

CITY OF SATELLITE BEACH, FLORIDA

565 CASSIA BOULEVARD 32937-3116  
(321) 773-4407  
(321) 779-1388 FAX



INCORPORATED 1957

# AGENDA

## AD HOC GREEN COMMITTEE REGULAR MEETING

SATELLITE BEACH COUNCIL CHAMBERS  
565 CASSIA BOULEVARD, SATELLITE BEACH, FL 32937

**AUGUST 26, 2015**  
**7:00 P.M.**

1. CALL TO ORDER BY CHAIRMAN JEFF CHESTINE
2. PLEDGE OF ALLEGIANCE
3. PUBLIC COMMENT
4. DISCUSS/TAKE ACTION ON EV MEMO AND FLYER
5. DISCUSS/TAKE ACTION ON PV MEMO
6. DISCUSS/TAKE ACTION ON REVISED ACTION PLAN
7. DISCUSS/TAKE ACTION ON GREEN COMMITTEE LOGOS AND BRANDING
8. DISCUSS/TAKE ACTION ON UPCOMING EVENTS TO PARTICIPATE
9. DISCUSS/TAKE ACTION ON LIVABLE LAWNS MEMO
10. ADOPTION OF THE MINUTES: JULY 30, 2015, REGULAR MEETING
11. ADJOURNMENT

**NEXT MEETING: SEPTEMBER 23, 2015**

***(One or more Council members may be present at this meeting)***

Pursuant to Section 286.0105, FSS, if an individual decides to appeal any decision made by this Committee with respect to any matter considered at this meeting, a verbatim transcript of the proceedings may be required and the individual may need to insure that a verbatim transcript of the proceedings is made. In accordance with the Americans with Disabilities Act and Section 286.26, FSS, persons with disabilities needing special accommodation to participate in this meeting should contact the City Clerk's office.

# Item#4

To: City Manager Courtney Barker

From: John Fergus

Re: Electric Vehicle (EV) Charging Stations

13 August 2015

Allen Potter, John Stone, and I have reviewed available information on EV charging stations during the past few weeks. Based on multiple factors, that review has narrowed to considering installation of a level 2 pay-for-use station at Pelican Beach Park with the potential for a second station at the Schechter Center.

Information gathering included face-to-face discussions in City Hall with representatives of the two vendors with the largest networks of level 2 pay-for-use stations on the East Coast. These are ChargePoint with headquarters in California (represented by NovaCHARGE) and SemaConnect with headquarters in Maryland. ChargePoint has about 500 stations in Florida, concentrated in Central Florida in the vicinity of Orlando as a result of working in the past with the Orlando Utilities Commission. There are ChargePoint stations in Melbourne and Palm Bay. SemaConnect has about 100 stations in Florida.

The technology used by these two vendors is similar. Both stations are housed in a powder-coated aluminum housing. Both use cell phone technology to access their network. Both have digital displays. Both allow users to activate the station and pay using an RFID card, an app on their mobile device, or by calling a toll-free number. Both provide the owner/operator of the charging station means to monitor its use and define a payment protocol anywhere with an internet connection.

The two station designs differ significantly in two details. First, the dual-port ChargePoint station, designed to serve two vehicles simultaneously, can be connected to either one or two 40 amp 220 volt circuit breakers. The corresponding SemaConnect station must be connected to two 40 amp 220 volt breakers. Connecting to a single breaker, if two breakers are not available, results in the maximum rate at which the ChargePoint station charges two vehicles simultaneously being half what it would be if only one vehicle is attached. The representative said this only is an issue with some EV models. Second, the ChargePoint station includes a mechanism that automatically retracts the charging cable, similar to the mechanism on gasoline pumps for retracting the hose. The user has to manually coil the charging cable onto a hanger with the basic SemaConnect station, but a cable management system similar to that used by ChargePoint is available as an add-on feature.

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The business model adopted by the two vendors is the same in their basic aspects. A client purchases a unit, installs it, pays a recurring fee to retain access to the vendor's network, and manages the unit(s) they own over the internet. The vendor collects fees for use and on a regular basis remits net receipts to the client. Both vendors offer at additional cost extended warranties beyond a basic one-year warranty.

The two business models differ in three ways. First, ChargePoint charges a fee to activate a newly-installed station. SemaConnect does not charge an activation fee. Second, ChargePoint, in addition to the recurring network access fee, retains ten percent of gross receipts, remitting to the client only 90% of gross receipts. The only cost associated with

use of the SemaConnect network is the recurring fee. Third, ChargePoint's warranty is for parts-and-labor. SemaConnect's warranty is equipment replacement.

We included Josh Pritt and Brenna Kaminski, co-founders of the Space Coast EV Drivers Club, in our review process to tap their experience as users of EV charging stations. Josh's response when asked, "What preferences, if any, do you have between ChargePoint vs SemaConnect?" was, "I asked everyone in the group and there's no real preference."

The primary difference between ChargePoint and SemaConnect is in price. To confirm the representative's verbal descriptions of the pricing structure, we asked them to provide the City with a quote showing price breakdown for the same station configuration:

- Level 2 station
- Single charge port
- Pole (vice wall) mount
- 5-year warranty

NovaCHARGE's quote (Attachment 1), including a 14% new customer discount, costs \$8,219 for five years. That price includes prepayment of five years of \$280 per year network access fees per charging port. It does not include the 10% charge on gross receipts.

SemaConnect's quote (Attachment 2), including a 25% promotional discount, costs \$4,091 for five years. That includes prepayment of five years of \$20 per month network access fees per charging port. The email transmitting the quote states, "The promotion on this is only for August and September and there is [sic] only a limited number of units available for this." There is a three week lead time from order placement to equipment shipment. A cable management system could be added for an additional \$800 per station.

Based on the major cost differential with only minor technical differences, the three of us recommend the City accept SemaConnect's quote for one single-port station without the cable retracting mechanism at a total cost of \$4,091 to be installed at Pelican Beach Park at the south end of the parking lot. You, Allen, and Kerry can decide on the exact location of the station.

Installing an EV charging station will, literally, put Satellite Beach on the map. The City will be the only location except hotels on Brevard County's barrier island south of the Port displayed on on-line maps showing EV drivers the locations of public charging stations ([www.plugshare.com](http://www.plugshare.com)). SemaConnect's three week lead time makes it possible we could have the station installed before the 19 September EV event at the Schechter Center.

John Fergus  
City Volunteer

2 Attachments  
1. NovaCHARGE Quote  
2. SemaConnect Quote

Please join the Space Coast Electric Vehicle  
Drives and the Satellite Beach Green Committee  
for



# National Drive Electric Week



**Saturday September 19th**

**David R Schechter Community Center**

**10am to 4pm**

**From:** [John Fergus](#)  
**To:** [Julie Finch](#)  
**Cc:** [Allen Potter](#); [John Stone](#); [Leonor Olexa](#)  
**Subject:** FOR INCLUSION IN GREEN COMMITTEE PACKET: Rooftop PV  
**Date:** Sunday, August 16, 2015 5:58:10 PM  
**Attachments:** [1 - PV Cost by state \(2013\).pdf](#)  
[2 - PV Cost by Year.pdf](#)  
[3 - Recent City PV Installations.pdf](#)  
[4 - 135 Maple, \\$3.50perW PVWatts.pdf](#)  
[5 - 135 Maple, \\$3.30perW PVWatts.pdf](#)  
[6 - 3.5KW Micro system.pdf](#)  
[7 - GoGreenSolar quote PVWatts.pdf](#)  
[8 - GoGreenSolar kit + shipping PVWatts.pdf](#)  
[9 - GoGreenSolar quote @ \\$0.119kWh PVWatts.pdf](#)  
[10 - Payback periods for installed solar chart.pdf](#)

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Green Committee,

Discussion about rooftop PV led me to investigate the current local market for such systems. The results follow.

