

Subject: CRR Auction Analysis Report

Comments of Calpine Energy Solutions, LLC (“Calpine Solutions”) on Stakeholder Meeting of December 19, 2017

Submitted by	Company	Date Submitted
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Calpine Energy Solutions, LLC (“Calpine Solutions”), is a nonutility load-serving entity operating in seventeen states, including California. As a load-serving entity, Calpine Solutions receives an allocation of annual and monthly CRRs from the CAISO, and also participates in the CRR auctions in order to secure the additional CRRs necessary to mitigate the financial risks Calpine Solutions and its customers would otherwise face if its portfolio of supply and transmission rights were exposed to unhedged locational congestion risks.

During the discussions at the December 2017 stakeholder meeting, the participants reached a general consensus that the CAISO Staff should continue its study of the revenue deficiencies that are being experienced in the CRR auction process. These further efforts will allow the CAISO to reach informed judgments as to the causes of these revenue deficiencies and whether adjustments to the auction process should be considered. Any such adjustments should be carefully tailored to address undue revenue deficiencies and reduce undue costs to CAISO market participants. As these further studies and the review of the CRR auction process progress, Calpine Solutions urges the CAISO to consider two overarching principles: first, revenue adequacy arising from the auction process are not the sole, or even most important, criterion by which the value of the auction process should be evaluated; and second, the CAISO should consider that there is an important divergence of opinion regarding the efficacy of the auction process and the value of the CRRs available in the auction process emerging between load-serving entities whose customers are subject to cost-averaged pricing on the one hand and those load-serving entities whose customers are market-price-sensitive (and market savvy) on the other hand. For the reasons discussed below, Calpine Solutions strongly believes these principles must be reflected in the ongoing stakeholder process and analysis of auction-related issues.

Calpine Solutions believes unequivocally that the CRR auction process provides enormous benefits to consumers. Load-serving entities rely on CRR auctions to provide consumers with the lowest possible cost to meet their energy requirements. The CRR auction process provides load-serving entities with the means by which they can hedge any costs of congestion between specific receipt and delivery points – the breadth and frequency of CRR auctions is critical to providing the liquidity and transparency of the financial instruments by which this hedging is accomplished, and the CAISO should take care not to reconfigure the CRR auctions in a way that would impair these benefits.

As noted earlier, there is an emerging divergence of opinion among load-serving entities regarding the market benefits and value to consumers that come from the CRR auction process. As Calpine Solutions indicated in its previous comments submitted to the CAISO's stakeholder process, this is almost entirely a function of regulatory and retail pricing constructs rather than any failings inherent in the CRR auction process.

The load-serving entities most in favor of radically revising the CRR auction process are those whose loads are relatively insensitive to energy pricing. Pursuant to the regulatory and pricing conventions by which they set the retail price of energy delivered to their customers, these load-serving entities bill their customers using relatively fixed class-based energy rates reflecting the providers' costs of energy, aggregated and averaged across long periods of time for the entire customer class. By and large, energy rates paid by these customers are not highly correlated to and do not fluctuate with short-term (*e.g.*, monthly, daily, hourly, or real-time) fluctuations in the market clearing prices set in and by the CAISO markets. Given the attenuated relationship between market prices and the retail prices paid by these consumers, the load-serving entities serving them are largely indifferent to short-term costs of transmission congestion, which affects their level of participation in preserving the CRR auctions. (The consequences of this indifference are discussed further below.)

Conversely, the load-serving entities most in favor of preserving, and enhancing, the CRR auction process, a group that includes Calpine Solutions, are those whose loads are highly sensitive to energy pricing both at the retail and wholesale levels. The customers of these load-serving entities are highly sophisticated and receive service under contracts tracking market clearing prices. In order to meet their service obligations under this pricing regime, the load-serving entities serving these customers use the CRR auctions to hedge congestion costs in order to force a convergence between prices expected in the CAISO day-ahead market and actual market clearing prices. Thus, these load-serving entities seek more frequent auctions and a greater range of CRR instruments of varying tenors so as to maximize that convergence to the fullest extent possible and, further, oppose any adjustments to the CRR auction process that would reduce either the frequency of CRR auctions or liquidity of CRR products.

