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SOLAR PV MANUFACTURING PLANT
PROPOSAL CONCEPT

November 2023

Prepared By: Alan Brewer MSc.
PSECC Ltd
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Project No. PSECC004

PREPARED FOR:

Mr S. Ikua
Director General / CEO
LAPSSET CORRIDOR
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Transitional Clean Energy
Net ZERO

PSECC Ltd
Portsmouth Sustainable Energy & Climate Change Centre

November 2023

Manufacturing Plant proposal - Kenya

Assembly & Distribution followed by Manufacturing of Solar PV Panels

SySCraft Limited Solar Home Lighting System

&

Larger Solar PV Panels for Solar Farms

SySCraft Limited

Procmura Centre, Sports Road, Westlands, Nairobi, Kenya - +254 707 584119 - info@syscraft.co.ke

PSECC Ltd - www.psecc.co.uk

UK Offices: PSECC Ltd - 39 Woodhay Walk, Havant, Hampshire, PO9 5RD

250w Solar PV panels

Solar PV Home Lighting Systems 20w & 30w

20w (Fully assembled)

30w (Fully assembled)

Contents

Executive Summary

Kenya is one of the African Countries with a high Renewable Energy generation from Geothermal, however there is a need for Kenya to increase their Renewable Energy from Solar in line with COP26 1.5 Consistent Pathways. This is an application for USD $6 million, ROI of 18%. The Solar PV lighting systems together with Solar for schools and Solar Farms for electricity use in Kenya households will reduce use of kerosene and so reduce greenhouse gas emissions and the Government are hoping to develop 5,000MW of additional electricity to drive down the cost of electricity. This project is being developed jointly by SySCraft Limited in Kenya and PSECC Ltd in the UK, PSECC Ltd has twenty-eight years' experience in Climate Change Mitigation and Renewable Energy development projects. Successfully delivered, as the Project Lead partner on other UK Government Innovate UK funded Renewable Energy projects in Africa for Ghana, Solar Farm development in Ghana and Kenya and ten-years' experience in manufacturing environments.

The Government of Kenya has targets for Renewable Energy generation, Climate Change and to promote local manufacturing as part of the Kenya Vision 2030 and the Industrial Transition programme. Promoting local manufacturing will not only, as we have seen bring prices down to affordable levels, especially to the poor, but will also have a bigger impact on the country's economic growth. Kenya is the largest market in Africa for off-grid solar products and according to the Kenya National Electrification Strategy (KNES), off-grid solar solutions will play an important role in achieving universal electricity access for all Kenyans by 2022. Currently, it is estimated that nearly 10 million Kenyans use off-grid solar products as compared to less than a million in 2009 at the commencement of the World Bank's Lighting Africa project.

We can manufacture at lower cost by 46% of imported panels supplied from China. Year one we will have an Assembly plant and Sales & Distribution centre for the solar home lighting systems using imported solar PV panels from China then after six months we will build the Manufacturing plant then activities will be manufacturing of the solar PV panels in Kenya, assembly, sales & distribution for the lighting systems and the larger solar PV panels for Solar Farm use. Two Manufacturing systems were investigated, one from India the other from China. The Indian plant would require 10,000 square feet building, equipment cost of USD $210,000 to produce 30,000 light units per year, material costs would be USD $693,300 build cost per Solar Home Lighting system would be USD $25 to USD $28 on material costs.

Total cost for the China Manufacturing Plant - Semi-Automatic 1.272MW to 10MW capacity Equipment cost is USD $220,500 one off payment, ongoing annual material costs for solar PV panels is USD $308,621 per 1.272 MW for the lighting system, for 10MW is USD $2,468,968 per year material costs for the lighting panels and larger solar PV panels. The plant from China has been chosen due to superior quality, costs, and adaptability. Assembly & Distribution costs were USD $2,068,990 for material, so the total funding required for the two operations is USD $4,537,959 in year one for materials. Building rental costs per year is USD $13,500 for Headquarters and USD $54,000 for warehousing in three regions of Kenya – total running costs in year one is USD $821,019. Plant operational phase requires 100 KW per hour @ USD $0.16 KWh, so for one daily eight-hour shift running costs is USD $128 per day, for 350 operational days each year the cost is USD $44,800. However, over time the Manufacturing building will have the larger 250w panels on the roof to provide the electricity to run the plant.

Manufacturing plant funding required is USD $5,853,325 plus the solar roof for the plant USD $146,675 for the Manufacturing, Assembly & Distributing plant totalling USD $6,000,000, ROI 18% and if the investors are interested a further USD $11.2 million for the 10MW solar farm for Nakuru in Kenya ROI of 12.08%, totalling USD $17,200,000 over a ten-year loan period. If another Ghana 20MW solar farm is included then a further USD $23 million is required for a further ROI 23.59% totalling USD $40.2 million profit over twenty-five years. Our marketing department have indicated the solar farms give a secure outlet for the sales of the larger 250w solar PV panels from the Manufacturing plant over a five-to-ten-year period.

The Manufacturing plant for Solar PV panels will assist Kenya producing 20w panels, 30w panels and 250w panels at lower costs compared to imported panels. If we were to use those panels in a 10MW solar farm development at Nakuru then the revenue profit from the Solar Farm would be USD $39,325,365 over 25 years of operations or USD $1,573,015 per year on average.

SySCraft Ltd have four years in system integration and now requires funding of USD $6 million to start-up this venture for Manufacturing, assembly, distribution & Sales. There is evidence of imported low quality products getting into the local market. Lighting Africa's March 2016 Kenya retail report indicates that the top two key challenges solar retailers are grappling with are low quality/counterfeit products and faulty products that lower consumer trust of solar products. We at SySCraft Limited & PSECC Ltd aim to fill this gap and increase the Natural Capital, increasing the environmental gains at the same time increasing the financial gains and distribute the systems at better quality, lower cost and introduce Manufacturing in Kenya and we have studied the report on Namibian students regarding Pico to understand further the attitudes of potential buyers of our systems. As part of a larger project on climate change interventions, it was expected to provide information to be used for production of a prototype for a Kenya manufactured solar lantern. PSECC Ltd Limited are currently developing opportunities in Waste Gasification & 100% Recycling technology plants and USD $90 million funding arranged by Alset Power Company Inc via USTDA & US EXIMBANK for the first Waste-to-Energy Gasification plant for Kisumu in Kenya.

The University of Sheffield is working with PSECC Ltd and us on a "Harvesting the Sun Twice project", which provides other markets for our manufactured larger 250w solar PV panels. While ground-mounted arrays of solar panels offer several benefits related to clean energy provision, they miss opportunities to deliver livelihood benefits in addition to electricity supply, and in some cases can detract from other development goals. For example, ground-mounted arrays remove land from food production, and at a time when crop yields are threatened by a changing climate, increasing populations and insecure land ownership, we cannot risk putting further pressure on land resources. Agrivoltaic energy systems, however, can combine the delivery of solar electricity, crop production, and rainwater harvesting on the same land area. Instead of being mounted close to the ground like traditional solar power arrays, agrivoltaic systems are constructed several meters high, with gaps between the arrays, enabling crops to be grown underneath. Climate Change will provide significant growth in this sector.

Our Marketing department have further identified possible sales of the larger 250w panels in this concept could be incorporated into this Kenya project in a second development phase – for every 10MW solar farm we build in Kenya we could have one or more 500KW (2,000 panels) or larger projects below incorporated into the project. PSECC Ltd is a partner with this Sheffield University project.

Solar PV & Food production

Solar power is seen as a key way of addressing East Africa's energy challenges, but the solution is not as simple as installing traditional solar panels across large areas of land.

"Harvesting the Sun Twice"

Harvesting the Sun Twice project website

www.sheffield.ac.uk/research/harvesting-sun-twice Manufacturing plant equipment supplier website www.ooitech.com

(Video of equipment & process) www.youtube.com/watch?v=u4Y2EmDt998&t=22s

Introduction

The requirement is for a 10MW plant - USD $6 million investment over a ten-year loan period for a Manufacturing, Assembly & Distribution plant for Kenya. Manufacturing plant requires USD $3,784,335 and USD $2,068,990 for Assembly & Distribution plant (USD $5,853,325). Solar PV roof fo Manufacturing plant we have costed at USD $146,675 totalling USD $6,000,000 – ROI is 16%. We could have a 20MW plant or even 25MW costing $9,335,323 with ROI of 25%.

We can manufacture the 20w & 30w solar PV panels for the lighting system 46% lower cost as panels supplied from China, we will still import smaller 10w panel due to equipment limitations – Our Material & Manufacturing cost per watt is USD $0.26116, the larger 250w panels we manufacture for USD $65.29 .

The Government of Kenya has targets for Renewable Energy generation, Climate Change and to promote local manufacturing as part of the Kenya Vision 2030 and the Industrial Transition programme. Promoting local manufacturing will not only, as we have seen bring prices down to affordable levels, especially to the $300 million was invested in mostly Western-owned solar pay-as-you-go (PAYG) start-ups in 2020, up from $19 million in 2013. More than 8 million PAYG solar kits were sold from January 2018 through December 2021, according to Gogla, an off-grid solar industry trade group, and today about 25 million to 30 million people have access to energy via paygo solar lighting systems. Although PAYG can make a difference to middle-class homeowners and small businesses that don't want to depend on Africa's unreliable power grid, it hasn't fully succeeded in bringing electricity to the poor on a massive scale, we aim to resolve that issue by having a better-quality, in country product, more affordable to ensure greater take-up.

SySCraft Limited is an established company in Kenya for over four years in operation, senior staff with over thirty-five years of business acumen in Kenya. Expertise has been developed to now entre the Climate Change Mitigation & Renewable Energy sector. SySCraft & PSECC have analysed Solar PV manufacturing plant technology from India and China and identified the product ranges for the new Manufacturing Plant and Assembly to produce and have further identified a sound way forward in marketing those products with three different sized 10w, 20w & 30w Solar PV panels for the Solar Home Lighting system and the larger 250w Solar PV panel manufacturing for the Solar Farms.

SySCraft Limited in Nairobi and PSECC Ltd in the UK are submitting this joint proposal to UK AID "Manufacturing Africa" team for investment into this much needed venture. The cost comparison of our panels to be manufactured in Kenya indicate a cost per watt of USD $0.26116. The manufacturing costs for the larger 250w panels each day will be $65.29 per panel and number of panels per year is 34,560 panels so manufacturing costs would be USD $65.29 x 34,560 is USD $2,256,422. Retail price is set at USD $120 per 250w panel is the profit of USD 54.71 per 250w panel = USD $ 1,890,777 per year. Our marketing department have identified a strong sales market - In a year, operational profit from the larger panels would be USD $1,890,777 or (USD $1.89 million) per year. However, if the panels were used in our Solar Farm projects, initially at the 25MW Solar Farm proposed for Nakuru then profits over a 25-year period from the Solar Farm are USD $90 million (USD $3.6 million each year on average).

www.syscraft.co.ke Experience you can count on…….

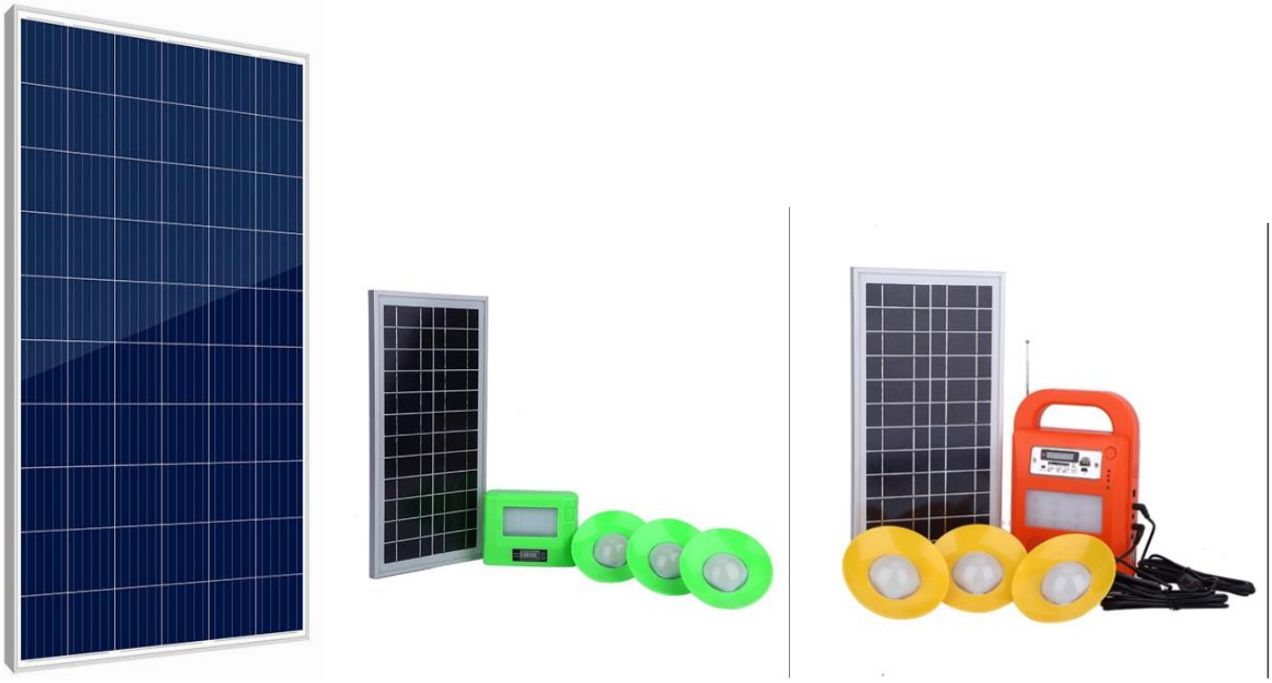
SySCraft

Renewable Energy and Waste Management System

Our work in the Circular Economy

As we have seen, Renewable Energy projects were started in Kenya by our partners PSECC Ltd in 2012 commencing with Solar PV home lighting systems and Solar Farm development at Konza & Nakuru and this new Manufacturing Plant could provide solar panels for Solar Farm developments in Kenya for years to come without the need to import panels – Industrial Transformation & Job creation.

