

**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**

The CAISO’s September 21-22, 2016 presentation on the “50% Special Study and Interregional Coordination Update Performed as part of 2016-2017 Transmission Planning Process” indicates that four interregional transmission projects (ITPs) were submitted to the three of the four Western Planning Regions. The presentation states that “California ISO, NTTG, and WestConnect developed evaluation plans for each of the ITP proposals.” SDG&E has reviewed the June 14, 2016 “ITP Evaluation Process Plan, AC to DC Conversion Project”<sup>1</sup> referenced on Page 4 of the presentation. According to the evaluation plan:

The objective of the California ISO analysis will be to assess, at a “high” or “cursory” level, the AC to DC Conversion Project within the framework of California’s 50% renewables portfolio. Using New Mexico wind portfolio information provided by the California Public Utilities Commission (CPUC), the assessment will attempt to capture the following with and without the AC to DC Conversion Project:

- transmission capability to deliver New Mexico wind resources to California;
- identify renewable curtailments;
- coordinate topology and resource modeling with WestConnect;
- jointly working with WestConnect, consider analysis results and as appropriate, develop recommendations and input refinements should further analysis be conducted in future study cycles

While the “ITP Evaluation Process Plan, AC to DC Conversion Project” references “benefits” on page 7, there is no explanation of how such benefits will be estimated, or indeed, whether “benefits” will be estimated at all. SDG&E recommends 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 REX transmission project as compared to not adding the project.

This evaluation should estimate the benefits associated with (i) the REX transmission project’s ability to facilitate the development of new wind resources in New Mexico, as compared to the development of renewable resources in other areas, (ii) the reduction in production costs that may be associated with the addition of the project, and (iii) the reduction in Resource Adequacy (RA) costs that can be achieved if the project is built. SDG&E believes that this latter category of benefits may, in fact, provide the largest share of the project’s benefits. SDG&E bases its belief on its own conceptual evaluation of the RA benefits that the project provides. This evaluation is summarized below and SDG&E recommends that the CAISO and WestConnect perform their own independent evaluation of these benefits.

---

<sup>1</sup> The AC to DC Conversion Project is also known as the Renewable Energy Express (REX) transmission project.

For purposes of modeling the conceptual economic feasibility of the REX transmission project, SDG&E performed analysis to estimate the amount by which the addition of the project would reduce Local Capacity Requirements (LCRs) in the Greater Imperial Valley-San Diego (GIV-SD) LCR area, in the San Diego (SD) LCR area and in the Los Angeles (LA) basin LCR area. The reduction in LCRs means that load serving entities (LSEs) within these areas are able to reduce their purchases of relatively costly local Resource Adequacy (RA) capacity, with a corresponding increase in the amount of relatively less costly system RA capacity that must be purchased.

The LCR analysis determines the maximum reliable level of imports into each LCR area under the most limiting N-1-1 contingency condition, assuming peak load during an extreme 1-year-in-10 summer weather condition. Given the maximum level of imports and the peak load within the LCR area, it is possible to calculate the amount of dependable capacity that must be procured within each LCR area in order to maintain service to all loads under the studied condition.

Based on SDG&E’s analysis, constructing the REX transmission project reduces LCRs in the GIV-SD LCR area, in the SD LCR area and in the LA basin area by the following amounts:

Table 1

Change in System and Local RA Requirements  
(MW for the period 2025 through 2085)

GIV-SD LCR Area	(1531)
SD Area LCR Area	(858)
LA basin LCR Area	(196)
System	1727

To estimate the net reduction in RA procurement costs that will occur over the life cycle of the REX transmission project (assumed to be 2025 through 2085) as a result of reduced LCRs, long-term projections of local and system RA costs were made without and with the REX transmission project. These projections are based on known or estimated current local and system RA capacity prices (\$/kW-year), a forecast of the year in which the amount of dependable capacity within each of the LCR areas (accounting for expected retirements) drops below the respective LCRs, a forecast of the year in which the amount of dependable capacity within the WECC region (accounting for expected retirements) drops below WECC system load plus a 15% planning reserve margin, and the cost of a new gas turbine net of estimated market revenues (Cost of New Entry or “CONE”).

It is assumed that when dependable capacity drops below the requirement, new gas turbine capacity would be added as necessary to close the deficiency. Linear interpolation was used to estimate the RA capacity prices between current levels and the price of a gas turbine at such time as each LCR area, and the WECC system as a whole, become deficient in dependable capacity.

Estimated local and system RA capacity prices without and with the REX transmission project are shown below.

Table 2  
RA Capacity Prices  
(levelized \$/kW-yr for the period 2025 through 2085)

	w/o REX Transmission Project	with REX Transmission Project
GIV-SD LCR Area	205	201
SD Area LCR Area	238	231
LA basin LCR Area	278	278
System	175	175

Based on the reduction in required local RA capacity and the associated increase in system RA capacity shown on Table 1, and the RA prices shown on Table 2, SDG&E estimates that the REX transmission project will provide \$110 million/year in levelized benefits over the sixty year life of the project.<sup>2</sup>

As a key element of the ITP evaluation to be conducted in the *50% Special Study and Interregional Coordination Update Performed as part of 2016-2017 Transmission Planning Process*, SDG&E looks forward to the results of the CAISO’s and WestConnect’s evaluation—comparable to the evaluation described above—of the REX transmission project’s benefits.

---

<sup>2</sup> Assumes inflation of \_1.9\_%/year and a discount rate of \_7.79\_%.