Appendix A – WDT10149

[redacted]

Queue Cluster 15 Cluster Study Report

November 3, 2025

This study has been completed per Southern California Edison Company's Wholesale Distribution Access Tariff (WDAT), Attachment M Resource Interconnection Procedures (RIP)

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Interconnection Study Document History

No.	Date	Document Title	Description of Document
2	11/03/2025	Queue Cluster 15 Cluster Study Appendix A Report	[redacted].
1	10/29/2025	Queue Cluster 15 Cluster Study Appendix A Report	Final Cluster Study Report.

A. INTRODUCTION

In accordance with the Wholesale Distribution Tariff ("WDAT") Attachment M Resource Interconnection Procedures ("RIP"), the Generating Facility was placed in the Queue Cluster 15 ("QC15") group, and the following information included in Table A was stipulated in its associated Interconnection Request ("IR") submitted to the Southern California Edison Company ("SCE") by the Interconnection Customer ("IC"):

Table A – IR Information for Generating Facility

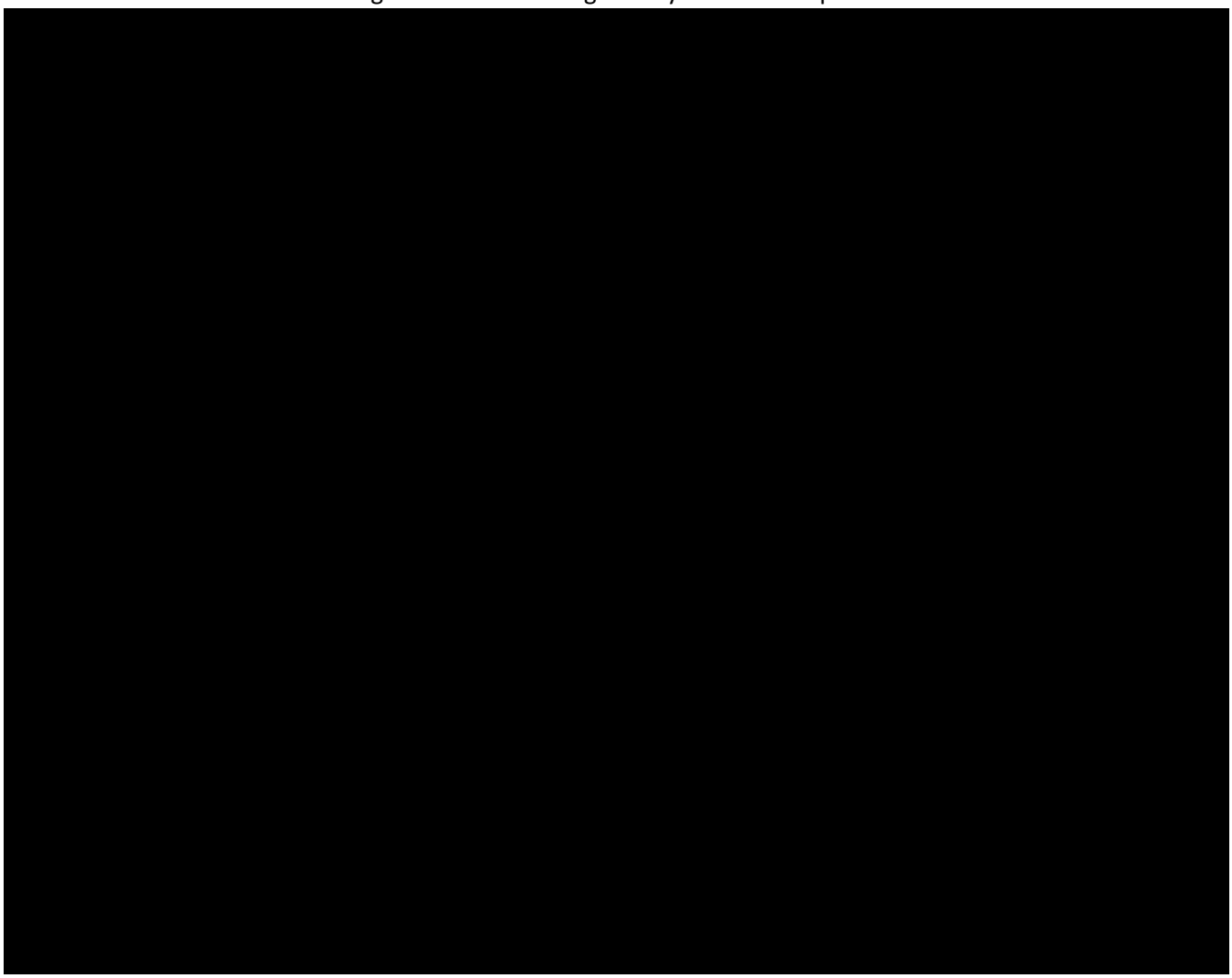
IC Name	[redacted]
Generating Facility Name	
Generating Facility Coordinates	
Technology	
SCE's Planning Area	
SCE Subtransmission System	
Local Distribution Station	
High Risk Fire Area*	
Interconnecting Voltage	
Point of Interconnection ("POI")	
Maximum Net Megawatt (MW) Requested	
Dynamic Models	
Deliverability Type Requested	
Deliverability Zone Classification	
Point of Delivery to ISO grid	
Requested In-Service Date ("ISD")	
Requested Commercial Operating Date ("COD")	
Number and Types of Generators	
Generation Tie Line	
Main Step-Up Transformer(s) *Main Transformers T1*	
Collector Equivalent	
Pad-Mount Transformer(s)	
Generator Data *Downstream of Main Transformer Bank*	
Generator Auxiliary Load and/or Station Light and Power	
Voltage Regulation Devices *Downstream of Main Transformer Bank T1*	

Additionally, it is noted that the IC will need to design its proposed Generating Facility, such that it abides by SCE's Interconnection Handbook. The Interconnection Handbook provides an overview of the requirements for Generator Interconnections to interconnect to SCE's electric system, and the link is provided in Attachment 5 to this Appendix A report. Furthermore, it is noted that generator commissioning testing is required for interconnection of the Generating Facility. The details on the commissioning testing procedure may be accessed at this link: https://on.sce.com/CommissioningProcedure.

