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California Energy Commission
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Sacramento, CA 95814

Re: Docket # 06-IEP-1C and 03-RPS-1078 (Feed-in Tariffs)

Docket Office:

Please find attached PG&E's comments on the workshop held May 21, 2007, regarding "Feed-in Tariffs".

Please contact me should you have any questions. I can be reached at 415/973-6463.

Sincerely,

Les Guliassi
Les Guliassi *mla*

Attachment

PG&E Comments Regarding Feed-in Tariffs
CEC Workshop, May 21, 2007
Docket # 06-IEP-1C and 03-RPS-1078

INTRODUCTION

Pacific Gas and Electric Company (PG&E) is pleased to augment the comments it offered at the Commission's May 21, 2007, Integrated Energy Policy Report workshop on feed-in tariffs with the following written comments:

The heart of the CEC's inquiry is this: Do parties see feed-in tariffs as a useful tool to replace or complement the renewable portfolio standard, either now, or after 2010, in order to increase utility purchases of renewable resources? In brief, PG&E believes that for large renewable resources, the RPS process is adequate and successful on its own, and that adding or substituting a feed-in tariff process would be harmful and administratively inefficient. For small renewable resources, adequate progress is also being made, but feed-in tariffs are worth consideration as an alternative tool for resources less than 1 MW.

It should be understood that a feed-in tariff will not advance renewable energy resource development when other critical factors are lacking. As observed by one of the consultants that presented their analyses of the value of feed-in tariffs at the May 21, 2007 workshop, "Policymakers must still be aware of caveats about subsidies and unrealistic renewable energy goals." Factors to be considered include transmission interconnection issues (wind), retail electric rates and damage to economy, and reductions in technological progress. (Bates White at 19.) PG&E's record of renewables procurement demonstrates that it has acted aggressively and consistently to procure renewable energy resources, and that in the face of these constraints, the potential incremental benefit of a feed-in tariff on responsible renewables procurement is limited.

To understand our conclusion, it is useful to review PG&E's current renewable procurement process under the RPS program. PG&E and the other major investor-owned utilities solicit bidders with a standard contract, the terms of which resulted from negotiations with representatives of generators, environmentalists, consumer advocates, and the utilities. The standard contract process was overseen by the CPUC, which ultimately adopted negotiated contract terms and designated some of them "non-modifiable". A generator may bid and, if its price and terms are accepted, the utility and the generator execute a contract. While PG&E has a target of obtaining one to two percent of load per year from renewable resources, PG&E is not limited by that target. PG&E may, and has, signed all cost-effective contracts offered.

The standardized contract process is market-based, as bidders have historically priced their bids around a range that includes the market price referent (MPR). The bid price is adjusted by time-of-use factors, so that the time-differentiated payment for deliveries encourages generators to deliver in the highest value periods.

If one looks at renewable resource development in California under the RPS program, the limitation to procuring additional renewable resources is related to regional supply limitations, not to access to a standard contract at a cost-effective price. Consider the following:

- The Solano Wind Enterprise Zone is being fully developed.
- The Altamont was being repowered until the avian lawsuits resulted in a 3-year EIS process on wind operating conditions.
- The Tehachapi has been constrained by transmission, which is now being built.
- Incremental geothermal resource supply at the Geysers is being built.
- Salton Sea and Coso geothermal is being built as transmission expands.
- Solar in Southern California is waiting for transmission.

Yet, even with these constraints, California is rapidly expanding its renewables supply. PG&E has gone from 9 percent RPS-eligible resources in 2002 to a contract commitment of greater than 16 percent today, roughly the same 7 percent growth that Germany accomplished from 1998 to 2006.

By setting a standard for renewable procurement during a period in which renewable costs remain well above market levels for non-renewable resources (\$480/mwh - \$700/mwh for solar in Germany), marginal resources and marginal technologies will get built. But this is not the best way to grow a sizable and sustainable renewable supply; the result may be inefficient plants that neither further the Commission's objectives nor benefit California consumers.

That is not to say that renewable resources should not get special treatment. Carbon emissions and gasoline use have externality costs that should be recognized in the prices of these products, in this case electricity and gasoline. One way to recognize the cost of externalities would be to impose a carbon user fee or a gasoline user fee. Another approach is the cap and trade concept being considered by some in the AB 32 debate, the same mechanism that was used to control NOx and SOx emissions in the 1990s.

Embedding the externality costs in renewable energy's competitors would give renewable energy resources a boost commensurate with the benefits they have over fossil fuels. This approach has the advantage of being cost- and value-based, and would be a method in which costs were value-based.

