Exhibit A

Mobisoft Remote Server Web Hosting of the Geomosquito Database (Current active database and archive database) and Employee Phone Application

Mobisoft will provide secure remote hosting of the Mobisoft Geomosquito Database (current active database and archive database) and the Geomosquito Employee Phone Application. The contract will be billed on an annual basis at $3,000.00. The contract will run from the first day of the first month (1) to the last date of the twelfth (12) month (one (1) year).

The remote servers will be secure and will have twenty-four (24) hours a day, seven (7) days a week, three hundred sixty-five (365) days a year access. Mobisoft will provide the same uptime guarantee as given by the cloud service provider. The remote server will have a secondary backup server to guarantee uninterrupted service.

Data and access to data will be both on the cloud based, Mobisoft supported server and also stored on AMCD's server. The Mobisoft Geomosquito Database (current active database and archive database) and the Geomosquito Employee Phone Application is guaranteed to function on both platforms (cloud based (remote server) hosted by Mobisoft and the AMCD server). AMCD will be provided the log in information, passwords and procedures for access to servers and log in information and passwords for access to the Database data and Employee Phone Application data.

Exhibit B

Mobisoft Software Maintenance Contract for the Geomosquito Database (Current active database and archive database) and Employee Phone Application

Mobisoft will provide maintenance and regular upkeep of the Mobisoft Geomosquito Database (current active database and archive database) and the Geomosquito Employee Phone Application. The contract will be billed on an annual basis at $2,400.00. The contract will run from the first day of the first month (1) to the last date of the twelfth (12) month (one (1) year).

Emergency service for loss or outage of one of the contracted software packages will be provided on a twenty-four (24) hours a day, seven (7) days a week, three hundred sixty-five (365) days a year basis. Normal problems and upgrades will be handled during normal business hours (seven (7) AM EST to three (3) PM EST Monday through Friday).

Twenty four (24) billable work hours of service on the Mobisoft Geomosquito Database (current active database and archive database) and twenty four (24) billable work hours of service on the Geomosquito Employee Phone Application will be included in the contract price per each contract year. The contract price includes maintaining and web address(es), data base and/or software license(s), Apple and/or iPhone license(s) and ensuring that the web address(es) and license(s) remain current and up to date.

Any web address for the Mobisoft Geomosquito Database (current active database and archive database) and the Geomosquito Employee Phone Application will be updated from development (dev.) to a normal operating web address and will be secure sites (https).

Any billable time will be credited or billed on a monthly basis. Timesheets will be provided to AMCD on a monthly basis for approval of time spent on the software maintenance. Hours worked will be invoiced after approval of the timesheets. Time spent on the Mobisoft Geomosquito Database (current active database and archive database) will be billed separately on the invoice from the Geomosquito Employee Phone Application time allowing AMCD to track the number of hours used from the annual contracted hours and the number of additional hours billed at the hourly rate.

Hourly billable rate billed above the twenty four (24) hours allowable under this contract for the Mobisoft Geomosquito Database (current active database and the twenty four (24) hours under this contract for the Geomosquito Employee Phone Application will be billed at a rate of:
Additional maintenance preformed on the Database: $40.00 per hour
Additional maintenance preformed on the Employee Phone Application: $40.00 per hour

Mobisoft will assign one (1) employee contact to manage service on the Database (current active database and archive database) and the Employee Phone Application. AMCD will be given a name, contact phone number and email address for the employee assigned to the service contract. This Mobisoft employee will be the point of contact and be responsible for

addressing issues with the software, issuing timesheets, directing and preforming repairs, implementing updates, organizing scheduling and communication with AMCD on all technical issues relating to the service contract. Legal issues, contract negotiation, invoicing and price quotes for service and sales may be the responsibility of any Mobisoft employee or department.

Exhibit C

Mobisoft and MGIS will Maintain a Professional Relationship and Keep the Dependent Software Systems Functioning

Mobisoft Infotech LLC will cooperate with and maintain a professional relationship with MGIS in order to keep all related software programs and platforms working properly and functioning correctly.

Mobisoft is providing the:

- Mobisoft Geomosquito Database (current active database and archive database).
- Mobisoft Geomosquito Employee Phone Application (iPhone).

MGIS is providing the:

- MGIS Geomosquito Mapping Solution.
- MGIS Geomosquito Public Service Request Phone Application (iPhone & Android).

This relationship will include hosting Exhibit A and Software Maintenance Exhibit B, each contractor (Mobisoft and MGIS) will be responsible for the hosting and maintenance of their own software programs. Any hosting cost or maintenance work and/or cost affecting both parties will be billed at the parties' respective hourly rate for the affected software programs. If such costs are due to regular maintenance of the programs, the costs will be absorbed by the contractors (Mobisoft & MGIS), if such costs are due to a request of AMCD, the cost will be the responsibility of AMCD.

AMCD Fiscal Year October 1, 2020 to September 30, 2021

For Year End 2021 BUDGET CALENDAR
By Dr. Rui-De Xue

Form DR-420 (certification of taxable value) will be provided by the St. Johns County Property Appraiser **(July 1,** at the latest). The District must complete and return the DR-420 to the Property Appraiser, including current year proposed millage rate and a rolled-back rate. A "proposed" millage rate must be presented to the Property Appraiser within the 35 days (Before **August 4**). Therefore, the District staff must have its budget completed no later than June 30th for the Board to provide final approval and determine the tentative millage rate at its regular **July 09, 2020** Board meeting.

DACS work plan budget deadline: **July 15, 2020**. Annual certified budget due: **September 30, 2020**.

FY 2020/2021 BUDGET CALENDAR

DATE	GUIDELINES FOR COMPLETING THE BUDGET
Feb/Mar	**Board approves the budget calendar** & major work plan. Input from committees, commissioners, management, & staff regarding items needed for the budget year
April	Board provides guidelines for raise (cost for living & merit raise) Prepare draft budget for operating expenses, aerial contracts and capital outlay items. Salary schedule & benefit information presented to the Board for input and approval.
May	Budget workshop Board discussion/input on draft Budget & staff finalizes the Budget
June	TRIM training/Board approves draft Budget and DACS work Plan Budget (draft)
July	District staff calculates revenue from DR-420 after receiving. The Board determines the proposed millage for filling DR-420 and budget and determines the date and time for the tentative budget hearing. Board meeting is **July 09, 2020, DACS Work Plan Budget is Due July 15, 2020**.
August	Return form DR-420 including proposed millage rate and rolled-back Rate before **August 2, 2020**.

September	The First Public Budget Hearing Date: **September 10, 2020 (5:30 P.M.)**, as it must be after 5:05 P.M. Not the same day as the School Board. The District will (1) amend & adopt the tentative budget, re-compute it's proposed millage rate, and publicly announce the percentage; (2) adopt a tentative millage & budget; and (3) keep the proposed millage rate for final rate. If any increase, the District has to notify each taxpayer by first class mail. If the District reduces the rate, no action is needed. The Final Public Budget Hearing within 15 days**: Sept 24, 2020, 5:30 P.M.),** as it must be after 5:05 P.M. The District shall advertise (St. Augustine Record) its intent to adopt a final millage rate and budget, and publish it on **September 19th or 20th, 2020 preferably, but no earlier than 5 days or no later than 2 days before the Final Public Hearing.** Final Public Hearing to adopt a final millage rate & budget shall be held between 2-5 days after the day the advertisement is first published.
September 30	**Annual certified budget for DACS is due.**
September 30	Deliver the Resolution, adopting the final millage rate, to the County Property Appraiser, the Tax Collector and the Florida Department of Revenue (TRIM Division).
September 30	End of FY 2019-2020 Budget
October 1	FY 2020-2021 Budget starts.
October 10	Submit the completed TRIM package (Form DR-487) to Florida Department of Revenue, Property Tax Administration, TRIM Compliance Section, P.O. Box 3000, Tallahassee, FL 32315-3000

NICOLE "NIKKI" FRIED
COMMISSIONER

Florida Department of Agriculture and Consumer Services
Division of Agricultural Environmental Services

ARTHROPOD CONTROL BUDGET AMENDMENT

Section 388.361, F.S. and 5E-13.027, F.A.C.
Telephone (850) 617-7911; Fax (850) 617-7939

Submit to:
Mosquito Control
3125 Conner Blvd, Suite E
Tallahassee, FL 32399-1650

...STATEMENT EXPLAINING AND JUSTIFYING THE PROPOSED CHANGES SHOULD ACCOMPANY EACH APPLICATION FOR BUDGET AMENDMENT. USE PAGE TWO FOR THIS PURPOSE.

Amendment No. 2020-03 **Fiscal Year:** 2019-20 Date: 2/13/2020

Amending: Local Funds_X_State Funds__(Check appropriate fund account to be amended. Use a separate form for each fund). The Board of Commissioners for Anastasia Mosquito Contro District hereby submits to the Department of Agriculture and Consumer Services, for its consideration and approval, the following amendment for the current fiscal year as follows:

ESTIMATED RECEIPTS

NOTE: The budget cannot be amended to show an increase in receipts over the amount budgeted unless authorized.

Total Available Cash and Receipts	Reserves	Present Budget	Increase Request	Decrease Request	Revised Budget
$ 12,217,510.74	$ 6,884,022.74	$ 12,217,510.74	$ 9,153.00	$ -	$ 12,226,663.74

NAME SOURCE OF INCREASE: (Explain Decrease) _____

BUDGETED RECEIPTS

ACCT NO	Description	Present Budget	Increase Request	Decrease Request	Revised Budget
311	Ad Valorem (Current/Delinquent)	$ 5,717,380.00	$ -	$ -	$ 5,717,380.00
334.1	State Grant	$ -	$ -	$ -	$ -
362	Equipment Rentals	$ -	$ -	$ -	$ -
337	Grants and Donations	$ 85,000.00	$ -	$ -	$ 85,000.00
361	Interest Earnings	$ 65,000.00	$ -	$ -	$ 65,000.00
364	Equipment and/or Other Sales	$ -	$ -	$ -	$ -
369	Misc./Refunds (prior yr expenditures)	$ 15,000.00	$ 9,153.00	$ -	$ 24,153.00
380	Other Sources	$ -	$ -	$ -	$ -
389	Loans	$ -	$ -	$ -	$ -
TOTAL RECEIPTS		$ 5,882,380.00	$ 9,153.00	$ -	$ 5,891,533.00
Beginning Fund Balance		$ 6,335,130.74	$ -	$ -	$ 6,335,130.74
Total Budgetary Receipts & Balances		**$ 12,217,510.74**	**$ 9,153.00**	**$ -**	**$ 12,226,663.74**

BUDGETED EXPENDITURES

NOTE: Total increase must equal total decrease, unless the total "Present Budget" is revised.

