VERSION: DRAFT

MAY 22, 2025

IMPERIAL VALLEY COMPUTER MANUFACTURING LLC, (DATA CENTER #1) FEASIBILITY STUDY

TRANSMISSION PLANNING

EXECUTIVE SUMMARY

The Imperial Irrigation District (IID) received a request from Imperial Valley Computer Manufacturing LLC (Customer) for the interconnection of their Imperial Data Center Campus (Project) in the Imperial Valley. The facility's proposed Point of Interconnection (POI) to the IID System is at the 230kV 'S' line between IID's El Centro switching station (ECSS) and SDG&E's Imperial Valley substation. As part of this feasibility study, IID evaluated the interconnection of different load scenarios at 150 MW, 200 MW, 250 MW, and 500 MW to assess potential system impacts and infrastructure requirements. Commercial Operation Date (COD) is planned to be in service by January 2027.

IID's Transmission Planning Department performed a high-level feasibility study to evaluate the potential impact of integrating this Project into the IID transmission system. The study included power flow (steady-state) analysis to identify any thermal violations caused solely by the addition of this load.

Note: IID assumed that the majority of the power required to serve this load would be imported. IID currently does not have the capability to reliably support a large-scale load requiring continuous 24-hour service. As such, this report does not represent a commitment by IID to serve the requested load.

PROJECT DESCRIPTION

The proposed Project consists of a large-scale data center campus, upwards of 500MW, that is to be placed in a land parcel near the 230kV 'S' line between IID's El Centro switching station and SDG&E's Imperial Valley substation, which will serve as the POI for the Project. The Project had an assumed power factor of 0.95. The Figures 1, 2, & 3 below indicate the single line diagram, geographical location, and site plan of the Project.

