SOLAR POWER GENERATING SYSTEM FOR YARDLEY FARMS **5755 SW RANCHITO STREET, PALM CITY, FLORIDA**

LATITUDE 27.136730 N; LONGITUDE -80.331430 W

The Plan is to install a full solar electricity generating capacity at Yardley Farms in Palm City, Florida. The rising cost of FPL services and planned future increases make this economically justifiable. The off-grid capacity will generate up to 120% of current demand.

The system will be rack mounted on the north property line which receives full sun approximately 50% of the day during peak months and some 7 hours during winter period.

159 panels can be installed in a parallel configuration and preliminary design calls for them to be 440 Watt units each capable of producing 70 kw. They will be mounted in 5 banks connected to 5 inverters servicing 32 panels each and will be connected to 5 controllers. The power will supply 13 battery units installed in a dedicated concrete utility building which in turn will be connected to the grid and a 30KW gas backup generator.

Power generated during the day will both provide the facility power needs and charge the battery packs. During hours of no or reduced solar capacity, the back-up batteries will supply all the power required by the facility. For the purposes of this estimate, it is assumed there are an average of 5 hours of full sun.

The material costs are estimated to be:

•	Panels: 159	\$ 32,500

•	Rack:	5	\$ 21,875

- \$ 60,000 • Inverters: 5
- \$ 81,500 \$ 41-5 • Batteries: 13
- Miscl supplies: \$ 4,125
 - Total; **\$200,000**

Installation time is expected to be 4 months and labor costs are estimated at \$20,000. An additional cost of **\$9,000** is expected for engineering and permitting expenses and the gas generator set with tank will cost approximately \$10,000. The Total is expected to be around **\$240,000**. Or approximately \$3.43 per Watt.

At current rates of \$.14 per Kwh, assuming no allowance for sale of excess production to the Grid, the payback time is under 20 years. Assuming a sale of excess to the Grid, the payback time would be reduced to as little as 15 years.

If the install is done by the 501(C)3 entity, Macaw Rescue Inc, then the 30% tax credit would be in the form of a refund lowering install cost to \$180,000 and reduce cost per Watt to

\$2.57 and lower payback time to 12.3 years without allowance for depreciation. Applying for available Grants from the State or private donors could reduce the cost even more.

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The installation is contemplated as a commercial install by the Tax Exempt entity. This would require that the electric bill from FPL be to the Tax Exempt entity and be billed at commercial rates. For this to be reality, the property would need to be in the name of the Tax Exempt authority as well.

At present, FPL has been actively trying to get legislation passed to eliminate any buy-back requirements. Residential systems are restricted to 50,000 KwH

The following data was developed for the 2022-2023 year. The 2025 data is included for



comparison on the next page: The installation would be as depicted in the above aerial image:

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SOLAR ENERGY FACT SHEET

PEAK 15 Minute Demand: 30.4 kWh

2022 ENERGY USE (kWh): 83,800

(5.67 to AVERAGE 6.23 PEAK SUN)

AVERAGE MONTHLY USE: 6,838 (\$948.19) AVERAGE HOURLY USE: 8 kWh (\$1.11)



PREFERRED PANELS: SUNPOWER, MAXECON 6 AC, (440 W, 22.8% EFFICIENCY) 140 EACH GENERATING 61.6 kWh.@ \$219 EACH

PREFERRED MOUNTING: RACK 250' X 13' dual row 70 units South facing (declination -7.2 degrees/Tilt angle 17 degrees) \$2,800 EA

PREFERRED BATTERY: ENPHASE IQ 10.8 kWh 10 EACH @\$6,749 + ENPHASE SYSTEM CONTROLLER 4

PREFERRED INVERTER: SMA Sunny Highpower SHP 125-US-21 PEAK3 String Inverter, 4 ea \$11,250 ea

