## Comments of Calpine Corp. on the June 13<sup>th</sup>, 2016 2016-2017 Transmission Planning Process Stakeholder Call

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Calpine welcomes the opportunity to comment on the CAISO's June 13th, 2016 2016-2017 Transmission Planning Process stakeholder call ("the stakeholder call"). Calpine limits its comments to the CAISO's proposal to undertake a special study of the economic early retirement of gas fired generation. As Calpine understands the CAISO's proposal, the CAISO would apply a series of screens to identify conventional generation resources that are at risk of retirement because short-term wholesale market revenues and/or bilateral contract revenues are insufficient for them to operate profitably. The CAISO would then examine the impact of resources deemed at risk of retirement on transmission reliability and congestion.

Calpine strongly supports the CAISO's proposal to examine the reliability implications of economic retirements. As the state relies on increasing amounts of renewable resources to achieve greenhouse gas and other environmental goals, it is critical to maintain the reliability of the transmission grid. Given the importance of reliability, Calpine encourages the CAISO to cast a broad net with respect to identifying resources that are potentially at risk of retirement and the retirement of which may jeopardize reliability. Consequently, for the purposes of the economic retirement special study, instead of the relatively narrow screens proposed by the CAISO to identify resources at risk of retirement, Calpine recommends that the CAISO to consider all conventional generation that is not supported by long-term contracts, i.e., merchant conventional generation, at risk of retirement. Given current market conditions, merchant conventional generation may not cover its going forward costs, in addition to the costs of major maintenance, from wholesale markets.<sup>1</sup>

Merchant conventional generation earns two primary revenue streams: one related to energy and ancillary services (AS) and another related to Resource Adequacy (RA) capacity.

<sup>&</sup>lt;sup>1</sup> The CPUC collected data on long-term contracts for conventional generation in the Joint Reliability Plan proceeding (R.14-02-001). This report

http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M112/K006/112006413.PDF summarizes the results of the CPUC's analysis. CPUC staff may be able to provide the CAISO more specific information on which resources are under contract. To the extent that a CAISO analysis based on contract data collected by the CPUC might divulge confidential information, the CAISO could include some resources that are under contract in its analysis so that the specific resources that are uncontracted would not be obvious from the CAISO's analysis.

Historically, energy and AS gross margins have been high enough for merchant conventional generation to operate profitably, but they have recently trended lower, generally below \$40/kW-year over the last four years in NP15 (the northern part of the State).<sup>2</sup> These margins are likely to trend down further as the State exits the recent drought and returns to normal hydro conditions and additional renewable resources enter the market.

RA capacity compensation also has been low. The CPUC estimates a weighted average RA capacity price of \$3.23/kW-month (\$38.76/kW-year) for deliveries in 2013-2017.<sup>3</sup> This value overstates the annual RA capacity compensation available to many resources because it includes transactions for both "system" and "local" capacity. Hence, it reflects a premium for RA capacity in certain local areas, such as the LA Basin, that is not available to resources that are not located in those local areas. In addition, system RA requirements are lower outside of the peak summer months. Consequently, many resources are unable to sell their full capacity for all 12 months. Further, units in local areas outside of Southern California do not earn any appreciable premium for the fact they are local. For example, the weighted-average price for local RA capacity in NP 26 (\$2.44/kW-month), where many of Calpine's plants are located, is even lower than the overall weighted average price cited above.

Even assuming that a resource can realize the NP26 weighted-average local RA price of \$2.44/kW-month in every month, this level of compensation (\$29.28/kW-year) in combination with energy and AS gross margins of approximately \$40/kW-year, may fall short of the "going forward" costs of operating a CCGT, i.e., the costs associated with operating an existing plant regardless of how much it generates. The CEC estimates CCGT going forward costs of approximately \$60/kW-year. <sup>4</sup> Many merchant plants were built in the early 2000s. These plants are now facing significant additional major maintenance costs, which are not reflected in CEC estimates of going forward costs. Further, many actual CCGTs have slightly higher heat rates than the hypothetical resource modeled by DMM and hence run less and earn substantially less than DMM estimates.

As the result of poor economics and the absence of long-term contracting opportunities, Calpine recently announced its intent to not operate Sutter, one of its California CCGTs, during 2016. Similarly, La Paloma Generating Company recently announced its intention to retire one of the four units at the La Paloma CCGT plant, another merchant CCGT in California.<sup>5</sup> Further, La Paloma Generating Company recently requested an RMR contract to support the continued operation of the La Paloma plant.<sup>6</sup>

<sup>2</sup> See section 1.3 of the CAISO's 2015 Annual Report on Market Issues & Performance

<sup>5</sup> http://docketpublic.energy.ca.gov/PublicDocuments/16-IEPR-

<sup>(</sup>http://www.caiso.com/Documents/2015AnnualReportonMarketIssuesandPerformance.pdf).

<sup>&</sup>lt;sup>3</sup> See table 11 of the CPUC's 2013-2014 Resource Adequacy Report

<sup>(</sup>http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6325).

<sup>&</sup>lt;sup>4</sup> See Table E-4 of <u>http://www.energy.ca.gov/2014publications/CEC-200-2014-003/CEC-200-2014-003-SF.pdf</u> Ad valorem, insurance, and fixed O&M costs are generally considered "going forward" costs, According to CEC estimates, the sum of these three items is approximately \$60/kW-year for a CCGT.

