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R. Sekhon  
D. Snow



(U 338-E)

***Testimony in Support of Application of  
Southern California Edison Company (U 338-E)  
for Recovery of Aliso Canyon Utility Owned  
Energy Storage Costs***

**PUBLIC VERSION**

Before the

**Public Utilities Commission of the State of California**

Rosemead, California  
March 30, 2017

**SCE-01: Testimony in Support of Application of Southern California Edison Company (U 338-E) for Recovery of Aliso Canyon Utility Owned Energy Storage Costs**  
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**I.**

**INTRODUCTION**

Southern California Edison Company (“SCE”) offers this testimony to support its application to recover costs associated with the solicitation, site assessment, and construction of four SCE-owned energy storage projects. SCE procured two projects from Tesla Motors, Inc. (“Tesla”) through its Aliso Canyon Energy Storage (“ACES”) Request for Proposals (“RFP”). The other two projects are the product of bilateral negotiations with General Electric-Current (“GE”). As background, to help alleviate the reliability concerns arising out of the moratorium on gas injections into the Aliso Canyon Storage Facility, the California Public Utilities Commission (“Commission” or “CPUC”) issued Resolution E-4791 (“the Resolution”). Pursuant to Governor Brown’s State of Emergency Proclamation to “take all actions necessary to ensure the continued reliability of natural gas and electricity supplies in the coming months during the moratorium on gas injections into the Aliso Canyon Storage Facility,”<sup>1</sup> the Resolution, among other things, deemed it reasonable for SCE to pursue Resource Adequacy (“RA”) eligible, utility-owned, turnkey, in-front-of-the-meter (“IFOM”) energy storage projects at SCE’s substations or on utility-owned or operated sites south of Path 26.<sup>2</sup> The Commission found that developing such turnkey “build and transfer” projects “would increase the likelihood of resources being timely developed”<sup>3</sup> to mitigate the Aliso Canyon emergency.

Consistent with the Resolution, the two Tesla battery systems for which SCE seeks cost recovery (Mira Loma Battery Energy Storage System A & B) are sited adjacent to SCE’s Mira Loma substation in Ontario, California, and will qualify for RA. The two GE energy storage systems are integrated into SCE’s existing GE LM6000 Gas Turbine Peaker Generating Stations in Norwalk, California (“Center Peaker”) and Rancho Cucamonga, California (“Grapeland Peaker”), and qualify for RA. To reduce the risk of winter power outages, the Resolution also required projects to be in service by December 31,

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<sup>1</sup> Resolution E-4791 at p. 3.

<sup>2</sup> Resolution E-4791 at p. 12.

<sup>3</sup> *Id.*, Finding 42.

1 2016. In compliance with the Resolution, the Mira Loma, Center Peaker, and Grapeland Peaker projects  
2 became operational on December 30, 2016.<sup>4</sup>

3 SCE's testimony:

- 4 1. Demonstrates SCE contracted for cost competitive "build and transfer" energy storage  
5 resources consistent with the Resolution;
- 6 2. Demonstrates that the utility-owned projects are consistent with the parameters of the  
7 Resolution for energy storage resources to mitigate an outage risk associated with the  
8 partial shutdown of the Aliso Canyon storage facility;
- 9 3. Demonstrates that the utility-owned projects are consistent with the Energy Storage  
10 Procurement Framework adopted in Decision (D.) 13-10-040.
- 11 4. Demonstrates, for the Tesla projects, that the forecast total cost of [REDACTED] million in capital  
12 expenditures for construction, and the \$4.5 million in forecast O&M expense (from  
13 project initiation through 2020) are reasonable;
- 14 5. Demonstrates, for the GE projects, that the forecast total cost of [REDACTED] in capital  
15 expenditures for construction, and \$0.9 in forecast O&M expense (from project initiation  
16 through 2020) are reasonable;
- 17 6. Demonstrates that SCE's expenses of \$1.1 million to conduct the ACES RFP (including  
18 costs associated with unsuccessful sites), are reasonable;
- 19 7. Proposes to establish the ACES Balancing Account ("ACESBA") to record Tesla and GE  
20 Project development O&M expenses and capital-related revenue requirements (including  
21 an initial entry for the transfer of SCE-owned ACES-related recorded activity in the Aliso  
22 Canyon Catastrophic Event Memorandum Account) until remaining cost recovery can be  
23 transitioned to SCE's base rates beginning in SCE's 2021 General Rate Case ("GRC");

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<sup>4</sup> All four projects were able to perform their core function of charge and discharge in support of grid operations, as dispatched on December 30, 2016, but these initial grid operations had certain limitations because battery conditioning, operational testing, and work to fully integrate the batteries into the Peaker control system was still underway.

- 1           8.     Proposes that costs should be recovered using the Cost Allocation Mechanism (“CAM”)  
2                     because the storage projects were procured to ensure system reliability, and benefit all  
3                     customers;
- 4           9.     Seeks a finding from the Commission that the Tesla projects totaling 20 MW and the GE  
5                     projects totaling 20 MW, count towards satisfying the outstanding portion of SCE’s  
6                     energy storage targets, as authorized by the Resolution and consistent with D.13-10-040,  
7                     and to the extent a need is identified, a finding that the projects can qualify for LCR  
8                     credits pursuant to D.13-02-015 and D.14-03-004.

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**II.**

**BACKGROUND**

**A. Energy Storage Procurement Framework**

Assembly Bill (“AB”) 2514 (Stats. 2010, ch. 469) required the Commission to determine appropriate targets, if any, for each Load Serving Entity (“LSE”) to procure viable and cost-effective energy storage systems.<sup>5</sup> Rulemaking (“R.”) 10-12-007, opened to implement AB 2514, culminated in D.13-10-040, which the Commission adopted on October 17, 2013. D.13-10-040 requires the three large investor-owned utilities (“IOUs”) to procure 1,325 MW of energy storage capacity by 2020.<sup>6</sup> SCE’s share of the 1,325 MW goal is 580 MW, which is divided into biennial procurement targets in 2014, 2016, 2018, and 2020.<sup>7</sup> Furthermore, D.13-10-040 authorized the IOUs to own up to 50 percent of their MW targets – for SCE, 290 MW. The capacity of the utility-owned Energy Storage Systems in this testimony will keep SCE well within the allowed 290 MW utility ownership limit described above.

**B. Aliso Canyon Crisis**

On January 6, 2016, following the Aliso Canyon natural gas storage facility leak in the third quarter of 2015, Governor Jerry Brown issued an emergency proclamation directing that the “California Public Utilities Commission and the California Energy Commission, in coordination with the California Independent System Operator, shall take all actions necessary to ensure the continued reliability of natural gas and electricity supplies in the coming months during the moratorium on gas injections into the Aliso Canyon Storage Facility.”<sup>8</sup>

In accordance with the Governor’s proclamation, the Commission began pursuing activities that could be quickly implemented to reduce power reliability risks during the summer of 2016 and winter of 2017. Energy storage was identified as one solution. The Commission issued Draft Resolution E-4791

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<sup>5</sup> Public Utilities Code Section 2836 *et seq.*

<sup>6</sup> D.13-10-040 at 2.

<sup>7</sup> *Id.* at 15.

<sup>8</sup> Emergency Proclamation, Gov. Edmund G. Brown Jr., January 6, 2016, OP 10.

1 on May 12, 2016, and adopted the final Resolution on May 26, 2016. To reduce the risk of winter  
2 power outages, the Resolution required projects to be in service by December 31, 2016.

3 The Resolution also provided:

- 4 1. SCE may procure storage resources South of Path 26 within its service territory, and to  
5 the extent the resources also qualify for Local Capacity Requirements (“LCR”) credit  
6 pursuant to D.13-02-015 and D.14-03-004, SCE will be granted LCR credits consistent  
7 with its remaining authorization from D.15-11-041;
- 8 2. SCE shall solicit IFOM energy storage that must be operational by December 31, 2016;
- 9 3. All resources procured under the ACES Solicitation must interconnect in a location that  
10 helps alleviate electric reliability concerns associated with the partial shutdown of Aliso  
11 Canyon and qualify for RA credit;
- 12 4. Resources procured in the ACES Solicitation should be price-competitive with previous  
13 solicitations in which SCE awarded contracts to energy storage resources, adjusting for  
14 different contract terms such as contract length and expedited delivery date impacts; and
- 15 5. SCE may enter into contracts with terms of 10 years or less.

16 The Resolution further authorized SCE to seek approval of, and obtain cost recovery treatment,  
17 Energy Storage credit, and LCR credit for any contracts resulting from the ACES Solicitation through a  
18 Tier 3 Advice Letter.<sup>9</sup>

19 Additionally, the Resolution found that because any procurement to alleviate reliability risks  
20 associated with the partial shutdown of Aliso Canyon will benefit all customers connected to the grid, all  
21 customers must bear the costs of the contracts resulting from the ACES Solicitation. Specifically, “the  
22 [CAM], as adopted by the Commission in D.15-11-041 and applicable to IFOM energy storage shall  
23 apply to contracts resulting from the [ACES] Solicitation.<sup>10</sup> Lastly, the Resolution authorized SCE to  
24 pursue proposals for turnkey project development of “build and transfer” projects located at the utility’s

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<sup>9</sup> Resolution at p. 5.

<sup>10</sup> *Id* at p.5.

1 substations or on utility-owned or operated sites. The Resolution required SCE to submit an application  
2 for reasonableness review of utility-owned storage projects within 90 days after the operational start date  
3 of such projects. In response to E-4791, San Diego Gas & Electric (“SDG&E”) submitted Advice Letter  
4 2924-E, requesting approval of its own Engineering, Procurement, and Construction Contracts with AES  
5 Energy Storage LLC., yielding a total of 37.5 MW of Utility-Owned Storage. The Commission  
6 approved SDG&E’s contracts on August 18, 2016.<sup>11</sup>

7 **1. ACES RFO and DBT RFP**

8 One day after the Commission issued the Resolution, SCE launched its ACES Solicitation to  
9 expeditiously bring energy storage resources online. The solicitation had two components. First, SCE  
10 launched a Request for Offers (“ACES RFO”). Consistent with the Resolution, the ACES RFO sought  
11 IFOM projects located south of Path 26 in SCE’s service territory that could provide RA for up to a 10  
12 year term, and could achieve commercial operation by December 31, 2016. SCE sought approval of the  
13 resulting ACES RFO contracts through Tier 3 Advice Letters, filed on August 15, 2016. The  
14 Commission approved these contracts on September 15, 2016.

15 Concurrently with the ACES RFO, SCE launched the separate Design, Build, and Transfer  
16 Request for Proposals (“DBT RFP”) for utility-owned energy storage facilities. The separate DBT RFP  
17 was tailored to satisfy the Resolution’s requirements for energy storage systems to help alleviate electric  
18 reliability concerns during the moratorium on gas injections into the Aliso Canyon Storage Facility,  
19 which are described in chapter II.B above. The results of the RFP yielded the Tesla contracts for which  
20 SCE seeks cost recovery in this application.<sup>12</sup>

21 The DBT RFP and ACES RFO bids were not in direct competition. Rather, SCE selected  
22 winning third-party ACES RFO bids before final offers were due in the DBT RFP, and SCE then used  
23 the selected third-party ACES RFO bids as a benchmark for the competitiveness of the utility-owned  
24 options presented in the DBT RFP. Given the Aliso Canyon reliability crisis, SCE intended to procure –

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<sup>11</sup> See Resolution E-4798

<sup>12</sup> See Resolution E-4808.



1 and did procure – all cost competitive energy storage resources offered in the ACES Solicitation – both  
2 third-party and utility-owned.

3 **2. Bilateral Negotiations**

4 GE approached SCE shortly before the Commission issued the Resolution with a proposal to  
5 develop and perform Enhanced Gas Turbine (“EGT” or “Peaker Enhancement”) upgrades on one or  
6 more of the SCE Peaker Generating Stations, which included an integrated energy storage feature. The  
7 enhanced peakers promote reliability because they each provide 10 MW of energy, allowing the  
8 enhanced peaker to, among other capabilities, operate if natural gas is not available. In response to the  
9 Resolution, which seeks to alleviate system reliability concerns arising out of the unavailability of the  
10 Aliso Canyon storage facility, SCE negotiated contract terms with GE to perform enhancements on two  
11 SCE peakers south of Path 26 for integrated IFOM energy storage to be online by December 31, 2016.

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### III.

#### **OVERVIEW OF THE ACES RFP**

This chapter describes SCE’s RFP structure for turnkey “design, build and transfer” projects for utility ownership, including the steps taken to select the sites of the Tesla projects, SCE’s Code of Conduct (“CoC”), and the critical events, resolutions and timeline to bring the projects online by December 31, 2016.

#### **A. RFP Structure**

##### **1. Overview**

In its RFP, SCE solicited proposals from Sellers<sup>13</sup> to supply:

- Fully operational turnkey energy storage systems on a fixed-price basis;
- Operational Performance Guarantees for a period of guaranteed performance on a fixed-price basis to maintain nameplate capacity of the energy storage system; and
- Maintenance Services, both scheduled and as a function of system operation.

The solicitation required the Seller to be responsible for designing, constructing, commissioning, testing and completing the project such that the project was placed in commercial operation no later than December 31, 2016. The Seller’s responsibilities also included obtaining applicable construction permits and other governmental authorizations and all other approvals required to construct the project, except that SCE supplied the required real property (i.e., SCE-owned or controlled land) and was responsible for interconnection of the project.

The proposals submitted by Sellers included three sections as follows:

- Energy Storage System

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<sup>13</sup> Capitalized terms in this chapter have the meaning ascribed to them in Appendix E - RFP Participant instructions.

- Fixed price, inclusive of all costs, including site development, engineering, procurement, permitting (related to construction), construction, installation, materials, shipping, documentation, and training activities.
- Operational Performance Guarantees
  - Fixed price for the period of guaranteed operational performance. The period of guaranteed operational performance is defined as the project maintaining the same fixed level of discharge power and discharge duration, availability, and efficiency range.
- Maintenance Services
  - An initial, fixed price service, inclusive of all scheduled maintenance activities as defined by the manufacturer (not including costs associated with maintaining performance for the period of guaranteed performance).
  - An additional, variable price service, inclusive of any additional maintenance costs required when the project exceeds a Seller defined Base Energy Throughput annual usage.

Sellers were permitted to submit multiple offers based on the following parameters:

- Operational performance guarantee terms of 5, 10, 15, and 20 years
- Payment structure – lump sum payments or annual payments
- System capacity of 5, 10, 15, 20 MW and the maximum capacity the Seller could provide

## **2. Site Selection**

To enable potential bidders to meet the expedited December 31, 2016 commercial operation deadline, the RFP indicated SCE would provide project sites located on SCE-owned or controlled land near existing substations or generating facilities. SCE first reviewed more than 70 fee-owned parcels of land at or adjacent to substations. SCE then evaluated and removed parcels from consideration for a number of reasons, including available square footage, alternative future plans for the parcel, restricted physical access to the property, and environmental concerns.

1 SCE invited the shortlisted Sellers to visit six of the potential sites. To facilitate informed offers,  
2 SCE provided all information available to it regarding the presence of underground structures, potential  
3 environmental concerns, geotechnical data for the adjacent substation, transmission structures requiring  
4 clearance, and other site specific factors for each site. SCE received bids related to four of the six  
5 visited sites. Ultimately, the two 10 MW contracts SCE selected in the ACES RFP resulted in two  
6 systems located adjacent to the Mira Loma Substation in Ontario, California: Mira Loma Battery Energy  
7 Storage System A & B (Tesla) projects.

### 8 **3. Critical Events**

#### 9 a) Internal Preparation and Launch

10 Prior to the RFP launch, SCE finalized most of the RFP documents; *e.g.*, RFP Participant  
11 Instructions (“RFP Instructions”), Offer Workbooks, and Offer Form and reviewed the RFP details with  
12 internal and external stakeholders. Due to the compressed schedule, SCE did not include the Pro Forma  
13 agreement at launch, opting instead to provide it at a later time. External stakeholders included the  
14 Independent Evaluator (“IE”), and SCE’s CAM Group, which includes the Commission’s Energy  
15 Division, the Office of Ratepayer Advocates, The Utility Reform Network, consumer advocates, and  
16 other various external stakeholders. Chapter V describes each of the external stakeholders’ roles.

17 On May 27, 2016, SCE launched its ACES RFO and RFP (collectively referred to here as “the  
18 Solicitation”). SCE created an ES ACES RFP website (hosted on <https://scees.accionpower.com>), which  
19 included all of the information that Sellers needed to participate in the solicitation. Potential Sellers were  
20 notified via an email list maintained by SCE of more than 3,000 email addresses, and through various  
21 service lists for dockets involving energy storage matters. For additional information on SCE’s outreach  
22 efforts to its CAM group, *see* Chapter V. Copies of SCE’s relevant RFP solicitation materials are  
23 included as Appendix E.

#### 24 b) Indicative Offers Submission

25 Using the offer workbook templates from the RFP website, Sellers submitted non-binding  
26 indicative offers. The indicative offers provided pricing SCE used to select projects for its shortlist. A  
27 secondary benefit of this process was Sellers were able to input their information directly into a

1 template, allowing SCE to identify anomalies requiring additional information. SCE then worked with  
2 Sellers to cure any deficiencies on indicative offers.

3 c) Shortlist Notification

4 Based on shortlist criteria and valuation results from indicative offers, SCE notified Sellers  
5 whether they had been shortlisted.

6 d) Final Offer Submission

7 Sellers submitted final binding prices based on previously negotiated contract forms and  
8 commercial terms. These documents represented each Seller’s final offer.

9 e) Final Notification

10 SCE notified Sellers whether their offers had been accepted or rejected. After offer acceptance,  
11 SCE and the Seller prepared the final executable form of the contract.

12 **4. Timeline**

13 Table III-1 below reflects the final RFP schedule.

*Table III-1  
Schedule of Events*

<b>Event</b>	<b>Milestone Dates</b>
RFP Launch	May 27, 2016
Bidders’ Conference	June 2, 2016
Indicative Offer Deadline	June 17, 2016 (1pm PST)
Short-List Notification	July 6, 2016
Final Offer Deadline	August 19, 2016
Final Notification	September 2, 2016

14 **B. Code of Conduct**

15 Because the ACES Solicitation had two components – an RFO for third-party bids to provide RA  
16 as well as a separate RFP for turnkey “design, build and transfer” utility-owned projects – the IE  
17 encouraged SCE to implement a CoC to prevent the sharing of sensitive information between staff

1 involved in developing utility projects and staff who create the bid evaluation criteria and select winning  
2 bids. The Commission has required such CoCs in the case of solicitations for utility-owned generation,  
3 to provide assurance that the utility will not use “inside information” to advantage its own project over  
4 third party projects.<sup>14</sup>

5 As noted above, in the case of SCE’s ACES Solicitation, the DBT RFP and the ACES RFO bids  
6 were not in direct competition. Nevertheless, in an abundance of caution, and based on the IE’s  
7 feedback, SCE implemented the ACES RFO/Proposals Confidentiality Protocol and CoC (“ACES  
8 CoC”) to prevent the sharing of confidential information between employees who were evaluating the  
9 costs and viability of utility-ownership options, and employees who created bid evaluation criteria and  
10 selected winning bids.<sup>15</sup>

11 Specifically, as demonstrated from the CoC, a copy of which is included in Appendix D hereto,  
12 SCE divided its employees working on the ACES Solicitation into two teams: (1) an Ownership Team,  
13 comprised of the employees who established the requirements for, and evaluated the viability of  
14 development, construction, and on-going operations associated with the Design, Build, and Transfer  
15 (“DBT”) offers; and (2) a Solicitation Team, comprised of the employees who evaluated and selected  
16 the DBT offers for shortlist and final execution. SCE’s ACES CoC, which each Ownership and  
17 Solicitation employee had to sign, prohibited Ownership Employees from accessing Confidential  
18 Information<sup>16</sup> except for certain purposes outlined in the ACES CoC, and prohibited Ownership  
19 Employees from accessing Confidential Information in project files developed by Energy Storage  
20 Solicitation Employees. The CoC remained in place through the execution of RFO and RFP contracts,

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<sup>14</sup> D.07-12-052 provides that as a precondition for conducting an RFO seeking utility ownership options, the IOU must develop a CoC to be signed by all utility personnel involved in the RFO to “prevent sharing of sensitive information between staff involved in developing utility bids and staff who create the bid evaluation criteria and select winning bids.” *See* D.07-12-052 at 206. Specifically, employees developing the utility-owned projects should be barred from access to evaluation protocols, input assumptions or bid information not generally made available to outside bidders. *See id.* at 206-07, note 236.

<sup>15</sup> The ACES CoC is attached to this testimony as Appendix D.

<sup>16</sup> “Confidential Information” was generally defined as any non-public information that a participant in the ACES Solicitation would find commercially useful. *See* Appendix D, ACES CoC at Section 4.a.ii.

1 and terminated once the Solicitation was concluded. SCE employees governed by the ACES CoC were  
2 notified that it was no longer applicable on September 12, 2016.

3 Consistent with the ACES CoC, SCE endeavored to ensure that Ownership Employees did not  
4 have access to confidential bid or valuation information. For example, SCE separated access to  
5 information on the DBT RFP and ACES RFO on the Accion website to ensure that SCE Ownership  
6 Employees did not have access to the ACES RFO Accion site. Additionally, when presenting  
7 information to SCE's senior management or the CAM Group, SCE separated the presentations of its  
8 Ownership and Solicitations teams, respectively, to ensure that Ownership Employees were not given  
9 access to confidential bid or valuation information.

10 Due to the compressed timeline to launch and complete the ACES Solicitation, it was not  
11 possible for SCE to conduct a formal training of all employees who signed the ACES CoC. Indeed,  
12 SCE could not conduct a formal training at the solicitation launch for all employees working on the  
13 solicitation because, over the course of the solicitation, SCE needed to continually add employees, based  
14 on business needs and subject matter expertise.

15 SCE's subsequent review of its compliance with the ACES CoC revealed that some of its  
16 employees were confused about their appropriate self-classification as "Ownership" or "Solicitation"  
17 employees. For example, SCE had to re-classify a number of employees as either "Ownership" or  
18 "Solicitation" employees after they had signed the ACES CoC, depending upon their role in the ACES  
19 Solicitation.<sup>17</sup> SCE also determined that a small number of employees did not understand the broad  
20 scope of the ACES CoC. Indeed, they incorrectly believed the prohibition on accessing "Confidential  
21 Information" (as defined in the ACES CoC) narrowly applied to work on the ACES Solicitation, and not  
22 work unrelated to the ACES Solicitation.

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<sup>17</sup> As part of executing these reclassifications, SCE validated and documented that all employees reclassified as Ownership Employees had received no Confidential Information during the period of time that they were classified as Solicitation Employees.

1 Although those instances were technical violations of the ACES CoC, SCE believes that the  
2 fairness of the ACES Solicitation was not compromised. The confusion of these small number of  
3 employees about the broad scope of the prohibition did not compromise fairness or cause harm because:  
4 (i) the Confidential Information the employees accessed was unrelated to the ACES Solicitation, (ii) the  
5 employees did not use that unrelated Confidential Information to benefit utility-ownership options, and  
6 (iii) third party offers and utility ownership proposals were not directly competing against one another.  
7 SCE discussed these issues with the IE and briefed the CAM Group on February 26, 2017, as required  
8 by the ACES CoC. The IE also concluded that it did not appear that any bidder was disadvantaged or  
9 advantaged or that the evaluation was biased in any way from employees accessing Confidential  
10 Information on matters not related to the ACES Solicitation.

11 **C. ACES RFP Participation**

12 This section provides an overview of Seller participation in each of the following steps in the ES  
13 RFP: (1) indicative offers submitted by Sellers; (2) shortlist notification; (3) contract negotiations; and  
14 (4) final offers submitted by Sellers.

15 **1. Indicative Offer Submittal**

16 SCE received 18 proposals (including multiple offers) from ■ individual Sellers. These offers  
17 represented a total of 305 MW (considering mutually exclusive constraints).<sup>18</sup> A summary of the  
18 indicative proposals received is provided in Table III-2 below.

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<sup>18</sup> “Mutually exclusive constraints” refers to limitations on offer selection that sellers bid with offer packages, such as restrictions on which offers could be selected together (e.g., “bid #1 cannot be selected with bid #2”).



**Table III-2**  
**Summary of Indicative Offers**

Seller	Number of Proposals	Number of Offers	Total Capacity Offered (MW)
Tesla Motors, Inc.			
Burns & McDonnell			
Yunicos, Inc.			
STOREME Inc			
NEC Energy Solutions Inc.			
RES Americas			
AES Energy Storage			
Starwood Energy Group Global Inc.			
Power Edison			
Siemens			
UniEnergy Technologies			
Edison Energy, LLC			
Base Energy			
<b>Total</b>			<b>305</b>

1 SCE evaluated indicative offers against defined complete and conforming offer criteria and  
 2 provided Sellers with an opportunity to work with SCE to cure any deficiencies. Sellers cured all offer  
 3 of defects and SCE deemed all offers compliant.

4 Additionally, in the RFP Instructions, SCE required proposed energy storage systems to be based  
 5 on commercialized technology and Sellers to demonstrate past experience designing and constructing  
 6 similar projects by providing evidence of at least two other similarly sized, utility-connected energy  
 7 storage systems. SCE performed a technology viability screen utilizing input from its Advanced  
 8 Technology division, which has more than 20 years of experience testing and evaluating battery energy  
 9 storage technologies. To conduct its technical screening, SCE considered the following two criteria:

- 10 • Energy Storage Technology Commercial Maturity
  - 11 ○ Seller proposed energy storage technology has been utilized in two grid-  
 12 connected applications at a minimum scale of 1MW / 1MWh during the last 3  
 13 years.
- 14 • Integration and Deployment Experience

- Seller demonstrated 3 years of experience integrating and deploying energy storage or photovoltaic products.

The technical evaluation revealed [REDACTED] Sellers (totaling 7 proposals) did not meet the established criteria as shown in Table III-3 below.

***Table III-3  
Offers That Did Not Meet Established Technical Criteria***

Seller	Number of Proposals	Technology Manufacturer	Technology Maturity	Developer Experience
[REDACTED]				

**2. Shortlist Notification**

Once SCE completed all pre-screening activity, SCE performed a full valuation analysis of the remaining projects and ranked them. The ranking criteria is described in more detail in Chapter III, Section D. Based on the valuation analysis, SCE identified [REDACTED] proposals from 4 Sellers representing a total of [REDACTED] for the shortlist. A summary of the shortlist and ranking is shown in Table III-4 below.

**Table III-4  
Summary of Shortlist Offers**

Seller	Number of Proposals	Total Capacity Offered
[REDACTED]		

**3. Contract Negotiations**

SCE notified Sellers of its shortlist selections on July 6, 2016 and commenced negotiations shortly thereafter. During the contract negotiation phase, shortlisted Sellers continuously refined their offers in response to feedback from SCE and learning more about their projects' feasibility and risks.

