Stakeholder Comments Template

CAISO 2012/13 Transmission Plan

Please submit comments to regionaltransmission@caiso.com.

(SCE response to Critical Path Transmission's 02/25/13 Comments)

Submitted by	Company	Date Submitted
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Southern California Edison (SCE) appreciates the opportunity to provide supplemental comments on the CAISO's 2012-13 Draft Transmission Plan. For new transmission projects, SCE recommends that the CAISO involve PTO's early on in the process to ensure that all new transmission projects are adequately reviewed. Engaging the PTO's early in the study process would ensure any claims to benefits are properly validated. While SCE recognizes that the CAISO's TPP is comprehensive, SCE strongly suggests refining the process to allow for earlier engagement to ensure that stakeholders, the CAISO, and the CAISO Board of Governors have the benefit of a complete and detailed evaluation. SCE has the following responses to Critical Path Transmission's 02/25/13 comments.

1) Phasing of the AV Clearview Project

It is evident that the proponents of the AV Clearview Project have not fully defined a project worthy of consideration into the 2012-2013 Transmission Planning Process. Critical Path Transmission is yet again proposing significant changes to the AV Clearview Project configuration, and as such has not been evaluated. Critical Path Transmission's 11th hour attempt at submitting a new project configuration is disruptive to the CAISO's annual Transmission Planning Process. Furthermore, the assertions made that somehow a last minute project, which continually changes in scope, is better situated to proceed than a well-defined project is an indication that such a last minute project has not been fully evaluated. Critical Path Transmission has not provided any meaningful supporting documentation to justify the claims of this new AV Clearview Phase 1 Project configuration, which is different than the baseline or expanded versions of the project submitted in the 2012-2013 CAISO Transmission Plan. Therefore, the base line and expanded case versions of the AV Clearview Project should

be dismissed without prejudice. If Critical Path Transmission wishes to have the new Phase 1 configuration evaluated, it should submit such request for evaluation in the 2013-2014 CAISO Transmission Plan.

Notwithstanding the lack of analysis, SCE offers the following technical comments to the assertions made by Critical Path Transmission regarding what is now called Phase 1.

a. A Lower Cost Alternative

No supporting documentation has been provided to support the assertion by Critical Path that AV Clearview is a lower cost alternative. SCE has significant experience with transmission project development and construction costs, as it has recently constructed hundreds of miles of 500 kV transmission lines. In contrast, the figures presented by Critical Path Transmission have significant errors and oversights.

b. A Better LGIA solution

The assertion that the newly created Windhub to Kramer connection, through a back-to-back DC-Converter at the proposed Yeager Substation, provides an immediate option of a Coolwater-Lugo alternative is incorrect. Such a connection would operate as a revolving door sending power from the Tehachapi area to the Kramer area thus aggravating the existing Kramer-Lugo 220 kV transmission line capacity constraint or sending Kramer area power to the Tehachapi area thus aggravating loading on the 500 kV transmission lines serving the Tehachapi area. Clearly, the connection cannot offer simultaneous benefit to both the Tehachapi and Kramer areas.

Critical Path Transmission makes the assertion that this immediate option would not require any special protection schemes or curtailments. Evidently, Critical Path Transmission has not properly evaluated system performance or simply does not understand how the system operates. In the case of sending power from the Kramer area to the Tehachapi area, studies performed for numerous generation interconnection requests have identified that specific 500 kV outages serving the Tehachapi area (Whirlwind and Windhub Substations) will necessitate a new Northern Area 500 kV SPS. Adding more flow from Kramer would exacerbate the need for such SPS and would require the implementation of new SPS logic that otherwise would be unnecessary. Such logic would have to expand the identified SPS participants to either include resources from the Kramer area into the Northern Area SPS or simply disconnect the Windhub connection to remove the Kramer area resource contributions. However, such action would result in the creation of overloads south of Kramer since the system would revert back to today's topology, as disconnecting the AV Clearview Phase 1 Project from Windhub would remove the new transmission from service. This action would necessitate a new SPS that is solely needed due to the AV Clearview Phase 1 Project. Since loss of the Windhub connection

can also occur following simultaneous outage of both Yeager to Windhub 500 kV transmission lines, assuming both will be co-located in a common corridor, the simple statement "without requiring any special protection schemes or curtailment" made by Critical Path Transmission is an empty statement with no factual basis.

