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Business plan for Shockawave Energy Solutions

EXECUTIVE SUMMARY

Introduction:

Shockawave energy solutions are an energy generation and distribution company that is aimed at solving the electrical energy problem facing Nigeria. The company generates electricity from renewable sources such as solar wind and hydro. The company plans to use technology customized for the Nigerian environment taking into account the weather changes unique to Nigeria. This would allow us to take maximize the use of technology and efficiently generate electricity.

Shockawave will provide electrical Energy ranging from households to industries.

Africa has an energy deficit problem Nigeria included. Nigeria has a severe electrical energy deficit; the electricity produced in Nigeria is unable to meet up with household and industrial needs. Considering has a demand of about 40,000MW of electricity but Nigeria is only able to deliver 5,000MW this leaves about 20 million households without electrical power. As of 2018 Nigeria has a generation capacity of about 12,000 MW, which is very far from the demand, and 86% of this production capacity comes from fossil fuels.

As seen above the electrical energy sector has a long way to go in whole the Nigerian Electrical Energy sector is valued at about \$2 billion. The renewable energy sector is also projected to be worth billions, the sector is underway with very few competitors and players with the highest capacity provider being 10MW. The assumed solar capacity in Nigeria is 42,700 MW. Looking at the highest provider so far I can say there are still a lot of lands to be explored and the capacity to be met.

Shockawave would have the advantage of being an early mover into the market.

COMPANY AND MANAGEMENT

Shockawave intends to open its farm energy farm in Sokoto state. Sokoto state has the highest solar radiation averaging about 19.8MJm²/day 6 hours a day and wind speeds reaching about 5 m/s. This makes Sokoto the most suitable region to be located and to our fortune there are very few solar farms in Sokoto.

Shockawave would be building its renewable energy technology in-house this reduces cost by so far and allows us to design a custom technology that would be most efficient for the region.

OVERVIEW AND OBJECTIVES

Shockawave would be operating within the renewable energy sector as an electrical energy generator and distributor. Shockawave would provide electricity to households (urban and rural) and industries.

Now Shockawave would be tackling the costly and unsteady electricity problem in Nigeria, the demand for steady electricity is large and shockwave plans to generate electricity from the abundant renewable resources making use of technology uniquely designed for Nigerian climate to increase capacity at a low cost hence distributing at low costs compared to other providers.

Objectives:

1. Reach a generation capacity of 50MW within the first 2 years.
2. Reach a generation efficiency of about 90% in the first year.
3. Covered at least 100,000 households in the first year.
4. Begin making a profit after the first 2 years.

PRODUCT

I have been making emphasis on a unique/custom technology above. I will perfectly explain this technology below. Firstly we are going to look at some pre-existing and break-through technology.

Solar panels work by absorbing radiation from the sun in the daytime averaging about 7 hours leaving the remaining non-sun time to be about 17 hours. Now a new

technology tagged “Nighttime solar” has been invented at the University of California, Davis. This technology as its name implies generates electricity during the time unlike solar technology they generate electricity from heat radiated from the earth’s surface at nighttime.

Wind turbines make use of wind as it implies. Wind blowing at a considerably fast speed turns lightweight blades and that motion is transferred to dynamos, which produce electricity.

Consider our strategic location Sokoto which has about 19.MJm²/ day of radiation at a day time, high heat energy at nighttime, and high wind speeds now imagine a technology that incorporates both types of solar panels and wind turbines into its structure. This technology would be generating electricity continuously for 24 hours. This would be an ideal technology that would attain 100% efficiency at energy generation.

Future products:

Shockawave plans to be a battery pack manufacturer. There is a current heated race to manufacture battery packs with high energy density, the market for high energy density battery has high projections and Shockawave plans to acquire experience over the years to be able to build the high energy density battery.

