Appendix A – WDT1783

[redacted]

[redacted]

Queue Cluster 14 Phase II Report

January 30, 2024

This study has been completed in coordination with the California Independent System Operator Corporation (ISO) per Southern California Edison Company's Wholesale Distribution Access Tariff (WDAT), Attachment I Generator Interconnection Procedures (GIP)

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A. INTRODUCTION

[redacted] the Interconnection Customer ("IC"), has submitted a completed Interconnection Request ("IR") to Southern California Edison ("SCE"), the Distribution Provider, for its proposed [redacted] The IC's IR requested [redacted] for the Generating Facility. The proposed Generating Facility includes a [redacted] and the IC has requested [redacted]. The IC's IR and/or Attachment B stipulated the IC requested [redacted] In addition, the IC requested an In-Service Date ("ISD") and Commercial Operating Date ("COD") of [redacted], respectively. However, the ISD and COD for the Generating Facility will depend on the estimated duration required for licensing, engineering, detailed design, procurement, and construction requirements to interconnect the Generating Facility. The estimated duration for these activities would commence after the Generator Interconnection Agreement ("GIA") for the Generating Facility has been executed and/or filed at the Federal Energy Regulatory Commission ("FERC") for acceptance and funded.

In accordance with FERC's approved SCE's Wholesale Distribution Access Tariff ("WDAT") Attachment I Generator Interconnection Procedures ("GIP"), the Generating Facility was grouped with Queue Cluster 14 ("QC14") Phase II projects to determine the impacts of the group as well as impacts of the Generating Facility on SCE's Distribution System and the ISO Grid. An Area Report and, where applicable, a Subtransmission Assessment Report ("SAR") have been prepared separately to discuss the combined impacts of all projects on the ISO Grid and to the distribution facilities served out of the [redacted] respectively. This Appendix A report focuses only on the impacts or impact contributions of the Generating Facility to SCE's Electric System and is not intended to supersede any contractual terms or conditions specified in a forthcoming GIA.

B. REPORT OBJECTIVE

SCE performed a QC14 Phase II Study that included the Generating Facility, and this report addresses the results of the analysis.

The report provides the following:

1. Transmission and Non-ISO controlled Subtransmission System impacts attributed to the proposed Generating Facility.
2. System reinforcements or mitigation necessary to address the adverse impacts attributed to the Generating Facility under various system conditions.
3. A list of required facilities and a good faith estimate of the IC's cost responsibility for its proposed Generating Facility and SCE's project execution schedule[2]. Such information is provided in Attachment 1 and Attachment 2 as separate documents in the Appendix A report package for the Generating Facility. Specifically, the facilities that will be installed by SCE and the IC are detailed in Attachment 1.

[1] Refer to GIP Section 4.6.13

[2] It should be noted that construction is only part of the estimated duration of months specified in the study, which includes final engineering, licensing, and other activities required to bring such facilities into service. These durations are from the execution of the GIA, receipt of: all required information, funding, and written authorization to proceed with design and engineering, procurement, and construction from the IC as will be specified in the GIA to commence the work.

4. Identification of potential short circuit duty impacts to Affected Systems served from the Transmission, Subtransmission or Distribution System.

[redacted], as a result an As-Available Charging Distribution Service ("ACDS") analysis to determine the charging impacts on SCE's Electric System was conducted as well. The analyses focused on the Charging Capacity[3] aspects of the Generating Facility and considered varying levels of system demand with minimal generation dispatch within the local distribution system.

Accordingly, this report also discloses the following:

a. The adequacy of SCE's Electric System to support the Generating Facility under ACDS.
b. Provides a high-level explanation of the potential exposure to the Generating Facility of charging restrictions on the electric system.
c. The service level, which is based on the Point of Interconnection ("POI") of the Generating Facility, enables the IC to determine the applicable As-Available Energy Charge Rate ($/kWh).

C. DESCRIPTION OF GENERATING FACILITY

Generating Facility: all equipment and facilities comprising the IC's [redacted] located in the [redacted] as disclosed by the IC in its IR and/or Attachment B, as may have been amended during the Interconnection Study process, as summarized below:

Table C.1: Generating Facility General Information per the IR and/or Attachment B

[redacted]

[3] 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.