The proposed plan for interconnecting the Generating Facility required to interconnect the proposed Generating Facility and provide the requested, as disclosed in Table A above, at the POI and to support ACDS, if applicable, is illustrated in Figure A.1. Figure A.2 illustrates the proposed location of the Generating Facility. The Generating Facility was modeled as described in Table A.

Figure A.1: Generating Facility One-Line Diagram

Figure A.2: Generating Facility Location Map



The QC15 projects were evaluated collectively to determine the impacts of the cluster, and individually to identify the impacts of each project to the SCE's Distribution System and the ISO Grid. An Area Report was prepared separately to discuss the combined impacts of all projects on the ISO Grid and a Subtransmission Assessment Report ("SAR") was prepared separately to discuss the combined impacts of all projects on the distribution facilities served out of the SCE Subtransmission System specified in Table A. This Appendix A report discloses the impact(s) and contributions of the Generating Facility alone. The IC is advised that the information provided in the Appendix A report is not intended to supersede any contractual terms or conditions specified in the forthcoming Generator Interconnection Agreement ("GIA").

B. REPORT OBJECTIVE

This report discloses the results of the QC15 Cluster Study (CS15) analysis for the Generating Facility. Table B.1 summarizes the content and information this report discloses for the generation export analysis for the Generating Facility. While Table B.2 summarizes the content and information, this report discloses which pertain to the charging analysis as requested by IC for the Generating Facility.

Table B.1 – Generation Export Analysis Results

Item	Description	Section/Attachment with content
Study Assumptions	Disclosed is this Appendix A report, a study assumption specific to the Generating Facility utilized in the Cluster Study, and supplementary items considered in the study. The study assumption provided is for the facilities required for interconnection and discharge operation of the Generation Facility.	Section D
Study Results	Disclosed in this Appendix A report is a summary of the technical analysis results for the Generating Facility under discharge operation.	Section E
Estimated Scope of Work	Provided is this Appendix A report is the following: ✓ A preliminary description of the Interconnection Facilities ("IF"), and/or Distribution Upgrades ("DU"), as well as modifications to the existing SCE's Electric System associated with the plan of service to interconnect the Generating Facility. ✓ A high-level description of the Network Upgrades or mitigation assigned to the Generating Facility that are necessary to address the adverse impacts on the ISO Grid that the Generating Facility triggers and/or contributes to under various system conditions. The estimated scope of work provided is for the facilities required for interconnection and discharge operation of the Generation Facility.	Attachment 1 (separate document)
Estimated Costs	Provided in this Appendix A report is the following: ✓ Good faith non-binding estimate of the IF, and DU required to interconnect the Generating Facility. ✓ Appropriate share of the Rough Order Magnitude (ROM) costs for DU beyond the POI and Network Upgrades allocated to the Generating Facility. The estimated costs provided is for the facilities required for interconnection and discharge operation of the Generation Facility.	Section H, Attachment 7a and Attachment 7b (separate documents)

Schedule	Provided in this Appendix A report is the following: ✓ A good faith non-binding estimate of the schedule necessary to engineer, design, license, procure, and complete construction of the facilities required to interconnect the Generating Facility. The approximate schedule provided is to support interconnection and discharge operation of the Generating Facility.	Section H, Attachment 7a (separate document)
ISD and COD Assessment	Provided in this Appendix A report is an ISD and COD assessment to determine SCE's estimate of the earliest achievable ISD and corresponding COD.	Section G

Table B.2 – Import/Charging Analysis Results

No.	Charging Service Requested for Generating Facility BESS	Description of Charging Service Analysis	Section/Attachment with results	Note(s)/Assumptions	Requested Service for BESS per IR
1.	Study not applicable. The Generating Facility does not contain a battery energy storage system ("BESS")				[redacted]
2.	None	The IC specified in the IR that it intends to charge the BESS only from onsite generation, as a result no charging analysis was performed.	NA	The IC will be required to demonstrate that the BESS cannot charge from the Distribution System.	
3.	As-Available Charging Distribution	An ACDS analysis to determine the charging impacts with the full MW size of Generating Facility on SCE's Electric System.	Section E.2.b provides the following: a. Summary of SCE's Electric System adequacy to support the Generating Facility under ACDS. b. A high-level explanation of the charging restrictions on the electric system for Generating Facility. c. The service level, which is based on the POI of the Generating Facility, to enable the IC to	The analyses focused on the Charging Capacity[2] aspects of the Generating Facility and considered varying levels of system demand with minimal generation dispatch within the local distribution system. Additionally, it is assumed that the facilities required to interconnect the Generating Facility will also support ACDS operation.	

[2] Charging Capacity: The load associated with the storage component of a Generating Facility charged from the Distribution System that is used for later redelivery of the associated energy, net of Resource losses, to the Distribution System. Charging Capacity does not include load that is subject to SCE's retail tariff.

