:** This solar back-up power business can be located anywhere in Pakistan, especially in urban cities like Karachi, Hyderabad, Sukkur, Larkana, Multan, Lahore, Faisalabad, Gujranwala, Sialkot, Rawalpindi, Quetta, Peshawer, Mirpur and Islamabad.
- **Product:** This distribution business would buy the Hybrid PV Systems from the importers or distributors which would be sold to and installed at premises of the end consumers.
- **Target Market:** The target market for the proposed business consists of three segments. The proposed segments are household consumers, small sized businesses and organizations, and educational institutions located in major cities of the country.
- **Employment Generation:** The distribution unit would generate both direct and indirect employment. Direct employment would be provided to 6 people. One person who would look after the accounts and general administration activities, one person would handle marketing and procurements and three people with technical skills are proposed to be engaged to manage system installation and after sales services.

## 5.1 Distribution Process Flow



- **Stage 1:** Bare 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 18 kW per month. The assumed operational capacity during the first year of operations is 60%.

## 6 CRITICAL FACTORS

The key success factors are as follows:

- Quality of components
- 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.
- Linkages development with the local market & households.

## 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 plans of Sindh, Baluchistan and Southern Punjab.

In recent years, Pakistan's solar energy sector has grown significantly, driven by factors such as favorable weather conditions, government backing, and increased awareness of the benefits of solar energy. Pakistan is on track to significantly increase its solar energy capacity and play a pivotal role in achieving its 2030 renewable energy goals. Furthermore, the country has some of the highest values of insolation in the world, yet the initial adoption of solar technology was delayed. In 2022, despite having some of the highest electricity tariffs globally, Pakistan's total solar power installed capacity was only 568 MWAC.

Since solar power is available only during times of sunshine, it can at most meet up to 30% of daily consumption. Thar, lower Sindh & Baluchistan, Punjab and lower KPK are prime regions with potential to generate more than 250 Gigawatts electric power to meet energy shortfall over coming decades. Business of Solar (pv) based micro generation systems have a good demand owing to the geographical potential and energy shortfall in the country.

## 8 POTENTIAL TARGET CUSTOMERS

The solar (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. 31.6 million in the year one. The capacity utilization is worked out at 60%.

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)	45%
Payback Period	3.88 years
Net Present Value	Rs.7,509,588

### 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%)	4,441,200
Bank Loan (0%)	-

### 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. 3,111,200 to meet the initial requirements of operating the business

**Table 9.3: Project Cost**

Description	Cost (Rs.)
<b>Capital Cost</b>	
Furniture & Fixture	400,000
Office Equipment	325,000
Machinery and Equipment	150,000
Pre-operating costs	325,000
<b>Total Capital Cost</b>	<b>1,330,000</b>
<b>Working Capital</b>	
Raw Material Inventory	1,883,700
Up-front Building Rent	720,000
Up-front insurance payment	7,500
Cash	500,000
<b>Total Working Capital</b>	<b>3,111,200</b>
<b>Total Project Cost</b>	<b>4,441,200</b>

### 9.4 Space Requirement

The space requirement for the proposed Solar 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)	Rent Cost (Rs.)/sqft	Total Cost (Rs.)
Rented Space	750	160	120,000
<b>Total</b>			<b>120,000</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	02	50,000	100,000
Tables for store/workshop	02	45,000	90,000
Chairs	08	15,000	120,000
Air Conditioners (1.5)	01	200,000	200,000
Electrical wiring & lighting	10	2000	20,000
<b>Total</b>			<b>530,000</b>

## 9.6 Office Equipment Requirement

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

**Table 9.6: Office Equipment**

Description	Quantity	Unit Cost (Rs.)	Total Cost (Rs.)
Computers	02	100,000	200,000
Printer	01	45,000	45,000
Tablet	02	40,000	80,000
<b>Total</b>			<b>325,000</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	01	100,000	100,000
Sales Rep./Procurement officer	01	70,000	70,000
Installer	02	40,000	80,000
Accounts and admin. officer	01	40,000	40,000
Security Guard	01	35,000	35,000
<b>Total</b>	<b>07</b>		<b>325,000</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.60,711 per month, telephone expenses are estimated to be around Rs.12,575 per month including internet expenses. Furthermore, promotional expense being essential for marketing of PV Systems distribution business is estimated as 03% of sales.