On the other hand, in the case of sending power from the Tehachapi area to the Kramer area, this additional power will need to flow south of Kramer towards the Lugo Substation on the existing Kramer-Lugo No.1 & No.2 220 kV transmission lines. These transmission lines are already at capacity and are the bottleneck for requiring new transmission South of Kramer. This situation would aggravate existing transmission constraints in the Kramer area, which would require additional infrastructure to mitigate (i.e., the Coolwater-Lugo 230 kV Project).

c. 2X Transfer Capability -

Given the facts above, it is unclear how the assertions suggesting the AV Clearview project can provide 2X the transfer capacity of the Coolwater-Lugo 230 kV Project can be true. Based on initial review of the proposal, the AV Clearview Phase 1 Project would not provide any operational benefits, but would rather create all kinds of new operational complexities that would not exist with the already approved Coolwater-Lugo 230 kV Project.

d. A Better Solution for Western Mojave Generators -

The Tehachapi area underwent an extensive stakeholder planning process before being approved by the CAISO. This extensive stakeholder planning process included three conceptual studies whereby high-level plans comparable to the high-level plans currently being proposed for the AV Clearview Project were developed. However, unlike the AV Clearview Project, the Tehachapi area had significant input from numerous parties. Following the conceptual studies, two collaborative study groups were formed consisting of members from the renewable generation community, CPUC, CEC, CEERTS, utilities, CAISO, consultants, and other stakeholders. The collaborative study groups further evaluated and developed plans for needed transmission into Tehachapi. Such collaborative study groups took two years to further vet the transmission requirements. One final collaborative study group was convened under the leadership of the CAISO. This final collaborative study group continued to include members from the renewable generation community, CPUC, CEC, CEERTS, PG&E, and SCE. The point of all the above is to note that the Tehachapi Transmission Project ultimately approved and licensed at the CPUC was a well thought-out and well-designed project with input from numerous parties external to SCE including the Tehachapi Area renewable generation community. The assertions made by Critical Path Transmission that the need for a new collector substation is driven by "the inadequate design of the Windhub Substation" and that

the needs of the renewable generation community have not been met is therefore misconstrued.

The Windhub Substation design was shaped by numerous inputs received from the Tehachapi Area renewable generation community. The fact that the Windhub Substation is fully subscribed by queued interconnection requests whose total is approaching the maximum 4,000 MW substation design capability and which 1,559 MW are already in-service should not be characterized as a "shortcoming of the Windhub substation design". In fact, the opposite is true. The interconnection requests already in queue with the Point of Interconnection identified to be Windhub Substation and Whirlwind Substation total 3,166 MW and 3,759 MW respectively. There is actual generation project development already completed or in progress at these two locations as evidenced by executed LGIAs. This generation development activity clearly demonstrates that the Windhub Substation design (and Whirlwind Substation) has properly addressed the local Windhub Substation area (and Tehachapi Area) renewable generation needs. Such generation project development also provides a factual basis to dismiss Critical Path Transmission statements that "many generators are facing the challenge of interconnection prior to the ITC deadline of January 1, 2017." The fact is that all generation projects in queue through the end of Queue Cluster 3&4 seeking interconnection in Western Mojave or in the Tehachapi Area can be interconnected prior to January 1, 2017 provided timely execution of a Generation Interconnection Agreement. All of the generation projects through Queue Cluster 3&4 have been tendered draft Generator Interconnection Agreements. Consequently, there is zero evidence supporting Critical Path Transmission's statement regarding the Windhub design.

