

From: John Alger [<mailto:j.alger@aetsolar.com>]

Sent: Tuesday, May 26, 2015 10:30 AM

To: Office Of Commissioner Graham; Office of Commissioner Brown; Office Of Commissioner Edgar; Office of Commissioner Brisé; Office of Commissioner Patronis

Subject: FW: FL PSC comments; solar

To the Chairman and commissioners of the Florida Public Service Commission;

Recently, you have been receiving pressure from various Florida Solar Groups about considering a more 'Pro-solar' policy here in our state. All of the pressure has been for solar PV, or the technology that makes electricity. Almost nothing has been devoted to solar water heating, the technology that started most of the current contractor base, the industry that started Flaseia, the Florida Solar Energy Center, and made Florida #2 in the country for residential solar water heating.

My company makes solar water heating panels right here in Florida. We feel a lot like the "Rodney Dangerfield" of solar as we seem to get little to no representation as far as state policy or consideration. So, I thought I would submit the following bullet points for your consideration. Maybe it is time to consider that solar water heating is good for the residents of Florida, is a jobs creator, it is good for the environment, reduces base electric loads and peak electric loads (has storage unlike PV), and thus is good for the utilities of Florida. As so often happens in life, what is old, is now new again so maybe it is time to take a closer look at solar water heating as it offers benefits (not to mention much higher conversion efficiencies) that are either not offered by PV or make PV not cost effective. For your consideration:

1. Consider that electric water heating is the most prevalent method of heating water for homes in Florida. This is due to a poorly develop natural gas infrastructure for subdivisions, in most areas of Florida particularly, in the low to medium priced homes. Gas distribution adds cost to the homes.
2. Florida is the #2 state with regards to solar water heating second only to Hawaii. Hawaii is #1 because they have no natural gas at all and require that all new home construction must have solar water heating. It is the law there.
3. Contractor base has been in existence since the late 70's
4. Water heating is the 2nd largest user of electricity in the home, 2nd to the HVAC system
5. HVAC systems have been getting more and more efficient so that their percentage of the total home electricity used by an electric water heater is increasing
6. Figures vary but it is generally considered that the electric water heater consumes about 30% of the total home electricity use.
7. Contrary to the opinion of some, solar water heating is generation. Energy is collected and then stored in a tank. It is not just a conservation or efficiency technology (although you could argue that it is actually all three in one)
8. The storage capabilities make it complimentary to the utility industry. The backup electric elements can be turned on and off by the utilities in anticipation of peak demand events to limit the utility's need for using expensive peaking units. This improves the profitability of the utility. Utilities have been doing this for years on conventional electric water heaters so the technology is commonly available and cost effective.
9. Solar water heating does not require net metering or the use of the Utility's equipment. It does not require an interconnection agreement. The equipment is completely separate from the utility with the exception of the backup element; just like a standard electric water heater.

10. Incentives of \$2.00 per watt (FPL and Duke Program) are not required. If you used the typical PV incentive applied to a thermal system, you would be issuing a rebate of around a 3 to 4 kW pv system in equivalent power for 2 4x8 panel on an 80 gallon tank. That would equal \$6,000 to \$8,000 for a thermal system when they cost about \$5,500. Or to put it another way, the equivalent rebate for a 3,000 Watt PV system would fund a \$1,000 rebate for 6qty solar thermal systems and have the same energy gain but now, solar systems with storage. This results in greater implementation and a higher impact of energy reduced plus storage of energy that can help the Utilitiy company load level their generators.
11. More systems for the same incentives equal more jobs.
12. Thermal is generally more profitable than PV due to less competition.
13. When applied to new construction, you have the takeaway cost of the conventional water heater. PV does not have that feature.
14. Statistics vary but generally, 75% of Floridians feel that we need to do more to implement solar in Florida. This is counter to the recent trend by the PSC to scrap solar and efficiency measure based on the ridiculous position that the utilities can now generate electricity at a lower cost than conservation and efficiency measures.
15. Heat pumps are getting traction in Florida because of the higher air temperatures but they are not the answer across the board for the following reasons:
 - a. Large and heavy. Hard to put on a wood truss floor. An 80 gallon unit full of water will weigh over 1,000 lbs.
 - b. Requires a condensate line like an air conditioner. If the unit cannot be installed against an interior wall of a home, you have a problem with how to run a water drain.
 - c. Has a filter like an A/C system that should be changed every 30 days.
 - d. Requires space around the unit for air flow. Cannot just be jammed into a closet.
 - e. Requires space around the top for access to the filter for replacement
 - f. Who do you call for service and installation? Plumbers are not certified to handle refrigerant. HVAC guys are not usually able to pull a permit to change a water heater
 - g. Replacement costs are high. The usual failure is tank leakage but it is not practical or cost effective to just replace the tank so the replacement cost is about double the replacement cost of a solar tank
 - h. During periods of cold weather, the units do not work well and require the backup elements
 - i. They are noisy like an A/C window unit.
 - J Unlike solar thermal, heat pump water heaters are an energy efficiency device and are not energy generators
16. The reverse Robin Hood argument does not apply to solar water heating since none of the output is tied to the grid.
17. If favorable legislation (like Hawaii) could be put in place for solar water heating on New Construction, You really would not need incentives for two reasons:
 - a. New construction costs are much lower than for retrofits due to reductions in soft costs (permitting, notice of commencement, sales and marketing costs) plus your hard costs (take away for the conventional tank, reduced labor to higher on the job efficiencies; ie assembly line strategy of installations and use of existing trades to flash mounts, install the wall receptacle, and run pipe to the roof)
 - b. The cost of the system is financed with the home mortgage just like the conventional tank or the garbage disposal and toilets.
 - c. The payment portion of the mortgage for solar water heating is less than the savings so it cash flows from day one.

- d. Still viable even if the ITC (30% Federal Tax Credit) runs out January 2017. PV will not likely be viable after the ITC expires.

Unlike most solar proponents, I think that we have to look at what is good for all parties. I used to work in the utility industry and have an understanding of some of their concerns and constraints. Their generators are more profitable when they run at the same speed much like a car on Cruise control. Have a low cost storage strategy allows them the ability to load level their generators thus improving their profitability. Being a mechanical engineer that has designed both PV and solar thermal water heating systems, I can demonstrate the efficacy of solar water heating as a more cost effective strategy to implement solar in our state.

I know that you guys are getting bombarded with countless items so I appreciate in advance that you invested the time to read these arguments. With all of the thrust for solar being on PV (the electric panels) please do not forget about the industry that brought all of this to the table in the first place; solar water heating. By the way, feel free to contact me anytime you may have any questions on this subject.

I wish you all a blessed day.

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U.S. Manufactured Solar Products

From: Katherine Stainken [<mailto:KStainken@seia.org>]

Sent: Thursday, May 21, 2015 2:44 PM

To: Andrew East; John Alger

Subject: FL PSC comments

Hi,

Are you guys working on separate comments to the PSC in FL? We are going to be working with IREC, VoteSolar, and FlaSEIA. I can share any drafts we put together.

Thanks,

Katherine


Katherine Stainken

Director, Government Affairs



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