[REDACTED]

**4. Final Offer Submission**

All shortlisted Sellers were allowed to submit final offers, regardless of whether the final agreement submitted met SCE's requirements. On August 19, 2016, SCE received [REDACTED] final proposals from [REDACTED] different Sellers representing a total of [REDACTED] MW.

Table III-5 below summarizes the offers.

**Table III-5  
Summary of Final Offers**

Seller	Number of Proposals	Total Capacity Offered
[REDACTED]		

1 **D. Valuation Process**

2 **1. Overview**

3 As described in D.04-12-048, SCE used a Least-Cost, Best Fit (“LCBF”) methodology to value  
4 and award contracts in the ACES RFP. SCE employs a net present value (“NPV”) analysis when it  
5 evaluates offers submitted through an RFO/P. This methodology is consistent with valuations  
6 performed by SCE in other solicitations, such as SCE’s LCR RFO, Combined Heat and Power (“CHP”) RFOs,  
7 Energy Storage RFOs, RPS solicitations, and All-Source RFOs for energy and RA. The  
8 quantitative component of the valuation entails forecasting: (1) the present value of the contract  
9 benefits; (2) the present value of the contract costs; and (3) the net value between (1) and (2).

10 SCE calculated each offer’s forecasted quantity of RA capacity, electrical energy, and ancillary  
11 services (“AS”) using a combination of models. SCE then multiplied these quantities by the respective  
12 market price forecasts to determine the value of the benefits based on the forecasted market value for  
13 each resource. SCE then calculated the costs required to realize this market value, including project  
14 payments, fixed maintenance service payments, variable operations and maintenance (“VOM”) costs.  
15 These elements were used to determine the cost-competitiveness of each offer.

16 SCE’s benchmark for assessing each offer’s cost-competitiveness (*i.e.*, the resource’s forecasted  
17 market value minus the costs required to receive these benefits, plus any other value that can be  
18 attributed to the resource, discounted at 10 percent per annum<sup>19</sup>) was the calculated NPV per energy  
19 storage kilowatt month (kW-mo) over the length of the energy storage system’s useful life as identified  
20 by the Seller. SCE defined the energy storage kW to be the maximum continuous discharge over a  
21 length of time that is appropriate for the energy storage device’s application. Because the ACES RFP  
22 was conducted in service of procuring additional capacity for the system, the most relevant application  
23 was RA. Accordingly, the appropriate continuous dispatch duration was four hours. The NPV,  
24 expressed as \$/kW-mo was the key quantitative metric that SCE used in the selection process. The NPV  
25 elements are described below.

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<sup>19</sup> The 10 percent discount rate used in the valuations represents a proxy for the customer discount rate.

1 a) Selection Process

2 Due to the accelerated nature of the solicitation, the unknown interest in the solicitation, and to  
3 provide the bidders with enough lead time for their procurement, the RFP was broken up into a two-step  
4 process—shortlisting and final awards. During the shortlisting process, SCE performed a full economic  
5 evaluation of each offer. Each bidder was allowed to offer 5MW, 10MW, 15MW, 20MW and  
6 maximum MW sized projects<sup>20</sup> with Operational Performance Guarantees of 5, 10, 15 or 20 years as  
7 described in Section III.A.1. SCE permitted each Seller to submit two different payment structures for  
8 the Energy Storage System and the Operational Performance Guaranteed. For the former, SCE  
9 permitted Sellers to either select a lump sum payment upon the completion of the construction or receive  
10 periodic payments based on construction milestone events. For the latter, SCE permitted each Seller to  
11 either select payment for its performance guarantee upon their Commercial Online Date or annually.

12 SCE compared the NPV of each offer, normalized by kilowatt-months, to the recommended RA  
13 shortlist from the ACES RFO. SCE only shortlisted Sellers that submitted competitive offers, as  
14 compared to the recommended ACES RA RFO shortlist. SCE established the ACES RFO RA shortlist  
15 based on the “Price Competitiveness Benchmark,” which is described in the section below. With regard  
16 to the normalization process, consistent with Commission Decision D.12-04-046, SCE employed the  
17 same period of levelization for both third party bids and utility-owned storage (“UOS”) bids, *i.e.*, all  
18 RFP offers’ NPVs were normalized by kW-mo using both the useful life and ten-year levelizations.<sup>21</sup>  
19 For example, SCE would normalize the NPV of an offer that was based on a 1 MW energy storage  
20 system with a useful life of 15 years by  $1,000 \text{ kW} * 15 \text{ Year} * 12 \text{ Month/Year}$  and  $1,000\text{kW} * 10 \text{ Year} *$   
21  $12 \text{ Month/Year}$  for both the useful life and the ten-year levelizations, respectively.

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<sup>20</sup> Consistent with the RA qualification requirement, SCE required all offers to be able to deliver their capacity continuously for four hours. Furthermore, each Seller was required to submit each MW size up to their maximum offer. For example, if Seller A submitted a 15MW offer, Seller A must also submit a 5MW and a 10MW offer as per the RFP instructions.

<sup>21</sup> In the ACES RFO, the maximum term SCE sought was 10 years – a specific requirement in E-4791.

1 After the shortlisting process, SCE examined the costs for the longer term Operational  
2 Performance Guarantees and Maintenance Services and reassessed the need for long term energy storage  
3 contracts. Battery energy storage systems typically have a useful life of 10 to 15 years when the energy  
4 component of the system is not continually maintained/replaced. [REDACTED]

5 [REDACTED]  
6 [REDACTED]  
7 [REDACTED]  
8 [REDACTED]  
9 [REDACTED]  
10 [REDACTED]  
11 [REDACTED]  
12 [REDACTED]  
13 [REDACTED]  
14 [REDACTED]  
15 SCE allowed Sellers to submit different costs for each project location. Prior to shortlisted  
16 sellers submitting their final offers, SCE hosted shortlisted bidders on visits to potential sites to inform  
17 the submittal of final offers. Because the economic analysis of the final offers was site specific, SCE's  
18 economic analysis used nodal pricing<sup>22</sup> to assess the financial impact of each site's congestion and loss.  
19 SCE was also able to develop an estimate of potential charging constraints to be used in the final  
20 evaluation of the RFP offers. This estimate was based on analysis of several SCE representative  
21 circuits.

22 SCE valued the components of each conforming and viable offer as described in Chapter III.D.2  
23 and calculated their respective NPV per kW-mo. SCE benchmarked the resulting values against the

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<sup>22</sup> See Chapter III.D.2.g for more details on nodal pricing.

1 selected RA Only offers from the ACES RFO; SCE only considered offers with an NPV better than the  
2 NPV of the marginal RA Only offer.<sup>23</sup>

3 b) Price Competitiveness Benchmark

4 As required by the Resolution, SCE developed a “Price Competitiveness Benchmark” (“PCB”)  
5 to assess if offers were “price competitive with previous solicitations in which SCE has awarded  
6 contracts to energy storage resources, adjusting for different contract terms such as contracting length  
7 and expedited delivery date impacts”<sup>24</sup> necessitated by the partial shutdown of Aliso Canyon. To assess  
8 the competitiveness of the offers received in the ACES Solicitation, SCE compared the premiums  
9 associated with its ACES Solicitation offers to those of previously executed energy storage contracts,  
10 adjusting for the increased cost expected for the ACES Solicitation accelerated procurement timeline.  
11 SCE calculated the premiums by determining the difference between (1) forecast contract and network  
12 upgrade costs and (2) forecast energy and AS value. For the previously executed RA contracts, SCE  
13 assumed no value for energy and AS because the counterparty is responsible for bidding the resource  
14 into the market and receiving the associated energy and AS revenues.

15 To develop the PCB, SCE evaluated offers in all RFOs in which it procured IFOM energy  
16 storage, including offers from SCE’s (1) 2013 LCR RFO, (2) 2014 Energy Storage (ES) RFO, and (3)  
17 PRP 2 RFO. After analyzing the data from those three RFOs, SCE determined that the final offers from  
18 the 2013 LCR RFO and 2014 ES RFO represented the most relevant data set for comparative purposes.  
19 The PRP 2 RFO data was excluded due to the pilot nature of the program, and the relatively strict  
20 locational requirements that did not exist in the ACES Solicitation. The 2013 LCR and 2014 ES RFOs  
21 contained 535 final offers that made it past the shortlisting process and represented offers Sellers were  
22 willing to execute.

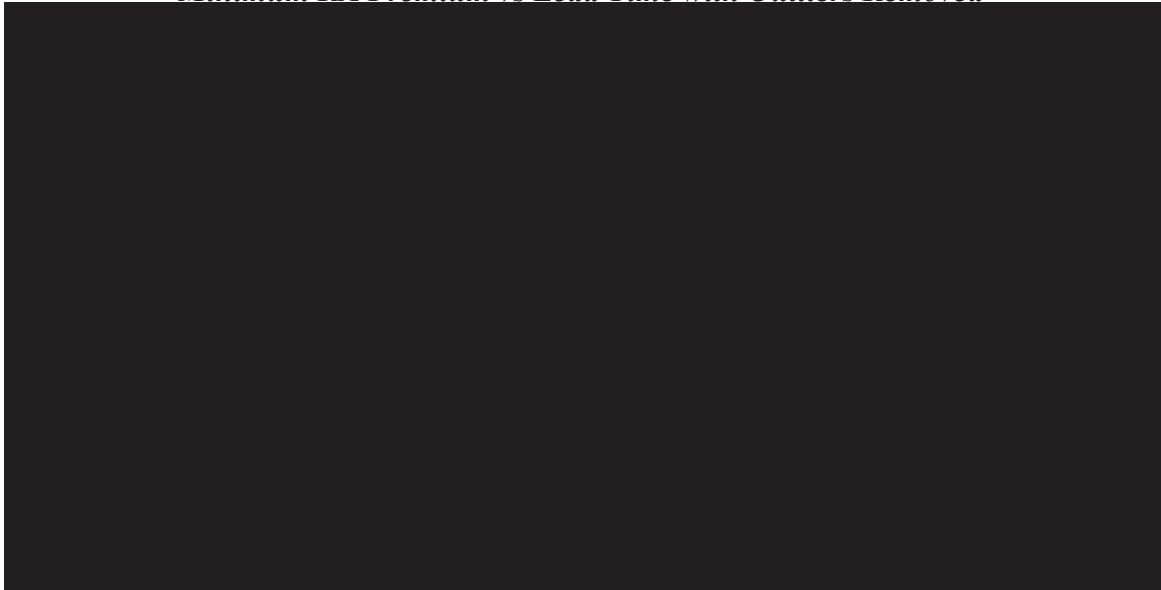
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<sup>23</sup> Alta Gas’s Pomona Battery Storage 1 RA Only offer’s NPV was [REDACTED]

<sup>24</sup> See Resolution E-4791, Finding 51.

1 For the selected RFO data, SCE calculated each offer's respective RA premium<sup>25</sup> and contract-  
2 specific "lead time," *i.e.*, the time necessary for a counterparty to build and operationalize the energy  
3 storage project after the project receives Commission approval. From the initial data set of [REDACTED] offers,  
4 SCE evaluated offers with the best RA premium for each unique lead-time, creating a total of [REDACTED] data  
5 points. [REDACTED] of these [REDACTED] data points were influential outliers, representing offers with a very high RA  
6 premium relative to their lead time. SCE removed these outliers from the analysis, resulting in [REDACTED] data  
7 points, which are plotted in Figure III-1 below.

**Figure III-1**  
***Minimum RA Premium vs Lead Time with Outliers Removed***



8 Figure III-1 depicts a decreasing relationship between length of lead time and RA Premium.  
9 SCE's used a linear regression methodology to construct a functional<sup>26</sup> relationship between the RA  
10 premium and project lead time. SCE used this relationship to develop a five-month lead time premium,  
11 resulting in an ACES Solicitation PCB of [REDACTED]/kW-mo.

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<sup>25</sup> All cost and benefits are nominal and are derived from the price forecasts used in each respective solicitation in which SCE has awarded contracts to energy storage resources.

<sup>26</sup> The functional form used was  $\alpha e^{\beta t}$  where  $\alpha$  and  $\beta$  are parameters to be fit and  $t$  is the lead time in years.





1 Deliverability Study Results - SCE area. The results show Mira Loma substation has 35.99 MW of  
2 Potential DG Deliverability (“PDGD”). SCE area’s share of Mira Loma DG is 96.03% (City of Corona  
3 has 3.97%), providing SCE with PDGD of 34.56 MW. SCE will request full deliverability and  
4 anticipates it will learn the allocation of deliverability in July 2017. To the extent the projects are not  
5 fully deliverable after the DG Deliverability results are allocated, SCE will continue to pursue Full  
6 Capacity Deliverability Status in its WDAT application.

7 b) Day-Ahead Energy, Real-Time Energy, and Ancillary Services (“AS”) Benefits

8 SCE is the scheduling coordinator for the selected projects, controlling the energy storage  
9 system’s operating profile. The operating profile determines the systems’ forecast net revenues from  
10 day-ahead energy, Real-Time (“RT”) energy, and AS net of the day-ahead, real-time charging costs and  
11 VOM costs. Because the valuation of revenues and costs from day-ahead energy, RT energy, and AS  
12 are interdependent, SCE modeled them collectively using a dispatch model to determine the optimal use  
13 of the device and its associated revenues and costs.

14 The objective function of SCE’s dispatch model maximizes day-ahead, RT, and AS revenue over  
15 the duration of the contract, while operating within the device’s operational and physical constraints.  
16 These constraints include maximum dispatch capacity, operating range, charge and discharge time, unit  
17 efficiency and energy degradation.

18 [REDACTED]  
19 [REDACTED]

20 SCE recognizes that energy storage systems are flexible and can provide AS to the grid.  
21 However, without substantial CAISO settlement data available for energy storage systems, one cannot  
22 have an empirical-based expectation as to what value an energy storage system will yield when  
23 integrated into the market. Consequently, SCE conducted an internal analysis of the most flexible  
24 resources in its portfolio to determine how often AS bids turned into awards and the frequency with

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<sup>28</sup> See Appendix E, Energy Storage EPCM (RFP) Version

1 which those awards turned into real time energy flows. This benchmarking exercise provided useful  
2 information about what AS performance one could reasonably expect from a flexible resource in the  
3 CAISO market, and approximately how a resource's operation will be divided between the energy and  
4 AS markets.

5 c) Contract Payment Cost

6 Contract payments represent the total fixed payments SCE is required to make to the Seller.  
7 These costs include a fixed payment stream, such as the project costs, the performance guarantee costs,  
8 the maintenance costs, and variable payment streams that depend upon the use of the device. Fixed  
9 payment streams are calculated directly according to contractual obligations with an additional  
10 contingency of [REDACTED] on the fixed contract costs. Furthermore, the project costs are treated as a capital  
11 expense and therefore have an associated revenue requirement represented as a cost in the NPV  
12 calculation. Because SCE treats the VOM payments and performance guarantee payments streams as an  
13 expense, they do not have an associated revenue requirement.

14 d) Distribution Costs

15 SCE used its Advanced Technology group's prior experience interconnecting energy storage  
16 devices at the distribution level to inform its estimation of its distribution upgrade costs by offer size  
17 (MW) and interconnection level (kV). The upgrade estimates included the cost of the interconnection  
18 study costs, interconnection maintenance cost and the interconnection costs. [REDACTED]

19 [REDACTED]  
20 [REDACTED] resulting in an associated revenue requirement, which is  
21 represented as a cost in the NPV calculation.

22 e) Credit and Collateral Adder Cost

23 [REDACTED]  
24 [REDACTED]

25 f) Retail Load Costs

26 SCE included the costs associated with station load and idle inverter load. The Seller provided  
27 estimates for station load (kW) and inverter idle load (kW). An energy storage system's inverter creates

1 a load anytime the system sits idle; SCE therefore applied idle inverter load anytime the energy storage  
2 system did not receive a dispatch instruction from the dispatch engine. SCE's analysis applied station  
3 power continually over the energy storage system's useful life. SCE also assumed charged station load  
4 and idle inverter load occurred at the retail rate. Although SCE included these costs to be consistent in  
5 its comparative analysis with the ACES RFO offers, SCE does not pay for station power at any of its  
6 generation facilities.

7 g) Transmission Congestion

8 For shortlisting purposes, because SCE did not have final site location information for each  
9 project, SCE did not include locational differentials (e.g., loss and congestion) in its valuation.

10 In the final valuation, SCE applied the appropriate nodal congestion and loss adders to each  
11 location. SCE derived the congestion adders from a long-term security-constrained fundamental model,  
12 which includes assumptions for load, generation supply, including RPS, Energy Efficiency, ES, Demand  
13 Response, thermal additions and retirements, and imports.

14 h) Real Estate Costs

15 SCE owns and controls all sites that it released to the Sellers for bidding. As a result, SCE did  
16 not need to procure additional real estate and incurred no incremental real estate costs.

17 i) Project Development Costs and Other Costs

18 SCE included costs associated with the development of an energy storage system, such as  
19 additional SCE labor needed for project development, interconnection upgrades, communication  
20 equipment costs and other miscellaneous expenses. SCE estimated these costs based on its prior  
21 experience with energy storage deployment and applied a [REDACTED] contingency on project development and  
22 interconnection upgrade costs.

23 j) Residual Costs

24 SCE assumed system operation and maintenance costs from the end of the Operational  
25 Performance Guarantee and Maintenance Service period through the end of the offeror's energy storage  
26 system's bid in useful life.

1           **3.     Qualitative Factors**

2           In addition to the benefits and costs calculated during the valuation, SCE assessed non-  
3 quantifiable characteristics of each offer by conducting an analysis of each bidder’s qualitative  
4 attributes. SCE considered qualitative characteristics, along with the quantitative components, in  
5 determining the final selection. These characteristics included items such as developer experience and  
6 technical viability of the energy storage technologies.<sup>29</sup>

7           **E.     RFP Results**

8           **1.     Shortlist Selection**

9           All proposals went through a technology viability screen as discussed in Chapter III.C.1. [REDACTED]

10 [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 [REDACTED]

*Table III-6  
Summary of Offer Received*

Vendor	Number of Sizes Offered	Min MW Offered	Max MW Offered	Total MW Available
[REDACTED]				

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<sup>29</sup> See Appendix E, RFP instructions.

1           January 2017 and [REDACTED] were the earliest start and latest end dates, respectively. SCE's  
2 average nominal price outlook for this period was [REDACTED] for SP15 and [REDACTED] for  
3 Local RA.

4           Using the price outlook described above, SCE calculated NPVs for each offer. Below is a  
5 summary of the RPF offers from the 9 Sellers that met the established criteria of the technology viability  
6 screening using both the useful life NPV/kW-mo. metric and 10-year NPV/kW-mo. metric.<sup>30</sup> The  
7 figures shows the useful life NPV/kW-mo. ranges of all of their offers.

***Figure III-2***  
***NPV/kW-mo. Ranges for each Seller (useful life levelization)***



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<sup>30</sup> D.12-04-046 requires for bid assessment purposes, the period of levelization for UOG offers should be the same as non-UOG bids.



1

2



3

Figure III-4 below.

*Figure III-4  
Comparison between RFO and RFP Shortlists*



1           **2.     Final Selection**

2           SCE initially allowed shortlisted Sellers to choose between six sites and offer different Energy  
3 Storage costs for each site. [REDACTED]

4 [REDACTED]  
5 [REDACTED]  
6 [REDACTED]

7           The earliest start date was January 2017 and the latest end date was [REDACTED]. SCE's  
8 average nominal price outlook for this period was [REDACTED] for SP15 and [REDACTED] for RA.

9 [REDACTED] [REDACTED]  
10 [REDACTED]

11           Using the  
12 price forecast described above, SCE calculated the resulting RA premiums and NPVs, which are  
summarized below in Table III-7.



**Table III-7**  
**Summary of the Final Offer NPV Results**

Seller	Number of Offers Submitted	Best RA Premium [\$/kW-mo]	Worst RA Premium [\$/kW- mo]	Best NPV [\$/kW-mo]	Worst NPV [\$/kW-mo]

1  
2  
3  
4  
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13

As described above in Chapter III.D.1.b, the PCB was

**Table III-8**  
**Results of Tesla's December 31, 2016 COD Offer**

December 31, 2016 Start Date				
[NPV Values in \$/kW-mo]				
	5 MW	10 MW	5 MW + 5 MW	10 MW + 10 MW

1  
2  
3  
4  
5  
6  
7  
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Also, the Mira Loma site was the preferred site based on the ease of deployment, and limited potential charge constraints or transmission upgrade. Based on the above considerations, SCE selected Tesla's 10MW + 10MW Option A at Mira Loma.

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IV.

**OVERVIEW OF SCE'S BILATERAL NEGOTIATIONS FOR ENHANCING SCE PEAKERS  
WITH ENERGY STORAGE**

**A. Overview of GE's Offer/Timeline**

Continuing several previous discussions between SCE and GE on opportunities to increase the operational flexibility of SCE's peaker fleet, GE met with SCE on May 25, 2016 to present its LM6000 Enhanced Gas Turbine ("EGT") technology. The EGT includes a battery energy storage system that is fully integrated with new or existing GE LM6000 gas turbine generators. This technology enhances the operational flexibility of SCE's LM6000 gas turbine generators. Following this timely meeting, SCE concluded that the EGT technology could not only help ensure electric reliability pursuant to the Resolution, but also help SCE meet its D.13-10-040 energy storage targets.

SCE requested a proposal from GE for DBT projects at SCE's five peaker sites. GE provided its proposal on June 13, 2016. After evaluating the proposal, SCE awarded GE two projects (10 MW each) at the Center and Grapeland peaker sites, respectively, on July 26, 2016.

**B. The Enhancement Required Proprietary Technology**

The Resolution "authorizes expedited procurement of storage resources to ensure the electric reliability in the Los Angeles Basin due to limited operations of Aliso Canyon Gas Storage Facility." The Resolution also requires SCE to hold an expedited energy storage procurement solicitation to help alleviate an outage risk during the upcoming summer and winter months of 2016-2017. To meet these obligations and provide cost-effective, reliable solutions for our customers, SCE evaluated proposals for the procurement of electricity from energy storage providers and proposals for utility-owned projects.

The utility-owned GE EGT projects installed at SCE's Center and Grapeland peaker facilities are the first of their kind worldwide. GE's energy storage technology is a unique and proprietary technology that integrates the battery storage with the operation of the GE-manufactured LM6000 gas turbine.

As the designer and manufacturer of the LM6000 gas turbine, GE was uniquely situated to design and build the proposed EGT. During its May 25, 2016 presentation, GE indicated the lead time

1 to procure the equipment was four to six months. GE indicated it could meet the December 31, 2016  
2 operational deadline, provided SCE committed to sign the contract by the middle of July, 2016. The  
3 RFP timeline would not have worked with GE's timeline, and due to the compressed schedule requested  
4 by the Commission to have facilities online by December 31, 2016, and the proprietary nature of the  
5 technology, GE's proposal was the only opportunity for the exclusive LM6000 turbine enhancement.

6 **C. Valuation Process**

7 **1. Overview**

8 As described in D.04-12-048, SCE used a Least-Cost, Best Fit ("LCBF") methodology to value  
9 the EGT integration with SCE's existing peakers. SCE evaluated the GE bilateral transaction using a  
10 benefit-cost ratio analysis. The benefit-cost ratio analysis is consistent with SCE's NPV analysis. In the  
11 benefit-cost ratio analysis, the present value of the resource's benefits are divided by the present value of  
12 the resource's costs. In the NPV analysis, the present value of contract costs are subtracted from the  
13 present value of contract benefits. Both methodologies are consistent with valuations performed by SCE  
14 in other solicitations, such as SCE's LCR RFO, Combined Heat and Power RFOs, Energy Storage RFO,  
15 RPS solicitations, and All-Source RFOs for energy and RA. The quantitative component of the  
16 valuation entails forecasting: (1) the present value of the resource benefits; and (2) the present value of  
17 the resource costs; and calculating (3) the ratio between (1) and (2).

18 For each EGT integration, SCE calculated its respective forecasted quantity of RA capacity,  
19 electrical energy, and AS using a combination of models. SCE then multiplied these quantities by the  
20 respective market price forecasts to determine the value of the benefits based on the forecasted market  
21 value for each resource. SCE then calculated the costs required to realize this market value, including  
22 project payments, maintenance service payments estimates of payments, and VOM costs. These  
23 elements were used to determine the cost-competitiveness of each offer.

24 The metric for assessing the cost-competitiveness of each of the EGT installations was the  
25 benefit-cost ratio (*i.e.*, the resource's present value<sup>31</sup> of forecasted market benefits divided by the present

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<sup>31</sup> See footnote 15, *supra*, for an explanation of the 10 percent discount rate.

1 value of the costs required to receive these benefits). A benefit-cost ratio in excess of 1.0 indicates that  
2 the resource option has a positive economic value for customers.

## 3 **2. Quantitative Factors**

4 SCE calculated the benefit-cost ratio for each of the EGT project offers by dividing the present  
5 value of the expected benefits by the present value of expected costs. The components that comprised  
6 the costs and benefits are described below.

### 7 a) RA Benefit

8 SCE employed the most current RA counting rules when calculating the qualifying RA capacity  
9 for each Offer. Appendix B of D.14-06-050 states:

10 To the extent possible, System, Local, and Flexible RA eligibility requirements should  
11 remain consistent across all resource types, including storage and supply-side DR. These  
12 requirements include the ability to operate for at least four consecutive hours at  
13 maximum power output ( $P_{maxRA}$ ), and to do so over three consecutive days.

14 \* \* \*

15 Resources wishing to qualify for System or Local RA must also have the capability to  
16 offer into the CAISO markets, either via economic bids or via self-scheduling, under the  
17 Must Offer Obligation (MOO) applicable for that resource type.

18 Since the EGT integration included a 10MW/4.3MWh battery energy storage system, each  
19 installation of the EGT could add 1.075MW<sup>32</sup> of incremental RA capacity. Accordingly, each month an  
20 EGT integration is in service, its RA value is calculated as the quantity of qualifying RA capacity  
21 multiplied by the forecasted capacity price.

### 22 b) Day-Ahead Energy, Real-Time Energy, and AS Benefits

23 SCE is currently the scheduling coordinator for its peakers (including those with GE's EGT  
24 integration) and represents their true operating profile to CAISO for market dispatch. The operating  
25 profile determines the system's net revenues from day-ahead energy, RT energy, and AS net of the day-  
26 ahead and real-time charging costs and/or fuel costs. Since the valuation of revenues and costs from

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<sup>32</sup> 1.075MW of RA capacity is based on 4 hours of continuous dispatch of the 4.3MWh battery (*i.e.* 4.3MWh divided by 4 hours).