Full product line



For the four products the domensions are as follows:

SHS10-2W3	235*350*17mm	10W/12V
SHS20-3W4	430*350*17mm	20W/12V
SHS30-35W4	590*350*17mm	30W/12V

250W	1640*992*35mm

KENYA'S

INDUSTRIAL TRANSFORMATION PROGRAMME

MINISTRY OF INDUSTRIALIZATION AND ENTERPRISE DEVELOPMENT

AN EXCITING TIME FOR KENYA

This is a very exciting time for Kenya and for our region. The world has recognised our country as one of the leading economies in Africa that will drive the growth of this region.

We have committed to our people that we will pursue an inclusive model of growth and reach one million new jobs in the near future, doubling the number of manufacturing jobs we have today. We believe that a significant portion of these jobs will come from the development of our industrial sector and the services linked to the priority sectors that we have selected in this programme.

The key to sustainable industrial growth and job creation lies in the growth of domestic companies and the attraction of local and foreign investors to invest capital and expertise into the economy. To achieve this, we have made improving the overall business climate and supporting selected sectors our top priorities. As a government, we are committed to overseeing this work and ensuring its implementation. We will play a part by actively pursuing favourable trade agreements in key markets, both regionally and globally.

Moreover, we recognise the role that the government will need to play in creating the infrastructure backbone to advance our economy. We have made significant headway on the construction of the Standard Gauge Railway, which will efficiently link the coast and the interior. The Port of Mombasa has been expanded, and we are continuing to improve the efficiency of its operations. We are actively pursuing our plans for the generation of an additional 5,000 MW of electricity to drive down the cost of electricity. We have made substantial progress on the development of LAPSSET (Lamu Port/ South Sudan/Ethiopia Transport Corridor Programme). Our international airport in Nairobi is being upgraded to become a world-class facility, positioning Nairobi as a commercial and services hub for the region. Finally, we are rapidly moving forward with the construction of 10,000 km of new roads that will form the transport corridors required to move products throughout Kenya and the region.

Our youth and small and medium enterprises will be the engine of our growth. This growth will be spread across the country, and we will support our counties by promoting the development of small businesses, creating vocational training programmes and preparing our youth with the right skills to contribute to the economy.

With a strong focus on implementation, we are dedicating the human capital and resources required to realise this Industrialization Transformation Programme. We also recognise that success can only be achieved through collaboration. We call on you – the public at large, our civil servants, business men and women, small and medium enterprises, large companies and foreign investors – to work with us to transform Kenya into an industrial hub, for the benefit of our people and the region.

H.E. Hon. Uhuru Kenyatta, CGH
President of the Republic of Kenya and Commander-in-Chief of the Defence Forces

INDUSTRY: KENYA'S GROWTH ENGINE

As global production costs continue to rise in the traditional markets of Asia and Europe, we expect manufacturing to move to Africa. As a country, we are preparing to be at the forefront to capture this opportunity for growth. We are positioning our industrial sector to attract investments through the advantages of our well-trained labor force, low cost of operations, integrated industrial parks and our improving transportation and power infrastructure.

Kenya has extraordinary momentum today. The foreign direct investment in our country has more than doubled in the past two years and our domestic investment continues to rise. Our middle income population now comprises 45% of the populace. Our people continue to be the top talent in Africa. In fact, Kenya is ranked first in Africa for quality of educational system by the World Economic Forum. The World Bank estimates a 2015 growth rate of 6.7% per year for our region, a higher growth rate than that of Brazil, India or the rest of sub-Saharan Africa.

Industrialization has been the modernizing force in every developed and emerging economy and this will continue to be the case for Kenya. Industry will be the bedrock upon which we grow jobs, GDP and incomes. We are confident we can also transform the wealth, employment and inclusiveness of our country over the next five to ten years through a targeted approach in sectors in which we have a competitive advantage.

We believe that the industrial sector for Kenya is at a turning point. While there is significant domestic and foreign interest, a growing market and existing skills, there has not been a comprehensive effort to create an industrial hub. In this Industrial Transformation Programme, we have begun sector-specific initiatives that will turn Kenya into an industrial hub.

The achievements we have already seen while implementing part of the Industrial Transformation Programme over the past year will continue as we take advantage of our country's unique position in the region and beyond. We are excited to continue the work we have started and will call upon our colleagues in government, the private sector and the people of Kenya to support this programme

Adan Mohamed, EBS

Cabinet Secretary of the Ministry of Industrialization and Enterprise Development

IMPLEMENTING OUR PRIORITIES

We are eager to share this Industrial Transformation Programme as we seek to revitalise the economy of Kenya. This is a strategy that we believe will drive Kenya towards becoming a primary industrial hub of Africa and will enable the country to achieve its goals of creating meaningful jobs, increasing GDP and addressing its trade balance – all towards a better quality of life for Kenyans and the people of the region as a whole. The programme builds on strategies that Kenya has already developed with a strong focus on implementing our priorities.

The actions outlined in this programme are specific. Projects have clear owners and timelines, and the Ministry has developed detailed budgets to mobilize the resources required to achieve them. We have assigned dedicated implementation teams to focus on the flagship projects, drawing on resources from within the Ministry as well as relevant agencies. We are also building a dedicated Delivery Unit within the Ministry to drive the activities of the Industrialization Transformation Programme. The unit will track delivery of priority projects, ensure the appropriate levels of collaboration with other ministries, agencies and private sector players and mobilize expertise and tools to ensure success.

We will seek partners who can bring the required capital, technical and operational expertise to realise our projects. We look forward to welcoming the participation of our private sector and local and international investors who will support our journey to develop Kenya into an industrial hub for Africa.

Dr. Wilson Songa, MBS

Principal Secretary of the Ministry of Industrialization and Enterprise Development

Summary of Transformation programme

The Ministry of Industrialization and Enterprise Development (MOIED) has developed this strategic, comprehensive and integrated programme to guide Kenya on its journey to industrialization.

The programme is guided by Kenya Vision 2030, the country's economic development blueprint that aims to transform Kenya into a newly industrializing, "middle-income country providing a high-quality life to all its citizens by the year 2030". The objective of the Economic Pillar of Vision 2030 is to create a robust, diversified and competitive manufacturing sector in three ways: 1) boosting local production, 2) expanding to the regional market and 3) taking advantage of global market niches.

Over the past ten years, Kenya's manufacturing base has remained static at 11% of the country's GDP, and its industrial exports have decreased in absolute terms. Increasing this base is critical to job creation and economic growth as well as domestic and foreign investment. **We have identified opportunities that will more than double the amount of current formal manufacturing sector jobs to approximately seven hundred thousand and add USD 2 to 3 billion to our GDP.**

To realise these opportunities, we need to overcome six challenges: infrastructure and land availability, skills and capabilities in priority sectors, quality of inputs, cost of operation, access to markets and investor-friendly policies. We have developed a five-point strategy to capture these opportunities over the next ten years.

1. ***Launch sector-specific flagship*** projects in agro-processing, textiles, leather, construction services and materials, oil and gas and mining services and IT related sectors that build on our comparative advantages (Pillars 1 to 4).
2. ***Develop Kenyan small and medium enterprises (SMEs)*** by supporting rising stars and building capabilities with model factories (Pillar 5).
3. ***Create an enabling environment to accelerate industrial development*** through industrial parks/zones along infrastructure corridors, technical skills, supporting infrastructure and ease of doing business (Enablers 1 to 4).
4. ***Create an industrial development fund*** *(Enabler 5).*
5. ***Drive results*** through the newly formed Ministerial Delivery Unit.

TAX Incentives

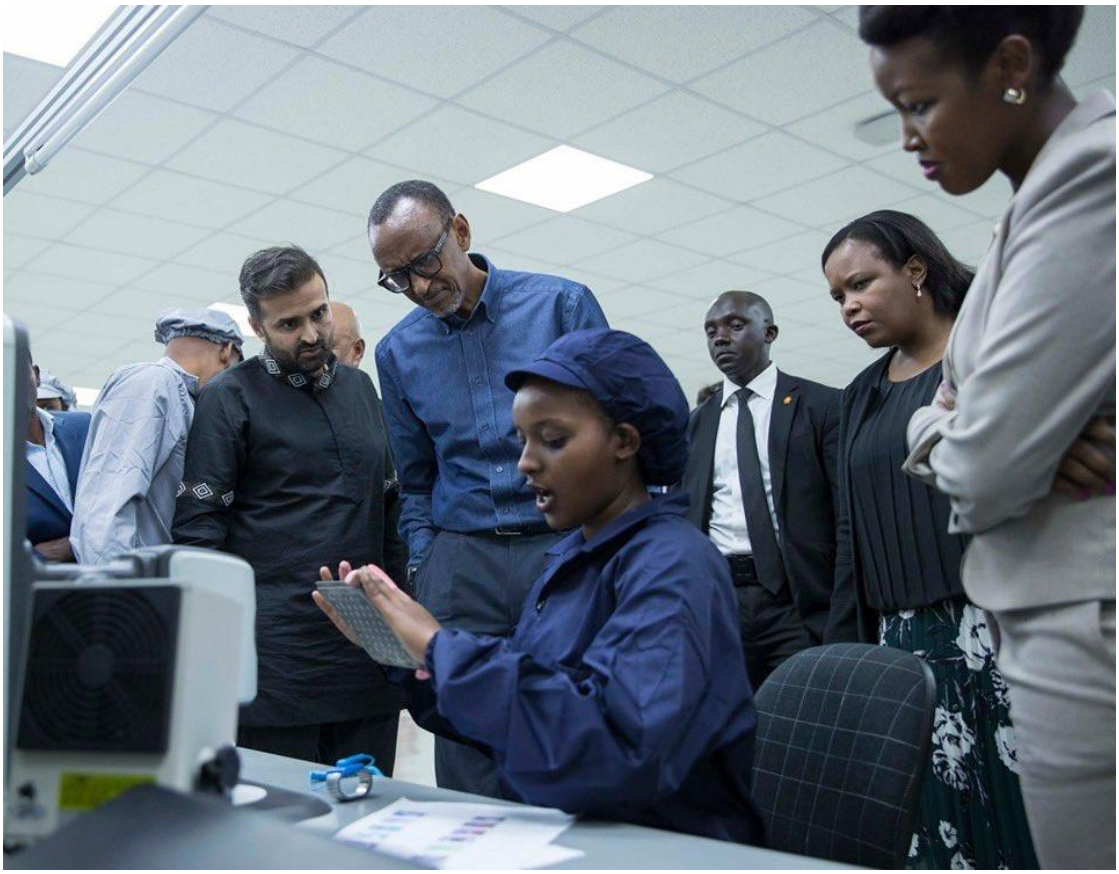
There are applicable tax incentives and from the Government documents it is also evident that the Minister can declare a plant or factory as part of Special Economic Zone - SEZ despite the location.

This is since an investor might prefer different areas for some reasons, at the point of plant setup all the applications for exemptions can be applied for and justification given.

1. 10-year corporate income tax holiday and a 25% tax rate for a further 10 years thereafter (except for EPZ commercial enterprises)
2. 10-year withholding tax holiday on dividends and other remittances to non-resident parties (except for EPZ commercial license enterprises)
3. Perpetual exemption from VAT and customs import duty on inputs – raw materials, machinery, office equipment, certain petroleum fuel for boilers and generators, building materials, other supplies. VAT exemption also applies on local purchases of goods and services supplied by companies in the Kenyan customs territory or domestic market. Motor vehicles which do not remain within the zone are not eligible for tax exemption.
4. Perpetual exemption from payment of stamp duty on legal instruments

The Manufacturing plant

The plant will be able to produce Solar PV panels for 36,000 small Solar Home Lighting Systems in year one as well as 34,560 large 250w panels for Solar Farms manufactured from month seven onwards, over a twelve-month period onwards and thus helping towards meeting the 5,000MW target of Kenya.



