COMMENTS OF FLORIDA SOLAR COALITION ON RENEWABLE PORTFOLIO STANDARD STAFF WORKSHOP HELD ON JULY 11, 2008

1. Setting the Goal

We support a Renewable Portfolio Standard goal of 20% by 2020. Further, we believe that a tiered system is appropriate to ensure that a suite of emerging and mature generation technologies are developed that will provide Florida with a true "portfolio" of renewables. The legislation gives the PSC the authority to give preferential treatment to solar energy. We suggest a specific solar tier set at 4% of total electricity generation, or 20% of the RPS goal. Eligible resources for the solar tier should include technologies that deliver electricity to the electrical distribution grid or produce energy that can be measured in kilowatt hours.

A. Solar-specific carve out

It is common practice in other states to design RPS policies in a way that encourages the in-state development of a diverse set of renewable energy resources, including both centralized plants and small-scale distributed generation (DG) systems. It is also common to specifically include policies that encourage in-state development of solar energy systems, because of solar energy's environmental benefits, and because of the relatively higher economic development impact associated with the growth of a vibrant in-state solar energy market.

Experience in other states has demonstrated clearly that an explicit solar share is the most efficient and effective way to ensure that solar markets develop under the RPS structure. Currently, thirteen states have specific provisions for solar and/or distributed generation. Of these, twelve states use a set-aside similar to the one we propose (e.g., NM: 4% solar, AZ: 4.5% DG, NJ: 2.12% solar, MD: 2% solar, DE: 2.005% solar). Three states allow solar water heating to count towards the RPS. The table below demonstrates the design elements incorporated into solar and DG set-asides.

Table 5. Design Elements of State Solar and DG Set-Asides

State	First Compliance Year	Resource Eligibility			
		Photovoltaics	Solar Thermal Electric	Solar Heating and/or Cooling	Non-PV Dist. Generation
Arizona	2001	•	•	•	•
Colorado	2007	•	•		
Delaware	2008	•			
Maryland	2008	•	•		
Nevada	2003	•	•	•	
New Hampshire	2010	•	•		
New Jersey	2004	•	•		
New Mexico	2011	•	•		•
New York	2006	•			•
North Carolina	2010	•	•	•	
Pennsylvania	2006	•			
Washington D.C.	2007	•	•		

Source: Renewable Portfolio Standards in the United States, A Status Report with Data Through 2007. Lawrence Berkeley National Laboratory, April 2008

An alternative to the set-aside is a "multiplier", though they are not necessarily mutually exclusive (for example, Nevada and Delaware have both). A multiplier tends to reduce the total amount of renewable energy procured to comply with the RPS, while providing no apparent benefits to diversity. More importantly, the states that have adopted multipliers have not seen significant solar additions.

In general, states interested in electricity diversity have established or are moving towards set asides (including Maryland, Pennsylvania, New Jersey, Colorado, Delaware, New Mexico, and North Carolina this year) in order to create a more predictable market. If the Commission decides

to consider multipliers for solar and other distributed generation technologies, we'd strongly recommend that this be done in conjunction with a set-aside.

B. DG solar potential

Distributed generation solar is an important resource that can help meet the state's RPS goals largely utilizing existing rooftop infrastructure: it is modular and flexible, well-suited for a diversity of applications, from PV farms to residential rooftops. A study performed by Navigant Consulting[1] found that by 2010 residential and commercial solar rooftop potential would be 25.2 Gigawatts (GW) and 19.9 GW, respectively. By 2025, that number would grow to 36.1 GW for residential rooftop space and 32.9 GW for commercial rooftops.

C. Grid benefits of DG

Distributed generation from renewable energy provides real and quantifiable benefits to Florida's ratepayers and utilities. Distributed generation has significant potential to reduce system peak demand by serving onsite load; it also has potential to defer distribution system upgrades. Additional benefits include: power quality improvements; voltage support; line-loss reductions; increase in reliability; environmental benefits; customer satisfaction; and fuel diversity.

D. DG set aside assures in-state benefits from renewables

Inclusion of a set aside for distributed generation is likely the only mechanism to ensure that significant renewable resources are developed in the state, and that green collar jobs are created in state.

In addition to providing a host of grid reliability benefits, generation tied to the largely in-state distribution grid will ensure Floridians optimize the benefits of investing in renewable energy. Solar is one of the few technologies which can be deployed on the in-state Florida distribution grid. Solar is scalable and can be deployed on existing rooftop infrastructure, otherwise on-site of the demand source, or elsewhere connected to the distribution grid. This allows the emissions free power to be generated in Florida to help reduce the need for imported energy; delay, limit or obviate the need for conventional power plants and T&D lines; ensure local environmental benefits, such as cleaner air; allow the citizens of Florida to directly reduce C02 emissions and help address climate change by investing in systems on their property; and ensure Floridians derive all the economic development and jobs benefits through the creation of a new industry to deploy this clean generation in-state.