1 day-ahead energy, RT energy, and AS are interdependent, SCE modeled them collectively using an  
2 industry standard dispatch engine. Furthermore, since the EGT is an enhancement to a current  
3 combustion turbine, the net value of the EGT enhancement is calculated as the net value of the of the  
4 EGT less the value of the standard combustion turbine. SCE derived the values of the peaker with the  
5 EGT integration and the stand-alone peaker from the same dispatch engine.

6 The dispatch engine maximizes the day-ahead and AS revenue over the duration of the contract  
7 while operating within the unit's operational and physical constraints. These constraints include  
8 capacity, operating range, unit heat rates, ramp rates, Pmax and Pmin.

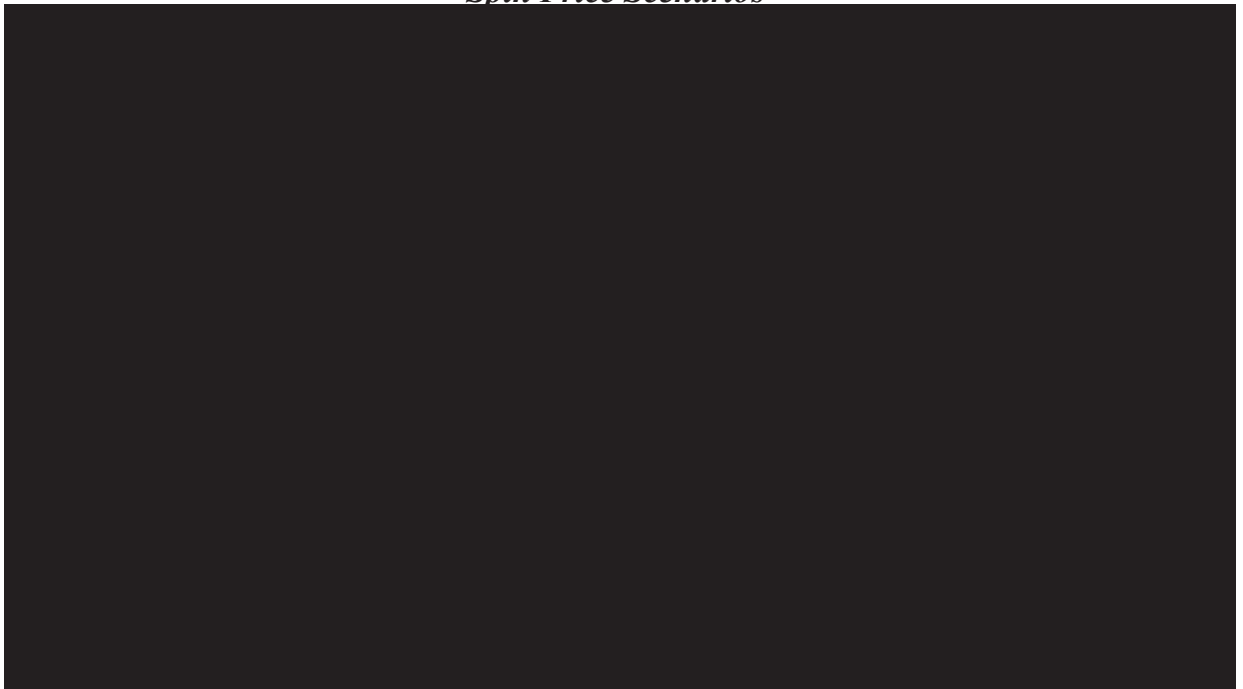
9 Non-EGT enhanced peakers generate market revenues from energy and non-spinning reserve  
10 services. The EGT enhancement can provide all ancillary and grid support services. The incremental  
11 value of the EGT system over the existing peaker will come primarily from the spinning reserve  
12 revenue, since the EGT system can provide spinning reserve service at the full capacity of the peaker at  
13 the minimum load of the battery, which is zero. However, because the spinning reserve market is  
14 limited and regional, the EGT systems will compete for spin awards among themselves and with other  
15 existing resources. Based on the historical spin awards received by SCE resources, SCE estimated the  
16 maximum number of hours an EGT system may receive spin awards given the number of EGT systems  
17 forecast to be in the market. For the purposes of this calculation, SCE assumed that at least one other  
18 EGT system would be operating in the market, in addition to any EGTs SCE installs. Given the new  
19 nature of technology and capital investment required, SCE assumed that the additional EGT will be  
20 identical to one of the SCE Peaker EGTs considered in this analysis.

21 SCE also performed a sensitivity analysis of the market value of the EGT system with respect to  
22 two additional AS price scenarios. The first scenario assumed that A/S prices will be 15% lower than the  
23 forecasted prices. The second scenario assumed that the future A/S prices will be equal to the 2010-  
24 2015 historical average day-ahead A/S prices, escalated by CPI.

*Table IV-9  
Maximum Number of Hours of Spin Awards Per Peaker vs Number of EGT  
Systems in the Market*



*Figure IV-5  
Spin Price Scenarios*



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c) Combustion Turbine Overhaul Deferred Capital Cost Savings

The EGT integration will allow the peakers to operate more efficiently, lower the number of starts, and reduce SCE's future combustion turbine overhaul costs. Turbine overhaul costs are largely recorded as capital expenditures, consistent with SCE's accounting guidelines. The number of years a combustion turbine can typically operate between overhauls depends on the number of start-ups (*i.e.*, wear and tear due to thermal cycles) and the number of operating hours (*i.e.*, wear and tear due to sustained high temperature operation). Because the enhanced turbines are expected to experience fewer

1 start-ups (*i.e.*, compared to what they would experience if not enhanced), SCE anticipates a longer  
2 period between overhauls, providing present worth savings with less capital expenditures in future years.

3 d) Contract Payment Cost

4 Contract payments represent the total fixed contract payments SCE is required to make under the  
5 contract. These costs include a fixed payment stream, such as the project costs, the performance  
6 guarantee costs, and the operating and maintenance payment. Fixed payment streams are calculated  
7 directly according to contractual obligations with an additional contingency of [REDACTED] on the project  
8 costs. Furthermore, the project costs are treated as a capital expense and therefore have an associated  
9 revenue requirement which is represented as a cost in the benefit-cost ratio.

10 e) Interconnection Upgrade Costs

11 There was no forecasted need for additional investment in the peaker interconnections and  
12 therefore no interconnection upgrade costs were attributed to any of the projects.

13 f) Credit and Collateral Adder Cost

14 No credit or collateral adders were required in the valuation.

15 g) Real Estate Costs

16 Because SCE owns and controls all the land, it did not need to incur incremental real estate costs  
17 procuring additional land.

18 h) Project Development Costs and Other Costs

19 For modeling purposes, SCE included estimated costs associated with the development of the  
20 EGT system (*e.g.*, SCE labor needed for project development and other miscellaneous expenses).

21 **3. Valuation Results**

22 The valuation results for enhancing SCE's Peaker Generating Stations, including energy storage,  
23 are summarized in Table IV-10 below. As shown, enhancing up to three of the five SCE peakers  
24 provides net positive economic benefits (*i.e.*, a Benefit-Cost ratio of greater than 1.0) for SCE's  
25 customers. This ratio, however, is highest when enhancing only one of the peakers, and then decreases  
26 as each additional peaker is enhanced. SCE concluded that the most appropriate path was to upgrade two



1 of the five peakers. The valuation results show that this provides the maximum net benefit for SCE  
 2 customers.

**Table IV-10**  
**Peaker Benefit-Cost Ratio**

(\$ in millions)	1 Unit	2 Unit	3 Unit	4 Unit	5 Unit
Benefit Cost Ratio					
Benefit (PV)					
AS Revenue					
Deferred Capital Savings					
Resource Adequacy					
PV Benefits					
Revenue Requirement (PV)					
Capital					
O&M					
Total Rev Req					
Benefit Cost Ratio					

V.

**ROLE OF IE AND CAM GROUP DURING RFP AND BILATERAL NEGOTIATIONS**

**A. Engagement of IE**

D.08-11-008 requires an IE for all competitive solicitations involving affiliate transactions, utility-owned or utility-turnkey offers, and all solicitations seeking products two years or greater in duration, regardless of participants.<sup>33</sup> SCE engaged Merrimack Energy Group, Inc., who identified two individuals to serve as the Independent Evaluator (IE) for the RFP. The IE was registered to SCE's Accion procurement platform, which manages the posting of the RFP documents and any correspondence between SCE and the Sellers during the procurement process. Through Accion's ACES RFP page ([https://scees.accionpower.com/\\_scees\\_1602/home.asp](https://scees.accionpower.com/_scees_1602/home.asp)), the IE was able track and access any and all documents and correspondence transmitted between SCE and the Sellers.

SCE's RFP team also held a series of ACES RFP meetings to provide a forum for SCE stakeholders to discuss activities related to the RFP, including the site selection process and the management of the interconnection process for the potential projects. The IE attended the kick-off meeting for the ACES RFP on June 13, 2016. SCE also invited the IE to the weekly ACES RFP meetings that commenced on June 21, 2016 and ended on or about September 9, 2016. The IE attended these weekly meetings as appropriate. The IE was invited, but declined to attend, the site visit with the Sellers to review the top six potential project sites. Instead, the IE provided guidance to address any discussion or questions raised at the site visit through a written document posted to Accion. The IE also participated in SCE's selection meetings and on calls with the CAM Group.<sup>34</sup>

For the negotiation of the bilateral contracts with GE, SCE's EGT project team met with GE on numerous occasions. SCE invited the IE to all meetings; the IE attended some, but not all.

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<sup>33</sup> D.08-11-008 at pgs. 39-40, OP 2.

<sup>34</sup> Due to a scheduling error, the IE missed the September 1, 2016 call with the CAM Group. SCE thus scheduled a second CAM Group meeting for September 7, 2016, wherein the IE could attend and provide its input on SCE's RFP and project selection.

1 **B. CAM Group Consultation**

2 To comply with the Resolution and because the procurement of ACES projects benefits all  
3 customers due to the partial shutdown of Aliso Canyon, SCE consulted with its CAM Group. The  
4 Commission requires the IOUs to consult with their PRG/CAM Groups regarding certain procurement  
5 related matters. Specifically, the IOUs are required to consult with their PRG/CAM Groups to assess  
6 any proposed RFO process and before entering into a transaction with a delivery period longer than  
7 three calendar months or one calendar quarter.<sup>35</sup> Consistent with these requirements, SCE routinely met  
8 with its CAM Group regarding its ACES RFO and RFP procurement activity. SCE consulted with its  
9 CAM Group during each milestone of the ACES RFP process, as well as status updates on its GE EGT  
10 projects. Among other things, SCE informed the CAM Group, which includes members of the  
11 Commission's Energy Division, of the initial results of its ACES RFP, explained the evaluation process,  
12 and updated the CAM Group periodically concerning the status of contract formation. Table V-11 lists  
13 SCE's consultations with its CAM Group and the related topic of each consultation.

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<sup>35</sup> See D.07-12-052 at 303 (OP 15); D.04-12-048 at 241 (OP 15).

**Table V-11**  
**List of SCE CAM Group Consultations**

<b>Date</b>	<b>Topic</b>
19-May-16	Aliso Canyon Energy Storage Solicitation
16-Jun-16	Aliso Canyon Design-Build-Transfer (DBT) Solicitation -Valuation & Selection Methodology
6-Jul-16	<ul style="list-style-type: none"> <li>- SCE Aliso Canyon Energy Storage Design-Build-Transfer (DBT) (Solicitation) Shortlist</li> <li>- SCE Aliso Canyon Energy Storage DBT (Ownership) Shortlist</li> <li>- SCE Capitol Review Team (CRT)-CAM Aliso Canyon Bilateral Utility Owned Storage Proposal for SCE's Peakers (Solicitation)</li> <li>- SCE CRT-CAM Aliso Canyon Bilateral Utility Owned Storage Proposal for SCE's Peakers (Ownership)</li> </ul>
1-Sep-16	<ul style="list-style-type: none"> <li>- Aliso Canyon Energy Storage (ACES) Design, Build and Transfer (DBT) – Project Review</li> <li>- Aliso Canyon Energy Storage (ACES) Design, Build and Transfer (DBT) – Economic Analysis</li> </ul>
7-Sep-16	Follow up discussion of Aliso Canyon Energy Storage (ACES) Design, Build and Transfer (DBT), Project (Economic Analysis)

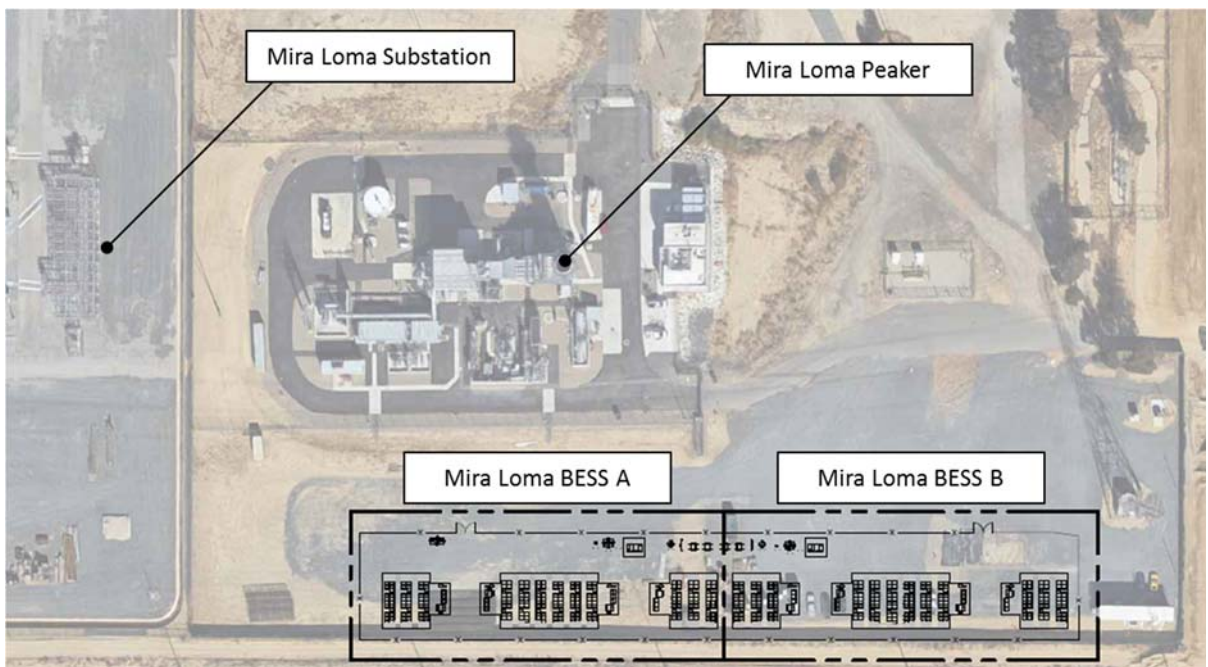
1 VI.

2 **OVERVIEW OF ALISO CANYON SCE-OWNED ENERGY STORAGE PROJECTS**

3 A. **Detailed Description of Tesla Projects, Including Location, Design, How SCE Will Manage**  
4 **The Projects, and How The Projects Meet the Requirements of Resolution E-4791**

5 SCE has commissioned two Tesla systems adjacent to the Mira Loma Substation in Ontario,  
6 California on property owned by SCE. Figure VI-6 below identifies the two (2) Tesla systems located  
7 East of the Mira Loma Substation and South of the Mira Loma Peaker.

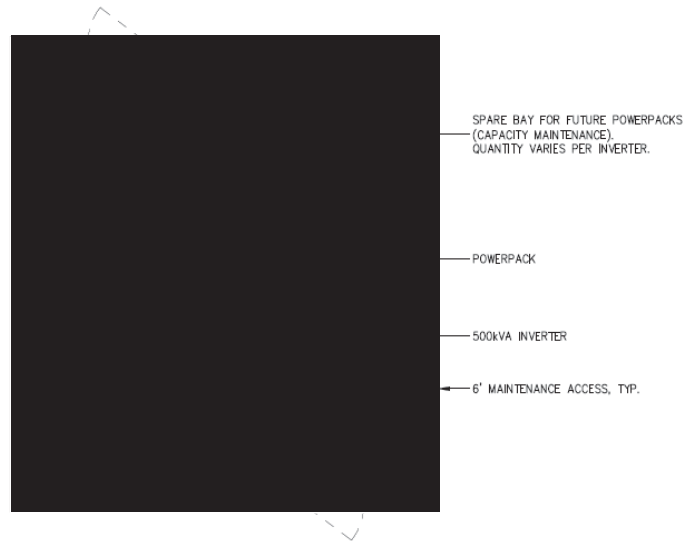
*Figure VI-6  
Layout of 2 Tesla Systems Adjacent to Mira Loma Substation*



8 Each system is 10 MW/40 MWh and connects to a 12kV circuit out of the Mira Loma  
9 Substation. Each 10 MW system is made up of 198 Tesla Powerpacks (200 kWh each), 24 inverters  
10 (500 kVA each), four medium voltage transformers, four sets of low voltage switchgear, one set of  
11 medium voltage switchgear, and related panelboards, data cabinets and fiber enclosures. The design of  
12 each system also includes 90 spare bays for future Powerpacks to be installed for capacity maintenance.

1 Figure VI-7 below shows the layout for a Tesla Inverter Block, each system is made up of 12 of these  
2 blocks.

***Figure VI-7  
Tesla Inverter Block***



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3 During design and construction, SCE considered site-specific constraints such as the proximity  
4 to 66kV and 220kV overhead transmission lines, proximity to the substation and peaker, subsurface  
5 conditions impacting structural design, and water quality management. Construction mobilization  
6 started on October 3, 2016. The systems were operational on December 30, 2016. A picture of the  
7 completed project is provided in Figure VI-8 below.

*Figure VI-8  
The Completed Tesla Projects*



1 The systems completed the CAISO’s New Resource Implementation (“NRI”) process to ensure  
2 the compliant monitoring and control interface, including all communication, metering, telemetry, and  
3 associated operation equipment.

4 The Tesla projects met the Resolution’s requirements to expeditiously bring energy storage  
5 online, while simultaneously supporting AB 2514’s guiding principles of Energy Storage - GHG  
6 reduction, the integration of Renewable Energy, and Grid Optimization. The Tesla systems support and  
7 further California’s aggressive energy storage goals of transforming the energy grid. Specifically, the  
8 Tesla energy storage systems will reduce the risk of reliability issues resulting from the unavailability of  
9 the Aliso Canyon natural gas storage facility.

10 **1. Management of the Tesla Projects**

11 The facility will be managed by SCE’s Generation team. Ongoing management activities for  
12 SCE will include site access and security, inspections, and implementation of environmental best  
13 management practices related to water quality. Tesla will perform standard annual maintenance of the  
14 system including equipment inspections, parts replacement, and cleaning; and five-year maintenance  
15 including refilling of fluids and parts replacement. Tesla will also augment the systems as needed with

1 additional Powerpacks in order to maintain the available capacity and meet the contract's performance  
2 guarantee. Tesla will perform additional maintenance as needed.

3 **2. Fulfilling Requirements of the Resolution**

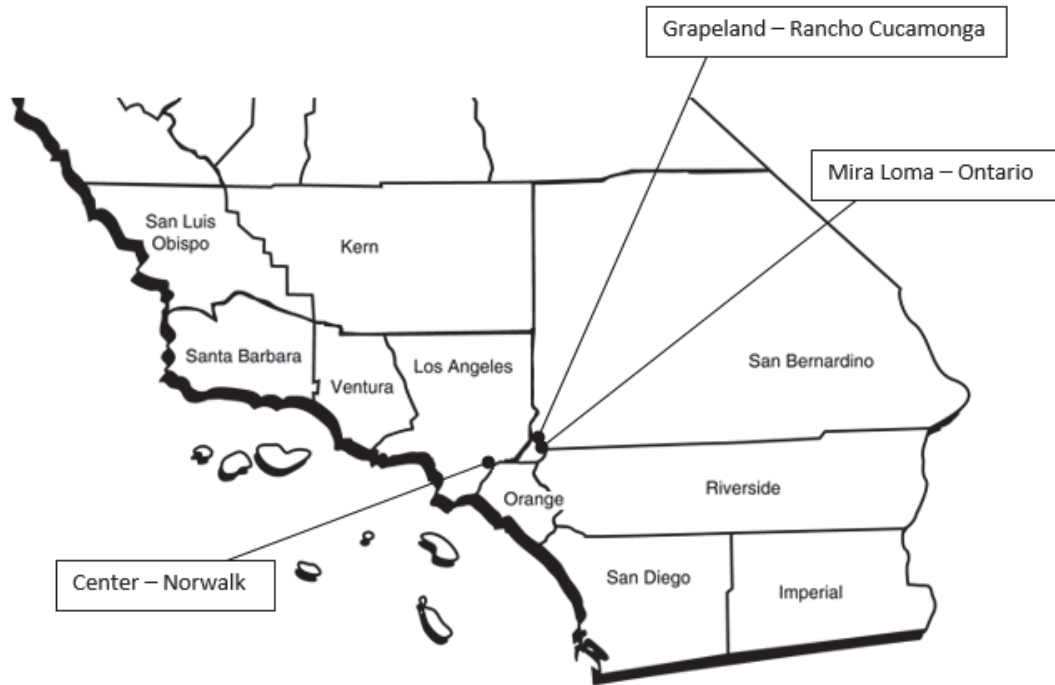
4 As set forth in Chapter II.B above, the Resolution described requirements for energy storage  
5 systems to help alleviate electric reliability concerns during the moratorium on gas injections into the  
6 Aliso Canyon Storage Facility. In accordance with the requirement of the Resolution, SCE's Tesla  
7 projects are located south of Path 26, the battery storage is located IFOM, the projects are sited at  
8 locations that help alleviate electric reliability concerns, they became operational on December 30, 2016,  
9 and energy storage systems will provide incremental RA.

10 **B. Detailed Description of EGTs, Including Location, Design, How SCE Will Manage The**  
11 **Projects, and How The Projects Meet the Requirements of the Resolution**

12 Each GE EGT upgrade consists of a 10 MW/4.3 MWh (AC) battery energy storage system BESS  
13 with integrated turbine/battery controls. The EGTs are installed at SCE's Center Peaker in Norwalk,  
14 California and Grapeland Peaker in Rancho Cucamonga, California (Figure VI-9).



**Figure VI-9**  
**Location of Projects**



1           These systems are the first of their kind worldwide and unique to the industry because GE’s  
2           proprietary system is fully integrated with the GE LM6000 gas turbine control system. The EGT adds  
3           10 MW of high speed capability within the turbine generator operating range, when the peaker is  
4           operating below its full output.<sup>36</sup> The EGT also provides high speed energy, ancillary and grid support  
5           services, enabling the gas turbine to operate in standby-mode without using fuel. The EGT allows for  
6           immediate response to load demands with 10 megawatts of instantaneous energy while the gas turbine is  
7           starting-up. These attributes are achieved by GE’s unique and proprietary energy storage plant  
8           controller, which seamlessly integrates battery controls with turbine generator controls.

9           Figure VI-10 below is a GE rendering of the EGT highlighting major equipment:

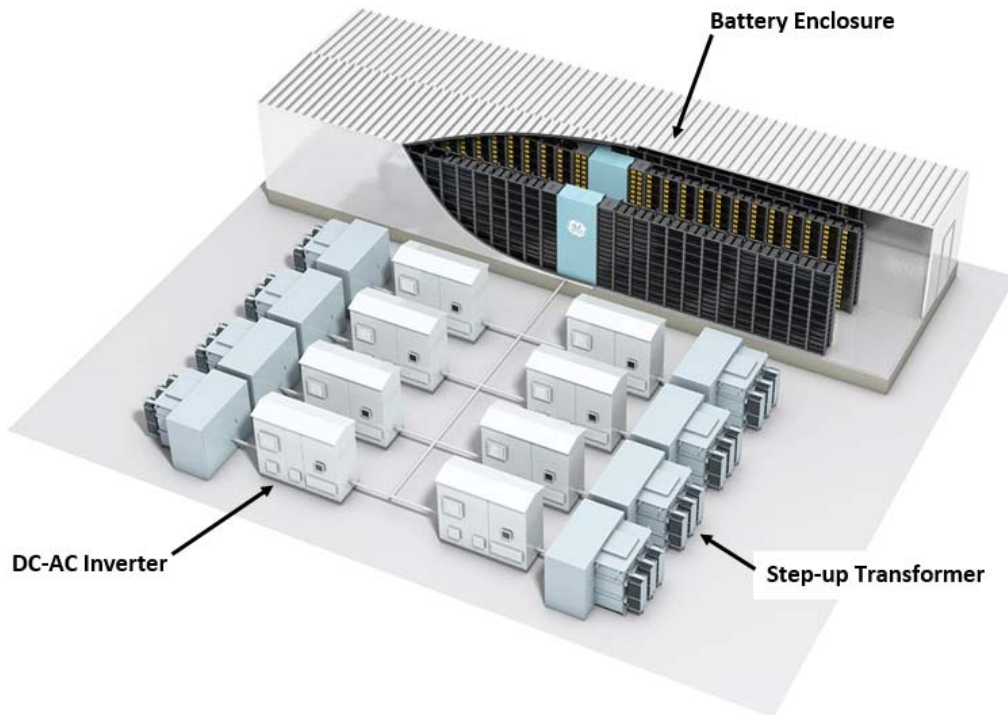
- 10           •       Battery Enclosure

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<sup>36</sup> The rated total net MW output of each Peaker remains approximately 49 MW.

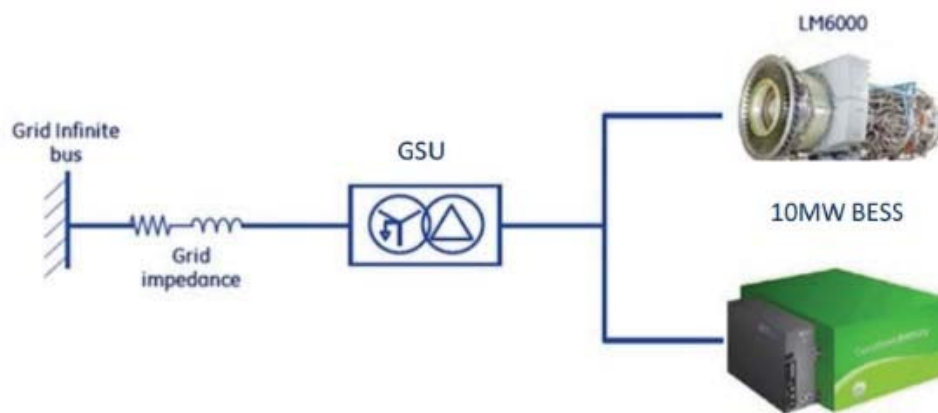
- 1.25 MW Inverter (8 each)
- 480 V/13.8 kV Step-up Transformer (8 each)
- Energy Storage Plant Controller (not pictured)

**Figure VI-10**  
**Typical GE EGT™ Design**



The EGT battery storage system is not a separate generating unit. It is interconnected with the Peaker generator on the low side of the LM6000 13.8 kV/66 kV generator step-up transformer (“GSU”), as shown in Figure VI-11. Direct current energy stored in the batteries, is converted to alternating current power by eight 1.25 MW/480 volt inverters. The 480V electricity is increased to 13.8 kV by the step-up transformers where the voltage is again increased by the GSU and transmitted to the bulk power grid for system demand.

