BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Promote Consistency in Methodology and Input Assumption in Commission Applications of Short-run and Long-run Avoided Costs, Including Pricing for Qualifying Facilities.	Rulemaking 04-04-025

SUPPLEMENTAL COMMENTS OF INDEPENDENT ENERGY PRODUCERS ASSOCIATION

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Pursuant to the instruction of ALJ Halligan (July 14, 2004 ruling) as modified by the ruling e-mailed to parties on July 26, 2004, Independent Energy Producers (IEP) respectfully submits these supplemental comments on the potential applicability of the report prepared by Energy and Environmental Economics, Inc. (E3) to short run avoided cost determinations for qualifying facility energy payments.[1]

BACKGROUND

Existing Practice for Qualified Facilities

Since the 1980s the Commission has priced power purchased from qualifying facilities (QFs) in a manner consistent with federal mandate. The Public Utility Regulatory Policies Act

[1] "A Forecast of Cost Effectiveness Avoided Costs and Externality Adders," Energy and Environmental Economics, Inc. January 8, 2004 (E3 Report).

(PURPA) established certain principles to be used in determining payments to be made to QFs. The key principle is that the payments should reflect the cost the utility avoids by purchasing from the QF or QFs. Avoided costs are defined in Federal law as follows:

> [t]he incremental costs to an electric utility of energy or capacity or both which, but for the purchase from the qualifying facility or qualifying facilities, such utility would generate itself or purchase from another source.

18 C.F.R. 292.101(b)(6).

Costs avoided by, and payments made to, QFs, consist of two components: a capacity payment based on avoided investments by the purchasing utility or the cost of avoiding a shortage of energy and an energy payment based on fuel, purchased power, and operations and maintenance (O&M) costs that are avoided by the purchasing utility because of the presence of QFs. Energy is what makes electrical machines work and is measured in megawatt-hours. Capacity is the capability to produce energy and is measured in megawatts. The capacity payment is analogous to the cost one would incur to have a taxicab wait in case you need the car; energy is the charge for being driven around. In addition, some QFs have received capacity payments for short-run avoided capacity costs, recognizing that in the aggregate such QFs provide a product similar to the reliability associated with having the car on-call.

State law also plays a determining role in setting short-run avoided cost (SRAC) prices paid for power purchases from QFs:

> Public Utilities Code Section 390 sets out components (most significantly, gas costs) to use in setting SRAC, pending a shift to the use of PX prices to establish SRAC…the demise of the PX in January 2001 ended any chance of a universal migration of QFs to PX-based SRAC pricing. At present, SRAC is set using a formula based on gas prices.

OIR at 5 and 6. (Footnote omitted.)

This formula, known as the Transition Formula, was set by the Commission in 1996 and updated in 2001. The formula governs payments for short-run avoided energy costs. The Transition Formula can be described as follows:

> The Transition Formula assumes a starting energy price for each utility, called Pbase. Pbase was calculated using 1995 values for the incremental system heat rate (the IER), average border gas prices and average interstate and intrastate gas transportation costs (collectively, the burnertip gas price), and a variable operations and maintenance ("O&M") adder. As specified in § 390(b), the Transition Formula provides for the starting energy price to be adjusted monthly to reflect changes in assumed utility fuel costs, as reflected in percentage changes to certain border gas price indices.

(D.01-03-067, p.5.)

Application of E3 Methodology to QF Pricing

The E3 Report's concept of total avoided cost is consistent with federal regulations regarding the determination of avoided cost. Federal mandates require in the determination of avoided cost, to the extent practicable, consideration of a wide range of factors such as:

- availability during peak periods;
- reliability;
- outage coordination;
- availability during system emergencies including separation from the grid,;
- individual and aggregate energy and capacity value;
- smaller increments and shorter lead times to availability;
- deferral of new utility generation and displacement of fossil fuel use; and
- costs or savings with respect to line losses.

(See, 18 C.F.R. 292.304(e).)

SRAC should reflect all costs avoided by QFs, including, but not limited to those outlined in the federal regulations above. The avoided cost framework laid out in Chapter 6 of the E3

Report addresses many of these federally-mandated factors. The applicability, or inapplicability, of the E3 Report's avoided cost factors to QF SRAC pricing are discussed below, along with a discussion of avoided cost elements that are applicable to QFs but not addressed in Chapter 2 of the E3 Report.

Most of the factors identified in Section 2 of the E3 Report as reflecting avoided costs for energy efficiency are also applicable to SRAC pricing for QFs.

