

BUSINESS CASE FOR

# SURYA ENTERPRISE

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## The Company

Surya Enterprise is established on December 2016 .It is found by three engineers from different fields joining together in order to contribute to the society with little marginal profit.

Vision: To bring un-electrified rural villages of India under sustainable electricity.

Mission: To supply services and products that will bring light in our customer's home in the darkness of night.

Strengths:

- a) Providing low cost of services compare to competitors
- b) Use of proven technology(less risk)
- c) Owner's dedication and commitment towards sustainable electricity.

## Products and Services

Surya enterprise will be providing both services and products to meet customer's needs.

Product:

Surya enterprise will rent out Lanterns to the customers. These lanterns will use electric batteries and give out light at night. Surya enterprise has an exclusive contract with local company (expert in making solar panels and lanterns) to sell their top quality products. The lantern has following advantage over competitive products:

*Simplicity:* Easy to use and maintenance.

*Performance:* With 6 hours of use each day, it can be used for 3 days unless new battery is replaced. It also comes with an USB port (to charge mobile etc.)

*Flexibility:* Smaller size reduces space requirements; light weight makes it easy to carry.

*Price* — Lowest cost product compare to any other competitive product in the market.

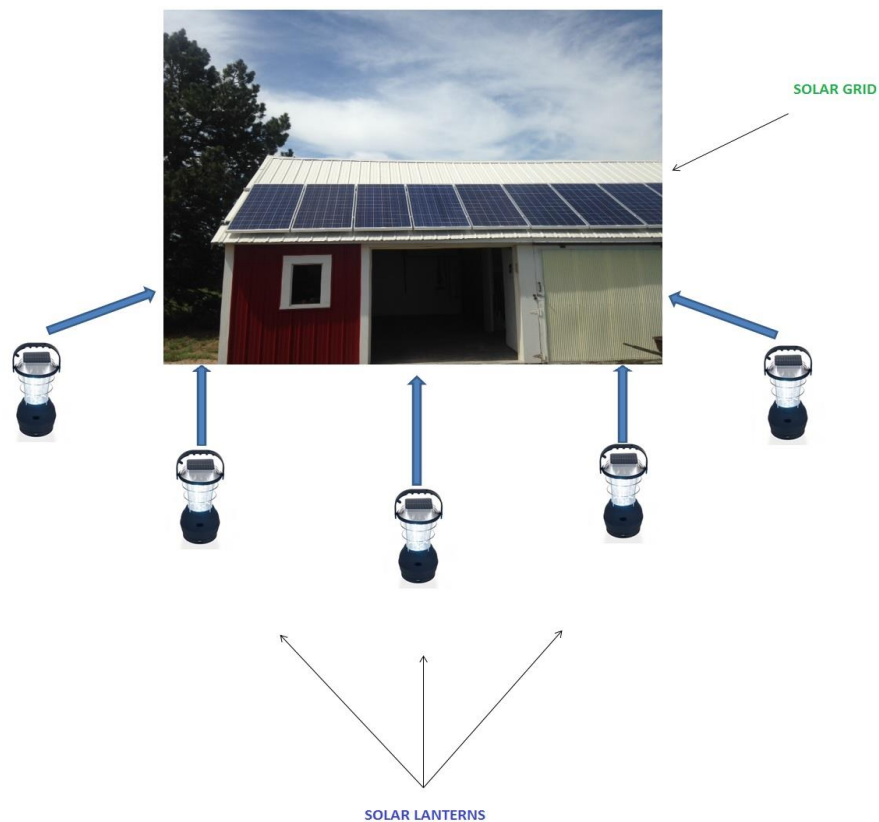


**Fig 1:** Lantern

Service:

As the lanterns rented to the customers operate on batteries, the company is obliged for the service of recharging the battery. In every village, there would be a solar grid house (Fig 2). The grid house will consist of 1-3 solar panels connected to the grid (with charging ports). The electricity generated by these solar panels will be stored in the grid which in turn will be used to charge the batteries.

As already mentioned the lantern can be used for 3-4 days until the battery gets discharged, the customer can then come to the grid house with their discharged batteries and replace it with a fully charged battery with a minimum cost.



**Fig 2:** Grid house

## Customers

Surya enterprise's typical client will be:

- Families and shop owners in the rural areas of India
- Male or female
- Of all ages
- Income level of less than 3-4 dollar a day.

It is approximated that there are around 100 families per target village that match above profile.

## Size and Trends of the market

As per the company's motto to provide low cost sustainable electricity service to people much below the poverty line and given the fact that one of the owner is from India, the company will start its journey from India itself with vision to spread internationally in the near future.