Manufacturing Plant and equipment layout

10,453 Square Feet of building space in Nairobi for Headquarters Manufacturing and Assembly plant

Rear area of Factory

Entrance area of Factory

https://coralpi.com/properties/10383-sqft-warehouses-for-rent-along-old-mombasa-road/

Features, Amenities and Provisions

- 3 phase power.
- 20KVA power supply to each godown (Factory).
- Offices and washrooms in each godown.
- 5.5 metres gate height.
- Borehole and Council water.
- 1000 litre water storage tank for each godown.
- 18 metres wide cabro paved road between each row to facilitate easy turning for trucks.
- 24/7 security guards manning and patrolling the compound.
- Perimeter wall with electric fencing.
- CCTV surveillance in the common areas.
-

Rent Per Month: KES. 30 per square foot plus VAT.
Service Charge Per Month: KES. 27,500 plus VAT per godown (Factory)

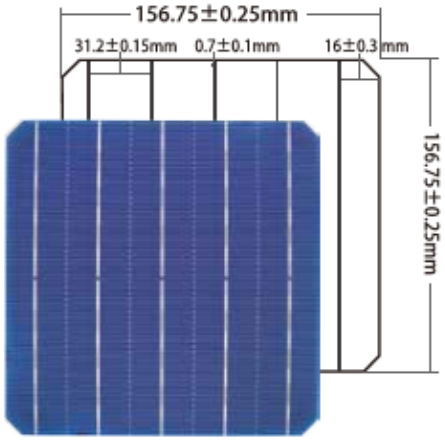
The Solar cells from China to be used in the Manufacturing plant

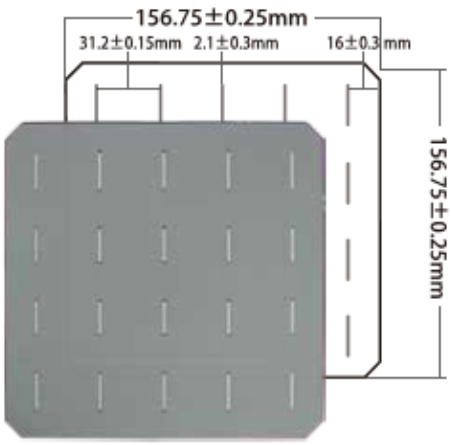
SUZHOU RUNERGY PV TECHNOLOGY CO., LTD.
Address: Room 2006.DiBao Finance Building.No.168,Chun Xu Road,Jiangsu,Kunshan,China
Sales Phone: +86-512-5792 1098

荣耀R1

Mono PERC Solar Cell (5BB-Half)
5BB单晶PERC电池片（半片）

Product specification/产品规格





Type/硅片类型	Size/尺寸规格
Monocrystalline 单晶	156.75*156.75±0.25mm Φ210mm

Front electrode pattern/正电极图形

Five busbars/五主栅
Width/宽度：0.7±0.1mm
Interval/间距：31.2±0.15mm
Finger/细栅线：108 lines

Electrical properties/电特性

Temperature coefficient/温度系数

Voc：-0.3 %/℃
Isc：0.06 %/℃
Pm：-0.39 %/℃

STC/标准检验条件

Intensity/光强：1000 W/m
Spectrum/光谱：AM1.5
Temperature/温度：25±2℃

Appearance parameters/外观参数

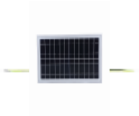
参数项目 Parameter items				Specification	公差 Tolerance	单位 Unite
正面 Front surface	A	正面细栅线数量	Finger number	108	N/A	Line
	B	正面主栅线宽度	Busbar width	0.7	±0.1	mm
	C	正面主栅线间距	Busbar interval	31.2	±0.15	mm
	D	左/右主栅中心线到左/右边缘的距离	Distance between center line of the left (right) busbar and the left (right) wafer edge	16	±0.3	mm
背面 Rear surface	A	背面主栅线宽度	Grid width	2.1	±0.3	mm
	B	背面主栅线间距	Grid interval	31.2	±0.15	mm
	C	左/右主栅中心线到左/右边缘的距离	Distance between center line of the left (right) rear grid and the left (right) wafer edge	16	±0.3	mm

Electrical performance

档位 Eff（%）	效率区间 Efficiency	功率 Pmpp（W）
HE 2250 P50	>22.5%	5.50
HE 2240 P50	22.4-22.5%	5.47
HE 2230 P50	22.3-22.4%	5.45
HE 2220 P50	22.2-22.3%	5.42
HE 2210 P50	22.1-22.2%	5.40
HE 2200 P50	22.0-22.1%	5.38
HE 2190 P50	21.9-22.0%	5.35
HE 2180 P50	21.8-21.9%	5.33
HE 2170 P50	21.7-21.8%	5.30
HE 2160 P50	21.6-21.7%	5.28
HE 2150 P50	21.5-21.6	5.25

Cost of Solar Panels from used for solar home lighting system – first six months.

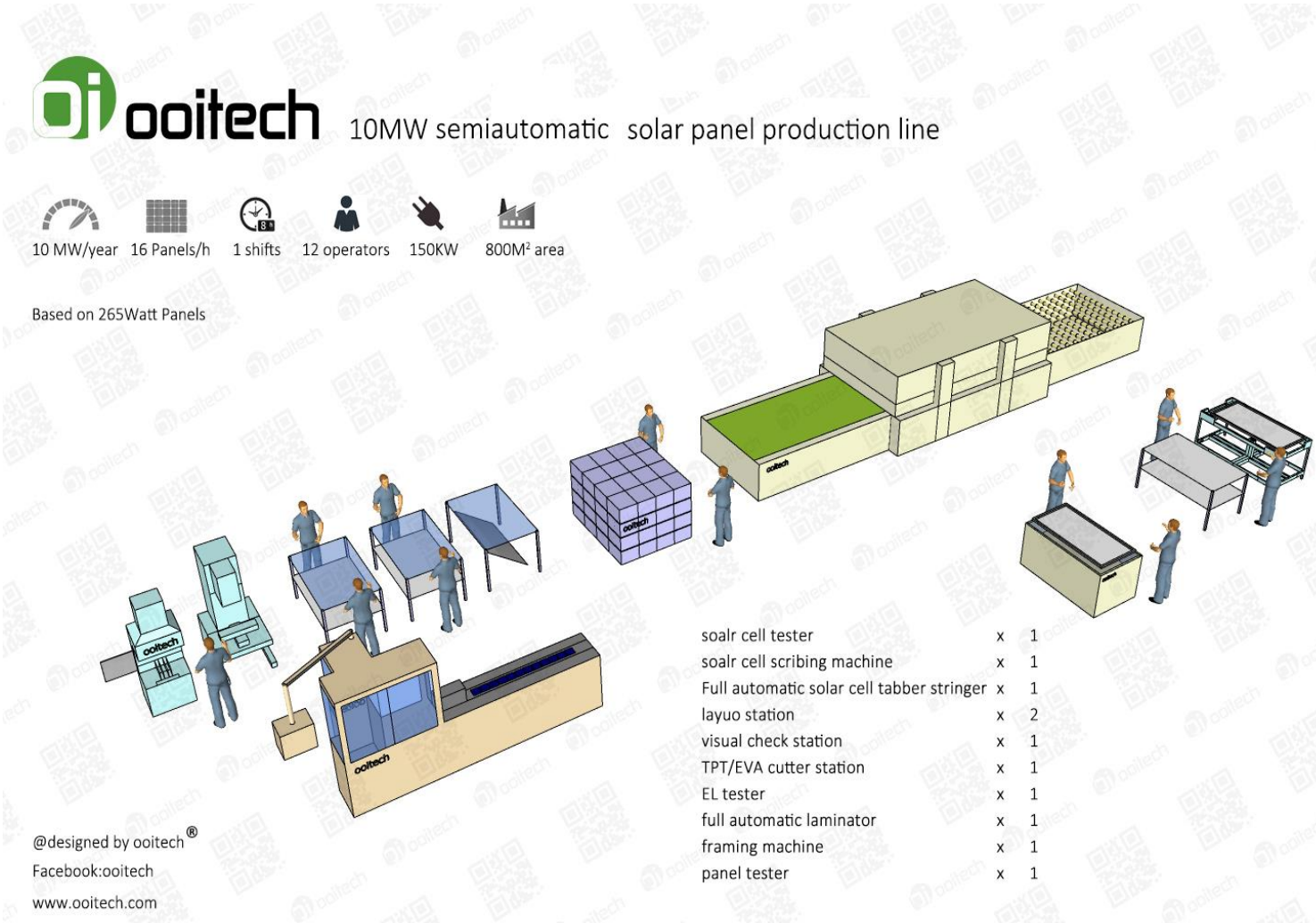
In our Assembly and Distribution proposal we had indicated the cost of the solar panels that can be bought in China as follows:

Model	Picture	Item	Description	MOQ	Unit Price FOB Shenzhen (USD)	Charging Time	Lighting Time	Packaging
Solar Panel(for SHS10-2W3)		10w	10W/12V Polysilicon panel with 5M cable		5	_	_	_
Solar Panel(for SHS20-3W4)		20w	20W/12V Polysilicon panel with 5M cable		9.8	_	_	_
Solar Panel(for SHS30-35W4)		30w	30W/12V Polysilicon panel with 5M cable		10.8	_	_	_

The total cost to manufacture a 20w & 30w solar PV panels will be $5.25 & $7.87 respectively (considering materials and all manufacturing costs) 46% lower cost compared to China imported Solar PV panels.

Manufacturing plant output per year

We will have two of these 10MW manufacturing plants



Our plant will operate for nine hours each day 8am to 5pm – six days each week for fifty weeks each year.

25MW Manufacturing plant - Number of Solar PV Panels produced in a full year of Manufacture

SYS-CRAFT-HOME 20W	48000
SYS-CRAFT-HOME 30W	32000
SYS-CRAFT - BIZ 250w	89,120

Supplier website www.ooitech.com

(Video of equipment & process) www.youtube.com/watch?v=u4Y2EmDt998&t=22s

Website

https://www.solarmakingmachine.com/Solar-Panel-Manufacturing-Process/?gclid=CjwKCAjwjZmTBhB4EiwAynRmDzjsKG18p_Pkcp6IRWiy-vdCWBLkQPnxMFmQPJ1Yb2hEb99wl774khoCJ8wQAvD_BwE

& Costs

ooitech

WUHAN OOI PHOTOELECTRIC TECHNOLOGY CO,LTD

Add: Building 1, Zixin Industrial Park, Yangguang Ave,Jiangxia Area, Wuhan of China
Website:http://www.ooitech.com Email: Jessy@ooitech.com

Ooitech Quotation for 10 MW Semiautomatic Solar Panel Production Line

- Throughtput: 14 Panels/Hour (72 Full Cells Panel) or 7.5 Panels/Hour (144 half Cells Panel)
- Cell & Busbar: 5BB 157/158.75 Cells and 9BB 166, 10BB/11BB 182 or 12BB 210
- Module Max Size:2500x1400mm
- Line Capacity: 158.75 350Wattx14Panels/H x 8hoursx300 days=12MW;
  182 540Wattx10 Panels/H x8hoursx300 days=13MW

Date: April 26th,2022

S/N	Description		QTY	UNIT PRICE (USD)	Amount (USD)	Remark
1		**Automatic Solar Cell stringer Machine(Model:SS-1500)** 1.Soldering capacity: 1200 pcs/hour 2.Cell Size: 158 /166 Full Cell and 1/2，1/3 and 1/4 cell; 182/210 1/2，1/3 and 1/4 cell; 3.Cell Busbar: 5BB-12BB 4.Welding Method:Infrared light 5. Breakage: 160-180μm ≤0.2%（A class） 180μm and Over ≤0.1%（A class） 6. Cell spacing: 0-35mm adjustable(Accuracy ±0.2mm) 7. Ribbon sizes:Width: 0.6-0.9mm Thickness:0.15~0.23mm Ribbon Type: Flat ribbon P.S: With 3 cell kits for free	1	$63,000	$63,000	
2		**Full Automatic Laminator (Model:OCY2446)** 1. Lamination Size:2400 * 4600MM 2. Heating: Oil heating 3. Control mode: automatic 4. Lamination height: 25mm 5. Temperature mode: Intelligent Temperature Control 6. Workspace temperature uniformity: ≤ ±2 ℃ 7. Temperature Accuracy: ≤ ±2 ℃ 8. Temperature range: room temperature -180 ℃ 9. Pumping rate: 70 L/S 10. Max vacuum: 20-200pa 11. Vacuumming time: 2-6min 12. Germany Simens PLC 13.Total power: 73KW (normal working 32KW) 14. Working voltage: 380V	1	$68,000	$68,000	
3		**Automatic Solar Cell Laser cutting machine(OLS-2000F)** 1.30watt RAYCUS Fiber Laser with Servo Motor 2.Throughput: 1800 full cells/hour (calculated by single cut and auto splitting of 166mm cell) 3. Spliting Cell: 1/2 1/3 1/4 1/5 1/6 1/7 1/8 manual splitting cell 4. Scribing width:40μm 5. Max Scribing speed:500mm/s 6. Working area:245x245mm 7. Solar Cell: 156 x156~210 x210mm mono and poly 8. Breakage rate:≤0.15% 9. Power:220V/50Hz/1.5kvA :	1	$18,000	$18,000	