[redacted]

Note: Detailed loss analysis used in defining net capability at high side of main transformer bank and net capacity at the POI

Generation Export Limit for the Generating Facility

[redacted]. SCE and the IC acknowledge that should the Generating Facility exceeds these values or is capable of exceeding these values 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. This is to ensure the Generating Facility does not exceed the total net capacity at the high-side of the main step-up transformer(s) and at the POI.

As-Available Charging Capacity Limit for the Generating Facility

[redacted]. SCE and the IC acknowledge that should the Generating Facility exceed these values or can exceed these values 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. This is to ensure the Generating Facility does not exceed these total Charging Capacity values at the high-side of the main step-up transformer(s) and at the POI.

[redacted] are detailed in Attachment 1 to this Appendix A report. The proposed plan for interconnecting the Generating Facility is illustrated in Figure C.1. and Figure C.2 illustrates the proposed location of the Generating Facility. Additional information is provided in Table C.2

Figure C.1: Generating Facility One-Line Diagram

Figure C.2: Generating Facility Location Map

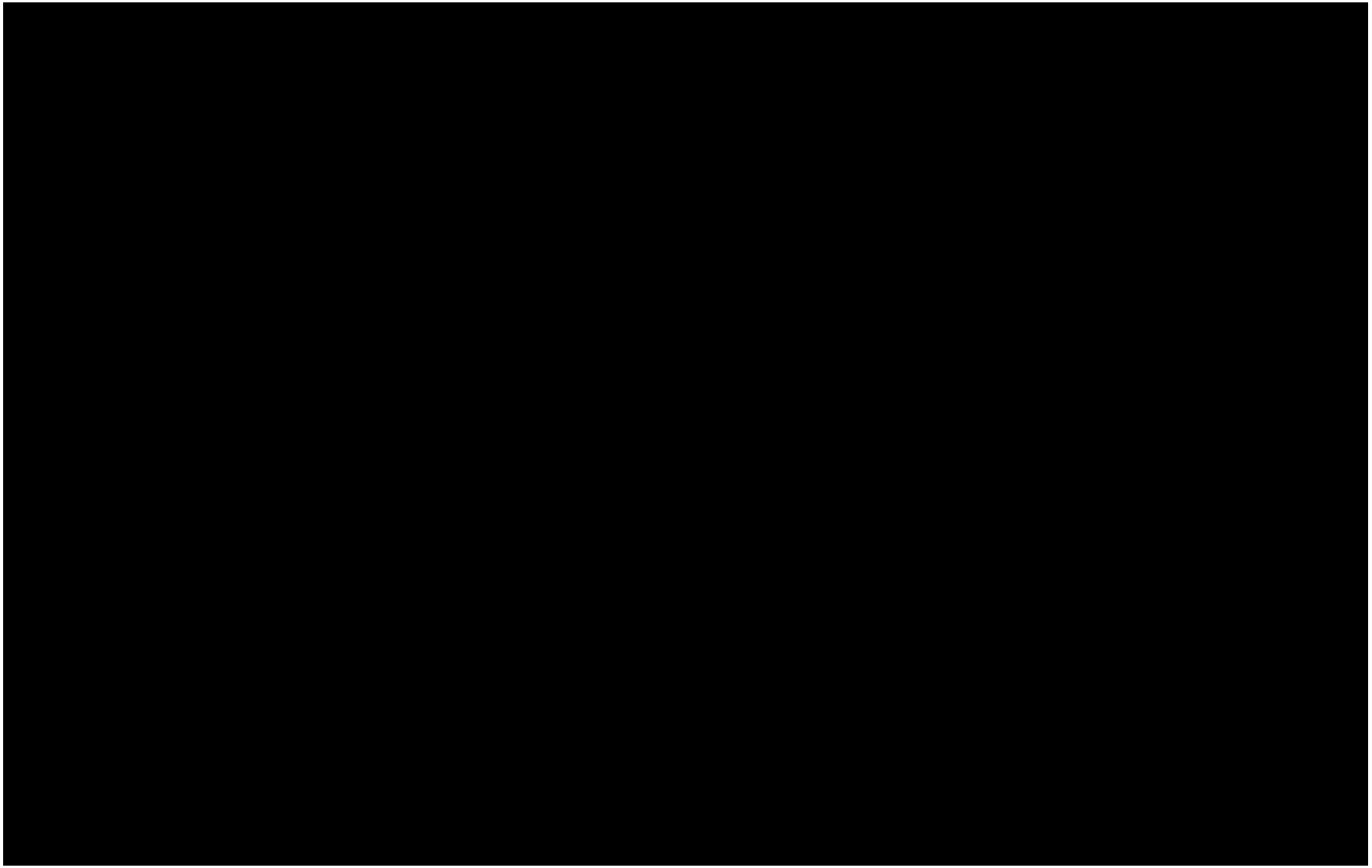

Table C.2: Additional Generating Facility General Information per IR and/or Attachment B

Generating Facility Location	[redacted]
SCE's Planning Area	
Interconnection Voltage	
POI	
High Fire Risk Area	
Requested Maximum Generating Facility Delivery at Point of Interconnection[5]	
Number and Types of Generators	
Generation Tie Line	
Main Step-Up Transformer(s) Main Transformers T1	
Collector Equivalent	
Pad-Mount Transformer(s) Downstream of Main Transformer Bank T1	
Generator Data Downstream of Main Transformer Bank T1	
Generator Auxiliary Load and/or Station Light and Power	
Voltage Regulation Devices	
Dynamic Models Used	

The Generating Facility was modeled as described in Table C.1 and C.2 above.

D. STUDY ASSUMPTIONS

For detailed assumptions regarding the evaluation on the SCE Transmission and Non-ISO controlled Subtransmission System, please refer to the QC14 Phase II Area Report and SAR, respectively. Below are the assumptions specific to the proposed Generating Facility:

I. Environmental Activities, Permits, and Licensing.

Table D.3 Environmental Activities & Licensing evaluation per SCE Facilities or Upgrades

