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Arizona Corporation Commission  
1200 West Washington Street  
Phoenix, Arizona 85007

Arizona Corporation Commission

**DOCKETED**

FEB - 3 2010



Re: Notice of Inquiry Regarding Arizona Feed-in Tariff for Renewable Energy  
Production; Docket No. E-00000J-09-0505

Dear Madam Chair and Commissioners:

Thank you for the opportunity to respond to the Commission's Notice of Inquiry regarding the potential adoption of a Feed-in Tariff ("FIT") for wholesale renewable energy production. Green Choice Solar ("GCS") believes that the Commission should adopt a FIT for all the electric utilities under its jurisdiction. A carefully crafted FIT can lead to the rapid deployment of DE systems across Arizona. Because of Arizona's abundance of sunlight resources, GCS believes that solar PV systems would be the logical supplier of wholesale DE resources in any FIT program adopted by the Commission. GCS enthusiastically supports the adoption of a FIT policy for Arizona and hopes the Commission finds our responses to the NOI helpful.

*Question 1: Should the Commission develop a new policy to support procurement of wholesale distributed generation resources?*

Yes. Under the current RES, the utilities must justify their costs to the Commission, whether they use PPAs, UFIs, PBIs, or build their own projects. Project siting and access to transmission can challenge even the best and most economical renewable projects. Furthermore, competitive solicitations, which emphasize the "least-cost" principle to minimize ratepayer exposure, do not fully consider the likelihood that a project can obtain financing. By contrast, FIT policies allow utilities to procure readily available

wholesale renewable resources without having to issue complicated RFQs and RFPs or maintain costly program administration to meet their RES requirements.

FIT policies have been implemented in various countries in Europe, including Austria, Belgium, the Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Ireland, Lithuania, Luxembourg, the Netherlands, Portugal, Spain, Sweden and Switzerland. A number of U.S. states have passed or are considering FIT legislation or regulation, including Florida, Hawaii, Illinois, Indiana, Maine, Michigan, New Jersey, New York, Oregon, Virginia and Washington.

However, GCS believes Germany provides the best example from which the Commission can glean insight and apply best practices. German policy makers understood that return on investment, not lowering up-front costs, remained the chief obstacle to wider market penetration for renewable energy alternatives. In response to that barrier, utilities were required to pay a rate between \$0.32 per kWh and \$0.43 per kWh for solar electricity from newly-installed PV systems. The German FIT program authorized the utilities to pass on this additional cost to all electricity customers equally. As a consequence, the FIT program worked through market incentives independent of government tax credits and utility incentives that are typically needed to meet renewable portfolio standards.

In terms of electricity supplies for Germany, the share of renewable energy grew from 5% in 1998 to 15% in 2008. Every household pays an average of \$3 per month to support the FIT. By ensuring a guaranteed rate of return over a sufficient period, the German FIT has proven to be a key factor for accelerating private financing. To encourage cost reduction, the feed-in rate is decreased 10% annually for newly-installed PV systems. Once a PV system is connected to the grid, the guaranteed feed-in rate remains constant over a 20-year period. This approach allows solar developers to earn a return on their investment, while exerting price pressure on the industry to reduce costs.

The German FIT was designed with administrative ease in mind for both the utility and solar PV system owner. The system owner is paid monthly based on an initial estimate of the annual electricity production. Payments are split evenly over 12 months. After the utility reads the meter at the end of each year, the monthly payments for the subsequent year are true-up based on the actual electricity production in the prior year. As a result, program administration for the utility is straightforward and cost-effective.

Most successful European FIT policies, which have resulted in fast and substantial distributed energy deployment, have payments structured to cover the project cost, plus an appropriate return to investors. Moreover, a March 2009 analysis by the National Energy Laboratory also confirmed that countries with FIT policies have less expensive renewable electricity than those countries that rely on subsidies. Less risk is involved for

the installation of renewable energy systems. As a result, investors are willing to accept lower profit margins in exchange for long-term price stability.

FIT policies use two main methods — project cost-based approach and value-based approach — for setting the overall return to renewable energy developers. The project cost-based approach sets the payments on the levelized cost of generation over some defined term and includes a predetermined return determined by policy makers or regulators. Under this approach, FIT payments can be specifically designed to ensure project investors earn a reasonable rate of return, as well as foster the conditions necessary to stimulate market expansion.

Under the value-based approach, the payment is calculated by estimating the value of the renewable energy. The value could be based on either the utility's avoided costs of building generation and related facilities or the externality costs of conventional generation, including the impacts of climate change legislation, health and air quality, and water use. Value-based FIT payments require quantification of these benefits, which can invoke considerable debate and controversy, resulting in a high degree of program complexity. More importantly, this approach may not match actual generation costs. Insufficient payments will not provide enough funding to stimulate market growth, while payments higher than actual generation costs may lead to cost inefficiency.