4		**12BB Solar Cell Tester (OSCT-B)** 1. Light intensity:700-1200W/M2 2. Light intensity non-uniformity:≤±3% 3. Light intensity instability degree of irradiation:≤±2% 4. Test results consistency:≤±1% 5. Single flash time:10ms 6. Effective test range:210×210mm/0.1W-15W 7. Measuring voltage:0V-0.8V(resolution 1mV) 8. Measuring current:0-20A(resolution 1mA) 9. Test parameters:Isc,Voc,Pmax,Vm,Im FF,EFF,Temp,Rs,Rsh 10.Dimension:800*600*1850mm	1	$15,000	$15,000
5		**Solar Panel Tester (OSMT-B)** 1. Light intensity:700-1200W/M2 2. Light intensity non-uniformity:≤±3% 3. Light intensity instability degree of irradiation:≤±2% 4. Test results consistency:≤±1% 5 Single flash time:10ms, 6. Effective test range :2500×1400mm 7. Measuring voltage:10V-100V(resolution 1mV), 8. Measuring current:0-20A(resolution 1mA), 9.Test parameters:Isc,Voc,Pmax,Vm,Im, FF,EFF,Temp,Rs,Rsh"	1	$20,000	$20,000
6		**Semi Automatic Solar Panel EL Defect Tester (OEL-S2400)** 1.Effective test range:2400*1400mm 2.Resolution:24Megapixels 3.Test Time: 1s~60s can be set 4.Test Methods: un contact free style 5.Power:220V/10A/1PH 6.Camero Chip: imported	1	$18,000	$18,000
7		**Semi Automatic Solar Panel Framing Machine (OZK-A)** 1. Air cylinder : Airtac Brand 2. solenoid valve: Airtac Brand 3. high-pressure air tube: South Korea imported 4. Maximum framing size: 2500 * 1400mm 5. Minimum framing size: 400 * 400 mm 6. Operating voltage: 220V/50Hz/1Ph	1	$6,000	$6,000
8		**Solar Cell Welding Station (3 WorkPlace)** 1. 3 workplace:1 String welding and 2 Single welding 2.1PCS PID Intelligent temperature control box 2.2PCS single welding heating template 3.1PCS String welding heating template 4.5PCS Exhaust Fan and 2PCS Light 5.Not included constant temperature electric soldering iron 6.Dimension:2200×1200×1850MM	1	$1,000	$1,000
9		**Lay up station** Aluminum Material Structure:2000*1080*850 mm 1.halogen lamp 2.ammeter 3. voltmeter 4. working surface with tempered glass. 5.With 2PCS solder iron station	2	$1,200	$2,400

10		**Manual EVA/TPT cutter** Aluminum Material Structure:3000*1200*800mm with scale ruler	1	$1,000	$1,000
11		**Glass/Solar Module Carrier** 1.Steel Structure:1600*1000*1100mm 2.With static electricity film to protect glass surface	2	$300	$600

12		**Ready material carrier** 1.Steel Structure: 1200*1050*1400MM (10Layer) 2.With Anti-static rubber to protect glass surface	2	$300	$600	
13		**String Cell Carrier** 1.Steel Structure:1600*800*1300mm(10Layer) 2.With heat shrink tube to protect glass surface	2	$300	$600	
	TOTAL			**USD**	**214200**	

Remark:
1.the price is based on the **FOB Shanghai port**.
2.Delievery time about 35-40 Days after order confirmed.
3.Payment: **30% T/T Deposit and rest 70% by T/T before shipping**.
4.Install & Training & Drawing Design:
Ooitech Engineers offer free Online Technical Support Customer Engineer to install and training and commissioning.(If require engineer come to customer factory to install and commissioning, cost shall be USD 20000 for 14 days)
(If customer require longer time, engineer cost shall be USD 300/Day for each person.)
-the customer will be bear for the 1-2 engineers all oversea cost like round journey Air tickets cost, local food, hotel, quarantine cost etc
5.Warranty terms:
After installation and training, the machines should be operated by the operators who have received the training.
-One year warranty after successful installation or 16 months from BL date whichever is earlier
-One year Warranty on the machines, if the machine get problem within 1 year, Ooitech will offer the spare parts(not including the consumables) to solve the problem for free. But the courier freight should be paid by buyer.
-After one year, Ooitech offer technical support and offer the spare parts when the machines meet problem, buyer would be required to pay for the spare parts.
-During warranty period,If buyer's engineers can not solve the problem, Ooitech will send engineers to buyer's plant to solve the problem. The round trip tickets, local traffic cost, hotel and food in buyer's city will be paid by buyer. If it is one year later after installation, buyer should also pay for the salary, the salary can be discussed.

Additionally - PV Ribbon Bending machine is USD $5, 000, Visual inspection unit is USD $1,000 and EVA/TPT carrier is USD $300.

Total Manufacturing Plant Equipment cost is USD $220,500

Semi-automatic 10MW MBB production line

For the new Manufacturing plant in Kenya - SySCraft Limited

Automatic Solar Cell Stringer

Model : SS-1500

Technical specification

(The information herein is totally confidential and shall not be disclosed to any third party)

Function

SS1500 Stringer adopts IR soldering method, servo motor driving, mechanical positioning and Industrial CCD detection for defective solar cell excluding automatically. The soldering effect, such as cell spacing, cell numbers of single string, soldering temperatures and etc, can be adjusted according to requirements. SS 1500 can be integrated with automatic layup machine to achieve the composing and locating of solar cell strings on tempered glass.

Equipment Advance

1. Applicable for front side and back side soldering of the cell,
2. Qualified soldering effect, which approves soldering pulling testing higher than 1N/mm on cell surface (0.6*0.25mm ribbon, 180 degree pulling angle, and except HJT cell)
3. Exchange time less than 120mins for changing different bus-bar number(9BB&12BB), including 30-

60mins for changing tools and 30-60mins for tuning and calibrating. Exchange time less than 30mins for different cell sizes (whole cell, half cell, third cell and quarter cell) while bus-bar number fixed.

4. Two Stingers requires only one operator.
5. Dual Solar cell unloading basket to avoid working interruption.
6. Ribbon extruding in advance before soldering.
7. Pre-heating before soldering to avoid cell deformation efficiently
8. Applicable for Solar cells thicker than 160um, max thickness 300um.
9. Adjustable for Ribbon soldering spacing.
10. Adjustable for Ribbon soldering length.
11. Touchable integrated PC system can support remote assistance, we can provide online technical support for after-sales issues.
12. Can be integrated with other Solar equipment conveniently.
13. Remote assistance by Internet, the factory provides the network connection.
14. Adjustable for Solar cell spacing 0-35mm, normally 1.5-5mm.
15. No pre-heating required for Ribbon before soldering.
16. No specialized engineer required for maintenance, but engineers must be trained and qualified.
17. Solar cell soldering numbers per string can be set by PC.

Equipment Hardware

1. **Machine body**

   The Solar cell district and Soldering district are totally enclosed on machine body. The solar string unloading basket can be integrated with automatic layup machine.

   The equipment adopts PLC control mode, with servo motor driving and multiply alarm system for safety guarding.

2. **Rotary cell basket group**
   - Servo motor driving + Liner Guide rail support + Ball screw transmission.
   - No friction during cell loading and unloading process, to reduce cell breakage rate
   - Stratified Cell blowing structure to reduce cell breakage rate
   - Alarm notify when cell basket is empty
3. **High resolution industrial CCD camera**

High precision mechanical positioning

4. **Ribbon handling structure**
   - Adjunctive ribbon downwards structure
   - DC gear motor driving
   - Soldering flux immersing structure for Ribbon
5. **Soldering processing structure**
   - IR soldering method, and Soldering controlled by step motor driving
   - Soldering temperature adjustable
   - Solar cell pre-heating
6. **Unloading structure**
   - Translation movement driven by servo motor
   - Lifting movement controlled by Guide Rod Air Cylinder
   - Solar cell rotary & overturn function
   - Solar string belt transmission mechanism
   - Vacuum control alarm
7. **Software control system**
   - Specialized software for conveniently edit and modification
   - Friendly Human-machine interface for easy operation and control
   - Adjustable for edit and modification of soldering orbit according to requirement Centralized Parameters can be set by keyboard through software window.
   - Main parameters can be set and saved by software directly
   - Exchange between Automatic and Manual mode for convenient debugging Soldering counting function
   - Error Alarm function

Technical Parameters

Model	SS-1500
Working Efficiency	1200-1300cell/hour （In condition of 158.75 whole cell welding and cell spacing＜2mm，average speed of continuous welding is 1200-1300 pcs/hour）
Soldering Head	1 PCS
Ribbon Soldering Welding	≤±0.2mm

Accuracy		
Breakage Rate	160-180μm	≤0.2%（A class）
	180μm and Over	≤0.1%（A class）
Solar Cell Size Available		158 166 Full Cell and 1/2，1/3 and 1/4 cell; 182 210 1/2，1/3 and 1/4 cell; （1-12 cell per string）
Bus Bar QTY Available		5BB-12BB（Requires to change Soldering Head）
Solar Cell Thickness Available		0.16mm-0.3mm
Ribbon Available	Width	0.6-0.9mm
	Thickness	0.2-0.3mm

Solar String Available	Cells number/String	Max 12 cell，Max lengthy ≤2000mm（Ribbon length included）
	Stringer Space	10-40mm
	Head/Tail length	5-20mm
	Cell Spacing	Adjustable for solar cell spacing 0-35mm，normally 1.5mm-5mm （Accuracy ±0.2mm）
	Cell Positioning Accuracy	≤±0.1mm
	String Straightness	≤1mm for 10 cells string
	Ribbon Positioning Accuracy	≤±0.3 mm for both sides

Full Automatic Solar Panel Laminator

Model: OCY-2446

[Technical Parameters]

Model	Laminated Size	Machine Size (M)	NW (T)	Power (KW)		Vacuum Pump
				Max	Working	Speed (L/S)
OCY2446	4600×2400	14.7×3.25×1.8	11	73	32	70

Operate Mode	Manual/Full Automatic	**Heating Mode**	Oil Heating
Lamination area	4600×2400	**Power Supply**	AC380V Three phase five Wires
Laminate Height	25mm	**Temperature Control**	Intelligent PID Temperature Control
Laminating Time	4-8Minutes (Including the solidify time)	**Temperature Uniformity**	±2℃
Temperature Precision	±2℃	**Vacuum time**	2~6Min
Temperature Range	30℃-180℃	**Vacuum Degree**	20-200Pa
Air Supply	0.6～0.8MPa	**Compressed air flow required**	400L /Min

[Main Parts]

1.PLC: Germany SIMENS

2. Electric parts: Schneider

3.Touch Screen: Kunlun-state10-inch

4. Cylinders:AirTAC

5. Vacuum Pressure Switch: Japan brand SMC

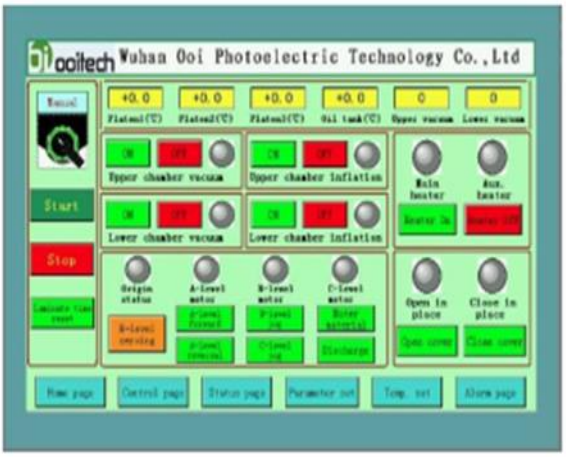
6. Vacuum Pump: China famous brand Sichuan Huaxin

[Performance characteristics]

- Intelligent temperature control system,
- Make the temperature more uniform and more easily set and control the temperature.
- Laminating pressure adjustable
- Can adjust the pressure accord to the production process requirement, makes good quality solar panel.

- 3. 24 hours continuous working in high temperature.
- 4. The advanced touch screen operation panel
- Easy operation, quickly respond, more stable performance and reduce the failure rate.
- Humanity system operation process
- The machine is equipped with several detection switch, in normal production, the operator only need to put the module component in heating platform, press close lid switch, the device will automatically laminate, curing, automatically open, waiting for the next working procedure.
- Adopt fully humanized system operation process
- The whole device is equipped with several detection switch, in normal production work, the operator only put component input on the platform, press the input switch, the device will automatically enter the component to a host of encapsulation, curing, automatically the output to the specified location waiting for operator on to the next working procedure of processing, and automatic work on to the next cycle.

[Machine Picture]



Solar Cell Laser Scribing Machine with auto Splitting

Model: OLS-2000S

Technical Specification

Suitable for scribing or cutting the Solar Cells and Silicon Wafers in solar PV industry, including the mono-si and poly-si solar cells and silicon wafer.

It can realize functions such as automatic material feeding, cell positioning, laser scribing, and boxing.

Professional control software, free maintenance, easy operation.

Machine Features

- Advanced scribing technology:

  Adopt fiber laser source, good quality laser beam, slim laser scribing line, more uniform solar cell cutting surface, small damage to solar cell, high accuracy cutting.
- High efficiency:

  High laser scribing speed, producing capacity can reach to 1500 full cells/hour
- Accuracy positioning:

  Solar cell full automatic positioning, positioning accuracy ≤±0.1mm

- High automation level:

  Solar cell automatic loading and unloading, automatic positioning, automatic scribing. Stable performance, low failure rate, easy maintenance.