The danger with the European feed-in tariffs is that they have nothing to do with value. They are set fairly arbitrarily based on academic studies. At the end of the day, only technologies that are cost competitive are going to have an impact of the scale necessary to implement California's renewables goal. It is counter-productive to subsidize inefficient technologies: it is bad for consumers, who wind up paying higher rates; bad for the economy; and ultimately it will hurt the renewables effort because there will be a backlash against subsidies for renewable projects.

The May 21 2007 Workshop presentations of KEMA, Bates White, and Paul Gipe suggest that the earlier implementation of feed-in tariffs by European countries may yield lessons for California. The KEMA study exposed the weakness of the "stepped" feed-in tariff, which uses administratively-determined prices for both the "base" alternative technology price, and the "renewables" premium adder. In the case of Spain, KEMA noted that in the future, over stimulation should be avoided by using the correct price reference. Overspending, which occurred in the Netherlands partly because there was no limit on the subsidy budget or volume of power purchases, will be remedied both by limits and reliance on actual market prices. Ultimately, KEMA concluded, "Premium

systems are very sensitive to variations in electricity price. A suitable reference price is a must.”

Overspending was one of the key concerns with the European experience identified by the KEMA study. While KEMA recommended technology-specific tariff levels to limit overspending, California’s RPS philosophy is technology-neutral. To provide consumer protection against uneconomic costs, a limit on the size of eligible sellers should be one of the core principles of any California feed-in tariff in order to control the risk of overspending.

The Bates White study reviews the history of PURPA implementation in California and bluntly states, “Subsidies insulate market participants from rigors of the marketplace – Less efficient competitors continue operating – higher costs for consumers.” More importantly for California’s deployment of additional renewable resources, the Bates White study found that subsidies lead to less investment by more efficient competitors – returns can decrease, and subsidies can slow down development of more advanced technologies by firmly entrenching current renewable energy technologies so they “crowd out” advancing technologies.(Bates White at 15.)

Given the well-documented problems with faulty feed-in tariffs, PG&E believes that a carbon fee or a cap and trade system will ultimately be the most efficient way to put fuels and technologies – including energy efficiency – on a level playing field. In the meantime, the question for policy makers is how big to make the pot for renewable development contained in the Public Goods Charge. But whatever the size, that pot should be distributed in a competitive manner. For large renewables, the RPS program has these important attributes:

- It has a standard contract. While the CPUC could standardize it further, generators have reasons to want to customize their contracts.
- There is no cap on the amount the utilities take.
- The only real difference from a feed-in tariff is that it does not have a set price. It pays a price at which sellers are offering to sell, rather than, in the case of a feed-in tariff, paying a high price to everyone, both low and high cost producers.

Smaller renewables have been added to the state’s energy infrastructure with various forms of incentives without the contracting effort that goes into obtaining large renewable resources. At PG&E, renewable customer generation is added to the system through the SGIP program, the Emerging Renewables Program, the California Solar Initiative and the net-metering program.

It may be that for fairly small but not tiny renewable projects, a feed-in tariff is appropriate. PG&E is prepared to offer a Standard Contract to all eligible renewable projects under 1 MW in size. (Larger projects already have the standard RPS process available to them.) PG&E proposes to offer the Less Than 1 MW Standard Contract for all plant generation at a price equivalent to the applicable MPR, adjusted for Time-of-Delivery factors. This would be an extension and revision of the Less Than 1 MW contract proposed by PG&E that is awaiting CPUC approval. The feed-in tariff described here would require the generator to buy energy to serve onsite load at the retail rate and sell energy to the utility at the MPR. This proposal is a modification to the tariff currently

pending at the CPUC in the SB1969 Implementation proceeding, which would allow the seller to offset onsite load, and sell surplus energy at the MPR.

ADDITIONAL RESPONSES TO QUESTIONS

The following answers support the PG&E's preferred policy option:

2. The 2006 IEPR Update noted that feed-in tariffs have contributed significantly to impressive levels of renewable energy development in Germany, Denmark, and Spain and recommended similar policies for California. Is any updated information available on the disadvantages and benefits of using feed-in tariffs in California for renewable energy?

ANSWER: The potential benefit of a feed-in tariff is that it reduces the transaction costs associated with negotiating individual contracts. However, there are disadvantages associated with a one-size-fits-all approach. Under the RPS rules, bidders compete to win a solicitation, and the utility negotiates the best terms and conditions possible. If bidders simply received an administratively-mandated price, customers could be responsible for substantially higher costs. In order to balance the need to simplify the contracting process for small generators, but maintain the benefits of the RPS program, PG&E proposes to limit any feed-in tariff to generators 1 MW or less, and that the price paid under the Standard Contract reflect the value of the electricity.