[5] The MW output at the POI varies under different operating conditions. The IC is reminded that this value is tied to the generation tie-line (gen-tie) losses. The estimated Maximum Net Output value at POI and gen-tie losses illustrated above are contingent upon the accuracy of the technical data provided by the IC and are subject to change should the IC change its gen-tie parameters during the final engineering and design phase of the Generating Facility. Please note that the Generating Facility shall not exceed the total net output of [redacted] at the POI.

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

If no "X", "Y", or "N" is entered in a specific row of Table D.3, 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.3, 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.3, SCE assumes construction of SCE's IF and/or DU needed to interconnect the Generating Facility will not require a CPUC license.
  c. Such assumptions will be reviewed and verified after execution of a Generator Interconnection Agreement ("GIA") when detailed engineering and environmental review occur.

- Environmental Activities Assumed Roles and Responsibilities:

  i. If "IC/SCE-Shared" is marked in Table D.3:

  <u>SCE Scope of Work</u>

  1. SCE will act as the lead for regulatory agency communication for permits issued to SCE covering such SCE facilities.
  2. If licensing is assumed, SCE will file for an "expedited" Certificate of Public Convenience and Necessity or "expedited" Permit to Construct by attaching the IC's certified final California Environmental Quality Act ("CEQA") document with SCE's scope of work sufficiently incorporated in lieu of a Proponent's Environmental Assessment ("PEA"). 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 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 National Environmental Policy Act ("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 internal existing 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-D 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.

<u>IC Scope of Work</u>

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 "SCE Only" is marked in Table D.3:

1. SCE will perform all required environmental studies, prepare environmental permit applications, obtain required environmental permits, and 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 IC's CEQA and/or NEPA documents for the 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.

II. BESS Considerations:

- SCE offers ACDS pursuant to SCE's WDAT Energy Storage filing under Docket No. ER19-2505 accepted by FERC and effective October 30, 2019. 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.