SERVICES

Shockawave would provide electricity and provide other electrical services such as

1. House wiring
2. Home Solar panel installation
3. Underground wire laying

MARKET SUMMARY

The power market in Nigeria is expected to grow at a CAGR of approximately 12.39% during the forecast period of 2019 – 2024. Nigeria is the biggest economy in the African continent, with USD 397.27 billion GDP recorded in 2018. However, its power sector is performing below the level of its peer countries. Roughly 40% of the population has no access to electricity, and those connected to the grid suffer extensive power outages. To revive the power sector, the government, in partnership with the World Bank, initiated and signed a Power Sector Recovery Program (PSRP), in which funds are expected to flow in to support the sector. Moreover, increasing the shift toward renewable energy technologies is expected to strengthen the power market in the coming years. However, the vandalism of gas infrastructure and statutory bottlenecks in the country are expected to hinder the growth of the industry. Nigerian population and the country's businesses spend around USD 14 billion (NGN 5 trillion) annually on small-scale generators that are expensive (USD 0.40/kWh or NGN 140/kWh or more), of poor quality, noisy, and pollution causing. Developing off-grid alternatives to complement the grid creates a USD 9.2 billion/year (NGN 3.2 trillion/year) market opportunity for mini-grids and solar home systems, which is expected to save USD 4.4 billion/year (NGN 1.5 trillion/year) for Nigerian homes and businesses.

MARKET TRENDS

- Nigerian power sector is dominated by thermal electricity generation, that too gas-fired, accounting for more than half of the total electricity generation in the country.
- The country has been supporting independent power producers (IPPs) through its initiatives which include reduced financial risks for investors through partial risk guarantee (PRG) agreement. The PRG agreement, backed by the World Bank, protects the investors against a default by a power company. This agreement aims to encourage IPPs into the sector and mitigate the risks posed by gas shortages.
- In December 2017, the Nigerian National Petroleum Corp. (NNPC) announced the plan to build three natural gas-fired power plants in the country. Situated at Abuja, Kaduna, and Kano, the plants are expected to have a total capacity of 4,600 MW.

Moreover, the country is building a coal-based power plant, with a capacity of 16 MW, which is anticipated to be completed by the end of 2019.

- Chinese consortium HTG-Pacific Energy has signed a Memorandum of Understanding (MoU), with the Nigerian Government for the exploitation and mining of the Ezinmo Coal Bricks. Nigerian authorities have announced that the MoU is expected to be followed by a Power Purchase Agreement (PPA), which is likely to authorize the investors to build a 1000 MW coal-fired power plant.

- However, the absence of infrastructure in both the power and mining sector coupled with lack of skilled local labor is expected to hinder the expansion of coal-fired power capacity in Nigeria.

SALES AND MARKETING

Shockawave will focus on local households during its first few months of generation. That is a household surrounding Shockawave energy farms this will continue until the entire region surrounding Shockawave is dependent on the electricity generated by Shockawave. This is an easier first target because of proximity advantage we can easily attend to all their needs because of the nearness. The small region will also give Shockawave to test its technology without much scrutiny and excellent feedback. Then the sales would move on to other states with the main focus on manufacturing industries and schools.

The Shockawave brand represents the new age of Nigeria; the brand should be associated with the terms innovative, non-corrupt, environment friendly, and cost-effective.

Marketing strategy:

A result-based marketing strategy would be employed during the early stages of the company. The idea of result-based is to allow the product and service to speak for itself and seeks recognition through performance. Traditional marketing costs a lot of money and due to the over-flood of marketing ads the effectiveness of marketing has declined over time.

Pricing strategy:

The prices would be kept as low as reasonable for households and taking advantage of the low price - large-volume model. The current electricity pricing for households is 25.731/kWh so our price will not be more than 24 / kWh. Prices for business another

non-residential will be mid to high. We do not plan on being the low-cost provider with non-residential areas, the goal for non-residential is steadiness.

FINANCIAL ANALYSIS

The estimated cost of phase 1 of the operations:

Team Acquisition: 20,000,000

Research and development: 10,000,000

Total cost: 30,000,000