



Memo

To: Mark Futrell, Public Utility Supervisor, Public Service Commission

Judy Harlow, Economic Analyst, Public Service Commission

From: John Burges, Alliance for Renewable Energy

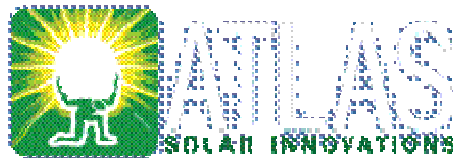
CC:

Date: 8/27/2008

Re: FARE files its comments on the Commission's proposed Rules 25-17.400, 25-17.410, and 25-17.420 in relation to the RPS Workshop on August 26th 2008

The Florida Alliance For Renewable Energy (FARE) files its comments on the Commission's proposed Rules 25-17.400, 25-17.410, and 25-17.420.

Florida Alliance For Renewable Energy ("FARE") is a coalition that includes some of the leading Florida solar companies as well as an NGO the "Alliance for Renewable Energy", www.allianceforrenewableenergy.org



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May 7, 2008

An Open Letter To:
The Honorable Charlie Crist
Governor, State of Florida
Office of the Governor
State of Florida
The Capitol
400 S. Monroe St.
Tallahassee, FL 32399-0001



From:
Solar Energy Companies Growing In Florida

Subject:
Will RECs Create An Unhealthy Solar Market for Florida?

Dear Governor Crist,

Thank you for your actions on Climate Change in Florida. We applaud the work you, your Climate Change Committee, and the State Legislature are doing to help move Florida towards a sustainable, renewable energy future for our citizens' health and security.

We are confident that you and your staff are well informed on the issues of renewable energy policies including incentive mechanisms like Feed-In Payments (FITs), which are currently financing most of the world's solar installations. However, we would be remiss if we did not inform you of our deep concern about the direction Florida will be taking with regard to the future of the solar energy industry in Florida.

With the passing of the House and Senate Energy Bills, Florida is now faced with the best way to develop incentives for its solar and renewable energy programs.

At issue is how the current language will impact residential, commercial, and large scale markets, and how many companies will be able to operate under the structure of the state's proposed Renewable Portfolio Standard (RPS) that is so tightly tied to a REC policy mechanism.

As you are aware, 'a Renewable Energy Certificate (REC) represents the value of one megawatt-hour (MWh) of clean electricity generated by a solar system and is traded on the clean power market. Under any RPS, utilities must accrue a certain amount of renewable energy credits to meet their renewable electricity procurement obligations. Instead of relying on up-front payments from the state, owners of solar systems will earn some of their money back by selling certificates to utilities or some other aggregator.'(source: RenewableEnergyWorld.com, May 1, 2008).

The real concern for the long term growth of the solar energy industry in Florida is that the REC program, as currently crafted in the Energy Bill, will benefit a few large companies at the expense of many small and mid-sized companies.

On July 13, 2007, you signed a suite of executive orders to reduce Florida's greenhouse gas emissions, increase energy efficiency, and remove market barriers for renewable energy technologies such as solar and wind energy. Since the executive orders were signed, Florida has stepped onto the world stage as a major marketplace for advanced energy technologies.

On April, 29, 2008, you announced the 2008 Serve to Preserve Florida Summit on Global Climate Change to be held June 25-26, 2008 in Miami. Building on the foundation of Florida's energy future that began at last year's summit, the 2008 summit will focus on stimulating economic development in clean technologies as well as "greening" Florida's business community. As you have stated; "Florida's businesses continue to demonstrate that there is gold in green and climate-friendly energy sources – like ethanol and solar energy – are bringing new prospects for our state. Encouraging companies to do business the green way as well as building a strong market in renewable energy technologies in the Sunshine State will strengthen our energy and economic future and protect our natural environment for generations to come."

As economic development and the removal of market barriers are some of the most important elements for meeting your goals on Climate Change, many solar companies and other renewable energy participants in Florida, believe these *REC policies will not* encourage the vast job creation and economic expansion you and our industry desire.

Governor Crist, there is extensive evidence from states that have implemented REC policies that they are failing to produce the healthy economic development and the removal of market barriers that you and our Florida policy makers are seeking.

Let's begin with New Jersey and Maryland...

New Jersey once had a vital and growing solar industry, developing thousands of new high paying jobs. Maryland recently followed suit by passing legislation intended to create a market for both small and large solar companies. Under each of these states' newly adopted REC-based incentive programs, these small to mid-sized companies quickly learned that REC policies are incapable of delivering adequate financial incentives for their client base of residential and small commercial customers.

RECs are seen by some larger companies as a low cost, market based policy that allow for broad based participation. However, there is evidence to show that REC based policies can be the most expensive incentive mechanism, requiring significantly more involvement and administration from the state. Additionally, the floating market mechanism feature of the REC is extremely volatile requiring that companies have large financial resources to navigate and master the complex nature of the commodity to truly benefit from this type of policy. Like the sub-prime mortgage challenge we face in Florida today, financing a long life solar energy asset with a short term financing instrument like a REC is unwise.

Homes, churches, banks, and small businesses do not easily participate in the REC policy model.