2. Recommended Support Structure for Solar Generators

We recommend the following features: A) provide small renewable generators with a simplified and streamlined mechanism to sell to a utility without complex negotiations or delay, B) provide long-term contracts to help developers finance small renewable energy projects at a lower cost and C) set the incentive price at a level that will ensure projects receive a reasonable rate of return, to be determined and periodically adjusted by the Commission.

[1] Frantzis, L. and Hoff, T., Navigant Consulting. "PV Grid Connected Market Potential in 2010 under a Cost Breakthrough Scenario". Sept 2004.

A. Simplified and streamlined process

Small project developers (defined by FERC as generators < 20 MW) are often disadvantaged in utility RPS solicitations. Generators below 20MW generally do not have the resources or expertise to negotiate with a utility. From a small project developer's perspective, RPS solicitations are costly and involve sorting through complex documents, attending bidders conferences and/or workshops, preparing documents, and engaging in post-bid negotiations. For smaller projects, any profit margins would be consumed by the transaction costs associated with participating in an RPS solicitation.

B. Long-term contracts

Solar projects are capital intensive. Investors tend to examine the long-term energy and REC cash flows of a project; projects that have locked-in or hedged their energy or REC prices for at least 10 years are often viewed more favorably.

The table below shows that many states are implementing provisions to encourage long-term contracts, recognizing that renewable projects are capital intensive.

Contract Duration Requirement	CA	10+ yrs
	CO	20+ yrs
	CT	100 MW, 10+ yrs
	IA	ownership or long-term contract
	MD	solar, 15+ yrs
	MT	10+ yrs
	NV	10+ yrs
	NC	solar, sufficient length to stimulate development
	PA	good faith effort includes seeking long-term contracts
	RI	PUC requires that default utility investigate long-term contracting
Central Procurement	NY	central procurement where NYSERDA purchases attributes under long-term contract
	IL	central procurement in which long-term contracts are likely to be offered
Credit Protection	NV	created program to protect payments to generators from utility credit concerns
	CA	initially exempted utilities from meeting RPS until they became creditworthy
Renewables Fund Support	MA	renewable energy fund created "green power partnership" that offers guaranteed REC purchase or option contracts of up to 10 years

Source: Renewable Portfolio Standards in the United States, A Status Report with Data Through 2007. Lawrence Berkeley National Laboratory, April 2008

C. Setting an Incentive level

The Florida Solar Coalition recommends that incentive levels be set by the Commission to ensure a project is able to earn a reasonable rate of return. In setting the incentive level, the Commission should estimate the per-unit energy payment necessary to cover generation costs, including amortized capital costs, and operation and maintenance costs, as consistent with a contract with a credit-worthy utility over a specified contract duration. In its calculations, the Commission would take into account other interacting incentives, such as federal tax credits, or net metering, if the customer is offsetting on-site energy loads.

The Commission would periodically review and adjust the incentive level, and incorporate a digression schedule to allow for adjustments to meet the program cost goals. Through vast deployment and innovation, solar energy cost reduction will occur and propel the

solar industry towards energy cost parity and self-sufficiency. In order to maximize ratepayer funds, the incentive program should be set to decline as demand increases and costs are reduced to the point where the market continues to grow after the program has ended.

D. Types of Incentive Structures Recommended

The Solar Coalition recommends the following incentive structures be adopted:

1) Performance-Based Incentives.

Performance-Based Incentives (PBI) are associated with systems connected on the customer side of the meter. Energy used on-site offsets electricity normally purchased from the utility, and any excess (in the case of PV systems) is exported to the grid and credited to the customer's account per local net-metering rules. Payments per kWh are typically fixed over some period of time once the system is interconnected. PBI payments are provided for all of the system output, whether consumed on-site or exported to the grid, and RECs are transferred to the utility to satisfy RPS requirements.

The Coalition further recommends that small customers (defined as <10 kW) have an option to receive an upfront payment equal to the present value of the performance-based incentive. This reduces the up-front cash requirements, typically the single largest barrier for this market segment. This structure is also simple to administer and would provide continuity to the state's current rebate program.

2) Renewable Energy Payment (REP).

Renewable Energy Payments (REP) refers to a fixed rate ($/kWh) paid under a long-term contract (e.g. 15 or 20 years) in which all electricity is exported to the grid as a wholesale resource. These systems do not qualify for net metering.

A report conducted by Summit Blue[2] on behalf of the New Jersey Board of Public Utilities notes that three European studies comparing the economic efficiency of fixed-price mechanisms to tradable credit systems conclude that fixed-price incentives have resulted in lower overall costs due to the fact that such programs avoid investment uncertainty and the associated risk premiums. These studies include a 2005 study by the Commission of European Communities, a 2005 study by the German government, and a 2006 study by the United Kingdom Treasury's Stern review on the economics of climate change.