III. Other Items to Consider:

- N/A

E. STUDY RESULTS

1. ISO Grid

a. Generation Export Analysis

i. Steady State Power Flow Reliability Analysis

The results of the ISO Grid reliability analysis indicate that the Generating Facility contributes to overloads under normal, and/or single contingency, and/or multiple contingency conditions. For details of the analysis and overload level please refer to the Area Report. [redacted]

ii. Transient Analysis
Refer to the Area Report for details pertaining to the transient stability evaluation criteria and assessment results on the Bulk System.

iii. Subsynchronous Interaction Evaluations

For inverter-based generation, a Subsynchronous Control Interaction ("SSCI") study is required to assess potential sub-synchronous control interactions with series compensated lines on the SCE Transmission System. The power electronic control system of the generator can interact with the sub-synchronous modes of the transmission system and cause SSCI, particularly when they are electrically close to each other. [redacted]

However, as previously mentioned in Section E.5 of this report, all inverter-based generators are required by the ISO Transmission Planning Process Business Practice Manual[6] to submit/provide the final Power System Computer Aided Design ("PSCAD") model of the Generating Facility.

Please refer to Attachment 1 for additional requirements after the Generating Facility achieves Commercial Operation.

iv. Deliverability Assessment

Section G – Deliverability Assessment Results of this report provides information on any Delivery Network Upgrades (Local or Area) assigned to the Generating Facility, if any.

v. Short Circuit Duty Analysis

1. SCE-owned Facilities

[redacted]

[6] https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Transmission%20Planning%20Process

Please refer to the Area Report for additional details on the study, and to Attachment 1. Attachment 2, and Attachment 3 documents for scope and costs information.

2. SCE's Ground Grid Duty Concerns

   The QC14 Phase II SCD study determined that [redacted] of the Generating Facility.

3. SCD Considerations

   The ISD and/or COD of the Generating Facility may be impacted by SCD 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 SCD mitigations will be continuously evaluated as part of subsequent planning studies and the Annual Reassessment[7] with queued generation projects to properly define the actual trigger of SCD mitigation based on the actual execution of GIA and development of generation facilities toward commercial operation. For previously triggered SCD mitigation(s), if any, that could impact the timelines for Generating Facility Please refer to Area Report which are titled the following:

   a. Upgrades identified through the GIDAP[8] which are included in an executed generator interconnection agreement, but are not yet in-service
   b. Upgrades identified through the ISO Transmission Planning Process

b. Charging Analysis

[redacted]

[7] Please refer to Section 7.4 of ISO Tariff Appendix DD Generator Interconnection and Deliverability Allocation Procedures ("GIDAP") for additional information.

8 ISO Tariff Appendix DD Generator Interconnection and Deliverability Allocation Procedures ("GIDAP")

instructions. With the combination of Congestion Management identified in the discharging analysis, the study indicated that there were no adverse impacts from the Generating Facility's BESS resource while operating under charging mode, given that the BESS resource will follow CAISO market dispatch instructions. Future topology changes and/or in increase in the penetration of energy storage resources competing for capacity could limit the ability of the Generating Facility to charge. If and when adverse system impacts are found that the Generating Facility is responsible for or contributes to due to the Generating Facility's BESS resource charging, the CAISO will plan to utilize Congestion Management to mitigate against any impacts such as but not limited to overloads on CAISO facilities/equipment.

2. Non-ISO controlled Subtransmission System (66 kV or 115 kV)
   a. Generation Export Analysis
      i. Steady State Power Flow Analysis

1. Thermal Overloads
   The subtransmission assessment indicates that [redacted] The details of the analysis with load level information, and associated recommended mitigation, is provided in the corresponding Subtransmission Assessment Report.

   I. Normal Conditions
   [redacted]

   II. Single Contingency
   [redacted]

2. Power Flow Non-Convergence
   [redacted] with the inclusion of the Generating Facility operating at the required power factor range; refer to Area Report and/or Subtransmission Assessment Report for additional details.

3. Voltage Performance
   [redacted] with the inclusion of the Generating Facility; refer to Area Report and/or Subtransmission Assessment Report for additional details.