The E3 Report identifies a number of different factors that, when combined, provide an estimate of total avoided costs. Most of those factors are applicable in some form to QF pricing. However, it may be necessary to modify the factors identified in the E3 Report to convert the long-run avoided cost (LRAC)[2] methodology used by E3 for evaluating energy efficiency to an SRAC methodology applicable to QF pricing.

Commodity Energy

Section 2.3 of the E3 Report discusses how E3 estimated long run avoided commodity (and capacity) costs. In the near term, it used published forward prices. In the medium and long term, it used an estimate of gas price (based on NYMEX futures prices) multiplied by an average heat rate plus adder for a commodity price plus an explicit adder for capacity. This reflects the reality of the California market's reliance upon natural gas as the fuel for marginal generation.

[2] Long-run avoided cost considers and includes capital investments and costs that would be made to maintain the capacity to produce adequate energy over time. SRAC is a determination of the costs of producing electricity from existing assets or purchases.

The methodology is generally consistent with the pricing theory which underlies California's current legislatively-mandated SRAC methodology: gas price times heat rate plus O&M adder. The primary difference in moving from the long-run avoided cost estimates in Section 2.3 of the E3 Report to an SRAC estimate applicable to QFs is the use of the actual bid-week gas price in the SRAC formula rather than forward power prices or a calculated forecast price based on natural gas futures prices as used in E3's LRAC formulation. As such, no change is needed in the basic SRAC structure for the valuation of commodity energy. Furthermore, any change would require legislative action, as the current method was set in law thus codifying the methodology previously mandated by Commission decisions.

Section 2.3 of the E3 Report also notes that the value of energy saved through DSM be grossed up to reflect reduced line losses. Through GMMs, the output of QFs is reduced to supposedly reflect losses from the QF to load center. First, these GMMS do not accurately reflect the losses from the QF to the load center that they are actually serving, which is an error that should be corrected. Second, depending upon its location, a well-placed QF could result in the overall grid experiencing fewer losses than it otherwise would absent the QF. Currently, QFs do not receive any credit for these reduced losses. Such a failure to recognize these avoided costs in QF pricing is inappropriate and should be remedied.

Capacity

Section 2.3 of the E3 Report combines an estimate of capacity value with the energy value to arrive at a single "commodity" value. This was done for the ease of evaluating DSM programs, for which it is difficult to assign firm on-peak capacity savings values. This single commodity price method is not consistent with QF pricing methods, contained in the federal mandate, in which energy and capacity are treated separately. However, even when the E3

Report uses the SRAC convention - of gas price times heat rate plus adders to set the commodity price, it then adds a capacity value. Thus, even E3's approach is clear that there is a separate value for capacity, which is distinct from SRAC for energy.

Existing QF capacity payments are based on the value of resources avoided by QFs in the past and, as such, are unrelated to any capacity value that might be found in current forward prices (which E3 uses for a period of time before it adopts the gas price times heat rate method). In any event, the capacity value, if there is any, in an instantaneous forward power price is apparent only in a condition of shortage, as depicted at page 126 of the report. That is precisely the outcome one would expect in a QF context where the value of capacity, if there is any, is represented by the difference between the last demand offer and the price of the last supply resource dispatched. This is a cornerstone of existing statutes and Commission decisions governing the determination of SRAC .

As noted in IEP's pre-workshop comments, capacity and energy are distinct and separate commodities that should be priced separately.

Environmental Adder

In Section 2.4 of the E3 Report, E3 divided environmental costs into two categories: (1) "priced" emissions defined as actual costs resulting from emission offset purchases or pollution abatement technologies (NO_X and PM_{10}); and (2) "unpriced" emissions defined as environmental externality values (CO_2). Both categories are appropriate for consideration for payments to QFs, particularly renewable QFs. Section 2.3 noted that when the "gas price times heat rate" method is used for the valuation of avoided energy (analogous to SRAC), the value of priced emissions should be explicitly added. For SRAC calculations, various markets, such as RECLAIM in Southern California could provide a benchmark price for QF payment. The benchmark price would then be multiplied by the difference in the emissions from the system's marginal generation and the emissions of the qualifying facility. For non-combustion renewables, the emissions for the QF would be zero. For QFs that rely on combustion (such as biomass or cogeneration), the emissions would be something greater than zero.[3]

The same basic method would also be applied to the non-market environmental externalities. The only difference would be that the price would not be based on a market index but instead set in a regulatory or legislative forum. If a cap-and-trade market for CO2 were to develop, then the value would then be set at the prevailing market price.