India is home for nearly over 1.2 billion people (one sixth of global population). One of the largest issues India is facing is the lack of energy, especially for the poorest segments of the population. Today over 400 million people lack access to electricity in India. These people remain off grid and rely on other forms of energy such as kerosene and wood to light their homes.

The table below, taken from 2011 census, shows the percentage of rural houses that have access to the electricity:

State	Total Population	% rural population	% rural household Electrified
Rajasthan	68621000	76.6	58.3
Madhya Pradesh	72597600	73.5	58.3
West Bengal	91347700	72.0	40.3
Odisha	41947400	85.0	35.6
Jharkhand	32966200	77.8	32.3
Assam	31169300	87.1	28.4
Bihar	103804600	89.5	10.4

**Table1:** 2011 census, indicating number of household electrified.

As per 2015 report:

- The number of un-electrified villages in Rajasthan was 4166
- The number of un-electrified villages in Odisha was 3878
- The number of un-electrified villages in Jharkand was 2105
- The number of un-electrified villages in Bihar was 1757

As days passing by, more and more people are demanding electricity in these areas and governmental grid is unable to meet the demand. The market is pretty big and private companies have a flourishing future if can be operated successfully. The market trend is in favour of a profitable electricity service at least for minimum of next 20 years.

## Competitors

Big markets have big competition too. Currently there are more than 20 state owned and private companies active in the market.

### Government providers

Ministry	Number of state owned enterprises
Ministry of power	6
Ministry of petroleum and natural gas	15
Ministry of new and renewable energy	0
Ministry of coal	3
Ministry of atomic energy	5

**Table 2:** Energy providing ministries of India

### Distributed energy enterprises

Enterprise name	Power source	State of Operation
AVANI	Solar/Biomass	Uttarakhand
Barefoot Power	Solar	Karnataka
Desi Power	Biomass	Bihar/Karnataka
d.light design	solar	World wide

Duron solar	solar	Karnataka
Gram Power	Micro-grid	Rajasthan
ONergy	Solar	West bengal
Prakruthi Power	Solar	Hyderbad

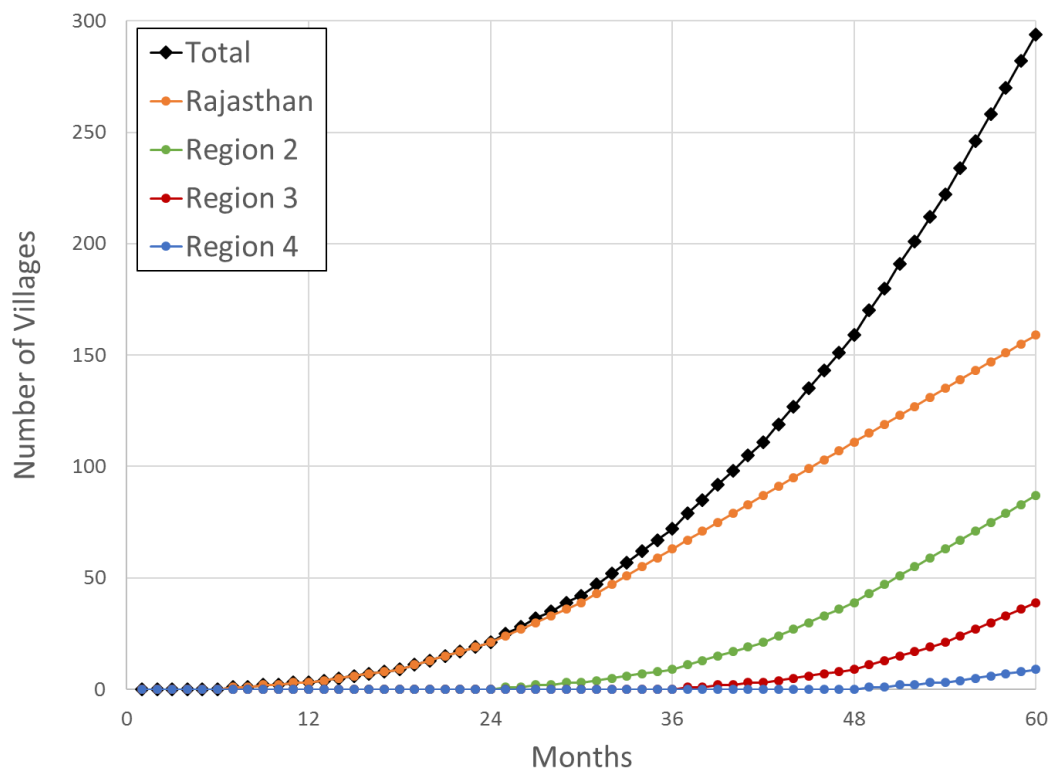
**Table 3:** Selective distributed energy enterprises in India

As we can see, there are high competitions in the market. But the advantage surya enterprise has is its customers. All the solar companies target their potential customers as those who can afford to buy solar panels and installation charges. Companies with energy out of biomass also need to target customers who would be able to pay for the high cost of biomass plant.

