

**SDG&E's Comments on the
CAISO's March 11, 2013
Contingency Modeling Enhancements Issue Paper**

SDG&E supports market enhancements which reflect the impact of grid constraints in market clearing prices rather than through non-market “uplifts.” As SDG&E understands the CAISO’s issue paper, the CAISO is proposing to modify its current real-time market software to automate the process of redispatching generation within 30 minutes of an actual N-1 contingency to prepare the system such that the next potential contingency condition, should it occur (an N-1-1 contingency condition), would result in power flows which are within all applicable emergency ratings. Based on this redispach, the market software will determine (i) the relevant real-time Locational Marginal Prices (LMPs) for energy, and (ii) a locational marginal capacity price (LMCP) that reflects the marginal opportunity cost of providing “corrective” capacity.

The CAISO asks whether all resources contributing to meeting the corrective action should be compensated at the LMCP, or whether only those resources exhibiting a lost opportunity should be compensated at the LMCP. SDG&E is leaning towards the former compensation approach because it reflects the full cost of addressing N-1-1 contingency conditions and therefore provides better market signals.

SDG&E agrees with SCE’s April 9, 2013 comment that it is important for the CAISO to understand how the proposed market enhancements will “interact in conjunction with the myriad of proposals such as Flexible Ramping Product (FRP), Integrated Day Ahead Market (IDAM), Intertie Convergence Bidding (ICB), Energy Imbalance Market (EIM), etc.” As previous market changes have revealed, unanticipated consequences are always possible and they can be harmful. Nevertheless, SDG&E believes the CAISO needs to move forward with contingency modeling enhancements. Contrary to SCE’s statement that “there is no reason to believe the CAISO’s proposal will solve the issue” of out-of-market uplifts to prepare for N-1-1 contingency conditions, SDG&E believes there are reasons to believe the contingency modeling enhancements will improve the overall efficiency of the CAISO’s markets. To the extent the costs of addressing grid constraints can be reflected in market clearing prices rather than through uplifts, market participant incentives are improved¹ and overall economic efficiency is better.

There is one aspect of the CAISO’s proposal that SDG&E believes needs further consideration. The CAISO’s March 11, 2013 issue paper appears to assume that following an N-1 contingency, only *generation* will be redispatched to prepare the system for an N-1-1 contingency condition. SDG&E recommends that the CAISO include dispatchable *demand* and controlled load drop of non-sensitive *loads* as potential options for preparing the system for an N-1-1 contingency condition.

¹ SCE’s April 9, 2013 comments argue that the CAISO’s proposal does not provide incentives for generators to improve their ramp rates. SCE relies on a three generator example to support its argument. SCE’s example, however, does not account for market participant incentives in a competitive market where multiple generators are competing to provide redispatch services to the CAISO. In a competitive market, it would be expected that generators have an incentive to improve their ramp rates up to the point where the marginal increase in profits is zero. If a generator chooses not to improve its ramp rate, it may not be selected by the CAISO to provide redispatch services and therefore have no opportunity for an increase in profits.

As SDG&E interprets applicable reliability standards, controlled load drop following an N-1 contingency is an acceptable method of preparing the system to withstand a subsequent contingency (an N-1-1 contingency condition).² Controlled load drop has the distinct advantage that it is automated and can be activated quickly. In addition, there are situations where controlled load drop may be the only effective option available to the CAISO. Finally, SDG&E expects that controlled load drop will prove more economical in certain instances than redispatching generation, especially if the available generation has limited effectiveness in addressing the particular contingency(ies) at issue.

A complication of using controlled load drop is that unlike generation, most loads do not submit price/quantity bids to the CAISO on a nodal basis. SDG&E recommends that the CAISO consider ways of placing an economic value on nodal loads which would be curtailed (e.g., the value-of-lost-load) and use this value as a proxy price that would be used to decide whether it is economic to curtail load as preparation for an N-1-1 contingency condition. Non-sensitive loads would logically have a much lower proxy price than sensitive loads.

Controlled load drop is an important tool for maintaining grid reliability in the face of multiple contingencies. The CAISO should keep this tool in mind as it develops its contingency modeling enhancements.

² It is not permissible, however, to use controlled load drop following an N-1 contingency to restore power flows to levels that do not exceed “normal” ratings. Only generation redispatch can be used for this purpose. Controlled load drop is only allowed to prepare for the *next* contingency.