SunPower Innovations

Design And Construction Of 1.5MW Solar Energy Plant

JANUARY 2018

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Global Disclaimer

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These statements and information are predictions only and represents SunPower Innovation Limited's expectations as of the date of this Presentation and SunPower Innovations Limited does not undertake any obligation to update the forward looking information or financial outlook to reflect new information, subsequent events or otherwise.

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Forward-looking information is also based upon the assumption that none of the identified risk factors that could cause actual results to differ materially from the forward-looking information will occur. Accordingly, specific reference should be made to the risk factors described in the Memorandum.

Contents

Corporate Information

Company Name	SunPower Innovations Limited
Registered Office	No. 5 St Elizabeth School Lane West Legon Accra, Ghana
Auditors	Oka Business Consult No. 11 Lagos Avenue Road East Legon, Accra, Ghana
Bankers	OmniBank Ghana Limited Head Office, Dzorwulu, Ghana
Contact Details	P. O. Box, , Accra. Tel: +233 (0) 502 911 685 Email: contact@sunpowergh.com

Executive Summary

Executive Summary: Funding Need

- SunPower seeks to raise GHS 10 million in execution funding through a private placement of equity and debt. New shareholders will own a significant majority stake in the Project.
- The funds will be used to further develop its A&C Square hybrid solar power generation project. To date, existing shareholders have funded:
  - architectural and structural drawings;
  - legal fees;
  - technical and financial advisory services, travel and other miscellaneous expenses;

CAPITAL STRUCTURE		
Sources	**Description**	**%**
Equity	3,200,910	30%
Debt	7,468,790	70%
Total	**10,669,700**	**100%**

Uses	**Description**	**%**
Equipment	9,519,700	89%
Professional Fees	1,150,000	11%
Total	**10,669,700**	**100%**

- The project cost is estimated at GHS 10.67 million. This capital structure will be largely dominated by senior, secured long-term debt. The debt will be secured against the project assets, financial guarantees and off-take customer contracts. Some quasi-equity/mezzanine instruments (eg: subordinated debt) will be used to improve equity yield.
- Post-commissioning, revenues are expected to accrue quickly. Salaries and net metering costs will be the major operational expense when the plant is operating. Consequently, SunPower's primary operational objective will be to manage its direct costs and its overhead costs to minimise the cost of generating each kWh of power.
- Hence, subject to the appropriate debt service moratorium, SunPower should have a high debt capacity because it has the prospect to earn positive operating profits and cash flows early in it's life cycle.

Executive Summary: Project Brief

- SunPower Innovations ("SunPower") intends to design, construct and maintain a 1.5MWp Hybrid Solar Energy Plant "Plant" for the tenants of A&C Development Company ("A&C Mall") at East Legon.

- SunPower seeks to make available and sell the energy output from the Plant to the tenants of the A&C Mall though prepaid metering whiles providing onsite customer support services and maintenance. The agreement is for an initial five (5) years post generation of electrical energy after which ownership of the Plant reverts to the A&C Development Company. However, SunPower will maintain its O&M role after the 5-year period at an equity value of 15% of proceeds.

- The project involves the installation of approximately **4500** Photovoltaic (PV) solar panels, which will have an energy generation capacity of 1.5MW. The proposed works include:
  - the erection of scaffolding,
  - installation of mounting structures, PV panels, protective devices, inverters and cabling.
  - operate and maintain the solar plant; and all auxiliary and interconnecting equipment
  - Install pre-paid meters to aid in billing tenants of A & C Development Company.

- SunPower is also tasked to installation and commissioning of any new transmission lines and associated switchgear and protective devices needed to connect power to the tenants.

- SunPower seeks to sell the energy output at a 30% discount of the approved PURC tariffs to the tenants of the A&C Mall.

- The total cost of the project is estimated at GHS 10,669,700

Executive Summary: Promoters

SunPower Innovations Limited

- SunPower Innovations Limited is a leading indigenous solar EPC (Engineering, Procurement & Construction) renewable energy company licenced by the Energy Commission to install and maintain renewable energy systems (solar energy systems) in Ghana.
- SunPower provides durable, reliable and affordable off-grid, grid-tied and hybrid systems for residential, commercial and government institutions. SunPower's systems are fine-tuned to the environmental parameters of sub-Saharan Africa.
- SunPower's vision is to power West Africa the renewable way as its biggest EPC. It has a mission to use its manpower in the most efficient means possible together with technical ability in providing quality solar EPC services.

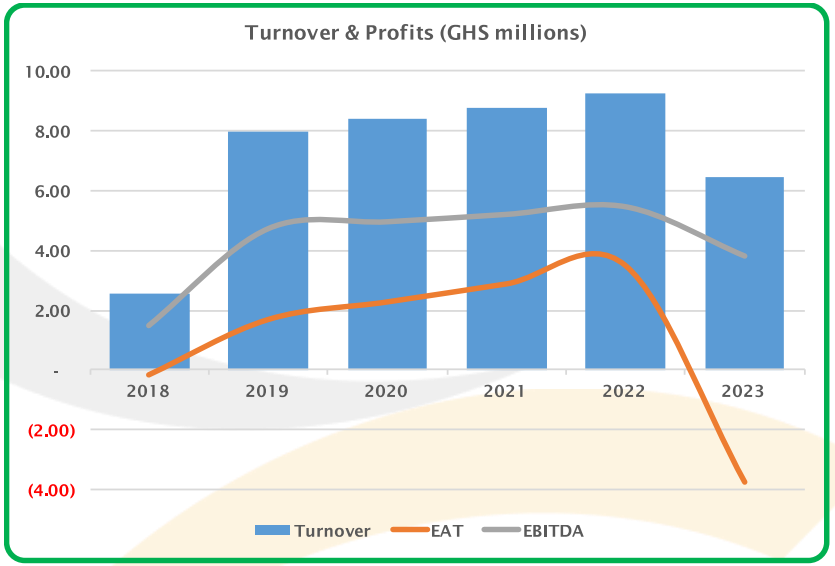
A&C Development Co. Limited

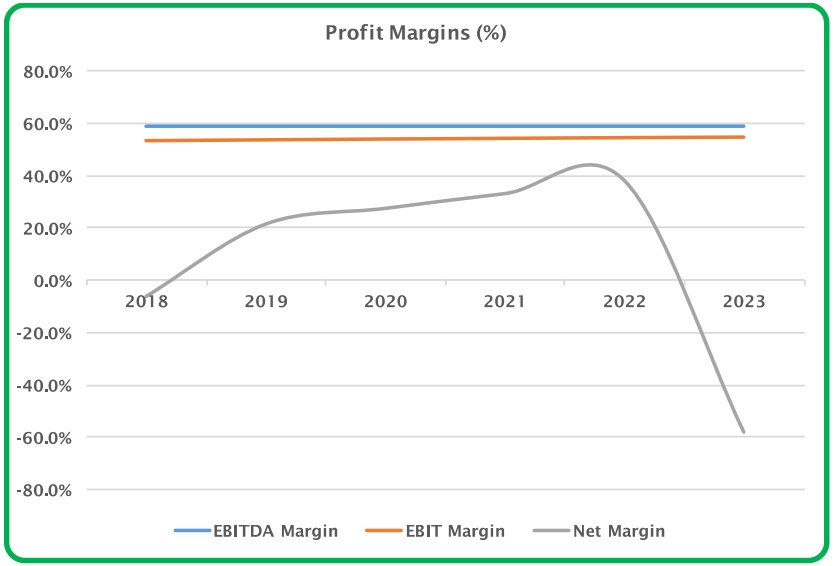
- A&C Development Co. Ltd is a fast growing and diversified construction and real estate development company in Ghana. The main objective of the company has been to develop first-class and ultra-modern commercial and residential facilities in Ghana. It is known for its flagship project, the A&C Mall, the first mall in Ghana, which evolved to A&C Square Accra's first mixed use centre: The 6-acre project comprise of a shopping mall, health and fitness centre, restaurants, health clinics and business plaza with a car park for over 300 vehicles and well-manicured lawns and gardens. A&C Development began its operation on December 21st 2000. Its offices are located in East Legon, Accra.

