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**BEFORE THE  
PUBLIC UTILITIES COMMISSION  
OF THE  
STATE OF CALIFORNIA**

Order Instituting Rulemaking on the )  
Commission's Own Motion into combined ) Rulemaking 08-06-024  
heat and power Pursuant to Assembly Bill )  
1613 )  
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**Opening Comments  
of San Joaquin Refining Company, Inc.  
on the Proposed Decision  
of ALJ Yip-Kikugawa**

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On Behalf of  
**SAN JOAQUIN REFINING COMPANY, INC.**

November 19, 2009

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San Joaquin Refining Company, Inc. (SJR) appreciates this opportunity to provide the Commission with comments on the Proposed Decision (PD) of Administrative Law Judge (ALJ) Amy Yip-Kikugawa in the above-captioned proceeding, as allowed under Rule 14.3 of the Commission’s Rules of Practice and Procedure. The Commission has instituted this proceeding on its own motion in order to implement the provisions of Assembly Bill 1613 (AB 1613), legislation intended to promote the development in California of small combined heat and power (CHP) facilities. AB 1613 applies to CHP facilities with generating capacities of 20 megawatts (MW) or less. As set forth below and in its accompanying motion for party status, SJR has a strong interest in these issues as a result of its plans to build a highly-efficient, AB 1613-compliant CHP facility.

I. SAN JOAQUIN REFINING’S INTEREST IN THIS OIR AND IN THE PD

San Joaquin Refining Company is an independent refining company located in Bakersfield, California. SJR operates a small refinery with a throughput capacity of 21,000 barrels per day, producing a wide range of specialty oils for applications that include printing inks, lubricants, adhesives, paints and coatings, electrical insulation, paving, and roofing. SJR processes only California heavy crude oil produced locally in Kern County. Founded in 1969,

SJR employs 130 persons and generates more than \$400 million in annual sales.<sup>1</sup>

SJR has a strong interest in the outcome of this proceeding, as SJR is actively pursuing the development of a small, under-20-MW CHP facility designed to supply the thermal and electrical needs of SJR's refinery. SJR's planned CHP unit will be thermally balanced, with a 0.84 power-to-heat ratio, and highly efficient, with an overall efficiency of 74%, well in excess of the minimum 60% efficiency required to qualify for the provisions of AB 1613. SJR projects that, compared to the greenhouse gas (GHG) emissions from producing the same thermal energy in an 80% efficient boiler and the same power output at a system heat rate of 8,300 Btu/kWh,<sup>2</sup> its CHP unit will reduce GHG emissions by 26,000 metric tons of CO<sub>2</sub> per year, or approximately a 32% reduction compared to the GHG emissions from the separate production of these energy products. SJR believes that its planned cogeneration unit is precisely the type of project that the Legislature sought to encourage when it enacted AB 1613.

SJR has followed this proceeding closely, and appreciates the efforts of the parties and the Commission's Energy Division staff to craft a workable program that implements both the letter and spirit of AB 1613. In most respects, the PD makes the findings needed to structure a program that will encourage California companies like SJR to invest in efficient new CHP capacity. In particular, SJR supports these aspects of the PD:

- The conclusion that the Commission has the authority to require the California investor-owned utilities to purchase CHP-generated power at a price established by this Commission and based on the market price referent (MPR), as an incentive structure designed to encourage the efficient use of energy by retail customers.<sup>3</sup>
- The policy that the utility buyer should compensate the CHP project for its costs of complying with GHG regulations for that portion of its electrical output that is delivered

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<sup>1</sup> More information about SJR can be found at its website, [www.sjr.com](http://www.sjr.com).

<sup>2</sup> This is the "double benchmark" standard that the California Air Resources Board used in determining the potential GHG emissions reductions from the expanded use of CHP, in its December 2008 Scoping Plan for implementing AB 32.

<sup>3</sup> PD, at 6-12.

to the grid, under the principle that GHG costs should be recovered once and only once.<sup>4</sup>

- Adoption of a simplified contract that will reduce the transaction costs associated with the development of small CHP projects.<sup>5</sup>

However, SJR is very concerned that the pricing provisions set forth in the PD do not adequately value the power that would be delivered to the grid from projects such as the one that SJR is developing. Unless this aspect of the PD is changed, the substantial promise of AB 1613 may not be fully realized. SJR discusses this concern fully in the section that follows.