Feed-in tariffs have been successful in stimulating the development of renewable resources, especially wind and solar, in certain European countries (and recently emulated by the Province of Ontario, Canada), but at a considerable cost. For example, Ontario is paying \$110/mwh for wind power and \$420/mwh for solar. This is substantially more than the current MPR of approximately \$85/mwh. It is not clear that feed-in tariffs have resulted in a net gain of renewable resources worldwide. It may be that they have just created a bidding war so that the finite amount of global renewable equipment has gone to the highest bidder producing significant equipment shortages and backorders in wind turbines and photovoltaic cells in California and the rest of the U.S.

3. In support of meeting the goal of 33 percent by 2020, what lessons from feed-in tariffs in Europe should be applied to development of feed-in tariffs in California? What lessons, if any, from California's experience with standard offer contracts should be applied?

First, as PG&E has stated at the CPUC, CEC and the Legislature, there are many significant issues to be addressed before the state mandates a 33 percent renewable energy target. The goal of feed-in tariffs and the renewables that they would seek to develop must also be clear before proceeding with such a program. If the state's overarching goal is to reduce greenhouse gas emissions, there may be more cost-effective ways to achieve this goal than mandating a 33 percent renewable requirement.

The European lessons identified above are important: high prices do not reflect the value of the product; they just assure that the highest bidder wins the scarce hardware. However, since greenhouse gases are a global problem, parochial supply competition between countries serves no purpose.

California lessons learned are also important. The Standard Offers of the 1980s show the effects of implementing a program that is not well thought out. The high prices, lack of performance guarantees, and lack of safety valves to withdraw the offers when over-subscribed all resulted in a "gold rush" for contracts. California is still paying excessively high prices for Standard Offer contracts that were signed more than 20 years ago. The Standard Offers approach created a sense of entitlement that continues to be litigated to this day.

The lessons learned both from the European experiments with feed-in tariffs and the California experience with Standard Offers indicate a necessity to carefully identify the goal one is trying to achieve; consider a feed-in tariff within the context of all solutions to reach the goal; seek the most cost-effective solutions first; make sure the feed-in tariff reflects the value of the electricity, including greenhouse gas reductions (see answer to 4, below); and limit the application of the feed-in tariff.

4. What are the mechanics for determining the appropriate tariff(s)?

a. How would the tariff level(s) be determined? What are the relevant data points?

Feed-in tariffs should not be the primary vehicle to obtain more renewable resources. In the U.S., consistent federal and state tax policy would do more to expand the supply of renewable equipment than would a tariff. Support of innovation and emerging technologies would do more to increase supply than a standard offer contract.

Any tariff would have to be both value-based and timed to match the availability of additional equipment. Putting an incentive rate in place before equipment production is expanded would only cause the cost of existing equipment to be bid up further.

Feed-in tariffs should not be commingled with other utility incentive programs, such as the California Solar Initiative or Net Metering. Where there is common eligibility, the supplier would have to choose one incentive or the other.

Any feed-in tariff requirement should be universal across the state. The over-market costs of feed-in tariffs should be allocated to all customers on whose behalf they were contracted, even if those customers later leave utility procurement services. Leaving utility commodity service should not remove the obligation to pay the over-market costs that were incurred to provide feed-in tariff supplies to customers or else it will provide an incentive for customers to leave utility service simply to avoid the higher costs. Moreover, feed-in tariffs, if implemented, should be required of all load serving entities, including publicly owned utilities, CCAs and ESPs providing power to direct access customers

b. Is a single tariff for all renewable technologies appropriate, or should there be distinct tariff levels for individual technologies, project sizes, geographical areas (for example, based on the quality of the wind resource), or other factors?

Any feed-in tariffs that are ultimately offered should be value-based, not cost-based. Cost-based tariffs for mandated purchases would reward the less efficient, less beneficial resources. The German system of paying more for poor-producing wind farms should not be emulated in California.

- c. Should tariffs be specific to renewable facilities/technologies within California, or should they be determined comprehensively based on national and international data and experience?*

See above. Any tariffs should be value-based, considering time-value, portfolio-value, and GHG-value, not costs. A tariff that considered time-value of generation would account for technology specific difference in generation profile (such as wind and solar), and would negate the need for technology-specific tariffs.

- d. How and on what schedule should the tariff(s) be updated? Is there enough flexibility in the state regulatory process to allow for updates in a timely way?*

One of the lessons from the Standard Offers program of the 1980s and the Netherlands feed-in tariff experience is that one cannot make available an open-ended supply of contracts with open-ended tenure and performance obligations. If feed-in tariffs are necessary, they should be offered for finite quantities of resources with specific performance and online requirements. In that way they could be re-evaluated after those tranches are subscribed before determining what the next level of commitment should be.