4. Required Mitigations
   [redacted]

5. 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.1. In addition, losses incurred on the generation tie- line are shown in Table E.2 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.

Table E.1

Resource	Gross Output to Achieve Desired Output at POI (MW)*	Internal Generating Facility Losses (MW)			Aux Load (MW)	Net Output (MW)
		Pad-Mount	Collector	Main Transformer		
WDT1783 BESS Discharging	[redacted]					
WDT1783 BESS Charging						

*This represents the MW value needed at the inverter terminal to achieve the desired Net Output MW in order to meet the requested POI MW.

Table E.2

Resource	Net Output* (MW)	Losses on Interconnection Facilities (MW)	POI (MW)
		Generating Facility Gen-Tie	
WDT1783 BESS Discharging	[redacted]		
WDT1783 BESS Charging			

*MW (net) represents the MW value as measured on the high side of the main transfomer bank to achieve the desired MW delivery at the POI.

6. Power Factor Evaluation

FERC Order 827 provides the reactive power requirements for newly interconnecting non-synchronous generators which requires 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 the Table E.3 below.

Table E.3

[redacted]

Generating Facility MW Output at Terminal (MW)	[redacted]
Ambient Temperature for Generator Capability (ºC)	
Effective Power Factor at Generator Terminal	
Generating Facility MW at High Side of the Transformer (MW)	
Reactive Power Requirements	
Padmount Transformer Losses (MVar)	
Collector Equivalent Losses (MVar)	
Main Transformer Losses (MVar)	
PF Requirements at High Side of Transformer (MVar)	
Total VAR Requirements (MVar)	
Reactive Power Supply	
Equivalent Inverter/WTG Output at Pgen (MVar)	
Shunt Capacitors (MVar)	
Collector Line Charging (MVar)	
Other Dynamic VAR Devices (MVar)	
Total VAR Supply (MVar)	
Total Dynamic VAR Supply (MVar)	
Total Reactive Power (Shortage) VAR Supply/ Surplus Total VAR Requirements Less Total VAR Supply	
Dynamic Reactive Power (Shortage) / Surplus PF Requirements at High Side of Transformer Less Total Dynamic VAR Supply	

*Note: Additional analysis taking into account Ambient Temperature was performed as the technical documents submitted by the IC for [redacted]

[redacted]

ii. Transient Analysis

1. Generating Facility Performance

[redacted] During initial synchronization, the IC and SCE will conduct tests on the Generating Facility's electric generating units as required by Good Utility Practice per the forthcoming GIA. If the actual dynamic performance of the interconnected Generating Facility does not match the performance of the supplied dynamic model used in the interconnection cluster study process, the IC will update the dynamic model and resubmit to SCE, as required within ninety (90) Calendar Days after the successful initial synchronization tests, unless otherwise agreed.

2. System Performance

[redacted] Refer to the Area Report for additional details pertaining to the transient stability evaluation criteria and assessment results, respectively.

iii. Short Circuit Duty Analysis

1. SCE-owned Facilities

It was determined that [redacted] for any SCD related DUs identified in the QC14 Phase II study.

2. SCE's Ground Grid Duty Concerns

[redacted]

3. Short Circuit Duty Considerations

NA

b. As-Available Charging Analysis

Steady State Power Flow Analysis

1. Thermal Overloads

The subtransmission assessment study evaluates whether the Generating Facility contributes to possible overloads on the following facilities listed below under normal, single contingency, and/or multiple contingency conditions. 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 Subtransmission Assessment Report(s). Provided below is a summary of the overloaded facilities under normal, single contingency, and/or multiple contingency conditions.

I. Normal Conditions

[redacted]

II. Single Contingency

[redacted]

2. Power Flow Non-Convergence
   [redacted] with the inclusion of the Generating Facility operating at the required power factor range; refer to Area Report and/or Subtransmission Assessment Report for additional details.
3. Voltage Performance
   [redacted] with the inclusion of the Generating Facility; refer to Area Report and/or Subtransmission Assessment Report for additional details.
4. [redacted]
   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 or other equivalent location.
5. System Limitations under ACDS of the Generating Facility
   The system overloads identified above under As-Available Charging of the Generating Facility results in As-Available charging limitations.

