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COMPUTER ENGINEERING

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GST 212

MY BUSINESS PLAN

I had a dream which as become my purpose that i plan on acheiving by all means necessary, a dream where no nigerian ever complans of electricity or lack of electricty and of course low electricity bill.Well hopefully this is where my plan comes in to make PHCN a solar supplying company. My reason is this, the phcn use water turbines/Hydropower(The kainji dam) and fossil fuel to supply electicity to the whole country containing an estimate of about 195.9 million people and we all know its not enough whereas so many people stillcomplain of light and electricity problems.

Africa as we know receives the most solar enegy/radiation than any other continet in the world and it is said that 173,000 tetrawatts hit the earth per day, so the question is why?, why don't we make good use of this free energy given to us and even speeden the development of all the countries in africa. So i say we make the Sunpower E-series a commercial a solar panel line, this is one of the best solar panel around (which will cost much by the way) it exceeds the 400 watt mark and comes out at a whopping 435 watts continously, normal solar panels come with an output of 250 watts-400 watts which is also wonderful,this is because research shows that a home in nigeria uses less than 600kilowatts per month although its not similar to those living in other well develpoed countries where they use up to 900kw per month.So by doing this it will reduce the usage of fossil fuel therefore to prevent global warming.

Athlough if this plan goes thorugh i.e if it is successful the demand for electricity will be more and due to the sun doesn't come out at night the demand for electricity at night will be needed, thats where the hydro turbine comes in, due to the stress and weight of the country to be performing 24hrs has been reduced, it should be able to perform non stop for 12hrs straight or let's say 14-15hrs striaght due to the sun takes time to come out fully, although it would be supported by other souces of energy such as nuclaer,wind turbines etc

So the question is how is the money made, they is a lot of money to be made because they will be a lot of demand of electricity and the kilowatts consumed the more money we get as a company and i mean a lot because very be

companies and industries will stop relying on inverters and huge generators to do their work,and soon enough in the nearest future generators and inverters will be band as a result of them passing CO2 to the sky causing global warming.

Here is a way to calculate power consumption in a household

THE KITCHEN

The kitchen is the hub of a home, so find below the power rating/ consumption per day/year

Fridge

150 to 200 W

365 days – continuously

201 kWh

Microwave oven

1000 to 1500 W

48 weeks – 1.5 h/week

90 kWh

Conventional electric oven

2000 to 2500 W

48 weeks – 1.5 h/week

162 kWh

Toaster

1200 W

48 weeks – 1 h/10 days

44 kWh (approx.)

blender

200 W

48 weeks – 2 h/10 days

14.6 kWh

–THE LIVING ROOM

LCD TV

90 to 250 W

335 days – 4 hours/ day

241kWh

LED TV

20 to 60 W

335 days – 4 hours/ day

54kWh

Low-energy light bulb

12 W

335 days – 5 hours/ day

20 kWh

Game console

20 to 180 W

387 hours/ year

7.75 to 69.5 kWh

TVD/ADSL decoder

365 days – continuously

277 kWh + 112 kWh

Halogen lamps

300 W

335 days – 5 hours/ day

503 kWh

Stereo system

40 W

335 days – 4 hours/ day

53.6kWh

Window AC

660 W

365 days – 6 hours/ day

1445.4kWh

when all this is calculated and converted to real money you'll we'll be making more money than you used to, although all this needs full power to function.

The current challenges facing the phcn in power distribution

Although Nigeria has been generating electricity in commercial quantities for over a century, the pace of electricity infrastructure development in the county is very slow and power supply remains highly inadequate. In 2013, two segments of Nigeria's power sector (generation and distribution) were privatized to resolve the challenges associated with the prior monopoly of government in power generation, transmission and distribution. However, privatization only changed the dimensions of the challenges and power supply remains largely inadequate, unaffordable and unreliable in the country.

Infrastructure Constraints across the entire value chain from fuel to power distribution chain, including undiversified energy sources for electricity (80% thermal and 20% hydro), insufficient gas pipelines, obsolete generation plants and equipment, as well as inadequate and poorly maintained transmission and distribution networks. All worsened by vandalism

Insufficient End-User Tariffs/Pricing: Due to rising supply cost (associated with inflation, currency devaluation, unexpected infrastructure constraints) that have not been accompanied by timely adjustments to tariffs.

Inability to Reduce Aggregate Technical, Commercial and Collection (ATC&C) Losses: The design of the power sector reform makes the viability of the distribution companies (DisCos) critical to the long-term sustainability of the sector. However, DisCos are unable to recover cash shortfall on account of the lack of investment in network rehabilitation and metering (partly due to low

tariffs and inability to obtain loans from Nigerian banks due to unpaid debts).