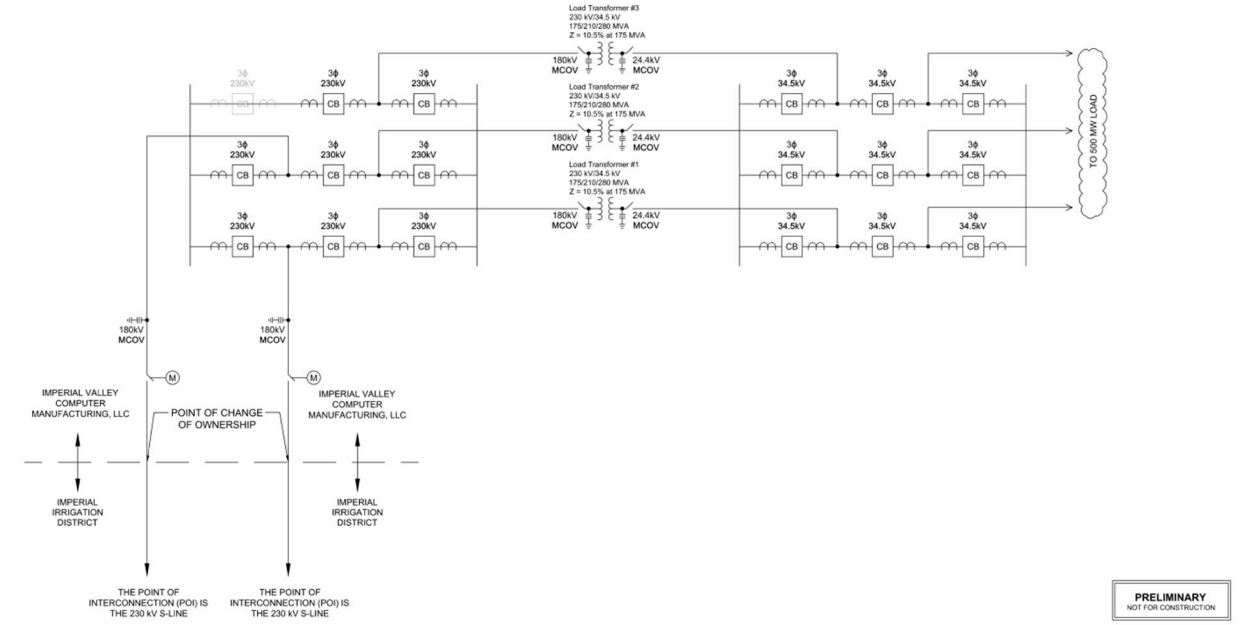

FIGURE 1: PROJECT SINGLE LINE DIAGRAM

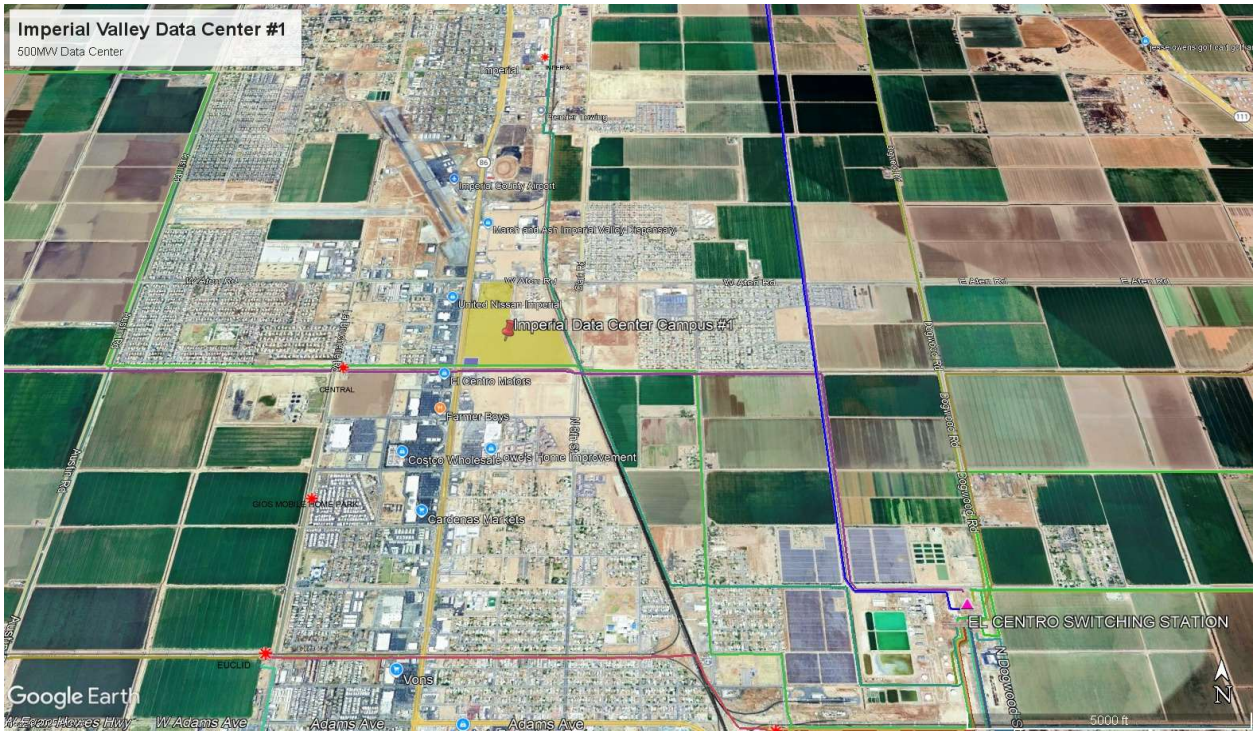

FIGURE 2: PROJECT GEOGRAPHICAL LOCATION

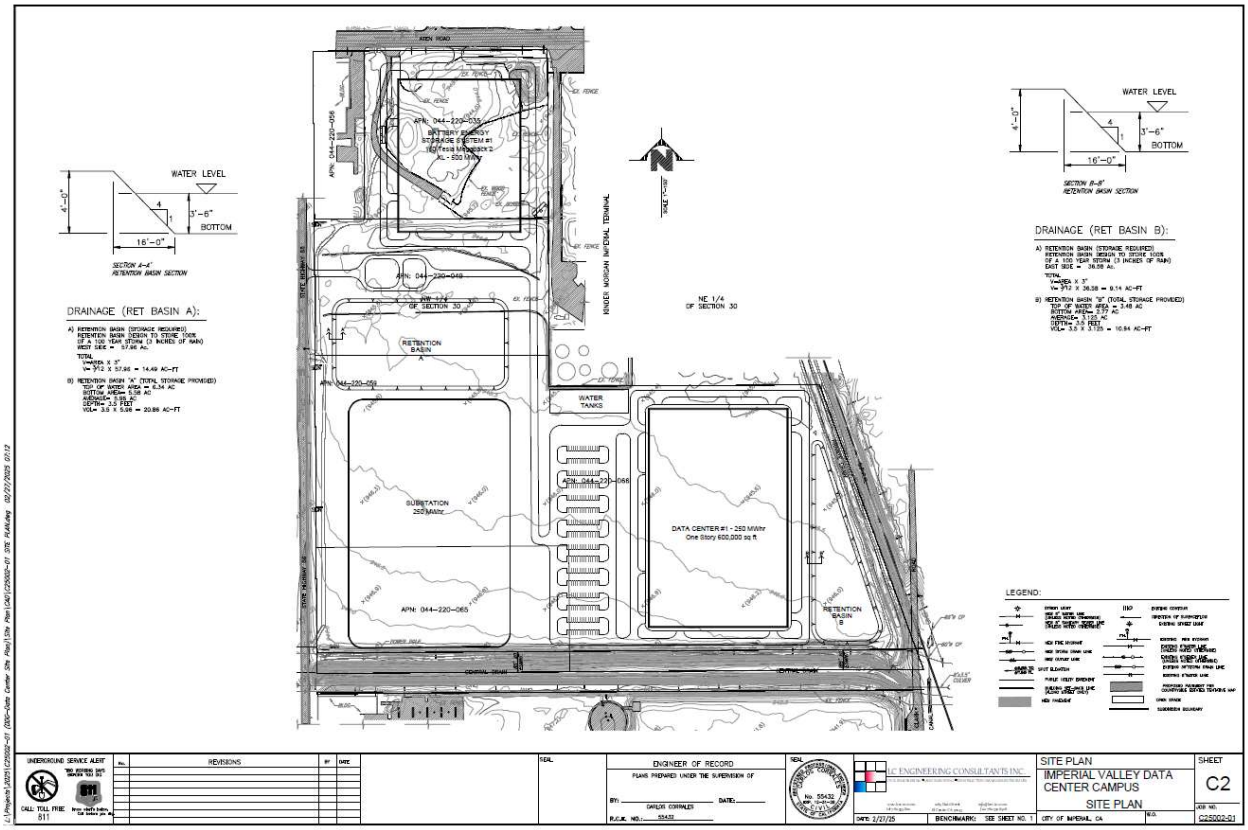

FIGURE 3: PROJECT SITE PLAN

IVCM DATA CENTER BREAKDOWN			
MW	MVAR	MVA	PF
150MW	49MVAR	158MVA	0.95
200MW	65MVAR	210MVA	0.95
250MW	82MVAR	263MVA	0.95
500MW	164MVAR	526MVA	0.95

TABLE 1: PROJECT BREAKDOWN PER LOADING SCENARIO

STUDY DATA ASSUMPTIONS AND METHODOLOGY

Various base cases were developed for this assessment with the intent to cover all critical operating scenarios, and to document all potential impacts that could be caused by the implementation of the Project. No queue generation was included unless the project has an executed Generator Interconnection Agreement (GIA), a Power Purchase Agreement (PPA), or a Tolling Agreement with the IID and the project is in accordance with section 4.0 of IID's Planning Standards. Distribution projects were included with either an executed Joint Power Agreement (JPA) or system impact studies were finalized. The base cases were developed to represent the Heavy Summer operating conditions and the early Spring operating conditions. For the early Spring assessments, an early Spring time frame of 0600-0800 was analyzed.

Table 1 below lists the WECC approved base cases that were used to model the IID system for steady-state analysis:

WECC Seed Case	PSLF Base Case Name	Description
Heavy Summer Peak Scenarios		
25HS4a.sav	27HS_IVCM_Peak_pre.sav	2027 Heavy Summer without Project (pre-case)
	27HS_IVCM_150MW_Peak.sav	2027 Heavy Summer with Project (150MW)
	27HS_IVCM_200MW_Peak.sav	2027 Heavy Summer with Project (200MW)
	27HS_IVCM_250MW_Peak.sav	2027 Heavy Summer with Project (250MW)
	27HS_IVCM_500MW_Peak.sav	2027 Heavy Summer with Project (500MW)
Heavy Summer Solar Reduced Scenarios		
25HS4a.sav	27HS_IVCM_Solar_Reduced_pre.sav	2027 Heavy Summer without Project (pre-case); 20% solar
	27HS_IVCM_150MW_Solar_Reduced.sav	2027 Heavy Summer with Project (150MW); 20% solar
	27HS_IVCM_200MW_Solar_Reduced.sav	2027 Heavy Summer with Project (200MW); 20% solar
	27HS_IVCM_250MW_Solar_Reduced.sav	2027 Heavy Summer with Project (250MW); 20% solar
	27HS_IVCM_500MW_Solar_Reduced.sav	2027 Heavy Summer with Project (500MW); 20% solar
Light Spring Early Morning Solar Reduced Scenarios		
26LSP1Sa.sav	27LSP_IVCM_Solar_Reduced_pre.sav	2027 Light Spring without Project (pre-case); 40% solar
	27LSP_IVCM_150MW_Solar_Reduced.sav	2027 Light Spring with Project (150MW); 40% solar
	27LSP_IVCM_200MW_Solar_Reduced.sav	2027 Light Spring with Project (200MW); 40% solar
	27LSP_IVCM_250MW_Solar_Reduced.sav	2027 Light Spring with Project (250MW); 40% solar
	27LSP_IVCM_500MW_Solar_Reduced.sav	2027 Light Spring with Project (500MW); 40% solar

TABLE 2: SUMMARY OF BASE CASES ANALYZED

The GE PSLF version 23.0.8.2 software was used to analyze the pre and post Project study cases, with respect to the North American Electric Reliability Corporation (NERC) revised NERC TPL-001-5.1 standard, reflecting the use of P0-P7 outage categories and the corresponding WECC system performance criteria. GE PSLF was also used to check for system performance criteria violations in each of the post-Project cases when comparing to the corresponding pre-Project case. GE ProvisoHD was utilized to accumulate the power flow results in order to facilitate the comparison between pre and post Project cases. The base cases developed are designed to reflect the IID electrical system via loads, resources, topology and conditions expected when the project starts operation. While it is impossible to study all the IID transmission system flows and generation levels during all seasons, these pre-Project base cases represent extreme generation and transmission flows that will potentially expose any transmission constraints at the POI. However, the IID cannot guarantee that the Project can operate at its maximum rating year-round without impacting the transmission system, during times and seasons not studied.

Steady State Contingency Analysis:

The assessment considered all of IIDs credible single and multiple contingencies, as well as the most severe multiple contingencies within the IID system. External contingencies that are known to cause the most severe impacts to the IID transmission system were analyzed also. The scope of the steady-state analysis consisted of thermal, voltage magnitude and angle difference violations. The full suite of NERC standard TPL-001-5.1 contingency sets, P1-P7, was analyzed.

STUDY RESULTS AND CONCLUSION

The Imperial Irrigation District (IID) conducted a high-level feasibility study for the proposed Project at various loading levels, with the POI located on the 230kV 'S' Line between IID's El Centro substation and SDG&E's Imperial Valley substation. The study evaluated multiple loading and generation scenarios for the Project's target year, using Heavy Summer and Light Spring cases. Below are the findings and results for each loading scenario:

150 MW load

- Results showed there were no thermal violations in IID's transmission system under P0-P7 contingencies. Project did not cause any buses to experience voltage exceedances or deviations.

200 MW load

- Results showed there were no thermal violations in IID's transmission system under P0-P7 contingencies. Project did not cause any buses to experience voltage exceedances or deviations.

250 MW load

- Results showed there were no thermal violations in IID's transmission system under P0-P7 contingencies. Project did not cause any buses to experience voltage exceedances or deviations.

500 MW load

- Thermal and voltage violations were found under the following outage:
  - P1: Loss of 230kV 'S' Line between 230kV Imperial Valley Substation and 230kV IVCM Substation.

- The outage mentioned above shows the Project poses a significant risk of voltage collapse due to its heavy reliability on imported power and the limited transmission capacity of IID's system to support such demand. In order to avoid this risk and for the project to be feasible, a new independent 230kV circuit from Imperial Valley Substation to IVCM Substation will be needed.

Please note that this is based on high-level assumptions and does not represent the final results of the study, as conceptual models and designs were used to verify that the proposed maximum output at the point of interconnection is feasible.