As I provided earlier, the median cost of PV installed in Florida during 2013, as published by the US Department of Energy's Lawrence Berkeley Laboratory ("Tracking the Sun VII", September 2014), was \$3.30/W for systems smaller than 10kW (the normal size range for home systems)(Attachment 1). The cost for systems in the 10 to 100 Kw range was \$3.00 (Attachment 1). Elsewhere, the document indicates nationwide the median cost of PV has declined by about 10% per year since 2009 (Attachment 2). As such, one could expect local residential rooftop PV installations today to cost under \$3.00/W. That is not the case.

I checked permit records for five PV systems installed in the City since 2012 (Attachment 3). Three of the five cost \$3.50/W. Two, including a 4.85 kW system in 2013 and the largest (11.5kW, installed by a company out of Tampa) installed this year, cost more than \$4.00/W. It appears \$3.50/W is the going rate locally, despite the 2013 median price for Florida being \$3.30 for such systems. At \$3.50/W installed cost, the payback period for my home is greater than 18 years (Attachment 4). At \$3.30, payback is greater than 17 years (Attachment 5).

There are multiple vendors online selling do-it-yourself rooftop PV kits. Homeowners' use of PV kits avoids paying a contractor's installation cost while avoiding the effort, and pitfalls, of designing a system from scratch. I contacted the kit vendor that appeared to provide the best value for the money (located in California) and requested a quote. They quoted a 3.57kW system, the largest they indicate my 1964 home's 150 amp electrical service will accommodate, for \$7,685.15 (Attachment 6). This includes \$6,462 for 14 panels, 7 microinverters, and necessary mounting hardware; \$475 for preparing the permit package; \$250 for interconnect paperwork; and \$498.15 for shipping. My home's electric cost averages \$0.102/kWhr (including all fees and taxes, but excluding the fixed monthly connection fee). At that rate, with the 30% federal income tax rebate, the payback period on the system would be 11.4 years (Attachment 7). If I were able to avoid the permit and interconnect charges (unlikely), the payback period would be 10.3 years (Attachment 8). These estimates exclude additional costs, such as permits, an electrician to connect to the electrical panel (probably \$150 to \$400), and any additional needed expenses, such as any fees to FPL associated with connecting a power source to their grid.

FPL has a tiered residential electric rate structure. There is a base charge a customer pays even if they use no electricity. The first 1,000 kWhr used in any month costs a given amount per kWhr. Customers using more than 1,000 kWhr of electricity in any month pay more per kWhr for electricity beyond the first 1,000 kWhrs. Customers paying \$150 and more per month are paying about \$0.119/kWhr. Rerunning the payback model for the full cost of a kit with a \$0.0119 electricity rate on an ideally-oriented site results in what would appear to amount to something close to a minimum payback period of 10.0 years - again, excluding additional costs (Attachment 9).

Based on the above, it appears that currently the best payback period an individual who can install a rooftop PV system without the aid of a contractor can expect is somewhat greater than 10 years. In my opinion, 10 years is about the longest payback period one would care to incur when investing in a system with a nominal guaranteed operational life of 25 years, the norm for PV panels, to as short as 10 years, the norm for inverters. A 10-year payback period results in doubling one's investment in 20 years. The Rule of 72 translates this into approximately a 3.5% compound rate of return on investment.

It appears we are approaching, but have not yet reached, the time when owner-installed rooftop PV locally achieves "grid parity" and becomes a money-making investment in sustainability. Falling equipment costs, or an increase in electric rates, will move us in that direction. However, if the 30% alternative energy income tax credit expires at the end of 2016 as it is scheduled to, grid parity may slip further into the future unless the market forces the cost of systems to adjust accordingly.

For easy, quick reference, the chart and supporting spreadsheet at Attachment 10 show the payback period for an optimally-oriented PV system for a range of installation costs and electric utility rates. The utility rates exclude the fixed monthly connection charge, currently \$7.57.

If anyone finds a source for rooftop PV systems whose total DIY-installed cost is less than \$1.90/W, I would appreciate knowing about it.

John

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This email has been checked for viruses by Avast antivirus software.  
<https://www.avast.com/antivirus>



# NovaCharge

172A State Street E.  
Oldsmar, Florida 34677

Phone: (813) 333-1119

Name / Address
City of Satellite Beach, FL Allen Potter 565 Cassia Blvd Satellite Beach, FL 32937

# Quote

Date	Quote #
8/12/2015	Q20150216
	Rep
	WR

Project
Pelican Beach Park EVSE

Terms
50% w/ purchase order

Item	Description	Qty	U/M	Cost	Total
CT4011-GW	CT4011 Single Output Bollard Unit - Gateway Option, 208/240V @ 30A with Cord Management, RFID and Credit Card Reader.	1	ea	5,010.00	5,010.00T
CT4010-Assure 4/...	4-Years ChargePoint Assure: ChargePoint Parts and On-Site Labor to Repair or Replace any manufacturing Defect. Includes remote monitoring of station and proactive repair dispatch.	1		4,130.00	4,130.00T
Commercial Netwo...	Bundle includes 5 Years Commercial Network Services. Network Services Detail See below. Commercial ChargePoint Network Service Plan- 5 year Prepay Plan 24/7/365 Network Operation & Driver Support, Station Manager Login, Flex Billing, Reservations, Station API use (SERVICE PLAN PRICING IS PER L2 CHARGING PORT, NOT PER STATION)	0	ea	0.00	
Freight/Shipping NC-SC-1X	Freight/Shipping Charges System Commissioning per unit fee-(customization of network portal) Dual units are counted as one unit for this. Units are geographically positioned, diagnostics are run to certify installation, the warranty is activated, the network portal and customer training are done, messaging and access controls are uploaded, and the units are visible/hidden, as selected by host, on search engines like Google maps, navigation systems, and the ChargePoint Network.	1	ea	150.00 300.00	150.00 300.00
New Customer	New Customer Discount			-1,371.00	-1,371.00
	Sales Tax			0.00%	
<b>Total</b>					<b>\$8,219.00</b>

All pricing is Confidential

1. Site Survey and Commission may be required for warranty activation, proper installation and function of the system.
2. Pricing is valid for 60 days from date of quote generation.
3. Standard invoice terms are Net 30 days unless detailed above.
4. A late fee of 1.5% will be added to past due accounts.
5. 3% additional charge for credit card processing.
6. Manufacturer provided standard product warranty applies to all products.
7. All prices FOB source, customer pays freight.

