Southern California Edison
A.09-09-022 – Alberhill PTC & CPCN

DATA REQUEST SET C P U C - S u p p l e m e n t a l D a t a R e q u e s t - 0 1 5

To: CPUC
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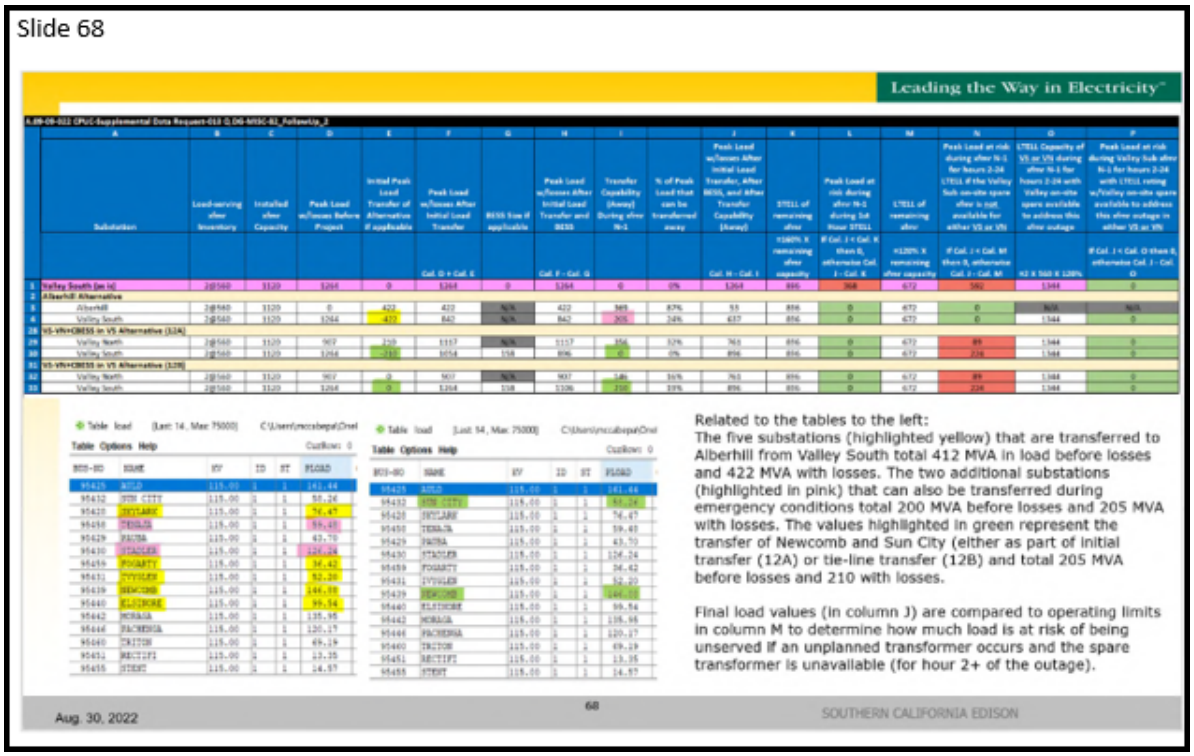
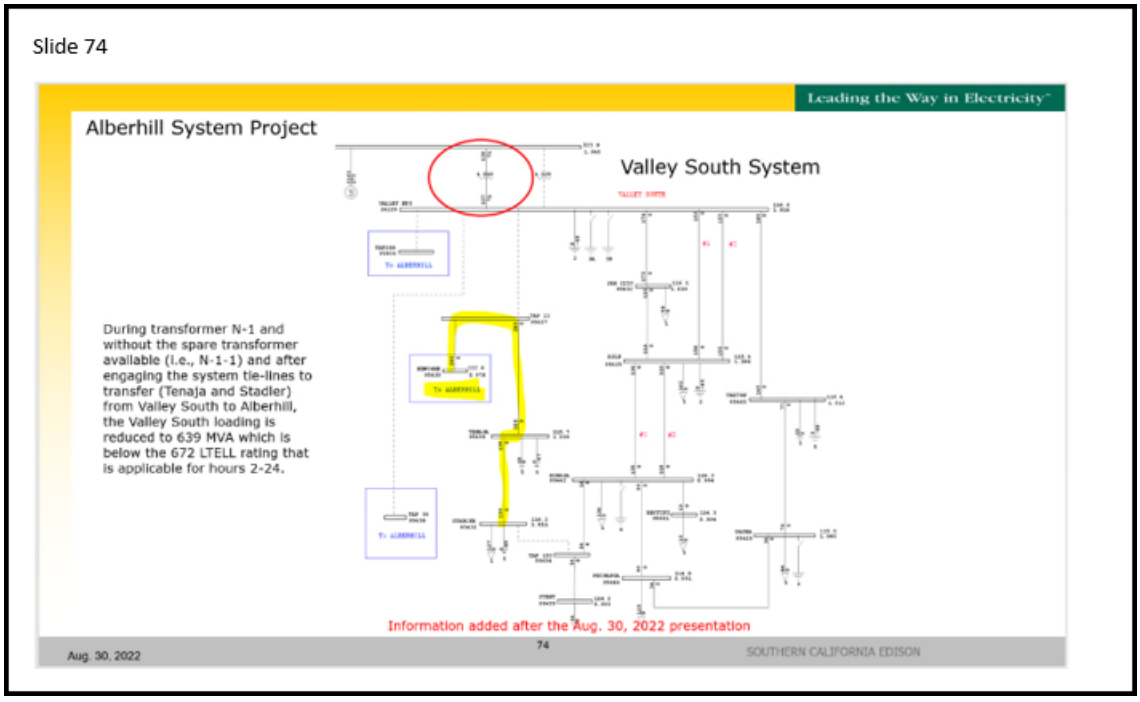
Job Title: Senior Advisor
Received Date: 12/2/2022

