April 5, 2010

Comments of Vote Solar

On the rulemaking for solar energy compliance

under the Renewable Energy Standard Rulemaking

The following comments are made on behalf of Vote Solar. Vote Solar is a nonprofit organization with members throughout Missouri and the U.S. that aims to address global warming and energy independence by bringing solar energy into the mainstream. Our organization has been an active stakeholder in the development of renewable energy standards specifically in relation to solar energy generation in many states throughout the country.

The Renewable Energy Standard (RES) Chapter 20 and Chapter 3 rules as written in their present version form a strong basis for the establishment of a robust solar industry in Missouri that will successfully comply with annual solar energy benchmarks. Section one of these comments will address the policies within the current rules that will result in a steady development of new solar energy. Section two will address the areas where the Commission has the opportunity to clarify ambiguities in the current version.

Vote Solar has commented on these rules during each stage of development. Based on our experience in solar program design, we conclude that if Missouri implements the solar portion of the RES as proposed in these comments, the solar component will meet the both the solar energy requirements and stay within the cost containment in additional to the other resources specified in the state statute.

I. Commendable sections of the draft rules

Overall the rules as written are simple, straightforward and provide a framework for solar energy to deploy at a pace that will result in a downward price pressure to bring solar generation costs to grid parity in Missouri. The basic structure of the rules allows for the future policy details to evolve as needed.

All customers retain ownership of their SRECs

Vote Solar commends the Commission for following national best practices in the assigning of solar renewable energy credits (SRECs) to all customer generators who make the sizable investment in the deployment of solar energy. SRECs belong to the investors in solar energy to allow the investor to monetize the SRECs into a payment stream to help offset the cost. While the solar rebate will help offset some of the upfront costs of solar, the sale of SRECs to utilities to help with RES compliance is essential to allow investment in a solar energy system to result in a net positive payback.

Solar rebate is available to all customers

Section (4) states "These rebates shall be available to Missouri electric utility retail account holders who install new or expanded solar electric systems that become operational after December 31, 2009." This rule allows fair access to solar rebates to all ratepayers within the state of Missouri. Vote Solar reads this rule as to clearly include all Missouri electric utility retail account holders including account holders in the Empire Utility territory.

Section (4) D requires solar generating equipment to consist of factory new products. We are in agreement that requiring new equipment will prevent double counting of rebates and will function to expand the quantity of solar panels and inverters through out the state.

Sections (4) E, F and G provide validation for project deployment and prudent use of ratepayers funds.

The Commission and staff are especially to be commended for the inclusion of the "standard offer contract" for transfer of SRECs from solar projects of rebate recipients in Sections (4) H-L. The "standard offer contract" referred to in this section follows closely the successful model for solar generation under an RES in the nearby state of Colorado. Colorado has a $2/W rebate plus a standard SREC offer for small and mid-sized solar generation. Colorado has had tremendous success with their Solar Rewards[1] program. This success is demonstrated in Colorado having some of the lowest installed cost per watt solar projects in the nation. Residential solar projects in Colorado which is a mature solar market are selling for an average of $6.50/W.[2] The program success is also demonstrated by the public support for the solar program. In fact, the state legislature recently approved 2010 legislation effectively tripling the solar requirement under the state RES[3].

A standard offer contract for SRECs is a simply a contract with standardized terms for duration of contract and price for SRECs that is available to all solar generators who meet the established criteria. The concept behind the standard offer is that for small PV projects the cost of negotiating a SREC sale contract or producing a bid for an RFP erodes much of the monetary value. By establishing a standing program, in some states marketed the Residential and Small Commercial SREC purchase program, residential utility customers and small business owners have access to the solar incentives paid for through their utility rates and bills. The "offer" allows for simple transfer under fixed terms of SRECs from solar equipment owner to the utility.