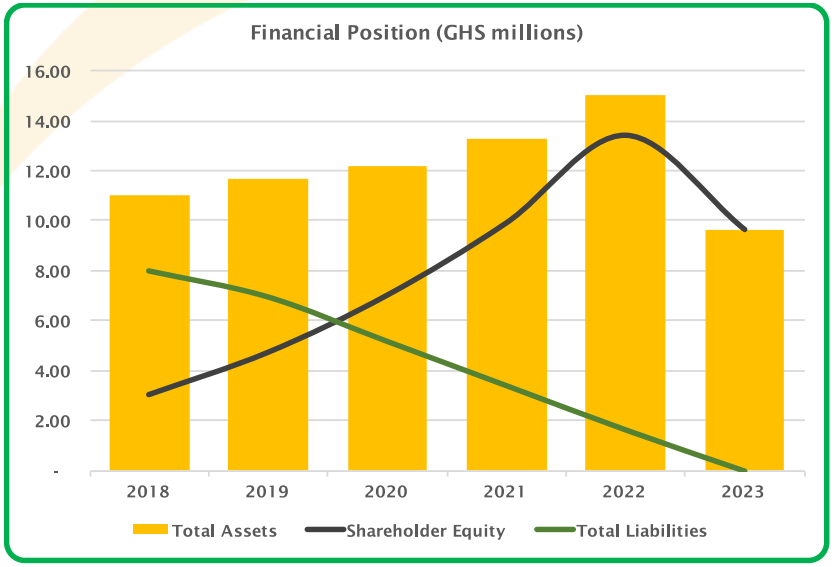
Executive Summary: Investment Thesis

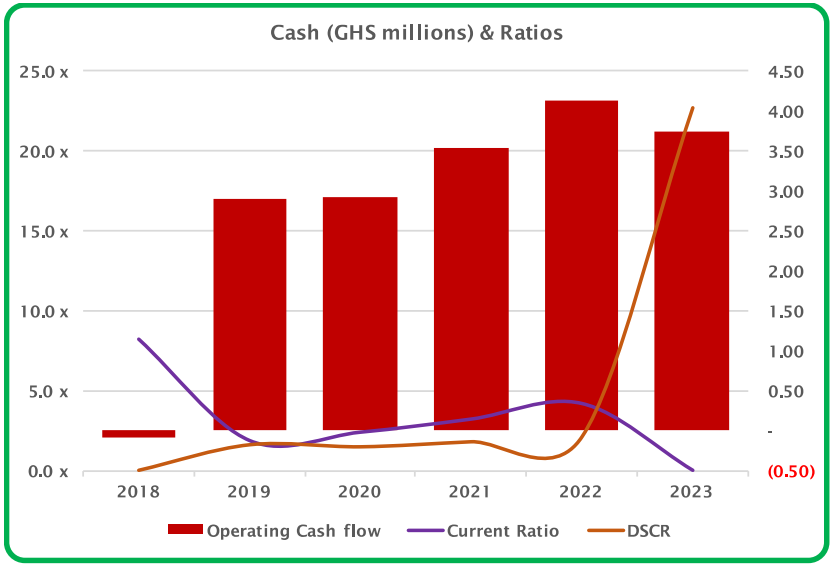
- The Plant is projected to commence generation of power in Q2 2018. The target date for financial close and issuance of purchase orders to the EPC contractors and equipment suppliers is January 2018. Plant construction is projected to take 4 months. No revenues are booked prior to the generation of first power and all costs are capitalised at this time.
- Plant availability is estimated at 80% for the life of the plant over the 5-year concession period.
- Revenues are based on capacity and average energy rate of 120.78 pesewas per kWhr approved by PURC.. Revenues are projected to rise from GHS 2.53MM in 2018 to GHS 9.23MM in 2022 but declines to GHS 6.46MM in 2023 due to less than 12 months' operations.
- The Project is expected to maintain healthy margins over the life of the plant. The EBITDA Margin averages 59.0% over the 5-year period. The net margin indicates a loss of (6%) mainly driven by finance cost and the initiation of depreciation charges. The net margin improves to 21% in the first full year of operation, peaking at 33% in 2022 and declines to (58%) in 2023 due to a loss on disposal of the Plant to A&C Development company.
- The Project is projected to generate strong cash flows over the life of the business. The DSCR is defined as cash flow from operations divided by total debt service. The DSCR is 1.6x in the first full year of operation, 1.5x in 2020. The ratio improves to 1.8x and 2.1x in the subsequent years. The liquidity ratio (Current ratio) is not projected to drop below 1.9x once plant operations commence. TAG will be able to meet it's short term obligations in each period at the projected revenue and profitability estimates.
- NPV is GHS 3,233 per kW or GHS 4.23MM for the project at WACC of 25.2%. The estimated project IRR is 45%. Equity IRR is estimated at 64.4% (including terminal free cash flow to equity).

Executive Summary: Investment Thesis









Project Overview

SunPower Innovations

Project Overview: Introduction

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- SunPower seeks to make available and sell the energy output from the Plant to the tenants of the A&C Mall though prepaid metering whiles providing onsite customer support services and maintenance. The agreement is for an initial five (5) years post generation of electrical energy after which ownership of the Plant reverts to the A&C Development Company. However, SunPower will maintain its O&M role after the 5-year period at an equity value of 15% of proceeds.
- The project involves the installation of approximately **4500** Photovoltaic (PV) solar panels, which will have an energy generation capacity of 1.5MW. The proposed works include:
  - the erection of scaffolding,
  - installation of mounting structures, PV panels, protective devices, inverters and cabling.
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- The total cost of the project is estimated at GHS 10,669,700

Project Overview: Location

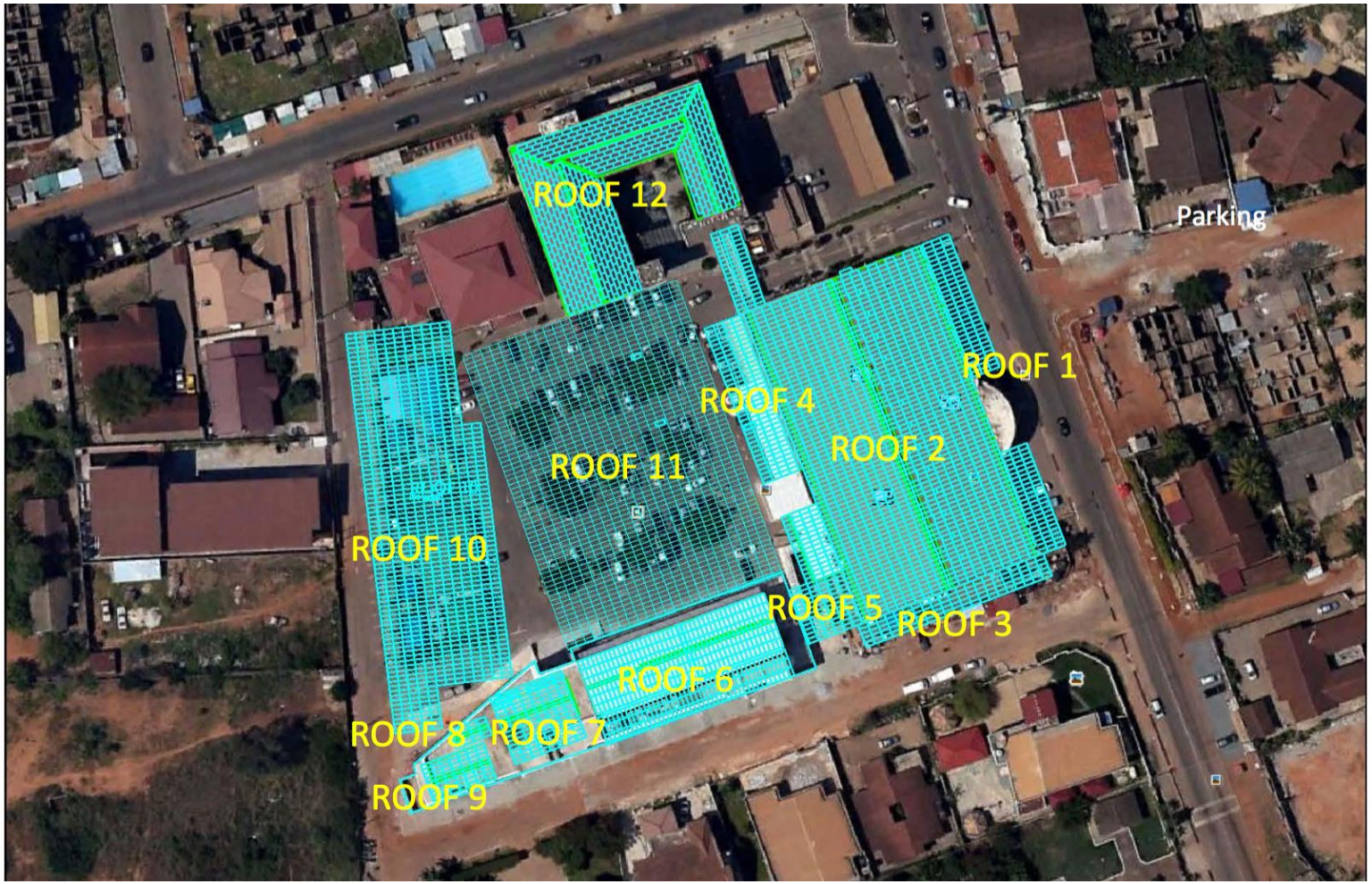
- One of the most admirable and coveted residential areas in Accra, located northeast of central Accra, 5 minutes from the Accra Mall, 10 minutes from Kotoka International Airport and bordered by the Tema motorway, Spintex and the Legon-Madina road, is the neighbourhood of East Legon.