Response Date: 12/16/2022

Question DG-MISC-84:
ResourceAreas/Topic: PSLF Validation
SCE Data Submittal Item/Page: Alberhill System Project Energy Division Presentation 8/30/2022
Slide 68 of SCE's August 30, 2022 presentation includes a table in the lower left of the slide that appears to show peak load at each of the distribution substations. Based on the text in the lower right corner of this slide, it is expected that the Tenaja and Stadler substation would sum to approximately 205 MVA in this table. In addition, the power flow shown on the PSLF screenshots on slide 74 of this presentation also shows flow to Tenaja and Stadler substations as approximately 205 MVA. However, the load of Tenaja and Stadler substations in the table on slide 68 total approximately 186 MVA. Please provide information to clarify this discrepancy and as needed, provide updates to associated verification slides.
Slides 68 and 74 are included below for reference.





Response to Question DG-MISC-84:

SCE made a presentation to Energy Division on Aug. 30, 2022 consisting of 65 slides which, among other things, documented the load transfer capability of the existing Valley South System (as is) and three alternatives: Alberhill System and two Valley South to Valley North alternatives (12A and 12B). On Aug. 31, 2022 SCE provided an updated version of the presentation (with an additional 13 slides) addressing certain topics brought up on Aug. 30.

On slide 68 of the updated presentation, SCE provided the load transfer capabilities of the existing Valley South System and the three alternatives along with loading data of the substations and the following annotation within which contain two typographical errors in the second sentence.

> *"The five substations (highlighted yellow) that are transferred to Alberhill from Valley South total 412 MVA in load before losses and 422 MVA with losses. The two additional substations (highlighted in pink) that can also be transferred during emergency conditions total 200 MVA before losses and 205 MVA with losses. The values highlighted in green represent the transfer of Newcomb and Sun City (either as part of initial transfer (12A) or tie-line transfer (12B) and total 205 MVA before losses and 210 with losses."*

The second sentence states values of "200 MVA" and "205 MVA" where the correct values are "186 MVA" and "193 MVA" respectively. The following is the sentence with errors corrected.

> "*The two additional substations (highlighted in pink) that can also be transferred during emergency conditions total **186** MVA before losses and **193** MVA with losses."*

From the load tables for the distribution substations provided on slide 68, the sum of the loads for the Tenaja and Stadler substations without losses is 185.72 MVA (59.48+126.24 MVA) and with losses *when served by the Valley South System*, the correct sum is 193 MVA. However, *when served by the Alberhill System*, the load transfer of 186 MVA (before losses) adds approximately 205 MVA (with losses) to the loading of the Alberhill System and the value of 205 MVA was mistakenly reported rather than the value associated with the decrease in the loading of the Valley South System following the transfer.