As Ted Middleton, President of a Maryland based solar company explained, “The ratepayer base thus foots the highest bill possible to fund ‘Big-Box’ style installations, and the little guys (farms, auto dealers) get a much lower cash benefit relative to each REC produced because they have little market leverage with remaining REC purchasers.” “The small systems just got completely left off the table,” says Middleton. “The state just said, ‘[The REC program is] too difficult, too risky for us to do, so we’re not going to touch them.’” (source: RenewableEnergyWorld.com, May 1, 2008)

“In New Jersey there’s a lot of concern that the residential sector, while it may not be completely shut out, is in big trouble,” says Lyle Rawlings, secretary of the Mid-Atlantic Solar Energy Industries Association. “We need to do better at creating a system where small businesses and small projects can play the game. That’s not the case right now”. (source: RenewableEnergyWorld.com, May 1, 2008)

“Unfortunately, the language that passed through the legislature favors a REC based policy. Without any change, for the foreseeable future anyway, Florida could end up with renewable energy policy primarily designed for only one or two large companies, just like what has happened in Maryland and New Jersey,” comments Pete DeNapoli, SolarWorld’s Regional Manager based in Boca Raton. “Sure, the state of Florida will meet the RPS goals, but the bottom line is that the Governor’s goal of creating a vibrant renewable energy industry with thousands of new, high paying jobs will not be realized,” Pete adds. “With Feed-In Payment as the preferred incentive mechanism, you can achieve the state’s Renewable Energy goals while having a much broader impact in the market.”

By now most of the Department of Environmental Protection and many policy makers have heard that there is a better answer for encouraging a healthy solar market in Florida.

Internationally, utility Feed-In Payments (*FITs*) have become the incentive of choice for increasing the uptake of solar and other renewable energy technologies, being implemented in over 40 countries around the world. This proven policy option is gaining ground because it takes the state’s fiscal role off the table. Indeed, many of the recent calls to Solar Energy Industry Associations like FlaSEIA and Mid-SEIA, for FIT policies, have come from businesses concerned about REC dependent markets.

‘A FIT — which most people know as the mechanism that started Germany’s solar boom — offers anyone with a solar system (or any renewable energy system) a fixed payment for the electricity generated by that system. The incentive is designed to provide the system owner a “reasonable rate of return.” Instead of relying on the state, utility companies provide the incentives by charging all ratepayers a few extra dollars on their monthly bills’ (source: RenewableEnergyWorld.com, May 1, 2008). The recent Mason Dixon/FlaSEIA poll supports that Florida rate payers are willing to invest in solar each month on their utility bills. This investment is also demonstrated through the FPL Sunshine Energy Program where over 30,000 customers voluntarily pay \$10.00 each month to support clean energy. ‘FITs provide long-term stability, which in turn reduces capital costs and allows for a much more diverse group of companies and individuals to invest in solar’ (source: RenewableEnergyWorld.com, May 1, 2008). FITs are a simple, stable, inclusive approach to developing solar and other renewables in Florida.

Again, thank you Governor Crist and your energy team for your Climate Change efforts. As you say; "Encouraging companies to do business the green way as well as building a strong market in renewable energy technologies in the Sunshine State will strengthen our energy and economic future and protect our natural environment for generations to come."

Good solar policy should benefit all types of individuals and businesses, create more jobs, and encourage a wide range of economic activity. That's what the industry has promised, that's what you have promised. We believe the best policy to spur climate-friendly economic development opportunities that create robust new industries, employing thousands of people while improving Florida's energy security, is through Feed-In Payments (FITs).

We ask you to help the citizens of Florida realize these important goals through direction and guidance to the Florida Public Service Commission with emphasis on solar policy using Feed-In Payments (FITs).

We would welcome the opportunity to discuss this important policy mechanism in greater detail with you and your staff at a meeting of your convenience. Mr. Peter DeNapoli from SolarWorld of Boca Raton will be contacting you to arrange this opportunity.

On behalf of the companies and individuals represented below, we want to thank you Governor Crist for your vision and support for a healthy Florida solar energy industry.

Sincerely,

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COMMENTS OF THE FLORIDA ALLIANCE FOR RENEWABLE ENERGY

The Florida Alliance For Renewable Energy (FARE) files its comments on the Commission's proposed Rules 25-17.400, 25-17.410, and 25-17.420 and states as follows:

“The real concern for the long term growth of the solar energy industry in Florida is that the REC program will benefit a few large companies at the expense of many small and mid-sized companies.” Open Letter to Governor Crist dated May 8th 2008 from 49 individuals and solar companies representing a major portion of the Florida solar industry, including a top 6 global solar manufacturer¹ “(Solar Industry Letter”).

We do not believe that the PSC strawman ruling will fulfill the objectives laid out by the Governor in his Executive Orders in 2007 at the best value for ratepayers.

1. Summary

We are confident that the PSC and their staff are well-informed on the issues of renewable energy policies including the problems associated with Renewable Energy Credits (“RECs”) versus the benefits of other policies such as Feed-In Tariffs (known as Renewable Energy Payments or “REPs”). Consequently, we are deeply concerned about the direction Florida will be heading with regard to the future of the renewable energy industry in Florida, as set out in this draft rule.