Critical Path Transmission also appears to misunderstand the Tehachapi Renewable Transmission Project (TRTP). The statement that a fourth collector substation "will eventually have to be constructed if the Tehachapi line is to reach its 4,500 MW capacity" is incorrect. To begin with, there is no "Tehachapi line" but rather a Tehachapi project (TRTP). This project includes three collector substations, Highwind, Whirlwind, and Windhub substations, which will support interconnection of the stated 4,500 MW capacity value. In fact, the three collector substations will support interconnection of up to 8,000 MW with 6,925 MW already seeking interconnection. It is important to note that the 4,500 MW value is the incremental capacity provided south of Vincent once TRTP is completed. Since the AV Clearview Phase 1 (or Phase 2) does not increase south of Vincent capability, there is no real justifiable basis supporting the statements made that a fourth collector substation will be required to reach its 4,500 MW limit.

e. A Better Solution for the Region -

The Critical Path Transmission's statement that this is a better solution for the region since it provides economic activity two years sooner is without merit. The underlying assumption for

this statement is that the licensing of such a project will be fast-tracked since the licensing agency can somehow make things go faster relative to the CPUC. It is important to note that CPUC involvement is not eliminated since SCE will still have to seek some level of review from the CPUC for the work involved at Windhub and Kramer Substations. In addition, SCE will need to address the reliability problems created with the proposed AV Clearview Phase 1 Project. These problems involve the creation of new contingencies requiring SPS expansion or new SPS development. None of the scope for such new SPS has been properly defined and the level of CPUC required involvement has not been defined. As such, when looking at the project comprehensively, the two-year savings may vanish and ultimately longer lead times may result when the full extent of the project scope and complete CPUC involvement is properly identified.

With regards to energy redundancy to Edwards AFB, no such need has been identified. Review of outage history has revealed that the existing 115 kV line serving Edwards AFB has not experienced a prolonged outage over the last 10 years. All outages have been categorized as "open and reclose" operations and have thus been minimal in duration. The proposed "energy redundancy" aspects will therefore not exist since the proposed line would be operated normally open and would close only upon loss of the existing 115 kV line. As such, the exact same outage duration will be experienced with or without the proposed 115 kV line. Consequently, this line segment provides for no real measurable benefit and has not been identified to be required in any of the load serving studies that have been performed over time.

Additionally, Critical Path's assertion that a 115 kV connection from its proposed Yeager Substation to SCE Edwards Substation is an integral part of the AV Clearview Project and results in "significant savings to ratepayers" is incorrect. Critical Path's claim for "significant savings to ratepayers" runs counter to the fact that CAISO has not identified a need for an additional source line into Edwards Substation which is currently sourced from SCE Holgate Substation. In fact, CAISO in its February 1, 2013 Draft 2012-2013 Transmission Plan, after studying Critical Path's proposed 115 kV line from Yeager Substation, found that connecting a 115 kV line from Yeager Substation to Edwards Substation would result in multiple line overloads to the new Yeager-Edwards 115 kV line as well as the existing Edwards-Holgate 115 kV and Holgate-Kramer 115 kV lines. CAISO's proposed mitigation was to keep the Yeager-Edwards 115 kV line open resulting in a line that is neither needed nor connected to the Edwards Substation.

Rather than removing this component from the AV Clearview Project, Critical Path in both its February 25, 2013, and February 12, 2013 comments left this 115 kV line in and described it as either an open line or a backup for Edwards Substation. Moreover, as SCE noted in its February 25, 2013 comments, the AV Clearview Project would require SCE's Edwards Substation to be rebuilt to accommodate Critical Path's proposed Yeager-Edwards 115 kV line. The proposal to build a new 115 kV line from Yeager Substation to Edwards Substation should be dismissed as ill-conceived as it lacks both need and a basis from which to assess claimed ratepayer benefits.

i. Claim that Coolwater Lugo will face Environmental Challenges

The Coolwater-Lugo 230 kV transmission line would be approximately 62 total miles in length and would incorporate the Garamendi Principles[1] of using existing and expanded rights-of-way. Approximately 28 miles of the Coolwater-Lugo 230 kV transmission line would be on existing ROW, approximately 17 miles would be adjacent to an existing LADWP 500 kV transmission line corridor, and only approximately 17 miles would be on new ROW not adjacent to existing structures. On the other hand, the AV Clearview Phase 1 Project would require 42[2] miles of new ROW not adjacent to existing structures for the Windhub-Yeager-Kramer lines and approximately two miles of new ROW possibly next to adjacent SCE structures for the Yeager-Edwards 115 line, which has not been proven to be needed. Phase 2 would require approximately 34 miles of new ROW not adjacent to existing structures for the underground Yeager-Tucker DC line.

