North Gila Imperial Valley #2
TRANSMISSION LINE

Comments of NGIV2, LLC on
September 25, 2019 Stakeholder meeting
2019-2020 Transmission Planning Process ("TPP")
October 10, 2019

NGIV2, LLC appreciates the opportunity to provide comments regarding the information provided by CAISO at your September 25, 2019 Stakeholder meeting that presented the draft 2019-2020 Transmission Planning Process ("TPP") reliability study results and the study plan for the economic and LCR analysis. NGIV2, LLC is the sponsor of the North Gila – Imperial Valley #2 ("NGIV2") project, a major interregional transmission export path for renewable energy delivered from the solar and geothermal rich areas of Imperial County. NGIV2 also will create a new CAISO delivery point at the proposed Dunes 500/230kV substation [formerly known as the Highline 500/230kV substation] through an interconnection to the IID Highline 230kV substation (please refer to Figure 1).

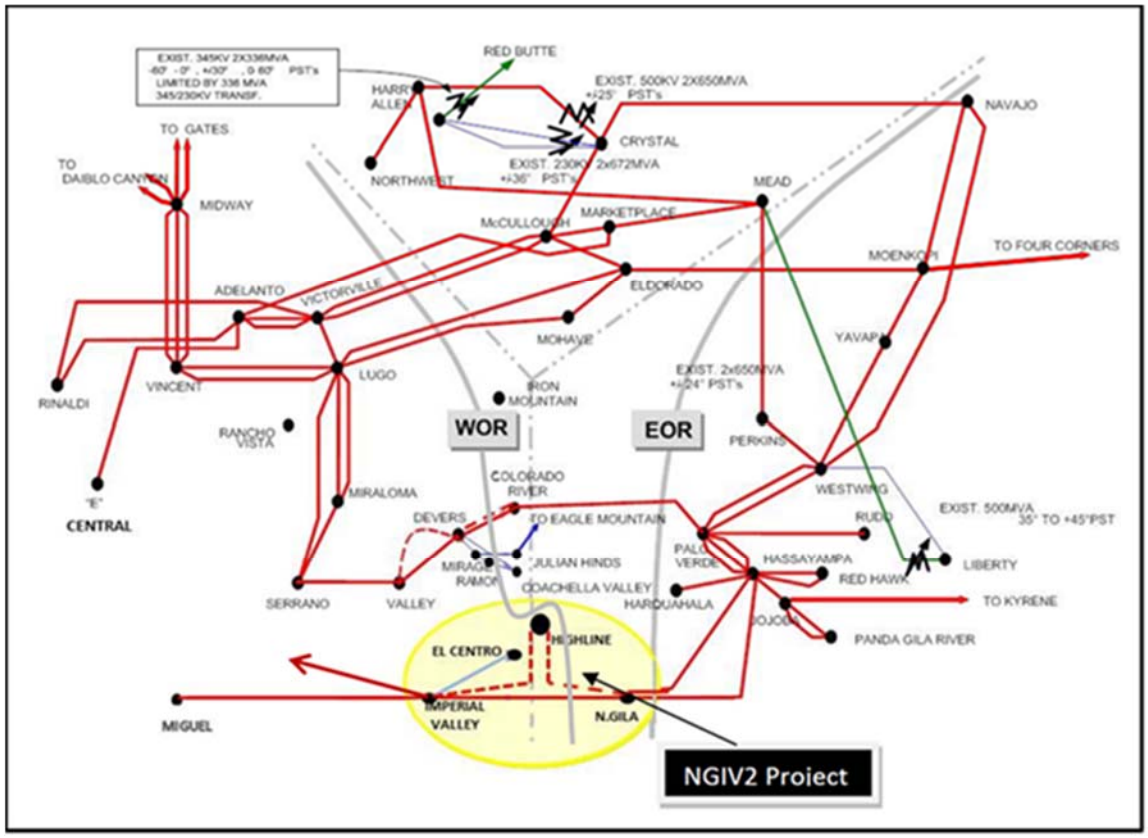

Figure 1: NGIV2 in relation to the WOR and EOR inter-regional system

Draft Reliability Assessment Results

NGIV2, LLC notes that the 2019-2020 TPP reliability assessment continues to show that a contingency involving the existing North Gila – Imperial Valley 500kV line (known as the Southwest Powerlink or SWPL) causes multiple reliability concerns (P2 – P6) across the SCE Metro, SCE East, and the greater San Diego/Imperial Valley area. New this year specifically, the assessment shows the need for additional remedial action schemes ("RAS") within the IID area for outages along the Coachella Valley – Ramon/Mirage – Devers path. While the existing IID RAS should be sufficient for the existing resources connected in this area, the addition of several hundred MWs of additional generation within IID's system will require additional transmission to minimize the reliability risk for the region. The proposed interconnection of the NGIV2 project to the IID Highline 230kV collector system has been shown to reduce some of the reliance of the IID RAS (reference the NGIV2 WECC Three Phase Rating report). NGIV2 requests that this be analyzed further within the Local Capacity Requirement (LCR) analysis for the SCE Metro, SCE East, and greater San Diego/Imperial Valley area for the base case and scenario cases.