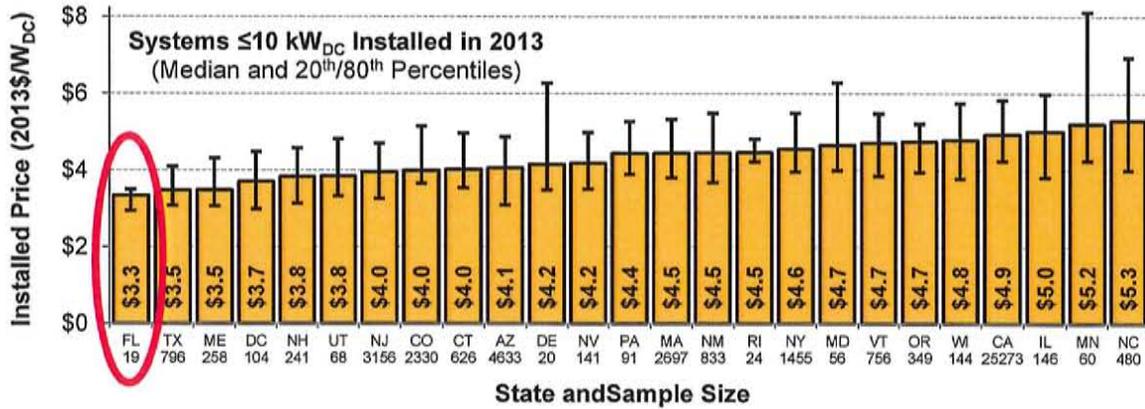
## 10.0 System Price – 60 Month Full Service Program

	Unit Price	Quantity	Price
<b>Quantity of Charging Stations</b>		<b>1</b>	
Pedestal Mount		<b>1</b>	
Wall Mount			
Dual Head Pedestal			
<b>Total ChargePro Stations</b>		<b>1</b>	
<b>Itemized Quote</b>			
ChargePro Charging Station	\$3,490	1	\$3,490.00
Mounting Devices			
Pedestal Mount	Inc.	1	Inc.
Wall Mount	Inc.		
Dual Head Pedestal Mount	Inc.		
Cable Management System			
Dual CMS	\$800		
Single CMS	\$800		
Software and Service			
Network Service Fee	\$20/mn(1)	1	\$20/mn
ChargePro Management S/W	Inc.		
ChargePro Driver S/W	Inc.		
Optional-External Router	\$1,500		
Extended Warranty Option			
Total 3 Year Warranty	\$400		
Total 5 Year Warranty	\$800		
Full Service Program			
3 Year Full Service (2)	\$1,000		
5 Year Full Service	\$1,880		\$1,880.00
<b>Total System Price</b>			<b>\$5,370.00</b>
<b>August Promo Discount</b>			<b>\$1,370.00</b>
<b>Purchase Price</b>			<b>\$4,000.00</b>
<b>Shipping</b>			<b>\$91.00</b>
<b>Final Total Purchase Price</b>			<b>\$4,091.00</b>
<b>Total Network Service Fee</b>			<b>\$20/mn(1)</b>

1. Charges begin after first 60 months of operation (first 60 months Network Service is included).
2. Full Service Program includes 60 month warranty and 60 months of network service fees

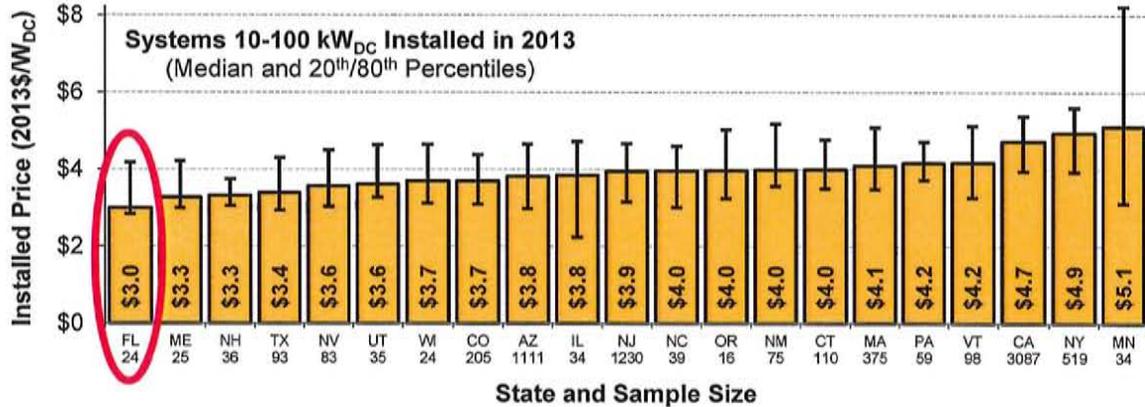
### Delivery Schedule

**3 week lead time from order placement until product shipment**



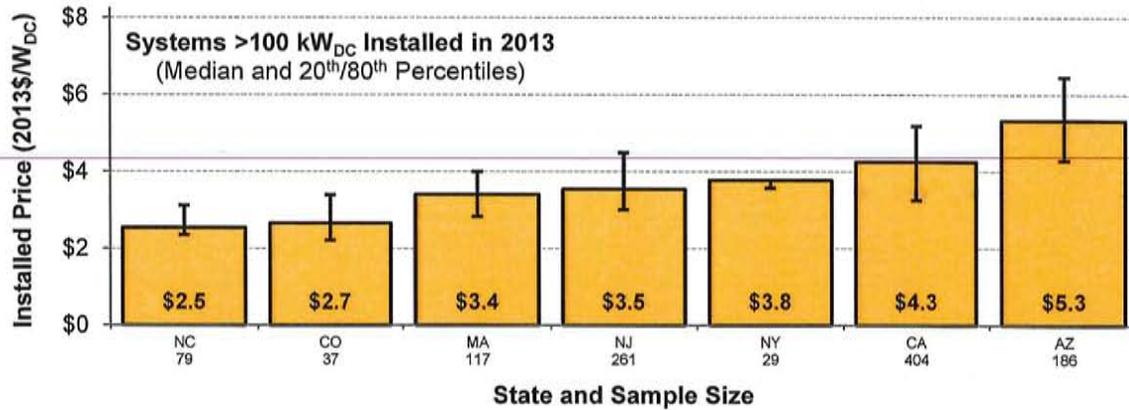
Notes: Median installed prices are shown only if 15 or more observations were available for a given state.

Figure 16. Installed Price of Residential & Commercial PV Systems by State ( $\leq 10$  kW Systems)



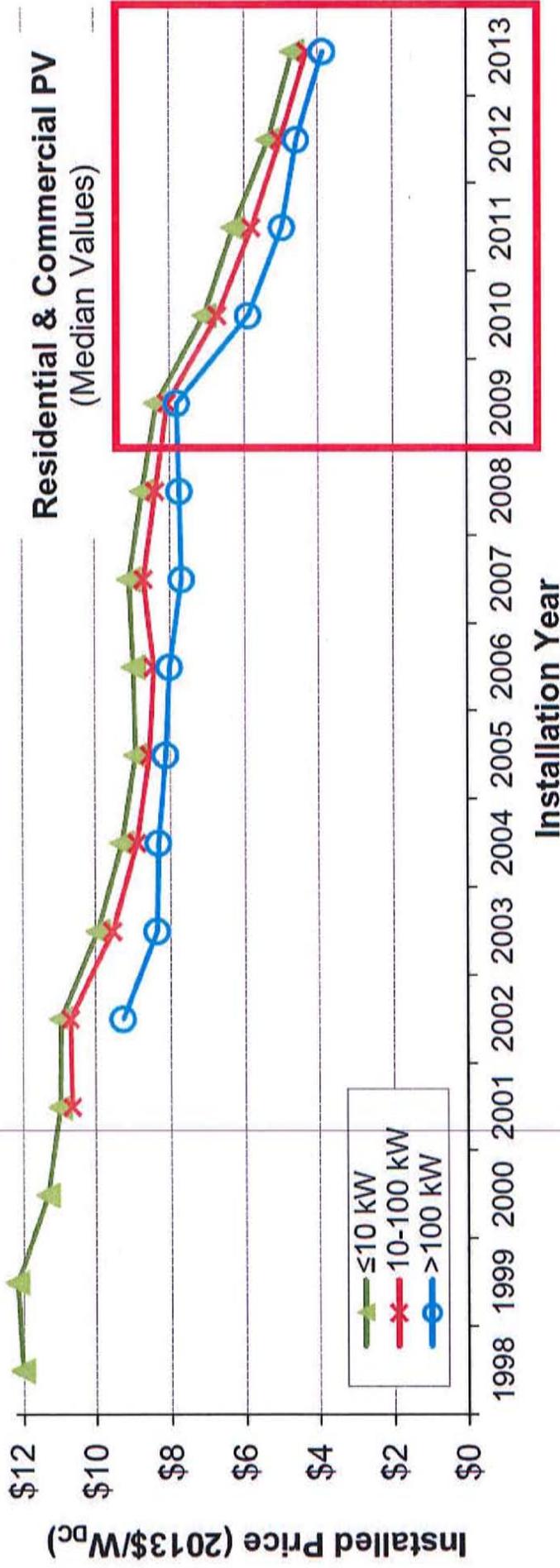
Notes: Median installed prices are shown only if 15 or more observations were available for a given state.

