

## CAISO 2020/21 Transmission Plan: Stakeholder Comments

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LS Power appreciates the opportunity to submit comments on CAISO's 2020/21 Transmission Planning process.

### (1) Reliability Study: Request Window submittal for SWIP-North transmission project

LS Power had submitted SWIP-North as a transmission solution to address reliability issues for the Bulk system in the Northern California area. In its review CAISO concluded that SWIP N is “*not considered a reliability alternative as the submission does not meet a reliability need identified in the CAISO reliability assessment results*”. LS Power disagrees with this conclusion. To address the thermal overloads identified in reliability analysis, CAISO's proposed recommendation is to operate within the California Oregon Intertie (COI) nomogram, which typically involves reduction in COI flow. While this may be an effective short term operating solution, this is not a long-term solution and is counter to the going forward demands on the grid which include the need for spare capacity, durability and flexibility. Implementing operating solutions may resolve the reliability need temporarily but the implications and effectiveness of these should be carefully assessed. For instance, reducing COI flows and/or Path 26 flows, or tripping additional generation post contingency to address thermal overloads could result in significant issues and may even be impractical to implement on capacity shortage days such as the recent load shedding events of Aug 14 & 15, 2020. LS Power encourages CAISO to consider permanent planning solutions such as SWIP-North as it finalizes its 2020-21 Transmission Plan. Continuing to rely on operating solutions that reduce imports will not address the growing capacity shortage concerns and will only lead to more blackouts in the coming years.

### (2) Economic Study: COI congestion & SWIP-North as an economic project

CAISO staff has made some modest improvements to its ADS PCM model in this Planning cycle, and partly because of these improvements the model can better quantify COI congestion. While the model is still showing a lot less congestion on PACI & NOB paths as compared to actual congestion documented per CAISO DMM reports<sup>1</sup> from last several

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<sup>1</sup> See Table 8.4 in CAISO's 2019 Annual Report on Market Issues and Performance, June 2020.  
<http://www.caiso.com/Documents/2019AnnualReportonMarketIssuesandPerformance.pdf>. California Oregon

years, the recent model improvements are a step in the right direction. We support CAISO's recommendation to further study COI congestion in this planning cycle. We also recommend that CAISO perform an economic study for SWIP-North transmission project, a path that is parallel to the existing COI path. It is estimated that the SWIP-North project reduces COI flows by ~300 MW or more and, based on CAISO's prior TPP analysis, reduces congestion hours on COI by 39%.

As CAISO completes its economic analysis, we would like to make the following recommendations for CAISO to include in its analysis:

- (1) For COI congestion analysis, CAISO should not use 4800 MW as the limit (or associated lower nomogram limit) for COI path. 4800 MW is the full path rating limit, but CAISO's share of this is only 3200 MW (limit of PACI scheduling interface<sup>2</sup>) with the remaining 1600 MW belonging to members of Transmission Agency of Northern California (TANC), an entity outside CAISO. In addition, as CAISO has noted in its prior TPP presentations, 1200 MW out of the 3200 MW PACI scheduling limit comprises of Existing Transfer Capabilities (ETCs) and Transmission Ownership Rights (TORs) that are owned by entities outside CAISO. This leaves only about 2000 MW out of the total 4800 MW on COI that is available to CAISO and this is what it should use for its economic analysis. The other 2800 MW should be modeled with a large hurdle rate such that it becomes mostly unavailable to CAISO system. If CAISO does not correctly capture these scheduling realities, and makes more than 2000 MW on this path available for itself, economic analysis will artificially reduce COI congestion.
- (2) For the SWIP-North economic study, CAISO should calculate all benefits of a 1000 MW transmission capacity from Midpoint to Harry Allen, free of any wheeling charges. Further, CAISO should ensure that the existing transmission path from Robinson Summit to Harry Allen ("ON Line") is limited to 1000 MW in the base case and is increased to 2000 MW only in the case with SWIP-North. As explained in our submittals to CAISO, SWIP-North will not only create a new 2000 MW path from Midpoint to Robinson Summit but a few terminal upgrades associated with the entire build out of SWIP will also increase transmission capacity of ON Line from 1000 to 2000 MW. A total of 1000 MW of transmission capacity from Midpoint to Harry Allen is offered for CAISO use as part of this project.

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Intertie (COI) comprises of three transmission lines that have a combined flow limit of 4800 MW N-S. CAISO TPP studies enforce this flow limit and capture any congestion on this path. In the Day Ahead scheduling world, congestion is witnessed across the Pacific AC Intertie (PACI) and Nevada-Oregon Border (NOB) scheduling interfaces. PACI is a subset of COI and has a scheduling limit of 3200 MW which represents scheduling rights of CAISO member entities on COI path. NOB is the scheduling interface for Pacific DC Intertie. It is rated at 3220 MW N-S and the transmission capacity is allocated between CAISO member entities and LADWP.