- East Legon boasts beautiful residential houses and commercial buildings and is also fast developing a commercial edge, flaunting what was considered Ghana's first mall, the A&C shopping centre; a drive-through KFC; numerous banks on Lagos Avenue, several hotels as well as many restaurants with excellent food for the very multicultural inhabitants of the area.There are Chinese, Indian, French, Turkish & Ghanaian eateries in the area. Popular spots like Starbites and Cahaya in the Adjiringanor area feature live-band music and kizomba dancing on certain nights. Other popular spots include Vida e Café, NourishLab Smoothies and Coffee Lounge among others

Project Overview: A&C Mall

Bird-eye view of the A&C Mall

Project Overview: Concept Design



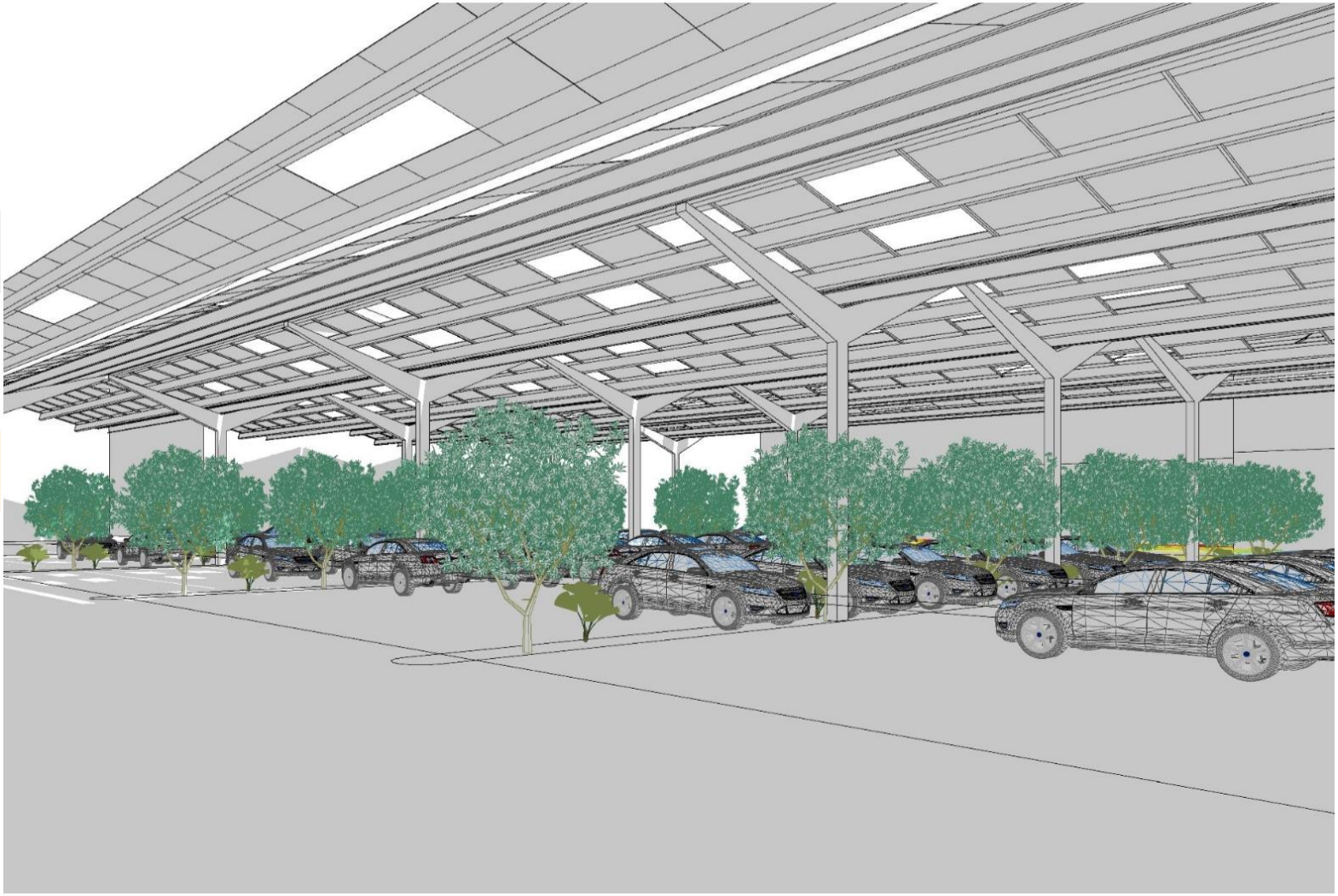
- Over 5,100 panels will be mounted on the roofs and carports.
- The total area is expected to be 10,362 square meters.

Roof #	1	2	3	4	5	6	7	8	9	10	11	12	13	**Total**
No of Panels	156	1,400	105	140	132	272	120	16	56	990	1,208	460	54	**5,109**
Area (㎡)	312	2,800	210	280	264	544	240	32	112	1,980	2,560	920	108	**10,362**

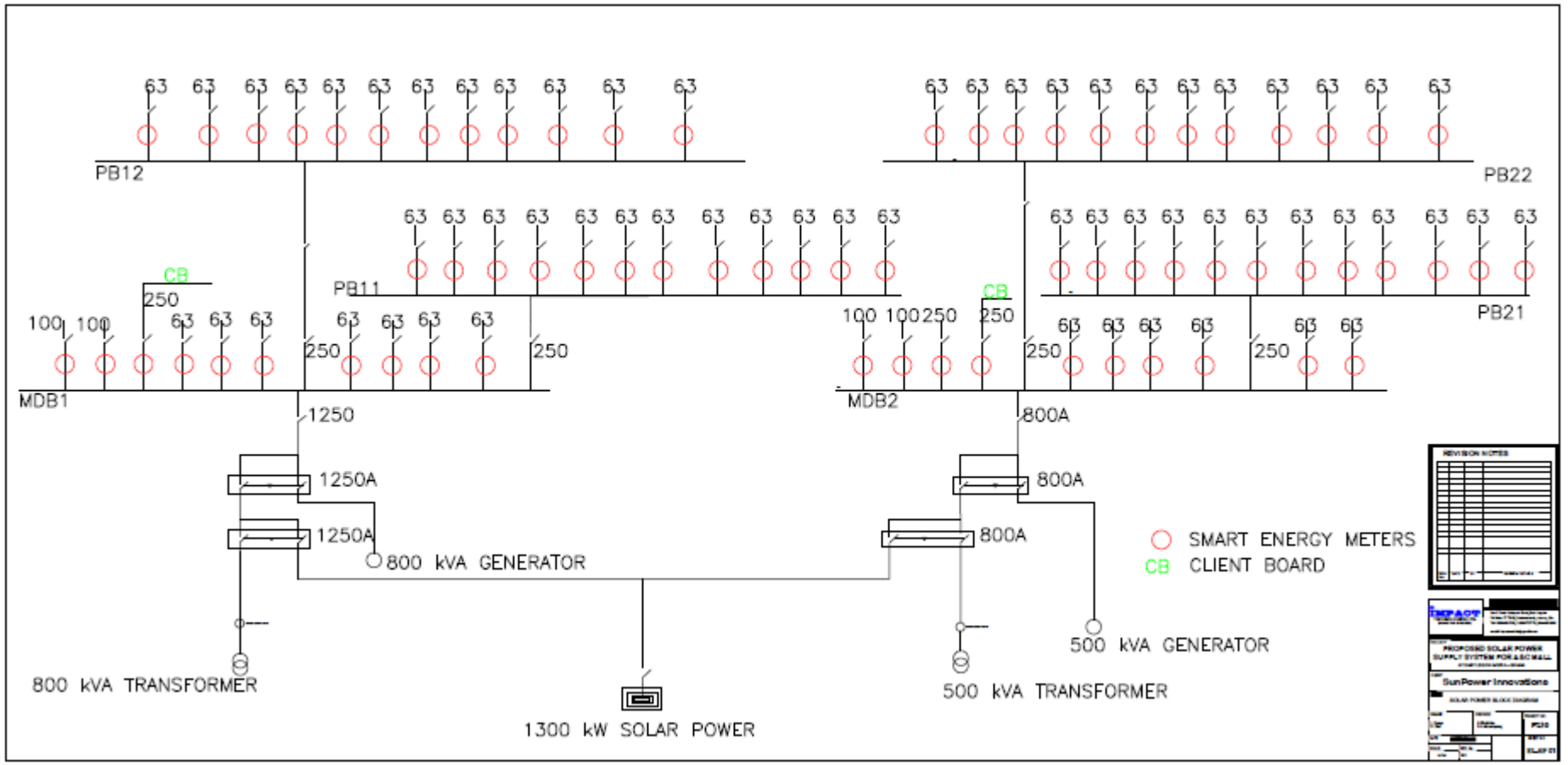
Project Overview: Technology

Project Overview: Concept Design

- Car Park 3D



Project Overview: Block Diagram



Project Overview: Timelines

- Insert Gantt chart

Project Overview: Contract Summary

- On 27 September 2017, SunPower signed an agreement with the A&C Development Company Limited. The details are as follows:

CLAUSE	CONTRACT TERMS
Appointment	• The A&C Development Company agrees to partner SunPower in the generation and distribution of the electrical energy generated by the Plant for a tenure of 60 months • SunPower agrees to complete construction and commissioning of 1.5MWp Hybrid Solar Energy Plant • SunPower transfers ownership to A&C Development Company after the 60-month period but maintains its role as the O&M company at an equity value of 15% of project proceeds.
Verification & Monitoring	• A&C Development Company may monitor the activities of SunPower to ensure the services provided are as was agreed.
Fees & Billing	• A&C Development Company will pay SunPower GHS200,000 as partnership fee • SunPower shall prepare and deliver invoices to the tenants within 25 days after the end of each month • The amounts due from generation is 30% less than the PURC approved tariffs
Terms & Termination	• The agreement is for an initial period of five (5) years which can be renewed for a further 12 months. or terminated after a three (3) month written notice from either party. • Termination or expiration of the agreement shall not terminate obligation of the Parties to pay fees and expenses
Effective Date	• This agreement is effective on the 27th day of September 2017.

Project Overview: Manuals

- Manuals have been created for the smooth construction of the Plant through to the commissioning and generation of electrical power. A snapshot is provided below:

Manual	Activites

General Health & Safety	• Personnel have the responsibility to conduct work in a safe manner.
	• Appropriate warning signs will be used on site were relevant – these may include, but are not limited to:
	  - Hard Hats To be Worn
	  - No Entry to unauthorized Persons
	  - Works in Progress
	  - High Voltage Warning
	• All operatives will be made aware of the site specific fire evacuation procedures during the site induction.
	• All routes will be kept free of obstacles and trip hazards during the period of the installation.
	• Appropriate PPE will be worn by all individuals on site during the period of works, including hard hats, high visibility vests, and safety footwear, as well as gloves and goggles where required.