   Accordingly, to prevent the system overloads specified above under As-Available Charging of the Generating Facility, 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 available. 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]
On-Peak Capacity (6 am - 9 pm) (MW)	
Off-Peak Capacity (9 pm - 6 am) (MW)	
On-Peak Available Energy (MWh)	
Off-Peak Available Energy (MWh)	

6. Implementation of ACDS Restrictions for the Generating Facility
   Given that CMS can only handle projects interconnection at the low voltage distribution level, 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 become available.

   Refer to Attachment 1 and Attachment 2 for scope description and associated cost responsibility for implementing the static charging schedule for the Generating Facility.

7. Energy Charge Rate for ACDS
   In accordance with SCE's Energy Storage filing at FERC amending its 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[9] 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. AFFECTED SYSTEMS

Per GIP Section 3.7, SCE will notify the Affected System[10] Operators that are potentially affected by the active projects in QC14 Phase II. Given the radial nature of SCE's non-ISO controlled subtransmission system, the impacts to Affected Systems connected to such system is limited to incremental SCD at the interface point with the Affected System. As part of this study, SCE evaluates the incremental SCD at the interface point with the potential Affected System. Locations where SCD is increased by at least 0.1 kA will be documented in the study results providing the incremental SCD contribution associated with the active projects in QC14 Phase II.

The specific SCD contribution from the Generating Facility to the interface point between SCE and the potentially Affected System is provided in Table F.1 below. Impacts on the Affected Systems with the addition of all QC14 Phase II projects, are provided in the Area Report (Section H.2), and in Attachment 7.

Table F.1: Short-Circuit Duty Evaluation of Neighboring Utilities Impacted by the Generating Facility

Substation	Voltage	Entity	Generating Facility Impact	
			3-Phase (kA)	Single Line-to-Ground (kA)
[redacted]				

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

[10] Affected System shall mean an electric system other than the SCE's Distribution System that may be affected by the proposed interconnection. For purposes of this compliance requirement, Affected Systems will consist of neighboring municipalities.

G. DELIVERABILITY ASSESSMENT RESULTS

Please refer to Section G of the Eastern Area Report included in the QC14 Phase II report package for the details on the QC14 Phase II Deliverability Assessment.

For scope and cost information of any Network Upgrades assigned to the Generating Facility, please refer to Attachment 1, Attachment 2, and Attachment 3 of this Appendix A report.

H. METERING

The Phase II Study metering scope and cost was based on proxy methodology that would presumably enable SCE to comply with its metering tariff(s).

Please refer to Attachment 1 and Attachment 2 for the metering associated scope and cost.

The IC is advised that it will be required to comply with SCE's Interconnection Handbook and GIP. The IC's Generating Facility's metering configuration will be evaluated post Phase II or post GIA. If 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 Generating Facility. 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 Phase II Study, including the metering configuration, will require the IC to submit an MMA request in accordance with the GIP. If additional metering scope, cost, and duration are identified because of the IC's modification request, an addendum to the Phase II Study will be issued or the GIA will be amended, respectively.

I. INTERCONNECTION FACILITIES, NETWORK UPGRADES, AND DISTRIBUTION UPGRADES

Please see Attachment 1 for SCE's Interconnection Facilities ("IF"), RNU', Delivery Network Upgrades[11] (DNU), and Distribution Upgrades ("DU") allocated to the Generating Facility for physical

[11] At the IC's discretion, the IC or parties other than SCE pursuant to Section 10.2 under GIP may construct an Option (B) Generating Facility Area Delivery Network Upgrades (ADNUs) not allocated TP Deliverability. If SCE does not construct the ADNUs, the IC is not required to make the third Interconnection Financial Security posting to SCE pursuant to Section 4.8.4.2.1 under GIP.

interconnection, to provide for the requested net MW export at the POI taking into consideration the IC's requested Deliverability, and in support of the IC's request for 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 per the specified timelines shown in Table K.1.

