

**SDG&E's Comments on the
CAISO's November 16, 2016 presentation at the
2016-2017 Transmission Planning Process Stakeholder Meeting concerning:**

- **“Economic Planning- TEAM Overview and Review of Updated Documentation”**
- **“50% Special Study Update, An information-only study performed as part of 2016-2017 Transmission Planning Process”**

TEAM Overview

SDG&E supports the use of the CAISO's Transmission Economic Assessment Methodology (TEAM) to estimate the potential economic benefits of proposed transmission projects as compared to a reasonable range of other plausible alternatives, both transmission and non-transmission, that meet the same planning objectives.

The version of the TEAM documentation currently posted on the CAISO website is dated June, 2004. SDG&E understands that this documentation is being updated to reflect current information and practices. Despite its age, SDG&E finds the June, 2004 documentation thorough, informative and still relevant. SDG&E encourages stakeholders to read this document.

There is one point discussed at the November 16, 2016 stakeholder meeting that SDG&E believes warrants further consideration. Page 24 of the CAISO's presentation package indicates that the producer surplus from “other generators under contracts of which the information is available for public may be reviewed for consideration” as a CAISO consumer benefit; i.e., the producer surplus from merchant generators would be subtracted from gross CAISO consumer costs in calculating net CAISO consumer costs only if there was a public contract between the generator and a CAISO Load Serving Entity (LSE). Based on the discussion at the stakeholder meeting, SDG&E understands that the CAISO believes this approach will result in “conservative” outcomes because it would tend to reduce the amount of producer surplus credited to consumers.

SDG&E questions whether this approach will actually yield “conservative” outcomes, and whether, in fact, conservatism should be criteria in the first instance. A very simple example illustrates how this assumption (whether or not a generator's producer surplus will be credited against gross consumer costs) can result in a non-conservative outcome.

Public Contract between Generator and Load

Assume a two node system connected by a 30 MW transmission line. Node A has 100 MW of load, a 65 MW generator with a variable cost of \$25/MWh, and a 20 MW generator with a variable cost of \$30/MWh. Node B has a 50 MW generator with a variable cost of \$20/MWh. The economic dispatch of this system results in a Locational Marginal Price (LMP) of \$30/MWh at Node A and \$20/MWh at Node B. Assume that there is a public fixed-price contract between the load at Node A and the \$25/MWh generator for the output of the generator.

Gross consumer costs at Node A would be \$3000 (100 MW x \$30/MWh). Net consumer costs would be calculated as \$3000 minus \$300 in congestion rents minus \$325 in producer surplus from the \$25/MWh generator (65 MW x (\$30/MWh - \$25/MWh)) = \$2375.

Now assume a 10 MW upgrade of the transmission line costing \$100 is being evaluated. The economic dispatch of this system results in a Locational Marginal Price (LMP) of \$25/MWh at Node A and \$20/MWh at Node B. Gross consumer costs at Node A would be \$2500 (100 MW x \$25/MWh). Net consumer costs would be calculated as \$2500 minus \$200 in congestion rents minus \$0 in producer surplus from the \$25/MWh generator (60 MW x (\$25/MWh - \$25/MWh)) = \$2300.

Based on these assumptions, the line upgrade results in a \$75 benefit for load (\$2375 - \$2300). This benefit is less than the \$100 cost of the line, so the line upgrade should not be pursued.

No Public Contract between Generator and Load

Assume the same facts as above, except that there is no public contract between the generator and load; i.e., it is assumed that the producer surplus from the \$25/MWh generator accrues to the benefit of business tycoons housed in Trump Tower. The economic dispatch would be the same in both the case with the existing transmission capability and in the case with the 10 MW upgrade. Net consumer costs in the case with the existing transmission capability, however, would be \$2700 since there is no producer surplus that would be credited against gross consumer costs (100 MW x \$30/MWh - \$300 in congestion rents).

In the case with the 10 MW transmission upgrade, net consumer costs would be \$2300 (100 MW x \$25/MWh - \$200 in congestion rents).

Based on these assumptions, the line upgrade results in a \$400 benefit for load (\$2700-\$2300). This benefit is more than the \$100 cost of the line, so the line upgrade should be pursued.

CAISO's Approach is Not Necessarily "Conservative" from the Standpoint of Loads

As the above example illustrates, assuming a fixed-price contract (between loads and a generator for the output of the generator) will not be in place, does not necessarily result in a conservative outcome for loads. In this example, the CAISO's default assumption would lead to the conclusion that the transmission upgrade should be built. SDG&E does not believe this result is "conservative" from the perspective of loads since loads will have to pay \$100 for the transmission upgrade. If, in fact, a fixed-price contract for the output generator did exist -- whether it is public or not -- loads would be worse off under the CAISO's default assumption.

SDG&E believes the real question is not whether a public, fixed-price contract for the output of the generator exists; but whether it is reasonable to assume for the period of time covered by the economic life-cycle of the transmission upgrade (which can be 60 years or more), that a fixed-price contract for the output of the generator is likely to be in place. Recent history suggests that to remain in business, most merchant generators need a contract that provides a revenue stream sufficient to cover a substantial portion of the generator's on-going fixed costs. This would suggest that the default assumption for attributing producer surplus from merchant generators should be that the generator will be contracted to an LSE.

There are ancillary questions as well. For example, which merchant generators should be assumed to retire and when? If the default assumption is that a merchant generator is contracted to an LSE, is the LSE a CAISO LSE or a LSE in a different balancing authority? Should it be assumed that the contract is for the entire output of the merchant generator (in which case the producer surplus clearly accrues to the benefit of the LSE), only for the merchant generator's Resource Adequacy (RA) capacity (in which case the producer surplus clearly does not accrue to the benefit of the LSE), or somewhere in between?

These are difficult questions to answer. SDG&E believes the CAISO and stakeholders need to further consider the appropriate default assumption for merchant generators which do not have publicly available contracts with a CAISO LSE.

50% Special Study Update

In SDG&E's Comments on the CAISO's September 21-22, 2016 presentation regarding the *50% Special Study and Interregional Coordination Update Performed as part of 2016-2017 Transmission Planning Process* (which are posted on the CAISO website), SDG&E recommended that the *50% Special Study and Interregional Coordination Update Performed as part of 2016-2017 Transmission Planning Process* include an evaluation of the benefits of adding the Renewable Energy Express (REX) transmission project as compared to not adding the project. In particular, SDG&E recommended that the CAISO and WestConnect perform an evaluation of the reduction in Resource Adequacy (RA) costs that could be achieved if the REX transmission project were built.

At the November 16, 2016 stakeholder meeting the CAISO acknowledged SDG&E's earlier comments. SDG&E reiterates its recommendation that, as part of the Interregional Coordination process, the CAISO and WestConnect evaluate the full range of potential economic benefits provided by the REX transmission project.