Technical Parameters

Items	Parameters and configuration
Positioning accuracy	Cell automatic positioning, error range ≤±0.1 mm
Laser wavelength (nm)	1064
Maximum scribing speed	500 mm/s Adjustable
Actual output	1800 full cells/hour (calculated by single cut of 166mm cell without splitting) 1500 full cells/hour (calculated by single cut and auto splitting of 166mm cell)
Accuracy of scribing	±0.1mm
Splitting	1/2 1/3 1/4 (auto splitting optional) 1/5 1/6 1/7 1/8 manual splitting
Line width	40μm
Work table area/trip	Maximum working area: 245×245 mm (2pcs) Module max running area :300×300 mm
Material size	156 x156~210 x210mm monocrystalline silicon, polycrystalline silicon solar cells and silicon wafers
Material thickness	0.18-0.30 mm
Cell thickness deviation	±10μm
Breakage rate	≤0.15%

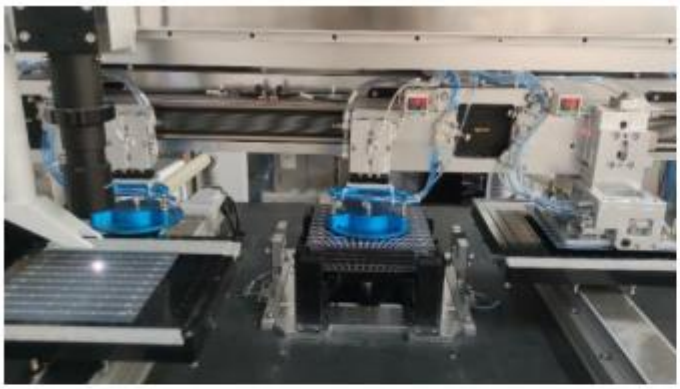
Equipment configuration

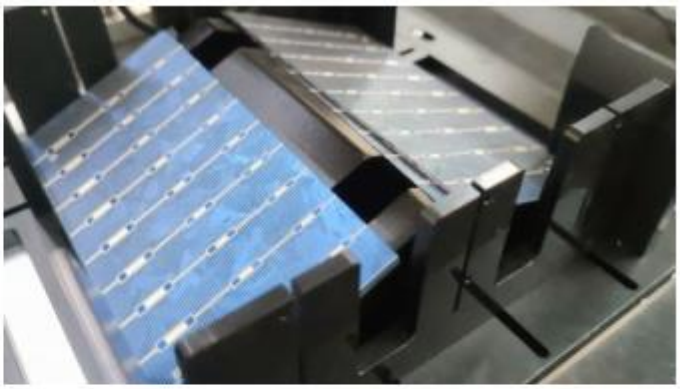
Laser Source	Raycus 30 W Q-switched λ=1064 nm
Computer	Has storage function, reserved USB interface, with display, mouse, keyboard

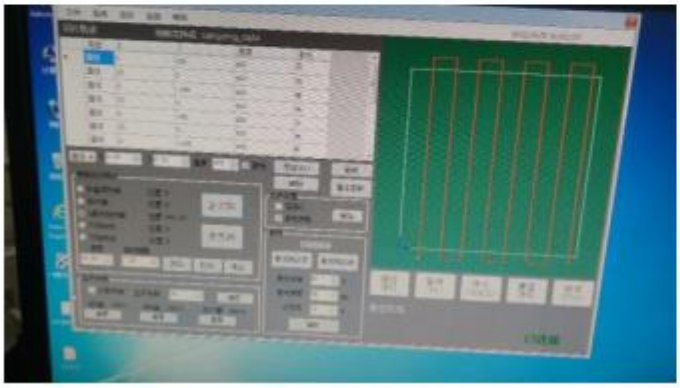
Main Control Power Protection systems		Each motor load should be equipped with short circuit protection / circuit breaker, the equipment is equipped with grounding terminal, in accordance with the national equipment electrical safety regulations.
Vacuum adsorption		Bernoulli suction cup (No trace absorption, no damage to the material)
Worktable module	Driver	Servo Motor
	Ball-screw Module	Chinese brand (effective travel range 300 mm)
	Coupling	Chinese Brand
	Vacuum adsorption	Fan adsorption, automatic control of vacuum generation/breakdown
	Dust removal system	Dust removal fan

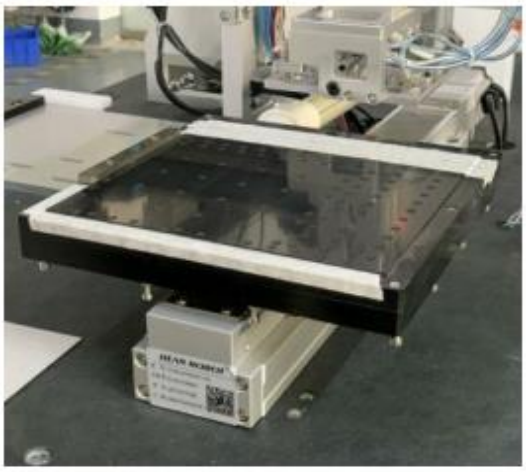
Professional software	Friendly working interface, simple and convenient programming, motion track display
Power supply	220V/50HZ/3kVA
Safety measures	Work area machinery, laser and other dangerous parts, affixed warning signs
Noise	Noise generated during normal working conditions complies with national norms
Other	Alarm warning

More Photos









Solar Cell Tester

Technical Specification

Machine Function:

Use to test the electric performance of Mono-Si or Poly-Si solar cell pieces and record the results in files.

Machine Features:

- Key components use import abroad brand
- A grade spectrum
- A grade unevenness degree of irradiance
- four-line measurent,14-bit 4-channel high speed synchronous acquisition card
- 10 parameters display and Measurement Parameter displays in Tabulation and Graphic way

- Pneumatic and buffering contact
- Temperature automatically compensating
- Voice counts off and prompts, Counting prompt of flash times
- 24 continuous work
- Import Xenon Lamp.

Technical parameter

MODEL	OSCT-A	OSCT-B
Lamp spectrum	IEC60904-9 JISC8933 standard (AM1.5) 【A】	
Light intensity	700-1200W/M^2 continuous adjustable range	
Light intensity Non-Uniformity of Irradiance（LTI）	≤±2% 【A】	≤±3%
Light intensity instability degree of irradiation(STI)	≤±0.5% 【A】	≤±2%
Test repeat accuracy	≤±0.5%	≤±1%
Electrical performance test deviation	≤±0.5%	≤±1%
Test results consistency	≤±0.5%【A】	≤±1%
Single flash time	10ms	
Effective test range	210×210mm/0.1W-15W/5BB-12BB	
Measuring voltage	0-0.8V(resolution 1mV)	
Measuring current	0-20A(resolution 1mA)	
Test parameters	Isc、Voc、Pmax、Vm、Im、 FF、EFF、Temp、Rs、Rsh	
Power supply	AC220V/50HZ/2KVA	
Air supply	0.5-0.8Mpa	
Weight	140KGS	140KGS
Machine Dimension	800*600*1650mm	800*600*1650mm

Solar Panel Tester Solar Simulator

[Machine Function]

Use to test the electric performance of Mono-Si or Poly-Si solar modules and record the results in files.

[Machine Features]

- four-line measurement,14-bit 4-channel high speed synchronous acquisition card
- 10 parameters display,Measurement Parameter displays in Tabulation and Graphic way
- Temperature automatically compensating
- Voice counts off and prompts, Counting prompt of flash times
- 24 continuous work
- import Xenon lamp

[Technical Features]

MODEL	OSMT-A	OSMT-B
Lamp spectrum	IEC60904-9 JISC8933 standard (AM1.5) 【A】	
Light intensity	700-1200W/ M^2 continuous adjustable range	

Light intensity Non-Uniformity of Irradiance（LTI）	≤±2% 【A】	≤±3%
Light intensity Instability of Irradiance (STI)	≤±0.5%【A】	≤±2%
Test repeat accuracy	≤±0.5%	≤±1%
Electrical performance test deviation	≤±0.5%	≤±1%
Single flash time	10ms	10ms
Effective test range	2400×1400mm	
Measuring voltage	0-100V(resolution 1mV)	
Measuring current	0-20A(resolution 1mA)	
Power Supply	AC220V/50HZ/2KVA	
Test parameters	Isc,Voc,Pmax,Vm,Im ,FF,EFF,Temp,Rs,Rsh	
Xenon Lamp service time	100,000flash times	
Weight	500kgs	

Semiautomatic Solar Module EL Defect Tester

[Machine Function]

Used in testing the solar module Crack，breakage,Black Spot，Mixed Wafers，Process Defect，Cold Solder Joint phenomenon

[Specification]

Item	OEL-S2400
Capture Mode:	Single Camera
Run Mode:	Offline
Monitor Point:	After Laminating
Sample Stage:	Super-white Tempered Glass
Sample Size:	≤2400mm*1400mm
Operation Height:	950mm
Resolution:	4928*3264
Exposure Time:	1 ~ 60s
Current/Voltage:	10A/60V
Software:	1.Interface for barcode scanning, naming files with barcode names; 2.Defect classification, create image folder and save image files automatically.
Detection Ability:	Crack,Black Spot,Mixed Wafers,Process Defect,Cold Solder Joint.
Configuration	Testing host,computer,software

[Machine Advantage]

- Reveals invisible defects such as microcracks, breakage,finger defects, and dark areas
- Improves line yield by identifying defective modules before lamination
- Improves quality and reliability of final product
- Highest available resolution
- Flexible system can be used to test framed or unframed modules, before or after lamination

[Judging defect classification]

Welding spots	Crack	Current not match	Cell Process defect	Virtual welding	Cell contaminate
OK	OK	OK	OK	OK	OK

[Machine More Pictures]

Solar Panel Framing Machine

	Minimum	Max
Framing size	400×400MM	2500×1400MM

[Specification]

1. Air cylinder : Airtac Brand

2. solenoid valve: Airtac Brand

3. high-pressure air tube: South Korea imported

4. Maximum framing size: 2500 * 1400mm

5. Minimum framing size: 400 * 400 mm

6. Operating voltage: 220V/50Hz/1Ph

7. Dimensions: 2900 * 1650 * 920mm

[Features]

- use the air cylinder and steel structure construction, achieved Aluminum frame extrusion positioning when the module laminated ,easy to fixed, fastened the aluminum frame, save time and improve product quality.
- with the rotary wheels, may guarantee the module in each direction freedom, and protects module's surface, operation nimble convenient.
- composed of the bidirectional fixed end and the bidirectional activity, may suit for the module in the wide scope to install the frame to make industry the need, in addition may satisfy some non-standard packages to enter the luggage frame's work demand.

PV Ribbon Cutting Machine

[Machine Function]

Use to cut of solar PV welding strip, mainly used for PV ribbon, wire, copper, tin and other metal films or other strip materials, featuring high precision and speed, convenient operation, low operation noise, and exquisite appearance.

1. Specifications: width: 2- 8.0mm; thickness: 0.10- 0.45 mm
2. Cutting accuracy：±(0.2+L*0.002)mm
3. Forming specifications: short side: 20-100 mm long side: 100-350 mm

(Special forming short & long side's size can be customized)

4. Forming Angle: 90 °±5°
5. Production speed：Single bending：15pcs/Min Dual bending：10pcs/Min

(Different length for the finished product has different processing speed)"

Manual Soldering station

Outer Dimension: 2.2×1.2×1.85M

3 work place:1 String Welding , 2 single welding

No conveyor belt

With constant temperature heating

Features: Used in a manual welding Cells.

Device weight: 330Kg

Application temperature: 40℃～100℃

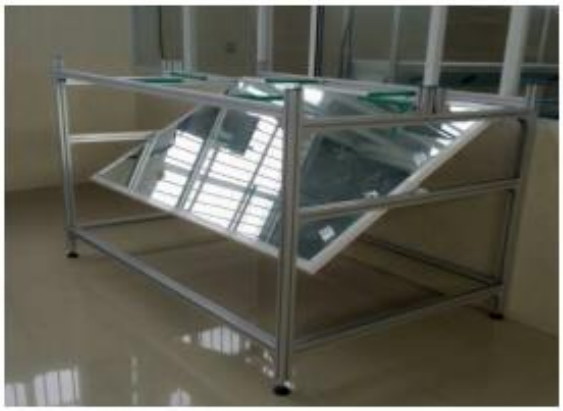
Manual EVA/TPT Cutting Station

Dimension:3000*1200*800mm
1.with scale ruler

2.Support EVA TPT use of sliding bearings

3.Material: Aluminium

Visual Inspection Station



Aluminum Material Structure: 3000*1200*800mm

1.Check the detection of panel materials and cells is impurities and make sure no breakage

2.The angle of the mirror can adjust.

3.With specular reflection, can easily and quickly find the detect of the cells

Ready Material Carrier

The steel products welding

Dimension: 1.2×1.05×1.5M (10Layer)

Lay-up Station

Material:Aluminum Molding

Dimension:2000*1080*850mm

1. 8 PCS halogen lamp
2. 4 PCS fluorescent
3. 1PCS ammeter
4. 1 voltmeter
5. working surface with tempered glass.

Solar Module Carrier

Steel structure

Ready Material Carrier

The steel products welding

Dimension: 1.2×1.05×1.5M (10Layer)

String Cell Carrier

EVA/TPT Carrier

Warranty:

After installation and training, the machines should be operated by the operators who have received the training.