## 9.9 Revenue Generation

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	130	5.8	124.2	254,800	31,646,160
<b>Total</b>					<b>31,646,160</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>	W11 STOP		
<b>Address</b>	6-U, Block 6, P.E.C.H.S. Karachi		
<b>Phone</b>	021-37233508	<b>Mob</b>	0333-8777667
<b>E-mail</b>	info@w11stop.com		
<b>Website</b>	https://w11stop.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 Baluchistan	<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>
Bank of Punjab	<a href="http://www.bop.com.pk">www.bop.com.pk</a>
Bank of Khyber	<a href="http://www.bok.com.pk">www.bok.com.pk</a>
National Bank of Pakistan	<a href="http://www.nbp.com.pk">www.nbp.com.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

Calculations											SMEDA
Income Statement											
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
<b>Revenue</b>	<b>31,646,160</b>	<b>38,512,001</b>	<b>44,802,707</b>	<b>51,853,449</b>	<b>59,745,573</b>	<b>68,568,575</b>	<b>78,420,885</b>	<b>89,410,726</b>	<b>96,775,812</b>	<b>104,517,877</b>	
<i>Cost of sales</i>											
Cost of goods sold 1	22,604,400	26,999,154	30,827,651	35,018,372	39,600,999	44,607,475	50,072,164	56,032,030	59,524,488	63,095,957	
Cost of goods sold 2	-	-	-	-	-	-	-	-	-	-	
Operation costs 1 (direct labor)	920,000	1,050,090	1,152,593	1,265,063	1,388,473	1,523,891	1,672,487	1,835,547	2,018,686	2,215,228	
<b>Total cost of sales</b>	<b>23,524,400</b>	<b>28,049,244</b>	<b>31,980,245</b>	<b>36,283,435</b>	<b>40,989,472</b>	<b>46,131,366</b>	<b>51,744,652</b>	<b>57,867,577</b>	<b>61,543,173</b>	<b>65,311,185</b>	
<b>Gross Profit</b>	<b>8,121,760</b>	<b>10,462,756</b>	<b>12,822,462</b>	<b>15,570,015</b>	<b>18,756,102</b>	<b>22,437,209</b>	<b>26,676,234</b>	<b>31,543,149</b>	<b>35,232,639</b>	<b>39,206,692</b>	
<i>Gross Profit Margin</i>	26%	27%	29%	30%	31%	33%	34%	35%	36%	38%	
<b>General administration &amp; selling expenses</b>											
Administration expense	2,940,000	3,226,243	3,540,354	3,885,048	4,263,302	4,678,383	5,133,877	5,633,718	6,182,225	6,784,135	
Administration benefits expense	88,200	96,787	106,211	116,551	127,899	140,351	154,016	169,012	185,467	203,524	
Building rental expense	1,440,000	1,584,000	1,742,400	1,916,640	2,108,304	2,319,134	2,551,048	2,806,153	3,086,768	3,395,445	
Electricity expense	728,532	801,385	881,524	969,676	1,066,644	1,173,308	1,290,639	1,419,703	1,561,673	1,717,840	
Communications expense (phone, fax, mail, internet, etc.)	147,000	161,312	177,018	194,252	213,165	233,919	256,694	281,686	309,111	339,207	
