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February 28, 2005

HAND DELIVERED

Legal Document Examiner
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

Re: R. 04-04-026

Legal Document Examiner:

Enclosed for filing in the above-referenced proceeding are the original and five (5) copies of the **Comments of the California Wind Energy Association, California Biomass Energy Alliance, and California Cogeneration Council on the Revised 2004 Market Price Referent Staff Report.** Copies have been served on all parties of record in this proceeding.

Please return a filed-stamped copy to us using the enclosed self-addressed and stamped envelope. Thank you for your attention to this matter.

Sincerely,

/s/
R. Thomas Beach

On Behalf of
California Wind Energy Association
California Biomass Energy Alliance
California Cogeneration Council

Enclosures

cc: The Honorable Michael R. Peevey, President
The Honorable Dian Grueneich, Commissioner
The Honorable Susan P. Kennedy, Commissioner
The Honorable Geoffrey F. Brown, Commissioner
Presiding Administrative Law Judge Julie Halligan
Presiding Administrative Law Judge Peter Allen
All parties on Service List in R. 04-04-026

2560 Ninth Street • Suite 316 • Berkeley CA 94710 • (510) 649-9790 fax (510) 649-9793

BEFORE THE
PUBLIC UTILITIES COMMISSION
OF THE
STATE OF CALIFORNIA

Order Instituting Rulemaking to Implement the California Renewables Portfolio Standard Program	)	R. 04-04-026

Comments of the California Wind Energy Association, California Biomass Energy Alliance, and California Cogeneration Council on the Revised 2004 Market Price Referent Staff Report

R. Thomas Beach
Patrick G. McGuire
Crossborder Energy
2560 Ninth Street, Suite 316
Berkeley, California 94710
Telephone: 510-649-9790
Facsimile: 510-649-9793
E-mail: tomb@crossborderenergy.com

On Behalf of
THE CALIFORNIA WIND ENERGY ASSOCIATION
THE CALIFORNIA BIOMASS ENERGY ALLIANCE
THE CALIFORNIA COGENERATION COUNCIL

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Comments of the California Wind Energy Association, California Biomass Energy Alliance, and California Cogeneration Council on the Revised 2004 Market Price Referent Staff Report

The California Wind Energy Association (CalWEA), California Biomass Energy Alliance (CBEA), and California Cogeneration Council (CCC) respectfully submit the following joint comments on the "Revised 2004 Market Price Referent (MPR) Staff Report" (Staff Report).[1] CalWEA/CBEA/CCC submit these comments in accordance with the Assigned Commissioner's Ruling (ACR) of February 11, 2005.

The MPR benchmarks will determine the maximum prices that utility ratepayers will pay for the renewable generation that the state's investor-owned utilities (IOU) will procure under the state's Renewable Portfolio Standard (RPS) legislation. Pursuant to the RPS statute and D. 03-06-071, the Commission must determine MPRs for both baseload and peaking generation, over terms of 10, 15, and 20 years. The focus of these comments is on the baseload MPRs proposed in the Staff Report, although the Commission also should review the peaking MPRs based on the same considerations presented in these comments. The baseload MPRs are those most relevant to future wind and biomass projects. CalWEA, CBEA, and the CCC are aware

[1] "Revised 2004 Market Price Referent (MPR) Staff Report. MPR Methodology to Determine The Long-Term Market Price of Electricity for Use in California's 2004 Renewables Portfolio Standard (RPS) Power Solicitations," prepared by the Energy Division and the Division of Strategic Planning of the California Public Utilities Commission, released February 10, 2005. This report is a revision to the initial Staff Report released on February 4, 2005.

that the baseload MPRs may serve other functions in addition to determining how much ratepayers will pay for new renewable generation. For example, in D. 04-01-050, at page 156, the Commission suggested that the baseload MPR could provide the basis for pricing the power from Qualifying Facilities (QFs) under new long-term contracts with the California utilities. The cost parameters for a new combined-cycle gas turbine (CCGT) plant, on which the baseload MPRs are based, also may be used to determine the long-run avoided costs (LRAC) of the California utilities.[2] LRAC estimates are used to evaluate the cost-effectiveness of energy efficiency programs and may be used for other purposes, as well.

