

CAISO 2019/20 TPP Reliability Assessment: Stakeholder Comments

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LS Power appreciates the opportunity to provide comments on the CAISO 2019/20 Reliability Assessment. LS Power's comments below are on the Economic Study & LCR Reduction Study topics of the stakeholder presentation.

(1) Contract Path Model should be implemented in ABB Gridview so economic benefits of transmission projects can be correctly quantified.

In last few TPP cycles, CAISO has not implemented the “contract path” feature in its ABB Gridview software. Implementing this feature is critical in capturing accurate economic benefits of transmission projects that connect CAISO's Balancing Authority Area (BAA) to other BAAs in the WECC. CAISO has noted in the past that it intends to implement this enhancement in future TPP cycles; and we strongly recommend that CAISO implement this feature in the 2019/2020 TPP. Absent this implementation, CAISO studies will yet again significantly underestimate the economic benefits of transmission projects that provide new transmission capacity for the CAISO BAA to transact with other BAAs. WECC Anchor Data Set (ADS) Production Cost Model (PCM) models have standard wheeling charges that apply for any transactions between two BAAs. Unless this contract path feature is implemented, it is not possible to separate a new “no wheeling charge” transmission path from standard wheeling charges between two BAAs.

For instance, LS Power's Southwest Intertie Project North (SWIP-North), which is proposed as an Economic Project to CAISO in this TPP cycle, offers a 1000 MW new transmission path between Idaho Power (Midpoint) and CAISO (Harry Allen¹), free of any wheeling charges. As a parallel path to existing major CAISO interties; COI, PACI, and NOB, SWIP-North provides an alternate path for economic energy from the Pacific Northwest to flow into California, especially during evening peak and allows exports out of CAISO during middle of the day oversupply conditions. Standard WECC ADS PCM models will use the default \$9.94/MWh wheeling charge for imports into CAISO from Idaho Power and \$19.77/MWh for exports from CAISO to Idaho Power. This creates an “artificial” barrier for economic energy to transfer between CAISO & Idaho Power and hence significantly undermines the benefits of a transmission project like SWIP-North. The contract path feature in ABB Gridview allows implementing a “no wheeling charge path” for a portion of transmission capacity between two BAAs while still retaining standard wheeling charges for the remaining transmission capacity.

¹ CAISO's Harry Allen to Eldorado 500 kV Transmission line is under construction and scheduled to go in service in 2020.

LS Power recently tasked ABB Inc. to conduct a study for its SWIP-North project by implementing a contract path model for 1000 MW of transmission capacity (out of a total 2000 MW) on SWIP-North. This study utilized the production cost model from CAISO's 2018/19 TPP as a starting point and ran production cost simulation on three scenarios. Scenario 1 was the baseline scenario "without SWIP-North", Scenario 2 modelled SWIP-North "without" contract path and Scenario 3 modelled SWIP-North with contract path such that there were "no" wheeling charges on 1000 MW of transfers between CAISO and Idaho Power for both imports and exports. Production cost simulations were run for the three scenarios. Comparing results for Scenario 1 & 2 showed no economic savings from SWIP-North, consistent with CAISO's study findings from 2018/19 TPP, which is a misleading conclusion since a contract path is not modelled. Comparing Scenarios 2 & 3, showed an estimated \$67m/year economic savings from SWIP-North to CAISO ratepayers². When the contract path model was correctly capturing the proposed "no" wheeling charges from SWIP-North, the path was heavily utilized, allowed for intra-day bidirectional flows by facilitating more imports into CAISO during evening peaks and exports out of CAISO during oversupply middle of the day hours. The purpose of this study was not to quantify SWIP-North benefits, as much as to be able to test the contract path modelling functionality. The study succeeded in implementing contract path modelling for SWIP-North in ABB Gridview and demonstrated how important this modelling is to correctly capture economic benefits of transmission projects that connect two BAAs.

We recommend CAISO implement contract path modelling for its economic planning study in 2019/2020 TPP and use this to capture economic benefits of transmission projects such as SWIP-North. We can make available our study findings to CAISO should that be of any help.

Details on LS Power's SWIP-North Project are provided below.

SWIP-North Project

SWIP-North is comprised of a 500 kV transmission line from Midpoint substation to Robinson Summit substation. Additional details of SWIP-North are included in the submission of SWIP-North as an Interregional Transmission Project in March 2018 under the 2018/19 TPP. After SWIP-North is built, LS Power's affiliate will attain approximately 1000 MW of new³ transmission capacity that will become available on the existing 500 kV transmission line that connects Robinson Summit to Harry Allen substation ("ON Line"), as per the Transmission Use and Capacity Exchange Agreement ("TUA") among LS Power affiliates and NV Energy, which is further described below. LS Power has proposed this new additional ~1000 MW capacity to be dedicated for CAISO use. In addition, the new 500 kV line from Harry Allen to Eldorado was approved by CAISO to be in-service by 2020. Upon completion of the Harry Allen to Eldorado project, Harry Allen will be a CAISO delivery point. Hence, if SWIP-North was selected by CAISO, CAISO will have access to a complete 500 kV path from Midpoint to Eldorado, approximately 575 miles.