PREFERRED GENERATOR BACKUP: GENERAC 30 KW (NATURAL GAS) 1 EACH W/500 GALLON TANK UNDERGROUND @\$15,000

5755 SW RANCHITO STREET, PALM CITY, FLORIDA

LATITUDE 27.136730 N; LONGITUDE -80.331430 W

ENERGY USE	AGE							
5755 SW RANCHITO STREE	т							
PALM CITY, FL 34990-5257		SEPTEMBER	MONTHLY	PEAK 15 M		DEMAND	12.9 KW	
FPL ACCOUNT								
13 MONTH	396 DAYS							
2022-2023 COM	PARISON				30-Sep	-23		
MONTH	KwH			FROM	TO	KwH		
AUGUST	9532		AM	12	1	10		
SEPTEMBER	7556			1	2	11		
OCTOBER	5915			2	3	11	NO	
NOVEMBER	5478			3	4	10	SUN	
DECEMBER	6416			4	5	11		
JANUARY	6347			5	6	10		
FEBRUARY	5509			6	7	14		
MARCH	6501			7	8	13		
APRIL	6279			8	9	16		
MAY	7439			9	10	14		
JUNE	9320			10	11	14		
JULY	9167		PM	11	12	15	PEAK	
AUGUST (AUG 9 - SEP 9)	10605			12	1	13	SUN	
TOTAL KwH	96,064			1	2	12		
				2	3	12		
MONTHLY AVERAGE	7,390			3	4	13		
DAILY AVERAGE	243			4	5	14		
HOURLY AVERAGE	10			5	6	15		
				6	7	15		
				7	8	11		
				8	9	12	NO	
				9	10	10	SUN	
				10	11	9		
				11	12	9		
			1	TOTAL KwH		294		
			HOURLY	AVERAGE K	wН	12		
			TOTAL S	UN PERIO	D USEA	166	14	PER HOUR
			TOTAL N	ION-SUN P	ERIOD	119	11	PER HOUR

2022-2023 ENERGY USE DATA

5755 SW RANCHITO STREET, PALM CITY, FLORIDA

LATITUDE 27.136730 N; LONGITUDE -80.331430 W

ENERGY USE	AGE							
5755 SW RANCHITO STREE	т							
PALM CITY, FL 34990-5257		JUNE	MONTHLY	PEAK 15 MIN	UTE DEMAND		14.6 KW	
FPL ACCOUNT								
14 MONTH	427 DAYS							
2024-2025 COM	PARISON				20-lun-25			
MONTH	KwH		FROM		TO	KwH		
MAY	10,498		AM	12	1	11		
JUNE	9,776			1	2	10		
JULY	9,299			2	3	10	NO	
AUGUST	9,889			3	4	10	SUN	
SEPTEMBER	8,514			4	5	9	1.1.1	
OCTOBER	6,272			5	6	9		
NOVEMBER	6,189			6	7	12		
DECEMBER	6,146			7	8	14		
2024 Total	66,583			8	9	12		
JANUARY	6,513			9	10	13		
FEBRUARY	6,182			10	11	13		
MARCH	7,079		PM	11	12	16	PEAK	
APRIL	7,660			12	1	18	SUN	
MAY	9,129			1	2	19		
JUNE	10,277			2	3	19		
2025 Total	46,840			3	4	19		
TOTAL KWH	113,423			4	5	20		
				5	6	20		
MONTHLY AVERAGE	8,102			6	7	19		
DAILY AVERAGE	266			7	8	16	i	1
HOURLY AVERAGE	11			8	9	17	NO	
performance and an and a second second				9	10	15	SUN	
				10	11	14		
				11	12	13		i.
			то	TAL KwH		348		
AND 2022 INCREASE	100/			EDAGE K. H		10.50		1
over 2023 INCREASE	1870	3	HOUKLY AV	ERAGE KWH		14.50		
			TOTAL SU	N PERIOD U	ISEAGE	202	17	PER HOUR
			TOTAL NO	N-SUN PER	IOD USEAGE	146	13	PER HOUF

2024-2025 ENERGY USE DATA

SOLAR POWER GENERATING SYSTEM FOR YARDLEY FARMS 5755 SW RANCHITO STREET, PALM CITY, FLORIDA LATITUDE 27.136730 N; LONGITUDE -80.331430 W