We do not believe that a Renewable Energy Credit (REC) policy will achieve the renewable objectives set out by the Governor, nor do we believe that RECs are a fair and equitable policy allowing equal opportunity to develop renewable resources; nor are they the best value for ratepayers – in fact, study after study has shown that RECs are the most expensive policy option for ratepayers, costing up to 57% more². They contrast especially poorly when compared side by side with REPs.

A direct comparison between a REC market in the UK versus Germany, which has REPs, shows that the UK pays ~ 23% more than Germany per mwhr of renewable power despite having predominantly lower cost wind whereas Germany has 3800MW of- higher cost solar capacity;³, while Germany's policy also delivered 72.7 TWhr of renewable power or 4x that of the REC system in the UK.

So RECs as currently drafted in the PSC rule are a more expensive policy and less successful in generating investments in renewables – *they are the renewable equivalent of the Alaskan bridge to nowhere.*

¹ Letter is attached as Appendix 1

² Summit Blue Study on New Jersey

³ Ernst & Young Renewable Energy Country Attractiveness Indices Q2 2008

Another real concern for the long term growth of the renewable energy industry in Florida is that the REC program will benefit a few large out of state companies at the expense of many small and mid-sized companies already operating in Florida. It is likely to impede the future growth of Florida companies and potentially impede growth in employment in the industry in Florida. RECs are complex, opaque, administratively burdensome and unpredictable. Few small to mid sized organizations have the capability to fully assess and manage the risks associated with a REC policy.

It is consequently a policy advocated by some of the biggest out of state solar entities as well as a few utilities that are allied to them as they are some of the few companies with the size to have the legal and regulatory capabilities to participate in a REC policy mechanism. Some of these entities formed a lobbying group called REMA⁴, including FPL, SunPower and SunEdison. SunPower and FPL have already entered into contracts on 2 projects in Florida totaling 35MW.

We believe that under a REC policy, market concentration and an oligopoly of REC providers will develop from out of state companies with experience of both lobbying for and drafting RECs policies and then operate under the mechanisms that have been implemented elsewhere. Native Floridian renewable companies do not have this learning curve advantage and will be disadvantaged accordingly.

We do not believe that Florida legislators or ratepayers want a renewable program like RECs that will discriminate in practice against existing Florida renewable companies.

Internationally, utility Feed-In Tariffs (known as REPs in the US) have become the incentive of choice for increasing the uptake of solar, biomass, wind and other renewable energy technologies. Notably, this policy has been implemented in over 45 countries around the world. This proven policy option is gaining ground because it takes the state's fiscal role off the table. Indeed, many of the recent calls from Solar Energy Industry Associations, like FlaSEIA and Mid-SEIA, for REP policies have come from businesses concerned about REC-dependent markets.

A REP — which most people know as the mechanism that started Germany's solar, wind and biomass boom — offers anyone with a renewable energy system a fixed payment for the electricity generated by that system. The incentive is designed to provide the system owner with a reasonable rate of return. Instead of relying on the state, utility companies provide the incentives by charging all ratepayers the extra cost borne by purchasing renewable energy. REPs provide long-term stability, which in turn reduces capital costs and allows for a much more diverse group of companies, entities and individuals to invest in renewable energy. REPs are a simple, stable, inclusive approach to developing renewables in Florida that does not pick technology winners.

We urge the PSC to revise the RPS rule as it is drafted and replace the RECs policy with a renewable energy payment program.

2. Concerns with Draft Ruling and RECs

Energy Bill 7135 requires the PSC to investigate the best policies for the deployment of renewable energy using **“RECs Or procurement”**, by taking into account analysis of the technical and economic viability, fuel diversity, investment in Florida and lessening the state's 98% dependency on imported fossil fuels.

⁴ www.renewablemarketers.org

While the draft PSC ruling considers RECs, it does not appear that any analysis or study has been done on other policies that allow utilities to “procure” renewable energy as was instructed by the Legislature. Other policies, such as REPs or production-based incentives have proven to achieve much more significant investment, and with it jobs, than REC policies. Furthermore all of the most widely-published studies from the European Union’s analysis to Sir Nicholas Stern [UK Economist] to Summit Blue’s analysis in New Jersey have concluded that RECs are a high-cost option for deploying renewables.

It would appear remiss of the PSC to enter into draft rules without having considered alternative policies in detail.

Has the PSC undertaken a review of policies outside the US which account for the majority of the world’s renewables? The US now currently has only 8% of the world’s solar capacity, whereas Germany has over 55%. Notably, Germany installed 1100MW of solar capacity in 2007 versus ~10MW in New Jersey (a comparable REC market) and <200MW for the whole of the US, despite having a much larger GDP and larger solar resource.

Did the PSC undertake a direct study of the Germany REP policies that are now in place in 45 countries and were most recently introduced in Switzerland after a two-year review that included analysis of mandated quota REC systems?

Were field trips undertaken by the PSC and their staff to Germany or other REP countries to review firsthand the success of REP policies and contrast them with the relative failure of REC policies in states that have implemented them already, such as the UK, New Jersey and Maryland?