PV Specific Health and Safety	• A PV panel is live when exposed to the sun. A PV panel cannot be switched off. • DC current is dangerous and can be lethal in high amount • Arcs created when attempting to break a DC current can be alarming and can damage test equipment. Test leads with PV shielded connectors at one end must be used, not standard multimeter test probes. • All persons overseeing the installation work will be experienced with, or have had specific training on, working with such systems.
Scaffolding	• All scaffolding will be left at the end of each working day in a manner to prevent unauthorised access and use. Ladders will be locked away or removed from site at the end of each working day. • Where there is an increased risk of children using scaffolds to climb to high levels, access at ground level should be prevented by a barrier at least 1.5m high.
Storage	• Solar modules and framework will be protected from the elements and securely stored. • PV module packaging will be kept dry to avoid collapse or compression of the packaging which might lead to damage to the modules or other equipment. • All other equipment will be stored and secured until ready to be installed.

Project Overview: Consultants

- Insert profiles of project team

Project Overview: Alignment with National Policy

- Medium Term Policy for the Energy Sector
  - This project aligns itself with the medium term policy of increasing the contribution of RE source (including hydro, solar, biomass and wind) by 10% for grid, mini grid and off-grid applications; by 2020. This can be achieved by diversifying the national energy mix including the use of environmentally friendly indigenous sources of energy and to promote private sector participation in the energy.

- Job Creation Agenda
  - It is worrying that after investing life-long savings in educating the younger generation, the dividends of our investments are allowed to waste without any plan or policy to put the talents of these resource-rich young ones to useful economic ventures. The 1.5MW solar farm project also seeks to support the Job Creation Agenda of the government.

- Export Policy of The Ghana Investment Promotion Centre (GIPC)
  - The off-grid solution proposed by SunPower will reduce the burden on the grid. This creates a surplus that can be exported to other countreis in the sub-region. This whiles creating import substitution will also generate foreign exchange for the local economy.

- Environmental Policy
  - This project will go a long way to help Ghana meet its SDG 7 by mitigation climate change to getting Affordable and Clean Energy by 2030

Promoters

Promoters: SunPower Innovations

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- SunPower's vision is to power West Africa the renewable way as its biggest EPC. It has a mission to use its manpower in the most efficient means possible together with technical ability in providing quality solar EPC services.

PARTNERS

Promoters: SunPower Innovations

ERNEST EKOW AMISSAH
CEO

- Worked at Verizon Communications, Fairfax and Afriship Logistics and Trading Ltd
- Over 10 years working experience in USA, Korea, Germany, Romania and Afghanistan.
- Graduate of US ARMY Mechanical Maintenance School, Aberdeen

YAWO NUTIFAFA AGBESI
Executive Director

- Expertise in Corporate Finance, Structured Finance, and International Trade.
- Previously Head of Energy and Corporate Banking at UBA.
- MBA in Finance from Hull Business School, UK and a Bachelors Degree in Business Administration, Finance with Economics Option

DR. MATTHEW K. AMISSAH
Chief Technology Officer

- Systems Engineer with expertise in Modeling and Simulation
- PhD in Engineering Management & Systems Engineering from Old Dominion University, Norfolk.
- BSc Mechanical Engineering, KNUST

BANGUU DELLE
Director, Business Development

- Over 10 years working experience in strategic business and financial management
- Graduate from the University of Regina in Finance and International Economics.
- Currently pursuing an MBA from the London School of International Business

STANLEY YANKSON
Structural & PV Mounting

- Over 14 working experience in UK and Ghana
- MSc in Environmental Engineering from Imperial College School of Science and Technology.
- BEng (degree) in Civil Engineering from University of East London, UK.

Promoters: SunPower Innovations

SunPower Innovations

TRACK RECORD

KAREENACAKES

CalBank

ALISA HOTEL Accra

eVerpure

LOCAL GOVERNMENT SERVICE

Special Ice

Essar SIGNAGE LIMITED

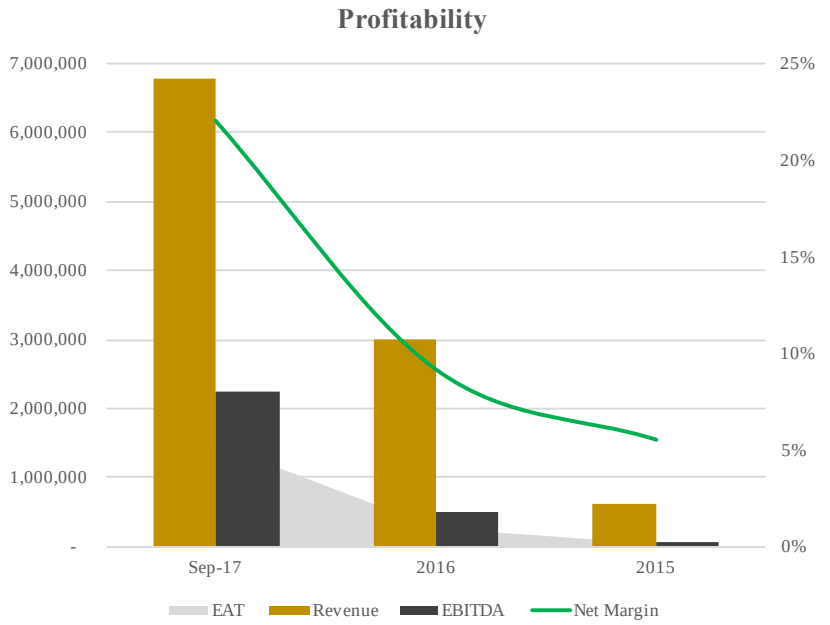
Aqua Safari Resort

Promoters: SunPower Innovations

FINANCIAL SNAPSHOT

Description	Sep-17	2016	2015
Revenue	6,791,566	3,003,731	608,804
Operating Costs	4,542,160	2,503,323	560,572
EBITDA	2,249,406	500,408	48,232
Depreciation	121,912	59,670	-
EBIT	2,127,494	440,738	48,232
Finance Cost	132,564	73,333	-
EBT	1,994,930	367,405	48,232
Tax	498,732	91,851	14,470
EAT	1,496,198	275,554	33,762
Income Surplus	1,805,514	309,316	33,762
Shareholder Equity	3,614,630	1,558,219	408,881
Long Term Liabilities	-	-	-
Current Liabilities	1,253,107	244,450	21,211
Total Liabilities	1,253,107	244,450	21,211
Fixed Assets	1,234,148	954,568	354,568
Current Assets	3,633,589	848,102	75,523
Total Assets	4,867,737	1,802,670	430,091

Description	Sep-17	2016	2015
EBITDA Margin	*33%*	*17%*	*8%*
EBT Margin	*29%*	*12%*	*8%*
Net Margin	*22%*	*9%*	*6%*
Current ratio	*2.9 x*	*3.5 x*	*3.6 x*
Quick ratio	*2.5 x*	*3.1 x*	*3.1 x*



Promoters: A&C Development Company

- A&C Development Co. Ltd is a fast growing and diversified construction and real estate development company in Ghana. The main objective of the company has been to develop first-class and ultra-modern commercial and residential facilities in Ghana. It is known for its flagship project, the A&C Mall, the first mall in Ghana, which evolved to A&C Square Accra's first mixed use centre: The 6-acre project comprise of a shopping mall, health and fitness centre, restaurants, health clinics and business plaza with a car park for over 300 vehicles and well-manicured lawns and gardens. A&C Development began its operation on December 21st 2000. Its offices are located in East Legon, Accra.

- As a fully integrated real estate company, A&C Development Company develops many of the properties, and its portfolio contains numerous examples of world-class developments that exemplify the talent and experience of their associates. Its development strategy emphasizes core products, retail, office, and residential, as well as opportunities to bring them together in dynamic mixed-use communities. The overall approach of developing the core markets includes a focus on activating development pipeline to improve balance sheet and create shareholder value.

- The rebranding of A&C Mall to A&C Square has changed the perception of the mall from a single purpose entity to a mixed use facility. The new brand has highlighted the current and future services and facilities on the premises. The construction of the mall was the first phase of four phases in the A&C project. Now A&C Development Co. Ltd, has completed construction of phase II fitness centre and swimming pool, phase III business plaza and the final phase IV which is a combination of an upscale retail and office plaza.

- Since the mall was the first initial project and landmark, the name A&C Mall was adopted and has carried on since its inception. Over the last 4 years the completion of phase II and III has made the use of the name A&C Mall ineffective in marketing these additional facilities, hence the need to rebrand to A&C Square. With its unique services & facilities it has been clearly identified that A&C concept is a mixed used development comprising of shopping, business and leisure, which has become one of the fastest growing and popular concept in the western environment.