	Service ("ACDS")[1]		determine the applicable As-Available Energy Charge Rate ($/kWh).		
4.	Firm Charging Distribution Service[3] ("Firm")				[redacted]
5.	ACDS and Firm[3]				[redacted]

C. DESCRIPTION OF GENERATING FACILITY

[redacted] as disclosed by the IC in its IR, as may have been amended during the Interconnection Study process, as summarized below:

[redacted]

[1] As-Available Charging Distribution Service ("ACDS") is the Distribution Service provided under a Service Agreement for Wholesale Distribution Service, **subject to available capacity on the Distribution System, as may be adjusted in the future** by factors such as changes in load, Resources, and Firm Charging Distribution Service, or modifications to the Distribution System, and any operating conditions and/or limitations as may be set forth in the Service Agreement for Wholesale Distribution Service, and is subject to Curtailment in accordance with Section 12.7.3 of the Tariff. The IC is reminded that to receive ACDS it will need to pay a monthly energy charge which is calculated by multiplying the customer's metered energy by the applicable Energy Charge Rate specified in Section 5.1 of Attachment K to the WDAT.

[3] An ACDS analysis was performed to all interconnection requests seeking a level of charging distribution service, including those seeking Firm Charging Distribution Service or a combination of Firm Service and ACDS. Refer to No.3 item in table B.2 for information on where to find the results of this analysis.

[redacted]

Generation Export Limit for the Generating Facility

[redacted] SCE and the IC acknowledge that the IC agrees to install, own, operate and maintain a control limiting device or, alternatively, by means of configuring the Generating Facility's control system should the Generating Facility exceed or is capable of exceeding this value. This is to ensure the Generating Facility does not exceed the total requested net capacity at the POI.

As-Available Charging Capacity Limit for the Generating Facility

[redacted]. SCE and the IC acknowledge that the IC agrees to install, own, operate and maintain a control limiting device or, alternatively, by means of configuring the Generating Facility's control system should the Generating Facility exceed or is capable of exceeding this value. This is to ensure the Generating Facility does not exceed the total Charging Capacity value at the POI.

D. STUDY ASSUMPTIONS

For detailed assumptions regarding the evaluation on the SCE Non-ISO controlled Subtransmission System, please refer to the SAR. Below are the assumptions specific to the proposed Generating Facility:

1. The Generating Facility was modeled as illustrated in Figure A.1.
2. The facilities that will be installed by SCE and the IC are detailed in Attachment 1.
3. The Generating Facility's estimated interconnection costs, adjusted for inflation and provided in 'constant' 2025 dollars are provided in Attachment 7a to this Appendix A report. The interconnection costs will be documented in the forthcoming GIA for the Generating Facility. However, should there be a delay in executing the GIA, 12 months from issuance of the Facilities Study, a new cost estimate adjusted for inflation will be required and reflected in the GIA.
4. Environmental Activities, Permits, and Licensing.

For further details on the environmental evaluation and permitting/licensing requirements for generator interconnection projects, refer to Appendix I to the Area Report.

If no "Yes" or "No" is entered in a specific row of Table D.1, then assume no environmental scope of work or costs would apply to such SCE facilities disclosed in Attachment 1.

- **Assumed Licensing:**
  a. If yes is indicated in Table D.1, SCE assumes construction of SCE's Interconnection Facilities ("IF") and/or Distribution Upgrades ("DU") needed to interconnect the Generating Facility will require a California Public Utilities Commission ("CPUC") license.
  b. If no is indicated in Table D.1, SCE assumes construction of SCE's IF and/or DU needed to interconnect the Generating Facility will not require a CPUC license. Note this assumption may rely on the assumption that the final California Environmental Quality Act ("CEQA") document for the IC's Generating Facility will adequately incorporate SCE's scope of work such that SCE's work may qualify for an exemption from CPUC Permit to Construct requirements under GO 131-E.
  c. Such assumptions will be reviewed and verified after execution of a GIA when detailed engineering and environmental review occur.

- **Environmental Activities Assumed Roles and Responsibilities:**

  i. If a "Yes" is stated in the "IC/SCE-Shared" column in Table D.1:

  SCE Scope of Work

  1. SCE will act as the lead for regulatory agency communication for permits issued to SCE covering such SCE facilities.
  2. The certified final CEQA document and/or National Environmental Policy Act ("NEPA") document for the IC's Generating Facility will adequately describe and analyze SCE's scope of work. If a CEQA document is not required for the Generating Facility or if the Generating Facility's CEQA document does not sufficiently incorporate SCE's scope of work, SCE may be required to obtain a Permit to Construct or Certificate of Public Convenience and Necessity from the CPUC and prepare a Proponent's Environmental Assessment ("PEA") or equivalent for SCE's scope of work. In such cases, SCE's assumed environmental work and licensing level of effort will increase, resulting in the need to update cost and duration estimates, and potentially amend the GIA.
  3. SCE environmental activities may include, but are not limited to, the following:
     a) Perform all environmental studies and construction monitoring of SCE internal substation construction activities and provide study results to the IC for inclusion in its environmental documents, if applicable.
     b) Collaborate with the IC during the environmental study phase on the IC's proposed study methodologies and findings, as studies are being planned and performed for SCE's scope of work.
     c) Review IC's CEQA and/or NEPA documents, technical studies, surveys, and other environmental documentation to ensure SCE's scope of work is adequately described in such documents (IC will include SCE's scope of work in its environmental documents. If the Generating Facility's CEQA and/or NEPA documents do not sufficiently incorporate SCE's scope of work, SCE's assumed environmental work and permitting level of effort may increase, resulting in the need to update cost and duration estimates, and potentially amend the GIA).
     d) Review SCE's existing internal technical reports/documents when available.
     e) Prepare SCE's project description, including scope changes during permitting/pre-construction or construction.
     f) Communicate scope changes to the IC's environmental team and discuss/approve subsequent actions including new surveys as necessary.
     g) Complete General Order 131-E Consistency Determination and Environmental Evaluation.
     h) Regulatory agency communication, consultation, reporting, and acquisition of SCE permits addressing SCE's facilities and scope of work.
     i) Prepare environmental requirements for construction clearance.
     j) Develop communication plan.
     k) Perform pre-construction coordination field visit.
     l) Provide Environmental Awareness/Worker Environmental Awareness Program ("WEAP") training.
     m) Perform construction monitoring oversight.
     n) Complete construction and post-construction site assessments.