A) RECs Are Poor Value for Ratepayers and Restrict Renewable Deployment

There appears to be recognition amongst many European countries with short-term tradable REC markets that REPs may be a more efficient way to achieve the rapid deployment of renewables as cost effectively as possible. In the Stern Review on the Economics of Climate Change, Sir Nicholas Stern noted that both REP pricing and mandated quota REC standards have proved effective at spurring renewable development “but existing experience favors price-based support mechanisms. Comparisons between deployment support through tradable quotas and feed-in tariff price support suggest that feed-in mechanisms achieve larger deployment at lower costs”⁵ A paper entitled Feed-In Systems in Germany, Spain and Slovenia: A Comparison stated that “Feed-in tariffs have been successful in triggering a considerable increase of [renewable energy] technologies in almost all the countries in which they have been introduced and where their effectiveness was not significantly hampered by major barriers (administrative barriers, grid access, etc.)”⁶

The analysis by Summit Blue Consulting for the New Jersey Board of Public Utilities on how to most cost-effectively transition the New Jersey solar market from rebates to market-based incentives showed that the feed in tariff policy (15-year full tariff) would be more cost-effective for ratepayers than renewable energy credits (SREC only). The SREC policy cost 57% more than

⁵ *Stern Review on the Economics of Climate Change*. Sir Nicholas Stern Found at: http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/sternreview_index.cfm

⁶ Held et al. *Feed-In Systems in Germany, Spain and Slovenia: A Comparison*. October 2007. Found at: <http://www.feed-in-cooperation.org/content/view/17/29/>

the feed in tariff 15 year contract. The SREC was the most expensive policy mechanism out of 7 policies that were reviewed, and therefore the least value for money for ratepayers.

**Exhibit 1. Ratepayer Impacts (\$ millions)
from Different Renewable Energy Policies in New Jersey**

Model	≤10 kW	>10 kW	Public	Weighted
	Private	Private		Average
Rebate/SREC	\$5,516	\$3,994	\$2,819	\$4,385
SREC Only	\$6,688	\$3,830	\$2,232	\$4,673
Underwriter, 15 Year	\$5,580	\$3,316	\$1,919	\$3,960
Commodity Market	\$6,621	\$4,157	\$2,627	\$4,856
Auction	\$5,308	\$2,670	\$1,694	\$3,537
15-year Full Tariff	\$4,158	\$2,494	\$1,423	\$2,960
Hybrid Tariff	\$5,399	\$3,232	\$1,840	\$3,838

Any banker can explain why that is, in one word - “risk”. RECs are more risky than long term fixed price contracts. The PSC draft rule appears to ignore the concept of risk capital. RECs with fluctuating prices, no certainty about contracts or grid access will be priced accordingly. Equity costs in the renewable energy power sector currently run at from 8 -15% versus half this cost for debt financing. Creating a policy instrument that allows for significant leverage is therefore a key litmus test for several reasons:

- ◆ Renewable energy is well suited to a higher degree of financial risk than comparable fossil plants; most renewable producers do not have any purchased commodity exposure (gas, coal, oil) and generally lower operating costs
- ◆ The cost of capital with a leveraged project is much lower, requiring a lower price for the renewable electricity being sold to be profitable – i.e. it drives costs and prices down
- ◆ Availability of debt is less constrained than equity thus a policy that encourages leverage should result in many more renewable investments than one that does not

RECs fail this litmus test: as they typically result in less than 30% debt financing for solar projects, versus 80-90% on REP renewable programs in Europe, and consequently more equity per MWs of renewable capacity means *less renewable projects get built, at a higher delivered cost per Mwh.*

Why is the PSC embarking solely on a policy mechanism that many independent consultants have concluded is the “least” ratepayer friendly policy?

B) RECs Are a Poor Return on Jobs Compared to REPs

First Solar, one of the leading solar manufacturers in the world, recently announced a major new manufacturing plant in Germany. Why? Because Germany has a robust domestic solar market driven by REPs. The poor experience of REC markets in the US has not resulting in a single new manufacturing plant being built in those states.

The REC programs in place in the U.S. have largely failed to stimulate the renewable jobs that legislatures and voters want. RECs encourage utility scale projects like FPL's recent project announcements in Florida. Utility scale projects generate far fewer jobs per MWs of capacity than smaller scale commercial or residential projects. They are also often built by "fly in" sub-contractors, resulting in no permanent jobs remaining in Florida.

Several countries have seen a remarkable job return on their renewable policy programs. Direct jobs result from the use of local skilled workers in the development, manufacture, construction, installation and operation and maintenance of renewable generation. Manufacturing centers for solar thermal and solar PV components should be established in-state, as Germany has done, to maximize this benefit. Much of the financing can be done locally as well, stimulating jobs in the banking and finance sectors. As of 2007, Germany created 250,000 direct renewable jobs across the entire renewable energy sector as a result of its significant growth of renewables.⁷ To date, Germany has employed nearly 50,000 in the solar industry alone.⁸

These jobs were created by a feed-in tariff or REP program, *not* RECs.

C) RECs Discriminate Against Distributed Generation and Resource Diversity

RECs fail to take into account the benefits of distributed generation – delivery of renewable power at the point of consumption. The program design typically does not differentiate between different scales of projects – a one size fits all REC price – clearly ignoring the societal benefits and cost-savings from distributed generation.

RECs with long-term contracts could reduce investment risk for developers and promote more renewables than RECs which rely solely on short-term markets. However, RECs still discourage smaller developers with greater transaction costs (such as legal costs) relative to larger developers⁹ and newer technologies, such as wave or GulfStream current relative to more mature technologies such as wind.