Therefore, it will be very important for the baseload MPR benchmark to reflect a reasonable estimate of the cost of baseload power from a new CCGT plant in California. As described below, CalWEA/CBEA/CCC believe that the staff's baseload MPR estimate of 6.05 cents per kWh is too low, relative to the cost of baseload CCGT generation being built in California today. The staff's too-low estimate is not the product of a single error or omission; rather, it appears to result from the choice of cost parameters that are almost uniformly at the low end of the range of reasonable values for each parameter. When these choices are combined into a single MPR value, the result is an all-in cost of CCGT generation that is significantly lower than the cost of any of the new CCGT plants for which detailed cost information is available, including such "below cost" plants as Edison's Mountainview project. An MPR that is set too low may result in the excessive use of limited Public Goods Charge (PGC) funding for new renewable generation, thus slowing the state's progress toward meeting its RPS goals. To avoid that result, CalWEA/CBEA/CCC strongly urge the Commission to adopt a baseload MPR that reflects a more middle-of-the-road approach to the selection of the key cost parameters for a new CCGT plant in California. CalWEA/CBEA/CCC believe that the use of broad industry-average costs is most consistent with D. 03-06-071's direction to avoid location-specific costs in

[2] The Commission has taken extensive comments on a consultant's report that proposes an LRAC methodology in which the avoided generation costs are based, like the MPRs, on the long-run, all-in costs of a new CCGT in California. *See* "A Forecast of Cost Effectiveness of Avoided Costs and Externality Adders," prepared by Energy and Environmental Economics (the "E3 Report"), released January 8, 2004 to parties in R. 01-08-028.

developing the MPRs, and generally to use "representative statewide values."[3] In that vein, the recommendations presented in these comments would result in an increase in the 20-year baseload MPR from 6.05 to 7.00 cents per kWh.

Fortunately, the Commission has reviewed detailed cost estimates for several new CCGT plants. **Table 1** below shows the key input financial and operating assumptions and resulting MPR benchmarks for: (1) the hypothetical baseload unit reflected in the CPUC staff report, (2) Edison's Mountainview project, and (3) SDG&E's Palomar power plant. These numbers provide a useful perspective on the broad range of costs for new CCGT power plants being built in California. In particular, the Commission should recall that it approved Edison's purchase of the Mountainview project as a one-time, fleeting opportunity to obtain a new, large CCGT power plant at a price well below that of similar units. In fact, in the CPUC decision approving Edison's Mountainview contract, the Commission found that:

> *"Because the MVL PPA purchase price reflects capital costs significantly below that of any comparable new facility and is substantially below market price, it is not relevant to and cannot be adopted as the market price referent used in any solicitation conducted pursuant to the California Renewable Portfolio Standard (RPS) program established by Senate Bill (SB) 1078."* [4]

The fact that the staff's proposed baseload MPR is well below the MPR based on Mountainview costs should convince the Commission of the need to adopt MPRs based on a more realistic set of CCGT costs. The CalWEA/CBEA/CCC recommended values are shown in the far right column of Table 1, and are justified in the discussion below.

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[3] *See* D.03-06-071, at p. 21, Finding of Fact 16.

[4] See CPUC Decision 03-12-059 (December 18, 2003), Conclusions of Law #16 (at p.67).

Table 1 – *Baseload MPR Comparison (2003-2004 $)*

Assumption & Resulting MPR	CPUC Staff	Mountainview	Palomar	CalWEA/ CBEA/CCC Recommen-dation
Capital Cost ($/kW)	$720	$667	$969	$840
Capacity Factor (%)	92%	69%	85%	85%
GMM and TLF (%)	98.1%	97.5%	97.5%	96.5%
Fixed O&M ($/kW-yr)	6.00	8.70	13.00	18.00
Variable O&M ($/MWh)	2.50	2.50	3.10	2.50
Average Heat Rate (Btu/kWh)	7,193	7,245	7,245	7,400
Levelized Gas Cost ($/MMBtu)	6.21	6.21	6.21	6.21
Debt / Equity Ratio	70 / 30	70 / 30	55 / 45	55 / 45
Debt Interest Cost (%)	6.5%	8.5%	6.6%	6.5%
Rate of Return on Equity (%)	12%	16%	10.9%	12%
20-Year MPR Benchmark ($/MWh)	60.5	66.8	70.0	70.0

The assumptions and MPR benchmark shown in the second column of Table 1 reflect the Staff Report's calculations, using its assumptions and spreadsheet model. The Mountainview numbers above reflect Edison's FERC testimony,[5] while the Palomar data are based on SDG&E's data responses to CCC in the CPUC's Avoided Cost Rulemaking R. 04-04-026. In addition, a 7,000 Btu/kWh "new & clean" heat rate assumption was used for the Palomar plant. Staff's 3.5% heat rate degradation factor was applied to convert these heat rates to averages. CalWEA/CBEA/CCC comment below on the key CCGT input assumptions shown in Table 1.