IC Scope of Work

1. IC will perform all environmental studies and prepare draft environmental permit applications related to the installation of such SCE facilities, except for the SCE internal substation activities as described above. The IC's responsibilities include as applicable, but are not limited to: notifications to the Native American Heritage Commission ("NAHC") and follow-up notifications to the tribes and individuals in the NAHC contact list; performing cultural and paleontological resources records searches, cultural resources inventories (survey and recording), testing and evaluation and/or data recovery of archaeological sites, and appropriate documents in the form of inventory reports, research design, and/or data recovery reports; cultural and paleontological monitoring when/if required, and arranging curation agreements for artifacts and fossil specimens collected; performing a California Natural Diversity Database search, habitat assessment, and protocol or focused surveys for species with the potential of occurring in identified suitable habitat; conducting jurisdictional delineations for wetlands and other regulated waters; preparing draft environmental permit applications, pre-construction biological resource surveys for such SCE facilities, biological resource monitoring during construction of such SCE facilities; mitigation costs including, but not limited to, offsite/compensatory mitigation and onsite restoration, and developing mitigation plans or other environmental reports or submittals to support installation of such SCE facilities.
2. Prior to commencing work and during execution of work, the IC should collaborate and obtain SCE concurrence on all work outlined above. Should the IC-performed environmental studies, surveys, or construction monitoring not meet the Federal or State industry standards in accordance with Applicable Laws and Regulations, and as determined by SCE, the IC shall be obligated to remedy deficiencies under SCE's direction.

ii. If there is a "Yes" stated in the "SCE Only" column in Table D.1:
1. SCE will perform all required environmental studies, prepare environmental permit applications, obtain required environmental permits, perform required monitoring of all SCE construction activities, and undertake habitat mitigation as required, including, but not limited to, offsite/compensatory mitigation and onsite restoration, related to the installation of such SCE facilities.
2. Under certain circumstances, such SCE facilities may need to be described and analyzed as part of the CEQA and/or NEPA documents for the IC's Generating Facility. Further coordination to discuss these circumstances may occur during GIA negotiations and/or after GIA execution. Any changes to the environmental and licensing assumptions may result in the need to update cost and duration estimates, and potentially amend the GIA.

- **Declaration Required:**
As a requirement for Interconnection Customers' shared responsibility to perform the Environmental Activities for SCE-owned IF and DU as disclosed above, and to ensure proper accounting of costs used in the calculation of the ITCC and Operations & Maintenance ("O&M") charges, referred to as an Interconnection Facilities Charge and/or a Distribution Upgrades Charge, if applicable, in the forthcoming GIA for the Generating Facility, the IC is required to complete and submit an Environmental Services Costs Declaration for SCE-owned

IF and/or DU required to interconnect the Generating Facility. An authorized representative of the IC will sign the declaration attesting to the actual costs spent on environmental services work that would otherwise have been performed by SCE for SCE-owned IF and DU (if applicable) required to interconnect the Generating Facility.

The declaration shall be provided to SCE by a specified date in the Generating Facility's forthcoming GIA Appendix B - Milestone table. Should the IC fail to provide the declaration by the specified deadline, SCE will hold the IC in default of the GIA pursuant to the terms therein. The costs stated by the IC in the declaration, once approved, will be used by SCE to adjust the ITCC and the applicable monthly O&M charges for the Generation Facility and will be reflected via an amendment to the GIA upon true-up.

The information stated in the declaration is subject to review and/or audit by SCE pursuant to the terms and conditions in the forthcoming GIA. Should an audit be deemed necessary by SCE, the IC will need to provide supporting documentation (copies of invoices/receipts) to substantiate the costs stated in the declaration within ten (10) business days from receipt of notice.

5. BESS Considerations:
    - Interconnection customers will be assessed charges for ACDS in accordance with Attachment K to the WDAT.
    - The final design and construction of the BESS resource of the Generating Facility will need to comply with SCE's Interconnection Handbook and conform with SCE's Distribution Standards and Practices.
    - This study assumes that the Generating Facility will include all equipment, software, appropriate controls, and other related equipment necessary to maintain Charging Capacity restrictions per SCE's requirements.
    - The preliminary charging analysis discussed in this report assumed that the requested Charging Capacity is curtailable before wholesale and retail load, and this assumption was used to determine the charging restrictions mentioned in this report for the Generating Facility.
    - The BESS resource of the Generating Facility will need to be metered separately. The IC may be required to install multiple sets of metering (i.e. separate sets of potential transformers & current transformers and supporting metering equipment) for the Generating Facility. Additionally, the Generating Facility may also need to connect the BESS resource to a dedicated transformer.
    - Generation projects with a BESS resource electing to receive ACDS and requesting to interconnect to SCE's Subtransmission System (which is non-ISO controlled 66 kV and 115 kV facilities) will comply and operate pursuant to a static charging schedule in order for SCE to implement charging restrictions until such time SCE's Distributed Energy Resource Management System ("DERMS") is placed in service and operational. The static charging schedule provided to the IC may be updated on an as-needed basis or at a minimum once a year to account for factors such as changes in load, Resources, and Firm Charging Distribution Service, or modifications to the Distribution System.

6. Noteworthy Conditions Applicable to the Generating Facility:

Noteworthy items the IC should contemplate, but not limited to, for the Generating Facility are identified in Table D.2 below.