Figure 17. Installed Price of Residential & Commercial PV Systems by State (10-100 kW Systems)



Notes: Median installed prices are shown only if 15 or more observations were available for a given state.

Figure 18. Installed Price of Residential & Commercial PV Systems by State ( $> 100$  kW Systems)



Notes: See Table 1 and Table B-2 for residential and commercial PV sample sizes by installation year. Median installed prices are shown only if 15 or more observations are available for the individual size range.

**Figure 6. Installed Price of Residential & Commercial PV over Time**

## Recent Satellite Beach PV Installations

530 Cassia, 22 Jun 2012

6.5 kW, 1 Sunny Boy inverter, \$22,777 (**\$3.50/W**)

Voltage Pros, 633 Magnolia Ave, Melbourne (321) 600-0649

544 Royal Palm, 11 Dec 2013 (**\$4.12/W**)

4.845 kW, Enphase microinverters, \$20,000

Solar Energy Systems of Brevard, Melbourne (321) 253-3232

615 Robert Way N, 23 Mar 2015 (**\$3.50/W**)

8.55 kW, 30 Enphase microinverters, \$29,900

Solar Energy Systems of Brevard, Melbourne (321) 253-3232

275 Lynn, 12 Jun 2015

5.7 kW, 20 Enphase microinverters, \$19,950 (**\$3.50/W**)

Solar Energy Systems of Brevard, Melbourne (321) 253-3232

420 Roosevelt, 9 Jul 2015

11.5 kW, 2 Sunny Boy inverters, \$54,897 (**\$4.77/W**)

Advance Solar Construction, Tampa (813) 677-7373

Robert Bussa (231) 264-6968

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Caution: Photovoltaic system performance predictions calculated by PVWatts® include many inherent assumptions and uncertainties and do not reflect variations between PV technologies nor site-specific characteristics except as represented by PVWatts® inputs. For example, PV modules with better performance are not differentiated within PVWatts® from lesser performing modules. Both NREL and private companies provide more sophisticated PV modeling tools (such as the System Advisor Model at <http://sam.nrel.gov>) that allow for more precise and complex modeling of PV systems.

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any support, consulting, training or assistance of any kind with regard to the use of the Model or any updates, revisions or new versions of the Model.

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## RESULTS

# 5,069 kWh per Year \*

Month	Solar Radiation ( kWh / m <sup>2</sup> / day )	AC Energy ( kWh )	Energy Value ( \$ )
January	3.53	337	35
February	4.10	357	37
March	4.54	436	45
April	5.00	459	48
May	7.02	660	69
June	4.63	423	44
July	5.46	508	53
August	5.42	503	52
September	4.62	419	44
October	3.77	359	37
November	3.59	333	35
December	2.85	275	29
<b>Annual</b>	<b>4.54</b>	<b>5,069</b>	<b>\$ 528</b>

### User Comments

135 Maple, 32937, local PV cost (\$3.50/W, \$14,000/4kW) x 70% = 18.6-year payback

### Location and Station Identification

Requested Location	32937
Weather Data Source	(TM Y3) MELBOURNE REGIONAL AP, FL 5.5 mi
Latitude	28.12° N
Longitude	80.65° W

### PV System Specifications (Residential)

DC System Size	4 kW
Module Type	Standard
Array Type	Fixed (open rack)
Array Tilt	20°
Array Azimuth	270°
System Losses	14%
Inverter Efficiency	96%
DC to AC Size Ratio	1.1

### Initial Economic Comparison

Average Cost of Electricity Purchased from Utility	0.10 \$/kWh
Initial Cost	3.50 \$/Wdc

**Cost of Electricity Generated by System**      **0.15 \$/kWh**

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**Selected Incentives**

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**Investment Tax Credit (ITC)**

Residential Renewable Energy Tax Credit  
Percent of Cost: 30%

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These values can be compared to get an idea of the cost-effectiveness of this system. However, system costs, system financing options (including 3rd party ownership) and complex utility rates can significantly change the relative value of the PV system.



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**Cost of Electricity Generated by System**      **0.14 \$/kWh**

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**Selected Incentives**

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**Investment Tax Credit (ITC)**

Residential Renewable Energy Tax Credit  
Percent of Cost: 30%

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These values can be compared to get an idea of the cost-effectiveness of this system. However, system costs, system financing options (including 3rd party ownership) and complex utility rates can significantly change the relative value of the PV system.



**GoGreenSolar.com**™

310 E. Orangethorpe Ave. Suite D  
Placentia, CA 92870  
From: Linh Tran  
866 798-4435 ext 705

**Quote Q7048**  
Attention: John Fergus  
Valid Till: 08/19/2015

**BILL TO:**

John Fergus  
135 Maple Drive  
Sattellite Beach, Florida 32937

**SHIP TO:**

John Fergus  
135 Maple Drive  
Sattellite Beach, Florida 32937

Product Name	Qty	List Price	Total
3570 Watt (3.57kW) Complete Solar Install Kit w/ Micro-Inverters	1	\$ 6,462.00	\$ 6,462.00
Includes:			
14x SunTech 255W Solar Panels			
7x APS 500W Micro-Inverters w/ Monitoring			
Solar Racking & Mounting Package includes IronRidge XR10 Rails (mill finish), Integrated Grounding Mid Clamps, End Clamps, End Caps, Splice Kits, Grounding Straps & Lugs, Mounts for Comp Shingle, Tile, S-Tile or Metal Roofs, 4 Foot Spans, Hellermann Warning Labels			
Permit Package Preparation, 0-4.99 kW *Does not include structural engineering* Permit-0-4.99kW	1	\$ 475.00	\$ 475.00
Interconnection Paperwork for Residential Projects under 30KW	1	\$ 250.00	\$ 250.00
		<b>Sub Total</b>	<b>\$ 7,187.00</b>
		Tax	<b>\$ 0.00</b>
		Shipping	<b>\$ 498.15</b>
		<b>Grand Total</b>	<b>\$ 7,685.15</b>

## Terms and Conditions

**Please review this quote for accuracy!**

It is the responsibility of the person requesting this quote to verify that the listed components on this quote will work for the actual installation conditions, required project specifications and any applicable safety codes. Neither GoGreenSolar.com nor any of its Affiliates is liable or responsible for the listed components, design, installation, kWh production, code compliance, and all other matters related to the system.