**Figure VI-11**  
**Typical GE EGT™ Interconnection Schematic**

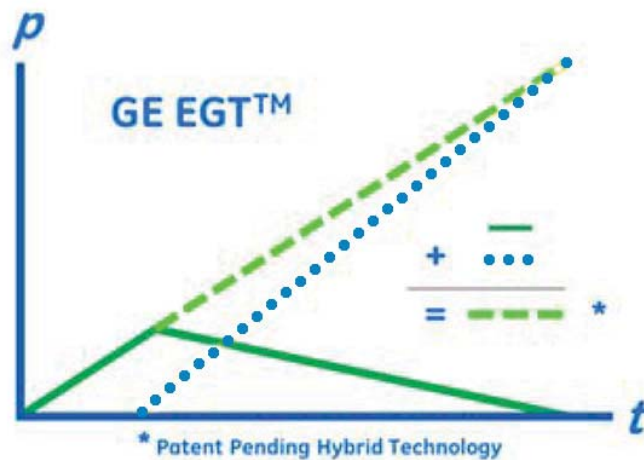


1 The EGT is also capable of providing spinning reserve AS with zero emissions and without fuel  
2 consumption. When dispatched for spinning reserve, the gas turbine is off line and the batteries  
3 continuously provide a small amount of energy to the bulk power grid. Should the CAISO call for the  
4 peaking unit, the EGT would instantly provide 10 MW of energy to the bulk power grid while the  
5 turbine generator comes online and ramps up to the requested power output.

6 Figure VI-12 is a graphical representation of the integrated operation of the battery system with  
7 turbine generator operation. The solid line (showing battery output) and dashed line (showing the  
8 combined turbine generator and battery output) depict the ability of the enhanced peaker to provide  
9 energy as soon as the facility is requested for system load demands. The solid line section that trends  
10 downward below the dashed line shows the output of just the battery, illustrating how battery output  
11 reduces as the turbine output increases. The dotted line shows the turbine generator output, including

1 the time it takes during a start-up before the generator goes on-line, and the time it takes to ramp the  
2 turbine to full output.

*Figure VI-12  
GE EGT™ Operation*



3 Additionally, the EGT is capable of providing energy to the grid during turbine generator load  
4 changes, the benefit of which is the batteries—not the turbine generator—instantaneously provide a  
5 portion of the requested load increase. The resulting slower ramp up rate for the combustion turbine  
6 reduces fuel consumption for rapid acceleration of the turbine generator and stress on the components.  
7 Such reduced stresses are expected to increase the life of the combustion turbine.

8 The LM6000 gas turbine emissions are primarily controlled by water injection within the  
9 combustion chamber, and a selective catalytic reduction (“SCR”) catalyst system provides secondary  
10 treatment of the exhaust gases. Although the water injections aids emissions controls and improves fuel  
11 efficiency, it also causes additional wear to turbine components. SCE’s peakers have historically  
12 operated at or near full load to maintain emission limits and reduce the effects of water injection. To  
13 operate the turbine generator in lower operating ranges and maintain overall reliability, separate from

1 (but in tandem with) the EGT installation, the SCR catalyst has also been upgraded to a larger size.<sup>37</sup>  
2 The upgraded SCR provides primary emissions reduction and reduces dependence on combustion  
3 chamber water injection.

4 Battery systems are common, but no other company in the world has a product where a battery  
5 system works seamlessly and directly in tandem with turbine generator operations. As the manufacturer  
6 of the LM6000s, GE is the sole source provider for the EGT.

7 The EGT projects are uniquely situated to support the Resolution's requirements, while  
8 simultaneously supporting two of AB 2514's guiding principles of Energy storage—GHG reduction and  
9 Grid Optimization. Customers will realize incremental RA benefit of 1.075 MW, and the benefit of  
10 almost 50 MW of spinning reserve, without fuel burn, effectively contributing to the reduction of GHG  
11 emissions at both sites.

12 **1. Management of Project**

13 Operation and Maintenance activities for the EGT are performed by SCE Generation Department  
14 staff, which also operate and maintain SCE's Mountainview, Peaker, Solar, Fuel Cell and Hydroelectric  
15 generating facilities. As the EGT battery systems are the first of their kind, SCE has entered into a five  
16 year long term service agreement (LTSA) with GE to provide maintenance support.

17 **2. Fulfilling Requirements of the Resolution**

18 In accordance with the requirement of the Resolution, SCE's EGT projects are located south of  
19 Path 26; the battery storage is located in front of the meter; the projects are sited at locations that help  
20 alleviate electric reliability concerns; the projects became operational on December 30, 2016, and as  
21 described above, will provide incremental RA to the two existing peakers.

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<sup>37</sup> The costs of the SCR upgrades are not included in this Application (*i.e.*, these costs will not be recovered through the ACESBA). The costs of the SCR upgrades will be recovered in SCE's General Rate Case base rates.

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**VII.**

**SAFETY CONSIDERATIONS**

Battery-based energy storage systems are prone to overcharging and over-discharging, making them susceptible to “thermal runaway,” a potential safety risk arising from rapid, uncontrolled increase in the temperature that cannot be halted by stopping or disconnecting the system. Thermal runaways can harm equipment connecting the device to the grid. This safety risk is mitigated by implementing voltage safety monitoring and controls, as well as fault detection mechanisms at both the battery cell level and system level. SCE implemented those safety measures as part of its utility storage deployments.

To interconnect, all energy storage systems (utility-owned and third party) must adhere to Rule 21 or the Wholesale Distribution Access Tariff (“WDAT”). As mentioned in SCE’s Distribution Resources Plan,<sup>38</sup> the majority of safety standards and certifications<sup>39</sup> have been incorporated into Rule 21 and WDAT. Importantly, IEEE 1547, which is a suite of standards for distributed resources<sup>40</sup> has been harmonized with Rule 21 and incorporated into WDAT. Whether interconnecting under Rule 21 or WDAT, both tariffs provide SCE with the ability to review energy storage equipment prior to installation, during pre- and post-commercial operation testing. Further, both Rule 21 and WDAT require technical review by SCE engineers and an Electrical Inspection Release (EIR) from the local authority verifying that the work on the customer’s side of the meter meets requirements of the National Electric Code (NEC) and all local codes and ordinances.

Per the Commission’s Decision<sup>41</sup> on Track 1 of the energy storage proceeding, SCE participated in a working group on energy storage safety inspections. The working group created an energy storage

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<sup>38</sup> SCE Distribution Resources Plan. See A.15-07-002, Application of Southern California Edison Company for Approval of its Distribution Resources Plan, July 1, 2015, Attachment at 156.

<sup>39</sup> Institute of Electrical and Electronics Engineers (“IEEE”), Underwriters Laboratories, and National Electric Code (“NEC”).

<sup>40</sup> Defines the minimal functional technical requirements for performance, operation, testing, safety and maintenance of all types of DERs.

<sup>41</sup> D.16-01-032.

1 safety inspection checklist.<sup>42</sup> Based on expertise from the IOUs, codes and standards development  
2 organizations, energy storage developers, and other interested users, the checklist is for use by  
3 Commission, Safety and Enforcement Division (“SED”) inspectors when inspecting utility substations.

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<sup>42</sup> The SED energy storage safety inspection checklist is attached hereto as appendix G.

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VIII.

**DISCRETIONARY PERMITTING IS UNNECESSARY FOR THE ALISO CANYON SCE-  
OWNED ENERGY STORAGE PROJECTS**

The Commission has exclusive jurisdiction over the permitting, construction and operation of electric transmission lines and related facilities. This section summarizes, in particular, how such exclusive jurisdiction relates to the projects SCE is contemplating pursuant to the Resolution.

**A. SCE Notification to the Commission**

On or about August 24, 2016, SCE notified the Commission of the list of potential utility-owned energy storage projects being considered in response to the Resolution. At that time, the potential projects included [REDACTED] battery storage projects connecting into existing distribution circuits at the Alon, Center, El Nido, and Mira Loma substations, and two projects connecting into the existing Center and Grapeland peaker generating plants located in the cities of Norwalk and Rancho Cucamonga, respectively. SCE explained that it was expeditiously proceeding with the siting and development of these utility-owned energy storage projects pursuant to the Resolution under the assumption that no permits, certificates or environmental analysis were required.

SCE asserted its understanding that: (1) these energy storage projects are governed by Chapter III.C. of the Commission's General Order 131-D; (2) these projects do not require any additional Commission authorization (*e.g.*, certificates or permits) in order to be developed and brought online; and (3) because these projects do not require additional Commission authorization, they do not require any analysis pursuant to the California Environmental Quality Act. SCE invited the CPUC to respond with any questions, comments, or concerns and noted that it intended to continue to develop these projects under the assumption that no additional CPUC authorization or environmental analysis was required. To date, the CPUC has not responded to SCE's August 24, 2016 letter regarding any such questions, comments, or concerns.

**B. Tesla**

Prior to contract award, on August 22, 2016, SCE met with the City of Ontario (Ontario) to provide background on the RFP and notify Ontario that a project was being considered in their City. On



1 September 14, 2016, after contract award, SCE and Tesla met with Ontario to inform City officials that  
2 the Mira Loma Battery Energy Storage System A & B (Tesla) projects would be built on SCE's  
3 property. SCE discussed the CPUC's exclusive jurisdiction over SCE's construction of electric facilities  
4 pursuant to CPUC General Order ("G.O.") 131-D, as well as the contemplated Tesla energy storage  
5 project. Ontario concurred that no discretionary permitting was required for the Tesla Project and  
6 additionally provided guidance that no ministerial permits were required per California Government  
7 Code Section 53091(d), as it relates to construction of facilities for the production, storage, treatment, or  
8 transmission of electrical energy by a local agency. The City advised a project-specific Water Quality  
9 Management Plan ("WQMP") was required per the San Bernardino County Municipal Separate Storm  
10 Sewer System Permit. SCE received approval of the WQMP on December 22, 2016.

11 **C. GE EGTs**

12 As described herein, SCE's energy storage projects in and around the Center Peaker (Center  
13 Project) and Grapeland Peaker (Grapeland Project) are akin to "distribution" level work for which no  
14 discretionary permits are needed. SCE has, however, obtained relevant ministerial permits required by  
15 the local cities in support of safe construction for both Projects.

16 On or about August 24, 2016, representatives from SCE sent correspondence to and met  
17 separately with representatives from the Cities of Norwalk and Rancho Cucamonga. In these meetings  
18 and in supporting correspondence with the cities, SCE described the CPUC's exclusive jurisdiction over  
19 SCE's construction of electric facilities pursuant to G.O. 131-D, as well as the contemplated energy  
20 storage projects SCE intended to construct pursuant to the Resolution. While no discretionary  
21 permitting was required, the cities provided SCE with the requisite ministerial permits in support of the  
22 construction of the Center and Grapeland energy storage projects. During construction, SCE  
23 periodically informed the cities regarding the progress of the projects.

1 IX.

2 **DESCRIPTION OF COSTS INCURRED**

3 **A. Tesla**

4 For the Tesla projects, the forecast total cost is [REDACTED] million in capital expenditures for  
5 deployment, \$1.1 million in pre-deployment Operations and Maintenance (“O&M”) for successful and  
6 unsuccessful sites, and \$4.5 million forecast for post-commissioning O&M. The \$1.1 million in pre-  
7 deployment O&M costs are associated with the RFP process, siting, and the interconnection study.  
8 These pre-deployment O&M activities supported the overall progression of the program and led to the  
9 identification and recommendation of selected projects to be developed. During system operations,  
10 additional post-commissioning O&M costs will be incurred to operate and maintain the systems. SCE  
11 forecasts \$4.5 million in post-commissioning O&M costs from 2017 to 2020.

12 The [REDACTED] million in Capital costs are deployment costs associated with interconnection and  
13 distribution upgrades, BESS procurement, system design, construction, commissioning, and testing.  
14 The total of [REDACTED] million consists of costs recorded through the end of 2016 and forecast costs for  
15 additional capital expenditures in 2017.

16 **1. O&M Expenses**

17 a) **Pre-Deployment O&M Cost Categories**

18 O&M expenses for pre-deployment activities include labor and non-labor associated with the  
19 RFP process, siting, and the interconnection study. A detailed description of the cost categories  
20 included in Table IX-12 is provided below:

- 21 • Labor: SCE labor to support the review and evaluation of the RFP proposals, responses to  
22 bidder requests for information, site evaluations, and preparation and management of  
23 interconnection applications.
- 24 • Contract/Consultant Services: Provide additional support to SCE personnel.
- 25 • Environmental Review and Clearances: Perform environmental review of sites to  
26 determine environmental considerations for site selection.

- 1 • Geotechnical Assessment: Perform geotechnical studies of sites and provide results of  
2 soil conditions.
- 3 • Land Survey: Perform land surveys of sites and provide assessments of topography,  
4 parcel boundaries, and easements.
- 5 • Interconnection Application Electrical Engineering Support: Provide electrical  
6 engineering services for technical input into the interconnection applications.
- 7 • Interconnection Study: Perform initial study of interconnection application to determine  
8 feasibility and costs.
- 9 • Interconnection One-Time Payment: All costs determined by the Distribution Provider  
10 for additions which are not capitalized and are associated with the installation of the  
11 Delivery Network Upgrades, Distribution Upgrades, Distribution Provider's  
12 Interconnection Facilities, Reliability, and Network Upgrades.

13 b) Pre-Deployment O&M Recorded Costs

14 SCE's total pre-deployment O&M recorded costs for successful and unsuccessful sites are \$1.1  
15 million, comprised of \$262k in labor and \$879k in non-labor. The breakdown of pre-deployment O&M  
16 costs by category and by allocation to successful and unsuccessful sites is provided in Table IX-12.

17 To prepare for an unknown number of potential project awards, SCE identified 19 viable project  
18 sites and initiated interconnection applications for all of them. Interconnection applications were  
19 withdrawn as soon as SCE determined a site was no longer viable due to siting considerations (*i.e.*,  
20 potential conflicts in use or mitigation requirements would not allow the project to be built by the  
21 December 31, 2016 deadline) or because Sellers did not express interest or did not submit a bid for the  
22 site. Ultimately, two sites were successful and 17 sites were unsuccessful. Pre-deployment O&M costs  
23 were allocated as follows:

- 24 • Labor and Contract/Consultant Services: SCE allocated the costs incurred each week  
25 evenly to the sites that were active that week. A site was considered active through the  
26 end of the week in which the interconnection application was withdrawn.

- 1 • Interconnection Application Electrical Engineering Support: SCE prepared one electrical  
2 one-line drawing for each of the 19 sites, so the total cost was allocated evenly to all 19  
3 sites.
- 4 • Other Non-Labor Cost Categories: SCE attributed costs and invoiced to specific sites.  
5 Therefore, costs were allocated as appropriate to specific successful and unsuccessful  
6 sites.

7 Geotechnical Assessment and Land Survey costs associated with successful projects are  
8 capitalized and not identified as O&M. These costs would typically be incurred after a project  
9 transitions to a capital project, but the activities were accelerated and initiated during pre-deployment in  
10 order to facilitate the expedited projected schedule.

**Table IX-12**  
**Pre-Deployment O&M Project Costs by Category (Nominal \$000)**

<b>Cost Category</b>	<b>Costs to Successful sites (2 of 19, Mira Loma A &amp; B)</b>	<b>Costs to Unsuccessful sites (17 of 19)</b>	<b>Total</b>
Labor	\$50	\$212	\$262
<b>Subtotal Labor</b>	<b>\$50</b>	<b>\$212</b>	<b>\$262</b>
Contract/Consultant Services	\$13	\$59	\$72
Environmental Review and Clearances	\$2	\$4	\$6
Geotechnical Assessment	--	\$18	\$18
Land Survey	--	\$192	\$192
Interconnection Application Electrical Engineering Support	\$1	\$7	\$8
Interconnection Study	\$130	\$59	\$189
Interconnection One-Time Payment	\$394	--	\$394
<b>Subtotal Non-Labor</b>	<b>\$540</b>	<b>\$339</b>	<b>\$879</b>
<b>Total</b>	<b>\$590</b>	<b>\$551</b>	<b>\$1,141</b>

c) Forecast O&M Expenses for 2017 to 2020

Post commissioning of the system, an additional \$4.5 million in O&M costs will be incurred to operate and maintain the systems from 2017 to 2020. These costs categories include:

- Operational Performance Guarantees: Contracted vendor costs to maintain the system output at a specified level.
- Fixed Maintenance Services: Contracted vendor costs to perform routine and scheduled maintenance services.
- Variable Maintenance Services: Contracted vendor costs to perform maintenance services based upon the amount the system is used.
- Interconnection Maintenance: Contracted WDAT Interconnection facilities maintenance.
- Operations Support Contract: Vendor costs to provide additional maintenance services for storm water control and other weather related events; weed and pest abatement; fire

1 system testing and maintenance; trash pick-up services; and repairs resulting from  
2 vandalism.

3 SCE O&M labor will be provided by the current Peaker labor force. Because O&M activities  
4 will be primarily provided by vendors, SCE normal and overtime labor costs in support of the operations  
5 of the Tesla systems are expected to be *de minimis* and therefore already addressed in SCE's approved  
6 2015 General Rate Case.

**Table IX-13**  
**Forecast O&M Expenses for 2017-2020 (Nominal \$000)**

<b>Cost Category</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>Total</b>
Operational Performance Guarantees	\$451	\$451	\$451	\$451	\$1,804
Fixed Maintenance Services	\$160	\$163	\$166	\$170	\$659
Variable Maintenance Services	\$264	\$251	\$232	\$276	\$1,023
Interconnection Maintenance	\$153	\$158	\$162	\$166	\$639
Operations Support – Non-Labor	\$100	\$103	\$105	\$108	\$416
<b>Total</b>	<b>\$1,128</b>	<b>\$1,126</b>	<b>\$1,116</b>	<b>\$1,171</b>	<b>\$4,541</b>

7 **2. Capital – Related Expenditures**

8 SCE forecasts the total capital cost of the projects to be [REDACTED] million, including recorded costs  
9 in 2016, and forecast costs in 2017 for additional activities to bring the project to Final Acceptance and  
10 for site upgrades. Site upgrades are items that were deferred to accommodate the expedited project  
11 schedule. 2016 recorded costs and 2017 forecast costs are detailed in Table IX-14 below.

12 a) 2016 Capital Recorded Costs

13 In support of the deployment of both the Mira Loma sites A and B, SCE incurred [REDACTED] million  
14 in Capital related expenses through the end of 2016. Capital expenses for deployment activities include  
15 interconnection and distribution upgrades, BESS procurement, system design, construction,  
16 commissioning and testing. A detailed description of the cost categories included in Table IX-14 is  
17 provided below:

- 1 • Vendor EPC: System engineering, procurement, construction and commissioning (Tesla
- 2 Contract).
- 3 • WDAT Interconnection: Engineering, procurement and construction of distribution
- 4 connection.
- 5 • Labor: SCE labor to support the design, construction, commissioning and testing, and
- 6 overall project management of the BESS deployment.
- 7 • Contract/Consultant Services: Provide additional support to SCE personnel.
- 8 • Communications and Controls: Develop, procure and install communications and
- 9 controls systems.
- 10 • Geotechnical Assessment: Perform geotechnical studies of sites and provide results of
- 11 soil conditions.
- 12 • Land Survey/Environmental: Perform land surveys of sites and provide assessments of
- 13 topography, parcel boundaries and easements and provide support to implement
- 14 environmental best management practices during construction

15 b) 2017 Capital Forecast Costs

16 Currently, SCE forecasts [REDACTED] million in capital costs for 2017. This includes the final milestone  
17 payment to Tesla and other costs to support final acceptance of the project under the EPC contract. The  
18 forecast also includes site upgrade costs for project scope that was deferred for implementation post-  
19 commissioning in order for the team to focus on project scope necessary to meet the commissioning  
20 deadline of December 31, 2016. Items that SCE plans to perform as site upgrades to the BESS facility  
21 include:

- 22 • Provide additional spill containment; and
- 23 • Upgrade site access security; and
- 24 • Install motion detected lighting controls; and
- 25 • Install security and operational monitoring cameras.

**Table IX-14**  
**Summary of Capital Expenditures by Cost Category (Nominal \$000)**

<b>Cost Category</b>	<b>2016 Costs Recorded</b>	<b>2017 Forecast</b>	<b>Total</b>
Vendor EPC			
WDAT Interconnection	\$2,908	--	\$2,908
Labor	\$77	\$95	\$172
Contract/Consultant Services	\$335	\$141	\$476
Communications and Controls	\$9	\$458	\$467
Geotechnical Assessment	\$17	--	\$17
Land Survey/Environmental	\$42	--	\$42
Site Upgrades	--	\$126	\$126
<b>Total</b>			

**B. GE Peaker EGTs**

For the Peaker GE EGT projects, the forecast total cost is [REDACTED] million in capital expenditures for deployment, and \$0.90 million forecast for post-commissioning O&M expense from the date of commissioning through December 31, 2020. SCE did not incur any pre-deployment O&M costs for these Peaker EGT projects.

**1. Expenses**

The forecast 2017 through 2020 O&M costs (by calendar year) for the two Peaker EGT BESS projects are shown in Table IX-15. As shown, forecast O&M expense is solely comprised of non-labor. The operation of the BESS projects will be provided by SCE's current Peaker labor force. SCE normal and overtime labor in support of the operations of the EGT systems is expected to be *de minimis*, and therefore already addressed in SCE's approved 2015 general rate case. SCE forecasts that no additional SCE employees will be required by the addition of these systems. Maintenance activities will be primarily provided by vendors, including GE.



**Table IX-15**  
**2017-2020 O&M Forecast (Nominal \$000)**

Line No.		2017 Forecast	2018 Forecast	2019 Forecast	2020 Forecast	Total
1	<b>Non-Labor</b>	\$202	\$208	\$213	\$219	\$842

1           Preventative maintenance for the EGT projects include regular activities that may be performed  
2 with the BESS on-line and more intensive, albeit less frequent activities that would require the batteries  
3 to be shutdown. Examples of regular maintenance include replacement of battery enclosure  
4 environmental controls inspection and maintenance, torque checks, calibration checks and visual  
5 inspections. Activities that may require a partial or full shutdown of the BESS may include, battery  
6 inspections and/or replacement or inverter inspection and/or repair.

7           SCE has entered into a five year service agreement with GE, with an option to renew every five  
8 years through the twenty year performance warranty period. GE will provide all regular service  
9 maintenance and repair of the BESS, including major component replacement in case of failure. The  
10 service agreement will be paid annually and includes a Performance Guarantee payment and Annual  
11 fixed O&M payment, each subject to adjustment each year using a defined formula. Forecast non-labor  
12 costs also include \$20,000 per site (non-escalated) for other contractual maintenance services, such as  
13 weed and pest abatement, fire system testing and maintenance, trash pick-up services, and repairs  
14 resulting from vandalism or weather events.

15           **2.       Capital-Related Expenditures**

16           The total direct capital costs forecast for each GE Peaker EGT BESS projects are as shown in  
17 Table IX-16 below. As shown, slightly less than half of this forecast total had recorded as of 2016 year  
18 end.

**Table IX-16**  
**GE EGT™ Capital Costs (Nominal \$000)**

Line No.	Site	Recorded Through 12/2016	2017 Forecast	Total Project Forecast
1	<b>Center</b>			
2	GE Procure/Install			
3	Material	-	\$9	\$9
4	Contract/Construction Services	\$531	\$1,867	\$2,398
5	SCE Charges	\$253	\$135	\$388
6	Sub-total			
7				
8	<b>Grapeland</b>			
9	GE Procure/Install			
10	Material	-	-	
11	Contract/Construction Services	\$516	\$1,431	\$1,947
12	SCE Charges	\$131	\$569	\$700
13	Sub-total			
14	<b>Total</b>			

1 Although the two GE EGT projects were installed and operational as of December 30, 2016,  
2 certain costs had not yet been recorded. While the systems each became operational on December 30,  
3 2016 (*i.e.*, able to perform their core energy storage function of charge and discharge into the power  
4 grid), certain work to fully integrate the BESS into the Peaker control system continued into 2017.

5 SCE entered into two turn-key contracts, totaling [REDACTED] million, with GE for engineering,  
6 procurement, and construction services including electrical and controls integration necessary for these  
7 turn-key installations. This represents the majority of the capital cost of these projects.

8 SCE contracted with engineering/consulting firms to provide Owner's Engineering services  
9 during construction, Grid Interconnection analysis, IT connectivity review and design, Telemetry  
10 interconnection with CAISO, and other work. The forecasted cost for these services at both facilities is  
11 \$4.345 million.

12 SCE forecasted costs in the amount of \$1.088 million includes incremental SCE labor costs to  
13 manage the projects, and other costs including a contingency of [REDACTED] million for the remaining work  
14 (*i.e.*, less than 2% of the total cost of the projects).

1 X.

2 **COST RECOVERY, REVENUE ALLOCATION AND RATEMAKING**

3 **A. Overview**

4 The SCE UOS Systems that are the subject of this Application were built in accordance with the  
5 Resolution’s requirements to meet reliability needs for the benefit of all customers in SCE’s distribution  
6 service area. The Resolution establishes a reliability-based need for IFOM energy storage, authorizes  
7 SCE to pursue proposals for turnkey project development of “build and transfer” projects located at the  
8 utility’s substations or on utility-owned or operated sites,<sup>43</sup> and directs SCE to recover those costs from  
9 all benefitting (*i.e.*, delivery) customers through the CAM. As such, consistent with the Commission’s  
10 determination that these projects are CAM-eligible, SCE proposes to recover their associated costs using  
11 CAM.

12 In the sections below, SCE describes how the net costs of the Tesla and GE EGTs are calculated  
13 pursuant to D.15-11-041 (“LCR Decision”) and proposes a modification, consistent with the Joint  
14 Parties Proposal (“JPP”) discussed below, of that methodology for the GE projects, and discusses its  
15 proposal to forecast, record, recover and review these costs.

