Stakeholder Comments Template

CAISO 2012/13 Transmission Plan

Please submit comments to regionaltransmission@caiso.com

Submitted by	Company	Date Submitted
Jorge Chacon Kevin Richardson	Southern California Edison	August 20, 2013

SCE appreciates the opportunity to provide comments on the CAISO's August 6, 2013 transmission planning stakeholder meeting. SCE's comments focus on the AV Clearview Phase 1 proposal as described in the CAISO's "AV Clearview Phase I Transmission Project - New Alternative Evaluation" dated August 2, 2013 and the CAISO's analysis of that proposal. Overall, the AV Clearview Phase 1 proposal continues to lack sufficient definition and the analysis of that proposal is incomplete. SCE continues to have the same concerns it expressed in its March 12, 2013 comments on previous versions of the AV Clearview proposal as detailed below. In addition, the CAISO's analysis has raised some additional concerns as well. Finally, given the description of the AV Clearview project in the CAISO's August 2 analysis, it is unclear if the alleged benefits for the AV Clearview project based on the pre 2012-13 CAISO Transmission Plan are still being claimed by the project sponsor. If such benefits are still being claimed, those benefits continue to be unfounded as detailed below. Please see SCE's comments below.

1. The New AV Clearview Phase 1 Proposal is not on its own an equivalent substitute for SCE's Coolwater-Lugo

SCE agrees with the CAISO's conclusion that the new AV Clearview alternative is not on its own an equivalent substitute for the Coolwater-Lugo 230 kV line in the context of the CAISO Generation Interconnection study process. An upgrade of Lugo-Jasper 230 kV line should be added to the scope and cost estimate for the AV Clearview Phase I alternative. In addition, the Coolwater-Lugo project also facilitates the interconnection of new resources in the Lucerne Valley area and future load serving in the Apple Valley area.

2. The Kramer RAS is Needed

SCE's existing Kramer Remedial Action Scheme (RAS[1]) is a generation tripping scheme designed to mitigate transmission line and transformer bank thermal overloads and system instability that could occur during certain single and double transmission component outages in the Kramer Junction area. Specifically, the Kramer RAS mitigates three transmission components for thermal overloads and four transmission components for system instability. Because the Kramer RAS mitigates for system instability in more cases than it mitigates for thermal overloads and because the CAISO's August 2013 AV

[1] A RAS is also called a Special Protection System (SPS), which is an automatic protection system designed to detect abnormal or predetermined system conditions, and take corrective actions other than and/or in addition to the isolation of faulted components to maintain system reliability.

Clearview analysis[2] did not include post-transient or stability analysis, it is premature to state the Kramer RAS may not be needed under new transmission scenarios. Additionally, it is important to note the AV Clearview Proposal would require new SPS to address impacts to South of Kramer transmission under outage of transmission connecting Windhub to Antelope and/or Whirlwind, connecting Windhub to Yeager, and connecting Kramer to Yeager as described in sections 4c and 4f.

3. Lockhart Substation has been renamed Sandlot Substation

The Lockhart Substation referenced in the CAISO's August 2nd AV Clearview Analysis and August 6th Stakeholder Presentation is actually called Sandlot Substation[3].

4. Deliverability Assessment

SCE understands that the CAISO is evaluating the revised AV Clearview and Coolwater-Lugo Projects for a relative comparison of how each project could support the classification of new energy resources as Full Capacity Deliverability Status so that they can qualify for Resource Adequacy. However, such studies represent only part of the required analysis needed to fully evaluate and compare projects. The complete analysis must include a reliability assessment in order to identify all impacts that need to be addressed by each project proposal. This reliability assessment includes proper definition of required SPS, short-circuit duty mitigation, transient stability performance, post-transient voltage performance, telecomm requirements, protection requirements, and substation requirements just to interconnect the project. While SCE appreciates the Deliverability Assessment, such studies are inadequate to reach a conclusion that the full scope of a project has been properly identified. Given that the Coolwater-Lugo Project has had both deliverability and reliability assessments completed, it is premature to conclude that all impacts of the AV Clearview have been identified.