Gas Prices. For consistency, the Staff Report gas price forecast was used for each of the MPRs calculated in Table 1. The Staff Report based its gas price forecast on market data for the 60 days prior to August 2004; since that time, gas prices have continued to rise. A recent report from the California Energy Commission concludes that natural gas prices will continue to rise in

[5] *See* Edison Testimony on behalf of Mountainview Power Company, LLC, filed in FERC Docket ER-04-316, dated December 18, 2003.

the state so long as demand continues to grow and new supply sources are not added.[6] This suggests that the gas price forecast used to calculate the MPRs is low, and should be updated to use more recent values.

Capital Costs. CalWEA/CBEA/CCC recommend that the capital cost assumption should reflect what is actually being built in California today. The Mountainview project is, by Edison's own representations to the Commission, a "below-cost" project, a "fleeting opportunity" that Edison procured without a competitive process and that the Commission reviewed under a highly expedited application.[7] The Palomar project, on the other hand, has costs that are more indicative of the typical CCGT power plants that have been built to serve California.

For example, we note that the CEC's list of recently-built power plants in California shows that only three plants (Mountainview, Moss Landing, and La Paloma) are on the order of 1,000 MW.[8] The CEC data indicates that the average size of all the plants over 300 MW that have come on-line since June 2001 is 616 MW. The average size of all plants expected to come on-line after June 2001 is 300 MW. Thus, the costs a 500 MW plant, such as Palomar, are more likely to reflect the typical new plant built in the California market and should be considered in calculating the baseload MPR benchmark.

CalWEA/CBEA/CCC recommend using values that reflect the cost of a broad range recent CCGT projects that have been built or are under construction or active development in California. Edison provided such data in the "benchmarking" study included in its FERC application for approval of its contract to purchase the output of the Mountainview project.[9] In

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[6] California Energy Commission "Natural Gas Assessment Update" (February 2005), at 28.

[7] *See* Edison's Supplemental Testimony in A.03-07-032 (August 11, 2003), at pp. 7 and 9.

[8] *See* http://www.energy.ca.gov/sitingcases/all_projects.html#on-line

[9] *See* Attachment F, the Testimony of Joseph P. Wharton, to Edison's December 19, 2003 Mountainview Application (FERC Docket ER04-316). This document is available on the

that study, Edison's expert calculated an average "overnight" capital cost benchmark of $617 per kW, based on the average capital cost of eleven sample plants. Based on this data, Edison has recommended the use of a "conservatively low" overnight capital cost of $625 per kW in its study on the cost-effectiveness of replacing steam generators at SONGS.[10] Construction financing (AFUDC) and contingency costs must be added to this overnight capital cost. Representative AFUDC and contingency figures are in the record of the MPR workshops and are cited in Edison's Mountainview application.[11] Including AFUDC and contingency costs, a range of parties that participated in the MPR workshops (including CalWEA, CBEA, TURN, and SDG&E) reached the conclusion that Edison's benchmarking study supported a total capital cost of $740 per kW-year.[12]

CalWEA/CBEA/CCC submit that the Commission also should consider available data from the more recent, higher-cost plants that have been developed, including SDG&E's Palomar project. In addition, Edison's benchmarking data excluded $95 per kW in costs for laterals, environmental mitigation, emission offsets, and dry cooling.[13] Although such costs are generally site-specific, virtually any marginal, market-clearing plant is likely to include such costs at the higher end of the observed range. Financing costs may add at least 1% to 2% of total project costs (i.e. $7 to $15 per kW).[14] Considering all of these factors, CalWEA/CBEA/CCC believe that a reasonable range for the capital costs of the combined-cycle plant used for the baseload MPR is $740 to $840 per kW. Considering the even higher cost of the 500 MW Palomar project, the Commission should chose a capital cost at the high end of this range, i.e. $840 per kW.

FERC's website, at http://ferris.ferc.gov/idmws/nvcommon/NVViewer.asp?Doc=10021543:0

[10] *See* A. 04-02-026, Exhibit SCE-4, at 27.

[11] *See* the following comments on the April 2004 MPR workshops: CEERT at 6, TURN/ SDG&E at 6, IEP at 8.

[12] *See* SDG&E/TURN MPR Workshop Comments, at 6.

[13] *See* CEERT MPR Workshop Comments, at 5.

[14] *See* CEERT MPR Workshop Comments, at 6; CEC Generation Cost Report, at 10.

CalWEA/CBEA/CCC estimate that the use of an $840 per kW capital cost would increase the baseload MPR benchmark from $60.5 per MWh to $62.5 – a 3% increase.