## II. THE PD FAILS TO ADOPT REASONABLE PRICING FOR CHP PROJECTS DEVELOPED UNDER AB 1613 THAT PRODUCE FIRM POWER.

Because the SJR refinery's principal need is for thermal energy and its electric demand is just a few megawatts, its CHP project will produce a firm 15 MW of power for sale to SJR's serving utility, Pacific Gas and Electric (PG&E), or another utility buyer in California. In order to meet the refinery's round-the-clock demand for thermal energy, the CHP unit will operate as a baseload facility, except for brief periods of seasonal maintenance. Because SJR's demand for electricity is steady, the cogeneration unit's output of excess electricity to the grid also will not fluctuate significantly. To the extent that the refinery's thermal demand varies, these swings will be met through duct firing downstream from the topping-cycle gas turbine or by using auxiliary equipment. Thus, SJR's AB 1613 CHP project will be able to offer a firm capacity product to the grid.

The pricing provisions in the PD presume that small CHP projects cannot provide firm capacity to the grid, and are only capable of delivering as-available power. The most important result of this presumption is that the PD decides to derate the capacity component of the AB 1613 price by 60% compared to the full costs of a combined-cycle plant, which the PD otherwise

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<sup>4</sup> PD, at 43-46.

<sup>5</sup> PD, at 38-59.

finds to be a “reasonable proxy for the marginal unit avoided by an eligible CHP facility.”<sup>6</sup> The PD finds that the presumption of as-available deliveries is reasonable because the thermal output of a CHP project may vary, and thus its electrical output to the grid will fluctuate in the same way.<sup>7</sup> This presumption is surprising, given that the PD recognizes, a few sentences earlier, that “eligible CHP systems under this program are likely to operate as if they were a firm resource, in order to provide consistent thermal and electrical output to the host..”<sup>8</sup> The PD’s assumption that small CHP projects will produce as-available power may be true for those small CHP projects whose electrical output is almost entirely consumed serving the host’s on-site load. However, this presumption simply does not reflect the broad diversity of operations at industrial facilities that are attractive candidate hosts for small CHP. SJR provides an excellent example of a small industrial facility with a large thermal demand in comparison to its electrical needs. SJR’s thermally-balanced, high-efficiency CHP project will operate as a baseload facility; variations in the refinery’s demand for thermal energy will be met through duct firing downstream from the gas turbine or through auxiliary equipment and will not impact the SJR unit’s electrical output to the grid. As a result, SJR will produce a firm, reliable amount of electricity that is well in excess of its on-site needs, thus providing both energy and firm capacity to the grid.

There is nothing in AB 1613 which limits the application of the statute only to the delivery of as-available power to the grid from small CHP facilities. P.U. Code Section 2841(a) authorizes the Commission to “require an electrical corporation to purchase from an eligible customer-generator, excess electricity that is delivered to the grid that is generated by a combined heat and power system that is in compliance with Section 2843” (in other words, by a new CHP system of not more than 20 MW that complies with certain size, efficiency, and air

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<sup>6</sup> PD, at 33-38. In addition, Finding of Fact 31 states that the 40% capacity derating factor was recommended by the Commission’s Energy Division. This is incorrect – the Energy Division staff’s July 31, 2009 Final Staff Proposal did not recommend any such derating.

<sup>7</sup> PD, at 35: “Since the excess electricity produced by an eligible CHP facility pursuant to this program will be a function of the thermal requirements of the host customer, which may vary, it is reasonable to conclude that an eligible CHP facility would have a lower capacity value and price the excess electricity under the program on an as-available basis.”

<sup>8</sup> *Ibid.*

emission requirements). The “excess electricity” produced by a CHP project can be either firm or as-available.

Further, the AB 1613 contract that the PD would adopt obligates small CHP projects to convey to the utility all capacity and resource adequacy products that they produce – including firm capacity – but fails to compensate them fully if the product is firm capacity. In arguing that the contract should include this obligation, even the utilities recognized that small CHP facilities may produce firm capacity that has significant value to the utilities for resource adequacy purposes. As noted in the PD, PG&E argued for – and the PD approves – the retention of term 3.02 of the draft contract, which requires the Seller to convey all capacity benefits to the Buyer and obligates the Seller to commit its output to the Buyer “to the degree the capacity of CHP helps the utility meet its RA obligations.”<sup>9</sup> In essence, the Seller is obliged to provide firm capacity to the purchasing utility if it produces firm power, but is compensated at a much lower price as though the delivery is an as-available product which the Seller can deliver whenever it chooses.