D) RECs and Power Purchase Agreements

The draft rule appears to focus solely on centralized generation by requiring PPAs. However, since most counterparties are reluctant to enter into a PPA unless the project size is 10MW or greater, PPAs will just put more barriers in the way of renewable energy. Conversely, REPs appear to be more successful in allowing entry by smaller developers because they address both distributed and centralized generation and the tariffs obviate the need to negotiate power purchase contracts with a utility. REPs allow a wide range of resource sizes,

⁷ Development of Renewable Energies in Germany in 2007. 12 March 2008. Page 8. Found at: http://www.bmu.de/files/pdfs/allgemein/application/pdf/ee_hintergrund2007_en.pdf

⁸ Paul Gipe. German Feed Laws Power Nation to New Renewable Record in 2006. 2 Feb 2007. Found at: <http://www.wind-works.org/FeedLaws/Germany/GermanFeedLawsPowerNationtoNewRecord.html>

⁹ "New Jersey Dealing with Solar Policy's Success". *The New York Times*. June 25, 2008. Found at: <http://www.nytimes.com/2008/06/25/nyregion/25solar.html>

applications and locations to develop simultaneously, which helps to explain the development rates that have been observed in Germany.

A key element to this is prioritizing renewable access to the transmission grid ahead of other non-renewable projects. Transmission access should be monitored by the PSC and a mandate should require access to be provided within 60 days for projects below a maximum threshold (typically 20-50MW).

E) RECS – Poor Track Record especially for Solar

As explained in the Solar Industry Letter, there are significant concerns about the REC experiences in New Jersey and Maryland from those solar companies that experienced these policies first hand. It would therefore seem germane to Florida, which has limited wind resources but 2x the solar resource of Germany, to consider the implications for solar development.

“New Jersey once had a vital and growing solar industry, developing thousands of new high paying jobs. Maryland in 2007 followed suit by passing legislation intended to create a market for both small and large solar companies. Under each of these states’ newly adopted REC-based incentive programs, small to mid-sized companies quickly learned that REC policies are incapable of delivering adequate financial incentives for their client base.”

As Ted Middleton, President of a mid-sized, Maryland based solar company explained, “The ratepayer base thus foots the highest bill possible to fund ‘Big-Box’ style installations, and the little guys (farms, auto dealers) get a much lower cash benefit relative to each REC produced because they have little market leverage with remaining REC purchasers.” “The small systems just got completely left off the table,” says Middleton. “The state just said, [the REC program is] too difficult, too risky for us to do, so we’re not going to touch them.”

“In New Jersey there’s a lot of concern that the residential sector, while it may not be completely shut out, is in big trouble,” says Lyle Rawlings, secretary of the Mid-Atlantic Solar Energy Industries Association. “We need to do better at creating a system where small businesses and small projects can play the game. That’s not the case right now.”

“Florida could end up with renewable energy policy primarily designed for only one or two large companies, just like what has happened in Maryland and New Jersey,” comments Pete DeNapoli, SolarWorld’s¹⁰ Regional Manager based in Boca Raton. “Sure, the state of Florida will meet the RPS goals, but the bottom line is that the Governor’s goal of creating a vibrant renewable energy industry with thousands of new, high paying jobs will not be realized,” Pete adds. “With Feed-In Payment as the preferred incentive mechanism, you can achieve the state’s Renewable Energy goals while having a much broader impact in the market.”¹¹

The current draft of the RPS with RECs appears primarily designed for only one or two large companies. We are concerned that if implemented as laid out in the draft ruling, significant market concentration is likely as occurred in Maryland where one solar company was able to largely corner the market in solar RECs and contracted with a leading utility to supply it with 60% of the Maryland RPS solar market¹². Several studies have concluded that RPS/mandated

¹⁰ A top six global solar module manufacturer

¹¹ Solar Industry Letter to Governor Crist

¹² SunEdison Press Release dated 01/31/08 <http://sunedison.com/images/press/013108-Constellation.pdf>

quota RECs systems allow for a greater scope for collusion among developers at the cost to ratepayers.

F) RECs Require Significant State Manipulation To Make Them Work

Despite our reservations the PSC rule as currently drafted should also include:

1. Alternative Compliance Payments/penalties; without these the RPS targets are meaningless
2. Entity Caps preventing market concentration issues previously highlighted. These should be for developers etc; or alternatively
3. Carve Outs for smaller commercial systems versus utility scale projects

3. FARE Preferred Policy – Renewable Energy Procurement through Renewable Energy Payments (“REPs”)

As stated previously, we believe legislators intended the PSC to review policies that allow procurement of renewable power by utilities from 3rd party producers. It would be remiss of the PSC to enter into draft rules without having considered these policies in detail. Had the PSC undertaken a comprehensive review of policies outside the U.S. which account for the majority of the worlds renewables, they would have seen that there is one clear policy winner.

The U.S. now has only 8% of the world’s solar capacity – whereas Germany has over 50% - it also has ~ 20GW of wind capacity and one of the largest biomass industries. These developed under a REP mechanism.

A) REP Policy

For the purposes of this filing, we define REPs as a set of renewable technology-specific fixed payments that electricity companies make to renewable energy generators based on renewable energy generation costs and a reasonable profit.