ACCT NO	Uniform Accounting System Transaction	Present Budget	Increase Request	Decrease Request	Revised Budget
10	Personal Services	$ 1,640,805.00	$ -	$ -	$ 1,640,805.00
20	Personal Services Benefits	$ 837,250.00	$ -	$ -	$ 837,250.00
30	Operating Expense	$ 476,220.00	$ -	$ -	$ 476,220.00
40	Travel & Per Diem	$ 28,682.00	$ -	$ -	$ 28,682.00
41	Communication Services	$ 25,904.00	$ -	$ -	$ 25,904.00
42	Freight Services	$ 2,500.00	$ -	$ -	$ 2,500.00
43	Utility Service	$ 36,000.00	$ -	$ -	$ 36,000.00
44	Rentals & Leases	$ 1,000.00	$ -	$ -	$ 1,000.00
45	Insurance	$ 93,400.00	$ -	$ -	$ 93,400.00
46	Repairs & Maintenance	$ 87,250.00	$ -	$ -	$ 87,250.00
47	Printing and Binding	$ 500.00	$ -	$ -	$ 500.00
48	Promotional Activities	$ 20,000.00	$ -	$ -	$ 20,000.00
49	Other Charges	$ 6,325.00	$ -	$ -	$ 6,325.00
51	Office Supplies	$ 22,000.00	$ -	$ -	$ 22,000.00
52.1	Gasoline/Oil/Lube	$ 91,600.00	$ -	$ -	$ 91,600.00
52.2	Chemicals	$ 504,388.00	$ -	$ -	$ 504,388.00
52.3	Protective Clothing	$ 1,500.00	$ -	$ -	$ 1,500.00
52.4	Misc. Supplies	$ 54,565.00	$ -	$ -	$ 54,565.00
52.5	Tools & Implements	$ 5,000.00	$ -	$ -	$ 5,000.00
54	Publications & Dues	$ 15,945.00	$ -	$ -	$ 15,945.00
55	Training	$ 25,250.00	$ -	$ -	$ 25,250.00
60	Capital Outlay	$ 971,406.00	$ 9,153.00	$ -	$ 980,559.00
71	Principal	$ -	$ -	$ -	$ -
72	Interest	$ -	$ -	$ -	$ -
81	Aids to Government Agencies	$ -	$ -	$ -	$ -
83	Other Grants and Aids	$ -	$ -	$ -	$ -
89	Contingency (Current Year)	$ 385,998.00	$ -	$ -	$ 385,998.00
99	Payment of Prior Year Accounts	$ -	$ -	$ -	$ -
TOTAL BUDGET AND CHARGES		$ 5,333,488.00	$ 9,153.00	$ -	$ 5,342,641.00
0.001	Reserves - Future Capital Outlay	$ 5,793,033.74	$ -	$ -	$ 5,793,033.74
0.002	Reserves - Self-Insurance	$ -	$ -	$ -	$ -
0.003	Reserves - Cash Balance to be Carried Forward	$ 960,989.00	$ -	$ -	$ 960,989.00
0.004	Reserves - Sick and Annual Leave	$ 130,000.00	$ -	$ -	$ 130,000.00
TAL RESERVES		$ 6,884,022.74	$ -	$ -	$ 6,884,022.74
AL BUDGETARY EXPENDITURES and BALANCES		**$ 12,217,510.74**	**$ 9,153.00**	**$ -**	**$ 12,226,663.74**
ENDING FUND BALANCE		$ -	$ -	$ -	$ -

APPROVED: _____ DATE _____
Chairman of the Board, or Clerk of Circuit Court

APPROVED: _____ DATE _____
FDACS Mosquito Control Program Designee

ANASTASIA MOSQUITO CONTROL DISTRICT OF ST. JOHNS COUNTY
FISCAL YEAR ENDING SEPTEMBER 30, 2020

BUDGET AMENDMENT NUMBER 2020-03 **PAGE 1 OF 1**

COMPUTATIONS

LOCAL FUND

Receipts:

Misc./Refunds (Prior yr. Expenditures)	**9,153.00**	
(Excess Misc. Revenues over Budget, predominant Source was Vehicle/ Equipt. Insurance proceeds)		
		$ 9,153.00

Expenditures:

Capital Outlay	**(9,153.00)**	
(Uses of Funds, matched to Revenue Stream)		
Budget Amendment (Net, pooled from Contingency)		**$ -**

ANASTASIA MOSQUITO CONTROL DISTRICT OF ST. JOHNS COUNTY
FISCAL YEAR ENDING SEPTEMBER 30, 2020

LOCAL FUND BUDGET AMENDMENT NUMBER 2020-03

BUDGET JOURNAL ENTRIES:

Dr) EXPENDITURES: Capital Outlay	**$ 9,153.00**		
Cr) REVENUE: Miscellaneous		**$**	**9,153.00**
	$ 9,153.00	**$**	**9,153.00**

UNFINISHED BUSINESS #1

AMCD's Aerial Program Update

Rui-De Xue, Ph.D.
Director
St. Augustine, FL

Aircraft & Purpose

- Aircraft are the most efficient & expensive tools (fixed wing, helicopter & drone)
- Inspection/surveillance
- Larviciding
- Adulticiding

AMCD Aerial Program

- Contracted service (adulticiding only by fixed wing). For emergencies, hurricanes, flooding, outbreaks of mosquito-borne diseases, county wide service requests, and large area spraying
- Developed AMCD's own aerial capability, starting in 2003

History (after county wide service)

- 2003: Director, Assistant Director, Base Station Supervisor, and Chuck West (SJSO).
  - Recommended a used Bell 206-3

Drone & Long Range

- 2004-5: Director, Director of Accounting, 2 Supervisors.
  - Recommended unmanned helicopter
- 2006: Commissioner, Chuck West, Director, Supervisor, Administrative Assistant and Safety Coordinator.
  - Recommended Bell 206- L4

History

- 2007: Commissioner, Richard Smith (Jacksonville Mosquito Control), Bill Reynolds (Leading Edge), 1 citizen, Pilots, and Director.
  - Recommended a used Bell 206
- 2018: Commissioner, 2 pilots, Director, 2 managers.
  - Recommended Bell 206

AMCD Helicopter & Hangar

- September 2018: AMCD purchased a Bell 206.
- Late 2018: Purchased all equipment.
- October 22, 2019: 1st Pilot was hired from Volusia.
- 2019: Manually operated for surveillance and spraying granular larvicide and did larviciding for about 700 acres in July.
- August 4, 2019: 1st Pilot resigned and went back to Volusia Mosquito Control District.
- Aug 26, 2019: Pilot from East Flagler Mosquito Control District worked 1 day per week to help.
- Sept. 3, 2019: Hired a full time A & P aircraft mechanic who does annual maintenance.

Progress

- September 2019: Hangar construction was completed and aircraft moved in.
- Part time Pilot/Mechanic made granular and liquid larviciding systems work. Adulticiding unit works but is not certified for the Part 137 requirements.
- Conducted granular larviciding for about 400 acres in late October 2019.

Current Situation & Progress

- Brad Gunn, former Pilot from Beach Mosquito Control District moved to our area after retiring last year and assists us.
- Interviewing pilots with mosquito control and agricultural pesticide experience.
- Changed annual maintenance from September to February.

Future Plan (5 years)

- Chief Pilot / Aviation Manager, 1 FT A&P Mechanic, 2 part time Pilots.
- Two helicopters (1 for larviciding and inspection and 1 for adulticiding).
- 1-2 drones for salt marsh mosquitoes, including surveillance and larviciding.
- Continue the contract service for emergency and large area spraying.

Operations & Strategy

- Develop all SOPs by Pilot and Mechanic
- Develop policy for Aviation Department management.
- Discuss switching helicopter from FAA, Part 137 to public use.
- Develop strategy & justification for aerial applications.
- Build and/or purchase nurse truck.
- Consider leasing partial hangar space to another agency.

Thanks for All of Your Support

- It took a long time (15 years) to get to todays situation. Thank you all for your support
- Our own aerial program has just begun, we just need to be patient
- There is still a lot of work to do and the program needs to take a few years to mature and obtain efficient justifications

Anastasia Mosquito Control District of St. Johns County

120 EOC Drive, St. Augustine, Florida 32092
PH: (904) 471-3107 • Fax (904) 471-3189 • Web Address: www.amcdsjc.org

2020 MEMO

TO: Board of Commissioners
FROM: Dr. Rui-De Xue, Director
CC: Charolette M. Hall, Administrative Assistant
DATE: January 29, 2020
RE: Aerial Program Update Report

OUTLINE

AMCD AERIAL PROGRAM JANUARY 2020

Mr. Ralph Bruner, A & P Mechanic

1. Introduce myself and a little background:

2. Where we were in 2019:

    1. AMCD had the FAA review the PART 137 Commercial Agricultural Aircraft Operation. Certification was issued on June 10, 2019 from the Orlando (FSDO) Flight Standards District Office under the direction of former pilot Paul Leone.
    Paul Leone left end of July of 2019 and backed to Volusia MCD.
    2. Kevin Card became our part time pilot (worked 1 day/week) from August 26, 2019 Kevin is the full time pilot for East Flagler Mosquito Control and was our part time pilot for 4 months (total 16-18 working days). Kevin worked on reviewing the Part 137 requirement and wrote the New Congested Area Program (CAP) for the FAA and got it approved. The CAP needs to be completed once a year. Mr. Card left at the end of December, 2019 due to personal reasons.
    3. (Part 137) "Regulations govern agriculture aircraft in the United States and encompass the dispensing of an economic poison designed to treat the soil or crops. Special certification rules for these pilots include knowledge and skill tests for the safe handling of poisons, agricultural chemicals, and basic medical knowledge of the symptoms of poisoning. There is also a special skill test (flight) and some rules that differ from part 91 that allow for low altitude aerial application amongst others. These include a requirement for a safety harness, operating without positioning lights, and restrictions from operating over congested areas. Special record keeping must be maintained." (1)
    4. Being a PART 137 Commercial Agricultural Aircraft Operation, ACMD is not restricted from carrying passengers in the aircraft and AMCD would be able to charge outside agencies for the use of the aircraft to complete experiments on different chemicals to content with mosquito control.

5. The aircraft had the required annual inspection in September of 2019 to get the aircraft back to a flyable state.
6. The Isolair granular system was fitted and installed on the aircraft properly allowing several missions to be flown in the late October 2019 with Kevin Card as the pilot.
7. The Isolair Wet Spray system was fitted and installed on the aircraft properly. The Wet Spray system was characterized (calibrated) in November of 2019.
8. The owner of the Isolair ULV system is working on getting the necessary paperwork to allow installation of the system under the PART 137.
9. Several inspection missions and granular larviciding were flown during the time Kevin Card was employed at the AMCD.

3. January 2020:
1. The aircraft is undergoing an annual inspection to re-clock the required 12 month inspection so that it does not stop the aircraft from flying during the peak mosquito season.
2. While the annual inspection is being completed, a timed component (the rotor head 2400 hour inspection) is being sent off Arrow Aviation La. to a certified repair station who has the required specialty tooling to complete the job.
3. We are still encountering issues with the Ag-Nav system. It can be used manually at this time but not automatically.
4. We are also still encountering issues with the Free-flight national aircraft reporting system called ADS-B. It is working but not like it should.

4. Budget needs:
1. Ground equipment for offsite operations
2. Nurse truck
    a. Portable water tank - approximately 200 to 300 gallons of water, for liquid larvicide insecticide.
    b. Aviation Fuel tank – approximately 100 gallons
3. Tracking software for flights and maintenance
4. Micro Vib II Aircraft Balancer / Analyzer (upgradeable along with equipment for aircraft and engine).
5. Sonetics Portable Wireless Communication Systems for ground crew.
6. Mechanic's maintenance school at Bell helicopter in Ft. Worth Texas.
7. Pilot's reoccurring flight training

5. Summary:
1. Update operation/aerial committee (Howell, Pilot, Bruner, Xue, Gaines, Weaver, Qualls).
2. Set up a weekly meeting (3rd day of the week) to set a schedule for flights (inspection or spray missions.
3. It is necessary to have the pilot and mechanic at these meetings. The mechanic decides if the aircraft is airworthy. The pilot in command determines if the mission is flyable or not-flyable. It is ultimately the responsibility of the pilot.