Cost of Capital Assumptions. The staff's baseload MPR benchmark uses a merchant plant capital structure (i.e. 70% debt/30% equity), but then combines this capital structure with typical utility rate-of-returns (i.e. 6.5% interest on debt, and 12% return on equity). It is clearly inconsistent to combine merchant and utility plant financing assumptions in this way. For example, merchant plants typically are more heavily leveraged than utility-owned plants (e.g. 70% debt for a merchant project vs. 55% debt for a utility-owned plant), and require a higher rate of return on their investment (i.e. 16%) to compensate for the higher risk of the more heavily leveraged capital structure. Debt costs for merchant plants also are higher than for utility-owned projects.

Assuming a capital cost structure more reflective of what the utilities' capital structure actually is – for example 55% debt/45% equity at the staff's modeled returns – increases the baseload MPR from $62.5 to $64.0 – a 2% increase. Alternatively, if the 70/30 debt/equity ratio for a typical merchant plant is maintained, the typical cost of capital assumptions for a merchant plant (e.g. 8.5% debt and a higher 16% return on equity) would increase the baseload MPR benchmark from $62.5 to $64.3 – a slightly larger increase than with utility financing. CalWEA/CBEA/CCC recommend the former assumption of a 55/45 debt/equity capital structure with typical utility rate-of-returns.

Fixed O&M. The Staff Report uses a fixed O&M cost of $6.00 per kW-year. Staff notes that the estimated fixed O&M cost for Mountainview is $8.70 per kW-Year. The notes on the fixed O&M assumption, contained in Appendix C of the Staff report, state that the Energy Division opted for a midpoint between the Mountainview first-year value and the low-end of the range of values provided in comments. However, in these notes, Staff admits that "other values were cited but staff could not verify their accuracy or content." This is simply not true – CalWEA/CBEA/CCC note that Dr. Wharton's benchmarking testimony filed before the FERC

on behalf of Edison contained an estimated mean fixed O&M cost of $18.09 per kW-year.[15] For reference, Dr. Wharton's table of representative values is reproduced below.

Table 2 – *SCE Benchmark Study O&M Values*

Source	Fixed O&M ($/kW-yr)	Variable O&M ($/MWh)
EOB	36.09	3.08
CEC	15.38	2.44
EIA	13.63	2.26
CERA	15.38	1.03
Henwood	10.00	2.00
Stone & Webster	NA	2.89
Average	18.09	2.28
Mountainview	8.70	2.30

The Commission should use a value of $18.00 per kW-year to reflect the middle-of-the-road values derived from Edison's benchmarking study. Increasing fixed O&M costs from $6 to $18 per kW-year results in an increase in the baseload MPR benchmark from $64.0 to $65.8 per MWh – an increase of 3%.

Variable O&M. CCC/CBEA/CCC agree with the staff's selection of a variable O&M value of $2.50 per MWh, which is close to the middle of the range of values developed in Edison's benchmarking study shown in Table 2 above.

Heat Rate. The CPUC Staff assumes a "new & clean" heat rate of 6,950 Btu per kWh for the baseload MPR benchmark. After applying a 3.5% degradation factor, this amounts to an average 20-year heat rate assumption of 7,193 Btu/kWh. CalWEA's RPS testimony recommended the use of a 7,400 Btu/kWh heat rate to reflect "real world" operating conditions

[15] See page 5 and Exhibit 8 to Attachment F, the Testimony of Joseph P. Wharton, to Edison's December 19, 2003 Mountainview Application (FERC Docket ER04-316)

(or 7,150 prior to applying a 3.5% degradation factor). This change increases the MPR benchmark from $65.8 to $67.0 per MWh – an increase of 2%.

CCC/CBEA/CCC believe that there are several reasons why the Commission should consider a "real world" heat rate somewhat higher than the 6,950 Btu per kWh that the staff has selected. First, the assumed heat rate must be increased to reflect the lower efficiency of dry-cooled plants. D. 04-06-015 decided that the baseload MPR should be calculated using the costs of a dry-cooled CCGT. Second, we note that even 7,400 Btu per kWh reflects full-load operation. At a capacity factor of less than 92% the average heat rate will be higher, in recognition of less-efficient operation during start-ups or minimum-load conditions, for example. As the actual project capacity factor decreases, the annual average heat rate would need to be further adjusted upward to reflect less efficient operations at lower loading levels. CalWEA/CBEA/CCC believe that these considerations fully justify the use of 7,400 Btu/kWh as a reasonable heat rate estimate.