Experience from Europe has demonstrated that a carefully designed FIT may be more cost-effective than renewable portfolio standards. In its current form, the success of Arizona's RES depends heavily on various subsidies, including federal and state income tax credits and utility incentives. On the other hand, the success of a FIT depends largely on the commitment by the policy makers or regulators to set the right price for the production of renewable energy.

*Question 2: Should the Commission develop a new policy to support the development of customer-sited distributed generation through a FIT?*

Yes. A FIT policy can be developed to work in concert with the Commission's existing RES. The DE requirement prescribes how much customer demand must be met with renewable resources, while a properly structured FIT program strives to support the development of new wholesale supplies by providing predictability and certainty to solar developers and investors.

FIT policies are generally designed to provide a renewable project with revenue streams sufficient to cover deployments cost, plus a reasonable return to investors. FIT policies are focused on establishing the right price to drive renewable energy deployment, while

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the Commission's RES is focused on the quantity of renewable energy generation, leaving the price to be determined by a bureaucratic competitive bidding process.

The main exception from the competitive bidding approach is the residential category under the Distributed Renewable Energy Requirement (R14-2-1805). In this instance, however, the Commission made a conscious policy decision to direct a substantial amount of RES funding to jump start solar PV system deployment on homes. As you know, the costs for installing residential solar PV systems are high (on per REC basis), and the best way to drive system deployment is through UFIs. Under the present circumstances, GCS does not believe that the Commission should change the funding approach for the residential DE market.

Both PBIs and FITs are paid to the customer or the DE developer based on the amount of electricity produced by the system. With PBIs, the up-front capital costs are driven down through the use of federal and state tax subsidies. In addition, customers must participate in the long and confusing reservation and nomination process established by the utilities. Customer uncertainty runs high and funding availability is unpredictable. The FIT, on the other hand, offers the DE producer a pre-determined rate for any kWh of electricity produced over a specific term. If determined correctly, the feed-in rate will cover the cost of the installed system and include an appropriate knowable return on investment. DE developers with the marketing savvy, the technical expertise, and investor funds will succeed under the FIT approach.

The current PBI program unintentionally creates chaos for solar developers as they compete in the sealed auction process without any hint if their bids will be competitive. Another inherent deficiency is that funding could dry out after a few nomination rounds are held. As evidenced over the past year, the demand for the commercial DE is high and often brings more cost-effective results (on a per REC basis) for the utility; however, the existing PBI programs are underfunded and thus cannot yield any meaningful penetration in the non-residential market.

Both PBI and FIT share the same unique feature — an automatic sunset clause. Under either approach, payments for the systems will expire at a date certain (10, 15 or 20 years). The advantage of the FIT, however, is that the annual rates offered to new customers are decreased, forcing the DE developers to look for cost savings in order to participate in the FIT program. Continued use of PBIs, with their over-reliance on tax subsidies, could spell trouble if Congress decides to cut or end the tax credits. In that event, the utility would invariably have to increase the PBI payments to bridge the subsidy shortfall.

Regarding whether owners of DE systems are public service corporations under a FIT policy, GCS believes the Commission should determine they are not. To avoid any potential adjudication questions, the Commission should establish appropriate guidelines for DE owners to follow. As long as they provide wholesale generation to the incumbent utility, DE owners should not be treated as public service corporations. In this case, the Commission would have no reason to determine the fair value of each system that received funding from the approved FIT.

*Question 3: If you believe the Commission should develop a policy to support procurement of wholesale distributed generation resources, what policy goals should guide the development of such a program?*

GCS concurs with the Commission's draft goals for a FIT policy. The Commission needs to recognize that no FIT policy can succeed without sufficient and predictable funding (to cover deployment costs and a reasonable profit margin) that is available throughout year. At the same time, GCS also understands that ratepayers do not have endless funds to support a capless FIT program. However, the level of funding needs to be commensurate with the energy requirement of the FIT policy established by the Commission for the particular utility.

*Question 4: What is the appropriate size range of projects to target? What is the size of the potential market for projects in the size range you suggest?*

The Commission should consider adopting four tiers for the FIT program based on PV system size. The first tier would include system sizes up to 50 kW; the second, from 50 kW to 150 kW; the third, from 150 kW to 300 kW; and the fourth, from 300 kW to 1 MW. The FIT rates would be higher for the smaller system tiers and lower for the larger system tiers.

GCS believes that the adoption of FIT policy can assist utilities in meeting their overall RES requirements, as well as provide the funding means for utilities to meet their resource planning objectives. For example, according to its Resource Plan filed with the Commission (Docket No. E-01345A-08-0010), APS intends to meet its future generation needs with a combination natural gas-fired capacity and renewable resources, including the deployment of small-scale solar PV systems.