### Pricing Information and Availability Disclaimer

GoGreenSolar.com reserves the right to make adjustments to pricing, Products and Service offerings for reasons including, but not limited to, changing market conditions, Product discontinuation, Product unavailability, manufacturer price changes, supplier price changes and errors in advertisements. GoGreenSolar.com cannot guarantee that it will be able to fulfill Customer's orders.

### GoGreenSolar.com Shipping Policy

**Important!** GoGreenSolar.com will ship the equipment shown on the attached quote when you order it. You are required to verify that the items listed are correct before we ship. If we don't hear from you we will assume that the order is correct and you will assume the responsibility for any change in the order.

**Important! You or your receiving agent MUST check your order immediately for accuracy and possible concealed damage. Undiscovered damage claims not noted on the delivery receipt cannot be made with a carrier or GoGreenSolar.com. NO EXCEPTIONS! Protect your investment! It is your responsibility to check your shipment. Your signature on a shipping receipt is a legal release of claim for damage unless noted at the time of receipt.**

A 30% restocking fee will be charged for all returns (except mis-shipments or properly claimed damaged shipments). Custom built items are non-returnable. Shipping charges are not refundable.

Return Policy: Merchandise, except for products that were specially ordered and/or assembled for the customer, may be returned within 14 days of the receipt of the product.

Before returning items, it is necessary that you contact our returns department who will begin the returns process.

Once you have been instructed where to return the item, you are responsible for the shipping charges back to that address unless there was an error in your shipped order. You will be responsible for the return of any unused product and agree to use only reputable carriers capable of providing proof of delivery and insurance for the value of the shipment. These include UPS and Fed Ex.

You will receive a refund or credit towards your account, provided the merchandise is returned in the original packaging, in new and resalable condition with the original blank warranty cards, manuals, and all accessories. **You may need to place the original box within a new box. The outside packaging of the product must be free of writing, holes and markings.** Some products are more fragile and may require an additional box and packaging, it is important that you ship items accordingly. If any component of the returned product is missing, damaged, or fails to meet the standards set herein, **GoGreenSolar.com** may reject the return or may choose to impose additional charges for replacement of the missing component.

It is **GoGreenSolar.com's** policy that mis-shipments get handled exactly the same as returns. If you receive incorrect merchandise you must contact our returns department immediately. We will work to ensure customers receive a quick reshipment of items. The returned merchandise must be received in resalable condition, and is subject to the same return standards shown above.



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## RESULTS

# 4,524 kWh per Year \*

Month	Solar Radiation ( kWh / m <sup>2</sup> / day )	AC Energy ( kWh )	Energy Value ( \$ )
January	3.53	301	31
February	4.10	319	33
March	4.54	390	41
April	5.00	410	43
May	7.02	589	61
June	4.63	377	39
July	5.46	453	47
August	5.42	449	47
September	4.62	374	39
October	3.77	320	33
November	3.59	297	31
December	2.85	246	26
<b>Annual</b>	<b>4.54</b>	<b>4,525</b>	<b>\$ 471</b>

### User Comments

135 Maple, 32937, GoGreenSolar quote (\$7,685.15) x 70% = 11.4-year payback

### Location and Station Identification

Requested Location	32937
Weather Data Source	(TM Y3) MELBOURNE REGIONAL AP, FL 5.5 mi
Latitude	28.12° N
Longitude	80.65° W

### PV System Specifications (Residential)

DC System Size	3.57 kW
Module Type	Standard
Array Type	Fixed (open rack)
Array Tilt	20°
Array Azimuth	270°
System Losses	14%
Inverter Efficiency	96%
DC to AC Size Ratio	1.1

### Initial Economic Comparison

Average Cost of Electricity Purchased from Utility	0.10 \$/kWh
Initial Cost	2.29 \$/Wdc

**Cost of Electricity Generated by System**      **0.10 \$/kWh**

---

**Selected Incentives**

---

**Investment Tax Credit (ITC)**

Residential Renewable Energy Tax Credit  
Percent of Cost: 30%

---

These values can be compared to get an idea of the cost-effectiveness of this system. However, system costs, system financing options (including 3rd party ownership) and complex utility rates can significantly change the relative value of the PV system.



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## RESULTS

# 4,524 kWh per Year \*

Month	Solar Radiation ( kWh / m <sup>2</sup> / day )	AC Energy ( kWh )	Energy Value ( \$ )
January	3.53	301	31
February	4.10	319	33
March	4.54	390	41
April	5.00	410	43
May	7.02	589	61
June	4.63	377	39
July	5.46	453	47
August	5.42	449	47
September	4.62	374	39
October	3.77	320	33
November	3.59	297	31
December	2.85	246	26
<b>Annual</b>	<b>4.54</b>	<b>4,525</b>	<b>\$ 471</b>

### User Comments

135 Maple, 32937, GoGreenSolar kit + shipping (\$6,960.15) x 70% = 10.3-year payback

### Location and Station Identification

Requested Location	32937
Weather Data Source	(TMY3) MELBOURNE REGIONAL AP, FL 5.5 mi
Latitude	28.12° N
Longitude	80.65° W

### PV System Specifications (Residential)

DC System Size	3.57 kW
Module Type	Standard
Array Type	Fixed (open rack)
Array Tilt	20°
Array Azimuth	270°
System Losses	14%
Inverter Efficiency	96%
DC to AC Size Ratio	1.1

### Initial Economic Comparison

Average Cost of Electricity Purchased from Utility	0.10 \$/kWh
Initial Cost	1.95 \$/Wdc

**Cost of Electricity Generated by System**      **0.09 \$/kWh**

---

**Selected Incentives**

---

**Investment Tax Credit (ITC)**

Residential Renewable Energy Tax Credit  
Percent of Cost: 30%

---

These values can be compared to get an idea of the cost-effectiveness of this system. However, system costs, system financing options (including 3rd party ownership) and complex utility rates can significantly change the relative value of the PV system.



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## RESULTS

# 4,524 kWh per Year \*

Month	Solar Radiation ( kWh / m <sup>2</sup> / day )	AC Energy ( kWh )	Energy Value ( \$ )
January	3.53	301	36
February	4.10	319	38
March	4.54	390	46
April	5.00	410	49
May	7.02	589	70
June	4.63	377	45
July	5.46	453	54
August	5.42	449	53
September	4.62	374	44
October	3.77	320	38
November	3.59	297	35
December	2.85	246	29
<b>Annual</b>	<b>4.54</b>	<b>4,525</b>	<b>\$ 537</b>

### User Comments

135 Maple, 32937, GoGreenSolar quote (\$7,685.15) x 70% w \$150+/month electric bill (\$0.119/kWh) = 10.0-year payback

### Location and Station Identification

Requested Location	32937
Weather Data Source	(TMY3) MELBOURNE REGIONAL AP, FL 5.5 mi
Latitude	28.12° N
Longitude	80.65° W

### PV System Specifications (Residential)

DC System Size	3.57 kW
Module Type	Standard
Array Type	Fixed (open rack)
Array Tilt	20°
Array Azimuth	270°
System Losses	14%
Inverter Efficiency	96%
DC to AC Size Ratio	1.1

### Initial Economic Comparison

Average Cost of Electricity Purchased from Utility	0.12 \$/kWh
Initial Cost	2.29 \$/Wdc

**Cost of Electricity Generated by System**      **0.10 \$/kWh**

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**Selected Incentives**

---

**Investment Tax Credit (ITC)**

Residential Renewable Energy Tax Credit  
Percent of Cost: 30%

---

These values can be compared to get an idea of the cost-effectiveness of this system. However, system costs, system financing options (including 3rd party ownership) and complex utility rates can significantly change the relative value of the PV system.