References:

(1) Part 137: Background

https://www.faa.gov/about/office_org/headquarters_offices/avs/offices/afx/afs/afs800/afs820/part137_oper/

UNFINISHED BUSINESS #2

Anastasia Mosquito Control District of St. Johns County

120 EOC Drive, St. Augustine, Florida 32092
PH: (904) 471-3107 • Fax (904) 471-3189 • Web Address: www.amcdsjc.org

2020 MEMO

TO: Board of Commissioners

FROM: Dr. Rui-De Xue, Director and Richard Weaver, Business Manager

CC: Charolette M. Hall, Administrative Assistant

DATE: February 13, 2020

RE: Solar Power Research

AMCD staff was asked by the Board of Commissioners to research the availability, practicality and cost to provide the AMCD facility at 120 EOC Drive with a solar power system. AMCD staff contacted Power Production Management, Inc., a Gainesville Florida based company that specializes in commercial solar power systems, and asked them to do a feasibility study for our facility and provide costs and a cost benefit analysis of a solar power system.

The solar power system would be a set of solar panels placed on the roofs of our larger buildings (100, 200, 800, 900) and would provide electricity during the daylight hours. The system would provide enough power to power all the buildings and sell back excess power to FPL. During the night hours and cloudy days, AMCD would buy power from FPL but the panels would reduce our outside use of power to a point that the system would pay for itself. These types of installations do not require batteries or other types of energy storage and works with the local power provider for energy needs at night and at other times of low solar output. The system will interconnect and will work with our current generator systems, so, if FPL power is down and our solar panels are not providing enough power, the generators will kick on.

Power Production Management provided AMCD with two quotes. The price difference in the quotes is the quality of the solar panels, however, installation costs would remain about the same. The cost to provide the whole 120 EOC complex with a solar power solution is:

- Sunpower solar panels: $210,450.00, 17.4-years ROA, 25-year warranty.
- REC solar panels: $195,250.00, 16.1-years ROA, 20-year warranty.

Return on investment (ROA) was based on our current electricity consumption using AMCD's FPL billing information. The numbers provided in the two proposals are based on a thirty-year life of the solar panels. The internal rate of return (IRR) is 5.22% (Sunpower) and 6.17% (REC).

The AMCD Board of Commissioners will need to decide if they want to pursue solar power, if so, staff will add $225,000.00 to the FY 20/21 budget and plan to release a request for proposal (RFP) for the purchase of the solar power system in fiscal year 2020/2021. Work would be completed in the fall of 2021.

Anastasia Mosquito Control District - Sunpower

Prepared For

Anastasia Mosquito Control District
(904) 471-3107
rweaveramcd@bellsouth.net

At Power Production Management, our mission is to provide 100% customer satisfaction. Build the most aesthetically pleasing, highest quality solar systems in the world. Love what we do while at the same time protecting the Earth and making the world a better place for everyone.

Prepared By

1/10/2020

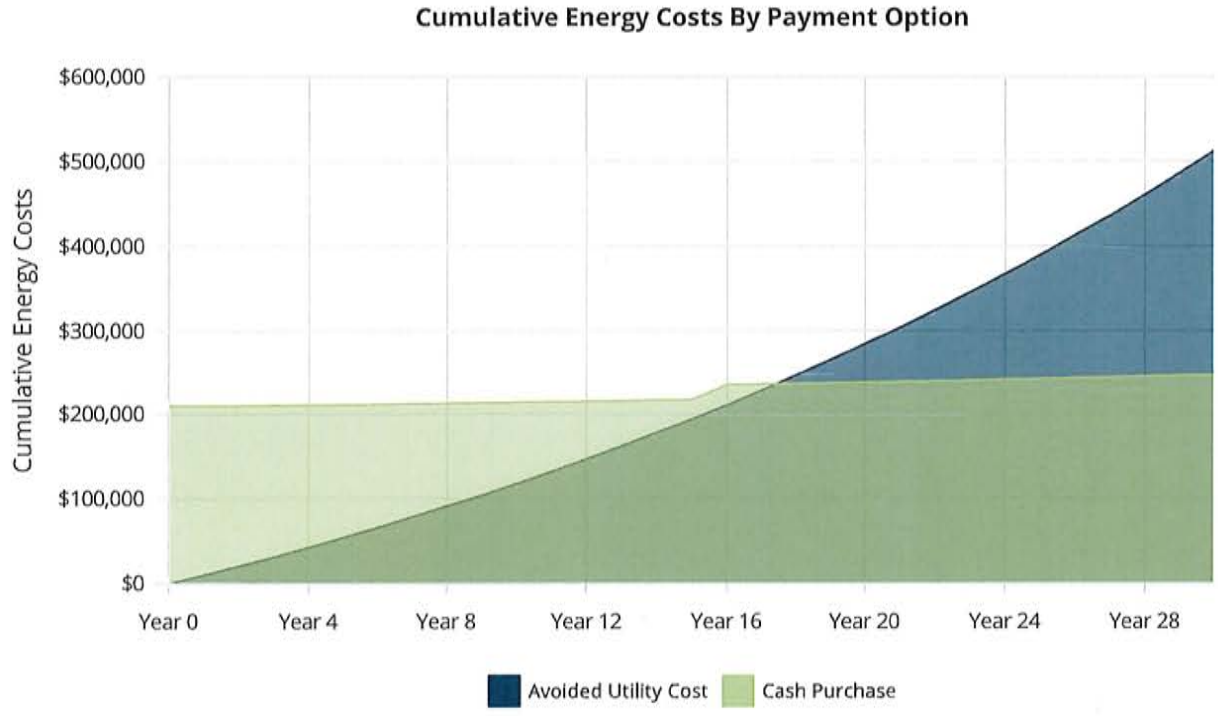
Michael Collins
352-256-5176
mike@sunppm.com

Table of Contents

1 Project Summary

Payment Options	Cash Purchase
Upfront Payment	$210,450
Total Payments	$210,450
Rebates and Incentives	-
Net Payments	$210,450
30-Year Electric Bill Savings	$512,165
30-Year IRR	5.22%
30-Year LCOE PV	$0.045
30-Year NPV	$6,419
Payback Period	17.4 Years

Combined Solar PV Rating
Power Rating: 116,525 W-DC
Power Rating: 101,500 W-AC-CEC



2.1.1 PV System Details

General Information
Facility: Facility #1
Address: 120 EOC Drive St. Augustine FL 32092

Solar PV Equipment Description
Solar Panels: (295) Sunpower SPR-P19-395-COM (DS)
Inverters: (7) Fronius Symo 15.0-3-M

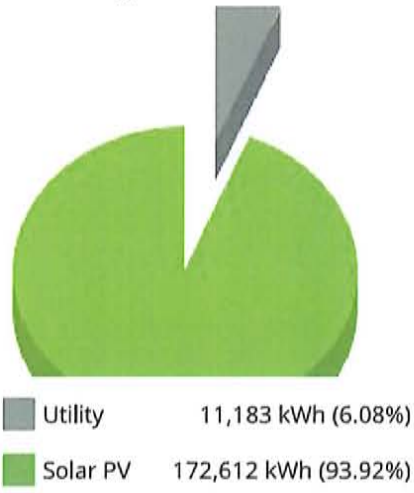
Solar PV Equipment Typical Lifespan
Solar Panels: Greater than 30 Years
Inverters: 15 Years

Solar PV System Cost And Incentives

Solar PV System Cost	$210,450
Net Solar PV System Cost:	**$210,450**

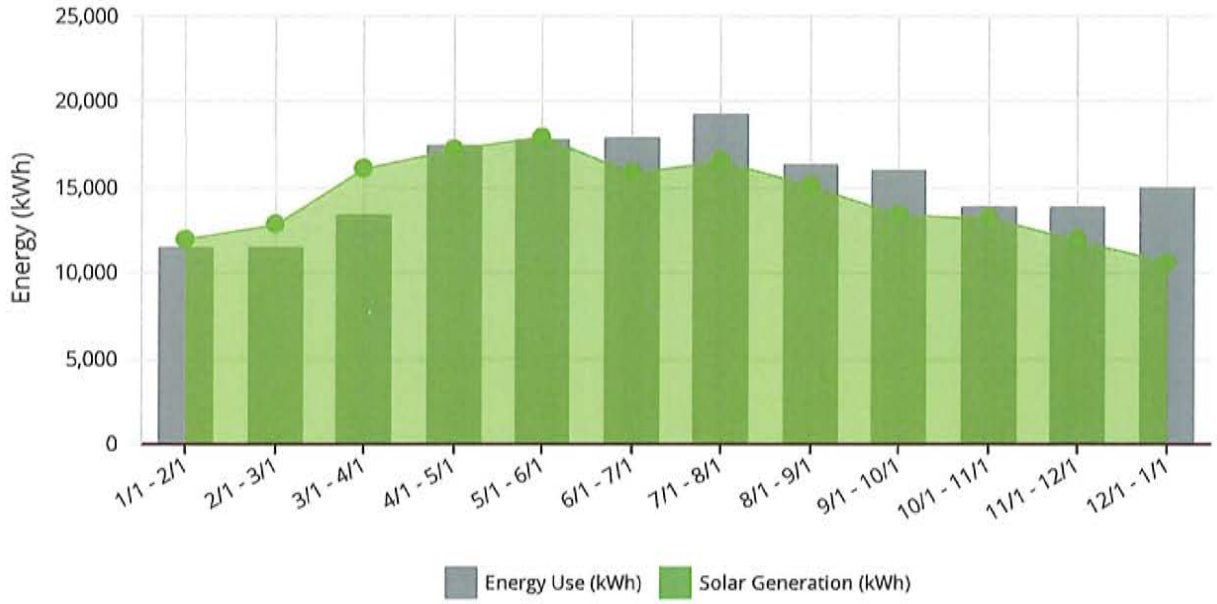
Solar PV System Rating
Power Rating: 116,525 W-DC
Power Rating: 101,500 W-AC-CEC

Energy Consumption Mix
Annual Energy Use: 183,795 kWh



Utility	11,183 kWh (6.08%)
Solar PV	172,612 kWh (93.92%)

Monthly Energy Use vs Solar Generation



2.1.2 Utility Rates

The table below shows the rates associate with your current utility rate schedule (GSD-1). Your estimated electric bills after solar are shown on the following page.

Fixed Charges		Energy Charges		Demand Charges	
Type	GSD-1	Type	GSD-1	Type	GSD-1
S Monthly	$26.32	S Flat Rate	$0.04863	S NC	$11.24
W Monthly	$26.32	W Flat Rate	$0.04863	W NC	$11.24

2.1.3 Current Electric Bill - Before Solar Installation

The table below shows your annual electricity costs based on the most current utility rates and your previous 12 months of electrical usage.