Given the difficulties in securing financing for large-scale solar thermal projects, a FIT policy could easily provide APS with necessary means to meet not only its RES requirements, but also its Resource Plan objectives. Relying on DE solar PV would obviate the need to build costly transmission and distribution lines and accelerate the

deployment of cost-effective solar PV systems on commercial buildings, office campuses, schools, community colleges, universities and governmental buildings.

A FIT policy would benefit any locale (either rural or urban area) that has the need for distributed generation (in the case of congested or high growth areas) and the actual room available for the system. The beauty of a FIT program is that any type of customer can use it, whether it is a non-profit, homeowner association, or apartment complex. A well-designed FIT should function in a non-discriminatory manner, allowing an equal footing to any DE developer who can secure customer sites and obtain financing.

*Question 5: Should the Commission adopt a statewide FIT, or should FITs vary by utility?*

The Commission should adopt a FIT for each of the state's investor-owned utilities (i.e., APS TEP and UniSource Electric). The dollar amount of the FIT payments should be the uniform for all of these utilities; however, the size of the FIT program for each utility should be based on number of its customers and ability of its ratepayers to support continued FIT funding.

*Question 6: In light of the proposed policy goals, what would be the most appropriate procurement method to use in procuring power from projects in the size range you recommend, and what cost or capacity limits should be applied to the program?*

As discussed, FITs do not follow any specific procurement method; instead, they provide fixed payments for energy production over a defined period. As regulators, you should be cognizant of the total cost of any contemplated FIT policy on ratepayers. The Commission could impose limits based on cost or capacity. Placing ceilings on one factor will drive amount of the other. In other words, establishing the dollar amount will invariably limit amount of capacity produced and vice versa.

*Question 7: Assuming a capped program, on what basis should winning contract be selected?*

By their very nature, FIT policies impose very few limits on who can participate in selling renewable energy generation. The Commission or utility (subject to Commission approval) could establish eligibility criteria, such as acquired financing and secured customer sites, for DE developers in awarding winning contracts. However, true FIT programs are not competitively-bided; rather, they focus on the actual costs required to build renewable projects. At a minimum, the Commission should make a three-year commitment toward the program to gauge the progress of PV system deployment. If the

program is sputtering because of underpayments or is running out of money too quickly, the Commission can adjust the incentive amount based on current economic conditions.

The FIT policy should account for payment differentiation, based on project-specific factors. These factors could include the size of the project (to lower the cost per REC); the quality of the resource (to encourage broad deployment of the resource); and specific location of the project (urban vs. rural, building integration). Payment differentiation of FIT payments is necessary to ensure that a variety of project sizes come to fruition. GCS stresses, however, that a properly-designed FIT will result in PV installations where market conditions are favorable. For instance, the securing rooftop space in rural areas may be cheaper than in urban areas, and therefore, solar developers would concentrate their efforts on system installations based on this cost advantage.

*Question 8: Would projects located in certain areas (e.g., congested areas) provide greater benefits to Arizona ratepayers, and if so, how might the Commission focus policy design to promote project development in these areas?*

Yes. The Phoenix and Tucson metropolitan areas offer ample opportunities for the installation of solar PV systems in the non-residential market. Potential sites include distribution centers, warehouses, light industrial buildings, corporate campuses, big box retailers, schools, office buildings, community colleges and universities. Distributed generation is a cost-effective way to provide peaking power in the load pockets. In areas of high growth or congestion, the deployment of distributed generation can lessen the need for the incumbent utility to construct additional electric facilities. GCS believes that the adoption of a FIT policy will naturally lead to the installation of DE systems in high growth and congested areas. Designing special carve-outs, however, will only result in market confusion and uncertainty for DE developers and investors.

*Question 9: Please discuss what price-setting method would be most likely to: (a) capture changes in generator costs, (b) produce the lowest cost to ratepayers, (c) be easiest for Commission Staff to administer, (d) encourage competition, (e) be most likely to result in viable projects, (f) exert downward pressure on prices and (g) best support the Commission's goals.*

GCS recommends the Commission base the feed-in rates on the cost of technology approach. This straightforward approach is relatively easy to develop and administer; DE projects are guaranteed cost recovery plus a reasonable profit. Adopting the technology cost approach sends the clear policy message of regulatory certainty to solar developers and investors.

Value-based FIT policies, on the other hand, have had little success in the driving the rapid growth of DE projects. Just trying to establish a process to quantify externalities would be difficult for the Commission. Assigning the actual monetary value to the external costs will inevitably cause considerable debate and controversy among Commissioners. More importantly, the value approach may not match actual generation costs. Underpayments would cause market stagnation, while overpayments would lead to cost inefficiency.