The purpose of AB 1613 is to encourage the development of new small CHP facilities: “[i]t is the intent of the Legislature to support and facilitate both customer- and utility-owned combined heat and power systems” that enter service on or after January 1, 2008.<sup>10</sup> If the AB 1613 program is to succeed, the pricing for AB 1613 projects must be adequate to support both the initial capital investment as well as ongoing operating costs. Yet the PD would adopt prices for AB 1613 projects that are much lower than the prices that the Commission adopted for existing firm CHP QFs in D. 07-09-040, in other words, for QFs that were developed in the 1980s and whose initial capital costs were paid off years ago. The PD proposes to use an energy price component based on a heat rate of 6,924 Btu per kWh, while current QF energy prices are calculated using the Market Index Formula with heat rates that are 25% higher, in the range of

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<sup>9</sup> PD, at 56.

<sup>10</sup> P.U. Code Section 2840.6(c) and (d).

8,700 Btu per kWh.<sup>11</sup> For the capacity component, the PD would use 40%<sup>12</sup> of the fixed component of the 2008 market price referent (MPR) – \$82.69 per kW-year<sup>13</sup> – while the QF firm capacity price adopted in D. 07-09-040 – \$91.97 per kW-year – is 11% higher.

The Commission cannot expect a significant number of new CHP facilities to be financed and built at prices for firm energy and capacity that are 15% to 20% lower than the avoided cost prices that the Commission has authorized for existing CHP facilities. This is particularly true of CHP projects at host facilities, such as SJR, where the electric load is small in comparison to the thermal needs. With such hosts, most of the revenues to support the CHP investment are from the sale of excess power to the grid, not from serving the relatively small on-site electric demand. For a project such as SJR, it is critical that the pricing for the excess power sold to the grid fully compensate SJR for the energy and firm capacity that it can deliver.

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<sup>11</sup> Posted QF avoided cost energy prices in October 2009 using the Market Index Formula are based on the following heat rates: PG&E - 8,666 Btu/kWh, SCE - 8,720 Btu/kWh, and SDG&E - 8,644 Btu/kWh. Both the QF and AB 1613 pricing formulas apply essentially the same natural gas price to these heat rates in order to calculate the energy price; the AB 1613 formula uses a slightly higher variable O&M adder.

<sup>12</sup> The PD adopts the 40% factor based roughly on the ratio of the QF as-available price (\$32.53 per kW-year) to the QF firm capacity price (\$91.97 per kW-year). The application of this factor to AB 1613 pricing fails to recognize the significant difference between QF and AB 1613 pricing structures. QF pricing has higher energy payments and lower capacity prices than the proposed AB 1613 pricing. The proposed AB 1613 appears to be based on a capacity price of \$207 per kW-year (i.e. the 2009 fixed price component is \$0.00944 per kWh times 8760 hours divided by 0.4). As a result, derating this capacity price by 60% results in a much larger absolute reduction to AB 1613 prices (a drop of \$124 per kW-year, or 60% of \$208) than the difference between firm and as-available QF capacity prices (a difference of just \$54 per kW-year if you use the 2009 QF as-available capacity price of \$37.61 per kW-year). In essence, the PD would adopt an “as-available discount” for AB 1613 prices that is more than double the absolute size of the discount that the Commission adopted for QF pricing in D. 07-09-040. This suggests that any as-available capacity de-rating factor should be no lower than 0.74 (i.e. [ $\$208 - \$54$ ] /  $\$208 = 0.74$ ), which would result in the same absolute reduction to the AB 1613 capacity price (\$54 per kW-year) that the Commission adopted for the QF as-available capacity price in D. 07-09-040.

<sup>13</sup> The 2009 fixed price component is \$0.00944 per kWh, or \$82.69 per kW-year at a 100% capacity factor. PD, Attachment A, Exhibit C, page 1.

SJR expects that the utilities will respond to these comments by arguing that the AB 1613 contract includes no performance requirements to ensure that a CHP project such as the one SJR is developing will provide a firm power product. SJR would be pleased to accept a reasonable contractual performance standard, such as the one that will be included in the new firm QF contract developed in the QF docket, R. 04-04-003/R. 04-04-025. The ability to deliver a firm capacity product should be an option for the AB 1613 contract, should be subject to reasonable performance standards, and should be fully valued in the capacity pricing for this option.

The utilities also may repeat the PD's observation that CHP projects generally are not dispatchable, and thus should be paid less than the full costs of a combined-cycle plant that can be dispatched, even if they deliver firm capacity. In response, SJR first observes that the prices paid to CHP will be shaped by time-of-use factors, which provide projects with a strong incentive to shape their generation to meet the utility's dispatch needs, to the extent that they are able to do so while still meeting their host's thermal demands. More important, even if CHP projects are less dispatchable than combined-cycle plants, efficient CHP units such as the SJR project achieve far higher efficiencies in the use of fossil fuel than do combined-cycle plants. SJR's expected efficiency is 74%, while new combined-cycle plants have efficiencies of 49% or less.<sup>14</sup> The additional efficiency benefits from CHP result in lower societal costs from reduced GHG emissions, which is the key public policy goal of AB 1613. CHP projects also provide additional reliability, transmission, and environmental benefits, as set forth in Sections 2840.6 and 2843 of AB 1613. These significant benefits fully justify pricing firm capacity from AB 1613 CHP projects at 100% of the costs of a combined-cycle.

