July 20, 2016

California Public Utilities Commission
RE: VIG/ASP
c/o Ecology and Environment, Inc.
505 Sansome Street, Suite #300
San Francisco, CA 94111

Subject: Office of Ratepayer Advocates Comments on the Draft Environmental Impact Report Issued Regarding the Alberhill System Project and Valley-Ivyglen Project.


I. Background

The following describes the system configuration of Southern California Edison Company's service area that is affected by the proposed Alberhill System Project (ASP) and Valley-Ivyglen Project (VIG). SCE’s Valley Substation is a 500 kilovolt (kV) substation, which serves both the Valley North and Valley South service areas. There are five transformers that transfer power from a 500 kV bus bar to a three-section 115 kV bus bar, namely the AB-Section that serves power demand in the Valley North area; the D-Section that serves power demand in the Valley South area; and a C-Section that serves as back-up for both the AB-Section and the D-Section. (See Figure 1)

ORA recommends five alternatives (see Section III) that the final Environmental Impact Report (EIR) should fully evaluate because these alternatives appear to be more cost effective and less environmentally impactful compared to the Proposed Projects. Three of ORA’s recommended alternatives were mentioned in the Draft EIR (DEIR) and two alternatives were not mentioned at all.
II. SCE Applications and Commission Decisions

In January 2007, SCE filed Application (A.) 07-01-031 for a Permit to Construct (PTC) the Valley-Ivyglen (VIG) project. The proposed VIG project consists of 27 miles of 115 kV transmission line to interconnect the Valley Substation and the Ivyglen Substation.

In September 2009, SCE filed A. 09-09-022 for a Certificate of Public Convenience and Necessity (CPCN) to construct the Alberhill System Project (ASP). The ASP consists of the Alberhill 500 kV Substation, 3.3 miles of 500 kV transmission lines to loop in the Alberhill Substation to the Valley-Serrano 500 kV transmission line, and the new and modified 115-kV transmission lines. (See Figure 2)
Figure 2: SCE Proposed Projects
In August 2010, the Commission issued Decision (D.) 10-08-009 and granted, among other things, A. 07-01-031 for the VIG project. However, SCE filed a petition for modification of D.10-08-009 in April 2013, and in May 2014, SCE amended its Petition to modify D.10-08-009. Considering that both the VIG and the ASP projects are in the same geographic area and electrically related to each other, the Commission consolidated the CEQA processes for the two projects.

In April 2016, Energy Division issued a Draft Environmental Impact Report (DEIR) on VIG and ASP (Proposed Projects).

III. Office of Ratepayer Advocates’ Comments to the Draft EIR

The Office of Ratepayer Advocates (ORA) is continuing its analysis of SCE’s Proposed Projects at this time. ORA’s review of the DEIR on the Proposed Projects, VIG and ASP, leads to the conclusion that the DEIR does not sufficiently consider project alternatives that would minimize environmental impact and require less capital investment for the ASP. Therefore, ORA has identified the following project alternatives for the ASP, which have not been sufficiently explored in the DEIR. The following are ORA’s suggested alternatives to be evaluated:

1. No project alternative;
2. Divide Valley South System into Two Systems;
3. Install a New Transformer at the Valley Substation;
4. Interconnect the Inland Empire Energy Center to the 115 kV Bus at the Valley Substation;
5. Loop-in SDG&E’s 230 kV Escondido-Talega Transmission Line to SCE’s Upgraded Moraga Substation.

Alternatives 1, 3 and 4 were mentioned in the DEIR. ORA is recommending that the electrical improvements and the environmental impacts in these alternatives be fully evaluated. These alternatives appear to be more cost effective and less environmentally impactful compared to the Proposed Projects.

1. No-Project Alternative (See Figure 3)

SCE stated that the C-Section transformer at the Valley Substation operates “as a spare transformer ... during emergency or maintenance conditions.” Accordingly, SCE currently sets the circuit breaker between the C-Section and the D-Section at “normal open” position. From an electrical prospective, the C-Section transformer is able to mitigate over loading of AB-Section or D-Section transformers. Therefore, ORA proposes that SCE modify its planning approach and operating procedures so that the circuit breaker may be closed when the D-Section transformers are to be overloaded. In parallel with the two D-Section transformers, the C-Section transformer will be able to provide additional power transfer capability and mitigate potential overload conditions on D-Section transformers. Under this approach, SCE is able to elect when to perform
transformer maintenance. This is a No-Project alternative because it includes changes to circuit breaker settings and operating procedures only, with no environmental impact and no additional capital cost.

**Figure 3: No Project Alternative**

Valley 115 kV System (D Section) Line Arrangement Diagram

The DEIR makes a reference to ORA’s recommendation in its No Project Alternative section but only as an “event anticipated with respect to the proposed Alberhill Project” if operation and construction of ASP does not occur\(^1\). Specifically, the DEIR states:

“The stand-by spare 560-megawatt ampere 500/115kV transformer, which was installed at the Valley Substation in 2011 to provide back-up transformer capacity in the event of transformer failure at Valley Substation, may be put into service.” \(^2\)

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\(^1\) DEIR, ¶ 3.4.5.2, p.3-12.

\(^2\) Id.
ORA's recommendation is that the Commission fully evaluates this option as a competing alternative.