Promoters: A&C Development Company

A&C SQUARE
IT'S ALL HERE

95% occupancy

MAX Mart

Ecobank
The Pan African Bank

The Chop Bar

GCB

vodafone Ghana

Golden Krème

KOFFEE LOUNGE
more than just coffee

BURGER & RELISH

RELISH

FIDELITY BANK

CAFÉ MONDO

THE HONEYSUCKLE

Chix n Ribs

woodin
Le créateur

Market

SunPower Innovations

Market: Country Overview

Map of Ghana

ECONOMY

- The Ghanaian economy showed significant economic growth over the past decade. Peak economic growth was recorded in 2011, partially due to a competitive business environment and a fast growing private sector.
- The country's real GDP growth slowed down from the peak of 14% in 2011 to 9.3% in 2012, 7.3% in 2013, to 3.6 % in 2016.
- Ghana's GDP is ~US$40 billion (2017) with inflation 11.8% year-on-year in December 2017.
- There has been a growth in investment in the economy from both domestic and foreign sources. It helps that Ghana is lauded as an exemplar in Africa for political stability, a low crime rate, competitive wages, strong fiscal responsibility and a pool of qualified labour.
- Ghana is well endowed with natural resources and has become the world's second largest producer of cocoa, and in an African context, it is the largest gold exporter after South Africa. The Ghana Stock Exchange has 35 listed equities with a market capitalization of ~US$13 billion as at December 2017. Capital gains on listed equities are tax-exempt.

Market: Energy Situation

- Electricity is the dominant modern form used in the industrial and service sectors accounting for 69% of modern forms of energy in Ghana. Electricity generation is undertaken by the Volta River Authority (VRA) which operates the Akosombo Hydro Power Station, Kpong Hydro Power Station and the Takoradi Thermal Power Plant (TAPCO) at Aboadze. VRA is also a minority joint partner with TAQA, a private sector company which owns and operates the Takoradi International Power Company (TICO) thermal power plant also located at Aboadze. Bui Power Authority (BPA), another state-owned entity, is charged with the implementation of the Bui Hydroelectric Power Project.

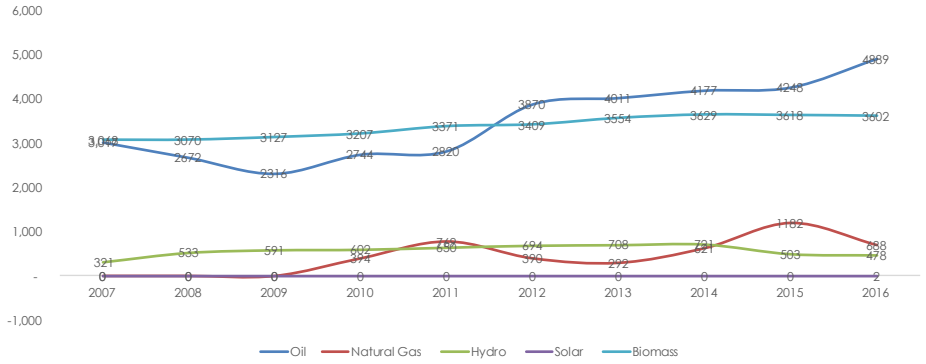
- Ghana has an installed capacity of 3,774.6MW made up of 1580 MW hydro, 2,172 MW thermal facilities and 22.6 renewables with average power available in 2016 was estimated at 2,448MW. Currently, average demand for power grows at about 10% per annum. The existing power plants are unable to attain full generation capacity as a result of limitations in fuel supply owing to rising fuel prices and uncertainty in rainfall and water inflows into the hydroelectric power facilities.

- Ghana's energy mix is comparatively simple but it is not without challenges. The country relies on biomass/charcoal (37.3% in 2014), gas and crude (plus petroleum products 57.7%), and electricity (5%) to meet the total energy needs of its population and industry. Currently however, electricity supply outweighs demand thereby creating an erratic electricity distribution situation. Electricity is therefore no longer rationed (load shedding).

- However, the cost (social and accounting) of generating electricity due the mix of thermal plants (and fuel sources) is high. The government has set a policy to no longer sign PPA with thermal plants. The direction is going green and renewable. The potential of renewable energy is therefore huge, but has yet to be optimized.

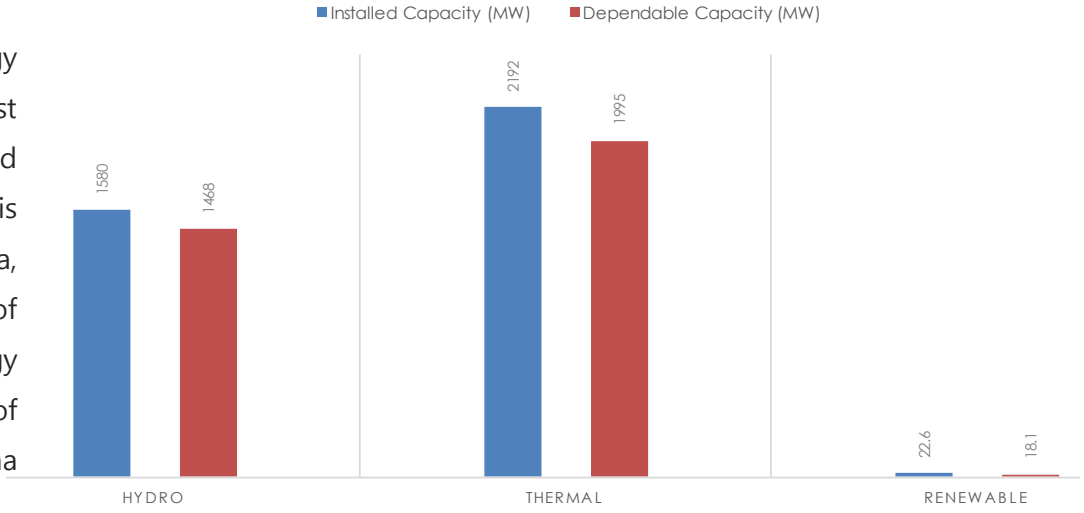
- Considering the impact of power consumption by industries, government plans to increase installed capacity in 2018 with focus on adding renewable energy to the current energy generation mix of hydro and thermal. In line with the Ministry of Energy's target of increasing renewables to 10% of total energy mix by 2020, it has empowered the Bui Power Authority to increase its switchyard at the Bui Generation station to accommodate 250MW of solar generated power.

Market: Energy Situation



- During the period between 2007 and 2016, total energy supply increase by 4.67% (CAGR) from 6,406(ktoe) to 9,659ktoe largely fuelled by supply from oil. Energy supply by solar was 2ktoe in 2016 indicating that solar is the least utilized energy in Ghana's current energy mix. Hydro's supply to total energy was rose from 321ktoe in 2007 to a 6year high of 721ktoe in 2014 before it declined to 503ktoe and 478ktoe in 2015 and 2016. Energy supply from biomass increased marginally by 1.80% over the 10year period.

- Thermal energy continues to the most reliable energy supply for the country as it generates the highest electricity with 2,192 and 1,995MW installed and dependable capacities respectively in 2016. This is contributed by over 10 power plants installed in Tema, Kpone and Takoradi. Hydro has an installed capacity of 1580MW and efficiency of 93%. Renewable energy contributes to the lowest to the energy mix at 22.6MW of installed capacity from VRA solar, BXC Solar and Safisana Biogas.



Market: Renewable Energy

- In view of global efforts to reduce carbon emission and the devastating effects of climate change, the need to increase the proportion of renewable energy in every country's energy mix cannot be ignored. In Ghana, renewable energy resources that have been explored include Bio Energy (Biomass including waste-to-energy and Bio fuel), Tidal and Wave power, Solar Energy (Photo-Voltaic and Thermal), Wind Power, and Hydropower (small and large). While some have been constructed and have been added to the energy mix of the country, others have valid provisional wholesale supply licenses for the production of energy.

Solar Energy (Photo-Voltaic and Thermal)

- Solar resource is abundant in Ghana. The monthly average solar irradiation is between 4.4 and 5.6 kWh/m^2/day (16-20 MJ/m/day), with sunshine duration of between 1,800 and 3,000 hours per annum. However, until recently, little was done to exploit this resource and the solar market is relatively untapped, both for photovoltaic (PV) systems as well as for Solar Water Heaters. For example, solar energy for street lightening purposes have recently become accepted by the Ghanaian government and there is some projects that have taken off on the N6 (Accra –Nsawam road). A 20 MW Solar PV farm has been built at Onyadze in Gomoa East to serve communities there. There are more companies with licenses to establish solar farms in Ghana and interest in that regard is increasing slowly. VRA has built a small 2 MW solar PV grid-connected plant as a pilot project in the Upper East Region and it is seeking concessionary funding to develop another 8 MW plant14. Four other sites in the north (Kaleo, Lawra, Jirapa and Navrongo) have been identified with a potential 10MW.

2.5MW Solar Farm at Navorongo

20MW Solar Farm near Winneba Central Region

Market: Initiatives in the RE Space

- The ministry through the Ghana Energy Commission has also launched National Rooftop Solar programme to reduce the high cost of PV solar technology and encourage the use of renewable energy by distributing 200,000 rooftop solar panels to homes. The move will reduce the power consumption on the national grid by 200 megawatts, representing about 15 percent of the country's total consumption capacity. The programme is a capital subsidy scheme under which beneficiaries are given capital subsidy in two forms, as either:
  - cash payment for solar panels component of new solar PV systems approved for installation by the Energy Commission; or
  - the supply of actual solar panels after the beneficiary has purchased and installed the requisite Balance of System (BoS) components such as inverter, batteries, charge controllers, etc.
- The programme is targeted at residential, public, commercial and industrial sectors. The beneficiaries of the programme will include homes, offices, hospitality industry, small and medium enterprises (SMEs). Private individuals and institutions as well as some government agencies on their own are also embarking on solar power projects independent of the Rooftop national programme to supplement their grid supply.
- This programme has opened up markets for licensed solar energy companies like SunPower Innovations Limited which is a duly licensed member of the Energy Commission.
- Additionally, the power crisis made it attractive for individuals and large companies to explore renewable energy solutions. The soaring electricity tariffs has also make it cost competitive and attractive for some consumers to opt for solar electricity (having feed-in tariff of 18.24 US cents per kWh equivalent for systems without back-up storage and 20.14 US cents per kWh equivalent for systems with back-up storage).