Office vehicles running expense	-	-	-	-	-	-	-	-	-	-	
Office expenses (stationary, entertainment, janitorial services, etc.)	117,600	129,050	141,614	155,402	170,532	187,135	205,355	225,349	247,289	271,365	
Promotional expense	949,385	1,155,360	1,344,081	1,555,603	1,792,367	2,057,057	2,352,627	2,682,322	2,903,274	3,135,536	
Insurance expense	7,500	6,750	6,000	5,250	4,500	3,750	3,000	2,250	1,500	750	
Professional fees (legal, audit, consultants, etc.)	158,231	192,560	224,014	259,267	298,728	342,843	392,104	447,054	483,879	522,589	
Depreciation expense	100,500	100,500	100,500	100,500	100,500	100,500	100,500	100,500	100,500	100,500	
Amortization of pre-operating costs	65,000	65,000	65,000	65,000	65,000	-	-	-	-	-	
Bad debt expense	949,385	1,155,360	1,344,081	1,555,603	1,792,367	2,057,057	2,352,627	2,682,322	2,903,274	3,135,536	
Miscellaneous expense 1	200,000	220,000	242,000	266,200	292,820	322,102	354,312	389,743	428,718	471,590	
<b>Subtotal</b>	<b>7,891,332</b>	<b>8,894,307</b>	<b>9,914,796</b>	<b>11,044,994</b>	<b>12,296,128</b>	<b>13,615,541</b>	<b>15,146,798</b>	<b>16,839,810</b>	<b>18,393,679</b>	<b>20,078,018</b>	
<b>Operating Income</b>	<b>230,428</b>	<b>1,568,449</b>	<b>2,907,666</b>	<b>4,525,021</b>	<b>6,459,974</b>	<b>8,821,669</b>	<b>11,529,435</b>	<b>14,703,339</b>	<b>16,838,960</b>	<b>19,128,674</b>	
<b>Earnings Before Interest &amp; Taxes</b>	<b>230,428</b>	<b>1,568,449</b>	<b>2,907,666</b>	<b>4,525,021</b>	<b>6,459,974</b>	<b>8,821,669</b>	<b>11,529,435</b>	<b>14,703,339</b>	<b>16,838,960</b>	<b>19,128,674</b>	
<b>Subtotal</b>	<b>-</b>										
<b>Earnings Before Tax</b>	<b>230,428</b>	<b>1,568,449</b>	<b>2,907,666</b>	<b>4,525,021</b>	<b>6,459,974</b>	<b>8,821,669</b>	<b>11,529,435</b>	<b>14,703,339</b>	<b>16,838,960</b>	<b>19,128,674</b>	
Tax	66,824	454,850	843,223	1,312,256	1,873,392	2,558,284	3,343,536	4,263,968	4,883,298	5,547,316	
<b>NET PROFIT/(LOSS) AFTER TAX</b>	<b>163,604</b>	<b>1,113,599</b>	<b>2,064,443</b>	<b>3,212,765</b>	<b>4,586,581</b>	<b>6,263,385</b>	<b>8,185,899</b>	<b>10,439,370</b>	<b>11,955,662</b>	<b>13,581,359</b>	
Balance brought forward	1%	3%	5%	6%	8%	9%	10%	12%	12%	13%	
Total profit available for appropriation	163,604	1,277,203	2,703,044	4,564,287	6,868,725	9,697,747	13,034,772	16,956,757	20,434,040	23,798,379	
Dividend	-	638,601	1,351,522	2,282,143	3,434,362	4,848,874	6,517,386	8,478,378	10,217,020	11,899,189	
Balance carried forward	163,604	638,601	1,351,522	2,282,143	3,434,362	4,848,874	6,517,386	8,478,378	10,217,020	11,899,189	