2. Divide Valley South System into Two Systems

SCE can also divide the Valley South 115 kV system into two systems so that one system is supplied by the D-Section transformers and the other is supplied by the C-Section transformer. (See Figure 4)

**Figure 4: Divide Valley South System into Two Parts**

Valley 115 kV System (D Section)
Line Arrangement Diagram

Under this alternative, the three 115 kV transmission lines located to the far right of D-Section can be shifted from D-Section to C-Section, so the Valley South 115 kV system is divided into two systems, with one system being served by the D-Section transformers and the other system being served by the C-Section transformer. Depending on the loading situation of the D-Section transformers and the C-Section transformer, SCE could decide whether Tenaja, Stadler, and Stert substations should be served by the D-Section or C-Section. In addition, the transmission lines connecting these three substations can also act as a system tie between the D-Section System and
the C-Section System. Under this arrangement, the three 115 kV sections (AB, C, and D) can coordinate with each other during emergency and maintenance outages.

3. **Install a New Transformer at the Valley Substation**

SCE could install a new transformer on the D-Section to mitigate potential transformer overloading under future load growth scenarios. Installing a new transformer would have a lower environmental impact and would cost less than the Proposed Projects. (See Figure 5)

**Figure 5: Install a new 500/115 kV Transformer**

Valley 115 kV System (D Section)
Line Arrangement Diagram

The DEIR stated that “This alternative would relieve projected electrical demand but would not include a new 500/115-kV substation within the ENA [Electric Need Area] or maintain system ties between a new 115-kV system and the Valley South 115-kV System.” The DEIR did not explain why one 500/115kV might be insufficient to service 1,260 square miles and 325,000 customers, did not provide analysis on using the IEEC switchyard as a separate power supply
source, and did not consider the fact that Vista Substation is the backup power supply source to the area.

4. Interconnect the Inland Empire Energy Center to the 115 kV Bus at the Valley Substation

The Inland Empire Energy Center (IEEC) is a local generator within the San Jacinto Region with a capacity of 800 mega-watts (MW). The power is stepped up from 19.5 kV to 500 kV and then interconnected to the 500 kV bus of the Valley Substation. The IEEC is approximately 0.5 miles west of Valley Substation and the IEEC power supply can be used to serve the Valley South area demand. Based on the existing electrical configuration, the output from the IEEC is (1) stepped up from 19.5 kV to 500 kV, (2) delivered to the Valley 500 kV bus, (3) stepped down to the Valley 115 kV bus, and (4) then delivered to the Valley South area. This configuration exacerbates the transmission congestion on the 500 kV bus, the two D-Section transformers, and the D-Section 115 kV bus, because the 800 MW of power supply is unnecessarily constraining the power transfer capability of the transmission lines and transformers it flows through.

The DEIR stated that “the IEEC interconnection to Valley Substation would require an additional transformer at Valley Substation to step down the electricity generated at the IEEC from 500 to 115 kV.” So the DEIR combined the Additional Valley South Transformer Alternative with the IEEC Interconnection Alternative. ORA’s analysis concludes that it does not make engineering sense to step up the IEEC power to 500 kV and then to step down to 115 kV to serve local demand.

ORA proposes to step up the IEEC generation output to 115 kV and to interconnect the IEEC power plant directly to the Valley 115 kV D-Section. With this alternative, the power flow on the 500 kV bus and the two D-Section transformers would be significantly reduced, so there would be no overloading issues and no need to install another 500/115 kV transformer at Valley Substation. This reconfiguration would also have additional benefit of reducing transmission losses, because the power would not need to be stepped-up and stepped-down through those transformers before it is delivered to the Valley South area. This alternative would have a lower environmental impact and would be less capital-intensive than the Proposed Projects. (See Figure 6 below)

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3 DEIR Appendix D at 34.
4 Draft EIR Appendix D, at page 34.
Figure 6: Reconfigure the Interconnection of the IEEC Power Plant

Valley 115 kV System (D Section) Line Arrangement Diagram

The DEIR does not consider the option of using the IEEC as an alternative to the ASP, but claims that if the ASP is not constructed, the “Valley Substation would continue to be the only 500/115kV substation serving electrical demand in the San Jacinto Region of southwestern Riverside County—an area encompassing roughly 1,260 square miles and serving approximately 325,000 metered customers.”\(^5\) The DEIR did not explain why one 500/115kV might be insufficient to service 1,260 square miles and 325,000 customers, did not provide analysis on using the IEEC switchyard as a separate power supply source, and did not consider the fact that Vista Substation is the backup power supply source to the area.

\(^5\) DEIR at 3-12.
5. Loop-in SDG&E’s 230 kV Escondido-Talega Transmission Line to SCE’s Upgraded Moraga Substation (See Figure 7)

**Figure 7: Loop in Talega—Escondido 230 kV Line to Upgraded Moraga**

Valley 115 kV System (D Section)
Line Arrangement Diagram

ORA believes that SCE could also upgrade the Moraga Substation to 230 kV, then loop it with SDG&E’s Escondido—Talega 230 kV transmission line at Interstate 15. Such a loop-in would reduce the power flow on Valley Substation D-Section transformers and provide power supply flexibility and reliability to the Valley South area. This approach is similar to that for the Valley
North area, which uses the 220kV Vista Substation as back up supply to the Valley North area when Valley AB-Section is not available. ORA’s initial review indicates that new 230 kV transmission lines needed to loop in the Moraga Substation would be approximately 5.5 miles long. There are four 115 kV transmission lines from the Moraga Substation to serve other substations within the Valley South area. Compared to the Proposed Projects, this alternative will be environmentally superior and more economical because this alternative would eliminate the 500 kV Alberhill Substation, the approximately 3.3 miles of 500 kV double circuit transmission line to loop in the Alberhill Substation, and other modified and new 115 kV transmission lines.

IV. Conclusion

ORA recommends evaluation of the above mentioned five alternatives.

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