CAISO COMMENTS IN PREPARATION FOR
APRIL 29, 2005 RESOURCE ADEQUACY WORKSHOP

The following constitutes the CAISO's response to the specific topics raised in the e-mail circulated by Stephen St. Marie on April 26, 2005, in preparation for the Commission's April 29th resource adequacy workshop. Given the limited time to prepare this response, the comments and conclusions represented are necessarily preliminary in nature.

Further, the volume of information provided by the other workshop participants is helpful and appreciated, but it takes time to review. Therefore, the CAISO intends to conduct a more complete review and envisions providing additional comments following the workshop discussion on April 29th. CAISO recommends that all parties be afforded the opportunity to provide supplemental observations to the CPUC, thereby creating a full record that can facilitate, and be incorporated into, the workshop report.

The CAISO comments are from the perspective of the system operator. The alternative proposals have not been fully described, rendering it difficult at this time to opine on the relative effectiveness of the proposals to assist the CAISO in meeting its responsibility to reliably operate the electric system. Thus, we look to the final workshop to more completely describe and explain the alternative frameworks. These comments are intended to help focus the dialog and may be subject to change as additional information is received and further evaluation is performed.

A full write-up of the top-down proposal

The CAISO understands that other workshop participants have accepted responsibility for producing a top-down ("TD") proposal and anticipates evaluating the proposal at the workshop. However, in order to assist the Commission and create an adequate and complete workshop record, the CAISO submits, as an example of a TD approach coupled with a centrally administered capacity market, sections 5.9 – 5.16 of the New York Independent System Operator Services Tariff and its Installed Capacity Manual.

Any revisions, enhancements to write-up of bottom-up proposal

The Joint Parties ("JPs") need to more fully address four major points with respect to the bottoms-up ("BU") proposal.

First, what, if any, specific standard availability periods are the JPs willing to accept? Is this concept limited to only those approved such as: 24hrs, peak 16hrs, super-peak 8hrs, and off-peak 8hrs? Would these periods apply to both the on-peak and off-peak duration curves (including Sunday)? Can the JPs define the specific hours for the products, e.g. super-peak is the hours 1400-2200? Is this consistent with existing portfolios or would such categories preclude the eligibility of any existing product(s)?

Second, related to the above, are the JPs stipulating that an off-peak BU analysis must be conducted?

Third, how will compliance be performed? For instance, do the JPs expect that each LSE will provide a listing of each resource and the specific availability period that it is fulfilling? If not, the CAISO is unaware of the mechanism to check compliance with the availability obligation. And will there be limitations on the amount of each availability product that may fill an LSE portfolio, e.g. each LSE must show that in all hours the box represented by an availability period is greater than the proposed resource duration curve?

Fourth, is it acceptable that the CAISO pay Residual Unit Commitment ("RUC") availability payments to those resources that have not been physically identified in an LSE RAR showing; e.g. resources providing for an LSE LD contract to the extent an LD contract does not require identification of physical supply at least in the day-ahead timeframe?

And for both sides: a comparative table, or matrix, showing the comparative position of each proposal with regard to these dimensions:

CAISO believes it is essential to implement an RAR in June 2006. Therefore, it should be continually emphasized that both the BU and TD constitute a transitional proposal that provides a mechanism to meet the exigencies of a June 1, 2006 RA implementation date. In this light, the BU necessarily builds from the existing state of the market in terms of the LSEs' existing portfolios and available products. Accordingly, the Commission's treatment of existing resources will be critical to the present evaluation.

Differences in costs to Californians, including ISO costs

The CAISO does not profess to have performed a comparative cost analysis of the two approaches and does not believe it is in the best position, not being a party to the commercial transactions, to conduct such a study at this time. Nevertheless, the CAISO makes the following general observations. First, in the environment of capped energy markets, an objective of an RA program is to provide resources an additional source of revenue to ensure that needed units remain on-line and, where appropriate, to incent new resource investment. For any particular unit, this amount will be the necessary revenue not obtained through the sale of energy or ancillary services. Second, the preference for an obligation that varies by month, under either the BU or TD, will generally result in low capacity prices in the off-peak months and, therefore, require resources to fully recover the capacity revenue in the on-peak periods. However, the overall amount paid to a particular resource will necessarily be the same. Third, the amount of this cost that is born by California consumers will be dictated by the RAR counting rules and the market. Thus, the amount a seller requires from the sale of its capacity to remain viable will likely be affected by the seller's flexibility and realistic opportunity to sell other products in an economically efficient manner (i.e., highest bidder inside and outside of California). Accordingly, a RA

obligation should allow for trade, which will be facilitated by the monthly obligation versus an obligation based on the annual peak. This same reasoning can be applied to California's need to design a mechanism that allows for exchange agreements with the PNW.