16 **B. CAM Net Revenue Calculation Proposal**

17 In D.06-07-029, the Commission adopted a cost-allocation methodology that allows the benefits  
18 and costs of new generation to be shared by all benefitting customers in an IOU’s service territory. The  
19 capacity and energy are “unbundled,” and the rights to the capacity are allocated to all LSEs in the  
20 IOU’s service territory to be used towards each LSE’s RA requirements. The customers receiving the  
21 benefit of this additional capacity pay only the “net costs” of the capacity through a “wires” charge,<sup>44</sup>  
22 determined as a net of the total cost of the contract minus the energy revenues associated with dispatch  
23 of the resource. The following sections describe how the net “revenues associated with the dispatch of

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<sup>43</sup> D.11-05-005 at p. 10.

<sup>44</sup> The net costs of all CAM-eligible resources are recovered from all delivery service customers through the New System Generation Charge.

1 the resource” are to be calculated. Use of IFOM CAM adopted in the LCR Decision will be applied for  
2 the Tesla Projects.

3 As clarified in the Joint Memorandum of Understanding<sup>45</sup> adopted in D.15-11-041, the “net  
4 capacity cost” for energy storage CAM resources pursuant to the JPP is calculated in the following way:  
5 The costs resulting from charging each battery in the lowest-priced hours of a 24-hour period are netted  
6 against the revenues resulting from discharging that battery during the highest-priced hours in the same  
7 24-hour period to determine the net revenue received from the resource. That proxy for the net revenue  
8 is then credited back to the contract cost to calculate the net capacity cost of the resource to be recovered  
9 through the New System Generation Charge from all delivery service customers (“JPP ES  
10 Methodology”). SCE proposes to utilize the JPP ES Methodology to determine the proxy net revenues  
11 of the Tesla Projects.

12 **1. Use of CAISO Revenues Instead of Proxy Revenues for the EGTs**

13 As described above, the main financial benefit of converting the gas turbines to EGTs is the  
14 added ability to participate in the CAISO spin market. Without the incremental projected spin revenues,  
15 the projects’ NPV would have been negative (*i.e.*, costs would have exceeded benefits), and a decision  
16 to pursue the conversion based on “price competitiveness” would have looked differently. Ultimately,  
17 the economics of the EGT conversions are significantly diminished if spin revenues are not considered.

18 SCE is seeking CAM cost allocation for the GE EGT projects, where CAM participants will be  
19 required to pay for their prorated share of any above-market costs. However, the existing CAM  
20 mechanism used to calculate above-market costs does not explicitly include the value of spin service.  
21 This is typically not an issue as the calculation of energy market revenues is modeled using a “perfect  
22 foresight” dispatch simulation, with non-spin revenues included in all hours when the unit was not  
23 committed for energy dispatch. This calculation reasonably approximates the total CAISO net revenues  
24 on a portfolio basis, but can produce variances from actuals for individual resources. In this

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<sup>45</sup> The Joint Memorandum of Understanding is included in the March 27, 2015 motion filed by SCE, Alliance for Retail Energy Markets, and Direct Access Customer Coalition in A.14-11-012.

1 Application, SCE is seeking approval for the GE EGT projects where the financial justification stems  
2 predominantly from spin revenues, and CAM cost allocation, which the existing above-market  
3 calculation does not explicitly include spin revenues. SCE is proposing a modified CAM true-up  
4 calculation for the EGT projects to address this unique circumstance.

5 SCE proposes to use a modified CAM above-market cost calculation for the EGT projects to  
6 ensure that the incremental spin revenues are accurately captured and shared. However, the existing  
7 framework of utilizing an industry accepted dispatch model and perfect foresight dispatch results poses a  
8 concern when incorporating spin revenues. Similarly, dispatch models are not well-situated to model  
9 the award and dispatch of spinning reserves due to the limited spin capacity required by the system. The  
10 CAISO will allocate energy and AS awards in a way that minimizes total system cost, considering  
11 locational energy and spin requirements, among other constraints. This can, and does, result in cases  
12 where spin prices would afford incremental net revenues to many resources that receive zero, or partial,  
13 spin capacity awards. Additionally, a resource that is awarded spin capacity may or may not be called  
14 upon to provide energy for reliability needs in real time. Therefore, additional model changes would be  
15 required to account for the hourly probability of spin award, the probability of accompanying real-time  
16 energy awards, and the real-time prices during these reliability based energy dispatch events.

17 Ultimately, the required changes to the models may lead to much debate, and needless time spent on  
18 compromise solutions that produce model results that differ significantly from actual market awards.

19 SCE submits that the most equitable solution is to allocate the EGT resources' actual costs and  
20 benefits to all benefitting customers through use of a CAM true-up. In this manner, the forecasted net  
21 costs used for setting prospective rates will be the same as those used in the Energy Resource Recovery  
22 Account ("ERRA") forecast, and the true-up, which will be calculated using actual costs and market  
23 revenues, will also result in the actual net costs being allocated to all benefitting customers. This process  
24 ensures that the CAM participants will receive the same forecasted net costs and ultimate net cost  
25 allocation as the SCE's bundled service customers, preserving equity throughout the process.

1 The IOU requirement of adhering to “least-cost-dispatch” principles and the accompanying  
2 annual ERRA reasonableness review on the SCE’s market activities offers reasonable assurances that  
3 the resources are being properly administered.

4 **C. Cost Recovery Proposal**

5 **1. Aliso Canyon CEMA**

6 On May 10, 2016, SCE sent a letter to the CPUC Executive Director informing him that SCE has  
7 activated its Catastrophic Event Memorandum Account (“CEMA”) to record and track its costs incurred  
8 to mitigate electric reliability issues that could occur in summer and winter months stemming from  
9 natural gas curtailments caused by the moratorium on injections into the Aliso Canyon Natural Gas  
10 Storage Facility. Although the Commission had already directed SCE to spend monies on additional  
11 Demand Response and Energy Savings Assistance (“ESA”) programs, as well as to accelerate the  
12 procurement of power as the result of the Moratorium,<sup>46</sup> SCE is using the Aliso Canyon CEMA to  
13 capture other costs incurred as a result of the Moratorium, including utility-owned energy storage  
14 projects.

15 SCE excluded all costs from any UOS, including the DBT projects, from its 2017 ERRA  
16 Forecast (adopted in D.16-12-054).

17 In the 2016 operation of the Aliso Canyon CEMA, SCE recorded \$878,993 of pre-deployment  
18 O&M project non-labor costs as described and supported in Chapter IX and set forth in Table IX-12.<sup>47</sup>  
19 SCE’s cost recovery proposal for these costs is discussed in Chapter H of this chapter. Commencing  
20 January 1, 2017, and up until a Commission decision is issued in this proceeding, SCE will continue to  
21 record the actual O&M expenses and capital-related revenue requirements for the Tesla and GE Projects  
22 in the Aliso Canyon CEMA.

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<sup>46</sup> Cost recovery for these activities is addressed in D.16-04-040 (ESA Program), D.16-06-029 (Demand Response Programs) and in the Executive Director’s letter to Colin Cushnie dated letter dated May 6, 2016 (addressing accelerated procurement).

<sup>47</sup> The \$262,231 in recorded pre-deployment O&M labor costs are not incremental to the 2015 GRC and therefore were not recorded in the Aliso Canyon CEMA.

1 **D. Description of the ACES Balancing Account (ACESBA)**

2 In this application, SCE is requesting that the Commission find reasonable the costs associated  
3 with SCE's Tesla Projects. SCE is also requesting that the Commission find reasonable the costs  
4 associated with the integration of two energy storage systems to its existing Center Peaker and  
5 Grapeland Peaker (GE Projects). As discussed in Chapter X.B. of this testimony, the Tesla and GE  
6 Projects were built to ensure system reliability, which benefits all customers, and, under the Resolution,  
7 the costs should be recovered using the CAM. SCE's current CAM contracts (includes PPA's and  
8 Peaker revenue requirements) are recovered in the New System Generation Balancing Account  
9 ("NSGBA") from all customers through a New System Generation rate component.

10 Effective upon a decision in this Application, SCE requests authorization to establish a new  
11 balancing account — the Aliso Canyon Energy Storage Balancing Account ("ACESBA") — to record  
12 the actual Tesla and GE Projects revenue requirements. Each month, SCE will record the incremental  
13 O&M expenses, payroll taxes and capital revenue requirements (i.e., depreciation, return on rate base,  
14 property taxes and incomes taxes) in the ACESBA associated with the activities as approved by the  
15 Commission for the Tesla and GE Projects. The ACESBA will separately account for and record the  
16 revenue requirements for the two Tesla Projects and the two GE Projects.

17 Each month, SCE will record Tesla and GE Project entries into the ACESBA as follows:

- 18 a. An initial transfer of the SCE-owned ACES-related recorded activity in the Aliso Canyon  
19 CEMA (debit);
- 20 b. Actual incremental O&M costs (debit), calculated on recorded expenses;
- 21 c. Applicable labor loadings (debit) based on GRC authorized rates;<sup>48</sup> and
- 22 d. Capital-related revenue requirements (debit), calculated on actual rate base amounts and  
23 using the most recent adopted return on rate base (currently set at 7.90% pursuant to  
24 D.12-12-034).

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<sup>48</sup> However, to the extent a particular labor loading is currently accounted for in another balancing account (e.g., Pensions, Post-Employment Benefits Other than Pensions ("PBOPs")), SCE will not apply these labor loadings on the Tesla and GE project incurred labor costs.

1           These costs, which represent the total cost of the Tesla and GE Projects, will be transferred from  
2 the ACESBA to the NSGBA. Additionally, the following two entries will be recorded in the NSGBA to  
3 complete the net cost calculation described in Chapter X.B:

- 4           a.       For the Tesla Projects, proxy net revenues as calculated using the JPP ES methodology  
5                   (credit to NSGBA, debit from ERRa);
- 6           b.       For the GE Projects, and by extension, the Center and Grapeland peakers,<sup>49</sup> actual net  
7                   revenues received in the CAISO market, including revenues from day-ahead energy, RT  
8                   energy, and AS markets (credit to NSGBA, debit from ERRa).

9           SCE proposes to include in its New System Generation rates a forecast annual revenue  
10 requirement effective January 1 of each year, up until the Tesla and GE Project-related costs are  
11 included in SCE's 2021 test year GRC. To ensure customers only pay the actual Tesla and GE Projects  
12 revenue requirements, SCE proposes to transfer the December 31 balance recorded in the ACESBA to  
13 the NSGBA at year-end. Using this approach, any difference between the forecast Tesla and GE Projects  
14 revenue requirements included in rate levels and the actual recorded Tesla and GE Projects revenue  
15 requirements will be trued-up in the operation of the NSGBA. This proposed ratemaking provides that  
16 no more and no less than the reasonable revenue requirements associated with the Tesla and GE Project  
17 activities are ultimately collected from customers. Any over-collection recorded in the NSGBA at the  
18 end of each year will be refunded to customers in the subsequent year. Similarly, any under-collection  
19 recorded in the NSGBA at the end of each year will be recovered from customers in the subsequent  
20 year.

21 **E. Reasonableness Review of Tesla and GE Projects Costs**

22           In this Application, the Commission will review the reasonableness of the costs associated with  
23 the Tesla and GE Projects and therefore no further after-the-fact review should be required. Pursuant to

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<sup>49</sup> As described in Section X.B, proxy net revenues for the Center and Grapeland peakers today are calculated using the JPP methodology and are transferred from the ERRa balancing account (debit) to the NSGBA (credit) to ensure that only the net capacity costs are included in the NSGBA. As a part of this Application, SCE proposes to replace the proxy net revenues for Center and Grapeland with actual CAISO net revenues.



1 the CPUC-adopted process for reviewing many of SCE's balancing accounts, SCE will include the  
2 recorded operation of the ACESBA in SCE's annual ERRRA Review applications for Commission  
3 review. This review of the ACESBA will ensure that all entries to the account are stated correctly and  
4 are consistent with CPUC decision(s). SCE will include testimony specifically addressing the Tesla and  
5 GE Project recorded costs in its annual ERRRA Review applications. CPUC review procedures for these  
6 project costs should be limited to ensuring that all recorded costs are associated with activities as defined  
7 and adopted by the Commission in this proceeding.

8 **F. Forecast of Tesla and GE Projects Revenue Requirements**

9 Table X-17 and Table X-18 below presents SCE forecast 2017-2020 revenue requirements  
10 associated with the Tesla and GE Projects.<sup>50</sup>

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<sup>50</sup> The Tesla and GE Projects became operational on December 30, 2016; therefore, the capital-related revenue requirements commence effective January 1, 2017.

**Table X-17**  
**Forecast of SCE's 2017 – 2020 Tesla Project Revenue Requirements**

1.	<b>Total Operating Revenues</b>	<b>7,790</b>	<b>8,800</b>	<b>8,441</b>	<b>8,151</b>
2.	<b>Operating Expenses:</b>				
3.	CEMA transfer (one-time)	879	–	–	–
4.	O&M	1,128	1,126	1,116	1,171
5.	Uncollectibles	19	21	20	19
6.	Franchise Requirements	71	80	77	74
7.	<b>Total Operating Expenses</b>	<b>2,096</b>	<b>1,227</b>	<b>1,213</b>	<b>1,265</b>
8.	<b>Depreciation</b>	<b>3,569</b>	<b>3,569</b>	<b>3,569</b>	<b>3,569</b>
9.	Property Taxes	193	368	333	299
10.	Payroll Taxes	–	–	–	–
11.	Taxes Based On Income	648	1,187	1,109	1,029
12.	<b>Total Taxes</b>	<b>841</b>	<b>1,555</b>	<b>1,442</b>	<b>1,328</b>
13.	<b>Total Operating Expenses</b>	<b>6,506</b>	<b>6,351</b>	<b>6,224</b>	<b>6,162</b>
14.	<b>Net Operating Revenue</b>	<b>1,283</b>	<b>2,449</b>	<b>2,217</b>	<b>1,989</b>
15.	Rate Base (Weighted Average)	16,250	31,012	28,070	25,184
16.	Rate of Return	7.90%	7.90%	7.90%	7.90%

**Table X-18**  
**Forecast of SCE's 2017 – 2020 GE Project Revenue Requirements**

1.	<b>Total Operating Revenues</b>	<b>3,342</b>	<b>4,551</b>	<b>4,360</b>	<b>4,175</b>
2.	<b>Operating Expenses:</b>				
3.	O&M	202	208	213	219
4.	Uncollectibles	8	11	10	10
5.	Franchise Requirements	30	41	40	38
6.	<b>Total Operating Expenses</b>	<b>240</b>	<b>260</b>	<b>263</b>	<b>267</b>
7.	<b>Depreciation</b>	<b>1,808</b>	<b>1,808</b>	<b>1,808</b>	<b>1,808</b>
8.	Property Taxes	118	227	208	189
9.	Payroll Taxes	–	–	–	–
10.	Taxes Based On Income	390	748	699	650
11.	<b>Total Taxes</b>	<b>508</b>	<b>975</b>	<b>906</b>	<b>839</b>
12.	<b>Total Operating Expenses</b>	<b>2,556</b>	<b>3,043</b>	<b>2,977</b>	<b>2,914</b>
13.	<b>Net Operating Revenue</b>	<b>786</b>	<b>1,508</b>	<b>1,383</b>	<b>1,262</b>
14.	Rate Base (Weighted Average)	9,951	19,100	17,517	15,975
15.	Rate of Return	7.90%	7.90%	7.90%	7.90%

1 The 2017 – 2020 forecast revenue requirements shown in the two tables above are based on the  
2 projection of O&M expenses and capital expenditures as set forth in Chapter IX. Table X-19 below  
3 provides, at the aggregate level, the capital expenditures and incremental O&M expenses as supported in  
4 this Exhibit.

**Table X-19**  
**Forecast of SCE's 2016 – 2020 O&M and Capital Expenditures**

Line No.	Item (\$ thousands)	2016	2017	2018	2019	2020	Total
<b>Tesla Project:</b>							
1.	O&M Expense	–	1,128	1,126	1,116	1,171	4,541
2.	Capital Expenditures			–	–	–	
<b>GE Project:</b>							
3.	O&M Expense	–	202	208	213	219	842
4.	Capital Expenditures			–	–	–	

1           Beginning in 2018, SCE requests to include in New System Generation (“NSG”) rate levels a  
2 forecast Tesla and GE Projects revenue requirement annually until the time the costs are included in  
3 SCE’s 2021 GRC request.<sup>51</sup> The annual revenue requirement associated with the 2018-2020 forecast  
4 revenue requirements will be consolidated and made when all other previously authorized revenue  
5 changes are reflected in rates, consistent with current standard practice.

6           To determine the Tesla and GE Project revenue requirement to be included in NSG rates the  
7 following year, SCE proposes to file an annual advice letter in November of each year. In these annual  
8 advice letters, SCE will update the forecast Tesla and GE Project revenue requirements to reflect the  
9 prior year’s recorded capital expenditures, any forecast capital expenditure changes in the following  
10 year, and the most recently adopted rate of return on rate base, franchise fees and uncollectible rates and  
11 tax rates. Upon Commission approval of this advice letter, SCE will consolidate the changes in its NSG  
12 rates to reflect these Tesla and GE Project revenue requirements in conjunction with other rate changes  
13 in its January 1 rate change advice letter filing.

<sup>51</sup> Due to the timing of this Application, SCE will not reflect a forecast Tesla and GE project revenue requirement in 2017 rate levels.

1 **G. ACES RFP Costs of Unsuccessful Sites**

2 **1. Description of Costs And How Computed**

3 In support of the RFP, SCE incurred costs relating to the support of the RFP evaluation and  
4 determination of appropriate sites for development. These costs are allocated to both successful and  
5 unsuccessful sites. Costs incurred for unsuccessful sites are related to incremental non-labor and non-  
6 incremental labor costs. Incremental non-labor costs are related to activities to identify sites and their  
7 applicability for development of an energy storage system.

8 SCE's non-incremental labor was tracked for each week, by each employee supporting the RFP,  
9 as a percent of their time worked. This tracking began at the launch of the RFP on May 27, 2016 and  
10 continued until a successful award was made on September 9, 2016. At the beginning of the RFP, SCE  
11 identified 19 sites that were feasible for development by the December 31, 2016 operational date.  
12 During the course of the RFP period, sites were removed from consideration, until the final two sites at  
13 Mira Loma were chosen to use for successful bids. To determine the costs associated with successful  
14 and unsuccessful sites, SCE used the number of sites being assessed as the primary cost driver during  
15 this time. SCE determined the labor costs for each week, and allocated costs based upon the number of  
16 sites that were active for each week. The following sites were cancelled in the specified weeks shown in  
17 Table X-20.

*Table X-20  
Dates the Sites Were Cancelled*

<b>Week Ending</b>	<b>Sites</b>
29-Jul-16	Nogales
5-Aug-16	Bassett A & B, <u>Alon B</u> , Lampson, Merced A & B, <u>Narod A &amp; B</u> , Watson A, Laguna Bell A
26-Aug-16	Laguna Bell B, <u>Alon A</u>
9-Sep-16	Center A & B, El <u>Nido A &amp; B</u>

18 For incremental non-labor costs, costs directly related to the Mira Loma sites were allocated to  
19 the successful Tesla bids, costs directly related to all other sites, were allocated to unsuccessful sites.  
20 Cost that are directly related to a site include:

- 1 • Environmental Review and Clearances
- 2 • Interconnection Application Electrical Engineering Support
- 3 • Geotechnical Assessment
- 4 • Land Survey
- 5 • Interconnection Study
- 6 • Interconnection One-Time Payment

7 For costs that were not directly related to a site, the same approach that was used for non-  
8 incremental labor was used to allocate costs for incremental non-labor. Costs that are indirectly related  
9 to a site includes the Consultant/Contract Labor costs.

10 The costs associated with this categorization are summarized in Chapter VII.A.1.

11 **2. SCE Should Be Permitted to Recover All Costs Associated with the ACES RFP**

12 In the context of establishing rules for utility ownership of generation resources and their  
13 participation in RFOs, the Commission has stated that it will not permit IOUs to recoup from customers  
14 any bid development costs associated with losing bids, in the event such costs are incurred.<sup>52</sup> However,  
15 the Commission has never explicitly applied this rule to bids for utility-owned energy storage, and  
16 indeed, should not apply this rule to limit SCE's recovery of the cost of developing unsuccessful sites in  
17 the ACES RFP. The Commission has repeatedly stated its desire for a competitive market approach to  
18 procurement rather than relying on preemptive action taken by an IOU to build UOG, except in truly  
19 extraordinary circumstances<sup>53</sup>. The circumstances that arose from the partial shutdown of the Aliso  
20 Canyon natural gas storage facility were extraordinary circumstances and required a unique response to  
21 expeditiously develop as much cost-effective Energy Storage as possible.

22 SCE launched its ACES Solicitation to rapidly bring energy storage resources online. The  
23 solicitation was comprised of two components: a competitive third party RFO, and a concurrent RFP for  
24 DBT projects that would result in utility-owned energy storage facilities to meet the Aliso Canyon

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<sup>52</sup> D.07-12-052 at 207.

<sup>53</sup> D.07-12-052 at 208 and D 08-11-008 at 20.

1 reliability needs as specified in the Resolution. SCE's ACES Solicitation relied on a market first  
2 approach using the ACES RFO, and then supplemented this third-party ownership effort with a utility-  
3 ownership RFP to maximize the amount of energy storage that could be brought online by December 31,  
4 2016. D.07-12.052 explicitly allows for the development of Utility-Owned Generation for unique  
5 circumstances such as the reliability issues that existed due to the partial shutdown of Aliso Canyon.

6 Given the unique reliability need identified by Resolution E-4791, SCE requests that all costs  
7 incurred in the development of viable sites for locating UOS be fully recoverable from all benefiting  
8 customers. SCE pursued the UOS Projects at the identified sites at the Commission's authorization. The  
9 Resolution found it reasonable for SCE to pursue turnkey projects located at SCE's substations or on  
10 utility-owned or operated sites.<sup>54</sup> The ACES RFP was executed separately from the AES RFO and the  
11 UOS Projects were not in direct competition with the third-party RFO bids.

### 12 **3. What Mechanism To Recover Solicitation/Unsuccessful Site Costs**

13 As discussed in Chapter IX and shown in Table IX-12, in 2016 SCE incurred \$1.141 million in  
14 pre-deployment O&M project costs composed of \$590k of costs associated with successful sites and  
15 \$551k of costs associated with unsuccessful sites. All costs for the successful sites should be  
16 recoverable. The \$50k in successful site labor project costs are currently recovered in the 2015 GRC  
17 (that is, these labor costs are not incremental); the \$540k in successful site non-labor costs are  
18 incremental to the 2015 GRC and are recorded in the Aliso Canyon CEMA. Upon the establishment of  
19 the ACESBA, the \$540k will be transferred from the Aliso Canyon CEMA to the ACESBA for cost  
20 recovery consistent with SCE's proposal in this Application.

21 As discussed above, SCE should be permitted to recover all costs associated with the ACES  
22 RFP. In 2016, SCE incurred \$212k in labor costs associated with unsuccessful sites. These labor costs  
23 are not incremental and are currently recovered in the GRC. In 2016, SCE also incurred \$339k in  
24 unsuccessful site non-labor costs. These costs are incremental to the GRC and are recorded in the Aliso

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<sup>54</sup> Resolution E-4791 at p. 12.

1 Canyon CEMA. Similar to the successful site non-labor costs, SCE proposes to transfer the \$339k in  
2 unsuccessful site costs from the Aliso Canyon CEMA to the ACESBA for cost recovery upon a decision  
3 approving SCE's proposed ratemaking in this Application.

4 **H. Summary of Tesla and GE Projects Cost Recovery Proposal**

5 In conclusion, SCE respectfully requests that the Commission in its decision in this proceeding:

- 6 1) Authorize the establishment of the ACESBA to record Tesla and GE Project O&M  
7 expenses and capital-related revenue requirements (including an initial entry for the  
8 transfer of SCE-owned ACES-related recorded activity in the Aliso Canyon CEMA);
- 9 2) Limit reasonableness review of the Tesla and GE Projects expenses to ensuring all  
10 recorded ACESBA entries related to the Tesla and GE Projects are stated correctly and  
11 are consistent with Commission decisions;
- 12 3) Authorize the recovery of recorded ACESBA activity in the NSGBA;
- 13 4) Authorize SCE to include in NSG rates an estimated annual Tesla and GE Projects  
14 revenue requirement commencing January 1, 2018 through January 1, 2020 to be  
15 recovered from all customers (CAM treatment); and
- 16 5) Authorize SCE to recover all costs incurred in the development of viable sites for  
17 locating UOS from all benefiting customers.



**Appendix A**

**Witness Qualifications and Confidentiality Declarations**



1 Q. Does this conclude your qualifications and prepared testimony?

2 A. Yes, it does.

**DECLARATION OF VIBHU KAUSHIK REGARDING THE CONFIDENTIALITY**  
**OF CERTAIN DATA**

I, Vibhu Kaushik, declare and state:

1. I am a Principal Manager of Asset Management and Generation Strategy responsible for Asset Management, Asset Optimization, Performance Reporting, Central Work Management, Documents and Records Management, and Plant Engineering activities associated with SCE’s utility owned generation (UOG) assets at Southern California Edison (“SCE”). I was responsible for overseeing SCE’s bilateral negotiations with General Electric (“GE”). As such, I have reviewed SCE’s Application seeking California Public Utilities Commission (“Commission” or “CPUC”) approval of the of bilateral agreements, supporting Testimony and Appendices. I make this declaration in accordance with Decisions (“D.”) 06-06-066 and D.08-04-023, issued in Rulemaking (“R.”)05-06-040, and D.13-10-040 issued in R.10-12-007. I have personal knowledge of the facts and representations herein and, if called upon to testify, could and would do so, except for those facts expressly stated to be based upon information and belief, and as to those matters, I believe them to be true.

2. Listed below is the data in the supporting Testimony and Appendices for which SCE is seeking confidential protection and the categories of the Matrix of Allowed Confidential Treatment Investor Owned Utility Data (“Matrix”) appended to D.06-06-066 to which these data correspond.

Data	Location	Matrix Category	Period of Confidentiality
<b>Testimony in Support of Application of Southern California Edison Company (U 338-E) for Recovery of Aliso Canyon Utility Owned Energy Storage Costs</b>	Page 2, line 14; page 62, line 2; page 64, table IX-16, line 5, 13; page 74, table X-19	VII.B Contracts and power purchase agreements between utilities and non-affiliated third parties (except RPS)	Contracts confidential for three years, or until one year following expiration, whichever comes first.