-One year warranty after successful installation or 16 months from BL date whichever is earlier

- During the warranty period, the seller provides the buyer with timely maintenance services and the necessary spare parts for maintenance free of charge (not including the consumables). But spare parts courier cost shall be responsible for buyer.

-During warranty period, If buyer's engineers can not solve the problem, the seller will send engineers to buyer's plant to solve the problem. The round trip tickets, local traffic cost, hotel and food in buyer's city will be paid by buyer.

-The warranty does not include damage or malfunctions arising from any of the following: misuse, abuse, self-demolition and modification by any party other than the Seller's authorized technicians, use of the Equipment that is inconsistent with the operation manual.

-After the warranty period, the seller still provides online services and technical guidance free of charge. Timely supply of spare parts to buyer at favourable prices.When the buyer needs to send engineer to the site to repair, the buyer will afford the air tickets , VISA,food, hotel and corresponding cost of travel expenses, and labor cost for working hours, etc. according to the seller's standards.

-The consumable parts are provided upon payment.

Ooitech Customer

S/N	Company	Country or region
1	EBTICAR SOLAR ***	Egypt (cairo)
2	GLOBAL*** FOR POWER	Egypt(NEW CAIRO)
3	Power *** Company (P.F.C.)	Egypt (Suez)
4	Solar One	Bahrain
5	Alghanim *** Inc.	SAUDI ARABIA(RIYADH)
6	SARL AURES SOLAIRE	Algeria
7	Almashreq for Industry	Syria
8	ACU*** Solar	India (Pune)
9	ADITYA ***	India(vadodara)
10	Vaayu Greens ***	India (kanpur)
11	DR ENTER***	India (karnal)
12	SUNUSA ***	India (hyderabad)
13	*** ELECTRONICS PVT ***	India (hyderabad)
14	Navitas *** Solutions Pvt. Ltd.	India (Surat)
15	Plaza Power	India(HP)
16	INFOTECH ***	Hungary
17	МамбеталиевСаматБактыбаевич	Kazakhstan (Taraz)
18	Chn constructores***	Mexico
19	Fiber ***** srl	Argentina
20	PT *** Innovative Lighting Indonesia	Indonesia
21	***Sparkpol ***	Poland
22	Tindo Solar	Australia
23	HISWILLCOMPANY Co,. LTD.	Korea
24	DONGSHIN POLYCHEM CO.,LTD.	Korea

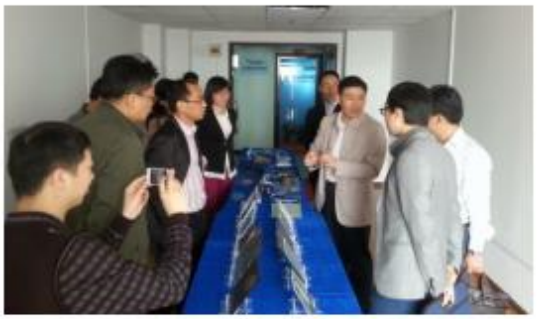
Company

Ooitech, founded in 2013, and aim to offer turnkey solar energy solution to world customer, with more than 10 years' experience in PV industry and industrial laser application. Our machines was exported to Poland, Hungary, Korea, Mexico, Egypt, Algeria, India, Saudi Arabia, Syria, Kazakhstan, etc countries. Ooitech service won many customer good praise.

Turnkey solution Includes:

- supply 5MW-500MW solar module production line
- Update Traditional PV line to newest MBB production line.
- Suggest Factory Construction

- Design facility layout
- Help customer choose Raw Materials
- Assist production procedure and install solar power station etc.



Certificate

Jessy Zhao

Wuhan Ooi Photoelectric Technology Co.,Ltd
Wuhan ooitech Trading CO,LTD

Email: jessy@ooitech.com
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TEL: +86-27-81779060 (F)
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Wechat: +8615926436350
WhatsApp: +8618571645990
Address: Building 1, Zixin Industrial Park, Yangguang Ave,Jiangxia Economic Development Zone, Wuhan of China.




发送图片到手机






Manufacturing Materials for the Solar PV Panels unit costs

Wuhan Ooitech Trading Co.,Ltd

Add: Building 1, Zixin Industrial Park, Yangguang Ave,Jiangxia, Wuhan of China

Website:http://www.ooitech.com Email: Jessy@ooitech.com

Mobile: +8615926436350 TEL:+862781779060

Raw Material COST

Mono 530w Half Cut Cell Solar Panel High Quality

Date:April 27th, 2022

Panel Power: 530w Size: 2279x1134mm QTY: 2400PCS Panels (1.272MW) Raw Materials

S/N	Description of Goods	Types	Quantity	UNIT PRICE (USD)	Amount (USD)
1	Class A Solar Cell	182x182 Mono >22.6% (144 PCS Layout)	172850 PCS	$1.10	$190,135
2	Tempered glass	2273x1128*3.2 mm	6153.466 ㎡	$4.30	$26,460
3	Back Sheet TPT	1130x0.3mm Tuv certificate	6328 ㎡	$1.75	$11,074
4	EVA High Transparent	1123x0.5mm F406P 480g/cm2 Tuv certificate	6288.80 ㎡	$2.20	$13,835
5	EVA UV-Cutoff Wavelength	1123x0.5mm F806P 440g/cm2 Tuv certificate	6288.80 ㎡	$2.00	$12,578
6	Junction Box -PottingType	3 Separate Box with 90cm cables Tuv certificate	2400 PCS	$3.40	$8,160
7	Sealant	400ml Tuv certificate	1600 KGS	$3.50	$5,600
8	JB Box Potting Glue	A & B	126 KGS	$9.00	$1,134
9	Solder Strip	Interconnected Solder Strip Busbar ribbon Tuv certificate	700 KGS	$16.00	$11,200
10	Aluminum frame	2279x1134mm 35*35mm	2400 Sets	$11.80	$28,320
11	High Temperature Sticker		500 Rolls	$0.25	$125
			Total	USD	$308,621

For a 10MW per year production line then multiply by a factor of 8 = USD $2,468,968 per year, which would produce the solar PV panels for lighting systems. It is suggested that the plant is used for 10% smaller 20w panels, 10% 30w panels production and 80% for the larger solar panels of 250w in size.

Remark:
1.The price is based on the FOB Shanghai port.
2.The production time is about 7 days.
3.Payment: 100% T/T in advance.
4. Raw Materials Price will change everyweek without notice.
5.Other material like Flux, customer better try to get from local.

Cost comparison - Larger Solar PV Panel cost examples

Factory Price **Solar Panels**, The Most **Cost**-Effective **Solar Panels** 80W-540W Mono Poly

US$ 0.2-0.26 / W (FOB Price)

100000 W (MOQ)

Warranty: 25 Years
Application: Agriculture
Number of Cells: 144PCS
Condition: New

Hebei Shaobo Photovoltaic Technology Co., Ltd. >

Factory Price 250W Standard 60 Cells 30V Monocrystalline **Solar Panel Cost**

US$ 102.38 / Piece (FOB Price)

100 Pieces (MOQ)

Warranty: 10 Years
Application: New Energy
Number of Cells: 72pcs
Condition: New

Zhejiang TTN Electric Co., Ltd. >

Buy High Efficiency Commercial Roof Top **Solar Panels Cost** 445W To 470W 800 Watt Price For Green House From China Direct

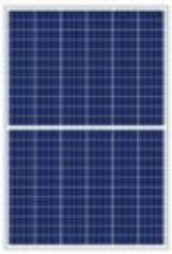
US$ 0.22-0.28 / Watt (FOB Price)

1000 Watt (MOQ)

After-sales Service: 25 Years
Number of Cells: 144cells
Warranty: 25 Years
Application: Industrial
More

SUNPAL POWER CO., LTD. >

Contact Now | Inquiry Basket | Chat with Supplier



High Quality Chinese Used **Solar Panel Cost Panel Solar** 600W 800W 1000W

US$ 0.2-0.25 / Watt (FOB Price)

1 Watt (MOQ)

After-sales Service: Yes
Number of Cells: 144PCS
Warranty: 25 Years
Application: Industrial

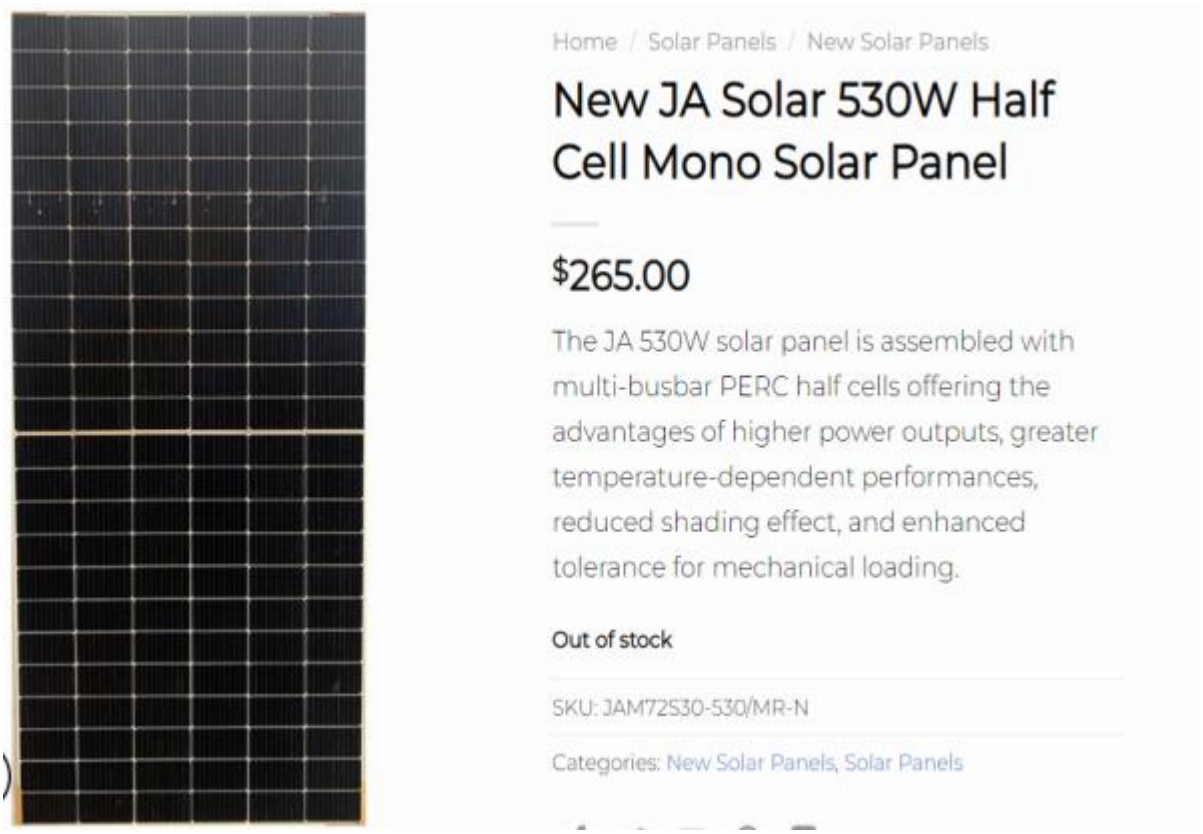
Xiamen Solar First Energy Technology Co., Ltd. >

Our material costs are $0.242626 per watt

SySCraft Limited & PSECC Ltd are submitting this proposal to UK AID “Manufacturing Africa” team for investment into this much needed venture. We have indicated cost comparison of our panels to be **manufactured in Kenya indicate a cost per watt of USD $0.26116** so a 250w panel would cost USD $65.29.

Once more we point out our manufacturing costs for the larger 250w panels each day will be $65.29 per panel and number of panels per year is 34,560 panels so manufacturing costs would be USD $65.29 x 34,560 is USD $2,256,422. Retail price is set at USD $120 per 250w panel is the profit of USD 54.71 per 250w panel = USD $ 1,890,777 per year. Our marketing department have identified a strong sales market - In a year, operational profit from the larger panels would be USD $1,890,777 or (USD $1.89 million) per year. However, if the panels were used in our Solar Farm projects, initially at the 25MW Solar Farm proposed for Nakuru then profits over a 25-year period from the Solar Farm are USD $90 million (USD $3.6 million each year on average).

Cost comparison – online product to purchase example



https://store.santansolar.com/

As a further comparison, if we did produce this Solar 530w panel

Then using our manufacturing cost per watt of USD $0.26116

Our manufacture of the 530w panel would cost USD $138.41 per panel.

Our Recommended Retail Price factor of approximately @ 2.0

Our retail price is USD $268 per 530w panel

Solar Home Solar Light system

Please use these figures in your financials.

Our manufacturing cost per watt for the Solar PV panels is USD $0.26116

20w panel cost USD $ 5.25
30w panel cost USD $ 7.87
250w panel cost USD $65.63

Recommended retail price for 250w panel would be USD $65.29 x 2 = USD $131.58,
our 250w panel will retail at USD $120

If we use factor of appx 2 to get top retail price.

So, for our 20w solar lighting system use the cost of USD $5.25 for the panel cost and then add on all our other material costs for the lights.

For our 30w solar lighting system use the cost of USD $7.87 for the panel cost and then add on all our other material costs for the lights.

