

MEMORANDUM

DATE: December 4, 2024

TO: Sebastian Rucci
Imperial Valley Computer Manufacturing

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PW 0255861_0000.1.2
24-0151-12712

FROM: Christopher Goulet, P.E. (POWER-ORL)

SUBJECT: 0255861_0000 IVCN Data Center Load Injection Analysis

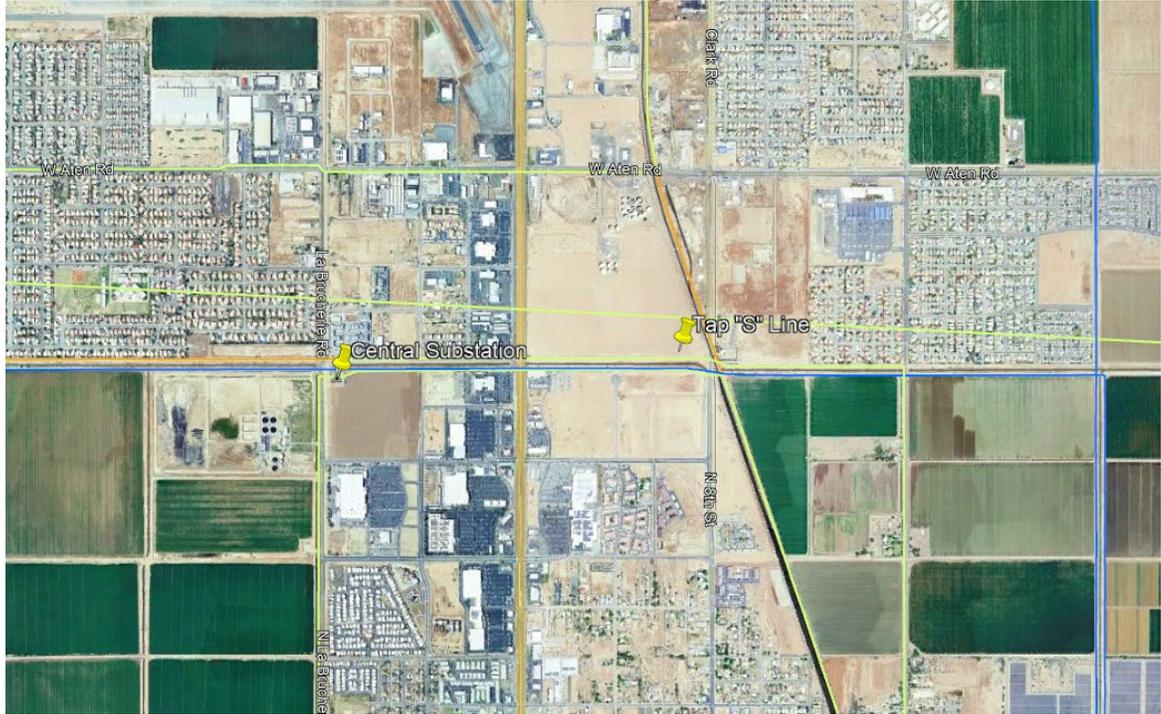
MESSAGE

Sebastian,

POWER has analyzed Imperial Valley Computer Manufacturing's (IVCM) potential data center sites in Imperial County, California to determine potential load capacity at each site as well as to provide a high-level cost estimate for potential system upgrades. One Point of Interconnection (POI) was a tap of the 230 kV S-Line between El Centro 230 kV Substation and Imperial Valley 230 kV Substation. The other POI was the Central 92 kV Substation. Study assumptions were as follows:

- The identified POIs were studied up to 1,100 MW loading under N-1 and N-1-1 contingency scenarios to determine their maximum load serving capabilities.
- Contingencies were created by compiling all transmission lines or transformers within 7 buses of each POI.
- A distribution factor cutoff of 3% was utilized to remove any non-significant results.
- The WECC 2027 Heavy Summer and Heavy Winter planning base cases were used.
 - No additional generation, system upgrades, or path stressing was considered.
- Generation was dispatched from Imperial Irrigation District (IID), San Diego Gas & Electric (SDGE), Arizona Public Service (APS), Salt River Project (SRP), and Southern California Edison (SCE) to the POIs.
 - This dispatch was chosen to reflect system wide generation growth as well as to represent large queued generation projects near IID's system boundaries.

POI Site Map



Please refer to Table 1 for load injection analysis results.

TABLE 1: IVCN LOAD INJECTION ANALYSIS RESULTS - 2027				
SITE	SUMMER N-1 CAPACITY [MW]	SUMMER N-1-1 CAPACITY [MW]	WINTER N-1 CAPACITY [MW]	WINTER N-1-1 CAPACITY [MW]
230 kV S-LINE TAP	557.8	342.0	823.1	528.9
CENTRAL 92 kV SUBSTATION	108.3	83.5	99.8	60.2

If desired, upgrades to local grid infrastructure can allow higher load injection than shown in Table 1. The high-level cost estimate provided below is based on values across the country and is not inherently specific to interconnections in California.