Data	Location	Matrix Category	Period of Confidentiality
<b>Purchase Order between Southern California Edison and General Electric International, Inc. Grapeland and Center</b>	Confidential Appendix B of Testimony	VII.B Contracts and power purchase agreements between utilities and non-affiliated third parties (except RPS)	Contracts confidential for three years, or until one year following expiration, whichever comes first.
<b>Independent Evaluator Report</b>	Confidential Appendix C – Southern California Edison Company Submission of a Bilateral Turnkey Contract With General Electric International, Inc. for EGT Kit for SCE Central and Grapeland Peakers Final Report of the Independent Evaluator pages C-44, C-45, C-50, C-51, C-52, C-54, C-55, C-56, C-57, C-58, C-59, C-60, C-61, C-62, C-63, C-64, C-65, C-66.	VII.B Contracts and power purchase agreements between utilities and non-affiliated third parties (except RPS)	Contracts confidential for three years, or until one year following expiration, whichever comes first.
<b>GE EGT Preliminary Pricing Proposal</b>	Confidential Appendix H	VII.B Contracts and power purchase agreements between utilities and non-affiliated third parties (except RPS)	Contracts confidential for three years, or until one year following expiration, whichever comes first.

1           3.       SCE is complying with the limitations on confidentiality specified in the Matrix that pertain  
2 to the data listed in the table above.

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4. I am informed and believe and thereon allege that the data in the table in paragraph 2 above cannot be aggregated, redacted, summarized, masked or otherwise protected in a manner that would allow partial disclosure of the data while still protecting confidential information.

5. I am informed and believe and thereon allege that the data in the table in paragraph 2 and above has never been made publicly available.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on March 27, 2017, at Rosemead, California.

*/s/ Vibhu Kaushik*  
\_\_\_\_\_  
Vibhu Kaushik



1 Q. Was the material prepared by you or under your supervision?

2 A. Yes, it was.

3 Q. Insofar as this material is factual in nature, do you believe it to be correct?

4 A. Yes, I do.

5 Q. Insofar as this material is in the nature of opinion or judgment, does it represent your best judgment?

6 A. Yes, it does.

7 Q. Does this conclude your qualifications and prepared testimony?

8 A. Yes, it does.





1            *Recovery of Aliso Canyon Utility Owned Energy Storage Costs* as identified in the Table of Contents  
2            thereto.

3            Q.     Was the material prepared by you or under your supervision?

4            A.     Yes, it was.

5            Q.     Insofar as this material is factual in nature, do you believe it to be correct?

6            A.     Yes, I do.

7            Q.     Insofar as this material is in the nature of opinion or judgment, does it represent your best judgment?

8            A.     Yes, it does.

9            Q.     Does this conclude your qualifications and prepared testimony?

10          A.     Yes, it does.

**DECLARATION OF LORI O’NEILL REGARDING THE CONFIDENTIALITY  
OF CERTAIN DATA**

I, Lori O’Neill, declare and state:

1. I am the Principal Manager of Operations & Project Management in the Grid Modernization, Planning & Technology (GMPT) group of Southern California Edison (“SCE”). I was responsible for overseeing SCE’s Aliso Canyon Energy Storage (“ACES”) Request for Proposals (“RFP”). As such, I have reviewed SCE’s Application seeking California Public Utilities Commission (“Commission” or “CPUC”) approval of the results of its ACES RFP, supporting Testimony and Appendices. I make this declaration in accordance with Decisions (“D.”) 06-06-066 and D.08-04-023, issued in Rulemaking (“R.”)05-06-040, and D.13-10-040 issued in R.10-12-007. I have personal knowledge of the facts and representations herein and, if called upon to testify, could and would do so, except for those facts expressly stated to be based upon information and belief, and as to those matters, I believe them to be true.

2. Listed below is the data in the supporting Testimony and Appendices for which SCE is seeking confidential protection and the categories of the Matrix of Allowed Confidential Treatment Investor Owned Utility Data (“Matrix”) appended to D.06-06-066 to which these data correspond.

Data	Location	Matrix Category	Period of Confidentiality
<b>Testimony in Support of Application of Southern California Edison Company (U 338-E) for Recovery of Aliso Canyon Utility Owned Energy Storage Costs</b>	Page 2, line 11; page 14, line 16; page 15, table III-2; page 16, lines 3, 8, 9, table III-3; page 17, lines 5-7, 10, 11, table III-4, table III-5; page 54, line 10; page 56, line 4, 12, 14; page 60, line 8, 13; page 61, line 16; page 62, table IX-14	VIII.A Bid Information  VIII.B Specific quantitative analysis involved in the scoring and evaluation of participating bids	For bid information, total number of projects and megawatts bid by resource type public after final contracts submitted to CPUC for approval.  Specific quantitative analysis involved in the scoring and evaluation of participating bids confidential for three

Data	Location	Matrix Category	Period of Confidentiality
			years after winning bidders selected.
<b>Turnkey Engineering, Procurement, Installation Maintenance Agreement (Mira Loma “A” Project) and (Mira Loma “B” Project)</b>	Confidential Appendix B of Testimony	VII.B Contracts and power purchase agreements between utilities and non-affiliated third parties (except RPS)	Contracts confidential for three years, or until one year following expiration, whichever comes first.
<b>Independent Evaluator Report</b>	Confidential Appendix C – Southern California Edison Company 2016 Aliso Canyon Energy Storage Design, Build and Transfer (“DBT”) RFP Final Report of the Independent Evaluator, pages C-13, C-14, C-15, C-21, C-22, C-23, C-24, C-25, C-26, C-27, C-28, C-29, C-30, C-31, C-32, C-33, C-34, C-35, C-36, C-37, C-39, C-40, C-41, and Confidential attachments A – C of IE report in their entirety.	VIII.A Bid Information  VIII.B Specific quantitative analysis involved in the scoring and evaluation of participating bids	For bid information, total number of projects and megawatts bid by resource type public after final contracts submitted to CPUC for approval.  Specific quantitative analysis involved in the scoring and evaluation of participating bids confidential for three years after winning bidders selected.

1           3.       SCE is complying with the limitations on confidentiality specified in the Matrix that pertain  
2 to the data listed in the table above.

3           4.       I am informed and believe and thereon allege that the data in the table in paragraph 2 above  
4 cannot be aggregated, redacted, summarized, masked or otherwise protected in a manner that would allow  
5 partial disclosure of the data while still protecting confidential information.

6           5.       I am informed and believe and thereon allege that the data in the table in paragraph 2 and  
7 above has never been made publicly available.

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I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on March 27, 2017, at Rosemead, California.

*/s/ Lori O'Neill*  
\_\_\_\_\_  
Lori O'Neill



1        *Recovery of Aliso Canyon Utility Owned Energy Storage Costs* as identified in the Table of Contents  
2        thereto.

3        Q.     Was this material prepared by you or under your supervision?

4        A.     Yes, it was.

5        Q.     Insofar as this material is factual in nature, do you believe it to be correct?

6        A.     Yes, I do.

7        Q.     Insofar as this material is in the nature of opinion or judgment, does it represent your best judgment?

8        A.     Yes, it does.

9        Q.     Does this conclude your qualifications and prepared testimony?

10      A.     Yes, it does.

**DECLARATION OF RANBIR SEKHON REGARDING THE CONFIDENTIALITY  
OF CERTAIN DATA**

I, Ranbir Sekhon, declare and state:

1. I am the Director of the Portfolio Planning & Analysis department of Southern California Edison’s (“SCE’s”) Power Supply organization. I was responsible for overseeing the valuation process for SCE’s Aliso Canyon Energy Storage (“ACES”) Request for Proposals (“RFP”), and the valuation process for SCE’s bilateral agreements with General Electric (“GE”). As such, I have reviewed SCE’s Application seeking California Public Utilities Commission (“Commission” or “CPUC”) approval of the results of its ACES RFP and bilateral agreements, supporting Testimony, and Appendices. I make this declaration in accordance with Decisions (“D.”) 06-06-066 and D.08-04-023, issued in Rulemaking 05-06-040, and D.13-10-040 issued in R.10-12-007. I have personal knowledge of the facts and representations herein and, if called upon to testify, could and would do so, except for those facts expressly stated to be based upon information and belief, and as to those matters, I believe them to be true.

2. Listed below is the data in the supporting Testimony for which SCE is seeking confidential protection and the categories of the Matrix of Allowed Confidential Treatment Investor Owned Utility Data (“Matrix”) appended to D.06-06-066 to which these data correspond.

Data	Page	Matrix Category	Period of Confidentiality
<b>Testimony in Support of Application of Southern California Edison Company (U 338-E) for Recovery of Aliso Canyon Utility Owned Energy Storage Costs</b>	Page 20, line 4-14; page 21, fn23; page 22, line 3, 4, 5, 6, 11, Figure III-1; page 24, lines 17-19; page 25, line 10, 18-20, 23-24; page 26, line 21; page 27, lines 9-13, table III-6; page 28, lines 1, 2, figure III-2;	VII.B Contracts and power purchase agreements between utilities and non-affiliated third parties (except RPS)  VIII.B Specific quantitative analysis involved in the scoring and evaluation of participating bids	Contracts confidential for three years, or until one year following expiration, whichever comes first.  Specific quantitative analysis involved in the scoring and evaluation of participating bids confidential for three years after winning



Data	Page	Matrix Category	Period of Confidentiality
	page 29, figure III-3, lines 1-3; page 30, figure III-4, lines 3-6, 7, 8, 9-10; page 31, table III-7, lines 1-13; page 32, table III-8, lines 1-5; page 37, Table IV-9, figure IV-5; page 38, line 7; page 39, table IV-10;	VIII.A Bid Information	bidders selected.  For bid information, total number of projects and megawatts bid by resource type public after final contracts submitted to CPUC for approval.
<b>ACES RFP Consistent Evaluation Protocol (“CEP”) Spreadsheet</b>	Confidential Appendix F (CD)	VIII.A Bid Information  VIII.B Specific quantitative analysis involved in the scoring and evaluation of participating bids	For bid information, total number of projects and megawatts bid by resource type public after final contracts submitted to CPUC for approval.  Specific quantitative analysis involved in the scoring and evaluation of participating bids confidential for three years after winning bidders selected.

1           3.       SCE is complying with the limitations on confidentiality specified in the Matrix that pertain  
2 to the data listed in the table above.

3           4.       I am informed and believe and thereon allege that the data in the table in paragraph 2 above  
4 cannot be aggregated, redacted, summarized, masked or otherwise protected in a manner that would allow  
5 partial disclosure of the data while still protecting confidential information.

6           5.       I am informed and believe and thereon allege that the data in the table in paragraph 2 above  
7 has never been made publicly available.

8           I declare under penalty of perjury under the laws of the State of California that the foregoing is true

1 and correct.

2 Executed on March 27, 2017, at Rosemead, California.

3 */s/ Ranbir Sekhon*  
Ranbir Sekhon

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**SOUTHERN CALIFORNIA EDISON COMPANY**  
**QUALIFICATIONS AND PREPARED TESTIMONY**  
**OF DOUGLAS A. SNOW**

1  
2  
3  
4 Q. Please state your name and business address for the record.

5 A. My name is Douglas A. Snow, and my business address is 8631 Rush Street, Rosemead, California  
6 91770.

7 Q. Briefly describe your present responsibilities at the Southern California Edison Company (“SCE”).

8 A. I am the Director of CPUC Revenue Requirements and Tariffs in SCE’s State Regulatory Operations  
9 Department. As such, I am responsible for the recovery of SCE’s authorized revenue requirements  
10 and oversee the operation of various balancing and memorandum accounts, including the recovery of  
11 the balances in those accounts, and I am responsible for managing the implementation of SCE’s  
12 tariffs and advice letters.

13 Q. Briefly describe your educational and professional background.

14 A. I graduated from Texas A&M University in May of 1982 with a Bachelor of Science Degree in  
15 Industrial Engineering. In June of 1982, I went to work for Southwestern Public Service Company  
16 (“SPS”) in west Texas. While there, I was a supervisory engineer, responsible for revenue  
17 requirement calculations and rate design for both retail and resale customers. I filed testimony on  
18 behalf of SPS before the Texas Public Utility Commission and the Federal Energy Regulatory  
19 Commission. In November of 1993, I began to work for SCE as a financial analyst in the FERC  
20 Pricing section in the RP&A Department. While working in the FERC section, I was responsible for  
21 the rate design for SCE’s requirements sales for resale, Wheeling Access Charges, and wholesale  
22 Distribution Access Charges. In March 1998, I became a supervisor in the Revenue Requirements  
23 division of RP&A, responsible for supervising a group of analysts that oversee the forecasting and  
24 recording entries associated with all CPUC regulatory mechanisms. In December 2001, I was  
25 promoted to the position of manager in the Revenue Requirements division of RP&A. In August  
26 2006, I was promoted to Manager of CPUC Revenue Requirements, and in March 2013, I became  
27 the Director of CPUC Revenue Requirements and Tariffs taking on the additional responsibilities for  
28 managing SCE’s tariffs, and advice letters. I have previously testified before the California Public  
29 Utilities Commission.

1 Q. What is the purpose of your testimony in this proceeding?  
2 A. The purpose of my testimony in this proceeding is to sponsor portions of *Exhibit SCE-01* entitled  
3 *Testimony in Support of Application of Southern California Edison Company (U 338-E) for*  
4 *Recovery of Aliso Canyon Utility Owned Energy Storage Costs* as identified in the Table of Contents  
5 thereto.  
6 Q. Was this material prepared by you or under your supervision?  
7 A. Yes, it was.  
8 Q. Insofar as this material is factual in nature, do you believe it to be correct?  
9 A. Yes, I do.  
10 Q. Insofar as this material is in the nature of opinion or judgment, does it represent your best judgment?  
11 A. Yes, it does.  
12 Q. Does this conclude your qualifications and prepared testimony?  
13 A. Yes, it does.

**Confidential Appendix B**

**Contracts (Redacted in Entirety)**

**Public Appendix C**  
**Independent Evaluator Reports**

**Public Version**

**Southern California Edison Company**

**2016 Aliso Canyon Energy Storage Design, Build and Transfer (“DBT”) RFP**

**Final Report of the Independent Evaluator**

**March, 2017**

***Southern California Edison Company  
2016 Aliso Canyon Energy Storage Design, Build and  
Transfer (“DBT”) RFP***

***Final Report of the Independent Evaluator***

***March, 2017***

***Prepared by  
Merrimack Energy Group, Inc.***



***And***

***New Energy Opportunities, Inc.***



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## APPENDICES

Appendix A – SCE – Indicative Proposals Received for DBT RFP

Appendix B – SCE – Final Proposals Submitted by Shortlisted Bidders

Appendix C – Review of Turnkey Agreement for Mira Loma A and B Projects with Tesla Motors, Inc.

## I. Introduction

### A. Overview of the 2016 Aliso Canyon Energy Storage (“ACES”) Solicitation Process

On May 27, 2016, Southern California Edison Company (“SCE” or “Company”) issued both its 2016 Aliso Canyon Energy Storage (“ACES”) Design, Build, and Transfer (“DBT”) Request for Proposals (“RFP” or “DBT RFP”) as well as its 2016 Aliso Canyon Energy Storage Request for Offers (“RFO” or “RA RFO”).<sup>1</sup>

The ACES RFO was designed to solicit offers from Bidders (“Sellers”) to supply Product from energy storage resources (“ESR” or “ESR Facility”) with the ultimate objective of executing purchase agreements substantially the same as SCE’s Pro Forma Aliso Canyon Energy Storage Resource Adequacy Purchase Agreement (“Pro Forma RA Agreement” or “Pro Forma Agreement”). SCE executed three Energy Storage Agreements for 27 MW of storage capacity via the ACES RFO.

The ACES RFP was designed to solicit proposals from Bidders (“Seller” or “Sellers”) to supply fully operational energy storage systems on a fixed-price, turnkey basis (“DBT Project” or “DBT Projects”) with the objective of entering into agreements substantially in the form of SCE’s Pro Forma Engineering, Procurement and Construction Contract (“Pro Forma DBT Agreement”) with Sellers. In addition, Bidders were required to provide Operational Performance Guarantees for a period of guaranteed performance on a fixed-price basis as well as maintenances services.

The issuance of the ACES Solicitation was required via Commission Resolution E-4791<sup>2</sup> authorizing expedited procurement of storage resources to help ensure electric reliability in the Los Angeles Basin due to the moratorium on gas injections and limited operations of the Aliso Canyon Gas Storage Facility. Under the Resolution, the Commission required SCE to hold an expedited competitive energy storage procurement solicitation to help alleviate an outage risk during the upcoming summer and winter of 2016-2017. Issuance of the ACES Solicitation is designed to meet this requirement.

Resolution E-4791 was a result of public policy efforts on behalf of the Governor and various state agencies to take all actions necessary to ensure the continued reliability of natural gas and electricity supplies in the coming months during the moratorium on gas injections into the Aliso Canyon Storage Facility. An Action Plan released by the California Energy Commission (“CEC”), the California Public Utilities Commission (“CPUC”), California Independent System Operator (“CAISO”), and the Los Angeles Department of Water and Power (“LADWP”) found that “Aliso Canyon plays an essential role in maintaining both natural gas and electric reliability in the greater Los Angeles area.

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<sup>1</sup> The ACES RFO for RA offers and the ACES RFP for Design, Build and Transfer options are collectively referred to as the ACES Solicitation or Solicitations in this report.

<sup>2</sup> Resolution E-4791 was issued by the California Public Utilities Commission on May 31, 2016.

As a result, the facility’s limited current operations create a distinct possibility of electricity service interruptions in the coming summer months.”<sup>3</sup>

The Resolution also identified the parameters for the storage procurement. These include:

- SCE may procure storage resources within its service area and to the extent the resources also qualify for Local Capacity Requirement (“LCR”) credits pursuant to D.13-02-015 and D.14-03-004, SCE will be granted the LCR credits consistent with their remaining authorization from D.15-11-041;
- SCE shall solicit in-front-of-the-meter (“IFOM”) energy storage that must be operational by December 31, 2016;
- All resources procured under the Aliso Canyon Energy Storage Solicitation must be interconnected in a location that helps to alleviate electric reliability concerns associated with the partial shutdown of the Aliso Canyon Gas Storage Facility and qualify for resource adequacy (“RA”) credit;
- Resources procured in the Aliso Canyon Energy Solicitation should be price-competitive with previous solicitations in which SCE has awarded contracts to energy storage resources, adjusting for different contract terms such as contract length and expedited delivery date impacts;
- SCE may enter into contracts with terms of 10 years or less.

The Resolution found that SCE may conduct the Aliso Canyon Energy Storage Solicitation as a “one round” competitive solicitation allowing bidders to submit pricing at the offer deadline. SCE will then evaluate and shortlist offers. SCE will enter into contract negotiations with shortlisted bidders and will make final selection decisions based on successful negotiation of a form of contract agreeable to both parties.

Under the Resolution, SCE was also allowed to submit applications for utility-owned storage projects, The Commission found that this option would increase the likelihood of resources being timely developed. The Commission found it is reasonable to allow the utilities to pursue proposals for turnkey project development of “build and transfer” projects located at the utility’s substation or on utility-owned or operated sites.<sup>4</sup> SCE is required to submit utility-owned storage project applications for reasonableness review within 90 days after the operational start date of such projects. SCE may seek approval of, and obtain cost recovery treatment and Energy Storage target credit and LCR credit for any contracts resulting from the Aliso Canyon Energy Storage Solicitation through a Tier 3 Advice Letter.

As a result, SCE issued its 2016 Aliso Canyon Energy Storage Design, Build and Transfer (“DBT”) RFP on May 27, 2016. Under this RFP, SCE was seeking Sellers to supply fully

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<sup>3</sup> Aliso Canyon Action Plan to Preserve Gas and Electric Reliability for the Los Angeles Basin, [http://www.energy.ca.gov/2016\\_energypolicy/documents/2016-04-08\\_joint\\_agency\\_workshop/Aliso\\_Canyon\\_Action\\_Plan\\_to\\_Preserve\\_Gas\\_and\\_Electric\\_Reliability\\_for\\_the\\_Los\\_Angeles\\_Basin.pdf](http://www.energy.ca.gov/2016_energypolicy/documents/2016-04-08_joint_agency_workshop/Aliso_Canyon_Action_Plan_to_Preserve_Gas_and_Electric_Reliability_for_the_Los_Angeles_Basin.pdf).

<sup>4</sup> Resolution E-4791, p. 12.

operational energy storage projects to SCE on a fixed price, turnkey basis under which SCE would own the facility.

For the DBT RFP, SCE sought to procure DBT Projects from Sellers meeting the CPUC definition of Energy Storage as adopted in D.13-10-040. The DBT Projects should be designed to meet deliverability requirements to provide resource adequacy (“RA”) benefits and to participate in the CAISO energy and ancillary services markets.<sup>5</sup>

The Seller shall design, finance, construct, commission, test and complete the DBT Project in accordance with the milestone schedule to be agreed upon by SCE and the Seller such that the DBT Project would be placed in commercial operation no later than December 31, 2016. The Seller’s responsibilities included obtaining applicable construction permits and other governmental authorizations and all other approvals required to construct the DBT Project, except that SCE supplied the required real property interests, use permits, and be responsible for interconnection of the DBT Project.

Some of the other basic terms and conditions of the RFP, as stated in the RFP Participant Instructions,<sup>6</sup> included:

- SCE provided DBT Project sites located on SCE-owned or controlled land near existing substations or generating facilities after notification to Sellers of selection to the shortlist. SCE provided sites located within SCE’s service territory in the CAISO control area south of Path 26;
- SCE managed the interconnection process and obtain interconnection to SCE’s distribution and transmission system for the DBT Projects;
- DBT Projects would achieve final acceptance under the Final Agreement no later than December 31, 2016;
- DBT Projects must be based on commercialized technology;
- Consistent with RA requirements, the DBT Project shall have a minimum discharge duration of not less than four hours at full power, as measured at the Point of Common Coupling (“PCC”);
- The Seller was responsible for all required construction permits and all other permits customarily obtained by a project contractor;
- SCE was responsible for all required use permits and all other permits customarily obtained by a project owner;
- The Final Agreement contained operational performance guarantees for the DBT Project which assumed a period of DBT Project performance at the guaranteed level for 5, 10, 15, and 20 years. Failure to achieve the operational performance

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<sup>5</sup> The inclusion of the DBT RFP required SCE to develop a Code of Conduct and separate project teams for the solicitations. The Code of Conduct is discussed in Section VII of this IE report.

<sup>6</sup> 2016 Aliso Canyon Energy Storage Design, Build and Transfer RFP, RFP Participant Instructions, May 27, 2016 (“RFP Instructions”). The instructions pertain to the initial proposals only. As will be discussed in this report, SCE initiated a two-step process for the DBT RFP including selection of a shortlist based on the initial indicative offers submitted, identification of eligible sites, and final proposals from shortlisted bidders for projects on the selected sites.

- guarantees would result in liquidated damages payable by the Seller throughout the period of guaranteed performance;
- Proposals could be for DBT Projects sized 5, 10, 15 and 20 MW, as well as the maximum capacity Seller could provide, if greater than 20 MW, as measured at the PCC. Proposals must be one of the following combinations:
    - 5 MW
    - 5 MW and 10 MW
    - 5 MW, 10 MW and 15 MW
    - 5 MW, 10 MW, 15 MW and 20 MW
    - 5 MW, 10 MW, 15 MW, 20 MW and Maximum MW;
  - Seller shall enter into a Maintenance Agreement with SCE to provide maintenance services for the DBT Project with a term that coincides with the operational performance guarantee. In its proposal, Seller should set forth the prices for fixed and variable maintenance services;
  - SCE affiliates were permitted to participate in this DBT RFP. Seller was required to disclose whether or not it was an SCE affiliate;
  - In its proposal, Seller demonstrated past experience designing and constructing similar projects by providing evidence of at least two other similarly sized, utility-connected energy storage systems.

From a pricing standpoint, the initial proposals submitted by Seller were required to provide three components of pricing:

### **1. DBT Project Costs**

Sellers should provide a fixed price, inclusive of all costs, including site development, engineering, procurement, permitting (related to construction), construction, installation, materials, shipping, documentation, and training activities. The Seller could provide the DBT Project fixed price as both: (a) lump-sum, paid upon final acceptance, and (b) four equal milestone payments spread over project construction.

### **2. Operational Performance Guarantees**

Seller was required to provide a fixed price for the period of guaranteed operational performance. The period of guaranteed operational performance was defined as the DBT Project maintaining the same fixed level of discharge power and discharge duration, availability, and efficiency range. The Seller could provide the Operational Performance Guarantees as both: (a) lump-sum, paid upon final acceptance, and (b) annual payments for the duration of guaranteed operational performance.

### **3. Maintenance Services**

Seller was required to provide an initial, fixed price service, inclusive of all scheduled maintenance activities as defined by the manufacturer (not including costs associated with maintaining performance for the period of guaranteed performance). Seller was also required to submit an additional, variable price service, inclusive of additional maintenance costs required when the DBT Project exceeded a Seller defined Base Energy Throughput (“BET”) annual usage.

As stated in the DBT RFP schedule, SCE followed a two-stage solicitation process for the DBT RFP. Sellers were required to submit indicative proposals and required documentation by June 17, 2016. SCE then notified the Sellers of their shortlist status on July 6, 2016. Shortlisted Sellers submitted final, binding proposals by August 19, 2016, with final notification and final agreements accepted for execution by SCE on September 2, 2016. If SCE notified the Seller that its Proposal has been selected for SCE's shortlist and Seller wanted to continue in the solicitation process, Seller was required to submit to SCE a redline to the Pro Forma DBT Agreement, Pro Forma OPG Agreement, and Pro Forma Maintenance Agreement showing changes Seller wished to negotiate with SCE.

The ACES RFO also outlined the criteria applied for the evaluation and selection of shortlisted offers from among those submitted. For screening purposes, the RFO indicated that to be considered for selection in this RFO, the Offer must (1) meet the eligibility criteria set forth in Article One of the RFO Instructions; and (2) adhere to the submittal requirements set forth in Article Three of the Instructions. The DBT RFP, on the other hand, provided very general information regarding the evaluation criteria and methodology in the RFP document. However, SCE did provide guidance regarding the evaluation process, criteria, and methodology in the RFP Bidders Conference.

Pursuant to regulatory requirements of the CPUC, SCE retained Merrimack Energy Group, Inc. ("Merrimack Energy") as the Independent Evaluator ("IE") for this solicitation.

This report focuses only on the ACES DBT RFP solicitation process. The ACES RFO process was the subject of a previous IE report, which focused specifically on the implementation of the RA RFO portion of the solicitation process and a description of the contracts executed. Since SCE did not intend to subject RFO and RFP Offers to direct competition with offers from the other solicitation, the reports addressed each solicitation process separately. Furthermore, based on the schedules proposed, it was expected that the ACES RFO process would be completed and the contracts filed in advance of receipt of final proposals for the DBT RFP.<sup>7</sup>

## **B. Aliso Canyon Storage RFP Schedule**

In accordance with the CPUC Resolution, SCE developed a schedule designed to meet the requirements for projects selected to be on-line by December 31, 2016. The schedule is highlighted in Table 1 below.