## 12.2 Balance Sheet

Calculations											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
<b>Assets</b>											
<i>Current assets</i>											
Cash & Bank	1,100,000	689,618	956,878	1,200,828	1,591,439	2,092,828	2,660,607	3,337,994	4,482,507	5,294,290	14,668,887
Accounts receivable		1,300,527	1,441,606	1,711,946	1,986,085	2,293,131	2,636,592	3,020,331	3,448,595	3,825,751	4,136,172
Finished goods inventory		1,022,800	1,172,476	1,336,488	1,516,021	1,712,354	1,926,863	2,161,030	2,416,448	2,564,299	2,721,299
Equipment spare part inventory	-	-	-	-	-	-	-	-	-	-	-
Raw material inventory	1,883,700	2,362,426	2,832,290	3,378,179	4,011,272	4,744,308	5,591,791	6,570,224	7,328,732	8,156,878	-
Pre-paid annual land lease	-	-	-	-	-	-	-	-	-	-	-
Pre-paid building rent	120,000	132,000	145,200	159,720	175,692	193,261	212,587	233,846	257,231	282,954	-
Pre-paid insurance	7,500	6,750	6,000	5,250	4,500	3,750	3,000	2,250	1,500	750	-
<b>Total Current Assets</b>	<b>3,111,200</b>	<b>5,514,121</b>	<b>6,554,451</b>	<b>7,792,410</b>	<b>9,285,009</b>	<b>11,039,632</b>	<b>13,031,441</b>	<b>15,325,675</b>	<b>17,935,012</b>	<b>20,124,922</b>	<b>21,526,358</b>
<i>Fixed assets</i>											
Machinery & equipment	150,000	135,000	120,000	105,000	90,000	75,000	60,000	45,000	30,000	15,000	-
Furniture & fixtures	530,000	477,000	424,000	371,000	318,000	265,000	212,000	159,000	106,000	53,000	-
Office vehicles	-	-	-	-	-	-	-	-	-	-	-
Office equipment	325,000	292,500	260,000	227,500	195,000	162,500	130,000	97,500	65,000	32,500	-
<b>Total Fixed Assets</b>	<b>1,005,000</b>	<b>904,500</b>	<b>804,000</b>	<b>703,500</b>	<b>603,000</b>	<b>502,500</b>	<b>402,000</b>	<b>301,500</b>	<b>201,000</b>	<b>100,500</b>	<b>-</b>
<i>Intangible assets</i>											
Pre-operation costs	325,000	260,000	195,000	130,000	65,000	-	-	-	-	-	-
Legal, licensing, & training costs	-	-	-	-	-	-	-	-	-	-	-
<b>Total Intangible Assets</b>	<b>325,000</b>	<b>260,000</b>	<b>195,000</b>	<b>130,000</b>	<b>65,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>TOTAL ASSETS</b>	<b>4,441,200</b>	<b>6,678,621</b>	<b>7,553,451</b>	<b>8,625,910</b>	<b>9,953,009</b>	<b>11,542,132</b>	<b>13,433,441</b>	<b>15,627,175</b>	<b>18,136,012</b>	<b>20,225,422</b>	<b>21,526,358</b>
<b>Liabilities &amp; Shareholders' Equity</b>											
<i>Current liabilities</i>											
Accounts payable		2,052,068	2,451,900	2,811,438	3,207,916	3,644,820	4,125,967	4,655,539	5,207,734	5,562,852	5,185,969
Export re-finance facility	-	-	-	-	-	-	-	-	-	-	-
Short term debt	-	-	-	-	-	-	-	-	-	-	-
Other liabilities	-	-	-	-	-	-	-	-	-	-	-
<b>Total Current Liabilities</b>	<b>-</b>	<b>2,052,068</b>	<b>2,451,900</b>	<b>2,811,438</b>	<b>3,207,916</b>	<b>3,644,820</b>	<b>4,125,967</b>	<b>4,655,539</b>	<b>5,207,734</b>	<b>5,562,852</b>	<b>5,185,969</b>
<i>Other liabilities</i>											
Deferred tax		21,750	21,750	21,750	21,750	21,750	17,400	13,050	8,700	4,350	-
Long term debt (Project Loan)	-	-	-	-	-	-	-	-	-	-	-
Long term debt (Working Capital Loan)	-	-	-	-	-	-	-	-	-	-	-
<b>Total Long Term Liabilities</b>	<b>-</b>	<b>21,750</b>	<b>21,750</b>	<b>21,750</b>	<b>21,750</b>	<b>21,750</b>	<b>17,400</b>	<b>13,050</b>	<b>8,700</b>	<b>4,350</b>	<b>-</b>
<i>Shareholders' equity</i>											
Paid-up capital	4,441,200	4,441,200	4,441,200	4,441,200	4,441,200	4,441,200	4,441,200	4,441,200	4,441,200	4,441,200	4,441,200
Retained earnings		163,604	638,601	1,351,522	2,282,143	3,434,362	4,848,874	6,517,386	8,478,378	10,217,020	11,899,189
<b>Total Equity</b>	<b>4,441,200</b>	<b>4,604,804</b>	<b>5,079,801</b>	<b>5,792,722</b>	<b>6,723,343</b>	<b>7,875,562</b>	<b>9,290,074</b>	<b>10,958,586</b>	<b>12,919,578</b>	<b>14,658,220</b>	<b>16,340,389</b>
<b>TOTAL CAPITAL AND LIABILITIES</b>	<b>4,441,200</b>	<b>6,678,621</b>	<b>7,553,451</b>	<b>8,625,910</b>	<b>9,953,009</b>	<b>11,542,132</b>	<b>13,433,441</b>	<b>15,627,175</b>	<b>18,136,012</b>	<b>20,225,422</b>	<b>21,526,358</b>