Please note that rebuilding 92 kV transmission lines cost around \$1,500,000 per mile¹ at present. Substation expansion costs are utility dependent and can vary significantly, as such, these costs are not included in the below cost estimate.

230 kV S-Line Tap

Network upgrade cost to interconnect 750 MW: \$13,350,000

Central 92 kV Substation

Network upgrade cost to interconnect 150 MW: \$33,000,000

Christopher Goulet, P.E. (POWER-ORL)

¹ <https://cdn.misoenergy.org/MISO%20Transmission%20Cost%20Estimation%20Guide%20for%20MTEP24337433.pdf>

Load Capacity of IVCM Sites - 2027				
Site	Summer N-1 capacity [MW]	Summer N-1-1 capacity [MW]	Winter N-1 capacity [MW]	Winter N-1-1 capacity [MW]
230 kV S-Line Tap	557.8	342.0	823.1	528.9
Central 92 kV Sub	108.3	83.5	99.8	60.2

Capacity before upgrades to existing facilities using WECC transmission planning base cases

230kV tap of S-Line - Potential Interconnection Location				MW Available	% DFax	MW Impact	Length of Line/Equipment	Cost per unit	Total Cost	
Monitored Facility										
21642	CALPTTAP	92.0	21697 CALIPAT 92.0 1	557.8	0.19514	82.3	0.9	\$1,500,000.00	\$1,350,000.00	92kV line rebuild
21361	NILAND	92.0	21809 PRITP1 92.0 1	640.1	0.1948	0.2	5.0	\$1,500,000.00	\$7,500,000.00	92kV line rebuild
21809	PRITP1	92.0	21810 PRISON 92.0 1	640.3	0.1948	19.6	0.5	\$1,500,000.00	\$750,000.00	92kV line rebuild
21810	PRISON	92.0	21811 PRITP2 92.0 1	659.9	0.1948	0	0.5	\$1,500,000.00	\$750,000.00	92kV line rebuild
21811	PRITP2	92.0	21870 CSF_TAP 92.0 1	659.9	0.1948	109.5	2.0	\$1,500,000.00	\$3,000,000.00	92kV line rebuild
Grand Total									\$13,350,000.00	

92 kV Central Substation - Potential Interconnection Location

Monitored Facility				MW Available	% DFax	MW Impact	Length of Line/Equipment	Cost per unit	Total Cost	
21319	DIXIELAN	92.0	21946 DIXPRI2 92.0 1	108.3	1	0.0	2.0	\$1,500,000.00	\$3,000,000.00	92kV Line Rebuild
21335	ELSTEAMP	92.0	21976 CENTRAL 92.0 1	108.3	1	0.0	4.0	\$1,500,000.00	\$6,000,000.00	92kV Line Rebuild
21946	DIXPRI2	92.0	21944 DIXPRI 92.0 1	108.3	1	2.2	1.0	\$1,500,000.00	\$1,500,000.00	92kV Line Rebuild
21944	DIXPRI	92.0	21943 DIXPRI1 92.0 1	110.5	1	0.0	1.0	\$1,500,000.00	\$1,500,000.00	92kV Line Rebuild
21943	DIXPRI1	92.0	21976 CENTRAL 92.0 1	110.5	1	60.1	14.0	\$1,500,000.00	\$21,000,000.00	92kV Line Rebuild
21337	TERMINAL	92.0	21282 USNAF 92.0 1	170.6	0.7837	11.8	7.0	\$1,500,000.00	\$10,500,000.00	92kV Line Rebuild
21282	USNAF	92.0	21319 DIXIELAN 92.0 1	182.4	0.7837	108.2	7.0	\$1,500,000.00	\$10,500,000.00	92kV Line Rebuild
21335	ELSTEAMP	92.0	21337 TERMINAL 92.0 1	290.6	0.3706	7.1	1.5	\$1,500,000.00	\$2,250,000.00	92kV Line Rebuild
21334	ELSTEAMP_2	92.0	21337 TERMINAL 92.0 2	297.7	0.3688	211.1	1.5	\$1,500,000.00	\$2,250,000.00	92kV Line Rebuild
21870	CSF_TAP	92.0	21642 CALPTTAP 92.0 1	508.8	0.2139	0.1	0.5	\$1,500,000.00	\$750,000.00	92kV Line Rebuild
21642	CALPTTAP	92.0	21697 CALIPAT 92.0 1	508.9	0.2139	75.0	0.9	\$1,500,000.00	\$1,350,000.00	92kV Line Rebuild
Grand Total									\$60,600,000.00	