Funding required is USD $5,853,325 plus the solar roof for the plant USD $146,675 for the Manufacturing, Assembly & Distributing plant totalling USD $6,000,000 - ROI 18%, and USD $11.2 million for the 10MW solar farm for Nakuru in Kenya ROI of 23%, totalling USD $17,200,000 over a ten-year loan period. If another Ghana solar farm is included then a further USD $23 million is required ROI 23% totalling USD $40.2 million.

Assembly

In year One we will have 69 Technical Assembly staff and Managers

Based on 250w panels

PAY-AS-YOU-GO (PAYG) TECHNOLOGY

Affordable PAYG will be the right technology to promote Syscraft Home products considering the income category and affordability in the targeted market is between low and middle income.

The report[23] in the Assembling & Distribution Business Plan identified two main barriers to adoption of renewable energy:

- The cost of installation and upfront costs
- The cost (or perceived cost) of maintenance and upkeep

People are unwilling to pay these large upfront costs. Additionally, those with low income are often reluctant to change from an existing system if there is a risk that costs may change. An average energy bill for those using wood, charcoal, grid electricity, or gas as their main energy source can be anywhere between 1,000 and 2,500Ksh per month, which could be as high as 10% of a household income.

We will ensure our products are better quality and more affordable for the poorer people, often in Rural communities with no electricity supply and to be paid for over a five-year period then the Lighting system is then owned by the people.

PAYG payment

This scheme people will be paying as low as 30shs every day plus a connection fee of 500 shs onetime 30 shs or 0.3 usd can be spread so that they either make the payments weekly or biweekly or even monthly depending on the plan that the customers use.so in response to the aspect of the livelihoods we have taken care of that and the longest duration for repayment will be 5 years.

USD $5 upfront payment commitment fee and then USD $ 0.3 every day.

On the starting point you will see the prepaid insurance premiums for the devices. For those devices that may get damaged or stolen or people who refuse to pay - based on %, meaning in 1st year the risk is more and gradually decreases towards 5th year.

25MW plant

Ratios	Year One	Year Two	Year Three	Year Four	Year Five
Liquidity					
Current Ratio	1.0	1.1	1.3	1.5	1.8
Quick Ratio	0.5	0.6	0.8	1.0	1.2
Safety					
Debt to Equity Ratio	10.2	4.6	2.7	1.8	1.2
Debt-Service Coverage Ratio - DSCR	0.1	0.1	0.2	0.1	0.2
Profitability					
Sales Growth	0.0%	5.0%	10.0%	10.0%	10.0%
COGS to Sales	58.4%	58.4%	58.4%	58.4%	58.4%
Gross Profit Margin	41.6%	41.6%	41.6%	41.6%	41.6%
SG&A to Sales	8.6%	8.7%	8.6%	8.7%	9.0%
Net Profit Margin	12.1%	12.7%	13.7%	14.4%	15.0%
Return on Equity (ROE)	100.0%	52.4%	38.3%	30.8%	26.0%
Return on Assets	9.0%	9.3%	10.3%	11.1%	11.6%
Owner's Compensation to Sales	0.8%	0.8%	0.9%	0.9%	1.1%
Return on Investment (ROI)	23%				

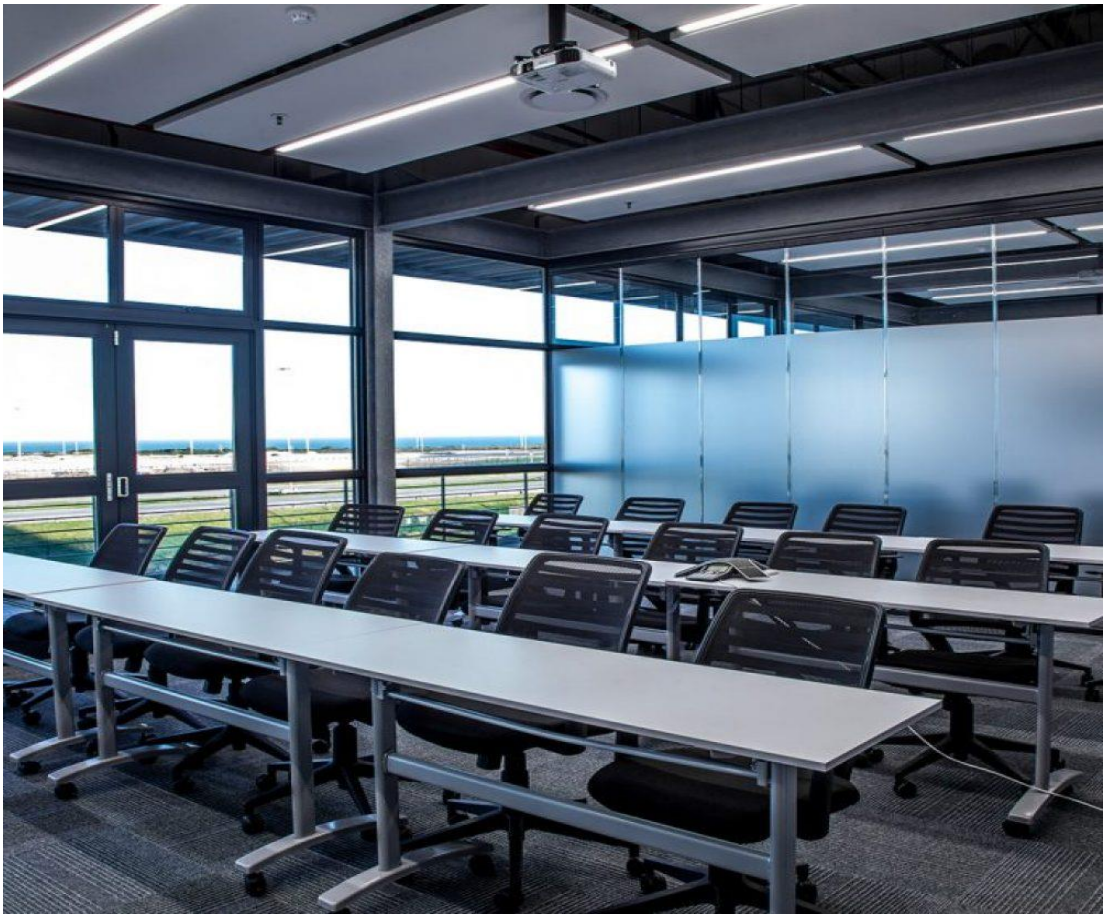
Please review - Assembly and distribution Financials excel for your perusal

Assembly start-up expenses (included in Manufacturing financials) – Assembly & Distribution have a separate set of financials to the Manufacturing Financials.

Start-up Expenses Year 1 (Starting Balance Sheet)					
Prepared By:	**Company Name:**				
FINANCE DEPARTMENT	SYSCRAFT LTD				
Fixed Assets	**Amount**	**Depreciation (years)**	**Notes**		
Real Estate-Land		Not Depreciated			
Real Estate-Buildings		20			
Leasehold Improvements	80,000	8			
Equipment	382,600	10			
Furniture and Fixtures	114,000	10			
Vehicles	228,600	4			
Plant & Machinery	836,661	5			
Total Fixed Assets	$ 1,641,861				
Operating Capital	**Amount**	**Notes**			
Pre-Opening Salaries and Wages	554,000				
Prepaid Insurance Premiums	7,753				
Inventory	6,523,888				
Legal and Accounting Fees	30,000				
Rent Deposits	32,821				
Utility Deposits	5,000				
Funding brokerage Fees	133,353				
Advertising and Promotions	10,000				
Licenses	20,000				
Other Initial Start-Up Costs	10,000				
Working Capital (Cash On Hand)	500,000				
Total Operating Capital	$ 7,826,815				
Total Required Funds	$ **9,468,676**				
Sources of Funding	**Percentage**	**Totals**	**Loan Rate**	**Term in Months**	**Monthly Payments**
Owner's Equity	0.00%				
Outside Investors	0.00%				
Additional Loans or Debt					
Commercial Loan	100.00%	9,468,676	8.00%	120	114,881
Commercial Mortgage	0.00%		9.00%	240	-
Credit Card Debt	0.00%		7.00%	60	-
Vehicle Loans	0.00%		6.00%	48	-
Other Bank Debt	0.00%		0.00%	60	-
Total Sources of Funding	100.00%	$ **9,468,676**	Cell D 42 must equal cell C31		$ 114,881
Total Funding Needed		$ -	You are fully funded (Balanced)		

Page 1

Distribution & Sales



PROMOTION

As there is awareness about the off-grid solar products in most of the counties, we will not have to invest time and energy in creating awareness about the product. However, we will promote our products through:

- Radio
- Billboard
- Branding of Shops/Agents Shop
- Social Media – Facebook, Bulk SMS
- Internet Sales sites
- Brochures

The promotion will highlight the quality and economical nature of our products. As the report points out, people are concerned about the reliability of the energy sources. The reliability factor of the solar product will be highlighted through these advertisements.

Solar Farms Potential

We have seen that if we were to use our larger 250w panels in a 10MW solar farm development at Nakuru requiring 40,000 panels for example then the revenue profit from the Solar Farm would be USD $30,992,875 over 20 years of operations. We could also have a total of 25MW solar farm at Nakuru requiring 100,000 panels. If we included a solar farm development, then an additional USD $11.2 million would be required with ROI of 12.08% or 25MW with 100,000 panels (see attached financials Appendix 2).

We have also been developing solar farms in Ghana, specifically at Simbrofo where we are proposing a 20MW Solar Farm with over 80,000 larger solar PV panels required. The Feasibility study for this project has been completed and an Electricity License was granted but will need to be renewed.

Kenya Solar Farms that can also be developed:

The University of Sheffield is working with us on a “Harvesting the Sun Twice project”, which provides other markets for our manufactured larger 250w solar PV panels.

While ground-mounted arrays of solar panels offer several benefits related to clean energy provision, they miss opportunities to deliver livelihood benefits in addition to electricity supply, and in some cases can detract from other development goals. For example, ground-mounted arrays remove land from food production, and at a time when crop yields are threatened by a changing climate, increasing populations and insecure land ownership, we cannot risk putting further pressure on land resources.

Agrivoltaic energy systems, however, can combine the delivery of solar electricity, crop production, and rainwater harvesting on the same land area. Instead of being mounted close to the ground like traditional solar power arrays, agrivoltaic systems are constructed several meters high, with gaps between the arrays, enabling crops to be grown underneath.

This concept could be incorporated into this Kenya project in a second development phase – for every 10MW solar farm we build in Kenya we could have one or more 500KW (2,000 panels) or larger projects below incorporated into the project.

We are in negotiations with Sunculture in Kenya to supply their solar PV panels for the farmers water irrigation systems

https://sunculture.com/

SALES AND MARKETING

Solar Farm Nakuru – Marketing have identified this as a potential project.

For sales of our product, we will rely on modern as well as traditional approaches. We will have three types of engagement/point of contact in the market with customers to include:

- Call Centre - This will be domiciled at the head office for the main purpose of allowing customers to call in case of related queries on the solar products,
- Energy Officers – This will be the team on the ground walking into the rural homes of the potential customers for product sensitization.
- Agents – This will be recruited as existing local shops who are present in the specific county locations.

We will have a dedicated call centre to reach out to the customers to generate leads and hand it over to our field executives (Energy Officers). Apart from generating leads, call centre agents will also be managing customer queries and complaints. We will have a sales team on the field for door-to door-marketing. They will be our foot soldiers to reach the customers. Our agents will be at small kiosks, supermarkets, or shops. They will display our products and generate awareness and interest among the intended customers. They will pass on the lead to our call centre team once they identify if any customer is interested in our products.

There is also a marketing potential to own solar farms to guarantee secure markets for our larger 250w panels for the next twenty-years and more.

Financials - Manufacturing Plant Costs for 10MW production - Solar Home system panels & larger 250w panels for solar farms. (Review Appendix 1)

Start-up Expenses Year 1 (Starting Balance Sheet)

Prepared By:	Company Name:
FINANCE DEPARTMENT	SYSCRAFT LTD

Fixed Assets	Amount	Depreciation (years)	Notes
Real Estate-Land		Not Depreciated	
Real Estate-Buildings		20	
Leasehold Improvements	80,000	8	
Equipment	382,600	10	
Furniture and Fixtures	114,000	10	
Vehicles	228,600	4	
Plant & Machinery	836,661	5	
Total Fixed Assets	$ 1,641,861		

Operating Capital	Amount	Notes
Pre-Opening Salaries and Wages	554,000	
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Inventory	6,523,888	
Legal and Accounting Fees	30,000	
Rent Deposits	32,821	
Utility Deposits	5,000	
Funding brokerage Fees	133,353	
Advertising and Promotions	10,000	
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Total Operating Capital	$ 7,826,815	
Total Required Funds	$ 9,468,676	

Page 1

Sources of Funding	Percentage	Totals	Loan Rate	Term in Months	Monthly Payments
Owner's Equity	0.00%				
Outside Investors	0.00%				
Additional Loans or Debt					
Commercial Loan	100.00%	9,468,676	8.00%	120	114,881
Commercial Mortgage	0.00%		9.00%	240	-
Credit Card Debt	0.00%		7.00%	60	-
Vehicle Loans	0.00%		6.00%	48	-
Other Bank Debt	0.00%		0.00%	60	-
Total Sources of Funding	100.00%	$ 9,468,676	Cell D 42 must equal cell C31		$ 114,881
Total Funding Needed		$ -	You are fully funded (Balanced)		

Revenue

In this case we have one factory outlet which is more like the headquarters in Nairobi. For ease of distribution and taking the solar to the rest of the country we are working on a warehouse for distribution to the other parts of the country (Up-country) in three locations (Nakuru /Kisumu/ Eldoret) thus the two items for rent/lease, the same applies for service charge.