Economic Study Plans

NGIV2, LLC's economic study request was submitted as a component of the CAISO 2019-2020 Study Plan to evaluate the economic benefits of the NGIV2 project. Our request included CAISO analyzing congestion relief in the LA Basin and San Diego areas due to improvements in transfer capability between Arizona and Southern California and also assessing LCR reductions in the Imperial Valley area – while also considering reliability, operational flexibility, and public policy benefits of the NGIV2 project in its analysis. There are several assumptions that NGIV2 considers critical to the assessment of the Project that we would like included in CAISO's analysis and they are outlined below.

> *Accurate NGIV2 Model:* As part of the WECC Three-Phase Rating Process, the NGIV2 was granted a Accepted Rating on Path 46 of **12,450MW, an increase of 1,250 MW.** As such, the CAISO should include this incremental capacity on Path 46, and its associated benefits for relieving constraints, in its economic analysis of the Project. CAISO should also set the binding constraint for Path 46 to 12,450 MW for the post-NGIV2 economic case. The assumptions CAISO used for the NGIV2 model in the 2018-2019 GridView assessment case are incorrect and the correct parameters that should be used are included in the following Table 1 (values are in per unit, 100MVA base).

Circuit From-To	Distance	Pu R+	Pu X+	Pu R0	Pu X0	Pu B	SN	SE	WN	WE
North Gila – Series Comp. (Dunes) 500 kV	61 mi	0.00061	0.01401	0.00894	0.04205	1.08865	2598	2598	2598	2598
Series Comp @ Dunes	N/A	0.00001	-0.01	N/A	N/A	N/A	2338	2338	2338	2338
Imperial Valley – Dunes 500 kV	36 mi	0.00036	0.00827	0.00524	0.02467	0.6425	2598	2598	2598	2598

Transformer	Winding	Pu R+	Pu X+	Pu R0	Pu X0	SN	SE	WN	WE
New Dunes 500/230 kV Transformer (to Highline 230kV)	Auto	0.0001	0.00892	0.0001	0.00892	1120	1120	1120	1120

Table 1: NGIV2 Model for GridView

Path 26 Congestion: NGIV2 has performed an independent economic analysis to benchmark the CAISO 2018-2019 Economic Assessment results (pre and post NGIV2). In addition to the errors in the modeling of NGIV2 (and the incremental capacity to Path 46), we were able to identify the specific areas of congestion that we believe should be examined for the 2019-2020 assessment with the NGIV2 Project. As shown in Figure 2, the majority (73%) of the Path 26 congestion reported in the assessment is attributed to a single hour (Hour 1, 11/5/2028) where the PDCI maxed out for that one hour (N to S), and forced the Path 26 to hit a limit S to N. This points to an issue within GridView and modeling of HVDC systems that we have discussed before.