## AD HOC GREEN COMMITTEE AGENDA ITEM

# #6

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### DISCUSS/TAKE ACTION ON SUSTAINABILTY ACTION PLAN DRAFT

To: Chairman and Committee Members  
From: City Manager Courtney Barker  
Meeting Date: 8/26/2015  
Department: Support Services

**Recommended Action:** Discuss/Take Action on Sustainability DRAFT Action Plan

**Summary:** The Ad Hoc Green Committee must turn in a Plan to the City Council by August.

The Action Plan includes the completion of a Long Term Sustainability Plan for the City, as well as several other projects that can be started in the short term. This Action Plan provides you with a list of recommended actions that can be approved by the City Council so that you may move forward into implementation.

This Plan, if approved, will be presented to Council on Wednesday, September 2, 2015.

**Budget Impacts:** None

**Attachments:**

1. Draft Action Plan
2. Outline of Member Submittals

# City of Satellite Beach

## Ad Hoc Green Committee



*Vision:*

*“Provide leadership, guidance, and inspiration the Satellite Beach community and the City to create more sustainable, environmentally-friendly neighborhoods by minimizing our emissions and waste, protecting our environmental assets and wildlife, and preparing for a changing climate.”*

## Sustainability Action Plan

Submitted August 19, 2015



**Committee Members:**  
Jeff Chestine, Chair  
John Fergus, Vice Chair  
Josh Pause  
Eugene Mathews  
David Vigliotti  
Scott Waymire

**DRAFT FOR COMMITTEE REVIEW**



## Background:

On June 17, 2015, the Satellite Beach City Council appointed an Ad Hoc “Green Committee.” The purpose of this Committee is to make recommendations for a local sustainability action plan for climate change and environmental sustainability initiatives. The Committee held its first meeting on June 29, 2015. The Committee has since met four additional times to discuss the possible strategies and initiatives that the Committee and City could eventually complete towards the goal of a more sustainable community.

The idea for the Green Committee was expressed by a resident at a Community Meeting on March 30, 2015, which was held at the Satellite Beach Library. Another resident present at the meeting, Jeff Chestine, embraced the idea and assisted City staff in creating the description of the Committee and presenting the idea to the City Council. Mr. Chestine is now the Committee’s Chairman. As the ideas for the Committee were formed, the City also hired three college interns to provide the staff for the Committee.

## Action Plan Strategies:

The Committee members have provided numerous ideas for future strategies, programs, and initiatives. This Action Plan summarizes that the common ideas between the members, and provides some recommended actions, timeframes, and, if applicable, funding amounts and sources to implement the ideas.

### 1. Create a Permanent Committee.

It became clear in the first meeting that this Committee has enough interest from the community, current serving members, staff, and City Council to become a permanent committee. Therefore, this should be a priority in discussing and recommending to the City Council how the Committee would like to be formed.

- *Add the Committee to the Board Handbook as the Green Committee, with seven members and the option of a non-voting liaison member with specific environmental expertise.*

### 2. Create a long term Sustainability Plan for the City of Satellite Beach.

A long term plan would provide the City Council, Boards and Committees, and the staff an overall policy and strategy plan that would provide the guidance to instill a “green” culture throughout the City’s operations. This Plan would also serve as the long term plan for *some* of the Committee’s functions and initiatives.

It is important to note that the Sustainability Plan would be geared towards the City’s operations and aspects of the community that City operations impact. Therefore, there may be activities of the Committee that fall outside the confines of the Long Term Sustainability Plan, such as a “Livable Lawns” project, which is described in further detail below. As such, this Plan is considered just one of the immediate actions to be completed by the Committee.

On July 14, 2015, the City’s interns presented an outline provided by the International Council for Local Environment Initiatives (ICLEI) outline for Creating a Sustainability Plan. This outline includes



five milestones to creating a plan: (1) Conduct a Sustainability Assessment (2) Establish Sustainability Goals (3) Develop a Sustainability Plan (4) Implement Policies and Procedures (5) Evaluate progress and report results. As such, the first step toward completing the Plan is to complete the Assessment.

Although many communities hire consulting firms to complete these plans, staff is able to complete this plan “in-house” with the exception of the Assessment, which usually includes the need for special software and mapping capabilities. Therefore, it is recommended to obtain outside services for this particular milestone of the planning process.

*Recommendations:*

1. *Create a scope of services for the Sustainability Assessment.*
2. *Work with the Florida Institute of Technology to hire one or more interns to complete the scope of services.*
3. *Make a recommendation to the City Council to create a \$15,000 budget for Sustainability Assessment (cost of the intern(s) salary).*

**3. Implement Short Term Initiatives to Engage the Public.**

It is important to engage the public at the beginning of the process and keep their interest. Therefore, the Committee believes that we should begin “low hanging fruit” projects and projects that will be relatively uncomplicated to start. The following are recommended “short term” projects, although the projects/programs may continue long into the future.

a. **Landscaping and Lawns –**

The City of Satellite Beach recognizes residential landscaping as having an impact on the larger coastal ecosystem. To protect the City’s natural resources and preserve its unique coastal environment, the Committee recommends the City sponsor a “Lose the Lawn” campaign. This campaign will provide a set of principles to direct businesses and homeowners in their creation of an environmentally stable and low-maintenance landscape. The campaign’s goals are to reduce the amount of fertilizer runoff from lawns, reduce the amount of water needed to maintain a healthy and attractive lawn, and promote the use of native plants in landscaping.

The principles of Satellite Beach’s “Lose the Lawn” campaign are derived from Delaware Livable Lawns, Florida Friendly Lawns, and the principles of Xeriscape. They are:

1. Place plants in the proper location based on soil, water, and climate conditions.
2. Practice proper, conservative irrigation techniques
3. Practice proper fertilization techniques
  - a. Verify that your lawn needs fertilizer by testing soil before application
  - b. Sweep excess fertilizer back into the grass
4. Incorporate mulch to retain soil moisture.
5. Leave grass clippings on the lawn after mowing
6. Manage pests with Integrated Pest Management (IPM) techniques
7. Compost yard waste to use as fertilizer
8. Create rain gardens to reduce storm water runoff
9. Establish a no-interference zone 10 feet around waterways



#### 10. Utilize native, low-maintenance plants in your landscape

The City will conduct an initial survey of current residential lawns to determine the amount of irrigated St. Augustine grass compared to Xeriscaped lawns. To measure the effectiveness of the program, the city will update the survey every two to three years to monitor progress.

*Recommended actions:*

1. *Define Xeriscape and other goals for the program*
2. *Conduct initial survey and set goals*
3. *Identify possible partners (i.e the Conradina chapter of the Florida Native Plant Society, Florida Friendly Landscapes, etc.)*

#### **b. Community Garden/Composting**

Food in the United States travels an average of 1300 miles from farm to plate and changes hands between five and ten times. Community gardens are a viable solution to problems the City faces, like increasing greenhouse gas emissions, waste produced by product packaging, and funding plant replacement initiatives. For these reasons, the Committee recommends the City sponsor a community garden.