Rate Schedule: FPL - GSD-1

Time Periods	Energy Use (kWh)	Max Demand (kW)	Charges			
Bill Ranges & Seasons	Total	NC / Max	Other	Energy	Demand	Total
1/1/2019 - 2/1/2019 W	11,475	37	$28	$603	$449	$1,080
2/1/2019 - 3/1/2019 W	11,500	38	$28	$604	$461	$1,094
3/1/2019 - 4/1/2019 W	13,400	40	$28	$704	$486	$1,218
4/1/2019 - 5/1/2019 S	17,400	47	$28	$914	$571	$1,513
5/1/2019 - 6/1/2019 S	17,750	48	$28	$932	$583	$1,543
6/1/2019 - 7/1/2019 S	17,950	48	$28	$943	$583	$1,554
7/1/2019 - 8/1/2019 S	19,250	50	$28	$1,011	$607	$1,646
8/1/2019 - 9/1/2019 S	16,320	47	$28	$857	$571	$1,456
9/1/2018 - 10/1/2018 S	16,000	45	$28	$840	$546	$1,415
10/1/2018 - 11/1/2018 S	13,900	40	$28	$730	$486	$1,244
11/1/2018 - 12/1/2018 W	13,850	40	$28	$727	$486	$1,241
12/1/2018 - 1/1/2019 W	15,000	42	$28	$788	$510	$1,326
Totals:	183,795	-	$341	$9,653	$6,337	$16,331

2.1.4 New Electric Bill - After Solar Installation

Rate Schedule: FPL - GSD-1

Time Periods	Energy Use (kWh)	Max Demand (kW)	Charges			
Bill Ranges & Seasons	Total	NC / Max	Other	Energy	Demand	Total
1/1/2019 - 2/1/2019 W	-509	37	$28	-$27	$449	$451
2/1/2019 - 3/1/2019 W	-1,326	31	$28	-$70	$376	$335
3/1/2019 - 4/1/2019 W	-2,693	37	$28	-$141	$449	$336
4/1/2019 - 5/1/2019 S	155	32	$28	$8	$388	$425
5/1/2019 - 6/1/2019 S	-199	36	$28	-$10	$437	$455
6/1/2019 - 7/1/2019 S	2,119	37	$28	$111	$449	$589
7/1/2019 - 8/1/2019 S	2,727	40	$28	$143	$486	$657
8/1/2019 - 9/1/2019 S	1,239	34	$28	$65	$413	$506
9/1/2018 - 10/1/2018 S	2,622	36	$28	$138	$437	$603
10/1/2018 - 11/1/2018 S	709	31	$28	$37	$376	$442
11/1/2018 - 12/1/2018 W	1,948	36	$28	$102	$437	$568
12/1/2018 - 1/1/2019 W	4,391	42	$28	$231	$510	$769
Totals:	11,183	-	$341	$587	$5,208	$6,136

Annual Electricity Savings: $10,195

3.1 Cash Purchase

Inputs and Key Financial Metrics

Total Project Costs	$210,450	30-Year NPV	$6,419	Discount Rate	5%
10-Year IRR	-9.41%	Payback Period	17.4 Years	Electricity Escalation Rate	4%
20-Year IRR	1.81%	30-Year ROI	125.9%	Federal Income Tax Rate	21%
30-Year IRR	5.22%	PV Degradation Rate	0.6%	State Income Tax Rate	0%

Years	Project Costs	O&M / Equipment Replacement	Electric Bill Savings	Total Cash Flow	Cumulative Cash Flow
Upfront	-$210,450	-	-	-$210,450	-$210,450
1	-	-	$10,195	$10,195	-$200,255
2	-	-	$10,539	$10,539	-$189,717
3	-	-$466	$10,894	$10,428	-$179,289
4	-	-$480	$11,261	$10,781	-$168,508
5	-	-$494	$11,640	$11,146	-$157,362
6	-	-$509	$12,031	$11,522	-$145,840
7	-	-$525	$12,435	$11,910	-$133,930
8	-	-$540	$12,852	$12,312	-$121,618
9	-	-$557	$13,282	$12,726	-$108,892
10	-	-$573	$13,727	$13,153	-$95,739
11	-	-$590	$14,185	$13,595	-$82,144
12	-	-$608	$14,658	$14,050	-$68,094
13	-	-$626	$15,147	$14,520	-$53,574
14	-	-$645	$15,651	$15,006	-$38,568
15	-	-$665	$16,171	$15,506	-$23,062
16	-	-$17,484	$16,708	-$777	-$23,839
17	-	-$705	$17,261	$16,556	-$7,283
18	-	-$726	$17,833	$17,106	$9,823
19	-	-$748	$18,422	$17,674	$27,497
20	-	-$770	$19,030	$18,260	$45,757
21	-	-$794	$19,657	$18,864	$64,621
22	-	-$817	$20,304	$19,487	$84,107
23	-	-$842	$20,971	$20,129	$104,237
24	-	-$867	$21,659	$20,792	$125,029
25	-	-$893	$22,369	$21,476	$146,505
26	-	-$920	$23,101	$22,181	$168,685
27	-	-$947	$23,855	$22,908	$191,593
28	-	-$976	$24,633	$23,657	$215,250
29	-	-$1,005	$25,435	$24,430	$239,679
30	-	-$1,035	$26,261	$25,226	$264,905
Totals:	-$210,450	-$36,810	$512,165	$264,905	-

P SERIES

SUNPOWER®

SunPower® P-Series: P19-405-COM

SunPower Performance Series Commercial Panel

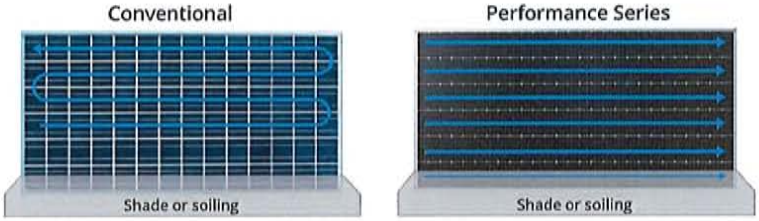
SunPower® Performance Series panels wrap front contact cells with 30+ years of SunPower materials and manufacturing expertise. The weakest points of Conventional Panel design are eliminated to deliver superior power, reliability, value and savings.[1]

High Power

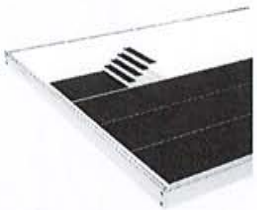
Enhanced active area increases power and savings while designing out fragile ribbons and solder bonds on the cells.

High Performance and Lifetime Savings

Up to 32% more energy in the same space over 25 year.[2] Outperforms conventional panels in partial shade thanks to unique parallel circuitry. Proprietary bussing design limits power loss, maximizing production during morning and evening row-to-row shading or soiling.



Engineered for Performance



Designed for Reliability

- Robust and flexible cell connection technology. Outstanding reliability.
- Conductive adhesive, proven in the aerospace industry
- Redundant cell to cell connections

Proven Performance

TOP PERFORMER 2018 DNV·GL PV MODULE RELIABILITY SCORECARD

- Named as a Top Performer in all DNV/GL reliability tests
- 15% more power and reduced panel temperature due to unique electrical bussing

High Reliability, Backed with Confidence

Performance Series is the most deployed shingled solar panel in the world,[3] with proven results. Innovative shingled design eliminates many of the reliability challenges of traditional front contact panels. SunPower stands behind its panels with its industry-leading Complete Confidence Warranty.

BETTER PRODUCT · BETTER WARRANTY
25-yr SunPower Complete Confidence

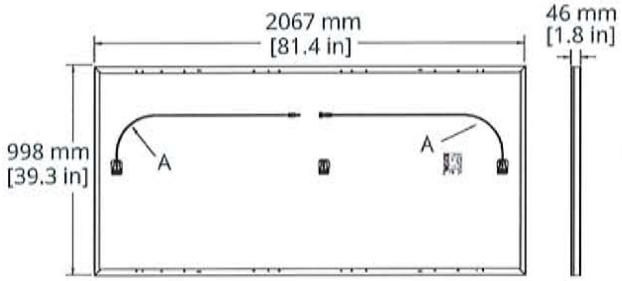
25 Year Combined Warranty
Protects your investment

P-Series: P19-405-COM SunPower® Performance Series Commercial Panel

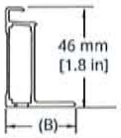
Electrical Data						
Model	SPR-P19-405-COM	SPR-P19-400-COM	SPR-P19-395-COM	SPR-P19-390-COM	SPR-P19-385-COM	SPR-P19-380-COM
Nominal Power (Pnom)[4]	405 W	400 W	395 W	390 W	385 W	380 W
Power Tolerance	+5/–0%	+5/–0%	+5/–0%	+5/–0%	+5/–0%	+5/–0%
Efficiency	19.6%	19.4%	19.1%	18.9%	18.7%	18.4%
Rated Voltage (Vmpp)	43.6 V	43.4 V	43.2 V	43.1 V	42.8 V	42.6 V
Rated Current (Impp)	9.28 A	9.22 A	9.14 A	9.05 A	8.99 A	8.92 A
Open-Circuit Voltage (Voc)	52.9 V	52.7 V	52.5 V	52.3 V	52.0 V	51.8 V
Short-Circuit Current (Isc)	9.87 A	9.80 A	9.72 A	9.63 A	9.58 A	9.49 A
Power Temp. Coef.	–0.36% / ° C					
Voltage Temp. Coef.	–0.29% / ° C					
Current Temp. Coef.	0.05% / ° C					
Maximum System Voltage	1500 V UL & 1500 V IEC					
Maximum Series Fuse	15 A					

Tests And Certifications	
Standard Tests[5]	UL1703 (Type 2 Fire Rating), IEC 61215, IEC 61730 Rated to 1500 V
Quality Certs	ISO 9001:2008, ISO 14001:2004
EHS Compliance	OHSAS 18001:2007, Recycling Scheme
Ammonia Test	IEC 62716
Desert Test	10.1109/PVSC.2013.6744437
Salt Spray Test	IEC 61701 (maximum severity)
PID Test	Potential-Induced Degradation free: 1500 V
Available Listings	UL, CEC, TUV, FSEC

Operating Condition And Mechanical Data	
Temperature	–40° F to +185° F (–40° C to +85° C)
Impact Resistance	1 inch (25 mm) diameter hail at 52 mph (23 m/s)
Appearance	Class A
Solar Cells	Monocrystalline PERC
Tempered Glass	High-transmission tempered anti-reflective
Junction Box	IP-67, MC4 compatible
Weight	51 lbs (23.1 kg)
Max. Load	Wind: 50 psf, 2400 Pa, 245 kg/m² front & back Snow: 112 psf, 5400 Pa, 550 kg/m² front
Frame	Class 2 silver anodized



FRAME PROFILE



(A) Portrait Cable: 1000 mm +/-15 mm [39.4 in +/- 0.6 in]
(B) Long Side: 32 mm [1.3 in]
Short Side: 24 mm [0.9 in]

Read safety and installation instructions before using this product.

REFERENCES:
1 Independent Shade Study by CFV Laboratory.
2 SunPower 405 W compared to a Conventional Panel on same sized arrays (310 W, 15.8% efficient, approx. 1.6 m²), 0.6%/yr degradation (Leidos technical review 2017).
3 Osborne. "SunPower supplying P-Series modules to a 125MW NextEra project." PV-Tech.org. March 2017."
4 Measured at Standard Test Conditions (STC): irradiance of 1000 W/m², AM 1.5, and cell temperature 25° C.
5 Type 2 fire rating per UL1703:2013, Class C fire rating per UL1703:2002 and IEC 61730.

See www.sunpower.com/company and www.sunpower.com/solar-resources for more reference information.
Specifications included in this datasheet are subject to change without notice.

SUNPOWER®

The History of SunPower

SUNPOWER®

Our record of solar innovation began when our co-founder, Dr. Richard Swanson, was pondering ways to deal with the oil crisis. At that time, solar cells were being used on satellites, a concept he found intriguing.

His engineering challenge was to figure out how to make the cells more cost-effective. He began a quest that, almost 40 years later, has helped position SunPower as a leader in residential, commercial and utility-scale solar power production.

By 1985, Dr. Swanson, then a professor of electrical engineering at Stanford, had been awarded grants to support his solar power explorations. With the help of these funds – and financial support from two venture capital firms, SunPower was incorporated in 1985.

1985 SunPower officially incorporates in April

1990 Associated Venture Investors, Technology Funding initial investors, as company receives R&D contract from EPRI, U.S. Energy Dept.