But surya enterprise target customers whose income is less than 3-4 dollar per day. It's a more or less niche market and has very little competition for the time being.

## Market Forecast

The chart in Figure 3 shows the projected market forecast for our lantern leasing business.



**Figure 3** Market Forecast

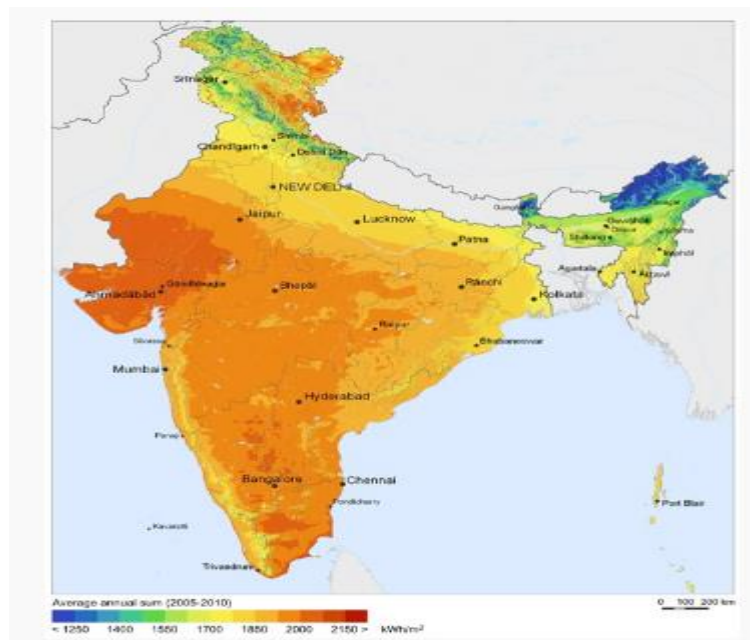
In this forecast, we positively predict that we will grow continuously for the next five years. Rajasthan is the first region of interest. As the company and the concept are new to the region, we expect to start out slowly in the beginning in Rajasthan assuming to acquire one new village in every two months. After people recognize us, we should be able to start the operation in a new village more frequently increasing the growing rate to one village per month, two villages, three villages and so on. As there is currently no plan to hire additional personnel, we are aiming our growing rate at the maximum four villages per month or basically one new village every week.

Once the business become settled in Rajasthan, business expansion to nearby regions where we can still use the existing facility in Delhi is considered. In the market forecast above, we expect to start the expansion in the beginning of the third year to the second region, to the third region in the beginning of the fourth year and so on. We will focus the expansion in one region at a time and expect to start out slowly with similar growing rate like in Rajasthan.

According to the market forecast above, we expect to set up our charging stations to approximately 300 villages at the end of the fifth year across four regions in India where there are several thousand villages without electricity.

## Operations Plan

### Geographical location



**Fig 4:** Image showing annual solar irradiance for India in KWh per square metre.

As can be seen in the map, the darker part has more sunlight. As the company depends on sun for producing electricity, it will start its journey from one of the state in that dark region, namely Rajasthan. A small village consisting of 100 families in the south of Rajasthan will be



targeted and the main grid house will be situated in the middle of the village so that it is easily accessible both by the customers and also for product providers.

The main head office will be situated in New Delhi, the capital city of India. The choice of this location is due to the fact that one of the owners has a house in New Delhi and agreed to give his house for business purpose which would save a lot in terms of warehouse rent etc.

### Facilities

a) Main office and grid house is well connected:

For an effective distribution of products and services, a good connection between the offices need to be established. Thanks to the good transportation system, that connects the capital very smoothly to the target rural village.

b) Cheap rental cars

Orders need to be delivered on time and equipment needs to be reached quickly in the time of emergency. The company is in a deal with rental car companies, who would provide transportation 24/7 with a cheap deal.

c) Mobile Phones

For an effective communication between main office and operational area, communicating tools such as mobile phones need to be used always. As the grid house will have power 24/7, use of mobile phones will be very handy for communication.

### Strategy

- Provide products with a price less than the existing market
- Effective advertisement with promotional offers and discounts
- Planning for long term profit than short term.