<sup>02/</sup>TN211166\_20160420T154750\_La\_Paloma\_Generating\_Plant\_Letter\_to\_CECCAISOARBCPUC.pdf

<sup>&</sup>lt;sup>6</sup> <u>http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=14279278</u>

Calpine believes that it should be relatively easy to identify conventional generation that is merchant and hence may be at risk of retirement. Depending on the year, in addition to Sutter and La Paloma, based on public representations and knowledge of our own portfolio, Calpine believes that at least Metcalf, Delta, Pastoria, most of Calpine's peakers, Inland,<sup>7</sup> High Desert Power Project, Diamond's Larkspur and Indigo peakers,<sup>8</sup> and the bulk of the Cogentrix portfolio of peakers<sup>9</sup> are also merchant. In addition, Sunrise<sup>10</sup> and Moss Landing also may be merchant depending on the time frame.<sup>11</sup> <sup>12</sup>

Calpine believes that it would be particularly valuable for the CAISO to consider which combination of resources best preserve reliability in the Greater Bay Area. Assuming that the Pittsburg and Moss Landing steam units retire and other existing resources continue to operate, what combination of retirements of the Moss Landing CCGTs, Metcalf, and Delta could the system withstand?

As indicated above, Calpine believes that, for the purpose of the economic retirement special study, CAISO should assume that all merchant conventional generation is at risk of retirement. Calpine has the following concerns about the CAISO's proposed approach for identifying resources at risk of retirement.

The CAISO proposes three separate screens to identify units at risk of retirement: a capacity factor screen based on whether a resource operates at a low capacity factor in a production cost simulation reflecting higher than current penetrations of renewables, a screen reflecting whether a resource provides ancillary services in any hour of the same production cost simulation used to implement the capacity factor screen, and a screen that reflects whether a resource is "required" to meet an LCR requirement. There are problems with all three screens and the requirement that a resource pass all three screens to be deemed at risk of retirement is far too strict to identify resources that are genuinely at risk of retirement.

First, capacity factor is a poor indication of whether or not a resource is economic. There are currently many resources that operate at relatively high capacity factors yet struggle to recover their costs. For example, the analysis of merchant economics that DMM includes in its annual report suggests that a generic CCGT would have operated at a capacity factor of 92-93% (!) in 2015, but, as indicated above, might not have recovered its going forward costs.<sup>13</sup>

In the event that the CAISO tries to model which specific resources are at risk of retirement rather than just assuming that all merchant conventional generation is at risk, then it should explicitly model the

<sup>&</sup>lt;sup>7</sup> http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M159/K697/159697827.PDF

<sup>&</sup>lt;sup>8</sup> http://www.dgc-us.com/assets4.htm

<sup>&</sup>lt;sup>9</sup> http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M159/K671/159671444.PDF

 <sup>&</sup>lt;sup>10</sup> <u>http://www.ferc.gov/CalendarFiles/20130731092710-Pizarro,%20Edison%20Mission%20Energy.pdf</u>
<sup>11</sup> See slide 40 of <u>http://phx.corporate-</u>

ir.net/External.File?item=UGFyZW50SUQ9NjMyMDk1fENoaWxkSUQ9MzM2NzUxfFR5cGU9MQ==&t=1

<sup>&</sup>lt;sup>12</sup> Note that at least Metcalf, Delta, Pastoria, Moss Landing, and Inland are all in local areas and consequently may fail the local screen proposed by the CAISO.

<sup>&</sup>lt;sup>13</sup> See Table 1.8 of <u>https://caiso.com/Documents/2015AnnualReportonMarketIssuesandPerformance.pdf</u>

economics of resources rather than relying on flawed proxies such as capacity factor. For example, as recommended by Calpine during the June 13<sup>th</sup> call, it should be possible to use the results of the CAISO's proposed production cost simulations to derive estimates of the gross margins that resources would earn from the energy and AS markets reflected in the simulations. Alternatively, the CAISO might be able to leverage the dispatch model that DMM uses to simulate merchant economics.

Second, the CAISO's proposed AS screen is completely flawed, i.e., it does not capture the viability of a resource. It is likely or possible that any resource included in a production cost simulation will provide AS or energy in some hour of the simulation. This provision does not prove that the resource is needed to maintain reliability and/or it's economically viable. For example, DMM's annual analysis of merchant economics suggest that generic CCGTs and CTs might not be economic despite earning AS revenues.<sup>14</sup> The CAISO should drop this screen and focus on screens/a screen that better reflects the actual economic viability of resources.

Third, the CAISO should clarify how or whether or not it will deem local resources at risk of retirement. On the June 13<sup>th</sup> call, the CAISO suggested that it will not consider resources that are strictly needed for local reliability at risk of retirement. How will the CAISO determine which of a set of resources are at risk of retirement if some but not all of them are needed? Even for resources that are deemed strictly needed, the CAISO should explain how it expects them to cover their costs through energy and AS, RA, CPM, RMR or other revenues.

<sup>&</sup>lt;sup>14</sup> See Tables 1.8 and 1.10 of <u>https://caiso.com/Documents/2015AnnualReportonMarketIssuesandPerformance.pdf</u>.