Table D.2

No.	Item	Note(s)	Applicable to Generating Facility (Yes/No)
1	The Generating Facility is seeking interconnection via use of a 3rd party owned gen-tie or facility.	The IC will need to obtain and provide to SCE, prior to execution of the GIA, written approval from the owners of the 3rd party[4] owned gen-tie/facility granting permission to the Generating Facility to interconnect and acceptance of any impacts the Generating Facility may create on their 3rd party owned gen-tie/facility.	[redacted]
2	Tap or Loop Substation requirement	The IC has the obligation and cost responsibility to acquire the appropriate land rights for SCE to construct the tap/loop-in substation and potentially the corresponding 66 kV tapped/looped line required to interconnect the Generating Facility. In addition, the IC will need to grant an easement to SCE for those facilities and/or provide at no cost to SCE, the appropriate land rights for SCE facilities. Also, the IC is advised that the duration provided in this report to interconnect the Generating Facility is based on an exemption from Permit to Construct requirements for the tap/loop-in substation. As described above, if a CEQA document is not required for the Generating Facility or if the Generating Facility's CEQA document does not sufficiently incorporate SCE's scope of work, SCE may be required to prepare a PEA or equivalent for SCE's scope of work. In such cases, SCE's assumed environmental work and licensing level of effort will increase, resulting in the need to update cost and duration estimates, and potentially amend the GIA.	
3	The Generating Facility contributes to the need for a RAS/CRAS, as a result the Generating Facility was allocated costs for the RAS/CRAS. Please refer to Appendix D for additional information.	RAS/CRAS considerations: • Any modifications to this CRAS/RAS will need to be presented to the Reliability Coordinator ("RC") West for approval. The RC West is anticipated to meet up to three (3) times per calendar year to review new and modifications to RAS systems. Any engineering and design modification to this RAS/CRAS on both SCE and generator facilities must be finalized prior to presenting to the RC WEST for approval. • In addition to presenting modifications of the CRAS to the RC West, review, and approval from the Western Electric Reliability Coordinator ("WECC") may also be required. Scheduled meetings that require both the RC West and	

[4] This would be a previously queued project or another project in the same cluster.

		WECC will be scheduled accordingly with all responsible parties during one of the three (3) yearly calendar meetings.	
4	**Metering**: The Cluster Study metering scope and cost was based on a proxy methodology that would enable SCE to comply with its metering tariff(s). The IC will be required to comply with SCE's Interconnection Handbook and RIP. The IC's Generating Facility's metering configuration will be further evaluated post study phase or post GIA. Please refer to Attachment 1 and Attachment 7b for the metering associated scope and costs.	Metering considerations: If metering configuration finalized during post GIA, finalizing the Generating Facility's metering one-line and determining the number of meter sets required to comply with SCE's metering tariff(s) requirements will be performed in parallel with the engineering and design phase of the project. The post GIA analysis may result in additional metering scope and cost and may impact the IC's requested ISD and COD. Any change to the Generating Facility's interconnection configuration or technology after the final Study, including the metering configuration, will require the IC to submit a material modification request in accordance with RIP Section 4.8.6.2.4 or Article 5.19 of the GIA. If additional metering scope, cost, and duration are identified because of the IC's modification request, an addendum to the final Study will be issued or the GIA will be amended, respectively.	[redacted]
5	Dependency to previously identified upgrades/ mitigations	The ISD and/or COD of the Generating Facility may be impacted by upgrade(s)/mitigation(s), that were triggered in prior cluster studies and are required only when enough generation projects (with executed GIAs in good standing) achieve ISD. The identification of the need for these upgrades assumes that all queued generation projects materialize and are interconnected, but the true need occurs only when enough queued generation achieves ISD. These mitigations will be continuously evaluated as part of subsequent planning studies and the Annual Reassessment [5] with queued generation projects to properly define the actual trigger of the mitigation based on the actual execution of GIA and development of generation facilities toward commercial operation. For previously triggered mitigation(s), if any, that could impact the timelines for Generating Facility. Please refer to Table G.2 and Table G.3 in this report.	

7. Potential Supplemental Costs to the Generating Facility

Circumstances where the IC may incur additional cost associated with the Generating Facility are detailed in Table D.3 below.

Table D.3

[5] Please refer to Section 7 of ISO Tariff Appendix KK Resource Interconnection Standards ("RIS") for additional information and Section 4.9.1 of Attachment M Resource Interconnection Procedures ("RIP")

No.	Item	Notes	Applicable to Generating Facility (Yes/No)
1	The Generating Facility will utilize existing SCE interconnection facilities and other plan of service upgrades whose costs (both capital costs and applicable ongoing O&M charges) have or are being paid for by an earlier-queued project(s).	[redacted]	
2	For the purposes of this study, SCE assumed that all facilities/upgrades associated with the pending SCE sponsored project(s), listed in the adjacent notes' column, is/are already in service. Should the SCE sponsored project not materialize, the facilities/upgrades to interconnect the Generating Facility will need to be reassessed, which may potentially change the plan of service and associated costs.		
3	If the IC is proposing to share facilities with an earlier-queued projects or projects within the same cluster, the terms and conditions for these shared facilities and their associated costs will be addressed with the IC during the GIA negotiation process.		
4	The IC could inform SCE after the Restudy/Reassessment effort is complete and prior to the return of the executed Interconnection Facilities Study Agreement of the following: • The Generating Facility will be constructed in phases. • Extension of the COD for the Generating Facility If the IC makes this type of request after that point in the process, it will be required for the IC to submit a Material Modification Assessment ("MMA") pursuant to RIP Section 4.8.6.2.4, since it will be necessary for the IC to incur additional cost to account for supplementary resources that will be required to support this type of request.		

E. STUDY RESULTS

1. ISO Grid

The details of the analysis and overload levels, as well as the details of the recommended mitigation to address these overloads, are provided in the corresponding Area Report. Below is a summary of the CS15 study transmission level results specific to the Generating Facility.