3) Cost Containment

In order to limit risks to ratepayers, we recommend that total costs for the solar tier (including direct incentives and administration) be capped so as to not exceed 1% of total electricity revenues. Several states with solar set-asides have a similar 1% cap, including Maryland and Colorado.

[2] Summit Blue, Assessment of the New Jersey Renewable Energy Market, Submitted to the New Jersey Board of Public Utilities. March 24, 2008.

Regarding RPS costs, a recently released report from LBNL[3] concludes that rate increases have been minimal, at 1% or less, particularly where long-term REC contracts are used:

> "Though the results may vary across the states, in most cases, rate increases are estimated at 1% or less in 2007. Moreover, the rate impacts shown here may, in some states, be biased upwards due to at least two factors: (1) longer-term REC contracts are likely to be priced below the short-term REC prices used for these calculations; and (2) the rate estimates presented here ignore the potential impact of renewable energy in reducing natural gas and wholesale electricity prices."

3. The Case for Solar Water Heating in Florida's RPS

The Florida Solar Coalition supports the letter dated July 18, 2008 submitted to the Florida PSC by the USH2O program, a copy of which is appended to these comments.

Further, the Florida Solar Coalition submits that including solar water heating in the RPS will allow utilities the option of providing this technology, which clearly generates energy, in a suite of solar energy measures as the least cost option to their ratepayers. Limiting solar water heating to the demand side management does not take into account the ability of solar water heating to produce energy at a much lower levelized cost than other renewable technologies, while producing significant environmental benefits. Solar water heating has not seen widespread use as a demand side option by utilities because of the significant energy production attributed to the measure and the associated lost revenues to the utility. Only one IOU has offered a pure solar water heating program under FEECA, and it did so in spite of the fact that it did not pass the RIM test.[4] Presently, only one IOU offers a solar water heater program under FEECA, but its cost effectiveness under RIM was tied to energy management with solar water heating.[5]

By establishing a solar water heating program in the RPS, the FPSC would enable utilities to foster greater significant savings at a levelized cost less than current retail electric rates. Water heating currently accounts for 14 percent of the average household electric bill. Solar water heating can provide at least 70 percent of that load. However, the challenge remains to motivate consumers to make that investment when the initial capital costs are still a barrier to most, especially to those who could benefit the most.

Florida created a solar rebate program in 2006. The rebate funds are available for both solar water heating and photovoltaics. However, the amount of funding and the caps on expenditures are not designed to drive a robust market. The rebate program is capitalized by the state government's general revenue funds, which are subject to state budget priorities and deficits. The program is funded at marginal levels, and for the first two years of operation,

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[3] Lawrence Berkeley National Laboratory, Renewable Portfolio Standards in the United States, A Status Report with Data Through 2007. April 2008

[4] The Commission allowed FPL to offer their solar water heating program during the 1980s and 1990s as good public policy.

[5] Progress Energy Florida's Solar Water Heating with Energy Wise commenced February 2007.

funds were exhausted before the end of the fiscal year, leaving eligible applicants waiting for extended periods to receive their rebate, or worse yet, postponing the purchase of solar energy systems until the new funds become available. FY 2008 funds were exhausted in December 2007. The 2008 legislative appropriation for the period July1 2008 through June 30 2009 has already been exhausted by funding the applications received during the previous fiscal year. There will be no rebate money available for distribution to new applicants until July 1, 2009, and no new funds will be available at that time unless the legislature decides to appropriate funding. The message here is that there is high consumer demand and interest for solar water heating technologies, but inadequate funding is creating market distortions and impairing the sustained growth of the solar industry.

The technical potential of solar water heating is without question well documented. The Florida solar water industry is decades old, well established, and has a solid infrastructure with strong manufacturing, distribution and installation sectors. Quality control measures exist at all levels, from engineering to design to field installation and consumer protection. While Florida boasts one of the more stringent energy codes, it has done little to impact water heating loads over the years, resulting in a proportionate increase in energy use per household from 11 percent in 1979 to 14 percent today. Solar water heating can be measured in kilowatt hours as a generating technology, and currently two electric utilities "meter the sun" and charge customers for solar energy based upon kWh consumption. Allowing utilities to aggregate the deployment of even a modest solar water heating and photovoltaic program would yield immediate benefits to their ratepayers at a cost equal to or less than retail electric rates.

Section 366.92(2)(d), F.S., defines a "renewable energy credit" or "REC" as "a product that represents the unbundled, separable, renewable attribute of renewable energy produced in Florida and is equivalent to 1 megawatt-hour of electricity generated by a source of renewable energy located in Florida. Solar water heating generates energy and falls within this definition. Section 366.92(3)(b)7, F.S., requires the Commission to "track and account for renewable energy credits, including credits that are derived from a customer-owned renewable energy facility as the result of any action by a customer of an electric power supplier that is independent of a program sponsored by the electric power supplier." Under this language the Commission is authorized to grant RECs for customer-owned solar water heating systems that have been purchased solely by the customer.