Cashflow (Please see full financials in Appendix 1)

	Cash Flow Forecast Years 1-5					
	Prepared By:					
	FINANCE DEPARTMENT					
	Year 1 Totals		Year 2 Totals	Year 3 Totals	Year 4 Totals	Year 5 Totals
Beginning Balance						
Cash Inflows						
Cash Sales	$ 583,920		$ 613,116	$ 674,428	$ 741,870	$ 816,057
Accounts Receivable	$ 8,807,460		$ 10,950,933	$ 11,960,871	$ 13,156,958	$ 14,472,654
Total Cash Inflows	$ 9,391,380		$ 11,564,049	$ 12,635,299	$ 13,898,829	$ 15,288,712
Cash Outflows						
Investing Activities						
New Fixed Asset Purchases	$ -		$ -	$ -	$ -	$ -
Additional Inventory	$ -		$ -	$ -	$ -	$ -
Cost of Goods Sold	$ 1,268,073		$ 7,126,653	$ 7,802,363	$ 8,582,599	$ 9,440,859
Operating Activities						
Operating Expenses	$ 580,779		$ 601,323	$ 622,641	$ 644,761	$ 667,718
Payroll	$ 423,600		$ 465,960	$ 535,854	$ 643,025	$ 803,781
Taxes	$ 674,780			$ 860,614	$ 987,439	$ 1,116,764
Financing Activities						
Loan Payments	$ 1,378,574		$ 1,378,574	$ 1,378,574	$ 1,319,951	$ 1,247,911
Owners Distribution	$ -		$ -	$ -	$ -	$ -
Line of Credit Interest	$ -		$ -	$ -	$ -	$ -
Line of Credit Repayments	$ -		$ -	$ -	$ -	$ -
Dividends Paid	$ -		$ -	$ -	$ -	$ -
Total Cash Outflows	$ 4,325,806		$ 9,572,510	$ 11,200,046	$ 12,177,775	$ 13,277,032
Net Cash Flows	$ 5,065,574		$ 1,991,539	$ 1,435,253	$ 1,721,054	$ 2,011,680
Operating Cash Balance						
Line of Credit Drawdown	$ -		$ -	$ -	$ -	$ -
Ending Cash Balance						
Line of Credit Balance						

Page 1

If we were to use those panels in a 10MW solar farm development at Nakuru in Kenya then the **revenue profit** from the Solar Farm would be USD $39,325,365 over 25 years of **operations.**

Balance Sheet Years 1-5

Prepared By:	**Company Name:**
FINANCE DEPARTMENT	SYSCRAFT LTD

ASSETS	**First Year**	**Second Year**	**Third Year**	**Fourth Year**	**Fifth Year**
Current Assets					
Cash	5,565,574	6,821,080	8,256,333	9,977,386	11,989,066
Accounts Receivable	1,703,100	1,788,255	1,967,081	2,163,789	2,380,167
Inventory	6,523,888	6,523,888	6,523,888	6,523,888	6,523,888
Prepaid Expenses	634,341	475,756	317,171	158,585	-
Other Initial Costs	8,000	6,000	4,000	2,000	-
Total Current Assets	**$ 14,434,904**	**$ 15,614,979**	**$ 17,068,472**	**$ 18,825,648**	**$ 20,893,121**
Fixed Assets					
Leasehold Improvements	80,000	80,000	80,000	80,000	80,000
Equipment	382,600	382,600	382,600	382,600	382,600
Furniture and Fixtures	114,000	114,000	114,000	114,000	114,000
Vehicles	228,600	228,600	228,600	228,600	228,600
Other	836,661	836,661	836,661	836,661	836,661
Total Fixed Assets	**$ 1,641,861**	**$ 1,641,861**	**$ 1,641,861**	**$ 1,641,861**	**$ 1,641,861**
(Less Accumulated Depreciation)	$ 284,142	$ 568,285	$ 852,427	$ 1,136,569	$ 1,420,711
Total Assets	$ 15,792,622	$ 16,688,555	$ 17,857,906	$ 19,330,940	$ 21,114,271
LIABILITIES & EQUITY					
Liabilities					
Accounts Payable	5,554,411	5,591,366	5,668,972	5,754,338	5,848,241
Commercial Loan Balance	8,824,310	8,126,461	7,370,691	6,614,921	5,859,151
Line of Credit Balance	-	-	-	-	-
Total Liabilities	**$ 14,378,720**	**$ 13,717,827**	**$ 13,039,663**	**$ 12,369,259**	**$ 11,707,392**
Equity					
Common Stock	-	-	-	-	-
Retained Earnings	1,413,902	2,970,729	4,818,244	6,961,682	9,406,879
Dividends Dispersed/Owners Draw	-	-	-	-	-
Total Equity	**$ 1,413,902**	**$ 2,970,729**	**$ 4,818,244**	**$ 6,961,682**	**$ 9,406,879**
Total Liabilities and Equity	$ 15,792,622	$ 16,688,555	$ 17,857,906	$ 19,330,940	$ 21,114,271
Balance sheet in or out of balance?	$ -	$ -	$ -	$ -	$ -
	Balanced!	Balanced!	Balanced!	Balanced!	Balanced!

Page 1

Solar Farm Nakuru – Kenya - Marketing have identified this as a potential project

REPUBLIC OF KENYA
OFFICE OF THE GOVERNOR
NAKURU COUNTY

Telephone: Nakuru 2214142
E-mail: nakurucounty.governor@gmail.com

OFFICE OF THE GOVERNOR
NAKURU COUNTY

When replying please quote

P.O. BOX 2870-20100
NAKURU.

Ref: CGN/RKR/RMM/2014/001

Att. Joseph Mwai and Alan Brewer Msc 59th Floor,

parking complex, NHIF building, Ragat Road, Upper Hill,

Nairobi.

RE: AUTHORIZATION TO INTERACT AND EXPLORE IN SOLAR ENERGY.

Nakuru County have got great potential of solar energy especially in Naivasha, Rongai and Subukia areas where sunlight intensity is high.

Several companies have shown interest in partnering with Nakuru County in developing solar energy as this will go a long way with boosting the ambition of the ministry of energy in production of 6000 MW of energy.

We wish to invite your company to also explore along with others the most possible way of tapping this important resource.

Yours faithfully

RICHARD KIPSANG ROP

C.E.C – ENREW NAKURU COUNTY

Cc

H.E The Governor, OGW, GBS

Nakuru County

DESCRIPTION OF PROJECT AREA – 100,000 x 250w solar PV panels = 25MW Solar Farm

SySCraft Ltd Marketing have identified this as good for sales

Project location with coordinates and relevant site maps.

The project will be in Mai Mahiu area of Nakuru County. It is adjacent to the Mai Mahiu shopping centre to the North and the kikuyu escarpment and forest to the East.

Its geographical coordinates are within the range of 0° 58'16.55"S 36 ° 35'15.91"E.

The land consists of four different but adjacent parcels of land which are owned by Kiragu Kubai on free hold titles. The four parcels of land which make up the total land area of 100 acres (40.46 Hectares or 404, 687m2) – please refer to map for location details.

This project is known as the Proposed Mai Mahiu Solar Power Generation Plant. It is located adjacent to Mai Mahiu Shopping Centre, approximately 300m off the Old Naivasha Road and address is Kubai Farm, Kijabe/ Kijabe (Mai Mahiu) Block 3245, Kijabe Mai Mahiu Road, Nakuru, Kenya.

We submitted in May 2015 our FIT EOI form for our 25MW Solar Farm in Nakuru to the Government panel and were successful in our application and have been waiting for the Certificate to be issued and signed and are hoping you may be able to elevate this to a matter of importance and get the certificate issued to us to proceed our project forward.

A pre-feasibility study of a solar power plant project was carried out by us Eco Plan Kenya Ltd, the appointed Consultancy Company in May 2015 to study and search the best location to install a concentrated solar power plant in Nakuru. The investors were determined to obtain a site with a maximum possible irradiation.

This Solar Farm complements Kenya's Vision 2030 the National Development blueprint, initiated to transform the Country into a newly industrializing, middle-income economy by the year 2030. The Vision is founded on three pillars of economic, social, and political development. Currently, energy shortages and supply disruptions coupled with high cost remain serious obstacles to the manufacturing sector (GoK, 2012a). The main objective of this project is to generate power and to feed it into the National Grid and in return earn revenue through PPA agreement with the electricity distributer which is in this case the Kenya Power and Lighting Company Ltd.

Schools Solar Project – (review full project detail in Appendix 3).

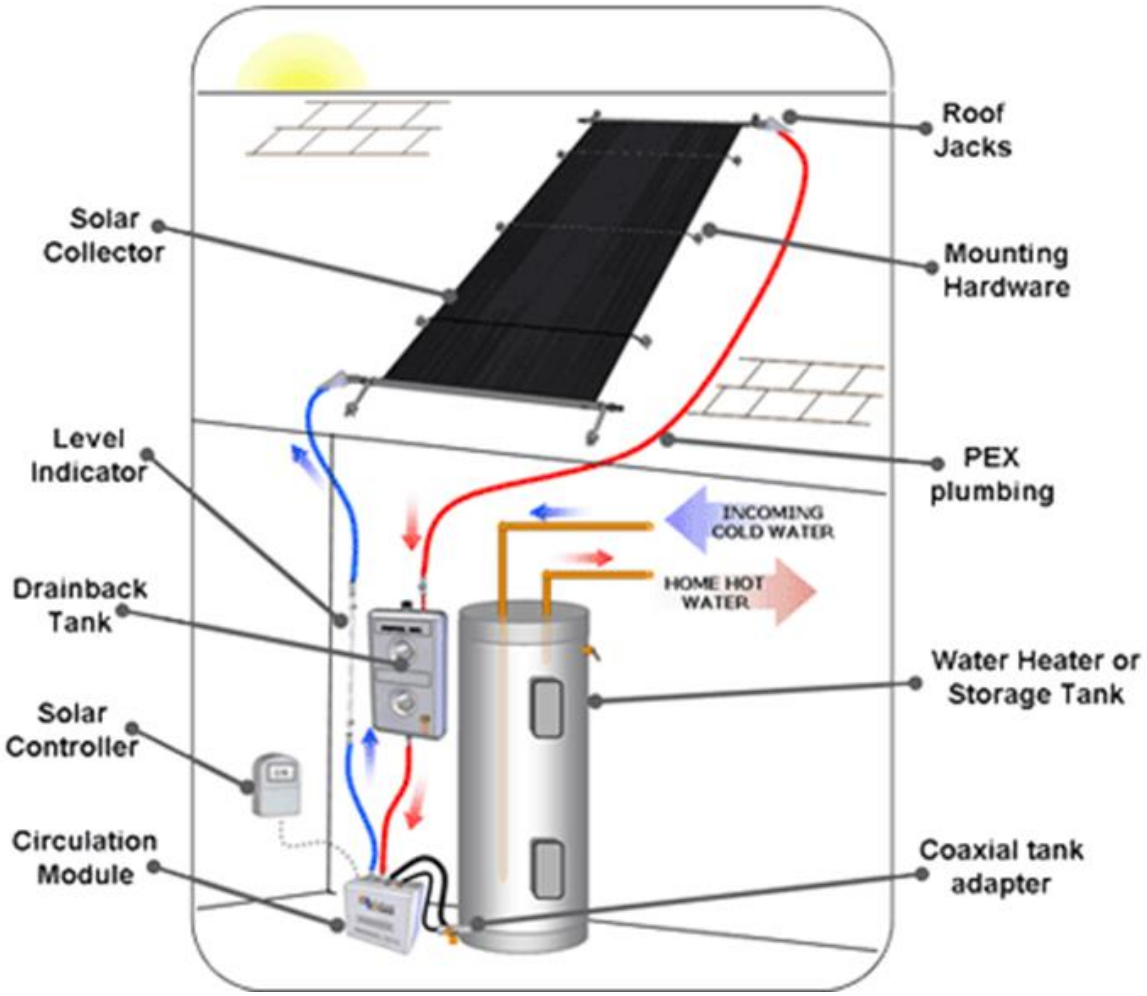
One of our systems in Ghana

Solar PV system for each school - 250w panels

SOLAR HEATED BATHING WATER IN GIRLS' SECONDARY SCHOOLS IN NYERI COUNTY KENYA

A project proposal in renewable energy to reduce schools' carbon footprint at the same time safeguarding student's health and enabling comfortable learning environment.

If they are using charcoal or firewood they will calculate 70% cost they used to purchase charcoal or firewood as total cost saved. If they are now using electricity you save 0.8 kwh per student every 6 minutes.


Roof Jacks
Solar Collector
Mounting Hardware
Level Indicator
PEX plumbing
INCOMING COLD WATER
HOME HOT WATER
Drainback Tank
Water Heater or Storage Tank
Solar Controller
Circulation Module
Coaxial tank adapter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