Table E.1 – Transmission Level Study Results Summary

Evaluation Type	Result Description	Applicable conclusion for the

		Generating Facility (Yes/No)
1. Power Flow	Per the study results, it was determined that the Generating Facility contributes to overloads on the ISO Grid. Refer to Area Report Appendix D for the **RNUs** discussed allocated to the Generating Facility.	[redacted]
	Per the study results, it was determined that the Generating Facility does not contribute to any overloads on the ISO Grid. No upgrades pertaining to the Power Flow analysis on the ISO Grid were assigned to the Generating Facility.	
2. Short Circuit Duty (SCD)	Per the study results, it was determined that the Generating Facility contributes to over duty issues at SCE-owned Transmission Level substations within ISO Grid. Refer to Area Report Appendix E for the **RNUs** needed to mitigate the over duty issues and allocated to the Generating Facility.	
	It was determined that the Generating Facility does not contribute to any over duty issues at the ISO Controlled Grid level and was not allocated cost for any SCD related RNUs identified in the CS15 study. No upgrades pertaining to the SCD analysis on the ISO Grid were assigned to the Generating Facility.	
3. Charging Analysis	The results to the ISO Grid charging analysis indicate that there are no adverse impacts from the Generating Facility given that the BESS of the Generating Facility follows ISO market dispatch instructions. Refer to the Area Report for details.	
	The Generating Facility encompasses new BESS, however the IC specified in the IR that it intends to charge the BESS of the Generating Facility from on-site generation and not from the ISO Controlled Grid. Therefore, no Reliability assessment was performed.	
4. Ground Grid Evaluation	Please refer to Appendix E of the Area Report for information on which SCE- owned substations were flagged with ground grid concerns, if any.	
5. Transient Stability	Refer to the Area Report for details pertaining to the transient stability evaluation criteria and assessment results on the Bulk System.	

2. Non-ISO controlled Subtransmission System (66 kV)

The details of the analysis with overload level information, and associated recommended mitigation, is provided in the corresponding SAR. Provided below is a summary of this information. Refer to the SAR Section 4 – Reliability Assessment, for details of the Reliability Assessment.

a. Generation Export Analysis

i. Reliability Assessment Results

Table E.2

Index	Study	Violation Result (Yes/No)	Reference for additional detail	Notes
1	Steady State Thermal	[redacted]	SAR – Attachment 8 of Appendix A	[redacted]
2	Steady State Voltage		SAR – Attachment 8 of Appendix A	
3	Post-Transient Voltage		SAR – Attachment 8 of Appendix A	
4	Short Circuit Duty		▪ SAR – Attachment 8 of Appendix A ▪ Appendix E of Area Report ▪ Appendix M of Area Report ▪ Appendix K of Area Report ▪ Attachment 6 of Appendix A	
5	SSR, SSCI Requirement		Appendix L of Area Report, if applicable	

Refer to Attachment 1 and Attachment 7a for scope and costs information related to these upgrades.

ii. Line Loss Analysis for Generating Facility

Based on the technical data provided for the individual generator unit(s), the collector system equivalent, pad-mount and main transformer banks, the internal Generating

Facility losses are shown in Table E.3. In addition, losses incurred on the generation tie-line are shown in Table E.4 below. The Generating Facility losses identified represent those assuming the Generating Facility is limiting its output at the high side of the main transformer bank to achieve the desired MW delivery at the POI.

iii. Power Factor Evaluation

FERC Order 827 provides the reactive power requirements for newly interconnecting non-synchronous generators which require these resources to design the facility to be capable of providing reactive power to meet power factor 0.95 as measured on the high-side of the IC's substation or other equivalent location. This capability should be dynamic. Furthermore, any additional facilities required to meet the reactive power factor requirements must be installed and operational before the Generating Facility performs initial synchronization.

Base case power flow was evaluated to determine reactive power losses internal to the Generating Facility to ascertain if the reactive capability of the Generating Facility is adequate to supply these losses and meet the power factor requirements. A summary of the power factor evaluation is provided in Table E.5 below.

Table E.5

[redacted]

b. As-Available Charging Analysis

The details of the analysis and overload levels are provided in the corresponding SAR. Provided below of the As-Available Charging analysis results for the Generating Facility.

i. Steady State Power Flow Analysis

1. Thermal Overloads

Table E.6

[redacted]

[redacted]

2. Power Factor Requirement under ACDS operation of the Generating Facility

   The Generating Facility is required to provide 0.95 leading/0.95 lagging power factor regulation capability at the high-side of the IC's substation main transformer(s).

3. System Limitations under ACDS of the Generating Facility

   [redacted]

   [redacted], it is necessary to limit charging to the MW amounts shown in the static charging table below until such time as SCE's DERMS is made available at the subtransmission level. Table 5 below provides the On-Peak and Off-Peak Capacity in MW as well as the On-Peak and Off-Peak Energy MW-hours for the Generating Facility based on the worst likely line and/or transformer loading conditions identified in the SAR per month. This information is subject to change as loading on SCE's Subtransmission System changes.

[redacted]

4. Implementation of ACDS Restrictions for the Generating Facility

   Given that CMS can only handle BESS projects interconnected at the low voltage distribution level, BESS projects interconnecting at the subtransmission level do not

qualify to be added to CMS and by default will have to rely on a static charging schedule for implementation of ACDS charging restrictions, until DERMS is made available at the subtransmission level.

Refer to Attachment 1 and Attachment 7b for scope description and associated cost responsibility for implementing the static charging schedule for the Generating Facility.

5. Energy Charge Rate for ACDS

In accordance with Attachment K to the WDAT, if the IC elects to receive ACDS, the IC, will be responsible for paying an As-Available Energy Charge Rate ($/kWh) per month, which is based on the metered energy usage of the Generating Facility and associated Service Level. [redacted].