A good example of a parallel situation is the Commission's Renewable Portfolio Standard (RPS) program. The Commission uses 100% of the costs of a new combined-cycle as the MPR benchmark for the reasonable ratepayer costs of new renewable generation, even though many renewable projects produce non-firm, non-dispatchable, intermittent power (e.g.

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<sup>14</sup> A combined-cycle with a heat rate of 6,924 Btu/kWh, as used for AB 1613 pricing, has an efficiency of 49%.

wind and solar technologies). The Commission’s judgement has been that the societal benefits of renewable power make it reasonable for ratepayers to pay at least 100% of the costs of a combined-cycle for new renewable generation. SJR observes that both renewable generation and efficient, environmentally-beneficial CHP are on the same level in the state’s “loading order” for new generation,<sup>15</sup> and thus a similar consideration should be afforded to new, clean, and efficient CHP facilities.

Finally, the utilities may argue that a firm capacity CHP unit such as SJR should use the firm capacity QF contract approved in D. 07-09-040, with the higher prices for firm energy and capacity approved in that order. Final approval of this contract has been pending for two years, and forcing small CHP projects to use this much more complex contract would defeat the benefits of the tariffed rates, streamlined contract, and lower transaction costs available under AB 1613.

SJR attaches to these comments revised findings of fact and conclusions of law to increase the AB 1613 capacity pricing for qualifying new CHP projects that supply firm capacity to 100% of the capacity component of a new combined-cycle, as measured by the 2008 MPR. The revisions also provide for the option of a firm capacity contract with reasonable performance standards.

### III. CONCLUSION

SJR commends the ALJ and the Commission for a proposed decision that, with one key exception, generally provides a workable approach to the implementation of AB 1613. However, that exception – the lack of adequate pricing for the power delivered from AB 1613 CHP projects that supply firm capacity to the grid and that will depend substantially on revenues from grid sales – threatens to reduce substantially the universe of highly efficient new CHP projects that can avail themselves of the benefits and opportunities of AB 1613. SJR has set

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<sup>15</sup> “Energy Action Plan II,” adopted by this Commission in October 2005, at page 2. See [http://docs.cpuc.ca.gov/word\\_pdf/REPORT/51604.pdf](http://docs.cpuc.ca.gov/word_pdf/REPORT/51604.pdf).

forth above the means to remedy this significant problem. SJR greatly appreciates the Commission's attention to these comments.

Respectfully submitted,

/ s / R. Thomas Beach

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On behalf of  
**SAN JOAQUIN REFINING COMPANY, INC.**

November 19, 2009

## Revised Findings of Fact and Conclusions of Law

### Findings of Fact

27. Power provided under AB 1613 would be a function of the thermal and electrical requirements of the host customer.
29. CHP projects whose hosts have significant thermal needs in comparison to their electric loads may be able to export a firm capacity product to the grid.
30. CHP projects whose exports to the grid are able to meet a reasonable performance standard for firm capacity deliveries should receive a capacity price component equal to 100% of combined-cycle fixed costs based on the 2008 MPR.
31. The as-available capacity derating factor of 40% proposed by SoCalGas and SDG&E is excessive, because the capacity component of AB 1613 prices is a much larger portion of the total price than the capacity component of QF prices.

### Conclusions of Law

- 9a. Staff's pricing Option 1 with a capacity component set at 100% of the MPR's fixed component should be available to CHP projects that deliver a firm capacity product.
- 9b. CHP projects that deliver a firm capacity product should be subject to reasonable performance standards, such as those developed in R. 04-04-003 / R. 04-04-025 for the new QF firm capacity contract.
- 9c. Staff's pricing Option 1 should be adjusted to account for the lower value of as-available power by applying no less than a 74% derating factor to the fixed component of the MPR.

## CERTIFICATE OF SERVICE

I hereby certify that I have this day caused to be served a copy of the foregoing document, **Opening Comments of San Joaquin Refining Company, Inc. on the Proposed Decision of ALJ Yip-Kikugawa**, by Electronic Mail where possible and First-Class Mail where not, on all known parties to R. 08-06-024, 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, Thursday, November 19, 2009.

/s/ Christa Goldblatt

Christa Goldblatt

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