

# Go SOLAR - Broward Rooftop Solar Challenge



## Standardized Permitting Committee Meeting

March 28, 2012

Government Center West Hearing Room 2<sup>nd</sup> Floor

One North University Drive Plantation FL 33324

2:00 p.m.

Conference call number: 954-357-5482

## Meeting Summary

### I. Challenge Overview – Maribel Feliciano

- Presentation can be found at:  
[www.broward.org/GoGreen/SunShot/Documents/Permitting%20Committee%20Welcome.ppt](http://www.broward.org/GoGreen/SunShot/Documents/Permitting%20Committee%20Welcome.ppt)
- Grant from DOE with the goal of increasing PV installations in Broward County.
- 1-year timeframe to get system up and running and evaluate.
- Work with all the partner cities, DOE, manufacturers, contractors and other stakeholders.
- Goal of this committee is to streamline the permitting process for the installation of PV rooftop solar system on residential and low commercial properties.
- Draft research paper about expedited permitting process can be found at  
[www.broward.org/GoGreen/SunShot/Pages/EducationalResources.aspx](http://www.broward.org/GoGreen/SunShot/Pages/EducationalResources.aspx)
- View the webinar of the prototype online permitting application at  
[www.youtube.com/watch?v=eORqJwPTNU8&list=UUypBgbNTcWtP2Mt1BOSB2nA&index=7&feature=plcp](http://www.youtube.com/watch?v=eORqJwPTNU8&list=UUypBgbNTcWtP2Mt1BOSB2nA&index=7&feature=plcp)

### II. Identification of Key Stakeholders

Additional stakeholders not mentioned on slide 12 of the Powerpoint presentation above should include: Electrical Contractors, Solar Contractors, International Association of Electrical Contractors, Design Professionals, Construction/Contract Services, Legislative Process, Homeowner, Department of Business and Professional Regulation, Florida Solar Industry Energy Association, Construction Industry Licensing Board, Broward County Building Officials Association, Broward County Board of Rules and

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Appeals, the Florida Engineering Society as Stakeholders per Florida Statutes 471, and Electrical and Structural Engineers.

### III. Standardized Permitting Committee Tasks and Timeline – Maribel Feliciano

- See presentation

### IV. The Permitting Solution: Criteria and key considerations – Armando Linares and Lenny Vialpando

- Please e-mail comments on mounting designs to Lenny Vialpando at [LVIALPANDO@broward.org](mailto:LVIALPANDO@broward.org)
- Orientation
- Disclaimer
- Slope
- Include all rack manufacturers
- Set back from the eve. (3 to 5 ft.)
- PV panels are built for a maximum uplift of 50psf (i.e. 50 pounds per square foot).
- South FL does not need to design for snow dead load of 113psf.
- Florida's High Velocity Hurricane Zone (HVHZ) should require a minimum safety factor (SF) of 1.5 for uplift and a maximum of 1.25 for areas away from the HVHZ (typically non-coastal areas). This SF design load would be the maximum and minimum allowable load by the Authority Having Jurisdiction (AHJ) or Code Officials on rooftop solar/PV panels.

HVHZ	
Uplift (psf)	SF
50	1.00
40	1.25
33.3	1.50
25	2.00

- The 2010 Florida Building Code (FBC) went into effect March 15, 2012 and the changes will require engineers to take into account that they must convert an Ultimate Design Wind Speed to a Nominal Design Wind Speed per Section 1609.3.1. Broward County's Ultimate wind speed is: 140mph -180mph and most AHJ will require designing to FBC2010, Section 1609 in accordance with ASCE 7-10. Other than small expedited permitted PV systems, wind load pressure must be prepared and signed and sealed by a professional engineer. **The component and cladding wind load calculation should be for:**

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1. The PV effective wind area's positive and negative wind pressures (in psf), and
2. The uplift and download point forces (in lbs) for roof attachment.