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<sup>7</sup> While the ACES RFO solicitation is a one-step process with expectations that contracts resulting from the solicitation will be executed in early August and filed for approval by August 15, the DBT RFP process is a two-stage process with final selection and contract execution not initially expected until September 2, 2016. The two solicitation processes were essentially conducted in parallel through shortlist selection, but with the submission of final DBT proposals and selection and contract execution occurring after completion of the RA RFO.

**Table 1: ACES DBT RFP Proposed Schedule**

<b>Dates</b>	<b>Event</b>
May 27, 2016	RFP Launch – SCE posted RFP Instructions, and certain other RFP Documents on the Accion Power Website
June 2, 2016 – 1:00 Pacific time	RFP Conference – SCE hosted RFP Bidders Conference
June 17, 2016 – 1:00 Pacific time	Indicative Proposal Deadline – Sellers submitted Proposals and required documentation
July 6, 2016	Seller notification – Date SCE to advise all Sellers on the shortlist status of their Offers
August 19, 2016	Final Proposal deadline – Shortlisted Sellers must submit final, binding proposals
September 2, 2016	Final Notification - SCE notifies Sellers whether its final binding proposal(s) and Final Agreements are accepted for execution by SCE

**C. Issues Addressed in this Report**

This report addresses Merrimack Energy’s assessment and conclusions regarding the following issues identified in the Commission’s CPUC Independent Evaluator Report Template:

1. Describe the role of the IE throughout the solicitation and negotiation process.
2. How did the IOU conduct outreach to bidders, and was the solicitation robust?
3. Describe SCE’s bid evaluation methodology. Evaluate the strengths and weaknesses of the methodology.
4. Evaluate the administration of the solicitation process including the fairness of the IOU’s bidding and selection process (i.e. quantitative and qualitative methodology used to evaluate bids, consistency of evaluation methods with criteria specified in bid documents, etc.).
5. Describe any applicable project-specific negotiations. Highlight any areas of concern including unique terms and conditions.<sup>8</sup>

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<sup>8</sup> The contract negotiation process and summary of contract provisions for the EPC Agreement executed is provided in a separate appendix to this report.

6. If applicable, describe safeguards and methodologies employed by the IOU to compare affiliate bids or Utility-Owned Generation (“UOG”) ownership proposals. If a utility selected a bid from an affiliate or a bid that would result in utility asset ownership, explain and analyze whether the IOU’s selection of such bid(s) was appropriate.
7. Based on the complete bid process, is (are) the IOU contract(s) the best overall offer(s) received by the IOU?
8. Is the contract a reasonable way of achieving the need identified in the RFP?
9. Based on your analysis of the RFP bids, the bid process, and the overall market, does the contract merit Commission approval?

Many of these issues are addressed in this report, generally in the order included in the CPUC Independent Evaluator Report Template. However, all sections pertaining to contract negotiations provisions and approval are addressed in a separate Appendix for each contract executed.

## **II. Description of the Role of the IE throughout the Solicitation**

In compliance with the above requirements, SCE retained Merrimack Energy Group to serve as Independent Evaluator for the Company’s 2016 Aliso Canyon Energy Storage solicitation, including both the RFO and DBT RFP processes. Merrimack Energy was retained to provide an independent evaluation of the appropriateness of SCE’s evaluation methodology and selection process for product offers and to provide SCE, SCE’s Cost Allocation Mechanism group (“CAM”), and the Energy Division with periodic presentations, findings and other reports as requested. The objective of the role of the IE is to ensure that the solicitation process is undertaken in a fair, consistent, unbiased and objective manner and that the best offers are selected and acquired consistent with the solicitation requirements and evaluation criteria.

This role generally involves an assessment of the solicitation documents, detailed review and assessment of the evaluation process, the results of the quantitative and qualitative (non-price) analysis, selection of the short list or preferred product options, and monitoring and assessment of contract negotiations. For this solicitation, Merrimack Energy was retained from the beginning of the process through contract execution. Merrimack Energy participated in a number of calls and meetings with SCE project teams throughout the process based on the expedited nature of the Aliso Canyon Energy Storage solicitation process.



## **A. Regulatory Requirements for the Independent Evaluator**

The requirements for participation by an Independent Evaluator (“IE”) in utility solicitations are outlined in decisions D.04-12-048 (Findings of Fact 94-95, Ordering Paragraph 28), D.06-05-039 (Finding of Fact 20, Conclusion of Law 3, Ordering Paragraph 8) of the California Public Utilities Commission (“Commission” or “CPUC”) and D.09-06-050.

The role of IE’s in California IOU procurement processes has evolved over the past twelve years. In Decision 04-12-048 (December 16, 2004), the CPUC required the use of an IE by IOUs in resource solicitations where there are affiliates, IOU-built or turnkey bidders. The CPUC generally endorsed the guidelines issued by the Federal Energy Regulatory Commission (“FERC”) for independent evaluation where an affiliate of the purchaser is a bidder in a competitive solicitation, but stated that the role of the IE would not be to make binding decisions on behalf of the utilities or administer the entire process.<sup>9</sup> Instead, the IE would be consulted by the IOU, along with the Procurement Review Group (“PRG”) or other solicitation advisory group on the design, administration, and evaluation aspects of the solicitation. The Decision identifies the technical expertise and experience of the IE with regard to industry contracts, quantitative evaluation methodologies, power market derivatives, and other aspects of power project development. From a process standpoint, the IOU could contract directly with the IE, in consultation with its PRG, but the IE would coordinate with the Energy Division.

In D.06-05-039 (May 25, 2006), the CPUC required each IOU to employ an IE regarding all RFPs issued pursuant to the RPS, regardless of whether there are any utility-owned or affiliate-owned projects under consideration. This was extended to any long-term contract for new generation in D.06-07-029 (July 21, 2006). In addition, the CPUC directed the IE for each RFP to provide separate reports (a preliminary report with the shortlist and final reports with IOU advice letters to approve contracts) on the entire bid, solicitation, evaluation and selection process, with the reports submitted to the utility, PRG, and CPUC and made available to the public (subject to confidential treatment of protected information). The IE would also make periodic presentations regarding its findings to the utility and the utility’s PRG consistent with preserving the independence of the IE by ensuring free and unfettered communication between the IE and the CPUC’s Energy Division, and an open, fair, and transparent process that the PRG could confirm.

In 2007, the use of an IE was required for any competitive solicitation seeking products for a term of more than three months in D.07-12-052 (December 21, 2007). Also, the process for retaining IEs was modified substantially, with IOUs developing a pool of qualified IEs subject to feedback and any recommendations from the IOU’s PRG and the Energy Division, an internal review process for IE candidates, and final approval of IEs by the Energy Division.

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<sup>9</sup> Decision 04-12-048 at 129-37. The FERC guidelines are set forth in Ameren Energy Generating Company, 108 FERC ¶ 61,081 (June 29, 2004).

In 2008, in D.08-11-008, the CPUC changed the minimum term requirements from three months to two years, and reiterated that an IE must be utilized whenever an affiliate or utility bidder participates in the RFO, regardless of contract duration.

In D.09-06-050 issued on June 18, 2009 in Rulemaking 08-08-009, Order Instituting Rulemaking to Continue Implementation and Administration of California Renewable Portfolio Standard Program, the CPUC required that bilateral contracts should be reviewed according to the same processes and standards as contracts that come through a solicitation. This includes review by the utility's PRG and its IE, including a report filed by the IE.

In D.10-07-042 issued on July 29, 2010, the Commission reaffirmed the role of the IE and required the Energy Division to revise the IE Template to ensure that the IEs focus on their core responsibility of evaluating whether an IOU conducted a well-designed, fair, and transparent RFO for the purpose of obtaining the lowest market prices for ratepayers, taking into account many factors (e.g. project viability, transmission access, etc.).

This report is filed consistent with the above requirements and is consistent with the requirements outlined in the CPUC's Short Form IE Report Template.

## **B. Description of IE Oversight Activities**

The IE was involved in a number of activities and completed several specific tasks in performing its oversight role in connection with development and implementation of the 2016 Aliso Canyon Energy Storage DBT RFP, SCE's evaluation methodology, and evaluation and selection process. The activities of the IE during the process are described below:

- Participated in regularly scheduled team meetings prior to receipt of offers;
- Reviewed and commented on the Draft 2016 Aliso Canyon Energy Storage DBT RFP documents;
- Participated in CAM meetings prior to and during the solicitation process;
- Reviewed and discussed the bid evaluation methodology and criteria proposed and developed by SCE;
- Participated in discussions with SCE regarding the benchmark assessment for determination whether the offers selected are competitively priced;
- Participated in the RFO/RFP Bidders Conference;
- Reviewed and summarized the offers received to ensure the Company and IE identified and assessed the same list of proposals;
- Reviewed the conformance assessment undertaken by SCE and participated in calls with SCE and Bidders regarding conformance issues;
- Reviewed and assessed SCE's evaluation of the proposals received for purposes of ranking and selecting the proposals that would be included in the shortlist. Participated in several conference calls with SCE's project manager and project staff to discuss the status of the bids and any revisions to the shortlist;
- Monitored contract negotiations between SCE and the counterparties selected for contract negotiations;

- Participated in calls with specific counterparties to clarify proposals.

This report provides an assessment and review of SCE's 2016 Aliso Canyon Energy Storage DBT RFP procurement process from development of the RFP through execution of the final Agreement. The role of the IE is also discussed as it pertains to specific activities as identified in Section V of this report.

### **III. How did SCE Conduct Outreach to Bidders and Was the Solicitation Robust**

#### **A. Describe the IOU Outreach to Potential Bidders**

Outreach activities are important to the success of a competitive solicitation process.

For the DBT RFP, SCE posted notification on the Accion ACES solicitation website established for this solicitation as well as sending a notification email to its RFP Participants list and parties to the Energy Storage OIR proceeding (R.15-03-011). The Accion website contained separate web pages for the DBT RFP and the RA RFO.

One of the unique aspects of this solicitation was the significant level of publicity associated with the public policy concerns over system reliability associated with the Aliso Canyon gas storage issues and the active role undertaken by energy storage industry participants who believed they could offer solutions to the problem.

Documents associated with the solicitation were posted on the Accion website for this RFP.<sup>10</sup> The website contained all the pertinent solicitation documents including:

- RFP Participant Instructions;
- Pro Forma Agreement – Energy Storage EPC Agreement;
- Energy Storage DBT RFP Template;
- Bidders Conference presentation;
- Confidentiality Agreement;
- Resolution E-4791;
- Website Tutorial;
- SCE ACES DBT Sample Proposal Materials;
- Project Schedule;
- Announcements.

#### **B. Identify the Principles Used to Determine Adequate Robustness of the Solicitation**

There are several principles generally applied to determine whether the robustness of the solicitation was adequate. These include:

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<sup>10</sup> [https://scees.accionpower.com/\\_scees\\_1601/home.asp](https://scees.accionpower.com/_scees_1601/home.asp).

- Did the amount of capacity bid for the product sought allow for a competitive process?
- Were offers submitted for all products requested?
- Was there a competitive number of Bidders for all products solicited?
- Did the utility adequately market the solicitation?

### C. Robustness of the Solicitation



The IE concludes that SCE's outreach activities were more than adequate and led to a robust market response for both the DBT RFP and RA RFO processes based on the competitive number of respondents and options submitted, even though the schedule was expedited and constraining.

## IV. Description of SCE's Evaluation Methodology

This section of the report provides an overall description of SCE's evaluation methodology and criteria for evaluating and selecting energy storage offers submitted into the ACES Solicitation process. For the ACES Solicitation (i.e. RFO and RFP) processes, SCE was required to develop two metrics or methodologies for conducting the evaluation:

1. Methodology for evaluating and ranking offers and proposals into each solicitation;
2. Metric to be used to address the Commission's finding that resources procured in the ACES RFO solicitation should be price-competitive with previous solicitations in which SCE has awarded contracts to energy storage resources, adjusting for different contract terms such as contract length and expedited delivery date impacts.<sup>11</sup>

While SCE did not include a description of the methodology for evaluating and ranking proposals for the DBT RFP process in the 2016 Aliso Canyon Energy Storage DBT RFP Participant Instructions as it had for the RA RFO process, SCE did include a high-level description of the methodology in the Bidders Conference presentation.<sup>12</sup> Initially, SCE's valuation teams were considering the development of a methodology that would allow SCE to compare the offers into each solicitation (i.e., Energy Storage RFO for RA product and

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<sup>11</sup> SCE applied comparable principles in evaluating and selecting any proposals for the DBT RFP process. Although SCE did not conduct a formal side-by-side evaluation of RA RFO offers and DBT proposals, SCE's position was that the DBT proposals would have to be competitive or provide slightly more value than the RA RFO offers for the DBT proposals to be accepted. In cases where the valuations were comparable, SCE would select an RA RFO offer.

<sup>12</sup>The DBT solicitation process was managed by SCE's Ownership team. The evaluation of both solicitations was undertaken by the Solicitation team at SCE.

the DBT options under the Energy Storage RFP) against one another. However, the process evolved into one in which the RFO and RFP processes were to be separate, with no direct head-to-head competition between the projects in the two solicitations. SCE's stated that its preference was to choose RA offers, all else being equal in cases where the economic valuation results were comparable. The description below focuses on the evaluation process and methodology for the ACES RFP for the DBT product. The IE also prepared a report on the Aliso Canyon RFO process and evaluation results.



For purposes of getting to a shortlist, SCE provided the bidders a set of instructions which included the proposal forms or Workbook. Bidders could submit proposals (total capital cost) for projects sized at 5, 10, 15, and 20 MW as well as a larger size project option at the bidder discretion. Bidders were required to provide a fixed price, inclusive of all costs. Bidders could also provide project fixed costs based on two payment options; (1) lump-sum price paid upon final acceptance of the project by SCE and (2) four equal milestone payments spread over project construction.

Bidders were also required to provide Operational Performance Guarantees as a fixed price for the period of guaranteed operational performance to maintain the same fixed level of discharge power and discharge duration, availability, and efficiency range. Bidders were required to provide operational performance guarantees for at least a 5-year term but with options for 10, 15 and 20 years.

Bidders were allowed to provide costs for fixed and variable maintenance services for each size option proposed. The variable maintenance price would reflect any additional maintenance costs required when the DBT project exceeds a Seller defined Base Energy Throughput ("BET") annual usage.

SCE developed an internal evaluation methodology designed to assess energy storage DBT proposals based on a full economic evaluation of the costs and benefits of an energy storage resource. For the DBT RFP assessment, SCE: (1) utilized a dispatch model to estimate market benefits; (2) included capacity benefits for RA<sup>13</sup>; and (3) utilized a revenue requirements model to assess customer cost impacts since SCE would own the project. All costs and benefits are valued using SCE's latest forecasts for the applicable products. The

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<sup>13</sup> [REDACTED]

result is a Net Present Value (NPV) calculation of the difference between costs and benefits of RA capacity for each offer (i.e. NPV\$ Benefits minus NPV\$ Costs).

The capacity value included in the benefits calculation was the value of the countable Resource Adequacy capacity. As stated in the RA RFO, energy storage placed on the grid can have RA benefits provided the ESR meets the CPUC and the CAISO's RA eligibility requirements and the ESR has been found fully deliverable by the CAISO. The RA quantity is a monthly value specified in the Offer. The resulting value was calculated by multiplying the quantity of qualifying RA capacity by the forecasted capacity price.

Once the cost and benefit streams was calculated, each stream was discounted by an annual discount factor to yield a single NPV value. SCE used a 10% discount rate for its NPV calculations.

SCE then rank ordered all the proposals on the basis of NPV\$ per kW-month over the expected useful life of the proposal in addition to using a 10-year normalization.<sup>14</sup> Values for each proposal therefore were determined using discounted cash flow analysis that generated a Net Present Value metric. SCE then ranked all conforming proposals from highest to lowest value based on the NPV\$/kW-month metric and selected proposals that were price competitive with previously awarded energy storage contracts while taking into account the proposal's qualitative considerations. SCE therefore reviewed the highest valued projects along with their qualitative attributes.

In step 2, SCE identified the sites on which bidders would be allowed to bid. Also, SCE made changes to the proposal forms and instructions.

In conformance with Resolution E-4791, SCE developed a "Price-Competitive" metric which is designed to provide guidance regarding a price comparison with offers submitted into the Energy Storage RFO. For this assessment, SCE started with a list of energy storage offers from prior solicitations in which it procured in-front-of-the-meter ("IFOM") energy storage resources. This included offers from the Local Capacity Requirements RFO ("LCR RFO") and the 2014 Energy Storage RFO.<sup>15</sup>

The RA premium based on data from previous storage RFOs is represented in \$/kW-month, normalized to RA capacity given contract term. The RA premium value is calculated as: Contract Cost + Transmission Cost – Ancillary Service and Energy benefits.

Also, given the short lead-time for a Seller to develop and construct its project, SCE also attempted to reflect the implications of the short lead-time in its RA premium calculation for the ES RFO. For this assessment, SCE took all of the IFOM storage offers received in

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<sup>14</sup> D.12-04-046 requires that for bid assessment purposes, the period of levelization for utility-owned bids should be the same as non-utility-owned bids.

<sup>15</sup> SCE also considered including offers from the 2016 PRP solicitation but decided not to include those offers because the PRP solicitation was a pilot program, the solicitation focused on energy storage resources for localized areas, and lack of robust data made the offer set less suitable for building a relevant comparison metric.

the LCR and ES RFOs, and calculated a contract-specific lead-time (i.e. the time that the counterparty would have to build and operationalize the device after receiving the contract approval). In order to compare contract costs on an apples-to-apples basis, SCE adjusted for the significantly shorter lead-time associated with the ACES RFO. The assumed lead-time for the ACES RFO is five months. Because SCE had not received any previous offers with such a short lead time, it needed to construct a functional relationship between lead time and RA cost premium, and extrapolate backwards to get the implied 5-month lead-time premium.<sup>16</sup>

The curve generated by SCE from the data showed that there was a decreasing relationship between lead time and RA cost premium. SCE used the curve generated by this data to extrapolate what the premium would be for a five-month lead time.

Based on the analysis undertaken by SCE's valuation team, it was determined that a reasonable RA premium "break-point" would be approximately [REDACTED].

In summary, the evaluation methodology developed by SCE evaluates and ranks offers on an NPV\$/kW-month basis. SCE also calculates a Nominal RA Premium (\$/kW-month) for each offer as a basis for comparison relative to the Price Competitive metric required by the CPUC Resolution. SCE also calculated another metric but did not use the metric for Offer ranking and selection purposes. This metric was NPV\$/RA MW.

### **Framework and Principles for Evaluating SCE's Bid Evaluation Methodology**

This section of the report addresses the principles and framework underlying Merrimack Energy's review of SCE's methodology for the ACES RFP offer evaluation and selection. Key areas of inquiry by the IE and the underlying principles used by the IE to evaluate the methodology and results include the following:

- Were the procurement targets, products solicited, principles and objectives clearly defined in the RFP documents?
- Is the bid evaluation based on the criteria specified in the bid documents and regulatory decisions?
- Do the bid documents clearly define the type and characteristics of products desired and what information the bidder should provide to ensure that the utility can conduct its evaluation?
- Does the methodology identify how qualitative and quantitative measures were considered and were they consistent with an overall metric?
- Does the price evaluation methodology allow for consistent evaluation of offers of different sizes and in-service dates?

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<sup>16</sup> [REDACTED]

## **Evaluation Criteria and Methodology**

SCE developed the 2016 ACES DBT RFP very quickly based on the short lead time to issue the RFP. While SCE adequately defined at a high level the products required, the basis for the solicitation, the principles and objectives of SCE, the evaluation criteria, quantitative and qualitative evaluation factors, and the information required from the Bidders, the valuation methodology was still undergoing development and review at the same time the RFP was issued. As described in the RA RFO and DBT RFP, as a first step all offers were initially assessed for conformance with the basic submittal requirements identified in the ACES RFO and DBT RFP. Subsequent to the conformance review, SCE undertook a quantitative assessment based on the evaluation methodology described in the previous section of this report.

In summary, the description and implementation of the evaluation methodology, criteria, and inputs meets the requirements of the Resolution and industry standards for this type of solicitation. One issue with such a short lead-time solicitation was whether the utility would be able to adequately describe the evaluation process to potential Bidders at the same time the valuation process was undergoing development. Although the valuation methodology was still undergoing development, the IE found that the Offer Workbook requested all the necessary information to undertake a consistent and adequate analysis. Furthermore, for the DBT RFP, SCE's decision to implement a two-stage process proved to be effective since SCE was able to identify and resolve any inconsistencies and weaknesses in the Bid Templates and evaluation methodology between the initial shortlist stage and submission of final proposals. The IE did find the DBT RFP Workbook to be somewhat cumbersome and complex based on the potential options the Bidders could provide. Furthermore, the Participants protocol document did not provide a reasonably thorough description of the evaluation methodology, although the Bidders Conference presentation was more detailed and specific.

## **Strengths and Weaknesses of SCE's Evaluation Methodology**

This section of the report provides an assessment of the strengths and weaknesses of SCE's evaluation and selection methodology.

The following are the strengths identified by the IE with regard to the evaluation methodology:

1. The methodologies for evaluation were conceptually straightforward and had a rational relationship to the objectives of the RFO and RFP: to evaluate and select projects that can be reasonably placed in service in a short time period, have the lowest net costs among the bids submitted, and are reasonably economically competitive relative to energy storage projects bid into prior solicitations.
2. The metric used for rank ordering bids quantitatively, NPV \$/kW-month, is a reasonable metric for assessing the economics of energy storage bids which provide



capacity value and allowed for fair evaluation of different sizes (differences in in-service dates was not a major differentiating factor).

3. SCE's development of a methodology to calculate a competitive benchmark for energy storage bids from prior solicitations was reasonable given the diversity of the data points, the dearth of 10-year bids and bids with near-term in-service dates in the data set, and alternative ways the competitive benchmark could have been calculated.

The weaknesses of the methodology include the following:

1. The competitiveness methodology was not as clearly conveyed to bidders as it might have been if it had been developed well in advance of the submission of bids. This was particularly true for the DBT RFP since this was the first time such a methodology was applied to utility-owned options;
2. The IE did not find the competitiveness methodology to be particularly compelling. In other words, there could have been other approaches utilized which could also have produced reasonable, perhaps equally reasonable, results. However, that may have been due to the difficulties of deriving a competitive benchmark based on bidding processes and bid submissions that were difficult in a variety of respects, such as contract term lengths, in-service dates, and lead times, and unclear relationships to the contract term lengths, in-service dates and lead times in this solicitation.
3. Prior to shortlisting, there was not, in the IE's opinion, sufficient time to review in sufficient detail issues associated with the ability of highly ranked projects to go through the interconnection process in order to be installed by year's end.

Overall, the IE is of the opinion that the methodology used by SCE for evaluating Energy Storage RFP and RFO Offers was reasonable for these types of products. The methodology provides a systematic way of evaluating and ranking the types of offers and products considered.

## **V. Administration of the Aliso Canyon Energy Storage DBT RFP Solicitation Process**

In performing its oversight role, the IE participated in and undertook a number of activities in connection with the 2016 Aliso Canyon Storage DBT RFP including providing comments on the RFP documents, participating in regularly scheduled conference calls with SCE's project teams (both the Ownership team and the Solicitation team) given the expedited nature of the project, participating in a number of discussions on the bid evaluation methodology and selection process, rationale for any constraints or objectives underlying the evaluation and selection, organizing and summarizing the bids received, reviewing and commenting on the evaluation and selection process and results at each step

of the evaluation and selection process, and participating in meetings with the CAM/PRG Group. The key project activities are listed in this section of the report in conjunction with the activities of the IE.

### **Project Team Meetings**

Once Merrimack Energy was selected to serve as IE, the IE and SCE project teams began holding a number of calls to address the completion of the ACES solicitation process. Subsequently, once SCE had an indication that utility-owned storage options would be eligible, SCE initiated development of the DBT RFP documents, Code of Conduct,<sup>17</sup> and the valuation methodologies to be used for the evaluation and selection process. In addition, Merrimack Energy was also involved as IE for SCE's contract negotiations with General Electric Company for the installation of energy storage devices at SCE natural gas-fired units.

The DBT RFP process involved two separate teams within SCE; one team which managed the DBT process and the other team which was responsible for conducting the evaluation of the proposals. Under the Code of Conduct, employees who established the requirements for, and evaluated the viability of development, construction and on-going operations (with the exception of interconnection costs) associated with third-party offers, submitted in response to the ACES DBT RFP leading to utility ownership (i.e. DBT Projects) shall be referred to as Energy Storage Ownership Employees ("Ownership Employees"). Employees who evaluate and select for SCE's shortlist and final execution third party offers for RA-only Energy Storage Agreements ("ESAs") or DBT proposals submitted in response to SCE's ACES RFO/RFP shall be referred to as "Energy Storage Solicitation Employees."

The internal DBT Ownership team held weekly meetings to discuss the status of the process, issues to be addressed including site identification for the shortlisted bidders, and contract negotiations with shortlisted bidders. This team was not involved in the quantitative evaluation of any of the DBT proposals or RA RFO offers.

### **CAM Meeting Prior to Receipt of Offers**

SCE discussed the launch of the Aliso Canyon Energy Storage Solicitation at the CAM meeting held on May 19, 2016, shortly after issuance of Draft Resolution E-4791<sup>18</sup> on May 12, 2016. SCE addressed the following issues at the CAM meeting:

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<sup>17</sup> In D.07-12-052 (page 209) the CPUC stated that as a precondition for conducting an RFO seeking utility ownership options, the IOU, in conjunction with its IE, PRG, and ED staff shall develop a strict code of conduct – to be signed by any and all IOU personnel involved in the RFP process – to prevent sharing of sensitive information between staff involved in developing utility bids and staff who create the bid evaluation criteria and select winning bids. The Code of Conduct was required because of the DBT RFP under which SCE would own the resource. In addition, affiliates of SCE would be allowed to compete in the process.

<sup>18</sup> The Draft Resolution did not address utility-owned storage projects. The final Resolution, issued on May 26, 2016 did find it reasonable to allow the utilities to pursue proposals for turnkey project development of "build and transfer" projects located at the utility's substations or on utility-owned or operated sites.

- Summary of the Draft Resolution
- Overview of the solicitation process, products solicited, and SCE's objectives for the process;
- Draft schedule for launching the RFO (SCE expected to launch the RFO on May 27, 2016);
- Requested epRMC approval to launch the Aliso Canyon Energy Storage solicitation, consistent with the draft resolution;
- Next steps

SCE also included a few slides with some preliminary thoughts on the valuation components and valuation methodology for the RA RFO. SCE indicated that it intended to calculate the Net Present Value ("NPV") of costs (i.e. contract payments, transmission cost, debt equivalence cost, credit/collateral cost, and other costs) and benefits (i.e. Capacity Value). SCE intended to rank order offers based on \$NPV/storage MW or MW-month.