Please refer to Attachment K[6] of the SCE WDAT, for information on the As-Available Energy Charge Rate applicable to the Generating Facility's BESS resource per its designated Service Level.

F. DELIVERABILITY ASSESSMENT RESULTS

[redacted]

G. IN-SERVICE DATE AND COMMERCIAL OPERATION DATE INFORMATION

1. Preliminary Duration for Conceptual Plan of Service and Required System Upgrades

The estimated duration(s) shown in Table G.1 represent the time needed for SCE to design, engineer, procure, and construct the applicable facilities/upgrades with the start date of the estimated duration based on the effective date of the GIA filed at FERC or not; and timely receipt of all required information, written authorizations to proceed ("ATP"), project payments, financial security postings, and timely completion of project milestones. The estimated durations for the facilities/upgrades identified for the Generating Facility are as follows:

Table G.1 Estimated Preliminary Post-GIA Durations

Classification Umbrella of Facilities	Facilities	**Reference for additional detail**	Duration [7] (months)
Interconnection Facilities (IF)	SCE-IF	Attachment 1- Section 1b Attachment 7a	[redacted]
Stand Alone Network Upgrades (SANU)		Attachment 1 – Section 2a	
Reliability Network Upgrades (RNU)		Attachment 1 - Section 2bi Attachment 7a Attachment 7b	
Delivery Network Upgrades (DNU)	Area Delivery Network Upgrades (ADNU)	Attachment 1 - Section 2bii Attachment 7a Attachment 7b	

[6] Link to attachment K: https://www.sce.com/regulatory/open-access-information?from=/openaccess

[7]The longest duration associated with each upgrade classification, if applicable, is illustrated in Table 5-1.

	Local Delivery Network Upgrades (LDNU)	Attachment 1 - Section 2bii Attachment 7a Attachment 7b	[redacted]
Distribution Upgrades (DU)	DU required by t the Generating Facility	Attachment 1 - Section 3 Attachment 7a Attachment 7b	[redacted]

SCE Notes for SCE facilities timelines identified in Table G.1:

1. **Duration Estimates and Identified Upgrades**
   Any durations identified in this section may vary. During the cluster study process, SCE includes all queued and active generation projects without regard to corresponding desired in-service and commercial operation dates ("ISD" and "COD") or actual status to identify system upgrades, including SCD related upgrades, and a duration for SCE to build them. Such duration(s) may affect the ISD and COD for this specific project. As status for queued projects change (withdrawals, downsizing, suspensions, or deferred in-service and commercial operation dates), SCE may be able to accelerate ISDs for projects affected by status changes.

2. **Coordination of Environmental Work**
   Where this study assumes that the IC will perform environmental work related to the installation of SCE's IF and/or DU as specified in this report, the IC is advised that any durations provided above assume that the IC will perform this environmental work in parallel with SCE's preliminary design and engineering. The IC shall engage SCE to obtain concurrence prior to commencement of any environmental work and during execution of that work. Since SCE will be using the IC's environmental documents and/or work products, IC delays producing them may delay SCE's ability to obtain the required permits and/or license(s) and may delay the commencement of SCE's construction.

2. In-Service Date and Commercial Operation Date Assessment

[redacted]. If the earliest achievable ISD and COD differs from the IC's requested ISD and COD, it will serve as the basis for establishing the associated milestones in the draft GIA.

3. Previously identified System Upgrade dependencies for the Generating Facility It is noted that the ISD, and COD also depends on Other Potential and/or Predecessor Network/Distribution Upgrades required for the interconnection of the Generating Facility. Table G.2 and Table G.3 provide the current estimated duration for Other Potential and/or Predecessor Network/Distribution Upgrades with estimated in-service date(s), if known, applicable to the Generating Facility for reference. The durations and dates provided in these tables are subject to

[8] The duration provided is subject to change depending on licensing, engineering, detailed design, and construction requirements involved, as well as the status of the queued-ahead Generating Facility that triggered the network upgrades.

change depending on licensing, engineering, detailed design, procurement, and construction requirements involved, as well as the status of the queued-ahead generation that triggered the Network Upgrades.

H. INTERCONNECTION FACILITIES, NETWORK, DISTRIBUTION UPGRADES AND THEIR COST AND CONSTRUCTION DURATION ESTIMATES

SCE's Interconnection Facilities, Network Upgrades, and Distribution Upgrades described in this section are based on the preliminary engineering and design. Please see Attachment 1 for SCE's IF, Network Upgrades, Distribution Upgrades, if applicable, allocated to the Generating Facility required for physical interconnection, to provide for the requested net MW export at the POI and in support of charging under ACDS. Please note that SCE considered current system configuration, approved SCE sponsored projects, and all queued generation in determining scope for IF and/or plan of service but will not "reserve" the identified scope of upgrades for the proposed POI unless a GIA is executed.

The Interconnection Facilities, Network Upgrades, and Distribution Upgrades described in this study are subject to modification to reflect the actual facilities constructed and installed following SCE's final engineering and design, identification of field conditions, and compliance with applicable environmental and permitting requirements.

The non-binding, good faith construction schedule and cost estimate to engineer and construct the facilities is based on the assumptions outlined in Section D of this report and is applicable from the

submittal of written authorization to proceed after the execution of the GIA. The estimated durations provided represent the amount of time needed to permit, engineer, procure and construct the identified facilities starting from the date of submittal of Written Authorization to Proceed and all required financial security submittals. This is also based upon the assumption that the environmental permitting obtained by the IC is adequate for permitting all SCE activities. Additionally, timelines provided in the tables below are subject to be impacted by procurement lead-times due to the volume of requests, and supply chain constraints.