REP contract pricing is implemented through a charge added by the utility to consumers’ electric bills in proportion to their consumption. REPs provides set prices for renewable resources and leaves it to markets to provide the appropriate quantity of resources at those prices. Payments are guaranteed over a long time period (i.e., 20 years) to provide price certainty and market stability and thus reduce the initial investment risk for renewable energy developers. Best practice REP pricing policy designs have payment levels that are specific to the resource type and with further price differentiation by size and other important criteria (such as for stand alone vs. building integrated applications for solar PV).¹³ These payments generally accompany policies which require utilities to prioritize interconnection of renewable generation and procure a certain amount of renewable energy as part of their total resource portfolio. The structure that Germany implemented is frequently referred to as a best practice and is being leveraged by other European countries such as Italy for solar PV as well as states that have recently proposed REPs such as Switzerland, France, Spain, India, California, Wisconsin and Ontario.¹⁴

¹³ Klein et al. “Evaluation of Different Feed-In Tariff Design Options – Best Practice Paper for the International Feed-In Cooperation. Found at: http://www.worldfuturecouncil.org/fileadmin/user_upload/Miguel/best_practice_paper_final.pdf

¹⁴ Klein et al. “Evaluation of Different Feed-In Tariff Design Options – Best Practice Paper for the International Feed-In Cooperation. Found at: http://www.worldfuturecouncil.org/fileadmin/user_upload/Miguel/best_practice_paper_final.pdf

To summarize, Germany’s best practice design provides payments that:

- Prioritize grid access to renewable producers within 60 days;
- Adequately reflect generation costs and profit;
- Provide long-term guaranteed price (i.e., 15-20 or more years);
- Are sustained over time once the generator is approved for admission into the program;
- Generally decline each year for new generators that are being admitted into the program (this is referred to as tariff degression), reflecting falling deployment costs as economies of scale reduce technology costs;
- Differ by renewable resource (often depending on the stage of development that the technology is in); and
- Are differentiated within each renewable resource to achieve specific goals (such as promotion of smaller installations, or building-integrated solar PV).

As of early 2007, approximately 70% of the countries in the European Union had some form of REP pricing. In comparison, approximately 20% had adopted renewable portfolio standards with RECs. Italy is the only European country to have both RECs and REPs.¹⁵

However, Germany’s success with REPs has garnered recent interest by U.S. states and European countries that have previously adopted RECs (such as the UK) as well as states and countries who have adopted neither to date. US states have acknowledged serious downsides associated with renewable portfolio standards implemented through RECs. New Jersey was one of the first states to note challenges associated with the development of renewable energy under renewable portfolio standards, such as the persistence of investment risk and price volatility.^{16,17} Also, without specific set-asides for more expensive technologies, development has not occurred at a rapid rate.

Exhibit 1. Overview of Policies to Promote Renewable Energy Development¹⁸

Policy Name	Definition	Pros	Cons	Current Applications
Quota Mandated RECs	A policy to require utilities in the state to procure a certain amount or percentage of their load via renewable resources and to allow	Provides certainty with regard to quantity	Pricing can vary from year to year or from project to	AZ, CA, CO, CT, DC, DE, HI, IA, IL, MA, MD, ME, MN, MO, MT, NC, ND, NH, NJ, NM, NV, NY, OH, OR, PA, RI, SD, TX, UT,

¹⁵ Wilson Rickerson and Robert C. Grace. *The Debate over Fixed Price Incentives for Renewable Electricity in Europe and the United States: Fallout and Future Directions*. Whitepaper prepared for the Heinrich Boll Foundation. Feb 2007. Found at: http://www.boell.org/docs/Rickerson_Grace_FINAL.pdf

¹⁶ [cite NJ whitepaper series](#)

¹⁷ An Analysis of Potential Ratepayer Impact of Alternatives for Transitioning the New Jersey Solar Market from Rebates to Market-Based Incentives. Summit Blue Consulting. Prepared for the New Jersey Board of Public Utilities.

¹⁸ Renewable Portfolio Standards, rebates, grants and tax incentives from www.dsireusa.org

Full list of countries with REPs from Wilson Rickerson and Robert C. Grace. *The Debate over Fixed Price Incentives for Renewable Electricity in Europe and the United States: Fallout and Future Directions*. Whitepaper prepared for the Heinrich Boll Foundation. Feb 2007. Found at: http://www.boell.org/docs/Rickerson_Grace_FINAL.pdf

	market mechanisms to determine prices. A best practice RPS should incorporate fixed long term contracts, entity caps and should have multiple markets for different resources especially for PV and clean distributed generation..		project to a large extent	VA, VT, WA, WI, Belgium , Italy, Poland, Romania, Sweden, United Kingdom
REPs (known in Europe as Feed-In Tariffs)	A set of fixed, long-term incentive payments made to renewable energy generators	Provides certainty with regard to pricing	Quantity depends largely on adequate pricing	In Place: CA, NJ, WA, Ontario, Austria, Bulgaria, Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Luxembourg, Netherlands, Portugal, Slovenia, Slovakia, Spain, Switzerland Proposed: IL, MI, MN, RI

B) A Comparison of Strengths and Weaknesses of Renewable Energy Payments and RECs

The exhibit below summarizes the strengths and weaknesses of REPs and RECs. The discussion of advantages and disadvantages is organized into following key characteristics: resource development and cost.