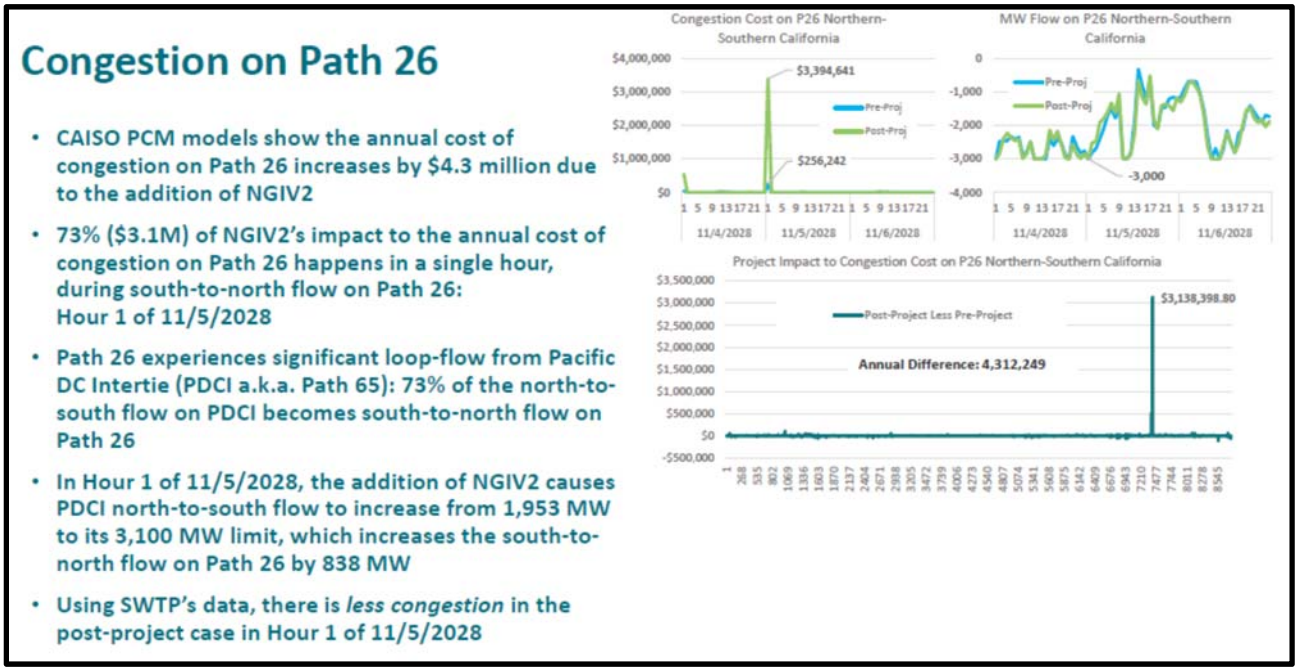

Figure 2: Path 26 Congestion due to PDCI

Other Reported Congestion: While comparing the NGIV2 benchmarked economic model from the 2018-2019 assessment and the accurate NGIV2 model recently completed, several of the congestion costs reported in the 2018-2019 assessment are less of an impact than noted or in some cases, including COI, the NGIV2 Project actually reduces congestion instead of increasing congestion. Please refer to Figure 3 for a comparison of the reported congestion impacts due to the NGIV2 Project.