Existing corridors and previously disturbed lands present fewer environmental challenges than using undisturbed lands and undergrounding. Moreover, SCE has already begun conducting both biological and cultural surveys along the potential alternative routes in coordination with the BLM Field Office in Barstow. Furthermore, the Coolwater-Lugo 230 kV Project Team has done considerable outreach with Agencies, Cities, County, Military, Non-Governmental Organizations (NGOs), the Public, and Native American Tribes to create routes that will have as few environmental challenges as possible. Table 1, on the next page, notes the Coolwater-Lugo 230 kV Project outreach to date.

[1] Section 1005.1 of the Public Utilities Code requires the CPUC to consider "utilization of rights-of-way by upgrading existing transmission facilities instead of building new transmission facilities, where technically and economically justifiable."

[2] Straight line distances from Google Earth were used for the AV Clearview Project since Critical Path Transmission has not provided routing information the Project.

Table 1: Coolwater-Lugo 230 kV Project Outreach

City/County Briefings and Public Community Workshops	
10/18/2011	San Bernardino
10/26/2011	Hesperia
11/14/2011	Lucerne Valley
11/16/2011	Hesperia
11/17/2011	Daggett
2/27/2012	Hesperia, Barstow, & Apple Valley
3/5/2012	San Bernardino
3/6/2012	Lucerne Valley
3/8/2012	Daggett
3/12/2012	Hesperia
Agencies	
8/23/2011	Renewable Energy Action Team (REAT) Management
9/21/2011	REAT, Renewable Energy Policy Group (REPG), Bureau of Land Management (BLM)
2/29/2012	California Public Utilities Commission (CPUC) and BLM
Q2 2012	U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW)
Q1 2013	USFWS, CDFW, and BLM
03/06/13 and ongoing	CPUC and BLM weekly meetings with the Coolwater-Lugo 230 kV Project Team
Non-Governmental Organization (NGOs)	
9/28/2011	Center for Biological Diversity, California Council of Land Trusts, Transition Habitat, CAISO, California Native Plant Society, Desert Tortoise Council, and Sierra Club
10/7/2011	Center for Biological Diversity, Kerncrest Audubon, Transition Habitat, the Nature Conservancy, and CAISO
4/27/2012	Center for Biological Diversity, Apple Valley MSHCP (Solution Strategies), Kerncrest Audubon, The Nature Conservancy, Defenders of Wildlife, Sierra Club, NRDC, CAISO, The Wildlands Conservancy, and California Native Plant Society
Tribes	
6/11/2012	Intertribal Working Group
Military	
9/20/2012	Barstow Marine Corps Logistics Base
Governor's Office	
Ongoing	Biweekly calls with Governor's Office

f. Operational Benefits -

Critical Path Transmission states that the "AV Clearview Phase 1 Project offers difficult-to-quantify yet real operational benefits, among others, the ability to increase power transfer capability to load centers via DC phase shifting as well as reactive power support currently needed by nearby 115 kV lines". This statement is factually incorrect. As discussed above, a back-to-back DC will function as a "revolving door" moving power from one area to another area by controlling phase angles. Both of the areas in question are not load centers of SCE, PG&E or SDG&E. Consequently, the project does nothing to increase transmission capability to the load centers. In the case of SCE and SDG&E, transmission capacity to move power to the load centers is south of Vincent and south of Lugo as the load centers are located south of Vincent and south of Lugo. In the case of PG&E, transmission capacity to move power to the load center is north of Midway (and perhaps north of Whirlwind). This project is located in an area that is north of Vincent and north of Lugo but south of Midway (and electrically south of Whirlwind). Consequently, this project cannot possibly increase power transfer capability to load centers by any amount of DC phase-shifting. As far as the reactive support stated, none of the studies performed for the numerous requests have identified a need for reactive support.

g. Low Cost Future Expansion Opportunities -

SCE does not view the Phase 2 Project scope as a low cost future expansion opportunity. To begin with, the statement is premised on the assumption that the Phase 1 project is somehow chosen over the Coolwater-Lugo Project. For the reasons provided above, SCE does not see how such a selection can be responsibly made as the Phase 1 Project will fail to provide for the needs that the Cool Water-Lugo Project is intended to provide. In any case, SCE recommends the CAISO reject Critical Path's last-minute proposed project to ensure the process will continue to move forward with Coolwater-Lugo.