GCS recommends that the Commission use the fixed-pricing model for the cost of technology approach. In this model, FIT payments are predetermined for a guaranteed period. The longer the payment term (15 or 20 years), the more stable the conditions for investors. This risk reduction can lead to lower financing costs for new projects. Using either a fixed premium or variable pricing model to base projects cost on the spot-market prices, while an interesting concept, would entail major challenges. First, the spot-market price of electricity is easily not transparent and would require a lot of estimation of costs. Second, the model is more complex to administer than a fixed-price model, which could increase the administration and compliance costs for the utility, which is ultimately borne by the ratepayer.

*Question 10: In light of the policy goals and procurement mechanisms you recommend, what additional elements must the Commission consider, e.g. standard contract development, rate recovery for regulated utilities, contract approval requirements, etc.?*

The Commission needs to realize the approved tariff “regulates” the FIT program. Setting the right FIT rates will attract sufficient participation from solar PV developers. The FIT policy should remain simple and easy to implement; the more prescribed the program becomes, the less likely its success. The Commission should consider the value of standardized contracts for system owners and streamlined interconnection agreements in reducing any program complexity.

*Question 11: How should this new program fit into existing renewable energy requirements? Should it be additive to the RES requirement? Should generation procured under this policy qualify toward the Distributed Renewable Energy Requirement in the RES? Toward the non-distributed requirement in the RES?*

GCS recommends any FIT policy should not fall under the Distributed Renewable Energy Requirement of the RES (R14-2-1805). Rather, it should fit into overall renewable energy requirement for the affected utility. The FIT is really the funding means by which the utility can achieve its annual renewable energy requirement. For

sake of simplified program administration, as well as to promote cost effectiveness, the FIT policy should apply to non-residential installations only, focusing on larger scale DE system installations that yield a lower cost per Renewable Energy Credit (REC). All FIT expenses should be recouped by the utilities through the existing REST surcharge mechanism approved by the Commission.

*Question 12: Should there be any additional restrictions or prioritization of siting opportunities (e.g., should the program be restricted to rooftops)?*

The FIT policy should allow for the rapid deployment of cost-effective solar PV resources. It is reasonable to assume that the majority of siting opportunities for DE systems will occur on the customer's rooftop or parking structure. Given this assumption, GCS does not believe the program should not have any formal restrictions.

*Question 13: Are there legal or jurisdictional issues that should be considered in the development of a FIT program? If so, how might the Commission address those concerns in the design of the program?*

The only the legal issue GCS believes the Commission should consider is whether owners of DE systems would be public service corporations under a FIT policy. In that case, the Commission would assert jurisdiction in terms of cost of service, energy service agreements, quality of service, and reliability and adequacy of service. GCS believes Commission regulation would undermine of the successful implementation of any adopted FIT policy. Simply put, Commission regulation will increase project development risk and potentially spook investors. To avoid this undesired result, the Commission can establish a set of strict criteria by which DE developers and owners can follow to ensure their activity is not subject utility regulation. GCS suggests that the Commission develop these criteria from stakeholders in the workshop process.

*Question 14: Please discuss any additional elements that the Commission should consider?*

Adopting a FIT program for DE is an excellent way to promote the rapid and effective deployment of larger scale solar PV. The Commission needs to understand a number of policy challenges as it consider adoption of any FIT policy.

First, the established feed-in payment must ensure revenues will be enough to cover project costs. Setting payment too low will result in little renewable energy development; setting payments too high will result in windfall profits to developers. In order to avoid these potential predicaments, the Commission should implement payment differentiation to account for different types of technologies and project sizes. However, if the FIT

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policy is too complex with too many exemptions, extra credit multipliers and qualifications, it will hinder program implementation and its ultimate success.

Second, FITs, unlike other financial incentives for renewable energy development, do not decrease a developer's up-front costs. Tax credits, grants and rebates are used to drive down high, up-front capital costs of renewable energy installations. These subsidies, however, are often ineffective at providing stable conditions for broad market adoption.

Third, frequent revisions to the structure of FIT program can lead to policy uncertainty. The more uncertain the policy structure, the higher the risk profile for project investor, which means the investor will want a higher return or choose another project with less risk exposure. With that in mind, the Commission should revise FIT policy, *when necessary*, to account for changing costs and market conditions.

In closing, GCS hopes our responses will be helpful to the Commission as it assesses the benefits of adopting of a FIT policy for Arizona. Again, thank you for your consideration on this important policy regarding the further development of renewable energy.

Yours truly,



Herbert Abel  
Chief Executive Officer