# General Marketing Strategy

The customers can benefit from the product as the product provides a bright light and extra power source which is a better alternative instead of conventional candles, oil and kerosene lamps used at homes for lighting. The product also gives clean energy as there is no emission of harmful gases which result in burning the old lamps. The government has not been successful in delivering lighting to most rural communities and it is challenging developing systems that can offer lighting at a price people can afford.

As the upfront cost of purchase and installation of solar panels and batteries are high, the rental agreement gives the customer a benefit of using the product at a small and affordable cost. Rising cost of fuel and shortage of public supply of electricity by government can prove an advantage in creating a good market for the product.

## Pricing policy

The product and services would be provided as per the norms of the rental agreement, which would be directly between the customer and company.

The basic pricing policy as per the rental plan is:

- The lanterns would be rented to customers at a cost of 2\$ per month.
- Customer is charged with a nominal charging fee of 0.25\$ per recharge.
- After 2 years of completion of rental agreement, the customer would own the lantern and only pays for every recharge.

This pricing policy is an additive advantage for the company, since this makes the customer aware that after a span of 2 years the product would be his so customer would try to take good care of lantern and this would extend service life of each product. The customer would have to come to grid to re-charge the batteries hence, this helps the company to track customers and makes easy to collect rental fee.

## Organization of sales

The key from the start will be the need for a village based franchisee from which customers would buy or rent the energy products.

This both will establish customer trust since people associated the company brand with someone from their community, and provided someone at village level who was responsible for and capable of maintaining systems over time.

Every time the customer comes to the grid with an empty battery, it is replaced with a charged battery and customer is charged with a nominal recharging fee.

Hence if the customer refuses to pay then their light would cut off, incentivizing them to go to grid rather than forcing the company to track them down. This relieves company and grid manager from going to the hassle of tracking each and every customer.

The central grid i.e. the charging station would be owned and maintained by the company. This system can charge 9-18 lanterns per day, depending on its size, and has a central storage back-up battery for cloudy days.

## Service and guarantee policy

This is a strong point of this business plan. The product and services are simple and provide a firm guarantee because the lanterns itself are under life time warranty by manufacturer, batteries are under 5 years of warranty provided by manufacture and LED light bulbs are under 3 years of warranty provided by manufacture. Hence any defects that arrive in the product within the span of 3 years would be replaced free of charge by the respective manufacturers. This substantially decreases the amount of revenue our company needs to invest in the replacement of faulty equipments. The company would only have to invest in transferring the faulty equipments to respective manufacturers which would be very nominal.

On the other hand the solar panels which we would use for the central grid are also under a 5 years manufacturing guarantee by the manufacturer.

The central grid station that would act as the charging station for each lantern would be owned and maintained by the company. The grid would be located in each village at such location so that it would be easily accessible by all the customers

Company (Surya Enterprises) would provide yearly maintenance and performance check for the lanterns.

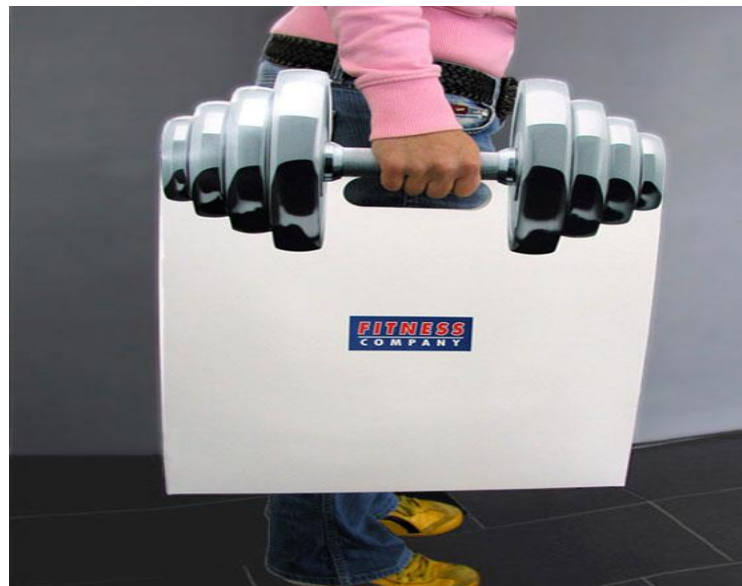
The battery in lantern will last for an average of 2-4 days depending on time of use and brightness of lamp (continuous 6 hours of use per day). So, every time the customer comes to the grid with an empty batter, it is replaced with a charged battery and customer is charged with a nominal recharging fee. The grid would have spare sets of batteries which would be charged by the solar panels at the grid.