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[1] http://www.xcelenergy.com/Colorado/Residential/RenewableEnergy/Solar_Rewards/Pages/home.aspx
[2] Direct communication with residential solar installers and the Colorado Solar Energy Industry Association 2009.
[3] Denver Post. Op-Ed *Gov. Bill Ritter: Advancing Colorado's New Energy Economy* www.denverpost.com/opinion/ci_14650410

A residential and small commercial SREC purchase program guarantees that solar installations will be deployed on roofs in Missouri and allow Missouri to reap the benefits of private investment in solar energy and the maximum job creation value of distributed generation solar projects.

There are a few ambiguities in the wording of Section (4) H that would behoove all parties to have clarified at the outset of the program. The following sentence should read "(H) At the time of the rebate payment **and** ~~**or**~~ anytime thereafter, the electric utility shall offer a one-time lump sum payment, called a Standard Offer Contract, for the current ~~**ten (10) year**~~ fixed price for associated S-RECs **for fifteen (15) years**." These minor syntax changes ensure that the Standard Offer Contract is offered to all solar rebate recipients and not at the discretion of the utility. The second correction clarifies that the SREC sale price is fixed and the contract duration is 10 years. The expectation is SREC prices will decline each year and that subsequent 10 year contracts will be entered into a lower price.

Section (4) H, I, J, K and L ensure a fair project queuing process; timely rebate payment; verification of systems awarded rebates; and fair retention and retirement of SRECs by the acquiring utility.

Retail Rate Impact Calculation

Again, the Commission is commended for designing the 1% retail rate impact cap to be averaged over 10 years. Renewable energy generation such as wind and solar have high upfront costs but minimal operating costs since by design fuel inputs are not required. Therefore the costs of developing renewables is not evenly borne over each year. In addition the Missouri RES requirements do not increase in even increments but instead increase in steps. Averaging the retail rate impact over 10 years will accommodate for this stair-step approach to new renewable requirements.

Geographic Sourcing

The geographic sourcing rules as written in section (2) A will bring the associated benefits of solar such as reducing strain on the electrical grid, avoiding line losses, ensuring stable energy prices and providing cleaner air and bringing much needed new jobs and economic growth within the state of Missouri where the solar costs are borne. The requirement that "located outside of Missouri [resources], the renewable energy resource is sold to Missouri electric energy retail customers. For renewable energy resources generated at facilities located outside Missouri, an electric utility shall provide proof that the electric energy was sold to Missouri customers" allows the benefits to remain instate without running afoul of the interstate commerce clause.

RES Annual Compliance Plans

The required Annual Compliance Plans will provide transparency for solar costs and ensure ratepayers are receiving best fit, lowest cost renewable energy.

II. Areas of Improvement

Standard offer contracts for differing net metered project sizes.

We recommend spreading solar REC payments across the 15 year lifetime of the contracts rather than requiring the entire value of SRECs to paid up front for rebate awarded PV systems larger than 10KW. Much of the solar rules are written to model the Colorado solar program as described above. Missouri could model more closely the solar program in Colorado if the rules on the 'Standard Offer Contract' were modified as described here. The lump-sum payment of the 15 year fixed price SREC contract should be made available to only to projects up to 10kW in size. For net metered projects 10-100 KW a standard SREC contract with fixed price should also be offered but the payments should be performance based (i.e. metered) and paid out as SRECs are generated. The current rules read that any project that receives the rebate also is entitled to the lump sum standard offer contract for sale of SRECs to the utility.

As explained in Vote Solar's first set of comments to the Commission in June of 2009, residential solar installations, generally smaller than 10KW, can not avail themselves to more complicated financing structures such as power purchase agreements and commercial financing and therefore the lump sum payment for expected SREC output helps overcome the upfront costs barrier. As larger commercial projects have more financing options at their disposal, having a steady long term stream of incentives in the form of SREC payments is sufficient to secure financing.

If the Commission is not inclined to establish a separate tier and SREC purchase structure for solar projects larger than 10KW, we encourage the Commission to leave the rule as it stands.