Market: Competition in the RE Space

- Despite the relatively young solar industry, there are over 30 Energy Commission certified solar energy companies in the country. This is attributed to growing demand for solar, improved regulations and policy direction by government.

- **UMAWA LIMITED**

  - Umawa combines German technology with Ghanaian expertise. The company has done a number of major solar projects including Alpha Beta Educational Center, Jack and Jill School and Country hospital. The total project of the company exceeds 2 megawatts. The company is growing at a fast pace and has potential to become one of the market leaders.

- **STRATEGIC POWER SOLUTIONS (SPS)**

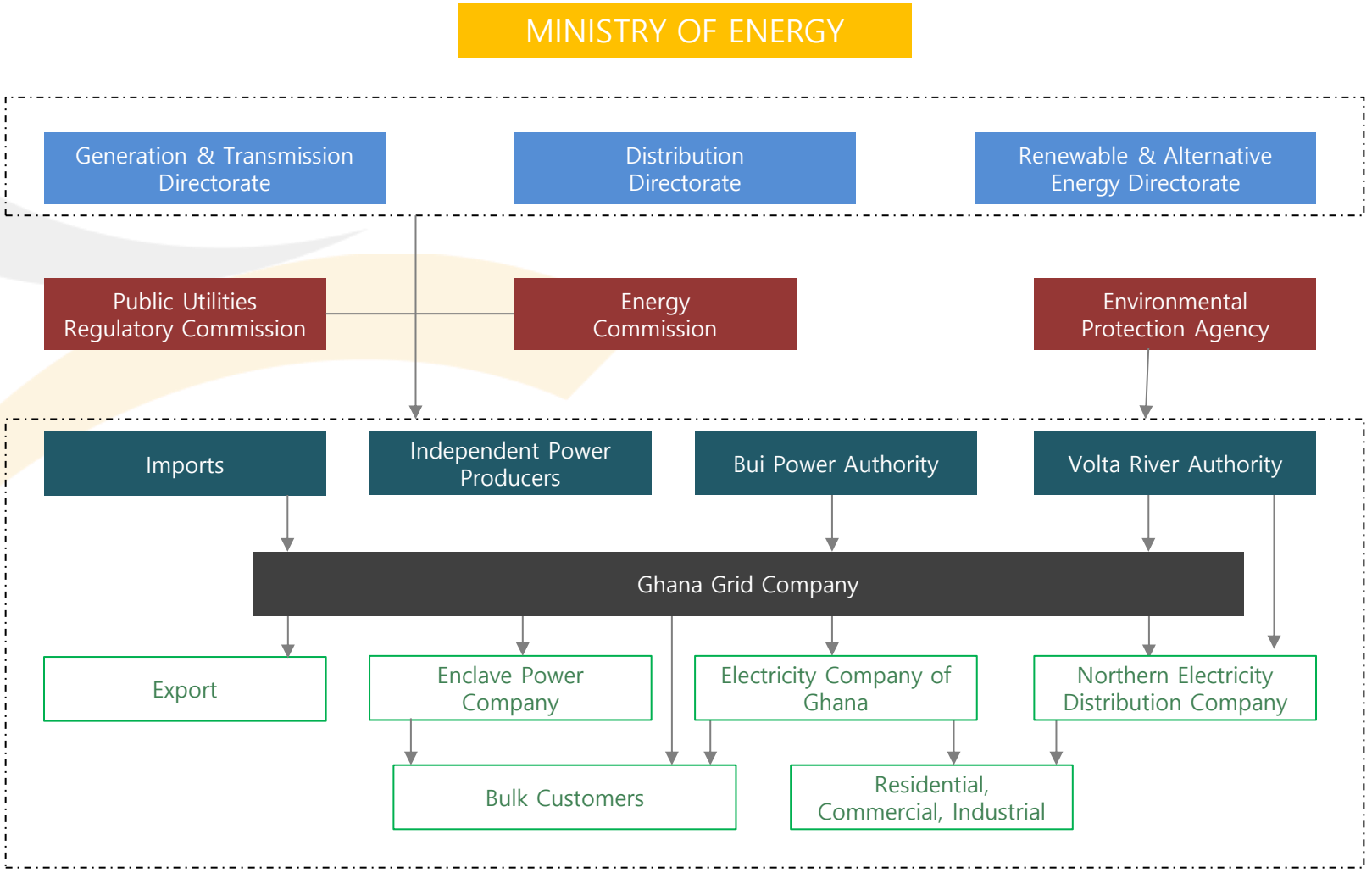
  - The company recently launched an ultra-modern solar panel manufacturing plant at Kpone near Tema to promote development in the country. Total value of the factory is in excess of $20m currently generating 30MW peak/year and it is expected to upgrade to 100MW to offer a range of solar modules using an internationally certified line. The company also produces a variety of top of the line building Photovoltaic (PV) modules. Its focuses on the packaging of solar solutions that will promote development and human security while providing unlimited power and customized solutions.

- **WILKINS ENGINEERING LIMITED**

  - Wilkins Engineering Ltd is a Ghanaian organization with over 20 years of experience in expert engineering services across the nation. They provide grid extension services including but not limited to design and construction of sub transmission network, power distribution networks, service connections and substation. The company was established in 1993. The company has also set up 35 solar energy centers and 137 solar street lights in off grid island communities in Ghana. The company is one of the pioneers of solar energy revolution in Ghana and have huge capacity with regards to supply of PV modules based on good relationship it has with manufacturers and suppliers.

Market: Institutional & Regulatory Framework

The key national institutions in Ghana's energy sector



Market: Institutional & Regulatory Framework

- **Ministry of Energy:** The Ministry of Energy (MoE) oversees the energy sector, and is responsible for energy policy formulation and implementation. There are three mainline technical directorates: i) Generation and Transmission Directorate; ii) the Distribution Directorate; and iii) Renewable and Alternative Energy Directorate (RAED).

- **Energy Commission (EC):** The Energy Commission is the technical regulator of Ghana's electricity, natural gas and renewable energy industries, and the advisor to the Ministries of Power and Petroleum on matters relating to energy planning and policy. A number of policies and regulations have been enacted to provide enabling environment for players in the solar energy sub sector. Some of these policies and regulation include:
  - Energy efficiency standards and labelling(non-ducted air conditioners and self-ballasted fluorescent lamps) regulations, 2005.
  - Renewable energy sub-code for distribution network connected variable renewable energy power plants in Ghana

- **Public Utilities Regulatory Commission (PURC):** The PURC is responsible for setting and approving rates chargeable for the purchase of electricity from conventional and renewable energy sources including mini-grids.

- **Environmental Protection Agency (EPA):** The EPA is the leading public body for protecting and improving the environment in Ghana. It is responsible for regulating the environment and ensuring the implementation of Government policies on the environment.

- **Electricity generation and transmission utilities**: The Volta River Authority (VRA) and Bui Power Authority (BPA) are the main public generation companies that operate Ghana's hydropower plants and some thermal power plants. A number of IPPs have also been licensed to build, own and operate power plants. The Ghana Grid Company (GRIDCo) owns and operates the transmission network.

- **Electricity distribution utilities**: The distribution utilities are the Electricity Company of Ghana responsible for distribution services within the southern zone, Enclave Power Company for the Free Economic Zone, and the Northern Electricity Distribution Company (NEDCo) responsible for distribution services in the northern belt.

Market: Investing in Solar

- Similar to other renewables, solar investments are typically backed by real assets. These offer predictable, long-term, inflation-linked revenues supported by power purchase agreements. A large scale PV or onshore wind project will usually have an economic life of 20 years and a productive life of 25-35 years, with potential for repowering.

Lower resource risk

Correspondingly lower O&M cost

Lower technology risk

Shorter construction lead times

OPERATIONAL

- Solar investments have a number of unique operational characteristics, resulting in both risk and cost benefits for investors:
- Lower resource risk, since the predictability of solar irradiation is typically higher than wind speeds or rainfall. This allows for more con dent output forecasts.
- Lower technology risk, since most solar systems are electronic not mechanical, with few moving parts and limited reliance on component inputs.

SCABILITY

- The unique scalability of solar is another attractive investment feature, both in terms of the asset itself, but also the potential levels of investment and profit.
- Solar assets can be sited on ground or rooftop, at utility, commercial or residential scale. That means they can be located near to where energy is required, reducing the costs of transmission and distribution infrastructure maintenance.
- Solar has significant scope for technological improvements.

Market: Pricing

- Distribution companies continue to charge the rates provided in the 3rd and 4th schedules referred to as the Distribution Service Charge (DSC) and End-User Tariff (EUT).