J. COST AND DURATION ESTIMATE

I. Cost Estimate

The Generating Facility's estimated interconnection costs, adjusted for inflation and provided in 'constant' 2023 dollars escalated to the Generating Facility's feasible COD (as identified below in Table K.1), are provided in Attachment 2 and the Generating Facility's allocated cost for shared network upgrades are provided in Attachment 3 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 beyond 2024 (e.g., the IC decides to "park" the Generating Facility pursuant to GIP Section 4.6.13), a new cost estimate adjusted for inflation will be required and reflected into the GIA.

II. Preliminary Durations

The estimated duration(s) shown in Table J.1 represents the estimated time needed for SCE to design, engineer, procure, and construct the applicable facilities with the start date of the estimated duration based on the effective date of the GIA; and timely receipt of all required information, written authorization to proceed ("ATP"), project payments, financial security postings, and timely completion of project milestones. The estimated durations for the facilities identified for the Generating Facility are as follows:

Table J.1 Estimated Execution Duration

Facilities	Description	[redacted]
Interconnection Facilities (IF)	Facilities described in Section 1.b of Attachment 1	
Reliability Network Upgrades (RNU)	RNUs described in Section 2 of Attachment 1	
Stand Alone Network Upgrades (SANU)	NA	
Area Delivery Network Upgrades (ADNU)	Because the Generating Facility elected to proceed under Option A, no	

[12] **Short Circuit Duty Mitigation Durations:** It is important to note that short-circuit duty upgrades identified as part of the QC14 Phase II interconnection studies were derived with the inclusion of all active higher-queued generation projects without regard to corresponding desired in-service dates or actual project status. Changes to the higher-queued generation projects as well as changes to generation projects in QC14, such as withdrawals, downsizing, suspensions, or deferrals to proposed in-service dates, may allow for the identified earliest in-service to be accelerated to align with the construction timing for the plan of service and Interconnection Facilities needed to interconnect the project. Ultimately, SCD upgrades will be scheduled based on actual development of generation resources identified to meaningfully increase SCD on the identified overstressed circuit breakers as determined based on execution of Generation Interconnection Agreements or other agreements that commit a project towards development.

	required ADNUs were identified for the Generating Facility in the Phase II Interconnection Study	[redacted]
Local Delivery Network Upgrades (LDNU)	No required LDNU were identified in the Phase II Interconnection Study.	
Distribution Upgrades (DU) – Plan of Service	DUs are described in Section 3.a of Attachment 1 [	
Distribution Upgrades (DU) – Other	Other DUs are described in Section 3 of Attachment 1	

Notes:

1. **Duration Estimates and Identified Upgrades**
   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 dates or actual status to identify system upgrades, including SCD related upgrades, and a duration for SCE to build them. Such duration affects the ISD for this specific Generating Facility. As status for queued projects change (withdrawals, downsizing, suspensions, or deferred in-service dates), SCE may be able to accelerate in-service dates for projects affected by status changes. Furthermore, SCE will only begin design/construction of an identified system upgrade when enough projects 1) execute and fund a GIA and/or a Letter Agreement with SCE and 2) those projects trigger the need for an upgrade.

2. **Coordination of Environmental Work**
   This study assumes that the IC will perform environmental work related to the installation of SCE's IF, and 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 is expected to 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, an IC delay in producing them may impact SCE's ability to obtain required permits and/or license(s) in time to target the IC's requested ISD. Such delays would likely cause additional delays in the commencement of SCE's final design and engineering, procurement, and construction. These delays could increase any durations identified in this report and as stated above, could impact the ISD provided in Table K.1 ISD and COD Assessment.

3. **Circuit Breaker Procurement Delays**

Due to supply chain issues, the lead times associated with procuring equipment, particularly Circuit Breakers (CB), have increased across the industry. Specifically, this procurement challenge impacts the estimated duration to physically interconnect a generating facility, and any short circuit duty mitigation that requires replacing CBs. Consequently, estimated durations for these types of upgrades have increased and are reflected in this report under their applicable upgrade classification (generally as either a Reliability Network Upgrade, a Distribution Upgrade and/or Interconnection Facility associated with the Plan of Service). The estimated durations for CBs in this report are based on vendor information known to date and are subject to change.