By eliminating the need for lengthy transportation, the garden will reduce local greenhouse gas emissions related to the transportation of food. Food in transportation requires excessive boxing and bagging; by eliminating the need to package food, the community garden will help reduce packaging waste that would otherwise end up as litter or in a landfill.

The City spends \$1,000 annually on native plants for landscaping and plant replacement purposes. To reduce this expense, the community garden will also be used to grow plants commonly used in City landscaping.

*Recommended Actions:*

1. *Create the purpose and scope of the project.*
2. *Identify possible lots/locations for the garden location.*
3. *Designate oversight duties for this project on the Committee.*
4. *Create volunteer pool for the project.*

#### **c. Green Event**

An essential part of any green committee action plan is public outreach. Without public support and participation, our green initiatives will produce little or no of their desired lasting change. Through taking part in a couple of existing environmentally themed community events and creating one of our own, the committee plans to engage and educate the public about a variety of green-related opportunities.+

The Space Coast Electric Vehicle Drivers Association has scheduled their annual Drive Electric Event for September 19<sup>th</sup> at the Satellite Beach Schecter Center. Because this event is so soon the committee will not have a chance to organize an official presence at the event. However, the committee does have a chance to promote the event and be



there in an unofficial fashion to meet citizens interested in driving green. The Second event is the Surfrider Foundation event in December. For this event the committee has a chance to plan how they would like to be present and what they will show to the public. The final event is the annual Satellite Beach Tree and Plant Sale at the Schecter Center in March. The committee has talked about using this event as an opportunity to start an annual Green Committee sponsored "Green Fair".

The event could include: a farmers market, an electric/hybrid car show, plant sale, local non-profits such as Surfrider, Blue-life, SELF solar energy, presentations from Brevard Zoo public outreach and Green Committee initiative presentations as well as entertainment from local musicians and bands. It would be a great way to get the community informed and enthusiastic about the green committee and it is far enough away to plan and organize while also getting a couple committee initiatives underway.

*Recommended actions:*

1. *Have the Committee internally appoint a public outreach organizer to determine what the Green Committee's presence will be at these events and organize March green event*
2. *Set a small budget to print committee handouts and presentation items for events*
3. *Set about creating and adopting an official committee logo to gain recognition and presence in community*

**d. Electric Vehicle Charging Stations**

An electric vehicle charging station, also called EV charging station, is an element in an infrastructure that supplies electric energy for the recharging of electric vehicles, such as plug-in electric vehicles, including electric cars, neighborhood electric vehicles and plug-in hybrids. As plug-in hybrid electric vehicles and battery electric vehicle ownership is expanding, there is a growing need for widely distributed publicly accessible charging stations, some of which support faster charging at higher voltages and currents than are available from residential EV chargers. Many charging stations are on-street facilities provided by electric utility companies or located at retail shopping centers and operated by many private companies. These charging stations provide one or a range of heavy duty or special connectors that conform to the variety of electric charging connector standards, and can be acquired from a range of costs, expanding from FREE-\$300 (Level 1 Charger), \$400-\$1000 (Level 2 Charger), and \$30,000-\$60,000 (Level 3 Charger).

The City of Satellite Beach recognizes the growth in popularity of electric vehicles in addition to their benefits for the environment. The Committee recommends that the City of Satellite Beach install charging stations at popular and well frequented locations in order to maximize charging output and efficiency. Installing EV charging stations is another step the City of Satellite Beach is making to create a more sustainable, livable atmosphere for future generations of residents in the area, while helping to increase revenue of surrounding businesses that benefit from lingering EV drivers.

*Recommended Actions:*

1. *Define the final locations of EV stations, Atlantic Plaza, Hightower Park, Pelican Beach Park, particular businesses? Etc*



2. *Define the level of charging stations to be installed in these areas, or add variety by installing different levels based on usage in the particular area?*
3. *Decide on the whether the City should provide a Free vs. Fee system (Coordinate with FPL?)*

**Reusable bag partnership with Surfrider Foundation**

Single-use plastic bags present considerable environmental concerns and increase the volume of non-biodegradable waste. Over 100 billion single-use plastic bags are discarded annually in the United States, with less than 3% recycled. As a result, most bags end up in landfills or as litter in waterways. To combat the danger this poses to our environment and wildlife, the Committee recommends starting a reusable bag partnership with the Surfrider Foundation.

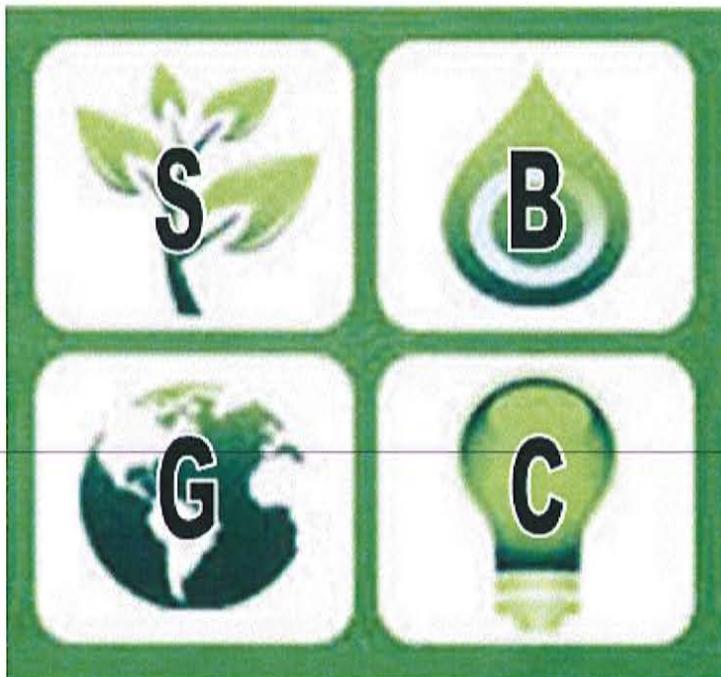
The City, together with Surfrider, will provide reusable bags free of charge to residents of Satellite Beach during environmental awareness programs. The city should partner with local businesses and Surfrider to create a Facebook challenge to reduce single-use plastic bag usage by a set goal amount. Each reusable bag has the potential to eliminate over 1,000 bags during its lifetime. To aid the effectiveness of the reusable bags, the city should consider asking local businesses to add a minimal fee (five cents) for every single-use plastic bag given to a customer.

*Recommended Actions:*

1. *Identify potential reusable bag manufacturers*
2. *Identify potential local businesses partners (i.e Publix, Walgreens, CVS)*
3. *Set plastic bag reduction goal(s)*



*Green Committee*



## Julie Finch

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**From:** Josh Pause  
**Sent:** Tuesday, August 11, 2015 5:16 PM  
**To:** Julie Finch  
**Subject:** Re: question

Julie:

When it comes to branding the Green Committee, here is what I've got so far:

When it comes to picking a name, it is critical we pick something with an available domain name; getting that website up is key to my whole strategy here.

Here are some other names that were available when I last checked:

GreenGroupSB.com

GoGreenSatelliteBeach.com

GoGreenSB.org

GreenIsKeen.org - old school vibe

SBEG.org -> Satellite Beach Environment Group

I also bought fixthebeach.com and haven't done anything with it yet. I think that's a catchy domain.

"Fix the Beach" being the obvious tagline- do your part to help fix Satellite Beach.

I also thought about the logo itself.