FIRST SCHEDULE

Tariff Category		Effective 1st July 2017
BGC VRA -	(GHp/kWh)	21.08
Composite BGC (VRA and IPPs) -	(GHp/kWh)	35.97

SECOND SCHEDULE

Tariff Category		Effective 1st July 2017
TSC -	(GHp/kWh)	5.59
ASC -	(GHp/kWh)	3.15

THIRD SCHEDULE

Tariff Category		Effective 1st July 2017
DSC -	(GHp/kWh)	22.22
DWC -	(GHp/kWh)	32.74

FOURTH SCHEDULE

EUT Tariff Category		Effective 1st July 2017
Residential		
0-50 (Exclusive)	- (GHp/kWh)	33.56
51-300	- (GHp/kWh)	67.33
301 – 600	- (GHp/kWh)	87.38
601+	- (GHp/kWh)	97.09
Service Charge	- (GHp/month)	633.17
Non-Residential		
0-300	- (GHp/kWh)	96.79
301 – 600	- (GHp/kWh)	102.99
601+	- (GHp/kWh)	162.51
Service Charge	- (GHp/month)	1055.29
Tariff Category		**Effective 1st July 2017**
SLT-LV		
Max. Demand	- (GHp/kVA/month)	5909.60
Energy Charge	- (GHp / kWh)	100.89
Service Charge	- (GHp / month)	4221.15
SLT-MV		
Max. Demand	- (GHp/kVA/month)	5065.37
Energy Charge	- (GHp / kWh)	78.09
Service Charge	- (GHp / month)	5909.60
SLT-HV		
Max. Demand	- (GHp/kVA/month)	5065.37
Energy Charge	- (GHp / kWh)	71.76
Service Charge	- (GHp / month)	5909.60
SLT-HV MINES		
Max. Demand	- (GHp/kVA/month)	5909.60
Energy Charge	- (GHp / kWh)	113.97
Service Charge	- (GHp / month)	5909.60

Public Utilities Regulatory Commission
Feed-in-tariff rates applicable to Renewable Energy Project PPAs effective 1st October 2016

SCHEDULES

TYPE OF TECHNOLOGY	Ghana Pesewas per kWh (Effective October 01, 2016)
Wind	65.3529
Solar PV	59.7750
Hydro <= 10 MW	52.9428
Hydro (>10 MW and <=100 MW)	56.5312
Tidal Wave (Ocean Wave)	52.9428
Run-of- River	52.9428
Biomass	69.1225
Biomass (Enhanced Technology)	72.8589
Biomass (Plantation as Feed Stock)	78.1092
Landfill Gas	69.1225
Sewage Gas	69.1225
Geoplutonic (Geothermal)	46.5817

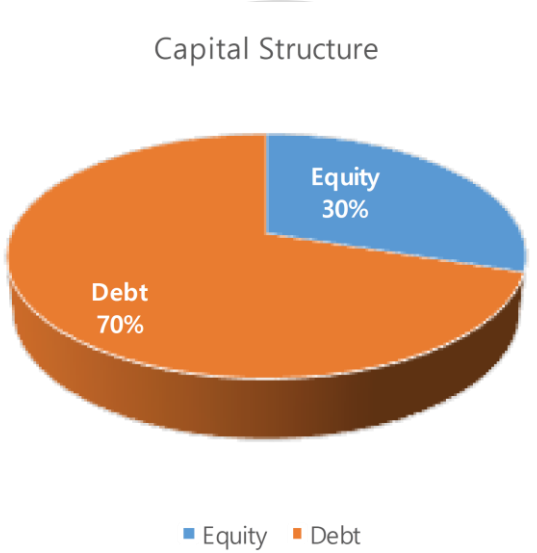
- The PURC publishes feed-in-tariffs for electricity generated from renewable energy sources. The rates are chargeable for the purchase of electricity from renewable energy sources by public utilities.
- The approved rate in existence in the year in which a PPA is signed in respect of a renewable energy project shall remain fixed and applicable for the project for a period of ten years.

Investment Thesis

SunPower Innovations

Investment Thesis: Funding Need

- SunPower seeks to raise GHS 10 million in execution funding through a private placement of equity and debt. New shareholders will own a significant majority stake in the Project.
- The funds will be used to further develop its A&C Square hybrid solar power generation project. To date, existing shareholders have funded:
  - architectural and structural drawings;
  - legal fees;
  - technical and financial advisory services, travel and other miscellaneous expenses;



- The project cost is estimated at GHS 10.67 million. This capital structure will be largely dominated by senior, secured long-term debt. The debt will be secured against the project assets, financial guarantees and off-take customer contracts. Some quasi-equity/mezzanine instruments (eg: subordinated debt) will be used to improve equity yield.
- Post-commissioning, revenues are expected to accrue quickly. Salaries and net metering costs will be the major operational expense when the plant is operating. Consequently, SunPower's primary operational objective will be to manage its direct costs and its overhead costs to minimise the cost of generating each kWh of power.
- Hence, subject to the appropriate debt service moratorium, SunPower should have a high debt capacity because it has the prospect to earn positive operating profits and cash flows early in it's life cycle.

Investment Thesis

- SunPower is projected to commence generation of power in Q2 2018. The target date for financial close and issuance of purchase orders to the EPC contractors and equipment suppliers is January 2018. Plant construction is projected to take 4 months. No revenues are booked prior to the generation of first power and all costs are capitalised at this time.
- Plant availability is estimated at 80% for the life of the plant over the 5-year concession period.
- Revenues are based on capacity and average energy rate of 120.78 pesewas per kWhr approved by PURC.. Revenues are projected to rise from GHS 2.53MM in 2018 to GHS 9.23MM in 2022 but declines to GHS 6.46MM in 2023 due to less than 12 months' operations.
- The Project is expected to maintain healthy margins over the life of the plant. The EBITDA Margin averages 59.0% over the 5-year period. The net margin indicates a loss of (6%) mainly driven by finance cost and the initiation of depreciation charges. The net margin improves to 21% in the first full year of operation, peaking at 33% in 2022 and declines to (58%) in 2023 due to a loss on disposal of the Plant to A&C Development company.
- The Project is projected to generate strong cash flows over the life of the business. The DSCR is defined as cash flow from operations divided by total debt service. The DSCR is 1.6x in the first full year of operation, 1.5x in 2020. The ratio improves to 1.8x and 2.1x in the subsequent years. The liquidity ratio (Current ratio) is not projected to drop below 1.9x once plant operations commence. TAG will be able to meet it's short term obligations in each period at the projected revenue and profitability estimates.
- NPV is GHS 3,233 per kW or GHS 4.23MM for the project at WACC of 25.2%. The estimated project IRR is 45%. Equity IRR is estimated at 64.4% (including terminal free cash flow to equity).

Investment Thesis: Financial Summary

SunPower Innovations

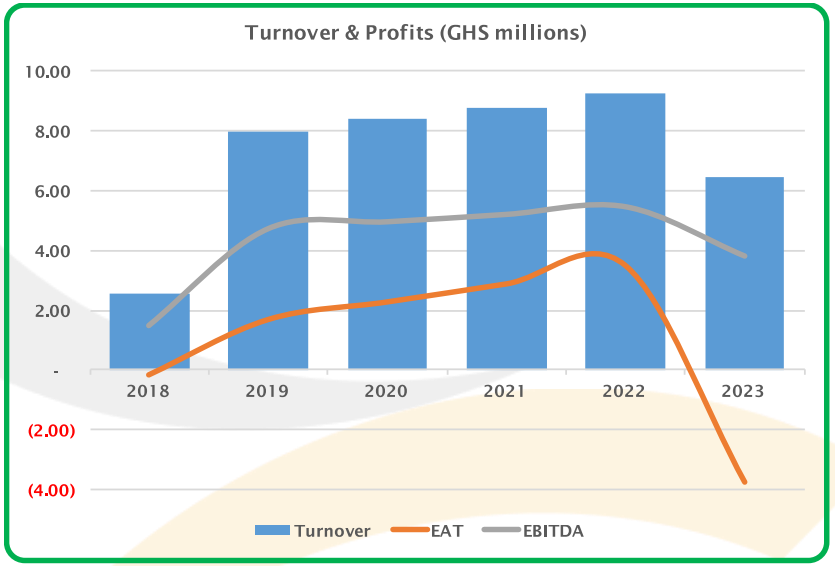
	2018	2019	2020	2021	2022	2023
Revenues	2,532,322	7,976,814	8,375,654	8,794,437	9,234,159	6,463,911
Operating Costs	1,034,662	3,262,444	3,429,152	3,604,554	3,789,121	2,655,567
EBITDA	1,497,660	4,714,370	4,946,502	5,189,883	5,445,038	3,808,345
Depreciation	(142,263)	(426,788)	(426,788)	(426,788)	(426,788)	(284,525)
Interest Expense	(1,572,314)	(2,030,558)	(1,477,562)	(911,360)	(349,773)	(3,975)
EBT	(216,916)	2,257,024	3,042,152	3,851,735	4,668,477	(5,015,916)
Tax	54,229	(564,256)	(760,538)	(962,934)	(1,167,119)	1,253,979
After-tax Cash Flows	(162,687)	1,692,768	2,281,614	2,888,801	3,501,358	(3,761,937)
EBITDA	1,497,660	4,714,370	4,946,502	5,189,883	5,445,038	3,808,345
Interest Expense	(1,572,314)	(2,030,558)	(1,477,562)	(911,360)	(349,773)	(3,975)
Tax	91,245	(37,016)	(564,256)	(760,538)	(962,934)	86,860
Change in Receivables	(126,616)	(6,331)	(6,647)	(6,980)	(7,329)	153,903
Change in Payables	21,260	246,886	13,702	14,417	15,170	(311,435)
Operating Cash Flow	(88,765)	2,887,351	2,911,739	3,525,422	4,140,172	3,733,697
Capital (Investments) / Liquidation	(10,669,700)	-	-	-	-	-
Cash Flow before Funding	(10,758,465)	2,887,351	2,911,739	3,525,422	4,140,172	3,733,697
Equity Investment	3,200,910	-	-	-	-	-
Debt Investment	7,912,764	-	-	-	-	-
Cash Flow before Senior Debt Service	355,209	2,887,351	2,911,739	3,525,422	4,140,172	3,733,697
Senior Debt Service	-	(1,813,342)	(1,978,191)	(1,978,191)	(1,978,191)	(164,849)
Cash Flow after Snr Debt Service	355,209	1,074,009	933,548	1,547,231	2,161,981	3,568,848
Other Debt	-	-	-	-	-	-
Cash Flow after Total Debt Service	355,209	1,074,009	933,548	1,547,231	2,161,981	3,568,848
Loan Reserve Account						
CASHFLOW AVAILABLE TO EQUITY	**355,209**	**1,074,009**	**933,548**	**1,547,231**	**2,161,981**	**3,568,848**