The distinction between the pricing practices of these two groups of customers and load-serving entities directly affects their views of the urgency of addressing revenue deficiencies resulting from the CRR auction process and the manner in which those revenue deficiencies should be addressed. For the customers and load-serving entities sensitive to congestion costs, the benefits provided by CRRs acquired through the auctions vastly outrun and outweigh the costs of CRR auction revenue deficiencies. The ability to hedge the potential costs of congestion using CRRs acquired at auction provide a critical method of hedging price volatility due to transmission constraints and, at a higher level, facilitate market-priced retail contracts and, in turn, California's direct-access markets. These benefits are demonstrably greater by orders of magnitude than the studied CRR auction revenue deficiencies.

An appreciation of the value price-sensitive retail services provides to direct-access consumers begs the question of why load-serving entities charging cost-averaged prices do not see or attempt to capture the value CRRs acquired at auction can provide for their customers. Simply put, regulatory policies and the nature of cost-averaged retail pricing undermine the value of CRRs acquired at auction to these load-

serving entities. These entities tend not to participate in the auctions or do so on a limited or infrequent basis, but because of this, they tend to pay energy prices reflecting unhedged, *i.e.*, *higher*, costs of energy. As several generators pointed out during the stakeholder process, generators tend to charge these load-serving entities higher prices for energy reflecting either (a) the costs of financial rights the generators acquire themselves to hedge congestion costs and basis differentials they might face or (b) a “risk premium” reflecting the exposure the generators face to congestion costs and basis differentials. As the California considers any reforms to the CRR auction process, the CAISO, the California Public Utilities Commission and the governing boards of the various municipal utilities and community choice aggregators paying for congestion costs in this way should consider whether reforms to their regulatory and/or energy-acquisition policies would provide greater benefits than can be achieved through revising the CAISO CRR auction process. Calpine Solutions believes the pricing efficiency that would be served through these kinds of reforms would far outweigh any savings that would come from attacking the revenue deficiencies that arise from the CRR auction process. At the very least, this is a topic worthy of study and is consistent with the direction being taken to improve and expand markets for financial transmission rights by the Federal Energy Regulatory Commission, the PJM Interconnection, the Midwest Independent System Operator, and other regional transmission organizations.

Finally, regulatory ratemaking conventions and pricing practices pursuant to which load-serving entities can pass congestion costs through to consumers as a reasonable cost of delivered energy no doubt contribute to raising energy costs to all consumers, regardless of their provider. Those regulatory conventions and pricing practices should be reconsidered and different schemes of regulatory and/or financial incentives should be examined for their potential to improve overall market efficiency and reduce costs to all consumers. While the CAISO is not responsible for these regulatory conventions or pricing practices, it should nevertheless consider these issues as part of the discussion regarding the CRR auction process so as to avoid encouraging inefficient regulatory and management constructs used by some load-serving entities to the disadvantage and at the expense of all consumers. The CAISO DMM rightly points out that there is a mismatch between the number of CRRs available at auction and the demand for hedges, but the DMM has wholly omitted any consideration of the reasons for the lack of demand and whether eliminating the CRR auction solves the wrong problem.

Based on the foregoing comments, Calpine Solutions urges the CAISO to consider two specific paths for going forward.

First, for the short term, the CAISO should study whether improvements to the modeling of transmission outages and improved reporting and scheduling of transmission outages can be made so as to reduce the persistence and level of the revenue deficiencies being experienced in the CRR auctions. The CAISO report draws a clear nexus between auction revenue deficiencies on the one hand and current transmission modeling practices and the inaccuracy of outage information on the other hand, and addressing these matters could well solve a substantial portion of the revenue deficiencies. Notably, only the transmission owners resist the notion that these topics should be explored at any length, but given that these entities are also among the load-serving entities with little incentive to address congestion costs through an improved CRR auction process, the CAISO should give these complaints little weight.

Second, for the longer term and as a means of improving auction revenues, the CAISO should explore expanding the nature of the financial transmission rights it makes available for allocation and auction so as to increase the demand for financial transmission rights. As should be clear from the comments provided above, load-serving entities serving price-sensitive customers under agreements tracing market prices differentiate themselves from one another by providing products hedging and locking in the cost of expected congestion. By expanding the range of instruments that are available to effect these strategies, the CAISO will facilitate a more robust retail market, with the further potential to improve the costs of energy to all consumers by improving the economic efficiency of the overall energy market. As these effects are experienced, Calpine Solutions would expect the participation of all load-serving entities in the CRR auctions to increase. For example, the CAISO markets provide for a ten-year CRR, an instrument that is so long in tenor that it has little value. The CAISO offers only one instrument, a one-year CRR, by which a load-serving entity can hedge congestion risks across a meaningful tenor. Noteworthy in this regard, the PJM Interconnection offers a four-year instrument, which generally matches the supply book of most retail providers operating in the PJM region. The CAISO should consider likewise offering more instruments of varying tenor to meet the needs of the load-serving entities operating in its service territory.