Although this would appear to support the BU approach, the TD can equally accommodate the exchanges and other trades. Such forward commitments can be accommodated through the CAISO MRTU design. This is accomplished by LSEs scheduling explicit load export (price taker) and their desired resource at a desired price. This load and resource will clear the IFM as the LSE desires the transaction to occur.

Further, it is not clear that, for instance, a super-peaking resource would have a realistic opportunity to sell in other periods or whether the cost of a resource reservation payment for16 hours would be appreciably different than that of a reservation payment for 24 hours. Moreover, it also appears that the CAISO's proposed MRTU design, coupled with the RA obligation to make long-start time units available in the CAISO's day-ahead market, will provide resources with sufficient advanced commitment information to efficiently operate and maintain their resources. This suggests that, while gas nomination and other variable costs may result from implementation of a TD approach, the cost difference between the TD and BU approach is also not likely to be significant.

Differences in implementation ability

As stated above, the alternate proposals require additional details to fully understand how they comprise an effective resource adequacy program.

Currently, the JPs suggest that the TD approach will require much more work than the BU due to the issue of "exemptions." The "exemptions" noted by the BU proponents are apparently determinations as to whether a given load-serving entity has acquired the "right" mix of resources (portfolio) to satisfy the reliability requirements of both that LSE and the system as a whole. The CAISO believes this is an issue common to both approaches, especially when one assumes that existing resources will count towards satisfying RA obligations and that energy-sufficiency is an important consideration in determining resource adequacy in the west. In the near term, if existing contractual arrangements are eligible to satisfy RA, the two approaches begin to merge. In both cases, the LSE would be required to inform the CAISO regarding the resource limitations in order to determine compliance with the availability obligation and permit the CAISO to perform resource optimization.

Regarding apparent differences in implementation, the CAISO offers two points. First, because of the "all hours" notion in the BU proposal it appears that the load forecasting element will be more difficult to implement in the area of the CEC verification role. The simplifying aspect to the TD is that the load forecasting effort is focused on determining the magnitude of the peak load that occurs for a single hour and not on verifying the LSE's load shape in other hours.

Second, it appears that the BU proposal must include standard availability periods. Otherwise, it does not seem possible for the CAISO to know which resources are available for dispatch and it would seem impossible for the CPUC/CAISO to conduct any legitimate form of compliance on the myriad of possible permutations of negotiated availability obligations. Conversely, the TD approach needs to also define a mechanism for qualifying resources to define their legitimate physical constraints, or contractual constraints if existing resources are eligible, and convey that information to the CPUC/CAISO. Accordingly, under either the BU or TD approach, the development of standard products would facilitate implementation.

Differences in the ability of the ISO to operate efficiently and effectively

The principle difference between the "pure" TD and the BU proposals is the sources for establishing the parameters of the resource's obligation. In the TD, the resource is obligated by rule, incorporated into RA agreements, to offer for all hours it is physically capable of running consistent with environmental or other regulatory limitations. In contrast, the BU resources are only obligated to offer in accordance with not only their physical and regulatory limitations, but also subject to contracted offer periods, such as 24hrs, 16 hrs, 8 hrs. This creates a possible impact on the CAISO's ability to optimize resources. The CAISO dispatches resources on the basis of system efficiency and conditions. To the extent the pool of resources is limited by an LSE's selection of its portfolio based on LSE expected load characteristics, inefficiencies and potential operational issues may be introduced. However, if existing contractual arrangements will be eligible to satisfy the RA obligation during a transition period, this difference will begin to collapse as long as those arrangements exist.

Impact on the future: Are we heading in the right direction?

Under either the TD or BU approach, California will be moving in the right direction by unequivocally establishing that only physical and verifiable capacity will qualify to satisfy an LSE's future RA obligation. The CAISO also supports the creation of some form of capacity market. In comparing the TD and BU, it would seem that the BU with standard availability periods may create greater complexity in a central capacity market. An attractive element of the eastern capacity market structure is the fact that only one product is traded.

Differences in ability to measure compliance

From an LSE perspective, both the TD and BU appear workable. The LSE under the TD approach merely provides a snapshot of resources that aggregate to the LSE's contribution to coincident peak load. This appears straightforward and not subject to the ex post penalties feared by many proponents of the BU approach. On the other hand, the BU demonstration set forth in the JP proposal also

appears clear and sufficient to determine whether LSE's complied with their RA obligation.

From a supplier/availability perspective, it would appear that the TD does require a specific mechanism to describe and communicate its legitimate physical limitations.

From the perspective of the CPUC/CAISO, both proposals require more specifics. In BU, the standard offer periods need to be defined to provide for clear operational authority and the ability to check compliance. For TD, the reporting and documentation of the legitimate physical constraints needs to be defined.

Differences in impact on existing procurement policies/requirements.

The CAISO does not take a position on these issues.