Slide 74 (referenced in this data request question) correctly identifies that the transfer of Tenaja and Stadler substations results in approximately 205 MVA of load added to the Alberhill System (which is the value reported originally in the table in cell I4). However, the table was constructed to reflect the *decrease* of loading in each system that could transfer load away during transformer contingencies, thus the table should have reflected the value of 193 MVA in cell I4.

Said another way, it takes approximately 205 MVA of power through the Alberhill System transformers and lines to serve the 186 MVA of load associated with Tenaja and Stadler Substations. Whereas, when the same two substations are served from the Valley South System, it takes 193 MVA of power through the Valley South System transformers and lines to serve the 186 MVA of load associated with Tenaja and Stadler Substations. Transferring the two substations from the Valley South System to the Alberhill System reduced the loading of the Valley South System by 193 MVA. System losses are dependent on the impedance of the path(s) the power must flow through to reach the load. Increased impedance values increase losses for a given load amount.

With this correction, the table at the top of slide 68 also requires modification to reflect the correct value of 193 MVA rather than 205 MVA (shown in cell I4 and highlighted in pink). The value in cell I4 is used for the calculations in the two cells immediately to the right of it and those values correspondingly change to “23%” from “24%” and to “649” from “637”. Shown below is the corrected table.

A.09-09-022 CPUC-Supplemental Data Request-013 Q.DG-MISC-82_FollowUp_2

	A	B	C	D	E	F	G	H	I		J	K	L	M	N	O	P
	Substation	Load-serving xfmr Inventory	Installed xfmr Capacity	Peak Load w/losses Before Project	Initial Peak Load Transfer of Alternative if applicable	Peak Load w/losses After Initial Load Transfer	BESS Size if applicable	Peak Load w/losses After Initial Load Transfer and BESS	Transfer Capability (Away) During xfmr N-1	% of Peak Load that can be transferred away	Peak Load w/losses After Initial Load Transfer, After BESS, and After Transfer Capability (Away)	STELL of remaining xfmr	Peak Load at risk during xfmr N-1 during 1st Hour STELL	LTELL of remaining xfmr	Peak Load at risk during xfmr N-1 for hours 2-24 LTELL if the Valley Sub on-site spare xfmr is not available for either VS or VN	LTELL Capacity of VS or VN during xfmr N-1 for hours 2-24 with Valley on-site spare available to address this xfmr outage	Peak Load at risk during Valley Sub xfmr N-1 for hours 2-24 with LTELL rating w/Valley on-site spare available to address this xfmr outage in either VS or VN
						Col. D + Col. E		Col. F - Col. G			Col. H - Col. I	=160% X remaining xfmr capacity	If Col. J < Col. K then 0, otherwise Col. J - Col. K	=120% X remaining xfmr capacity	If Col. J < Col. M then 0, otherwise Col. J - Col. M	=2 X 560 X 120%	If Col. J < Col. O then 0, otherwise Col. J - Col. O
1	**Valley South (as is)**	2@560	1120	1264	0	1264	0	1264	0	0%	1264	896	368	672	592	1344	0
2	**Alberhill Alternative**																
3	Alberhill	2@560	1120	0	422	422	N/A	422	369	87%	53	896	0	672	0	N/A	N/A
4	Valley South	2@560	1120	1264	-422	842	N/A	842	193	23%	649	896	0	672	0	1344	0
27	**VS-VN+CBESS in VS Alternative (12A)**																
29	Valley North	2@560	1120	907	210	1117	N/A	1117	356	32%	761	896	0	672	89	1344	0
30	Valley South	2@560	1120	1264	-210	1054	158	896	0	0%	896	896	0	672	224	1344	0
31	**VS-VN+CBESS in VS Alternative (12B)**																
32	Valley North	2@560	1120	907	0	907	N/A	907	146	16%	761	896	0	672	89	1344	0
33	Valley South	2@560	1120	1264	0	1264	158	1106	210	19%	896	896	0	672	224	1344	0

The purpose of the table was to demonstrate how each alternative performed in reducing the loading of the Valley South System to below the short-term emergency loading limit (STELL) and long-term emergency loading limit (LTELL) during a transformer outage.

After making this correction and comparing it to the previously provided table, there are no changes

to the conclusions presented. Specifically, following the correction, the Alberhill Alternative reduces the Valley South System loading by 193 MVA resulting in a load value to 649 MVA (from what had been previously identified as 637 MVA), however the corrected loading continues to remain below both the STELL and LTELL values and thus still results in no load at risk.