## 12.3 Cash Flow Statement

Calculations											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
<b>Operating activities</b>											
Net profit		163,604	1,113,599	2,064,443	3,212,765	4,586,581	6,263,385	8,185,899	10,439,370	11,955,662	13,581,359
Add: depreciation expense		100,500	100,500	100,500	100,500	100,500	100,500	100,500	100,500	100,500	100,500
amortization of pre-operating costs		65,000	65,000	65,000	65,000	65,000	-	-	-	-	-
amortization of training costs		-	-	-	-	-	-	-	-	-	-
Deferred income tax		21,750	-	-	-	-	(4,350)	(4,350)	(4,350)	(4,350)	(4,350)
Accounts receivable		(1,300,527)	(141,079)	(270,340)	(274,139)	(307,045)	(343,461)	(383,739)	(428,263)	(377,156)	(310,421)
Finished goods inventory		(1,022,800)	(149,676)	(164,011)	(179,533)	(196,333)	(214,509)	(234,167)	(255,419)	(147,851)	(157,000)
Equipment inventory		-	-	-	-	-	-	-	-	-	-
Raw material inventory		(1,883,700)	(478,726)	(469,864)	(545,888)	(633,093)	(733,036)	(847,483)	(978,434)	(758,507)	(828,147)
Pre-paid building rent		(120,000)	(12,000)	(13,200)	(14,520)	(15,972)	(17,569)	(19,326)	(21,259)	(23,385)	(25,723)
Pre-paid machinery & equipment lease interest		-	-	-	-	-	-	-	-	-	-
Pre-paid office equipment lease interest		-	-	-	-	-	-	-	-	-	-
Pre-paid office vehicles lease interest		-	-	-	-	-	-	-	-	-	-
Advance insurance premium		(7,500)	750	750	750	750	750	750	750	750	750
Accounts payable		2,052,068	399,832	359,539	396,478	436,904	481,147	529,572	552,195	355,118	(376,883)
Other liabilities		-	-	-	-	-	-	-	-	-	-
<b>Cash provided by operations</b>	<b>(2,011,200)</b>	<b>(410,382)</b>	<b>905,861</b>	<b>1,595,472</b>	<b>2,672,755</b>	<b>3,935,751</b>	<b>5,416,653</b>	<b>7,194,772</b>	<b>9,622,892</b>	<b>11,028,803</b>	<b>21,273,786</b>
<b>Financing activities</b>											
Issuance of shares	4,441,200	-	-	-	-	-	-	-	-	-	-
Purchase of (treasury) shares	-	-	-	-	-	-	-	-	-	-	-
<b>Cash provided by / (used for) financing activities</b>	<b>4,441,200</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Investing activities</b>											
Capital expenditure	(1,330,000)	-	-	-	-	-	-	-	-	-	-
Acquisitions	-	-	-	-	-	-	-	-	-	-	-
<b>Cash (used for) / provided by investing activities</b>	<b>(1,330,000)</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>1,100,000</b>	<b>(410,382)</b>	<b>905,861</b>	<b>1,595,472</b>	<b>2,672,755</b>	<b>3,935,751</b>	<b>5,416,653</b>	<b>7,194,772</b>	<b>9,622,892</b>	<b>11,028,803</b>	<b>21,273,786</b>
Cash balance brought forward		1,100,000	689,618	956,878	1,200,828	1,591,439	2,092,828	2,660,607	3,337,994	4,482,507	5,294,290
Cash available for appropriation	1,100,000	689,618	1,595,479	2,552,350	3,873,583	5,527,191	7,509,481	9,855,380	12,960,885	15,511,310	26,568,077
Dividend		-	638,601	1,351,522	2,282,143	3,434,362	4,848,874	6,517,386	8,478,378	10,217,020	11,899,189
Cash balance	1,100,000	689,618	956,878	1,200,828	1,591,439	2,092,828	2,660,607	3,337,994	4,482,507	5,294,290	14,668,887
Cash carried forward	1,100,000	689,618	956,878	1,200,828	1,591,439	2,092,828	2,660,607	3,337,994	4,482,507	5,294,290	14,668,887

## 13 KEY ASSUMPTIONS

### 13.1 Operating Cost Assumptions

Description	Details
Office hours	08 hours
Number of shifts	1
Days operational per year	330 days

### 13.2 Product Cost Assumptions

Description	Details
Increase in cost of each component of PV System	08% per year
Promotional Expense	3% of sales

### 13.3 Revenue Assumptions

Description	Details
Increase in price of PV System	8% per year
Number of kilowatts	130 kW per year
Increase in number of kilowatts	5% per year
GP Margin (First Year)	26 %
Capacity Utilization	60 %
Maximum production capacity	216 kW

### 13.4 Financial Assumptions

Description	Details
Total Equity (100%)	2,562,050
Bank Loan (0%)	-

# Small and Medium Enterprises Development Authority

## HEAD OFFICE

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