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MATRIC NUMBER; 19/ENG06/064

DEPARTMENT; MECHANICAL ENGINEERING

COURSE; GST212 (ENTREPRENEURSHIP)

TITLE; BUSINESS PLAN ON THE SELLING OF SOLAR PANELS, INVERTERS AND BATTERIES

EXECUTIVE SUMMARY/PROJECT DESCRIPTION

This Business plan examines the feasibility of the selling of solar panels, deep-cycled batteries and Inverters to the masses. Nigeria is a country that does not have efficient power supply and its citizens are looking for alternative means of power supply. As of 2016, the worlds average electricity consumption per person was 2674kwh per year while in Nigeria it was 128kwh per year not even up to 50% of the worlds average. Due to this in-efficiency in power supply most Nigerians have an alternative power supply which is usually generated from a petrol or diesel Engine (mostly called a *Generator*). Currently the world is advocating for a pure source of energy and the generator does not do a good job of giving pure energy. Generators gives out fumes which contains carbon mono-oxide and other harmful gases which depletes our ozone layer therefore causing global warming. Apart from depletion in our ozone layer, these gasses are very harmful to our health when being inhaled into our body. Presently, in-haling these gasses is in-avoidable because the world major source of energy is from fossil fuels. Our cars, planes, trains, generator, power-plants and so many more all use fossil fuels whose by-product after combustion is carbon-mono-oxide. Due to all these negative effects of fossil fuels, pure sources of energy are being investigated one of which is the energy from the sun, and the equipment used in harnessing the energy from the sun is the **solar panel**. Nigeria is blessed with a huge amount of sunlight therefore solar panels will be very efficient.

Solar panels generate electricity from sun-light. So how do we store this energy/electricity? This is where the battery comes in. most solar power designs for households involve the use of deep cycled batteries.

Solar panels and batteries, produces electricity in the form of direct current and our house hold appliances use Alternating current. So, inverters are used to convert direct current to alternating current and vice versa.

Solar panels, batteries and Inverters work hand in hand in most cases. So, to have full market potential and profit gain, we would have to deal with these three products.

MANAGEMENT; There would be no board of directors, rather it would be managed by an individual (that is the entrepreneur).

PROJECTED STAFF STRENGTH

TITLE	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Manager/Supervisor	1	1	1	1	1
Marketing officer	2	2	2	3	3
Accountant	1	1	1	1	1
packer	2	2	4	6	6
Driver	1	1	1	1	2
Cleaner	1	1	1	1	1
Security	2	2	2	2	2

TECHNICAL ASSISTANCE; Assistance would be sort from commercial banks.

MARKET AND SALES;

Market Orientation; South-west and South-south of Nigeria.

Users of product; The product would be for house-hold use, Tele communication Companies that need un-interrupted power supply, Banks and other organizations.

INDUSTRY ANALYSIS

Since solar panels aren't made in Nigeria, they would be imported. Solar panels is relatively new in Nigeria so there is minimum competition

For the inverters, its parts would be imported and coupled. Since this form of power supply is relatively new in Nigeria, there is minimal competition.

Nigeria does not produce deep-cycled batteries. And for this form of power supply deep-cycled batteries is the appropriate kind of battery to use. All the deep cycled batteries used in Nigeria are imported. So, there is little or no competition.

MARKET ANALYSIS;

The use of solar panels as a source of electricity has it advantages and disadvantages.