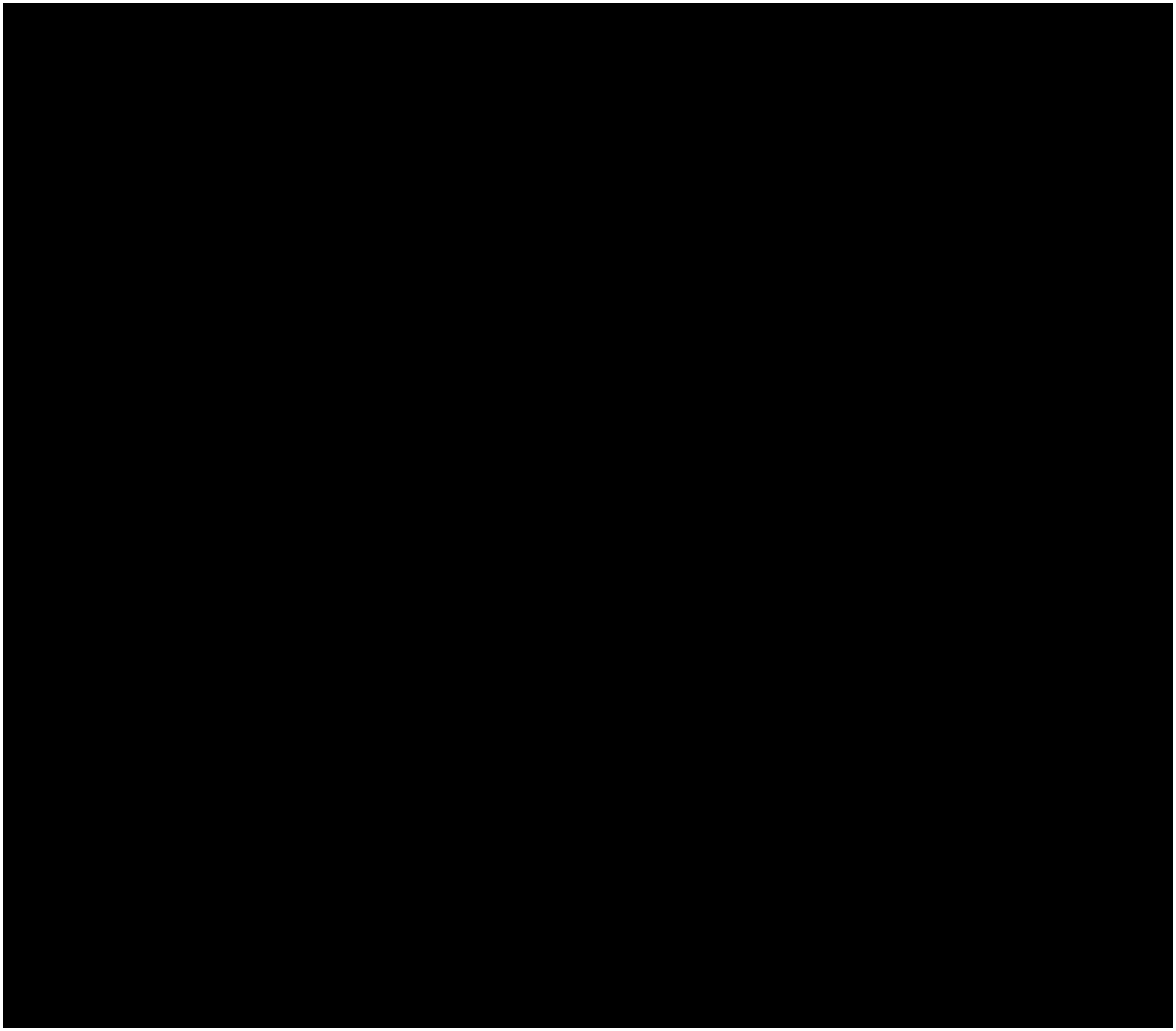
It is assumed that the IC will include the SCE Interconnection Facilities, Network Upgrades, and Distribution Upgrades work scope needed to interconnect the Generating Facility in the CEQA environmental review document or exemption for the IC's Generating Facility. However, note that CPUC may still require SCE to obtain a Permit to Construct (PTC) or a Certificate of Public Convenience and Necessity (CPCN) for the SCE work associated with the Generating Facility. Hence, the facilities needed for the project interconnection could require an additional two to three years or longer to complete. The cost for obtaining any of this type of permitting is not included in the above estimates.

Each upgrade category may contain multiple scope durations. The longest duration is shown under the Construction Duration item in Table G.1. The "construction duration" provided in Table G.1 is a non-binding construction schedule to license, engineer and construct the SCE's Interconnection Facilities and Reliability Network Upgrades from the signing of the GIA, receipt of financial security, and written authorization to proceed.

Attachment 1:
Interconnection Facilities, Network Upgrades, and Distribution Upgrades
Please refer to separate document

Attachment 2:
IC Provided Generating Facility Dynamic Data

Attachment 3:
Transient Stability Plots
Please refer to Separate Document



Attachment 4:
Allocation of Deliverability Driven Network Upgrades for Cost Estimates

Not Used

Attachment 5:
SCE's Interconnection Handbook
Preliminary Protection Requirements for Interconnection Facilities are outlined in SCE's Interconnection Handbook at the following link:

https://on.sce.com/InterconnectionHandbook.

Attachment 6:

Attachment 7a:
Escalated Cost and Time to Construct for Interconnection Facilities, Reliability Network Upgrades, Delivery Network Upgrades, and Distribution Upgrades

Please refer to separate document

Attachment 7b:
Allocation of Network Upgrades for Cost Estimates and Maximum Network Upgrade Cost Responsibility

Attachment 8:
Subtransmission Assessment Report

Please refer to separate document

Attachment 9:
Firm Charging Distribution Analysis Report

[redacted]