Avoided T&D costs are applicable to QFs

For DSM and energy efficiency, the avoided T&D adder reflects the value of deferred or eliminated utility investment in transmission and distribution infrastructure. Section 2.5 of the E3 Report notes numerous caveats concerning the applicability of the results to DSM and EE programs, such as the location, timing and magnitude of the programs' savings.

While the exact values calculated in Section 2.5 of the E3 Report are not likely applicable to QFs, the notion that a QF could defer or avoid transmission or distribution investment is reasonable. For example, a QF that delivers power on a remote circuit to remote loads has likely avoided T&D upgrades in the past and should be assigned a T&D avoided cost adder. Similarly,

[3] However, the emissions rate for combustion technologies should reflect the avoidance of non-energy producing combustion that would otherwise occur; superior fuel efficiency inherent in cogeneration, for example, should be accounted for by netting out any fuel chargable to steam prior to determining emissions rates or, in the case of other combustion technologies, the avoidance of emissions that otherwise would occur in the absence of the electricity production.

remote generation serving remote loads avoids generation losses in exactly the same way that energy efficiency in remote locations avoids more losses than does energy efficiency located in the load center. IEP recognizes that estimating these factors will be a challenge. However, ignoring costs that were avoided by QFs would violate federal mandate.

Reliability Adder

Section 2.6 of the E3 Report describes the methodology used to develop the reliability adder for DSM and energy efficiency. E3 placed reliability benefits into two categories: benefits that accrue under normal conditions and benefits that accrue only under low probability scenarios. The benefits that accrue under normal conditions correspond to the reduced ancillary service costs resulting from the load reductions associated with DSM and energy efficiency programs (i.e., since the volume of ancillary services procured by the CAISO are proportional to the load served, any reduction in load would have a commensurate reduction in ancillary services). These reliability benefits are also applicable to a self- or co-generator engaged in over-the-fence transactions that do not enter into the CAISO's accounting. However, since by definition QFs are selling power to the utility, such a reliability credit would be appropriate only under unusual circumstances.

The second class of reliability benefits described in Sections 2.7 and 4.0 of the E3 Report reflect the reduced potential exposure to volatile market prices. To the extent that reduced load due to energy efficiency and DSM reduces potential exposure to volatile markets, a QF provides completely analogous benefits and therefore should be compensated for the provision of those benefits.

Demand Elasticity Adder

Section 2.7 of the E3 Report quantifies the effect of electricity demand reduction on day-ahead electricity market prices as a "price elasticity adder" to be incorporated into the valuation of DSM program savings. The economic rationale of this requirement is that DSM and energy-efficiency programs reduce the electricity demand and effectively shift the market demand curve downward along a given market supply curve, thus effecting a price reduction that can benefit all electricity consumers.

While QFs do not affect the demand curve, they do affect the supply curve and lower the point at which the supply and demand curves meet and set the market price. Just as it is appropriate to account for the impact on the demand curve of DSM and energy-efficiency, so too should the impact of QFs on the supply curve be reflected. This effect was captured in the "QFs In/Out" modeling approach used earlier at the Commission and should be reflected in this update.

Other avoided costs that are not applicable to EE but are applicable to firm capacity QFs

As noted above, Federal statute mandates the consideration of a number of avoided costs components that were not contemplated in the RFP issued by Commission staff to evaluate the cost-effectiveness of energy efficiency and thus were not considered by E3 in its report.

Benefits of QFs that should be quantified in SRAC payments include:

- **Real-time support**: Some QFs can provide curtailment or increased generation in almost real time. For example, some QFs have entered into bilateral agreements with the IOUs to offer these services. Such services might have value to the IOUs today, especially since the IOUs claim that they have excess energy in the off-peak periods as a result of their allocations of DWR power and other must-run obligations, such as nuclear plants.

- **Blackstart capability**: Some QFs have blackstart capability, for which they should be compensated. For example, after the Loma Prieta earthquake in 1989, QFs were able to operate even when PG&E's central station generating facilities were offline and QFs were used to "kickstart" the PG&E generating system.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of the "Supplemental Comments of Independent Energy Producers Association" on all known parties to R.04-04-025 by transmitting an e-mail message with the document attached to each party named in the official service list.

Executed on August 20, 2004 at Sacramento, California.

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Eric Janssen

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R.04-04-025
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