ADVANTAGES OF SOLAR POWER

1. Solar power is pollution free and causes no greenhouse gases to be emitted after installation which creates a safer environment
2. It creates a Noise free environment unlike generators that creates noise pollution.
3. Reduced dependence on foreign oil and fossil fuels
4. Renewable clean power that is available every day of the year, even cloudy days produce some power
5. Return on investment unlike paying for utility bills
6. Virtually no maintenance as solar panels last over 30 years
7. Ability to live grid free if all power generated provides enough for the home / building
8. Can be installed virtually anywhere; in a field to on a building
9. Use batteries to store extra power for use at night
10. Solar can be used to heat water, power homes and building, even power cars
11. Safer than traditional electric current
12. Efficiency is always improving so the same size solar that is available today will become more efficient tomorrow

DISADVANTAGES OF SOLAR POWER

1. Initial startup cost is too high for consumers
2. Batteries would need to be changed every 5 years (that is for design that are battery independent)

DISADVANTAGES OF GENERATOR

1. It is very noisy while in operation

2. It pollutes the environment with carbon mono-oxide which destroys our ozone layer
3. It is costly in a long run (due to cost of buying fuel and maintenance)
4. It has a shorter life-span compared to solar panels that can last up to 30 years

ADVANTAGES OF GENERATOR

1. Initial startup cost is Low
2. It produces more power

CONSUMER COST ANALYSIS;

GENERATORS;

Note; An Average Nigerian home use their generators at night and buy petrol at an average of ₦500.125 Naira per Litre of petrol is used for this analysis

It is also based on the idea that there would be power supply from PHCN for half of the year while the other half (182 days) would be powered by a generator.

Average power consumed using a generator by a family in Nigeria is 1000watts. The Average run-time of a generator with a 4 Litre petrol (₦500) at a load of 1000watt is 8hours

PRODUCTS	COST PER YEAR (₦)	5 YEARS COST (₦)
Cost of a 2.5kva Generator	40,000	40,000
Cost of maintenance per year	12,000	60,000
Cost of Fuel per year (at 500 per day); 500*182	91,000	455,000
Miscellaneous (repairs)	5,000	25,000
TOTAL	148,000	580,000

SOLAR CONSUMER COST ANALYSIS; Based on 1000watt consumption.

PRODUCTS	QUANTITY	COST (₦)
Inverter (2.5kva, 24v)	1	120,000
12v 200Ah Batteries (at ₦135,000 each)	2	270,000
Solar Panels (300watt solar panels at 60,000 each.)	6	360,000
TOTAL		750,000

Power supply hours during the day is about; 7 hours or more.

And at Night it is about; 4hours.

Total power supply/Light hours; 11 hours

From the above analysis, although the initial cost of setting up a solar power is high but on the long run it pays off. For an average Nigerian, solar power will produce more power supply/light hours compared to when using a generator with an added advantage of no noise pollution and air pollution.

With its Long power supply hours during the day, it will be very suitable for companies that perform their activities during the day.

ENVIRONMENTAL IMPACT ANALYSIS; This business has little or no negative effect on the environment. The only frequently disposable product is the battery (that is after 5 years) which can be recycled into more batteries and other products.

GOVERNMENT SUPPORT AND REGULATION;

This business conforms with the government plan to improve our power supply.

ESTIMATED BUSINESS COST AND REVENUE (EXCLUDING LAND AND HOUSING STRUCTURE)

Note; The figures below are liable to change due to exchange rate. And all the goods are imported

PRODUCT	QUANTITY	COST (₦)
Batteries (price per battery is ₦70,000)	100	7,000,000
Inverter (90,000 each for 2.5kva)	100	9,000,000
Solar panels (300w at 50,000 each)	100	5,000,000
Van/Truck for conveying goods	1	20,000,000
Miscellaneous		200,000
TOTAL		41,200,000

REVENUE

PRODUCT	QUANTITY	RETAIL PRICE (₦) PER PRODUCT	IMPORT PRICE (₦) PER PRODUCT	ESTIMATED PROFIT PER PRODUCT (₦)
Batteries	100	135,000	70,000	65,000
Inverter	100	120,000	90,000	30,000
Solar Panels	100	60,000	50,000	10,000
TOTAL				105,000

Miscellaneous cost (that is packaging etc.)	₦20,000
Estimated total profit (105,000-20,000)	₦85,000

Looking at the above analysis, the long-term efficiency and stability of the business looks promising. The business is technically feasible and commercially viable therefore it is recommended for funding