Additionally, the CAISO should consider increasing the frequency of its auctions. In PJM, the frequency of auctions for financial transmission rights allows for many hedging opportunities throughout the year. PJM runs an annual auction in April and a number of monthly, quarterly and balance-of-year auctions throughout the planning year in order to improve market efficiency and enhance the liquidity of the market for these rights. In addition, PJM runs three long-term auctions during the year, for terms beyond the planning year. (Currently, these would cover PY2019, PY2019 and PY2021). The transparency and resolution of the balance-of-planning-year auctions also allows load-serving entities to shape, by period (balance of planning year, quarterly, and/or monthly) and by block (peak and off-peak), the congestion risk in their books, well in advance of the day-ahead market. Calpine Solutions believes that implementing similar processes in California will improve the demand for CRRs in the auctions and could cure a substantial portion of the auction revenue deficiencies under study.

As a final matter, Calpine Solutions offers the following comments on the DMM's recommendation that a bilateral market in which CRRs are traded directly between individual counterparties should replace the existing CRR auction process. For the reasons discussed previously, Calpine Solutions strongly believes that while this recommendation might eliminate the revenue deficiency from the abandoned auctions, this "solution" could result in greater harm to energy markets by raising energy prices by amounts that would far overshadow auction revenue deficiencies. The CAISO should consider the dynamics of the basis bilateral trading markets being proposed before assuming that such markets can instantaneously fend for themselves and flourish without a consistent CRR market and/or auctions behind them.

In PJM, there is a fair amount of bilateral trading for basis for certain Hub-to-Zone paths, albeit at inconsistent frequencies and magnitudes. There can be a burst of trading for a few days, but the market can then go "silent" without warning. For other Hub-to-Zone paths, trading may be very infrequent and illiquid. In addition, trading is generally frequent for shorter-term products, and thin for longer-term instruments. Lot size can also be an issue; trades usually involve rights of 25 or 50 megawatts, which

may be ill-fitted to a particular trader's needs. In the CAISO service area, the basic information upon which bilateral trades can be negotiated and executed simply does not exist: there are not enough transactions (via the auctions at present) to establish trading parameters and conventions. This is an important aspect of a properly functioning bilateral market, as can be drawn from the experience of the PJM market.

Say a retail supplier wants to hedge the basis cost of a fairly illiquid Hub-to-Zone path in the PJM Interconnection. There will be two choices available to the supplier: trade with a bilateral counterparty (e.g., a financial trader) or wait for the next PJM auction for financial transmission rights. Either way, both the retail supplier and the financial trader(s) will use the prices provided by prior auctions as guidance to assess (and negotiate) the future value (and risk) of the basis risk in question. The following chart shows how different auctions in PJM can provide such guidance:



Graph developed by and provided courtesy of Yes Energy.

The green bars represent historical day-ahead congestion, while all other bars show the outcome of various auctions for the given path for the term under analysis. The auctions provide guidance for both expectations and volatility around the relevant financial transmission rights. In other words, the auctions work to provide an “anchor” to bilateral basis market pricing. Without frequent auctions, the market does not have any “physical” guidance for assessing any expected transmission congestion. Furthermore, traders cannot have certainty about their ability to acquire a hedging instrument well in advance of the day-ahead market. Under these circumstances, financial traders can be expected to charge ever higher risk premiums for hedging basis risk. The DMM recommendation would create this situation by eliminating the CRR auctions, exposing the CAISO market to uninformed trading of CRRs and

potentially higher risk premiums. Facing these potential outcomes, Calpine Solutions cannot support the DMM recommendation to substitute a bilateral trading market for the CRR auctions.

Calpine Solutions hopes the CAISO will look to expand and improve the CRR auction process in ways beyond those currently under discussion. In anticipation that the CAISO will do so, Calpine Solutions looks forward to the further stakeholder proceedings being conducted on this topic.