K. IN-SERVICE DATE AND COMMERCIAL OPERATION DATE ASSESSMENT

An ISD and COD assessment was performed for the Generating Facility to establish SCE's estimate of the earliest achievable ISD based on the cluster study process timelines and the time required for SCE to complete the facilities needed to enable physical interconnection as an Interim Deliverability Status or Energy-Only Deliverability Status interconnection (as applicable) for the Generating Facility. This date may be different from the IC's requested ISD and will be the basis for establishing the associated milestones in the draft GIA.

1. **ISD Estimation Details**
   For the QC14 Phase II Interconnection Study, the estimated earliest achievable ISD is derived by the time requirements to complete the following:

   1. QC14 Interconnection Study Cycle
   2. Tender a draft GIA
   3. Negotiate and execute the GIA
   4. Longest duration associated with the facilities required to interconnect the Generating Facility (i.e., IF, RNU, and DU), per the durations specified in table J.1. above.

Table K.1 ISD and COD Assessment

[redacted]

1) This calculation assumes the estimated duration to construct those facilities required for the Generating Facility to achieve Interim Deliverability Status or Energy-Only Deliverability Status (as defined in the ISO Tariff) until the applicable DNUs are completed.
2) The project execution durations shown represents the estimated amount of time needed to engineer, design, procure, and construct the facilities from the effective date of the GIA; and timely receipt of the IC's initial specification information, written authorization to proceed ("ATP"), project payments, financial security postings, and timely completion of project milestones.
3) The IC-requested dates are specified in the IR and/or Attachment B submitted to SCE in accordance with GIP Section 4.6.1. Table K.1 provides SCE's estimated achievable ISD and COD for the Generating Facility in compliance with GIP Section 4.9.2. The actual ISD, Initial Synchronization Date, and COD will depend on licensing, engineering, detailed

design, procurement, and construction requirements to interconnect the Generating Facility after the GIA has been executed or filed at the Federal Energy Regulatory Commission ("FERC") for acceptance.

4) Assumes that GIA is tendered after the TP Deliverability allocation results are disclosed, the required affidavit is submitted accepting or rejecting the deliverability allocation, and the IC has submitted written notification to SCE requesting a draft GIA.

2. ISD Conclusion

[redacted]

L. TIMING OF FULL CAPACITY DELIVERABILITY STATUS, INTERIM DELIVERABILITY STATUS, AREA CONSTRAINTS, AND OPERATIONAL INFORMATION

The Generating Facility would be granted its requested FCDS only if the Generating Facility receives a Transmission Plan Deliverability ("TPD") allocation in the forthcoming TPD Allocation Study Process. Furthermore, timing of obtaining the requested FCDS is dependent on the completion of assigned Delivery Network Upgrades ("DNU") and Precursor Network Upgrades ("PNU") [13] identified in the QC14 Phase II Transmission Deliverability Analysis. The identified DNU's and PNU's if any, may be updated in any subsequent annual reassessment. Until such time that these DNUs and PNUs are completed and placed in-service, the Generating Facility may be granted Interim Deliverability Status based on annual system availability. For a discussion on the deliverability study results and the potential timing of FCDS once a TPD allocation has been obtained, refer to Section E of the Area Report.

[13] PNUs are Network Upgrades required for an Interconnection Customer that consist of (1) Network Upgrades whose cost responsibility is assigned to an earlier Interconnection Customer that has executed its GIA; and (2) Network Upgrades in the approved ISO Transmission Plan.

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

Attachment 2:
Escalated Cost and Time to Construct for Interconnection Facilities, Reliability Network Upgrades, Delivery Network Upgrades, and Distribution Upgrades

Please refer to separate document

Attachment 3:
Allocation of Network Upgrades for Cost Estimates and Maximum Network Upgrade Cost Responsibility

Please refer to separate document

Attachment 4:
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 5:
Short-Circuit Duty Calculation Study Results
Please refer to the Appendix H of the Area Report

Attachment 6:
IC Provided Generating Facility Dynamic Data

Attachment 7:
Subtransmission Assessment Report
Please refer to separate document