Exhibit 2. The Strengths and Weaknesses of REPs and RECs with Regard to Resource Development

Characteristics	REPs	RECs
Provides Investment Certainty/ Price Certainty (also known as static efficiency)	The price is certain with REPs. Pricing is clearly defined for the current year, as well as for future years.	Less price certainty than with REPs. The purchase price of RECs change annually according to the level of the annual goals, as well as the definition of eligible resources and the availability of eligible resources.
Provides Supply Certainty	Less supply certainty than with an RPS/RECs. There are no firm goals for supply. Also, there are no entities held responsible for not developing enough renewable resources, and no monetary penalty for under-achievement relative to development expectations. The only way to achieve greater supply is to modify the price.	The supply is specified with an RPS, but compliance needs to be enforced in order for supply to be certain. Penalties for non-compliance help to ensure that the goal is met if the level of penalties is high. Additionally, supply goals can be set by resource to ensure a certain amount of development for a particular resource and/or type of resource (i.e., solar PV, distributed generation).
Allows for Resource Diversity	<i>Technology</i> Allows for faster development of resources that are not least cost due to differentiation of payment levels by resource.	RPSs without resource-specific goals tend to encourage the least cost technologies and maximize the development of these technologies.
	<i>Size</i> Allows for development of smaller-sized resources by differentiating the payment level for these resources. This levels the playing field for smaller resources with greater transaction costs.	Most RPSs do not have goals that are broken out by resource size. As a result, higher transaction costs for smaller resources make it easier for larger sized resources to offer lower pricing – leads to market concentration
	<i>Application</i> Allows for development of different applications by differentiating the payment level for these applications. This encourages a greater variety of applications and the development of each application can be tailored based on policy goals.	Most RPSs do not have goals that are broken out by application (i.e., stand alone vs. building-integrated solar). As a result, the least cost application of the resource will be the one that is most commonly developed, despite the fact that other applications may be desired. It tends to ignore economic and industrial goals
	<i>Location</i> Likely to drive more local development than an RPS/RECs. As REPs is likely to apply to states rather than regions, the majority of the benefits of renewable development remain in-state with more job growth accordingly	Likely to drive more out-of-state or regional development than REPS. Out-of-state and/or regional trading is often an integral component of an RPS.

C) The Relationship between Project Financing, Profitability and Achievement of Development Goals

Renewable investment requires management of risk and uncertainty with regard to bank financing as well as project profitability. A paper entitled “Prices Versus Quantities: Choosing Policies for Promoting the Development of Renewable Energy” by Phillippe Menanteau provides the following more detailed explanation of the motivation developers need in order to participate in renewable energy markets projects:

“On the supply side, a supplier wishing to enter the market must be able to anticipate future prices and make his project ‘bankable’ in order to secure a loan to enable him to invest in new production capacity.... Project developers see [fixed prices] as ensuring a safe investment with better predictability and a stable incentives framework, as well as by the lower transaction costs for each project”.¹⁹

The higher development levels that have been observed with REPs are likely due to the reduced risk and uncertainty relative to other policy options.

As discussed above, power and/or RECs associated with renewable energy projects under renewable portfolio standards in deregulated states have been sold through short-term contracts (especially in the Northeast). The use of short-term contracts is a significant barrier for new renewable projects with high capital costs. Renewable portfolio standards could require the use of long-term contracts just as practiced in the regulated states and some deregulated states. This would reduce uncertainty about profitability which would lead to reduced project financing costs. However, the bi-lateral, long-term contract pricing under renewable portfolio standards would likely remain private. REPs that determine and publicly provide the current as well as future payment levels for different renewable projects provide clearer, more stable signals to project developers. Profits are known upfront with REPs. Ensuring a reasonable level of profit can drive manufacturer efficiency and innovation because funds can consistently be made available for further research and development.

¹⁹ Menanteau et al. “Prices Versus Quantities: Choosing Policies for Promoting the Development of Renewable Energy”. Energy Policy. 2002. Found at: http://zonecours.hec.ca/documents/H2007-1-1050423.Economic_Rationale_Renewing_energy.pdf

Exhibit 3. The Strengths and Weakness' of REPs and Quota Mandated RECs with Regard to Cost