- Limit the age of the roof between shingles and tile (up to 15 to 20 years old)?
- What should be included in designs: Several module manufacturers already have rails in their design.
- Look at third party testing (outside manufacturers)
- If you use the system you will get FSEC certification.
- Build a hybrid (works for multiple).
- Declaration of insurance for contractors is by city not countywide. The verification process must consider that before approving the registered contractors to use the online application.
- Contractors certified vs. registered?

## V. Next Steps

- Your feedback on mounting designs, and approval of permit package design plans
- Partners approval
- BORA approval
- FSEC approval
- Launch and testing of permitting application

## VI. Comments

- Need to make more incentives for home owner and/or business owner.
- Would all cities follow all fee and structural guidelines?
- Come up with a lottery system to provide incentives to get customers interested.
- South Florida PV panels should tilt at Site-latitude +/- 15 degrees and facing mostly South, and to a lesser extent SSE, or SSW. (Note in winter the sun rises south of due east and sets south of due west). The primary position must be due south for maximum peak sun hours (PSH).
- We hope to cover 60-80 percent of the installations, some may be case by case scenario and would need to go to plan review.

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- Have a disclosure on how efficient a system could be based on the orientation so a homeowner would know what they could expect to get based on their system.
- Sometimes Hybrid systems become best solutions.
- Best time for meetings is afternoon in the middle of the week.
- Florida law prohibits homeowners from practicing engineering by installing Public Utility interactive solar systems themselves unless they are also a licensed professional engineer (PE) preferably in the branch of Electrical Engineering. Therefore most homeowners should have these systems installed by licensed electricians and a certified solar contractor; however the installation contractor(s) must agree to accept total responsibility for the electrical and structural rooftop installation on small expedited rooftop systems. See FL Law below.

## Excerpt from Florida's Law

**Florida Statutes - FS 471.003 Qualifications for practice; exemptions.--** (1) **No person other than a duly licensed engineer shall practice engineering** or use the name or title of "licensed engineer," "professional engineer," or any other title, designation, words, letters, abbreviations, or device tending to indicate that such person holds an active license as an engineer in this state. (2) The following persons are not required to be licensed under the provisions of this chapter as a licensed engineer:

(a) Any person practicing engineering for the improvement of, or otherwise affecting, property legally owned by her or him, **unless such practice involves a public utility or the public health, safety, or welfare or the safety or health of employees.**

(b)1. A person acting as a public officer employed by any state, county, municipal, or other governmental unit of this state when working on any project the total estimated cost of which is \$10,000 or less.

- **Electrical Engineering Comments and/or Recommendations on solar systems:** Florida's Residential Expedited permit systems for rooftops should be less than 5.0kW of solar panels thereby restricted to a single 20 or 30 Amp double pole 120/240V backfed circuit breaker. For most residences, this would be about 10-25% of their average utility usage and cost about \$20,000 installed. Larger system will require signed and sealed design plans from a Florida licensed PE for permitting. These small 5.0kW expedited permit systems should have a rooftop mean height less than 30 feet, require about 500 SqFt of roof area, conform to HVHZ wind loads of item-B (above), and have solar panels located on the interior zone of flat, hip, or gable roofs with a setback of 3-5 feet or per FBC-2012, 1609.

### **Solar Expedited permit – 5.0kW Electrical plans must show:**

- An electrical riser diagram
- A site layout plan (showing location of rooftop PV, JBs, Disconnects, Inverter, Utility service)
- Warning Labels and markings
- Panel Schedule with load-side connection pt
- Existing Load calculations

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- Grounding and bonding details
- Conductor and conduit sizing details
- PV Systems spec (Inverter, PV modules, Combo Box, )
- Utility Service

(Note/Estimate: Currently the overall DC-to-AC De-rating Factor on Solar Systems is less than 0.8)

Solar expedited design plans must conform to the National Electric code (NEC) 2008 or 2011 depending on the AHJ, Broward County's Board of Rules and Appeals (BORA), and the FBC-2012.

VII. Adjourn

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### Call Ins

Jack Fisher  
Don Burgess  
STEVEN  
Dana Harvin

City of Davia  
Broward county  
FSEC  
Brow. county