## Advertising and promotion

The advertising and promotion strategies were a bit difficult for us to come up, since the targeted customer and people to whom we have planned to sell our product mostly live in rural areas. This limits our options for advertising and promotion of our product, as we can't use conventional promotional platforms such as social media and TV advertisements to promote our product. To overcome this barrier we formulated that we should impose old and conventional advertising strategies to create awareness about the product and promote our product and services.

The following are the advertising strategies we thought would be appropriate:

- The advertising would be done with printed advertisement posters and pamphlets. Posters of advertisements and advertising boards would be placed at locations such as local markets and schools where it can be easily seen by majority of people.
- Hire volunteers to promote and give a demo of the product from door to door. There are many agencies which provide volunteers and sales representatives that would go from door to door to promote our product. By the use of volunteers we can better explain the uses and benefits of the product to potential customers.
- Visit schools, local markets to announce a gathering for people to demonstrate and explain the product to masses. This is another advertising strategy that would prove to be effective in rural areas. By making announcements and providing
- Guerrilla advertising is a low cost effective advertising strategy; in this we distribute carry bags to local shop owners with printed advertisements of our product on them. Hence, every time someone makes a purchase at the local shop for groceries or anything they would take the carry bag with our advertisement with them. This would highlight and further promote our product to majority of people. An example of such advertising is shown in Figure 2 below.



**Figure 5:** An example of guerrilla advertisement.

# Managerial team

The following are the key members of managerial teams:

- Central solar grid Manager:

The grid manager would be a key member, as he would be the one in direct contact with company's head office, in New Delhi. The key from the start will be need for a village based franchisee from which customers would buy or rent the energy products. This will both establish customer trust since people associated the company brand with someone from their community, and provided someone at village level who was responsible for and capable of maintaining systems over time.

So, once the grid is set up, then one local, educated person of the village would be hired as a grid manager and would be given training to manage and maintain the grid along with another subordinate. Customers would be sorted out and grid manager would keep a record of monthly rental and every charge the customer makes at the charging grid. The grid manager would be responsible for bookkeeping of all collected rents and charging fee paid by customers, every month's book keeping details would be given by the grid manager to company.

Grid manager would be a salaried employ and would receive monthly salary from the company. Additional incentives would be given to the grid manager for all the customers he would convince to buy the product. This would be an extra motivational factor to grid manager in bringing more customers which would be beneficial for company.

- Logistics and product supply

The product supply and ware house would be managed by Abhishek Tanwar who is one of the three main founding members of the company. Since he lives in India, New Delhi, thus he has better idea of different transport and available logistics options, also maintenance of the warehouse records would be his responsibility. The warehouse and transport vehicles used would be rental, provided by some logistic service provider.

The key responsibilities of logistics department members would be to transport batteries, lamps and solar panels at different charging grid station located in the rural area depending on the need of each area.

- Financial planning

The department of financial planning would be handled by Arada Jamnongpipatku another founding member of Surya enterprise. She would be having key responsibilities of maintaining company's accounts and financial analysis over the years of service. She along with other members would try to formulate different funding and cash inflow options.

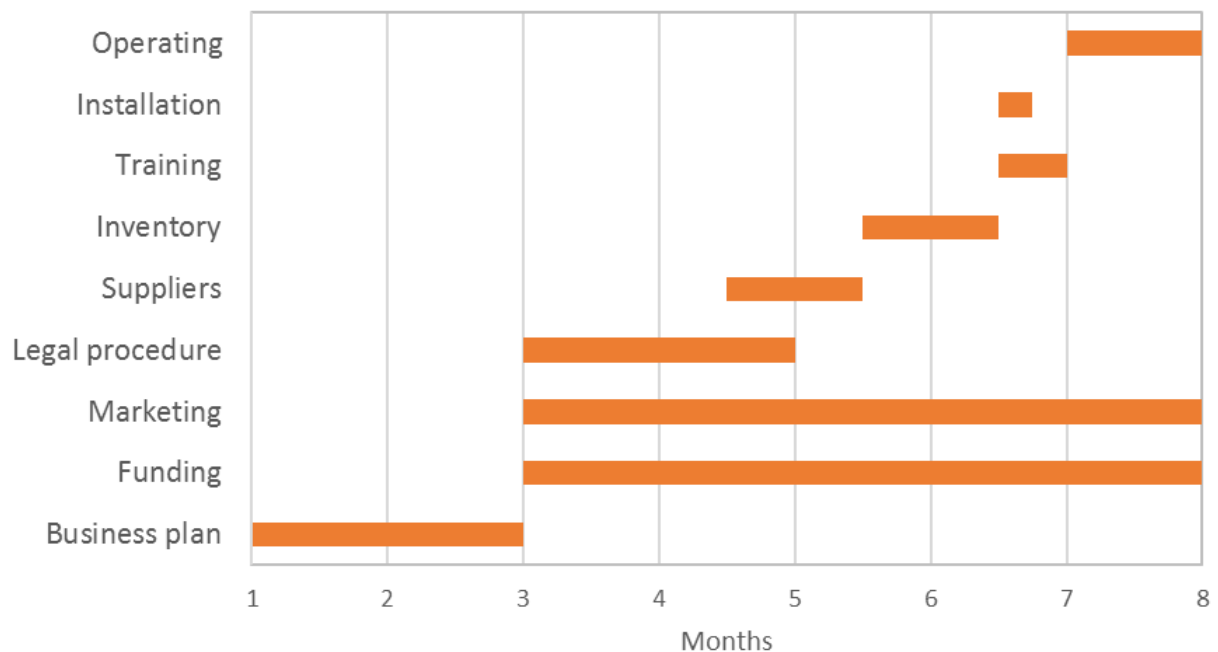
Financial team would also be responsible for creating and presenting proposals to prospective investors.