Pursuant to the TUA with NV Energy, once SWIP-North is built there would be an exchange of

² These benefits was merely production cost re-dispatch savings and did not include any renewable curtailment reduction benefits, GHG savings, load diversity benefits and flexible capacity reserve savings.

³ The Robinson Summit to Harry Allen 500 kV line is currently limited to ~975 MW of transmission capacity. Building SWIP North will increase transmission capacity of this line by ~1000 MW, which will be available to LS Power's affiliate and can be dedicated for CAISO use.

capacity between LS Power affiliates and NV Energy. Upon completion of SWIP-North, NV Energy would get a share of the capacity between Midpoint and Robinson Summit and LS Power affiliate Great Basin Transmission would get a share of capacity between Robinson Summit and Harry Allen, without either party having to pay any amount to the other. As a result of this capacity exchange, LS Power's affiliate would have bidirectional transmission capacity on the entire path from Midpoint to Harry Allen, estimated at approximately 1000 MW. LS Power's economic study request in the current TPP cycle is for CAISO to study the benefits of approximately 1000 MW of bidirectional transmission capacity between Midpoint and Harry Allen, which would be available to the CAISO market upon completion of construction of SWIP-North.

(2) Economic Benefits in addition to Production Cost Savings

LS Power supports CAISO's efforts in improving its study methodology such that economic benefits of a transmission project in helping reduce renewable curtailment can be correctly quantified. We believe this will be a very meaningful addition, especially for transmission projects that can help increase interchange transfers between CAISO and other BAAs. For instance, under system wide oversupply conditions, if CAISO is able continue generating renewables (rather than curtailing) and export the energy to other BAAs that will bring additional economic benefits to CAISO ratepayers and these should be correctly captured and attributed to the enabling transmission projects. We further recommend that CAISO include the following additional benefits in its economic study methodology: Capacity savings from reduced renewable curtailments, Green House Gas emission savings, Load diversity and Flexible Capacity reserve sharing benefits. Failure to account for these benefits (and only look at production cost savings) heavily undermines the economic benefits transmission projects are able to provide, especially projects that connect CAISO BAA to external BAAs.

(3) Economic Assessment of Local Capacity Areas

LS Power recommends CAISO perform an economic assessment of Local Capacity Reduction for SDG&E/IV & SCE's LA Basin Areas and model an Energy Storage project connected to SDG&E's Imperial Valley 230 kV substation as a solution to reduce LCR. Over the last few Local Capacity Requirement study cycles⁴, the worst constraint for overall SCE LA Basin & SDG&E/IV areas for 2020 and 2024⁵ study years has been thermal overloads on IV - El Centro 230kV transmission line & El Centro 230/92 kV transformers. This constraint becomes much worse under evening peak conditions when there is no solar generation available. In order to address this constraint, the most effective location for generation is Imperial Valley, followed by reduction in effectiveness going west from Imperial Valley into SDG&E load pocket and down to SCE's LA Basin area. Since not enough generation at Imperial Valley is available during evening peak in order to address this LCR constraint often less effective generation west of Imperial Valley is counted on which increases the LCR need for SCE & SDG&E TAC areas and increases the reliance on OTC generation in Western LA Basin pocket.

For this study, we recommend CAISO model an Energy Storage project connected to Imperial Valley substation and study economic impacts of this project being able to reduce overall LCR

⁴ CAISO 2020 LCR study shows at least 100 MW potential deficiency in SDGE-IV area for two out of three study scenarios. Refer to Table 3.3-82 of the 2020 LCR study report:

<http://www.caiso.com/Documents/Final2020LocalCapacityTechnicalReport.pdf>

⁵ <http://www.caiso.com/Documents/Final2024Long-TermLocalCapacityTechnicalReport.pdf>

requirements. We recommend the project be at least 100 MW and 4 hours in duration. The Energy Storage project can either be assumed to providing transmission service with its cost rolled into TAC or a hybrid project with a portion of its costs being rolled into TAC and the rest being recovered by participation into CAISO markets. This project should also be able to address the system capacity need CAISO has recently identified in CPUC's 2017-18 IRP proceeding. LS Power can provide more information to CAISO with respect to modelling, cost, and timing as needed.

LS Power thanks CAISO for the opportunity to provide these comments and looks forward to working with CAISO staff for 2019-20 TPP.