5. Phasing of the AV Clearview Proposal

As stated in SCE's March 12 comments[4], it continues to be evident that the proponents of the AV Clearview Project have not sufficiently defined the project so that it can be fully assessed in the CAISO's Transmission Planning Process. Each AV Clearview Project proposal to date has been reviewed by the CAISO and been dismissed when it was assessed as part of the CAISO's annual Transmission Planning Process. With the fifth version of the AV Clearview Proposal[5], the High Desert Power Authority fails to provide any meaningful supporting documentation to justify the claims of this reconfigured project derived from a previously dismissed proposal. Therefore, the CAISO should dismiss this latest version of the AV Clearview proposal without prejudice.

Notwithstanding SCE's concerns regarding the incomplete proposal, SCE offers the following technical comments on the CAISO's analysis of what is now called AV Clearview Phase 1.

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[2] http://www.caiso.com/Documents/AVClearviewPhaseITransmissionProject-NewAlternativeEvaluation.pdf
[3] www.sce.com/sandlot
[4] http://www.caiso.com/Documents/SCESupplementalCommentsDraft2012-2013TransmissionPlan.pdf

[5] The first version of the AV Clearview Proposal was considered and dismissed in the CAISO's 2010-2011 Annual Transmission Plan (http://www.caiso.com/Documents/Board-approvedISO2010-2011TransmissionPlan.pdf pp. 440-444); the second and third versions were considered and dismissed in the CAISO's 2012-2013 Annual Transmission Plan (http://www.caiso.com/Documents/BoardApproved2012-2013TransmissionPlan.pdf pp. 150-158); the fourth version was submitted as comments to the CAISO's 2012-2013 Annual Plan (http://www.caiso.com/Documents/CriticalPathCommentsDraft2012-2013TransmissionPlan.pdf), and the fifth version was considered and dismissed in the CAISO's 2012-2013 Additional Study Assessments (http://www.caiso.com/Documents/AVClearviewPhaseITransmissionProject-NewAlternativeEvaluation.pdf pp. 1-4)

a. The New AV Clearview Phase 1 Proposal is not on its own an equivalent substitute for SCE's Coolwater-Lugo Project

As noted previously, SCE agrees with the CAISO's August 2nd report and August 6th Stakeholder presentation that the AV Clearview Proposal is not on its own an equivalent substitute for the Coolwater-Lugo Transmission Project. However, SCE would like to point out that an equitable comparison would require the addition of the cost, scope (including design) of the portion of the Coolwater-Lugo Transmission Project between Lugo and Jasper 230 kV to the AV Clearview Proposal to allow for an equitable comparison. Note that the design of this portion should include long-term load serving and system need considerations, beyond the 10-year planning window, as new transmission is costly and should therefore withstand the test of time. The design should enable improved reliability benefits at the existing Lugo Substation as well as future load serving benefits in the High Desert area, specifically the Town of Apple Valley. Given that the two projects serve different objectives and are located in different geographic areas, comparing the projects is difficult at best. However, if the CAISO is going to provide a cost comparison, the comparison should be based on satisfying equitable Purpose and Need which would require the upgrades between Lugo and Jasper in both the Coolwater-Lugo and AV Clearview Phase I projects. Such inclusion would result in a cost comparison of the AV Clearview Phase I against the Coolwater to Jasper portion of Coolwater-Lugo Transmission Project. This comparison would, in essence, compare the cost of a new 42-mile double-circuit 500 kV transmission line, new Yeager 500/220/115 kV Substation with two 500/220kV transformer banks and one 220/115 kV transformer bank, new 5-mile 115 kV line to Edwards, 500 kV substation upgrades at Windhub to terminate the new 500 kV lines from Yeager, 220 kV substation upgrades at Kramer to terminate the new 500 kV lines (initially operated at 220 kV) from Yeager, and substation upgrades at Edwards to terminate the new 115 kV line from Yeager against the cost of a 34-mile double-circuit 220 kV line and 220 kV substation upgrades at Coolwater and Jasper to terminate the lines.

b. Cost Comparison

SCE recognizes that the CAISO is continuing to work with project sponsors on refinements to project scope and costs. SCE urges the CAISO to ensure that any cost comparison is based on equipotential scope and cost estimate assumptions that are comparable. SCE reiterates that no documentation has been provided by High Desert Power Authority to support the assertion that AV Clearview is a lower cost alternative to the Coolwater-Lugo project. 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 cost figures presented to date for the AV Clearview project appear to have significant errors and oversights. More importantly, as concluded by the CAISO, the scope of AV Clearview project is not equitable to Coolwater-Lugo project so scope adjustments would have be considered in order to compare the two distinct projects

c. A Better LGIA Solution

The assertion that the newly created Windhub to Kramer connection, through a proposed Yeager Substation, provides an immediate option of a Coolwater-Lugo alternative is incorrect. Such a connection could 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.