- Geographical analysis and future strategies

This department of geographical analysis and future strategies would primarily be under Md Tariqul Islam, who is also another founding member of Surya enterprise. His key responsibilities would be to do geographical and market analysis for potential areas to where we can expand our service domain. He would inspect different geographical locations worldwide and provide a sound prospective future strategies.

## Calendar

The chart in Figure 2 shows our operation plan we expect to follow from the first day we start thinking about setting up the business until the first day we start leasing out lanterns.



**Figure 6: Operation Timeline**

The explanation of each phase in the operation timeline is as follows:

- Business plan phase – Details should be finalized within the first two months
- Funding phase – This has to be started immediately. Even though we are planning to initially invest out of pockets, we will also try to acquire grants, donations, or subsidies. This process will take time and it will certainly not be easy. Also, there is a

chance of failure in the beginning as we have no experience and it can be competitive. This will be an ongoing activity until the business becomes sustainable producing enough revenue to balance the expense and making profit.

- Marketing phase – This has to be started immediately as we need to reach out to the villages that have enough interest for us to set up the charging station and profitable business. This is also an ongoing activity if we want to full-fill our market forecast.
- Legal procedure phase – Necessary registration and/or obtaining permit for the company to operate legally should be started right away as it can take lengthy time especially in India.
- Suppliers phase–Toward the end of the legal procedure phase, we expect to be able to come up with the candidate village for our first installation so it is about time to finalize who the suppliers are for the solar panels, lanterns and the rental truck for equipment and product transportation. This also includes negotiating and concluding the deals.
- Inventory phase–Once we receive solar panels, lanterns and other necessary equipment from supplies, the inventory is made in order to keep track of the products and equipment and ensure that they are functional properly. Transportation time from the warehouse to the villages also included in this phase.
- Training phase– This phase will occur at the village of operation. We take this time to teach and train our local representative so called grid manager who will be responsible for battery recharging, solar panel maintenance, keeping track of recharging fee and other necessary information. We will also provide necessary information for villagers. A trial operation may be included in the phase to ensure that the operation in the village will go smoothly as planned.
- Installation phase – This is when the solar panels will be installed at the village of operation. The lanterns will be checked again on site to make sure that they work properly and are compatible with the charging station installed in the village.
- Operating phase – It is expected that our lantern leasing business will become live in the first village within six months after the business plan was finalized.

## Financial Plan

Two key points of our business are the high upfront cost and sustainable business. For each village, we need only one big investment to buy solar panels and lanterns. This is our high upfront cost that we have to cover in the beginning. However, both solar panels and lanterns will come with warranty from the manufacturers so we can expect minimal maintenance expense during our projected five years. At the same time, once the lanterns are leased out, we will have constant revenue from the lantern rental fee and recharging fee. So, in the long term, we are capable of being sustainable without further funding.

For the sources of funding, the estimated investment needed to start the business is within the possible range for the partners to invest out of pockets. However, since our business has social benefit, there are opportunities for us to finance with grants and donations. For example, world bank development market place is one of the major grant funder for many companies sharing the same goal like ours. Subsidization is also another way of funding. There are subsidization programs from government in many countries including India for solar energy related projects. However, subsidies are not necessarily stable. Organizations offering subsidies may decide to pull out at any time. That's why it is important for us to develop sustainable business.