1992 Began shipping concentrator cells to customers two years after initial funding

1993 All-back contact solar cells power Honda car to victory in annual car race across Australia, beating the second-place winner by one full day

1997 Provides high efficiency solar cells to power NASA's Pathfinder remotely

1999 Contract with Agilent Technologies to manufacturer infrared data ports

Manufacturers 1,000 wafers per week for customer, allowing the PV R&D team to be funded until cells can be commercialized

2002 Cypress Semiconductor invests $8 million

2003 Recruits CEO Tom Werner

2004 First manufacturing facility online in the Philippines, for world-record A-300 solar cell

First utility-scale power plant online in Bavaria

2005 Successful IPO

2007 Volume production of next generation solar cell, with an efficiency greater than 22 percent

Finalizes PowerLight acquisition to serve the residential, commercial and utility scale power plant markets

Second manufacturing plant comes on line in the Philippines

2008 Announces world-record silicon cell efficiency of 23.4 percent

2009 President Obama dedicates 25 megawatt SunPower solar power plant system at Florida Power & Light's Desoto County installation

2011 Total acquires majority interest

New corporate headquarters in San Jose, CA

2012 Acquires French solar company Tenesol, further increasing global footprint

2013 Acquires Greenbotics, Inc., to offer robotic solar panel cleaning products and services for large-scale solar power plants

2014 One billionth solar cell manufactured

Cradle to Cradle Certification for sustainable manufacturing process

Acquires SolarBridge Technologies for high performance microinverter technology

2015 Successful IPO of 8point3 Energy Partners YieldCo with First Solar

Launch of Helix solution for commercial customers

2016 World record for efficiency among panels in production at 22.8 percent

Launch of Equinox for residential customers

World record for solar panel using silicon cells at 24.1%

Launch of Oasis 3 for power plant customers

Opening of SunPower R&D Ranch in Davis, CA to host concept testing for new technologies

2017 Introduction of EDDiE digital software to improve customer buying experience

SunPower Solutions business unit launches to offer equipment to global power plant market

Average production cell efficiencies at Fab 4 regularly exceed 25%

Opening of Silicon Valley Research Facility and start of manufacturing pilot line

Conventional Solar Panel Warranty*

vs

Product Issues

Defects related to workmanship and materials.

- Excludes seaside locations
- Excludes damage during transport
- Rust damage not covered
- Requires registration
- Short warranty term
- High deductible warranty insurance

Power Loss

As the panel ages, performance drops.

- Panel output degrades faster than expected
- Supplier insolvency risk

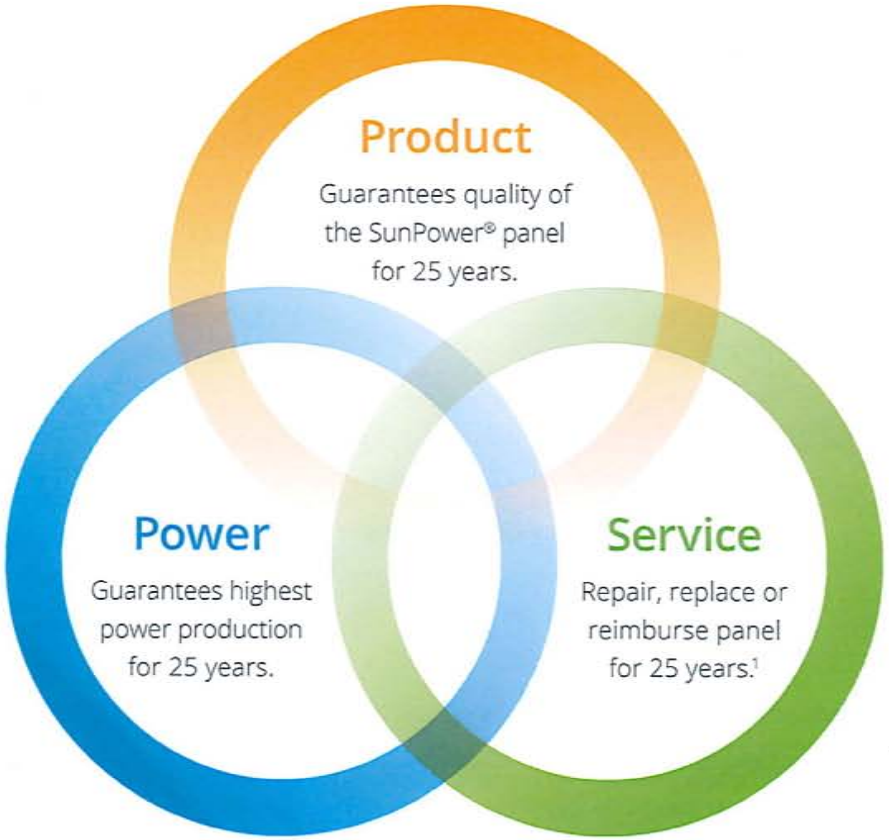
Service Fees

Varies by issue, hard to predict.

- Installation of replacement not included
- Physical receipt needed
- Different Product vs. Power coverage length
- Written claims sent through mail
- Shipping not included

* Representative of standard efficiency solar manufacturers. Competitor warranty information provided from latest warranty documentation from various conventional panel manufacturer websites as of June 2017.

SunPower® Complete Confidence Panel Warranty



The best warranty in the industry

While most solar warranties are full of headaches, the SunPower® Complete Confidence Panel Warranty keeps things simple. One warranty covers product quality, power production and service for your whole system, backed by SunPower's rigorous testing and unmatched reliability.[2]

1 Repair, replacement or reimbursement will be at SunPower's sole discretion.
2 #1 rank in "Fraunhofer PV Durability Initiative for Solar Modules: Part 3". PVTech Power Magazine, 2015. Campeau, Z. et al. "SunPower Module Degradation Rate," SunPower white paper, 2013.

Anastasia Mosquito Control District - REC

Prepared For

Anastasia Mosquito Control District
(904) 471-3107
rweaveramcd@bellsouth.net

At Power Production Management, our mission is to provide 100% customer satisfaction. Build the most aesthetically pleasing, highest quality solar systems in the world. Love what we do while at the same time protecting the Earth and making the world a better place for everyone.

Prepared By

Michael Collins
352-256-5176
mike@sunppm.com

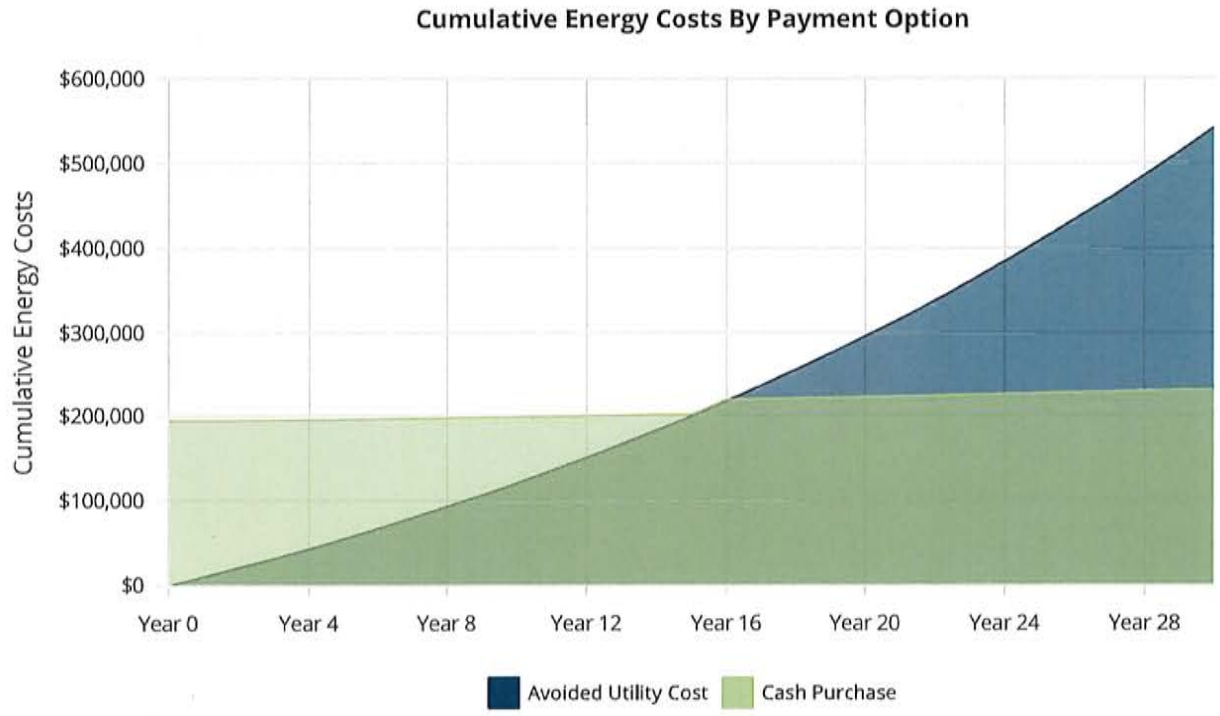
1/10/2020

Table of Contents

1 Project Summary

Payment Options	Cash Purchase
Upfront Payment	$195,250
Total Payments	$195,250
Rebates and Incentives	-
Net Payments	$195,250
30-Year Electric Bill Savings	$542,236
30-Year IRR	6.17%
30-Year LCOE PV	$0.039
30-Year NPV	$32,738
Payback Period	16.1 Years

Combined Solar PV Rating
Power Rating: 116,660 W-DC
Power Rating: 101,618 W-AC-CEC



2.1.1 PV System Details

General Information
Facility: Facility #1
Address: 120 EOC Drive St. Augustine FL 32092

Solar PV Equipment Description
Solar Panels: (307) REC REC380TP2SM 72Q2
Inverters: (7) Fronius Symo 15.0-3-M

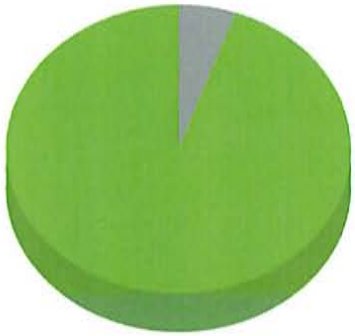
Solar PV Equipment Typical Lifespan
Solar Panels: Greater than 30 Years
Inverters: 15 Years

Solar PV System Cost And Incentives

Solar PV System Cost	$195,250
Net Solar PV System Cost:	**$195,250**

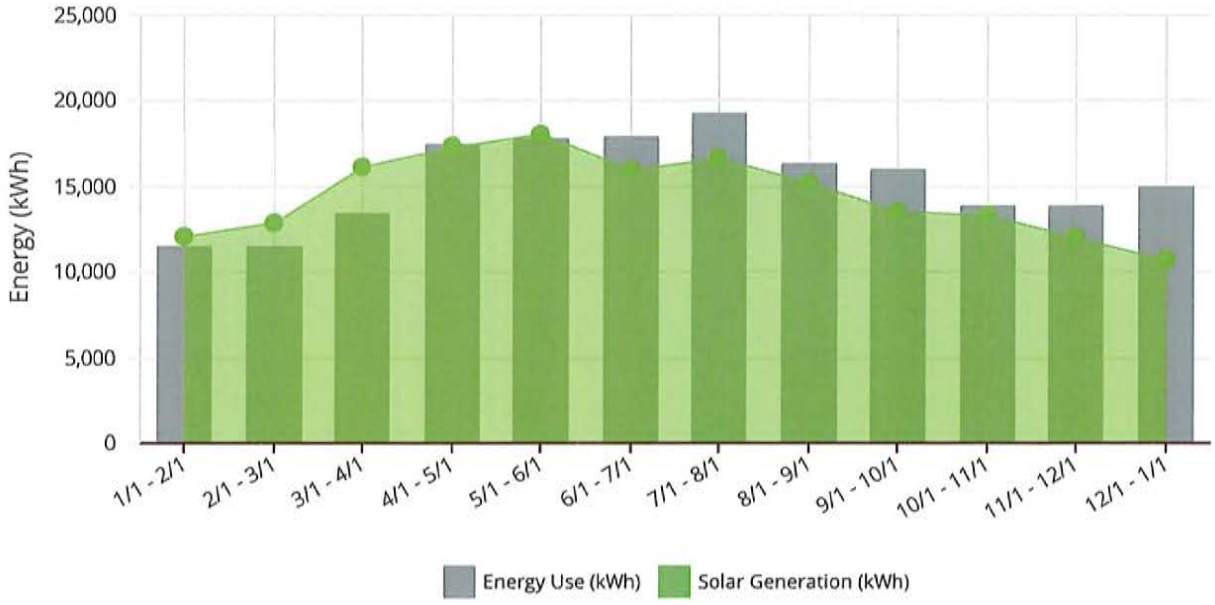
Solar PV System Rating
Power Rating: 116,660 W-DC
Power Rating: 101,618 W-AC-CEC

Energy Consumption Mix
Annual Energy Use: 183,795 kWh



Utility	9,982 kWh (5.43%)
Solar PV	173,813 kWh (94.57%)

Monthly Energy Use vs Solar Generation



Prepared By: Michael Collins
P: 352-256-5176 E: mike@sunppm.com

2.1.2 Utility Rates

The table below shows the rates associate with your current utility rate schedule (GSD-1). Your estimated electric bills after solar are shown on the following page.