<sup>2</sup> PACI is the CAISO scheduling interface and COI is a WECC path. PACI is a subset of COI and its scheduling capability is limited to 3200 MW.

- (3) CAISO should correctly model new renewable generation for SWIP-North economic study. Currently there is over 7000 MW of new renewable generation in Idaho Power Company's interconnection queue with a significant portion being wind generation.<sup>3</sup> Among these generators is a 1050 MW wind project, Lava Ridge Wind<sup>4</sup>, which is being developed by an affiliate of LS Power for a planned COD of 2024. Lava Ridge intends to execute a Pseudo PGA with CAISO for all or most of its capacity so it can be delivered to CAISO LSEs as a Bucket 1 Resource Adequacy resource. CAISO should correctly model Lava Ridge and other new renewable resources in its SWIP-North economic study case.
- (4) CAISO should not only quantify production cost savings but should also capture these additional benefits of SWIP-North to CAISO ratepayers:
- (a) Financial benefits of improving Day Ahead scheduling capability and thereby alleviating existing Day Ahead financial congestion that is common place for CAISO's PACI, COI, NOB paths.
  - (b) GHG reductions and associated savings to CAISO that can be offered by diverse new and existing renewable supply at the other end of SWIP-North.<sup>5</sup>

If California continues to build solar and storage, CAISO's studies have noted an increase in thermal generation, and thus GHG emissions, to ensure battery storage resources are charged to meet the net demand evening ramp.<sup>6</sup> If this in-state storage can be charged by out-of-state (OOS) wind such as from Idaho, this will allow the gas fleet to be retired as scheduled, or used less, thereby offering GHG emission reductions. SWIP-North will enable an incremental 1000 MW of transmission capacity that can be used to import/export generation resources into/from CAISO. CAISO's prior TPP analysis has shown that "SWIP - North may allow more exports from California to other regions when there are renewable energy surplus within California". This will certainly help reduce GHG emissions in California by allowing more renewable generators to remain online and displacing fossil fuel generation. CAISO should quantify GHG reductions and renewable curtailment reductions from SWIP-North. An approach CAISO can take in quantifying these benefits would be similar to how CAISO calculates similar benefits for its Quarterly EIM benefits analysis. As per CAISO's Q3 2020 Western EIM report<sup>7</sup> total avoided renewable curtailment volume in MWh for 2020 year to

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<sup>3</sup> OATI OASIS for Idaho Power Company, Generation Interconnection Queue, Accessed 12/1/2020

<http://www.oasis.oati.com/ipco/>

<sup>4</sup> OATI OASIS for Idaho Power Company, Generation Interconnection Queue, Lava Ridge's queue ID is 570

<http://www.oasis.oati.com/ipco/>

<sup>5</sup> OATI OASIS for Idaho Power Company, Generation Interconnection Queue, Accessed 12/1/2020

<http://www.oasis.oati.com/ipco/>

<sup>6</sup> CAISO comments in CPUC IRP R.20-05-003 on LSE IRP Narratives, October 23, 2020, page 5

<sup>7</sup> Western EIM Benefits Report, Third Quarter 2020 <https://www.westerneim.com/Documents/ISO-EIM-Benefits-Report-Q3-2020.pdf>

date (Q1-3) was calculated to be 271,802 MWh, equivalent to 116,332 tons of CO<sub>2</sub> avoided. This uses the assumption that avoided renewable curtailments displace production from other resources at a default emission rate of 0.428 metric tons CO<sub>2</sub>/MWh. We recommend similar approach be used in quantifying these environmental benefits for projects like SWIP-North. CAISO should capture these benefits as it works on finalizing the Transmission Plan.

(b) Renewable capacity capital cost savings: In CAISO's studies, SWIP-North has shown to help reduce renewable curtailments in CAISO footprint by providing a conduit to export surplus renewable energy from California. As renewable curtailments are reduced, there will be capital cost savings as CAISO Load Serving Entities will not need to build incremental renewables to meet same RPS goals. These capital cost savings should be captured.

(c) Load Diversity and Flexible Reserve Capacity savings. CAISO should estimate the Resource Adequacy/Capacity value of SWIP-North based on load diversity (seasonally and hourly) between Idaho and Southern California. Recent historical load shapes to determine the reduction in peak requirements should be used for this analysis. Value of reduction in peak capacity requirements based on prevailing costs of capacity in Southern California and Idaho should be estimated. Enabling 1000 MW of transmission capacity from CAISO to neighboring regions will allow the flexible ramping requirement for CAISO and the regions to be reduced as they will be able to take advantage of the diversity of resources and shape of the load. These diversity saving benefits should be accounted for. CAISO's Quarterly EIM reports capture these benefits and this is an approach that CAISO Transmission Planning can use as well for this study.