Capacity Factor. The CPUC staff chose a 92% capacity factor. Again, this is at the extreme end of the range of reasonable values. Although, from an engineering standpoint, plant availability may be above 90%, market conditions will limit actual capacity factors to much lower values. Edison's FERC Mountainview application assumed a 69% capacity factor. New baseload CCGT plants in California have not achieved capacity factors above 90%, to our knowledge. Obviously, this choice involves a measure of judgement. As a middle-of-the-road value, CalWEA/CBEA/CCC recommend the use of a capacity factor no greater than 85%.

The problem that CalWEA/CBEA/CCC see in the use of a 92% capacity factor is that it effectively imposes a performance standard on new renewables that is even higher than the proxy MPR plant. In effect, a renewable generator bidding a price equal to the MPR would have to operate at a 92% capacity factor in order to recover the same fixed costs that the MPR plant recovers at a load factor as low as 69%. Furthermore, in establishing the baseload MPR, the Commission decided in D. 03-06-071 to rely on a proxy plant (i.e. P.U. Code Section 399.15[c][2]), rather than on the costs of long-term contracts or other power products (i.e. P.U. Code Sections 399.15[c][1] or [3]). A market price that recovers "the long-term ownership,

operating, and fixed-price fuel costs associated with fixed-price electricity from new generating facilities" must consider the actual operating capacity factor of those facilities, because that is the capacity factor over which those long-term costs will be recovered.

The change from 92% to 85% increases the MPR benchmark from $67.0 to $68.5 – an increase of 2%. This is a modest increase, given that the MPR would increase to $73.1 if Mountainview's 69% capacity factor is used. It should be emphasized that, to the extent baseload plants do not achieve capacity factors of 85% or above, future MPR benchmarks may need to be adjusted upwards.

Line Losses. The CPUC staff assumes a 98.57% Generation Meter Multiplier (GMM) along with a 0.5% transformer loss factor. Combined, these amount to roughly a 2% line loss assumption. CalWEA/CBEA/CCC recommend a 4% line loss assumption (3.5% GMM, 0.5% transformer). As noted in CalWEA/CBEA's April 9, 2004 pre-workshop comments (at pp. 9-10), a 4% line loss assumption is within the range of typical average line-loss estimates. For example, the CEC's 2003 staff report comparing the costs of central station generation technologies in California cites average transmission line losses of 5%.[16] Moving the "GMM to Load Center" line loss factor from 98.57% to 96.5% results in an increase in the baseload MPR benchmark from $68.5 to $70.0 – an increase of 3%

Conclusion. CalWEA/CBEA/CCC recommend setting the baseload MPR benchmark to a value of $70.0 per MWh, rather than the CPUC staff recommended value of $60.5 per MWh. This is virtually identical to the MPR value that results from the cost and operating parameters for SDG&E's Palomar plant. If the MPR is set too low, the result could be the excessive use of scarce PGC funds, thus limiting the potential development of renewable generation in California. The baseload CCGT cost assumptions used to determine the MPR also may be used to set long-run avoided costs, under the methodology proposed in the E3 Report that the CPUC commissioned. Finally, the MPR may be an important pricing benchmark for other types of

[16] "Comparative Cost of California Central Station Electricity Generation Technologies" (CEC Staff Report, February 11, 2003), at Tables C-2 and D-2.

generation, such as QF contract renewals. Given the importance of the MPR calculation, the input assumptions should be middle-of-the-road values that produce MPRs that are consistent with the all-in costs of actual CCGT projects that have been or are being built in California.

CalWEA, CBEA, and the CCC appreciate the Commission's attention to these comments, and look forward to continuing to provide the Commission with input on RPS-related matters.

Respectfully submitted,

R. Thomas Beach
Patrick G. McGuire
Crossborder Energy
2560 Ninth Street, Suite 316
Berkeley, California 94710
Telephone: 510-649-9790
Facsimile: 510-649-9793
E-mail: tomb@crossborderenergy.com

On Behalf of
THE CALIFORNIA WIND ENERGY ASSOCIATION
THE CALIFORNIA BIOMASS ENERGY ALLIANCE
THE CALIFORNIA COGENERATION COUNCIL

February 28, 2005

CERTIFICATE OF SERVICE

I hereby certify that I have this day caused to be served a copy of the foregoing document, **Comments of the California Wind Energy Association, California Biomass Energy Alliance, and California Cogeneration Council on the Revised 2004 Market Price Referent Staff Report,** by Electronic Mail where possible and First-Class Mail where not, on all known parties to R. 04-04-026, named on the service list attached to the original certificate of this document pursuant to the Commission's Rules of Practice and Procedure.

I declare under penalty of perjury that the foregoing is true and correct.

Executed at Berkeley, California, Monday, February 28, 2005.

/s/

Christa Goldblatt