Characteristics	REPS	RECs
Administrative Costs	It is overall less time consuming to implement than an RPS, as setting the prices in the first year and any degression over time are the main components that need to be established. Pricing differentiation beyond resource, resource size, and resource application is less time consuming.	Generally more time consuming to implement than REPS, as the following needs to be established; quotas, geographic eligibility, REC trading rules, methods and verification, alternative compliance payments and procedures. As a result, there are administrative limits to the number of development goals (i.e., markets) that can be established and maintained.
Investment Costs	Lower than RECs since banks can lower the interest rate for loans due to greater price certainty. ²⁰	Higher than REPs due to lesser price certainty.
Bill Impact Certainty	Less certainty around ratepayers' electric bill impacts than with an RPS. This is due to the fact that the proportion of development via each resource is unknown. However, REPs tends to ensure more homogenous costs over time and avoids sudden price spikes. ²¹	Greater certainty of ratepayers' electric bill impacts as compared to REPs. An RPS has a set development goals for each resource. However, this is only true if the price of these resources do not change greatly from year to year.
Short-Term Cost Minimization	<i>Geographic Participation/Eligibility</i> Since REPs applies to in-state resources only, the cost of the resource is directly tied to in-state development costs. When in-state resources are limited and/or costly, the overall cost impacts could be high. Not the case in Florida	Costs could be lower as compared to REPs in the short-term as many RPS policies grant eligibility to out-of-state resources that are lower cost than in-state resources. Trading with other states or regions enables the use of lower cost renewable resources to meet requirements, but at the cost of jobs/economic development/energy security. ²²
	<i>Overpayment Minimization</i> Due to the high level of price differentiation and degression that can be implemented, REPs are better than RPSs at preventing overpayment to solar applications with lower costs than others.	As it is more time consuming to implement different goals for different types of solar applications, for example, less expensive solar applications could realize windfall profits under an RPS. ²³
Fosters Innovation to Minimize Long-Term Costs	Costs proven to be lower as compared to an RECs in the longer-term. Since REPs is sometimes set up to decrease the prices received by new installations each year, manufacturers have the incentive to reduce costs quickly.	Costs proven to be higher as compared to REPs in the longer-term. While there will be competition between developers for business, there is little incentive for manufacturers to bring down the cost of new technology quickly.

²⁰ Held et al. Feed-In Systems in Germany, Spain and Slovenia: A Comparison. October 2007. Found at: <http://www.feed-in-cooperation.org/content/view/17/29/>

²¹ Ibid.

²² Numerous RPS cost studies found that projected rate impacts by RPS policies are modest, with the median retail rate increase being 0.7% or 0.04¢/kWh among 28 studies. The majority of studies showed the rate increase of less than 0.25¢/kWh while four studies showed rate decreases (Chen, Wiser, and Bolinger 2006, 13–14).

²³ Held et al. Feed-In Systems in Germany, Spain and Slovenia: A Comparison. October 2007. Found at: <http://www.feed-in-cooperation.org/content/view/17/29/>

D) Competition and Costs over the Life of the Policy

A renewable portfolio standard “encourages competition among renewable developers to meet the targets in a least-cost fashion”.²⁴ However, due to the lack of a firm payment structure that provides insight into future payments, there is less of a longer-term price signal to developers. In years where there is lower supply of renewable resources paired with high demand and prices remain high, there is less motivation for developers to consult with manufacturers about bringing the costs of these resources down. Several studies comparing the potential costs of RECs to REPs suggest that renewable portfolio standards with RECs provide greater opportunity for collusion amongst larger players who want to keep the prices of renewable resources high.^{25,26} This is not a concern with REPs because payments are determined by the PSC.

With REPs, developers know their anticipated payments in the first year. They also have a general idea of what their payments will be 3-5 years out. REPs sends a clear, predictable, long-term price signal, and a degression structure motivates developers and subsequently manufacturers to reduce costs because they know that the payments will be lower in future years than what they are in the first year.^{27,28} Also, clear signals enable manufacturers to better allocate funding to research and development in order to lower capital costs. In other words, competition amongst manufacturers to quickly bring down the cost of their products may be more desirable than competition amongst developers. Since REPs are better positioned to provide price signals that will reach manufacturers, REPs will result in lower costs over the life of the policy compared to RECs.

Conclusion

We encourage the PSC to immediately undertake a review of the comparative benefits of RECs versus REPs and how REPs can be included as part of the current rule making. It appears clear to many that:

- ◆ The Legislation intended REPs or other procurement programs to be part of the RPS – this has not happened
- ◆ REPs are better value for ratepayers than a REC only system
- ◆ REPs provide much more stability to renewable investments thereby encouraging the rapid deployment of renewables, the industrial/economic development and jobs that go with it
- ◆ RECs lead to market concentration/monopolies without entity caps or carve outs for small commercial segments
- ◆ RECs are cumbersome and opaque as a policy tool – only with significant interference can they be made to work, albeit less successfully than REPs.

²⁴ LBNL 2004

²⁵ Held et al. Feed-In Systems in Germany, Spain and Slovenia: A Comparison. October 2007. Found at: <http://www.feed-in-cooperation.org/content/view/17/29/>

²⁶ Frede Hvelplund. “Political Prices or Political Quantities? A Comparison of Renewable Energy Support Systems.” *New Energy*. May 2001. Found at: <http://pebb.das.state.or.us/ENERGY/RENEW/Wind/docs/feedlaws-Hvelplund.pdf>

²⁷ Menanteau et al. “Prices Versus Quantities: Choosing Policies for Promoting the Development of Renewable Energy”. *Energy Policy*. 2002. Found at: http://zonecours.hec.ca/documents/H2007-1-1050423.Economic_Rationale_Renewing_energy.pdf

²⁸ Frede Hvelplund. “Political Prices or Political Quantities? A Comparison of Renewable Energy Support Systems.” *New Energy*. May 2001. Found at: <http://pebb.das.state.or.us/ENERGY/RENEW/Wind/docs/feedlaws-Hvelplund.pdf>

Appendix 1 – Letter to Governor Crist Dated May 8th 2008

Signed by 49 individuals and companies largely from Florida