According to the operation timeline, the initial budget for our company to start the operation in the first village is estimated to be \$1,750 which includes the purchase of solar panels and lanterns, installation fee, cost of transportation and cost of marketing and advertising. Cost of transportation includes the truck rental fee and gas. Table 4 provides a breakdown of a use of funds. In Table 4, we predict that, for our targeting village of 100 households, approximately 40% of the households will be interested in our product at first before the remaining households will join later in the following months.

Also in Table 4, land leasing is the fee the company will pay to the owner of the land where the solar panels will be set up within the village. The location should be as close to the village centre as possible such that it will be easy for everyone to access the charging station. Last but not least, grid manager salary is paid monthly to the person in charge of charging station and maintaining the solar panels. On top of that, 20% of the charging fee will be given to the grid manager as an incentive such that the person can also act as our advertiser and help expanding the business within the village.

**Table 4** Cost Breakdown of Initial Budget

use of funds	cost per unit	unit	total
purchase of solar panels and installation fee	\$400	1 set	\$400
purchase of lanterns	\$8	40 lanterns	\$320
transportation	\$150	1 trip	\$150
cost of marketing and advertising	\$150	4 months	\$600



land leasing	\$100	1 month	\$100
grid manager salary	\$100	1 person	\$100
Total			\$1,670

Besides the initial budget, we will need at least \$1,400 every time we want to start our operation in a new village. This is the cost of purchasing solar panels and lanterns excluding overhead expenses. Table 5 shows a breakdown of a budget per village. Note that we use the full capacity of 100 lanterns per village in this estimation such that either every household use our lanterns or there are some households acquiring more than one lantern.

**Table 5** Cost Breakdown of Budget Per Village

use of funds	cost per unit	unit	total
purchase of solar panels and installation fee	\$400	1 set	\$400
purchase of lanterns	\$8	100 lanterns	\$800
Total			\$1,200

Cost breakdown of overhead expenses is done in a yearly basis and is shown in Table 6. It is estimated based on the yearly operation in one village. Only one trip of transportation is included since the transportation is required only when we need to deliver solar panels and lanterns to new villages. Expense for maintenance is also expected to be minimal since there are warranty from manufacturers for both solar panels and lanterns. Overhead expenses per year is estimated to be \$4,450.

**Table 6** :Cost Breakdown of Overhead Expenses Per Year

use of funds	cost per unit	unit	total
land leasing	\$100	per month per village	\$1,200
grid salary manager	\$100	per month per village	\$1,200
transportation	\$150	per trip	\$150
cost of marketing and advertising	\$150	per moth	\$1,800
maintenance	\$100	per year per village	\$100
Total			\$4,450

Table 7 shows our projected income statement. We will have two sources of revenue from lantern rental fee which is \$2 per month and recharging fee which is \$0.25 per charge. Numbers in Table 7 are estimated according to the market forecast shown in Figure 3 and cost breakdowns shown in Table 4, Table 5, and Table 6. It can be seen that we will start making profit in the second year when the business is settled in many villages in the first region, Rajasthan, and will help offsetting our high upfront cost when we start the operation in a new village. According to the market forecast shown in Figure 3, we expect to have net income over \$300,000 by the end of the fifth year.

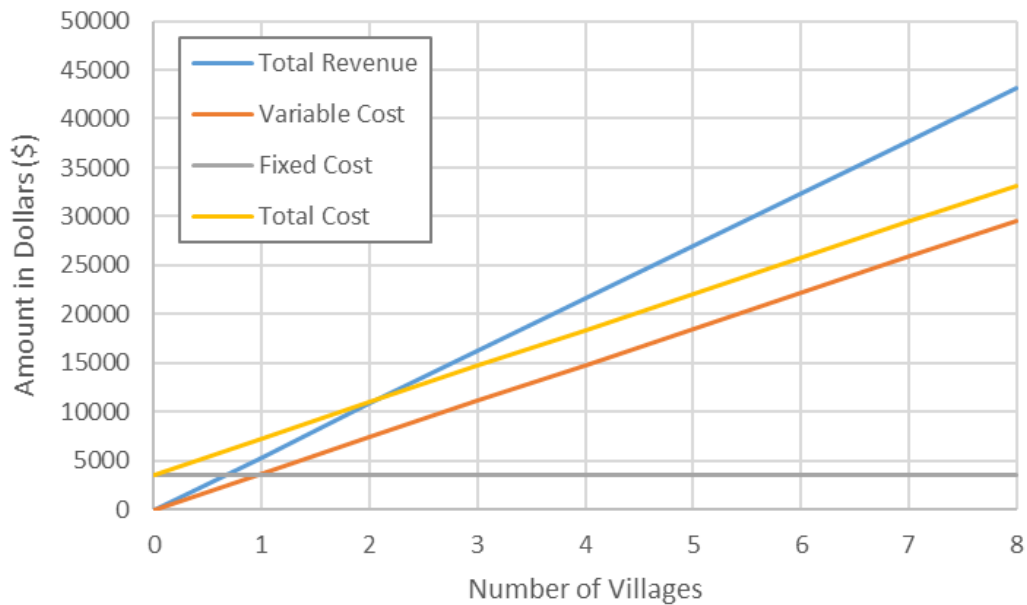
The chart in Figure 7 and numbers in Table 8 shows the break-even analysis for our lantern leasing business. Due to the nature of our business that the costs fluctuate depending on our projected growing rate, variable cost and fixed cost used for the break-even analysis are averaged in a yearly basis. The numbers averaged annually is shown in Table 8.