Clarify Applicability of Solar Rebates

Section (4) D also includes language about the number of times a solar project may apply for the rebate. "For any applicable solar electric system, only one (1) rebate shall be paid for the lifetime of the solar electric system. Retail accounts which have been awarded rebates for an aggregate of less than twenty-five (25) kilowatts shall qualify to apply for rebates for system expansions up to an aggregate of twenty-five (25) kilowatts." The first and second statement appear to conflict with one another. Vote Solar suggests that the sentences read "For any applicable solar electric system, *a maximum rebate of $50,000* rebate shall be paid for the lifetime of the solar electric system." This change allows these statement to conform to all statements within Section (4) D.

Establishment of the Value of SRECs for the standard offer.

The solar energy market in Missouri is currently immature. Therefore a challenge for the Commission is to determine what is a fair market price for SRECs. Even in the most mature solar markets across the country, the establishment of SREC prices are based on artificial benchmarks. For Missouri, we

recommend that the Commission establish an annual workshop process for setting SREC values for systems under 100kW. Since Missouri has no precedent on which to base the market value of SREC, we propose two options for establishing the SREC price within the workshop.

1) Use a method of calculation based on best available published solar cost resources. The best calculation can be achieved by arriving at a fair price for SRECs by taking the typical installed cost of a solar electric system minus the value of the retail power divided by the system generation over the warranteed lifetime of the system of years, this is referred to as the Levelized of Cost of Energy (LCOE)[4]. LCOE is measured in a $/kWh. The gap between LCOE and the retail value of the electricity also $/kWh can be used as the value of renewable energy attributes of solar power or a SREC. An annual workshop could take best published solar LCOEs as published by a reputable analyst firm such as Lazard and the average value of retail power to Missouri customers. An annual workshop can help track declines in market prices and benchmark the SREC payment to real market data.
2) Alternatively, the Commission can require the utilities to make available in their compliance plans the *average weighed price* for purchased SRECs resulting from RFPs for SRECs. This average weighed price shall be the SREC price included in the standard offer.

Long term contracts

To finance the construction of new solar systems, which was one of the principal purposes of the RES, solar developers must monetize *both* the revenue from the sale of electricity and the resulting solar RECs upfront. That is, solar developers must obtain signed, long-term contracts for both the electricity and the solar RECs before they can obtain financing from a bank and proceed to building the solar system. For net metered systems the rules accommodate this need through the 10 year standard offer contract. However, long term contracts will also be needed to develop large scale solar projects as sought through SREC contracts issued by the utilities. Therefore, we recommend the Commission include the following language to the end of Penalties Section (8)A *"Mitigation includes, but is not limited to, pursuing all reasonable options including but not limited to, renewable energy credit solicitations, REC banking, and long term contracts."*

Customer Generator Definition

Clarify the definition of customer generation to allow inclusion of third party ownership. Striking the words retail account holder should remove any ambiguity. This is particularly important to commercial solar generation projects. 85% of commercial solar projects in the United States have been financed by

[4] The LCOE equation evaluates the lifecycle energy cost and production of a power plant, allowing alternative technologies – with different scales of operation, investment, or operating time periods – to be compared. W. Short, D. Packey, T. Holt, "A Manual for the Economic Evaluation of Energy Efficiency and Renewable Energy Technologies", National Renewable Energy Laboratory – March 1995

third party power purchase agreements. This type of financing allows commercial owners to overcome the upfront costs of installing solar and results in downward pressures on pricing.[5]

Remove the Solar Energy Exemption in Section (9)

We recommend that the Commission strike the clause allowing a utility with 15% existing renewable generation to be exempt from developing solar resources. An exemption for a particular utility will create uneven rules for ratepayers across the state. Some ratepayers will be excused for contributing to solar generation that benefits both the air quality and economy of the whole state. Furthermore access to the solar rebate will be denied to a subset of ratepayers under the jurisdiction of this Commission.

Conclusion

In conclusion, we believe that Missouri will create a world class solar program if the Commission retains the key provision recognized in section one and adds the few remaining critical components in section two. Missouri could quickly reap the clean air, energy security, and jobs benefits of a robust solar industry. If the Commission or staff would like further clarification on these comments or the resources from which the recommendations where drawn, I would be pleased to present them.

Kindest regards,

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[5] Sherwood, Larry. US Market Trends 2008. Interstate Renewable Energy Council.