High Desert Power Authority makes the assertion that this immediate option would not require any special protection schemes or curtailments. This assertion is incorrect and reflects a lack of understanding regarding 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, or require additional 500 kV transmission between Vincent, Antelope, Whirlwind, and Windhub, and would require the implementation of new SPS logic that otherwise would be unnecessary. Such SPS 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 High Desert Power Authority is without 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).

d. Two Times the Transfer Capability

Given the facts above, it is unclear how the assertions suggesting the AV Clearview project can provide two times (2X) the transfer capacity of the Coolwater-Lugo 230 kV Project can be true. Based SCE's review of the proposal, the AV Clearview Phase 1 Project would not provide any operational benefits, but would rather create new operational complexities that would not exist with the Coolwater-Lugo 230 kV Project.

e. 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 High Desert Power Authority 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 and misleading.

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 High Desert Power Authority 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 High Desert Power Authority's statement regarding the Windhub design.

High Desert Power Authority 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.

f. A Better Solution for the Region

High Desert Power Authority'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 perform a reliability assessed for 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, High Desert Power Authority'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. High Desert Power Authority'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 High Desert Power Authority'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, High Desert Power Authority 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 High Desert Power Authority'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.

g. 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[6] 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 approximately 42[7] 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 or more of new ROW not adjacent to existing structures for the underground Yeager-Tucker DC line.

[6] 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."

[7] Straight line distances from Google Earth were used for the AV Clearview Project since High Desert Power Authority has not provided routing information the Project.

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, below, notes the Coolwater-Lugo 230 kV Project outreach to date.

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	Apple Valley, Barstow, & Hesperia
3/5/2012	San Bernardino
3/6/2012	Lucerne Valley
3/8/2012	Daggett
3/12/2013	Hesperia
06/03/13	San Bernardino
06/05/13	Apple Valley, Hesperia, & Hesperia Airport
6/19/2013	Daggett
6/20/2013	Hesperia
6/26/2013	Apple Valley
6/27/2013	Lucerne Valley
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 & ongoing	CPUC and BLM weekly meetings with the Coolwater-Lugo 230 kV Project Team
8/12/2013	CPUC and BLM
Non-Governmental Organizations (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
7/18/2013	Friends of the Desert Mountains, Mojave Desert Land Trust, The Nature Conservancy, Sierra Club, & The Wilderness Society
Native American Tribes	
05/19/2012	San Manual Band of Mission Indians
6/11/2012	Intertribal Working Group
12/10/2012	San Manual Band of Mission Indians
12/27/2013	San Manual Band of Mission Indians
05/01/2013	San Manual Band of Mission Indians
06/17/2013	San Manual Band of Mission Indians
08/09/2013	San Manual Band of Mission Indians
Military	
9/20/2012	Barstow Marine Corps Logistics Base
Governor's Office	
Ongoing	Biweekly calls with Governor's Office

h. Operational Benefits

High Desert Power Authority previously stated 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 continues to be factually incorrect with the new previously dismissed proposal, which no longer includes DC phase shifting. As discussed above, a connection could function as a "revolving door" moving power from one area to another area depending on actual system conditions. 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. As far as the reactive support stated, none of the studies performed for the numerous generation interconnection requests have identified a need for reactive support.

i. Low Cost Future Expansion Opportunities

With the new previously dismissed proposal, future expansion will cost more than the previously suggested "low cost future expansion opportunities". SCE did not view the previous Phase 2 Project scope as a low cost future expansion opportunity and with the cost to implement Phase 2 likely

growing, SCE continues to have concerns with a broad statement that future expansion opportunities are “low cost”.

Summary

SCE’s review of the new “new” AV Clearview Phase 1 Project has resulted in continued significant issues. 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, the AV Clearview Proposal 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.