Fixed Charges		Energy Charges		Demand Charges	
Type	GSD-1	Type	GSD-1	Type	GSD-1
S Monthly	$26.32	S Flat Rate	$0.04863	S NC	$11.24
W Monthly	$26.32	W Flat Rate	$0.04863	W NC	$11.24

2.1.3 Current Electric Bill - Before Solar Installation

The table below shows your annual electricity costs based on the most current utility rates and your previous 12 months of electrical usage.

Rate Schedule: FPL - GSD-1

Time Periods	Energy Use (kWh)	Max Demand (kW)	Charges			
Bill Ranges & Seasons	Total	NC / Max	Other	Energy	Demand	Total
1/1/2019 - 2/1/2019 W	11,475	37	$28	$603	$449	$1,080
2/1/2019 - 3/1/2019 W	11,500	38	$28	$604	$461	$1,094
3/1/2019 - 4/1/2019 W	13,400	40	$28	$704	$486	$1,218
4/1/2019 - 5/1/2019 S	17,400	47	$28	$914	$571	$1,513
5/1/2019 - 6/1/2019 S	17,750	48	$28	$932	$583	$1,543
6/1/2019 - 7/1/2019 S	17,950	48	$28	$943	$583	$1,554
7/1/2019 - 8/1/2019 S	19,250	50	$28	$1,011	$607	$1,646
8/1/2019 - 9/1/2019 S	16,320	47	$28	$857	$571	$1,456
9/1/2018 - 10/1/2018 S	16,000	45	$28	$840	$546	$1,415
10/1/2018 - 11/1/2018 S	13,900	40	$28	$730	$486	$1,244
11/1/2018 - 12/1/2018 W	13,850	40	$28	$727	$486	$1,241
12/1/2018 - 1/1/2019 W	15,000	42	$28	$788	$510	$1,326
Totals:	183,795	-	$341	$9,653	$6,337	$16,331

2.1.4 New Electric Bill - After Solar Installation

Rate Schedule: FPL - GSD-1

Time Periods	Energy Use (kWh)	Max Demand (kW)	Charges			
Bill Ranges & Seasons	Total	NC / Max	Other	Energy	Demand	Total
1/1/2019 - 2/1/2019 W	-588	37	$28	-$31	$449	$447
2/1/2019 - 3/1/2019 W	-1,391	31	$28	-$73	$376	$332
3/1/2019 - 4/1/2019 W	-2,746	37	$28	-$144	$449	$333
4/1/2019 - 5/1/2019 S	110	32	$28	$6	$388	$423
5/1/2019 - 6/1/2019 S	-311	35	$28	-$16	$425	$437
6/1/2019 - 7/1/2019 S	1,978	36	$28	$104	$437	$569
7/1/2019 - 8/1/2019 S	2,606	40	$28	$137	$486	$651
8/1/2019 - 9/1/2019 S	1,094	34	$28	$57	$413	$499
9/1/2018 - 10/1/2018 S	2,487	35	$28	$131	$425	$584
10/1/2018 - 11/1/2018 S	587	31	$28	$31	$376	$436
11/1/2018 - 12/1/2018 W	1,849	36	$28	$97	$437	$563
12/1/2018 - 1/1/2019 W	4,308	42	$28	$226	$510	$765
Totals:	9,983	-	$341	$524	$5,171	$6,037

Annual Electricity Savings: $10,294

3.1 Cash Purchase

Inputs and Key Financial Metrics

Total Project Costs	$195,250	30-Year NPV	$32,738	Discount Rate	5%
10-Year IRR	-8%	Payback Period	16.1 Years	Electricity Escalation Rate	4%
20-Year IRR	2.92%	30-Year ROI	158.8%	Federal Income Tax Rate	21%
30-Year IRR	6.17%	PV Degradation Rate	0.35%	State Income Tax Rate	0%

Years	Project Costs	O&M / Equipment Replacement	Electric Bill Savings	Total Cash Flow	Cumulative Cash Flow
Upfront	-$195,250	-	-	-$195,250	-$195,250
1	-	-	$10,294	$10,294	-$184,956
2	-	-	$10,668	$10,668	-$174,288
3	-	-$467	$11,056	$10,589	-$163,698
4	-	-$481	$11,458	$10,977	-$152,721
5	-	-$495	$11,874	$11,379	-$141,342
6	-	-$510	$12,305	$11,795	-$129,547
7	-	-$525	$12,752	$12,227	-$117,320
8	-	-$541	$13,214	$12,673	-$104,647
9	-	-$557	$13,694	$13,136	-$91,511
10	-	-$574	$14,190	$13,616	-$77,894
11	-	-$591	$14,704	$14,113	-$63,781
12	-	-$609	$15,237	$14,628	-$49,153
13	-	-$627	$15,789	$15,162	-$33,991
14	-	-$646	$16,360	$15,715	-$18,277
15	-	-$665	$16,952	$16,287	-$1,989
16	-	-$17,485	$17,566	$80	-$1,909
17	-	-$706	$18,201	$17,495	$15,586
18	-	-$727	$18,859	$18,132	$33,718
19	-	-$749	$19,540	$18,791	$52,509
20	-	-$771	$20,246	$19,474	$71,983
21	-	-$794	$20,977	$20,182	$92,165
22	-	-$818	$21,734	$20,915	$113,081
23	-	-$843	$22,518	$21,675	$134,756
24	-	-$868	$23,329	$22,461	$157,217
25	-	-$894	$24,170	$23,276	$180,493
26	-	-$921	$25,041	$24,120	$204,613
27	-	-$949	$25,943	$24,994	$229,607
28	-	-$977	$26,877	$25,900	$255,507
29	-	-$1,006	$27,844	$26,837	$282,344
30	-	-$1,037	$28,845	$27,808	$310,153
Totals:	-$195,250	-$36,833	$542,236	$310,153	-

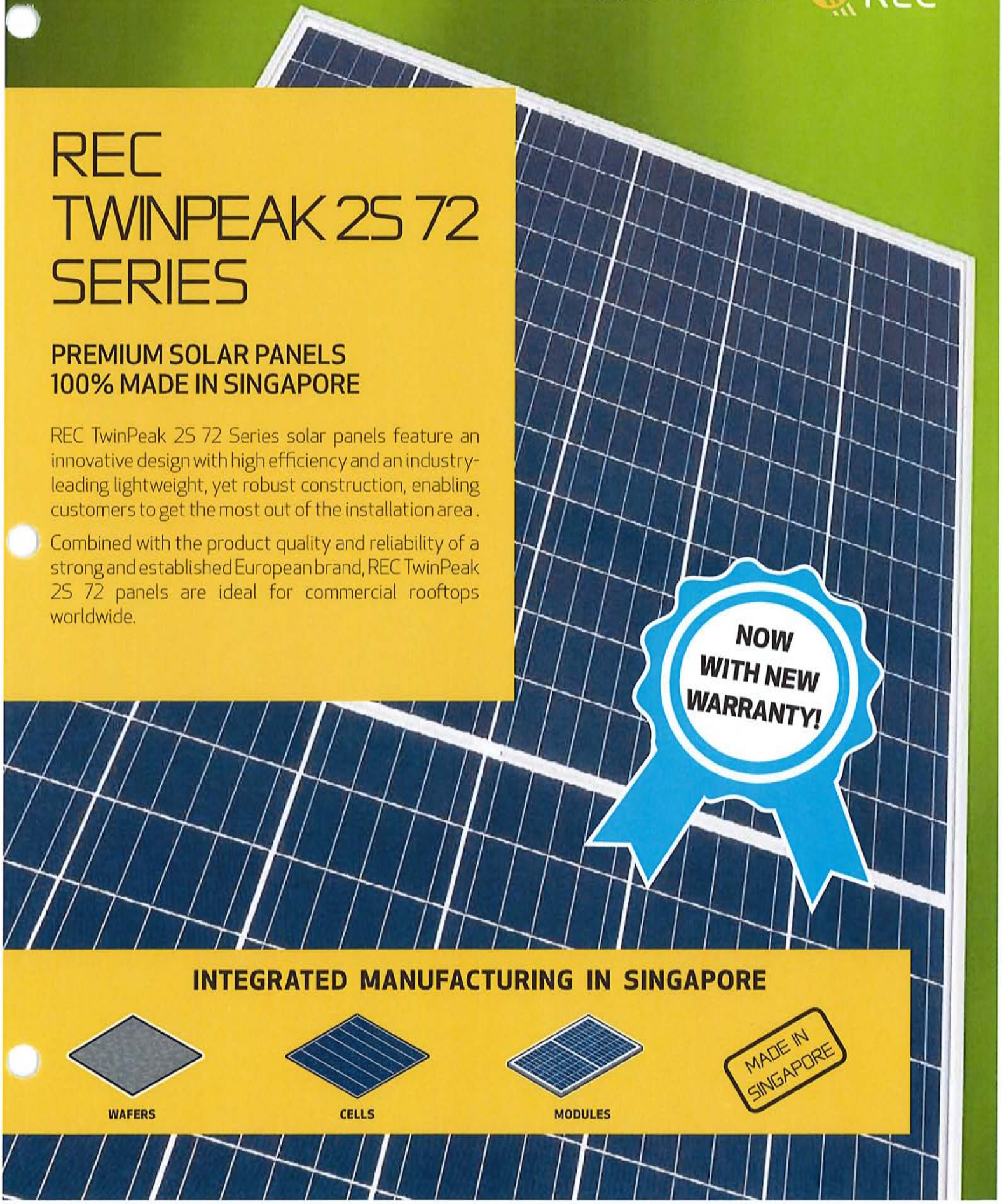
SOLAR'S MOST TRUSTED REC

REC TWINPEAK 2S 72 SERIES

PREMIUM SOLAR PANELS 100% MADE IN SINGAPORE

REC TwinPeak 2S 72 Series solar panels feature an innovative design with high efficiency and an industry-leading lightweight, yet robust construction, enabling customers to get the most out of the installation area.

Combined with the product quality and reliability of a strong and established European brand, REC TwinPeak 2S 72 panels are ideal for commercial rooftops worldwide.