Sector's Cash Shortfalls: Total cash shortfall in the sector between 2015 and 2016 is estimated at $1.3 billion. Out of which $1.2 billion accounts for deficits caused by tariffs being lower than the cost of service delivery, and the remaining $100 million caused by DisCos inability to reduce ATC&C losses.

Debts, Electricity Theft, and Non-payment Culture of the Public: Especially government ministries, department and agencies who owe the industry an estimated $72 million as at the end of 2016; contributing to the sector's cash shortfall.

Sector governance: Inconsistent enforcement of rules and policies reinforces aforementioned challenges.

While multilaterals (through initiatives with the World Bank and Power Africa) as well as the Nigerian government and private sector are making efforts to address key challenges in the Nigerian Electricity Supply Industry (NESI), the efforts are slow-paced and insufficient. For instance, the government has inaugurated a several projects aimed at expanding thermal and hydro sources as well as extended two intervention facilities to GenCos and DisCos to ease their financial constraints. DisCos have also embarked upon mass metering of customers, as well as implemented maintenance and upgrades on their network by installing new transformers and building dedicated lines to commercial and industrial customers over the past years to reduce these losses and enhance service delivery. However, the investments are marginal compared to existing deficits and targets.

To enhance the effectiveness of service delivery in NESI, several interventions are needed to attract significant private sector capital, improve baseline power supply with data-driven innovations, and enhancing sector governance. Specifically, Operational and Technical and Interventions are needed to improve baseline power supply (using data-driven, innovative on- and off- grid solutions); improve transmission wheeling capacity and redundancy; as well as improve grid design and electricity demand estimation. Governance Intervention is also necessary to improve sector governance and transparency, to make contracts fully effective, as well as to improve sector communication, coordination and monitoring. A clear and concise contractual, regulatory, and financial framework is a critical requirement for attracting private sector capital to the NESI. Lastly, Regulatory/Policy Interventions, especially related to tariff that balances the protection of electricity customers with the interests of investors, outlines a

trajectory to cost-recovery tariff, and is implemented in a timely manner is essential. Well-enforced policies that incentivize improvement in DISCOs performance, as well as fiscal and monetary policies aimed at encouraging private sector investments are needed.

Let's take a look at the future of solar cells(solar panels) it's ability

To outpace current solar cells, a new design would need to be able to capture more light, transform light energy to electricity more efficiently, and/or be less expensive to build than current designs. Energy producers and consumers are more likely to adopt solar power if the energy it produces is equally or less expensive than other, often non-renewable, forms of electricity, so any improvement to current solar cell designs must bring down overall costs to become widely used.

The first option, adding hardware that allows the solar cells to capture more light, does not actually require that we abandon current solar cell designs. Electronics can be installed with the solar cell that let the cell track the sun as it moves through the daytime sky. If the solar cell is always pointing at the sun, it will be hit by many more photons than if it was only pointing towards the sun around midday. Currently, designing electronics that can track the position of the sun accurately and consistently for several decades at a reasonable cost is an ongoing challenge, but innovation on this front continues. An alternative to making the solar cell itself move is to use mirrors to focus light on a smaller, and therefore cheaper solar cell.

Another route to improving the performance of solar cells is to target their efficiency so they are better at converting energy in sunlight to electricity. Solar cells with more than one layer of light-capturing material can capture more photons than solar cells with only a single layer. Recently, lab-tested solar cells with four layers can capture 46% of the incoming light energy that hit them. These cells are still mostly too expensive and difficult to make for commercial use, but ongoing research may one day make implementing these super-efficient cells possible.

The alternative to improving the efficiency of solar cells is simply decreasing their cost. Even though processing silicon has become cheaper over the past few

decades, it still contributes significantly to the cost of solar cell installation. By using thinner solar cells, material costs decrease. These “thin-film solar cells” use a layer of material to harvest light energy that is only 2 to 8 micrometers thick, only about 1% of what is used to make a traditional solar cell. Much like cells with multiple layers, thin-film solar cells are a bit tricky to manufacture, which limits their application, but research is ongoing.

In the immediate future, silicon solar cells are likely to continue to decrease in cost and be installed in large numbers. In the United States, these cost decreases are anticipated to increase the solar power produced by at least 700% by 2050. Meanwhile, research on alternative designs for more efficient and less expensive solar cells will continue. Years from now, we are likely to see alternatives to silicon appearing on our solar farms and rooftops, helping to provide clean and renewable sources of energy. These improvements have and will continue to be made possible by increasing bulk manufacturing of solar cells and new technologies that make the cells cheaper and more efficient.

So by seeing how solar energy will be very useful in the future we might as well join the western world is producing pure clean energy from the sun which be more efficent and reduce the risks of global warming

Asides electricity although its the main source of development we need to bring africa into the western world at large and if we steady our source of electricity it might be easier.