MAXEON 6 POWER: 420-440 W | EFFICIENCY: Up to 22.8%

	Electrical Data					
	SPR-MAX6-440	SPR-MAX6-435	SPR-MAX6-425	SPR-MAX6-420		
Nominal Power (Pnom) 9	440 W	435 W	425 W	420 W		
Power Tolerance	+5/0%	+5/0%	+5/0%	+5/0%		
Panel Efficiency	22.8%	22.5%	22.0%	21.7%		
Rated Voltage (Vmpp)	40.5 V	40.3 V	39.8 V	39.6 V		
Rated Current (Impp)	10.87 A	10.82 A	10.68 A	10.62 A		
Open-Circuit Voltage (Voc) (+/-3%)	48.2 A	48.2 V	48.1 V	48.1 V		
Short-Circuit Current (Isc) (+/-3%)	11.58 V	11.57 A	11.55 A	11.53 A		
Max. System Voltage		1000 \	/ IEC			
Maximum Series Fuse		20	A			
Power Temp Coef.	−0.29% / °C					
Voltage Temp Coef.	-0.239% / ℃					
Current Temp Coef.	0.057% mA / °C					

Operating Condition And Mechanical Data				
Temperature	-40°C to +85°C			
Impact Resistance	25 mm diameter hail at 23 m/s			
Solar Cells	66 Monocrystalline Maxeon Gen 5			
Tempered Glass	High-transmission tempered anti- reflective			
Junction Box	IP-68, TE (PV4S), 3 bypass diodes			
Weight	21.8 kg			
Design Load	Wind: 3600 Pa, 367 kg/m ² back Snow: 5400 Pa, 611 kg/m ² front			
Frame	Class 1 black anodized (highest AAMA rating)			

Tests And Certifications			
Standard Tests 10	IEC 61215, IEC 61730		
Quality Management Certs	ISO 9001:2015, ISO 14001:2015		
Ammonia Test	IEC 62716		
Desert Test	IEC 60068-2-68, MIL-STD-810G		
Salt Spray Test	IEC 61701 (maximum severity)		
PID Test	1000 V: IEC 62804		
Available Listings	TUV		

	⊲ 1872 mm	 40 mm -►
1032 mm		

FRAME PROFILE



(A) Cable Length: 1320 mm +/-10 mm (B) Long Side: 32 mm Short Side: 24 mm

Please read the safety and installation guide.

Sustainability Tests and Certifications			
IFLI Declare Label	First solar panel labeled for ingredient transparency and LBC- compliance. ¹¹		
Cradle to Cradle Certified [™] Bronze	First solar panel line certified for material health, water stewardship, material reutilization, renewable energy & carbon management, and social fairness. ¹²		
Green Building Certification Contribution	Panels can contribute additional points toward LEED and BREEAM certifications. ¹³		
EHS Compliance	RoHS, OHSAS 18001:2007, lead free, REACH SVHC-163		

5755 SW RANCHITO STREET, PALM CITY, FLORIDA

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Product Sp	pecification	Table:
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Feature	Specification
Model	SHP 125-US-21
Manufacturer	SMA
Inverter Type	String Inverter
Тороlogy	Transformerless
Rated AC Power Output	125 kW
Max Apparent Power	125 kVA
Nominal AC Voltage	480 V (3-phase)
Rated Grid Frequency	60 Hz (50 Hz / 60 Hz range: -6 Hz to +6 Hz)
Max DC Input Voltage	1500 VDC
Rated MPP Voltage Range	705 V – 1450 V
MPPT Operating Voltage Range	684 V – 1500 V
Number of MPP Trackers	1
Max Operating DC Input Current	180 A
Max Input Short-Circuit Current	325 A
Max Permissible DC Array Power	Up to 200% of nominal AC power (via site modeling)
CEC Efficiency	98.5%
Enclosure Protection Rating	Type 4X
Operating Temperature Range	-25°C to +60°C (-13°F to +140°F)
Cooling Concept	OptiCool (Forced convection, variable speed fans)
Audible Noise Emission (full power @ 1m and 25°C)	< 69 dB(A)
Dimensions (W x H x D)	770 x 830 x 462 mm (30.3 x 32.7 x 18.2 in)
Weight	99 kg (218 lbs)