INTEGRATED MANUFACTURING IN SINGAPORE

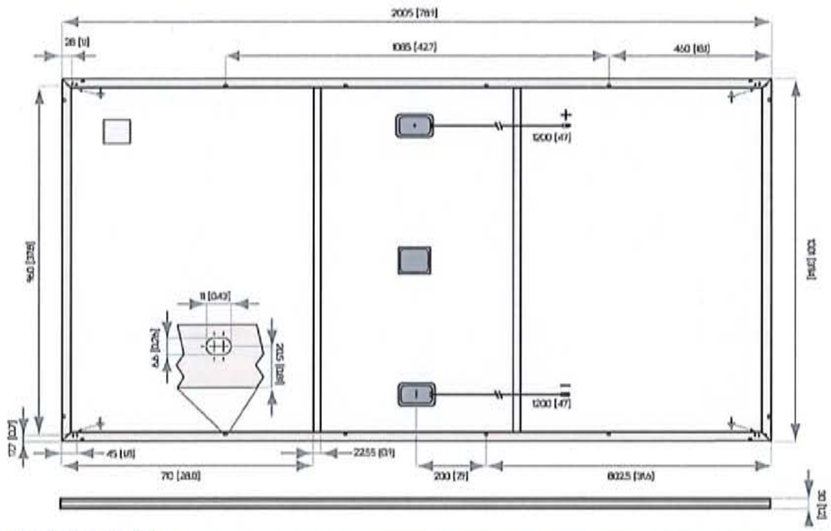
WAFERS

CELLS

MODULES

MADE IN SINGAPORE

REC TWINPEAK 2S 72 SERIES



17.7%	EFFICIENCY
20	YEAR PRODUCT WARRANTY
25	YEAR LINEAR POWER OUTPUT WARRANTY

ELECTRICAL DATA @ STC	Product Code*: RECxxxTP2S 72					
Nominal Power - P_{MPP} (Wp)	330	335	340	345	350	355
Watt Class Sorting - (W)	-0/+5	-0/+5	-0/+5	-0/+5	-0/+5	-0/+5
Nominal Power Voltage - V_{MPP} (V)	38.1	38.3	38.5	38.7	38.9	39.1
Nominal Power Current - I_{MPP} (A)	8.67	8.75	8.84	8.92	9.00	9.09
Open Circuit Voltage - V_{OC} (V)	46.0	46.2	46.3	46.5	46.7	46.8
Short Circuit Current - I_{SC} (A)	9.44	9.52	9.58	9.64	9.72	9.78
Panel Efficiency (%)	16.5	16.7	16.9	17.2	17.4	17.7

Values at standard test conditions STC (airmass AM 1.5, irradiance 1000 W/m², cell temperature 77°F (25°C).
At low irradiance of 200 W/m² (AM 1.5 and cell temperature 77°F (25°C)) at least 95% of the STC module efficiency will be achieved.
*xxx indicates the nominal power class (P_{MPP}) at STC, and can be followed by the suffix XV for modules with a 1500 V maximum system rating.

ELECTRICAL DATA @ NOCT	Product Code*: RECxxxTP2S 72					
Nominal Power - P_{MPP} (Wp)	244	252	257	260	264	268
Nominal Power Voltage - V_{MPP} (V)	34.9	35.5	35.7	35.8	36.0	36.2
Nominal Power Current - I_{MPP} (A)	6.99	7.10	7.19	7.25	7.32	7.39
Open Circuit Voltage - V_{OC} (V)	42.3	42.8	42.9	43.1	43.2	43.3
Short Circuit Current - I_{SC} (A)	7.44	7.74	7.79	7.84	7.90	7.95

Nominal cell operating temperature NOCT (800 W/m², AM 1.5, windspeed 1 m/s, ambient temperature 68°F (20°C).
*xxx indicates the nominal power class (P_{MPP}) at STC, and can be followed by the suffix XV for modules with a 1500 V maximum system rating.

CERTIFICATION

UL 1703, Fire classification: Type 1 (1500 V XV); Type 2 (1000 V);
IEC 61215, IEC 61730, IEC 62804 (PID), IEC 62716 (Ammonia),
IEC 61701 (Salt Mist level 6), ISO 11925-2 (Class E)
ISO 9001: 2015, ISO 14001: 2004, OHSAS 18001: 2007

WARRANTY

20 year product warranty.
25 year linear power output warranty
(max. degression in performance of 0.5% p.a.).

TEMPERATURE RATINGS	
Nominal Operating Cell Temperature (NOCT)	44.6°C (±2°C)
Temperature Coefficient of P_{MPP}	-0.36 %/°C
Temperature Coefficient of V_{OC}	-0.30 %/°C
Temperature Coefficient of I_{SC}	0.066 %/°C

GENERAL DATA	
Cell type:	6 strings of 24 REC HC multicrystalline PERC
Glass:	0.13" (3.2 mm) solar glass with anti-reflection surface treatment
Back Sheet:	Highly resistant polyester
Frame:	Anodized aluminum (silver)
Support bars:	Anodized aluminum (bonded to backsheet)
Junction Box:	IP67 rated with 3 bypass diodes 12 AWG (4 mm²) PV wire, 47" + 47" (1.2 m + 1.2 m)
Connectors:	Tonglin TL-Cable01S-F (4 mm²)
Origins:	Silicon: Made in USA & Norway Wafer/Cell/Module: Made in Singapore

MAXIMUM RATINGS	
Operational Temperature:	-40 ... +185°F (-40 ... +85°C)
Maximum System Voltage:	1000 V / 1500 V
Design load (+): snow Maximum test load (+):	75 psf (3600 Pa)* 112.5 psf (5400 Pa)
Design load (-): wind Maximum test load (-):	33 psf (1600 Pa)* 50 psf (2400 Pa)
*Safety factor 1.5, refer to installation instructions	
Max Series Fuse Rating:	20 A
Max Reverse Current:	20 A

MECHANICAL DATA	
Dimensions:	78.9" x 39.4" x 1.2" (2005 x 1001 x 30 mm)
Area:	21.6 ft² (2.01 m²)
Weight:	48.5 lbs (22 kg)

Note! Specifications subject to change without notice.

REC

www.recgroup.com

POWER
PRODUCTION MANAGEMENT, INC.
www.sunppm.com
CVC56764, EC 13008767

625 NW 8th Ave
Gainesville, FL 32601
Phone: 866-828-3337
Fax: 866-228-1581
sunppm.com

Power Production Management, Inc.
Statement of Qualifications

Prepared by:
Michael Collins
Sales Director
Power Production Management, Inc.
352-256-5176
mike@sunppm.com

To whom it may concern,

Power Production Management, Inc. (PPM) has been building high quality solar photovoltaic systems throughout our home base of Florida and beyond since 2009. We specialize in the commercial solar market and are leveraging that experience to move into the utility scale solar market that is experiencing significant growth in the US, especially in the Southeastern US where we are expanding our reach.

PPM's mission is to have a world powered by the sun. We help our customers take control of their future with every solar system we build, and we make the process simple and efficient. Our commitment to customer satisfaction has helped build our reputation as one of the top solar contractors in the Southeastern US.

In 2015 and 2018, PPM was recognized as one of the fastest growing businesses led by alumni from the University of Florida. With leadership backed by committed investors and our dedicated team of professionals, we continue our quest to become a global solar energy leader.

PPM currently employs 25 highly qualified employees that include engineers, project managers, installers, and administrative support that allow us to integrate solar photovoltaic systems in an efficient manner. As the EPC on a project we manage all aspects from site preparation to interconnection.

Our list of clients includes medium to large size businesses, investors, utilities, municipalities and school districts. Some of these projects have been highlighted on the following pages. We are happy to provide you with additional references and further information at your request.

Please feel free to reach out with any questions or concerns about our qualifications directly to me at 352-256-5176.

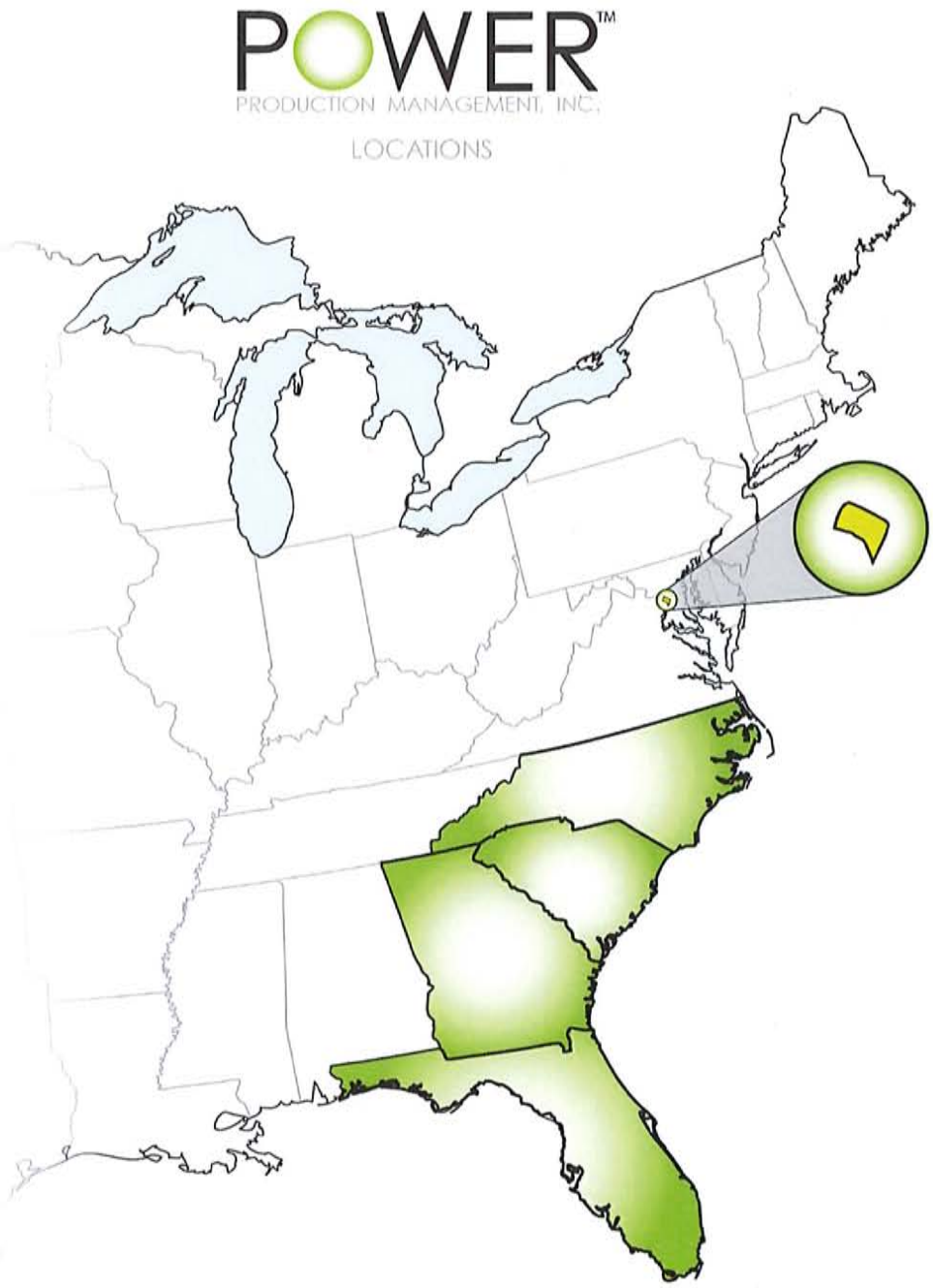
We look forward to working with you on your solar project!