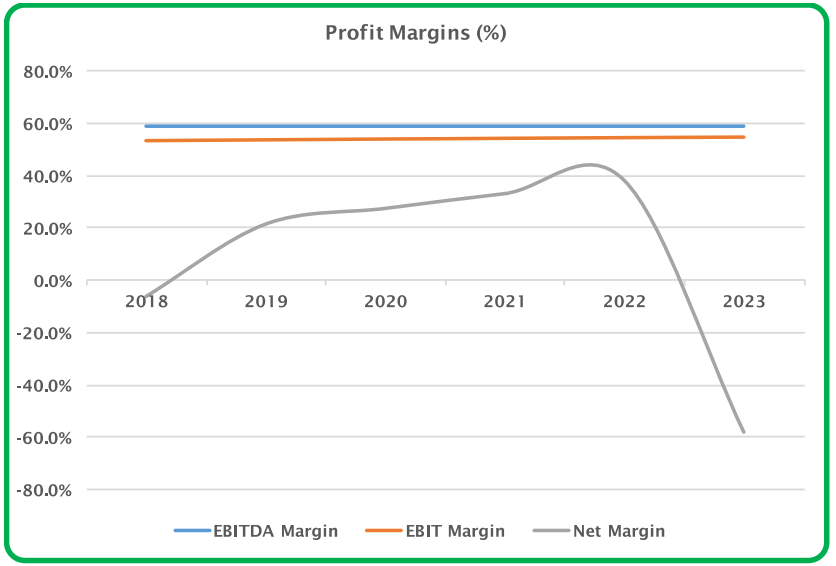
Investment Thesis: Profitability

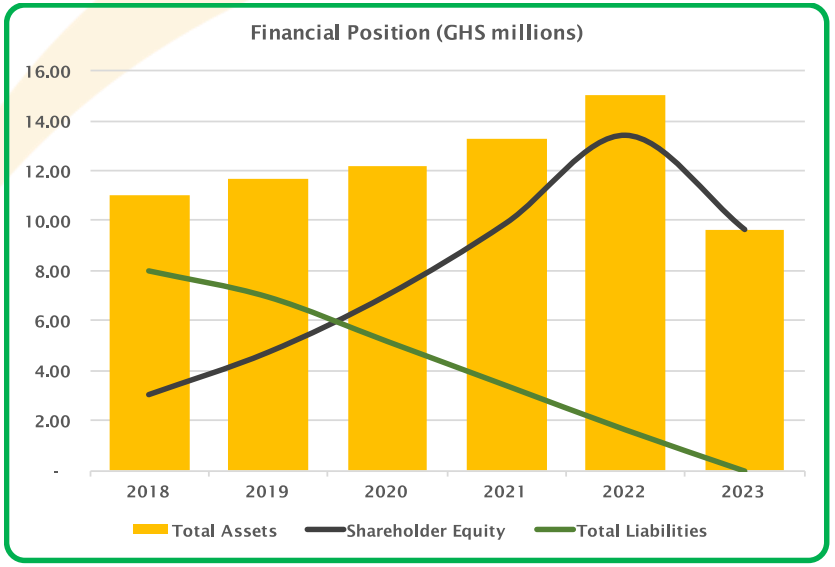
PROJECT PROFITABILITY			2018	2019	2020	2021	2022	2023
Project Free Cash Flows			(9,186,151)	4,917,909	4,389,301	4,436,782	4,489,945	3,737,672
Terminal Cash Flows		2.00%	-	-	-	-	-	4,179,253
Total Cash Flows	IRR	45.0%	(9,186,151)	4,917,909	4,389,301	4,436,782	4,489,945	7,916,925
Discounted Free Cash Flows	NPV	4,203,761	(9,186,151)	3,928,042	2,800,185	2,260,763	1,827,358	2,573,564
PROJECT PAYBACK PERIOD	Cum. Cash Flow		(9,186,151)	(4,268,242)	121,059	4,557,840	9,047,786	20,702,461
	Payback Period (yrs)	**2.03**	FALSE	FALSE	0.03	1.03	2.02	5.54

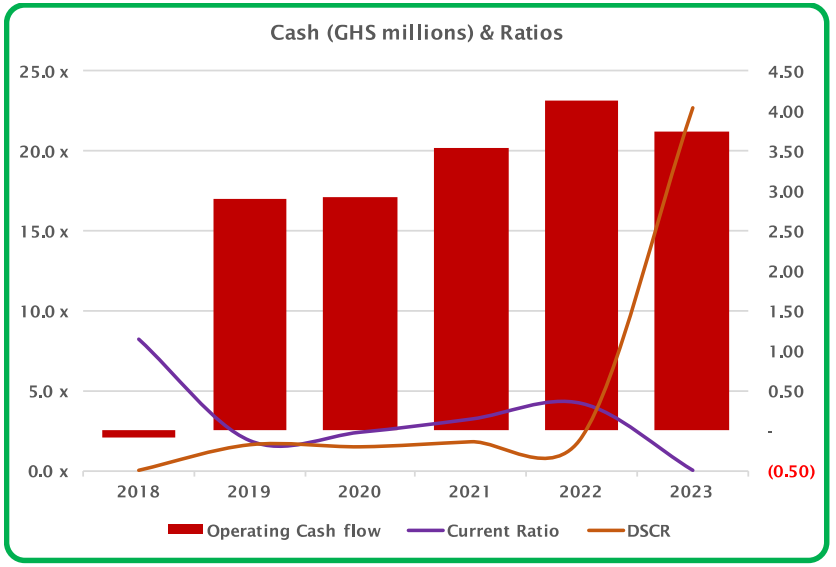
EQUITY PROFITABILITY			2018	2019	2020	2021	2022	2023
FCFE			(8,830,941)	5,991,918	5,322,849	5,984,012	6,651,927	7,306,520
Terminal Cash Flows			-	-	-	-	-	4,179,253
Total Cash Flows	EQ IRR	64.4%	(8,830,941)	5,991,918	5,322,849	5,984,012	6,651,927	11,485,773
Discounted Free Cash Flows	NPV	5,524,467	(8,830,941)	4,438,458	2,920,630	2,432,154	2,002,684	2,561,483
EQUITY PAYBACK PERIOD	Cum. Cash Flow		(8,830,941)	(2,839,024)	2,483,825	8,467,837	15,119,764	33,912,135
	Payback Period (yrs)	**2.47**	FALSE	FALSE	0.47	1.42	2.27	4.64

Investment Thesis









Risks & Mitigation

SunPower Innovations

Risk and Mitigation

The following risks have been identified as critical for the company. These risk factors are not exhaustive and that the business environment is dynamic and new risks must be identified and mitigation measures put in place.

Risk Type	Description	Impact	Likelihood of Occurrence	Mitigation
Exchange Rate Risk	This may result due to fluctuations in the value of the cedi to major trading currencies.	Some of the equipment pricing are tied to the prevailing USD-GHS exchange rate. The cost of the project may increase as a result.		All contracts with suppliers will be indexed to the US Dollar but at an agreed exchange rate.
Default Risk	This is the inability of SunPower to meet its debt obligations.	The company's asset pledged as security will be at risk in the event of non-payment.		SunPower will undertake insurance cover for the loan facility to mitigate any risk of default
Interest Rate Risk	The interest rate for the loan facility is likely to be subject to fluctuations	Increase in interest rate will increase the debt obligation which may also increase the risk of default.		SunPower will maintain a surplus debt service account to earn interest income to offset against increases in the interest cost.

High Medium Low

Risk and Mitigation

Risk Type	Description	Impact	Likelihood of Occurrence	Mitigation
Client Default Risk	The probability of client of A & C defaulting in payment of bills	This could result in low cash flows to meet debt obligations		A legally binding contract has been signed with A & C and tenants to pay bill to SunPower. Prepaid meters will also be installed to prevent owings.
Construction Delivery Risk	The probability of the contractor not completing the expansion project on schedule.	Extension of the construction period will increase the overall project costs. This will mean additional debt or equity will be required if costs escalates.		The contractor to be engaged for the project will provide a performance bond guarantee to ensure the project is delivered according to schedule.
Costs Escalation	Equipment are all being imported from outside the country and any price fluctuation could increase costs.	Project costs overruns resulting in the need to inject additional capital.		Procurement of the key equipment will be managed in a manner to ensure that prices will be locked in until delivery.
Compliance Risk	The risk of not complying with environmental regulatory requirements issued by regulatory authorities.	May lead to sanctions and withdrawal of licences by the Energy Commission		SunPower, has developed a comprehensive environmental, health and safety standards to regulate the process of waste recycling and composting.

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