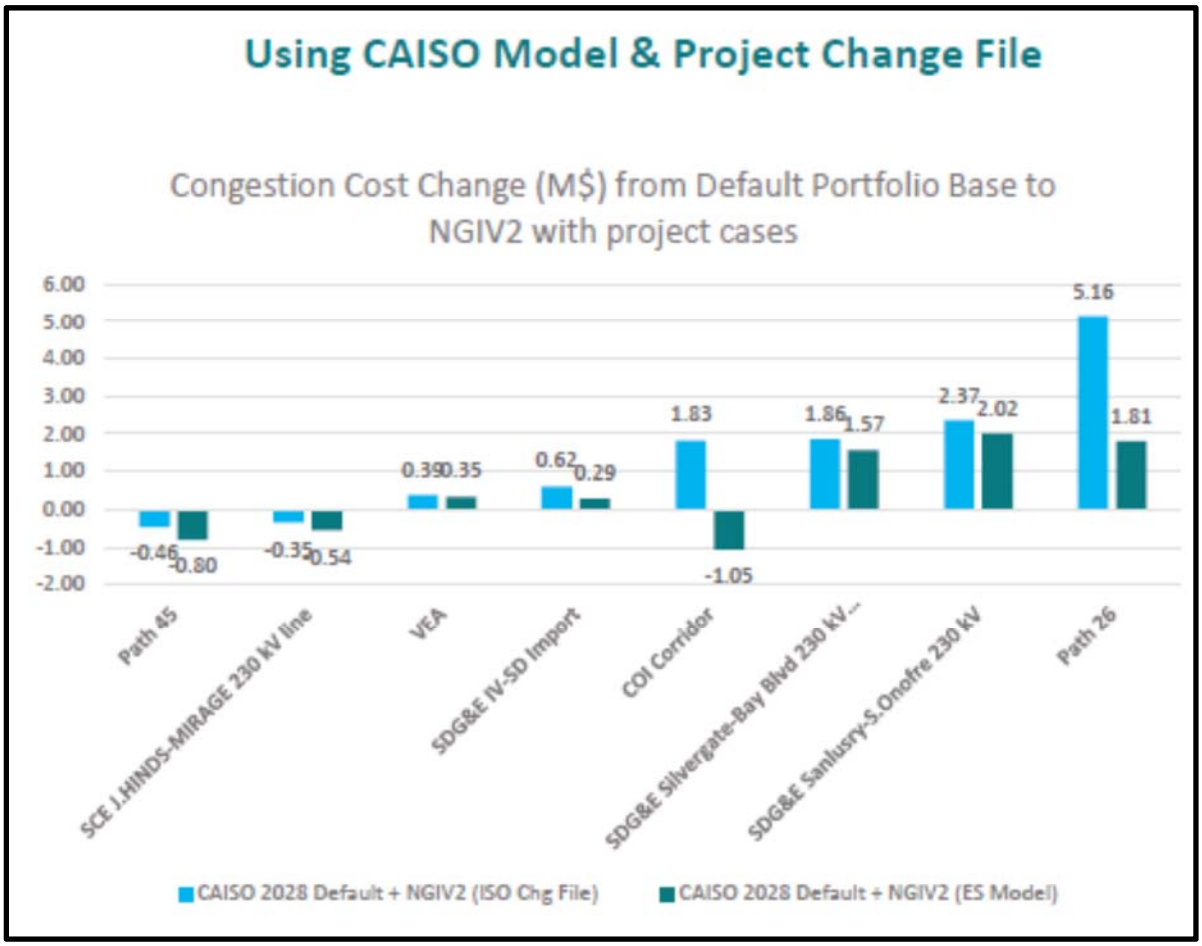

Figure 3: Congestion comparison with CAISO vs NGIV2 model

Because of the discrepancies in this comparative analysis, NGIV2 requests additional transparency while conducting the 2019-2020 economic analysis, including: continued discussions with those that have submitted projects earlier in the process with preliminary findings, providing raw output files to assist in identifying data anomalies similar to the error with PDCI causing congestion on Path 26, and communicating enough to reach a

consensus on the findings from the analysis given the assumptions anticipated in the Study Plan.

Economic Assessment Assumptions: For its 2019-2020 economic assessment of the NGIV2 project, the CAISO should also revise certain assumptions that are currently included in the base production cost models. First, the CAISO should eliminate or relax the 2000 MW net export limit from California, in order to more accurately simulate market operations based on the expected near- and long-term system conditions in the production cost models. Second, the analysis should revisit the current methodology for determining the hourly dispatch of the HVDC ties in the models - specifically, the Pacific DC Intertie (PDCI) and the Intermountain Power Project DC line (IPPDC), since the CAISO does not have functional control of these lines. Lastly, we are in discussions with a non-CAISO PTO for a portion of the NGIV2 Project. For the 2019-2020 Economic Assessment with NGIV2, we request that the analysis include a scenario that assumes 70% participation from a CAISO PTO and a 30% participation from a non-CAISO PTO (a TO within WestConnect).

Economic Assessment of Local Capacity Reduction

As noted, the 2019-2020 TPP LCR assessment will include several new areas not previously studied in the 2018-2019 TPP. However, it is noted that the greater San Diego/Imperial Valley area will be studied again this year in conjunction with some of the western LA Basin assessments. The CAISO has indicated (in response to a question at the 2/14 stakeholder meeting) that its determination that the NGIV2 project has the potential to reduce LCR for the San Diego/Imperial Valley area by **865 MW** was based on an N-1-1 analysis of the existing North Gila – Imperial Valley (SWPL) line and one of the segments of the NGIV2 project, specifically the Highline to Imperial Valley segment. The NGIV2 project will include a minimum 250-foot separation from the existing North Gila – Imperial Valley (SWPL) line and we therefore expect that the modeled outage would be considered an Extreme Event, rather than a P6. We request that the CAISO clarify whether this provides flexibility for further actions and reductions of the LCR.

The previous determination in the 2018-2019 assessment showed a 100MW incremental impact on the LA Basin LCR and its subsequent impact on the overall net benefits of the NGIV2 project, was limited by a 1% overload on the Mesa – Laguna Bell 230kV line under the N-1-1 of Mesa-Redondo and Mesa-Lighthipe 230kV circuits. For the 2019-2020 assessment, we request that CAISO also evaluate scenarios that would make other system adjustments following the N-1

to reduce the 1% overload following the subsequent N-1. These adjustments should include potential operational solutions referenced in the draft Transmission Plan that "are often selected in lieu of transmission upgrades." By doing so, the economic and LCR reduction benefits of the NGIV2 project would further increase by approximately 11%.

Conclusion

NGIV2 thanks the CAISO for considering these comments. We look forward to working with CAISO staff on the 2019-2020 TPP Economic and LCR assessments.