Best regards,

Michael Collins
Sales Director
Power Production Management, Inc.
www.sunppm.com

PPM Service Area – 2019

PPM is currently licensed to perform work in Florida, Georgia, South Carolina, North Carolina and Washington D.C. We are based in Gainesville, FL.



Selected Projects

EMORY GROUP
COMPANIES

San Felasco Tech City

PPM partnered with Emory Group Companies to construct a unique, custom set of solar arrays totaling 231kW that were built into the atrium that covers the walking space between the offices at the new San Felasco Tech City in Alachua. We will be finishing the project with more than 800kW more on the flat roof when the building is complete for a total of over a megawatt.

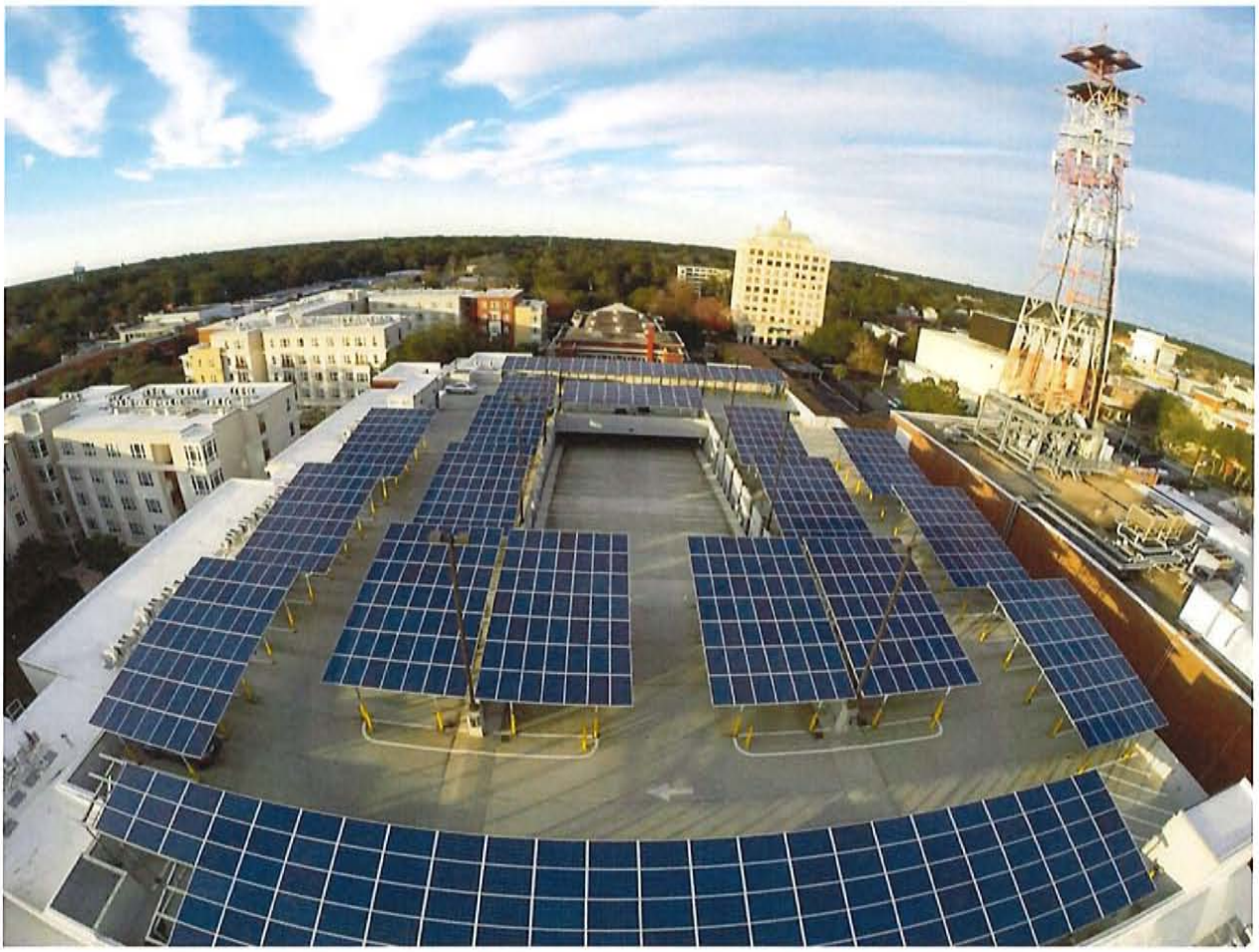
Click here for a flyover video: https://www.facebook.com/SunPPM/videos/660278587767170/

Owner: San Felasco Tech City
Contact: Mitch Glaeser
352-538-0072

THE CONTINUUM
A GRADUATE COMMUNITY

As part of the GRU Feed-in Tariff program, the Continuum agreed to host the installation of a solar covered carport structure on the top deck of their parking garage. The PV system is composed of a custom, welded on-site, galvanized steel mounting structure that doubles as a parking structure.

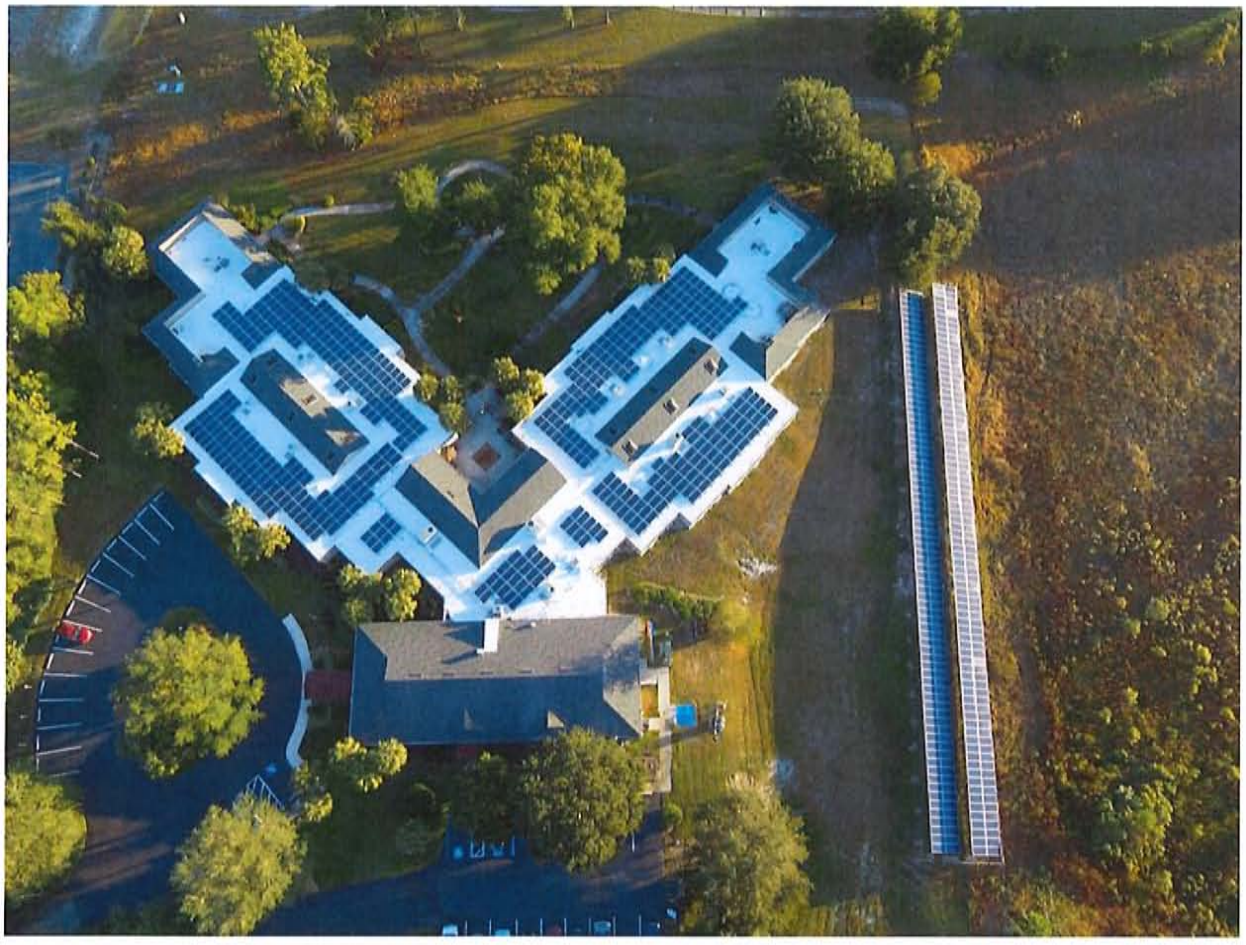
Owner: Ecogy Solar
Contact: Ken Becker
(302) 740-6795



PACIFICA
COMPANIES

Pacifica partnered with PPM to design and build solar photovoltaic systems at their Florida locations in 2016 and are now moving on to two locations in South and North Carolina. The entire portfolio built to date is 1.58MW with another 1.97MW under construction. The majority of the systems in this portfolio are rooftop with some ground mount capacity. Three of the projects are pictured below.

Owner: Pacifica Companies
Contact: Divya Sappa
(619) 296-9000 x143



Pacifica Ocala – 250kW ground mount and rooftop solar photovoltaic system.

Pacifica Greenacres – 280kW flush mounted rooftop solar photovoltaic system

Pacifica Jacksonville – 570kW rooftop ballast and flush mounted solar photovoltaic system

This 356kW project was completed in mid-2016 for FPL in Daytona Beach. This is a 356kW solar system utilizing 305 watt panels with half on SolarEdge DC optimizers and inverters and the other half connected to Enphase microinverters. PPM saw this project through from beginning to end. From permitting to design and construction we managed the entire project.

In late 2017, the Floral City Water Association entered into an agreement with PPM to design and build a solar photovoltaic system to offset their energy costs at their water treatment facility. PPM handled the entire process from beginning to end for the 130kW ground mount system. The system will be able to offset the costs for electricity for the facility for decades to come.

Owner: Floral City Water Association
Contact: Gary Judd
352-212-9240

SCHERER CONSTRUCTION

PPM designed and installed a 73.5 kW PV system spread over the office building and warehouse at the Scherer Construction North Florida headquarters. The warehouse system (54 kW) utilized a corrugated roof mounting solution with a storm washer system to guarantee against any water leaks. Six SMA Sunny Boy 7,000 US and three SMA Sunny Boy 6000 US central inverters were used in 208V 3-phase configuration.

Owner: Scherer Construction
Contact: Doug Wilcox
(352) 538-0240

precision GLASS
ESTABLISHED 1989

As part of the GRU Feed-in Tariff program, Precision Glass decided to install a state-of-the-art 47.088 kW SunPower system on their office in Gainesville, FL. The system is composed of 140 SunPower PV panels (327 watt E20 Series) with three Sunny Boy 10000 and one 9000 transformerless inverters.

Owner: Precision Glass
Contact: Brent Salley
(352) 339-6759

For additional info contact:

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www.linkedin.com/company/sunppm/

NEW BUSINESS #1

Anastasia Mosquito Control District of St. Johns County

120 EOC Drive, St. Augustine, Florida 32092
PH: (904) 471-3107 • Fax (904) 471-3189 • Web Address: www.amcdsjc.org

MEMO

TO: Board of Commissioners

FROM: Dr. Rui-De Xue, Director

CC: Charolette M. Hall, Administrative Assistant

DATE: January 28, 2020

RE: Dodd Short Course Report, February 3-7, 2020

The Dodd Short Courses were held in Gainesville, FL during the week of February 3-7, 2020, with the Commissioner's Caucus being held on that Tuesday, February 4, 2020.

The Commissioner's will report on this.