#### (5) Energy Imbalance Market (EIM) & Extended Day Ahead Market (EDAM) benefits

A new 1000 MW transmission path between CAISO, NV Energy, and Idaho Power Company can potentially allow for significant incremental EIM transactions and in future EDAM transactions. The EIM market continues to be a huge success with all participating entities reaping benefits as noted in quarterly benefit reports, including \$119.32 million in economic benefits in Q3 2020 alone.<sup>8</sup> As previously shown in studies conducted by E3, incremental availability of transmission between EIM entities helps further enhance these benefits. In the past, CAISO has not used EIM benefits for transmission investment decisions, however now that the EIM markets have been in place for several years, the risk of existing entities leaving the markets is extremely

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<sup>8</sup> Western EIM Benefits Report, Third Quarter 2020 <https://www.westerneim.com/Documents/ISO-EIM-Benefits-Report-Q3-2020.pdf>

low, therefore CAISO should attempt to quantify this additional economic benefit that new transmission projects such as SWIP-North can provide.

(6) Other benefits:

A new transmission line such as SWIP-North which parallels several existing 500 kV bulk transmission paths connecting northern part of WECC to southern provides several additional benefits that go beyond traditional economic studies. These benefits should however be quantified so all lead agencies in California and the ratepayers can get a complete picture on the value of such transmission lines.

a) Potential solution to prevent blackouts during heatwave situations

As witnessed during August 2020 blackout events, the supply conditions within California & Desert Southwest were extremely tight especially during the evening peak hours. As shown by preliminary analysis conducted by WECC<sup>9</sup>, while Desert Southwest was experiencing heatwave and supply shortages, Pacific Northwest was not in such dire situation. If there was enough transmission capability available, California could have potentially imported energy from Pacific Northwest. Given this, a natural question that is posed is what value would a new transmission line have provided for days like this? SWIP-North, which provides an alternate 1000 MW path to allow flow from Pacific Northwest & PacifiCorp East into CAISO may have potentially prevented load shedding events in California.

b) Wildfire risk mitigation:

We recommend that CAISO evaluate the wildfire risk mitigation benefits of SWIP-North. It is known that the COI corridor and the 500 kV transmission lines north of COI corridor fall under high wildfire risk category. This was evident based on the August heatwave events where fire underneath one of the lines in this corridor lead to de-rate on COI path by 650 MW.<sup>10</sup> A new transmission line like SWIP-North, with its right of way from Idaho to Nevada has relatively low wild fire risk. Such a diverse transmission path, which can allow energy to be re-directed towards CAISO in the event existing COI corridor is congested or its limit reduced, provides benefits to CAISO ratepayers. This benefit should be captured in CAISO's analysis.

### **(3) Policy studies should address the OOS transmission question**

Every year in the TPP process CAISO performs policy studies based on portfolios submitted to it by CPUC. While CPUC portfolios may contain information on OOS

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<sup>9</sup> Western Heatwave Event 2020, Preliminary Findings. November 11, 2020  
[https://www.wecc.org/\\_layouts/15/WopiFrame.aspx?sourcedoc=/Administrative/Western%20Heatwave%20Part%20Two.pdf&action=default&DefaultItemOpen=1](https://www.wecc.org/_layouts/15/WopiFrame.aspx?sourcedoc=/Administrative/Western%20Heatwave%20Part%20Two.pdf&action=default&DefaultItemOpen=1)

<sup>10</sup> Preliminary Root Cause Analysis of Mid-August 2020 Heat Storm. October 6, 2020.  
<http://www.caiso.com/Documents/Preliminary-Root-Cause-Analysis-Rotating-Outages-August-2020.pdf>

renewables from Wyoming, New Mexico or Idaho, CAISO studies are limited to only analyzing the impacts of these OOS renewables to inside CAISO transmission system. We see this as a fatal flaw and recommend that this be corrected in this and future TPP studies. If CAISO only studies impact of OOS renewables on in-state transmission, then this study doesn't help address the question as to which new OOS transmission works the best to be able to deliver these MWs to CAISO boundary stations. CAISO should work closely with CPUC and analyze different OOS portfolios and transmission solutions so it can present its findings to stakeholders and all lead agencies and a decision can be taken on selecting a "least regrets" transmission solution. This needs to be done in this TPP cycle, keeping in mind the long lead time it takes to build new transmission and that the uncertainty on OOS transmission availability has been causing to California LSEs who would like to contract with OOS renewables hesitate because of this lack of CAISO decision making. With the expectation of heatwaves in future and upcoming Diablo Canyon and OTC retirements in 2024 and 2025, it is imminent that a decision on new OOS transmission be taken soon so that OOS renewables can provide a diverse solution in replacing Diablo Canyon and other in-state OTC units.

LS Power appreciates the opportunity to provide these comments.