Expense for marketing and advertising and transportation which includes truck rental fee and gas are considered our fixed cost. Money spent on purchasing solar panels are considered our variable cost depending on how many villages we set up the operation. Budget for maintenance, wages that we need to pay grid managers, and money for leasing the land to install the solar panels are also considered our variable cost. And we will have two sources of revenue coming from lantern rental fee which is \$2 per lantern per month and recharging fee which is \$0.25 per charge. We use the full capacity of 100 households per village in the break-even analysis.

From the break-even analysis, it can be seen that we can actually break even if we can set up our operation in 3 villages in one year thanks to our sustainable business producing constant revenue. When looking at the income statement, this might raise a question why we will not make profit until the end of second year. This is because the income statement is made based on our market forecast in Figure 3 where we project to continuously set up operation in new villages such that our constant revenue cannot keep up with the high upfront cost until toward the end of second year.

**Table 7** Income Statement

	year 1	year 2	year 3	year 4	year 5
<b>Revenue</b>					
Lanterns rental fee	1720	22960	99840	260400	520240
Recharging fee	2150	28700	124800	325500	650300
<b>Cost</b>					
Solar panels	1200	6499	16490	25451	36691
Lanterns	2080	12800	37920	66720	104160
<b>Gross profit</b>	590	32361	170230	493729	1029689
<b>Overhead expenses</b>					
Land lease	1200	13500	55800	140400	276000
Labor	1030	12490	52860	135300	268060
Transportation	900	1800	1800	3360	3360
Marketing	1800	1800	1800	1800	1800
Maintenance	300	2100	7200	15900	29400
<b>Income before interest and tax</b>	-4640	671	50770	196969	451069
30% tax	0	0	15126	58986	135216
<b>Net income</b>	-4640	671	35644	137983	315853



**Figure 7:** Break-Even Analysis

**Table 8:** Annual Cost and Revenue for Break-Even Analysis

Fixed Cost	Annual Amount
marketing and advertising	\$1,800
transportation	\$1,800
Variable Cost	Annual Amount
solar panels	\$400
lanterns	\$800
land leasing	\$1,200
labor	\$1,200
maintenance	\$100
Revenue	Annual Amount
lantern rental fee	\$2,400
recharging fee	\$3,000

# Risk and Critical Problems

Problems that we think we might face during the business are listed in this section.

- Conflict between partners – There is absolutely a chance of conflict between us since we are human
- Change in weather – Our business relies solely on the Sun. However, we think that a chance of dramatic change in the weather such that we lose the sunlight is low.
- Marketing – There is obviously a market. There is a need for electricity. Even though our competitors are offering different kind of products and concepts but we are sharing similar goals and they have been growing continuously in the past several years. Our marketing strategy will need to be revised if we fail to convince people to use our products.
- Financial risk – Due to the nature of our sustainable business, we will have constant revenue once our business is settled in any village. If we seriously run out of money and cannot find more funding, we can adjust our business growth and expansion accordingly and wait until our constant revenue balance with the expenses.
- Cheaper products – When solar panels or lanterns become cheaper, this can be our benefit as we can lower our cost and make more profit but in the same time it also means that our customers might find other cheaper options by themselves or other companies may come up with cheaper offer. In that case, we will have to adjust accordingly by either lowering our price or finding cheaper products and wait longer to be profitable.
- Access to electricity grid – Even though the progress is slow but the government is surely trying to expand the electricity grid. If this development caught up with our regions of interest, we can possibly move our base to more remote regions or even different countries. This will certainly make our operation tougher but we believe that there are still rooms for our product in the next several years.