Our "classic" logo:



## Julie Finch

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**From:** Jeff Chestine <Jchestine@tropicalrealtyhomes.com>  
**Sent:** Monday, August 17, 2015 7:53 AM  
**To:** Julie Finch  
**Subject:** Re: Reminder on Packet Information

**Item #9**

Julie,

Thanks very much. Here is what I'd like to see us do at our next meeting.

I'd like to see each of us members volunteer/be assigned to a pet project. We discussed several at the last meeting and I'm under the impression Courtney is planning to assign us at this meeting but I'm not sure.

I'd like to volunteer as the Livable/friendly/green lawns program assignee. I'd like to begin writing and getting together certification forms for contractors, flyers to post at local business. I'd like to begin contacting contractors on behalf of the Green Committee to find those who'll show immediate interest in participating. Get input from some of them on proposed requirements and forms, etc. I've seen a lot of this type of thing from different states, including, Florida. There is a lot of good material out there and I think I can pull together all the info we need to get started. I'd like to recruit a volunteer resident who is not a committee member to work with me on this.

The Livable Lawn model is an approach to homeowners using contractors as the conduit. Enlisting them to use, promote, and educate their customers on environmentally friendly practices for their landscaping. In turn we help them win new customers. I've already spoken with a couple of real estate brokerages who agreed to also promote these contractors as preferred vendors and even place links on their web sites to the contractors we approve.

Clearly Xeriscaping is another level up the ladder so to speak in green practices and its not for everyone. We can get a lot of people to reduce the amount of fertilizer they use, change the time of year they apply it and reduce the grass clippings they send down the storm drain. Possibly even get some to create small swales in the yard to handle runoff from the roof. Many of these people will agree to these changes on the advice of their trusted lawn guy but would not consider pulling out what they have established and cared for and cultivated for many years to be replaced with native plants. Not all at once anyway.

I'd like to see us take the next step toward initial research with FIT determining what levels of run off, etc that we have to compare to an appropriate federal or state standard. Unless that naturally falls under the responsibility of the City Manager, I'd like to see one of us volunteer/assigned to liaise with that research partner.

Sincerely,  
Jeff Chestine, Realtor  
Tropical Realty Beachside, LLC  
321.821.8587  
[www.TropicalRealtyHomes.com](http://www.TropicalRealtyHomes.com)

**AD HOC GREEN COMMITTEE  
UNAPPROVED REGULAR MEETING MINUTES  
JULY 30, 2015**

Pursuant to public notice, Chairman Jeff Chestine convened a regular meeting of the AD HOC Green Committee on Tuesday, July 30, 2015, at 7:00 p.m., in the Council Chamber. Committee Members present were Jeff Chestine, John Fergus, Eugene Mathews, Josh Pause and David Vigilotti. Staff Members present were City Manager Courtney Barker and Recording Secretary Julie Finch. Interns Present were Megan Comunale, Zachary Fleis, and Max Hoffman. Board Member Scott Waymire was not present.

Chairman Jeff Chestine led the Pledge of Allegiance.

**(TIME: 7:01 P.M.) PUBLIC COMMENT**

No Public Comment

**(TIME: 7:02 P.M.) PRESENTATION BY Attorney Beadle on Sunshine Laws**

Attorney Beadle spoke about Sunshine laws and how they apply to Board member communication. Specifically those board members cannot speak to each other about topics on agenda items unless they are at the meeting. He also spoke about how every City meeting, all recording at the meetings, and all communications about meeting topics become public record and that any resident can request to have copies of all mentioned correspondence. He noted that text messages and emails are included in this realm.

Public Comments-None

**(TIME: 7:16 P.M.) DISCUSSION OF SUSTAINABILITY ACTION PLAN DRAFT**

The Green Committee needs to decide what they want to present to council about moving forward in the future, looking at becoming a non-profit. Questions were raised about funding by Josh Pause and he has a possible interested party, he would like to research and present as an agenda item next meeting. Vice Chair member Fergus urged the committee to look at finding grants and looking for community involvement. The board had consensus to create a permanent committee as a City Board. City Manager Barker recommended that the committee find an intern from F.I.T. with a budget of \$10,000 to complete a Sustainability Assessment. Noting that this initiative will take time to create and everyone should expect 4-6 months for planning. John Fergus would like to look into adding roof top solar to the charging stations for EV cars. Josh Pause says that FPL pays back and users can benefit even more from using it. City Manager Barker recommended looking into making Pelican Beach Park as a model for solar usage in the public and push for legislative use. Member David Vigliotti volunteers to head the sustainable lawn initiatives. City Manager recommends breaking the lawn projects into smaller groups so that more ideas can be collected and dispersed. The committee discusses several events to possibly participate in, they decide that they might need more time to find funding and create material to be a vendor at future events. Member Pause would like to start a Facebook page and possibly creating a QR code. City Manager agrees that the committee needs to create specific branding and would like to make that an agenda item for the next meeting. Storm water topic is discussed and the committee would like to get more information to the residents as to how the City is taking action. There is discussion about measurements of run off by the city and Brevard County and what kind of regulations are in place now.

The Xeriscape topic is brought up and Member Josh Pause would like to create a model to educate residents about converting their lawns. City Manager Barker urges to assign short term initiatives to specific members so that action can be taken. The board expresses that they would like to get out into the public soon and could possibly piggyback other organizations to represent the cause. The Surfrider Foundation is elected to be a good possible partner. City Manager Barker says that committee needs to assign someone to be a marketing representative and event coordinator to

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participate in such events. The topic of community garden is discussed; member David Vigliotti offers an explanation of what this would entail and how to sustain the garden by soliciting volunteers. Also there was talk of a community nursery. The reusable bag initiative was discussed and ideas about partnering with Surfrider Foundation and Publix.

**Public Comments**

Dale Abrahams had concerns about how the distribution of reusable bags would impact local retailers that sell them.

Ron Jurgutis wanted to ask that popular "older" recycling initiatives come back into light. He mentioned recycling of plastic bags and also beach erosion and suggested a sea oat garden.

Mark Abraham gave some feedback on inviting all kinds of groups in the community to participate in gardening projects. He added that the board offer more options for the healthy lawns initiative to residents, as well as more direction on how to maintain them. He presented a contact to the board to look at solar power initiatives and concludes with the thought that solar may not be a better option in the future.

Dylan Hansen discussed the topic of creating a community garden and where it might be located.

**(TIME: 8:17 P.M.) AGENDA ITEMS FOR THE NEXT MEETING**

Board needs to decide on information to present to City Council regarding how they can move forward in becoming a permanent committee.

Committee Member Josh Pause wants to finalize a name for branding purposes and create Facebook representation and possibly a QR code. Also present on ideas for being funded by a solar company he has contacted.

**(TIME: 8:31 P.M.) DISCUSS FUTURE MEETING DATES**

**ACTION:** Board decided that future meeting will be held on the fourth Wednesday of each month, the next meeting is scheduled for August 26, 2015 at 7:00 p.m. **AGREEMENT BY CONSENSUS. MOTION CARRIED.**

**(TIME: 8:39 P.M.) ADOPTION OF THE MINUTES: JULY 14, 2015, REGULAR MEETING**

**ACTION:** Committee Member Fergus **MOVED, SECOND** by Committee Member Mathews to approve the minutes as presented. **VOTE: ALL YES. MOTION CARRIED.**

**(TIME: 8:41 P.M.) ADJOURNMENT**

Committee by **CONSENSUS** to adjourn the meeting

Julie Finch

Recording Secretary