Summary

SCE's review of the new AV Clearview Phase 1 Project has resulted in significant issues that counter the assertions made by Critical Path Transmission. The AV Clearview Phase 1 Project will create new operational complexities and will not provide the needed transmission to the Western Mojave Generators. As discussed above, it cannot be a better solution for Western Mojave Generators, the Region, or Q125's LGIA. As a result, SCE's Coolwater-Lugo 230 kV Project continues to be the most cost effective project because the AV Clearview Phase 1 Project would not perform as claimed or meet the purpose and need of SCE's Coolwater-Lugo 230 kV Project, which also includes facilitating the interconnection of new resources in the Lucerne Valley are and future load serving in the Apple Valley area.

2) ***Operations, Planning, and RPS Benefits***

For the reasons discussed above, the AV Clearview Phase 1 Project cannot possibly provide operations, planning, and RPS benefits because it aggravates previously identified transmission constraints and creates all kinds of new operational complexities. Furthermore, as stated in SCE's 02/25/13 comments, the AV Clearview Phase 1 Project does not provide benefits to Path 26 because it does not increase the rating of Path 26. Critical Path Transmission assertion is solely based on the statement that the project "is close (electric proximity) to the important Path 26 line." Being in "close (electric proximity) to the important Path 26 line" is inadequate reasoning for making such assertion. As an example, the Mira Loma – Vincent 500 kV is in "close (electric proximity) to the important Path 26" but does absolutely nothing to alleviate Path 26. Critical Path Transmission asserts that the project provides the ability to shift or transfer power away from Path 26 and on to the AV Clearview infrastructure. This statement is factually incorrect. As previously discussed, the AV Clearview infrastructure is electrically located south of the metered point for Path 26, just like the Mira Loma – Vincent 500 kV transmission line. As such, the AV Clearview Project cannot "shift or transfer power away from Path 26 and on to AV Clearview infrastructure". At best, the AV Clearview can only alter the flow on the Midway-Whirlwind 500 kV line in the same manner that a solar PV or solar thermal generator interconnecting at Windhub or Whirlwind Substation would alter. Such projects, new solar PV or solar thermal, or the AV Clearview project would "push-back" flow on the Midway-Whirlwind 500 kV line and on to the Midway – Vincent No.1 and No.2 500 kV transmission lines but would not result in "shifting or transferring power away from Path 26."

In summary, the AV Clearview Phase 1 Project does not provide Operational or Congestion Management benefits for the following reasons:

- The existing Kramer and Tehachapi areas already meet all applicable Reliability Standards and as such are defined to be reliable
- All contingencies in this area already have approved mitigation in place so nothing new is needed to ensure the system meets NERC/WECC required Reliability Standards
- Critical Path Transmission's claimed benefits pertaining to reliability, power transfer capability; voltage support, operational costs, operational control, congestion management, and contingency mitigation are unfounded.

3) ***Cost and Schedule***

Critical Path Transmission should provide a detailed schedule including state and federal permitting, construction, procurement durations, and detailed cost estimates that support their

claims. Based on the level of information provided, SCE finds it interesting that the cost estimates for the Coolwater-Lugo 230 kV Project are being questioned when no supporting details and information is provided to support the AV Clearview Project estimates. Given the fact that SCE has recently constructed hundreds of miles of transmission line and knows what it costs to build such transmission, SCE believes that a confidence interval is more appropriate for a project deploying DC-based technology whose real estimates are not well documented and who does not have an adequate construction track record in the Tehachapi area to support the estimates provided. SCE believes that the likelihood of substantial cost increases is more likely for the AV Clearview Project as its project scope is not well defined.