### **Preparation/Launch of the ACES Solicitations**

The IE reviewed and provided input and comments to SCE on both the ACES RFO as well as the DBT RFP. Based on the nature and complexity of the DBT RFP along with the involvement of SCE as ultimate owner of any DBT projects resulting from the solicitation, the IE was focused on asking a number of questions and raising potential issues with the RFP. The IE also raised the issue initially with SCE that if a DBT type process is initiated with SCE ultimately owning the selected projects that a Code of Conduct should be developed. After the initial discussion about the need for a Code of Conduct, SCE immediately began preparing a Code of Conduct following the CPUC requirements associated with a Code of Conduct for solicitations where utility-ownership is an option to protect against the risk of self-dealing associated with utility-ownership options relative to third-party ownership.

The RFO and RFP were issued on May 27, 2016 as planned. The 2016 Aliso Canyon Energy Storage RFO and RFP and associated documents were posted to the Accion Power website under separate tabs.

### **Bidders Conference**

SCE held by webinar a Bidders Conference on June 2, 2016 that addressed both the ACES RFO process and the DBT RFP. The purpose was to provide prospective Bidders with an overall perspective on the solicitation processes including the products sought, eligibility requirements, bid evaluation and selection methodology and process, requirements of the Bidders, schedule, and interconnection process. Bidders had the opportunity to ask questions after each agenda topic.

Agenda items addressed at the Bidders Conference included:

- Introduction and Overview

- Interconnection Service
  - Fast track process
  - Independent Study process
  - Where to find information on the interconnection process
- Aliso Canyon Storage RFO Materials
  - Description of eligibility requirements
  - Products solicited
  - RFO Schedule
  - Description of the Offer Workbook that Bidders will be required to complete
- DBT RFP Materials
  - Overview
  - Schedule
  - Description of the RFP Workbook
- Valuation and selection methodology and process for both the RA RFO and DBT RFP

The Bidders conference presentation highlighted the difference in the valuation process and methodology between RA RFO offers and DBT proposals. Most notably, the DBT evaluation includes an assessment of a range of market benefits including energy, Ancillary services and RA capacity value, while the RA RFO considers the market benefits associated with RA only. Under the RA RFO, bidders are responsible for selling other products such as ancillary service and energy through the CAISO market.

Approximately 108 Participants either participated via Webex or called into the Bidders Conference, on fairly short notice.

**Discussion of Bid Evaluation Methodology**

SCE developed evaluation approaches for the ACES RFO, DBT RFP, and a proposed bilateral transaction with General Electric Company along with the price competitive metric. Merrimack Energy posed a number of questions regarding the evaluation approaches. With respect to the ACES DBT RFP, the IE prepared a list of questions focused primarily on the revenue requirements analysis, term of the evaluation, requirements for presenting and comparing utility-owned generation proposals, and the assessment of costs and benefits. Over the course of several different meetings and presentations, SCE refined its analytical approach and planned implementation for both solicitations.

Over the course of several meetings SCE’s evaluation team members and the IE discussed the valuation and selection metric for each of the solicitations, valuation methodology, input assumptions required, implications of different RA guarantee dates, open issues to be addressed and schedule for completing the methodology based on the proposed schedule for the solicitation process. In the early meetings, the team addressed the appropriate methodologies for comparing ACES RA RFO and DBT options. As the meetings proceeded, the focus turned to the evaluation of DBT proposals given the complexity of

the proposals. Also, the team decided to evaluate the ACES RFO and DBT RFP proposals separately but to prefer RFO offers, all else being equal. The team also discussed the Code of Conduct requirements and how these requirements affected the presentation of the valuation results.

**Questions and Answers**

The IE estimated that there were approximately 25 questions submitted at the Bidders Conference. SCE responded verbally to all questions. There were no Q&As provided on the Accion website. There was a tab for Frequently Asked Questions (“FAQ”) but no Q&As were provided. Given the extremely short timeframe to prepare for receipt of offers after the RFO was posted, SCE limited the Q&As only to specific questions submitted by potential registered Bidders to the Accion Website.

**PRG Meeting on DBT Solicitation**

SCE held a CAM meeting on June 15, 2016 specifically to address the Design, Build and Transfer solicitation. The purpose of the meeting was for SCE to consult with the CAM on SCE’s separate and concurrent solicitation for utility-owned storage projects as allowed under Resolution E-4791. SCE discussed the DBT RFP in more detail and also discussed the process going forward. SCE also provided the proposed schedule for the DBT solicitation.

**Receipt of Proposals**

For the DBT RFP, indicative proposals were received as scheduled on June 17, 2016. Proposals were submitted directly to the Accion Power website. A total of 13 counterparties submitted proposals

A summary of the proposals submitted are listed in Table 2, along with the number of projects and options submitted.

**Table 2: List of Bidders Who Participated in the 2016 ACES DBT RFP**

<b>Bidder Name</b>	<b>Number of Proposals</b>	<b>Number of Offers</b>	<b>Proposals Sizes Proposed (MW)</b>	<b>Total Capacity Submitted (MW)</b>
Tesla				
Burns & McDonnell				
Yuncos				
Storme				
NEC				

RES Americas	
AES	
Starwood	
Power Edison	
Siemens	
Uni Energy Technology	
So Core Energy	
Base Energy	
Total	

Once the proposals were submitted to the Accion Power website, the IE downloaded the proposals and reviewed the proposals along with SCE’s project team. The IE prepared its own summary of the proposals received including high level summary information of the proposals. The information compiled by the IE for each proposal size option included in the summary are the following:

- Bidder Name
- Technology
- Battery Vendor proposed
- Discharge Power or Project Size (MW)
- Discharge Duration
- Total Lump Sum price (for 10-year performance guarantee)
- Operational Performance Guarantee (10 years)
- Fixed O&M costs (year 1)
- Variable O&M costs (year 1 – Tier 2)
- Base Energy Throughput (MWh/year)
- Guaranteed Efficiency

The IE used this information to also check the evaluation results and ranking of proposals compiled by SCE for shortlist selection purposes.

Confidential Appendix A provides summary information regarding the IE’s list of the proposals received.

**Conformance of Offers/Cure Period**

SCE reviewed the proposals received relative to the eligibility criteria established.<sup>19</sup> Based on the analysis conducted by the Advanced Technology group within SCE’s Ownership

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<sup>19</sup> 

team, [REDACTED] Bidders did not meet the criteria and were eliminated from the evaluation process. The list of Bidders eliminated and the rationale for non-conformance are included in Table 3.

**Table 3: Non-Conforming Proposals**

Bidder	Reasons for Non-Conformance
[REDACTED]	

**Proposal Ranking and Selection**

After accounting for issues raised in the conformance/clarification assessment, SCE proceeded to complete its review and assessment and rank proposals based on its evaluation methodology. The evaluation methodology consisted of the following steps:

1. Calculate the total cost for each proposal based on the Workbook submitted by each Bidder;
2. Calculate the total RA value of the proposal for each month as the product of the monthly capacity offered times SCE’s forecast of the RA value for each month in which the Bidder guarantees RA credit. [REDACTED]
3. Calculate the Net Present Value of the cost and benefit streams based on SCE’s discount rate of 10% which is used for most solicitation processes. Costs generally reflect the revenue requirements associated with the DBT proposals;
4. Calculate the difference between the costs and benefits;
5. Divide the difference between the costs and benefits by the average monthly kW submitted for each proposal;
6. Rank order the offers from highest to value for all eligible proposals.

The costs associated with each proposal included the capital cost submitted in the Workbook, operational performance guarantees, maintenance service costs (fixed and variable), interconnection costs, SCE system operations costs, interconnection maintenance costs, and decommissioning costs. One cost component that was not initially included in the evaluation was the development costs incurred by SCE for the DBT

solicitation process. However, SCE noted that such costs are necessary to include in its application for cost recovery.<sup>20</sup>

### **CAM Meeting – Aliso Canyon Energy Storage RFP Shortlisting**

SCE presented its evaluation results and shortlist project selection to the CAM on July 6, 2016, after presenting its finding to SCE’s epRMC.<sup>21</sup> SCE provided two presentations; one by the Ownership team and the other by the Solicitation Evaluation team that focused on the economic analysis. To maintain separation and abide by the Code of Conduct, the Ownership team made its presentation and then left the call and was not present for the Solicitation Evaluation team presentation.

The Ownership team provided an overview of the proposals received in response to the DBT RFP as well as the basis for categorizing proposals as non-conforming. Based on its review, the Ownership team identified four vendors for the recommended shortlist: [REDACTED]. The Ownership team also discussed their proposed adjustments and provisions for Step 2 of the process. These include:



- 11 sites were released by SCE stakeholder groups
- Completion of the expedited ACES interconnection study process required for final confirmation of use.

The Evaluation team then presented its economic analysis of the DBT proposals. The Evaluation team performed a full economic evaluation of the benefits and costs of each proposal utilizing a dispatch model to estimate market benefits for energy and ancillary services as well as an assessment of the benefits associated with RA. To estimate the capital cost impacts, the Evaluation team utilized a revenue requirements model developed internally at SCE to assess the costs associated with the proposals. The Evaluation team ranked all offers based on two metrics: (1) NPV per kW-month over the expected useful life of the proposal and (2) NPV per kW-month using a 10-year normalization. The ranking of the DBT proposals were the same based on the two metrics.<sup>22</sup> The results of the assessment illustrated that the NPV per kW-month values ranged from about [REDACTED]/kW-month to [REDACTED]/kW-month for the proposals selected for the shortlist. The Evaluation team also ranked [REDACTED] as the preferred

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<sup>20</sup> As stated on page 33 of D.12-04-046, “in evaluating UOG proposals, the Commission should consider all of the project costs, and the utilities should include project development costs in their request for acquiring UOG facilities.”

<sup>21</sup> The name Energy Procurement Risk Management Committee (“epRMC”) was changed during the solicitation process to Finance and Risk Management (FRM).

<sup>22</sup> SCE noted that D.12-04-046 requires that for bid assessment purposes, the period of levelization for UOG bids should be the same as non-UOG bids. If IPP PPAs are limited to 10 years, then UOG projects should be evaluated as if cost recovery is limited to 10 years.



shortlisted proposals and presented a list of the proposals submitted by these entities based on the number of larger and smaller (10 MW or less) projects proposed.

The Evaluation team also presented the results for the four shortlisted bidders on the basis of a benefit/cost ratio for each of the proposals presented. Table 4 below illustrates these results for each of the shortlisted bidders.

**Table 4: Benefit/Cost Ratios for Shortlisted Bidders Proposals**

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The Evaluation team also presented its estimate of the potential capital cost to build out [REDACTED] of projects submitted based on two scenarios:

1. Assume the largest projects are developed at limited sites;
2. Assume the smaller projects are developed at many sites.

Based on the indicative pricing for the DBT proposals it appeared [REDACTED] [REDACTED] may be the only economic proposals relative to the third-party-owned RA storage projects that SCE was proceeding with to contract execution. [REDACTED]

### **Shortlist Notification**

On July 6, 2016, SCE informed the [REDACTED] bidders identified above that they had been selected for the shortlist. On July 8, SCE sent information to the shortlisted bidders asking them to provide written acceptance or proposed red-lines to SCE's Turnkey Engineering, Procurement, Installation, and Maintenance Agreement by July 13, 2016.

SCE submitted an email to each of the shortlisted bidders on July 15, 2016 with the proposed schedule for the DBT process. SCE intended that it would reach agreement with each of the Bidders on the contract terms prior to submission of final proposals on August 19, 2016. The schedule included the following activities:

- Initiation of negotiations – July 19, 2016
- SCE to provide Statement of Work – July 22, 2016
- SCE to provide site locations and site specifications – July 27, 2016
- SCE and Sellers to finalize Terms and Conditions and Exhibits to the EPC Agreement – August 9, 2016
- Sellers to provide final offers – August 19, 2016
- SCE to issue Purchase Order with executed DBT Agreement (Notice to Proceed conditioned on Seller signed acceptance of the Purchase Order) – September 2, 2016.

With regard to sites, SCE reviewed approximately 70 substations and fee-owned adjacent parcels and [REDACTED]

Also, on August 4, 2016, a CPUC draft resolution was issued approving SDG&E's request for a DBT energy storage contract with AES with a 1/31/2017 operation date to enhance system reliability as a result of the operating restrictions at Aliso Canyon. Due to the SDG&E's request and the position of AES that it could not meet a 12/31/2016 operating date, SCE decided to inform shortlisted bidders that SCE would consider final bids with a 1/31/2017 operating date but would inform bidders that it may elect not to make awards to projects that do not commit to a 12/31/2016 operating date.

On August 12, 2016, [REDACTED]

### Contract Negotiations

Formal contract negotiations with the remaining shortlisted bidders began soon after the July 15, 2016 email was sent to the shortlisted bidders. The IE was involved in monitoring the negotiations with the shortlisted bidders. At the time of final offer submission, [REDACTED]

### Final Offers

SCE requested final offers for the five sites. SCE also requested offers for three system performance guarantee options:

- Option A – 5 years at a fixed level of performance;
- Option B – 5 years at a fixed level of performance plus an optional 5 years at the same level of performance;
- Option C – 5 years at a fixed level of performance plus an optional 5 years at a degraded level of performance (seller provided).

SCE informed the IE that one of its objectives was to attempt to reduce performance assurance costs. The revision from the original options to the three options identified above was an attempt to reduce these costs in the final proposals.

Bidders submitted proposals through the Accion website on August 19, 2016, as required. The DBT RFP resulted in final proposals from [REDACTED] Sellers [REDACTED]

[REDACTED]

Appendix B provides a summary of the final proposals submitted.

**Economic Analysis – Final Proposals**

The [REDACTED] final shortlisted bidders submitted final pricing for [REDACTED] substation sites that SCE made available to the bidders. Bidders could submit proposals for four different MW options: (1) a single 5 MW system at any eligible site; (2) a single 10 MW system at any eligible site; (3) two 5 MW systems located on the same site (systems to be priced individually); and (4) two 10 MW systems located on the same site (system to be priced individually). Each system requires a 4-hour discharge duration. In addition, bidders could submit proposals with availability guarantees for three operational performance guarantee options: (1) Option A – 5 years at a fixed level of capacity (5 or 10 MW); (2) Option B – 5 years at a fixed level of capacity (5 or 10 MW), plus an optional 5 years at the same fixed level; and (3) Option C – 5 years at a fixed level of capacity (5 or 10 MW), plus an optional 5 years at a degraded capacity level to be provided by the bidder.

[REDACTED] submitted a limited number of proposals, however, [REDACTED] submitted over [REDACTED] proposals in total.

[REDACTED]

**Table 5: Summary of Tesla’s Final Proposals**

Proposal No.	Sites/MW <sup>24</sup>	MW Sizes	Performance Options	COD Date

SCE’s Evaluation team undertook an economic assessment of each proposal submitted based on the costs and benefits associated with each proposal. SCE calculated the NPV\$/kW-month for revenues and costs associated with each proposal. The components of the assessment are described as follows:

- Net Energy Revenue
  - +RA Value
  - Construction Cost
  - Guarantee Cost
  - T&D Costs
  - FOM Costs
  - Decommissioning
  - Other Costs<sup>25</sup>
- = \$NPV/kW-month

Table 6 provides a summary of the evaluation results for the proposals submitted. In the case of [REDACTED], the highest value proposals are listed for each option and proposal size. The

<sup>24</sup> [REDACTED]

<sup>25</sup> [REDACTED]

[redacted] proposals summarized are for a 12/31/2016 start date. [redacted]

**Table 6: Summary of Final Proposals (NPV\$/kW-month)<sup>26</sup>**



The [redacted] proposals were the most economic overall, followed by [redacted]. The [redacted] proposals had NPV\$/kW-month values that were significantly higher than either [redacted] or [redacted].

SCE developed a price competitive benchmark as previously discussed for the RFO and RFP processes as required by the Commission Resolution. The benchmark was defined as an RA Premium and was estimated to be \$ [redacted]/kW-month. SCE used this benchmark to inform its decision to contract for three offers from the RA RFO portion of the solicitation.

[redacted]

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<sup>26</sup> [redacted]

[REDACTED]

<sup>27</sup>

[REDACTED]

The Tesla proposal for 20 MW at the Mira Loma site under Option A was considered the best option.

[REDACTED]

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<sup>27</sup> SCE noted in its presentation to CAM that per the Commission decision the debt equivalence adjustment must be removed from third-party proposals when comparing them to utility-owned projects or turnkey projects.

**CAM Meeting – September 1, 2016**

SCE held its Finance and Risk Management meeting on the ACES DBT RFP results and recommendations on August 30, 2016 followed by a CAM meeting on the same slide deck on September 1, 2016. Consistent with SCE’s approach with regard to the requirements of the Code of Conduct, both the Ownership team and the Solicitation team made separate presentations, with the Ownership team not present for the discussions by the Solicitation team. The Ownership team provided an overview of the DBT RFP contracts and identified sites while the Solicitation team provided valuation results and recommendations for DBT RFP contract execution.

The Ownership team presented its findings first. [REDACTED]

The Ownership team also discussed its site selection process and criteria that was used to determine the five sites selected and released to the Sellers. The following process was followed by SCE to arrive at the final sites:

1. Over 70 sites were initially identified based on a desktop analysis;
2. SCE selected 16 sites and visited the sites. Future expansion at the site was a consideration for selection;
3. 10 sites were initially released to short listed bidders with selection based on interconnection constraints, interconnection costs and underground facilities;
4. 6 sites were visited by vendors;
5. SCE then selected 5 sites which were released for final proposals.

[REDACTED]

The Solicitation team then provided its assessment of the proposals submitted. [REDACTED]



Since the IE was not informed about the call with the CAM group, the IE did not attend the call. However, the IE was asked to provide its findings and view of the DBT solicitation process and results at a separate meeting of the CAM group on September 7, 2016. The IE discussed its view of the risks associated with the Tesla contract based on its presentation to the FRM at the August 30, 2016 meeting. The IE also presented its conclusions regarding the DBT solicitation including:



- The IE focused on the possible risks associated with selection of the Tesla proposal including comparability issues associated with performance guarantees and the potential for final contract costs exceeding projections along with potential impacts on ratepayers;
- Somewhat offsetting the concern over the potential for cost increases is the fact that Tesla had some control over equipment costs which should reduce cost risk. Other





counterparties would likely have been at greater risk without control over equipment and costs.





## **VI. Fairness of SCE's Offer Evaluation and Selection Process**

### **Principles Used to Determine Fairness of Process**

In evaluating SCE's performance in implementing the 2016 DBT RFP, Merrimack Energy has applied a number of principles and factors, which incorporate those suggested by the Commission's Energy Division as well as additional principles that Merrimack Energy has used in its oversight of other competitive bidding processes. These include:

- Were bidder questions answered fairly and consistently and the answers made available to all?
- Did the bid evaluation team maintain consistent scoring and evaluation among and across projects, including different products, offer metrics and price structures?
- Did the evaluation methodology result in a fair and equitable evaluation and selection process?
- Was the evaluation and selection process consistent with the requirements outlined in the CPUC Resolution with regard to the Aliso Canyon energy storage procurement solicitation?
- Were the requirements listed in the ACES DBT RFP applied in the same manner to all proposals?
- Was there evidence of any undue bias regarding the evaluation and selection of different offers that cannot be reasonably explained?
- Were the offers given equal credibility in the economic evaluation?
- Did SCE ask for "clarifications" that provided the bidder an advantage over others?

- Were all cost factors treated in an equitable and consistent manner?
- Did SCE consistently apply the requirements, procedures and criteria of the evaluation process as identified in the RFP documents to different bids and types of projects?
- Was the evaluation and selection process based on complete information about each proposal and a thorough investigation by SCE's project team?

Merrimack Energy has the following observations about the process based on our role as IE:

- Overall, the IE viewed the offer evaluation and ranking process by SCE as being reasonable, consistent, and fair to all respondents and generally consistent with the pre-specified evaluation protocols and criteria identified in SCE's DBT RFP documents and internal descriptions. As described in this report SCE indicated that it intended to rank offers based on NPV\$/kW-month. SCE followed the process and methodology it had prepared for ranking and selecting offers;



- SCE's evaluation and selection process resulted in SCE selecting proposals from [redacted] energy storage providers for shortlisting purposes. SCE's evaluation and selection process resulted in the following outcomes:



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<sup>30</sup> The ACES RA RFO solicitation process was conducted as a one round process.



- Based on our assessment of the evaluation process relative to the above criteria, it is our opinion that all offerors had access to the same amount and quality of information at the same time via SCE’s website. SCE utilized the Accion Power website dedicated to the solicitation and posted all documents and Questions and Answers on the website. We also observed no difference in the treatment of offerors regarding clarification questions for Offerors, correspondence and communications with Offerors, and follow-up contacts. SCE also conducted a Bidders Conference call which allowed all potential bidders to ask clarifying questions about the ACES DBT RFP and related requirements.
- The majority of the initial proposals submitted by the Bidders for the DBT options were conforming. However, proposals from [REDACTED] were classified as non-conforming. One of the consistent reasons for classifying the proposals as non-conforming was the specific technology proposed, which was flow battery technology proposed by [REDACTED];



- Merrimack Energy has reviewed the EPC contract executed by SCE with Tesla. In the IE’s opinion, the contract was fairly negotiated by SCE, was consistent with the intent of Resolution E-4791, and appropriately protects the interests of SCE’s ratepayers. [REDACTED]

Overall, the contract is a reasonable way of achieving the need identified in the RFP. The contract is addressed in the appendix to this IE report.

- The CAM Group was actively involved in the ACES solicitation process via SCE’s presentations and updates on several occasions during the solicitation timeframe to discuss the RA RFO and DBT RFP documents and requirements, the offer evaluation and selection protocols, the results of the solicitation, and the basis for short list and final selection in the case of the DBT RFP. Our

assessment is that SCE's evaluation of the offers and its decisions on offer ranking and selection were fair, reasonable and consistent. SCE exhibited considerable care and diligence in the evaluation process, informed the IE at each step, and sought input from the IE consistently throughout the process;

## **VII. Safeguards and Methodologies Employed**

Commission policy governing the procurement of utility-owned generation through competitive solicitations was included in D.07-12-052 (p. 209). The policy states:

“However, we reiterate that, as a precondition for conducting an RFO or RFP seeking utility ownership options, the IOU, in conjunction with its IE, PRG, and ED staff shall develop a strict code of conduct – to be signed by any and all IOU personnel involved in the solicitation process – to prevent sharing of sensitive information between staff involved in developing utility bids and staff who create the bid evaluation criteria and select winning bids.”


Merrimack Energy was originally contacted by SCE to serve as IE for the ACES solicitation process. However, during an initial team meeting to discuss the solicitation process, SCE indicated that it intended to develop and issue an RFP for Design, Build, and Transfer (“DBT”) options for which SCE would ultimately own the project based on the anticipated provisions of the final Resolution E-4791. The IE raised the issue at that time whether SCE was developing a Code of Conduct for the solicitation given that a utility ownership option could potentially compete with a third-party offer.<sup>31</sup> SCE immediately began developing a Code of Conduct consistent with Commission policy and involved the IE in the process at that time.

SCE prepared the Aliso Canyon Energy Storage (“ACES”) RFO/RFP Confidentiality Protocol and Code of Conduct which applies to all SCE employees, contractors, and consultants engaged in the ACES RFO/RFP that SCE initiated in compliance with Resolution E-4791. The Code of Conduct prevents the sharing of sensitive information between personnel involved in developing utility bids and personnel who create the bid evaluation criteria and select winning bids. Although SCE personnel will not actually be developing utility bids for the ACES RFP since the ACES RFP is limited to bids by third parties for turnkey DBT projects, SCE is requiring all personnel who are engaged in the ACES RFO/RFP to adhere to the Code of Conduct.

The Code of Conduct created categories of employees (i.e., Energy Storage Solicitation Employees and Energy Storage Ownership Employees) along with their duties and functions, defined confidential information, identified access to confidential information by each category of employees, defined requirements associated with the transfer of employees between project teams, and the procedures for addressing any violations.


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<sup>31</sup> Merrimack Energy had served as IE in another solicitation in California in which third-party and utility-owned options were allowed to compete and was aware of the Commission policy and Code of Conduct issues.



The IE was contacted by the appointed Attorney to oversee the Code of Conduct on two occasions regarding transfer of employees. In the first case, the IE was informed that several employees were not properly classified at the beginning of the solicitation process and were being reclassified based on their expected functions. SCE required these employees to re-sign the Code of Conduct and attest if they had received any confidential information. SCE determined there were no violations and informed the IE.

The IE was also informed that three ownership employees were inadvertently included on an email chain that included the costs incurred to mitigate reliability issues associated with the Aliso Canyon response as requested by the Energy Division. SCE's lead Attorney on the Code of Conduct informed the IE that only SCE's expected expenditures (including the cost of the contracts to be procured via the ACES RFO were identified) but there was no other context in terms of MW procured or information about the Bidders. Based on discussions with SCE it did not appear that this information would provide any competitive advantage to the DBT team.



An example of how the solicitation process has been conducted given the team structure under the Code of Conduct is the process undertaken by SCE for presentation of evaluation and shortlist results at the July 6, 2016 CAM meeting and again at the August 30, 2016 CAM/PRG meeting. At the July 6, 2016 meeting, SCE provided 5 presentations including one for the ACES RFO presented by the Energy Storage Solicitation team, two for the ACES DBT RFP (one by the Ownership team and one by the Solicitation Team on the economic analysis), and two for the utility-owned storage proposal by General Electric at

SCE Peakers (one by the generation team and one by the Solicitation team). Members of the generation team and DBT ownership team were not allowed to listen in on the presentations by the Solicitation team for any of the options.<sup>32</sup>

At the August 30, 2016 meeting of the CAM at which SCE presented its final evaluation of the DBT proposals, SCE maintained the same process as noted above. The Ownership team provided a review of the final project proposals, an overview of team activities leading to final proposal submission, and issues associated with the terms and conditions of the contract negotiations with each party. The Solicitation team then provided its assessment of the economic evaluation of each of the proposals submitted and the pros and cons of the selecting the top ranked proposal.



## **VIII. Conclusions and Recommendations**

The results of the ACES DBT RFP solicitation process are generally consistent with the Commission's policy objectives. Similar to the RA RFO process, the response of the market to SCE's DBT solicitation was more than ample, especially given the limited lead time required to place an energy storage facility in operation by the end of 2016. Second, the solicitation has produced several projects which appeared to be in a position to meet the stringent on-line requirements of this solicitation and its associated stringent lead times. Third, the competitiveness cost benchmark did serve the purpose of informing bid selection to those projects whose costs were reasonable under the circumstances.

For the reasons stated herein, Merrimack Energy concludes that the shortlisting decisions by SCE in the DBT RFP were reasonable based on the requirements and evaluation criteria set forth in the RFO documents and on the information available to the IE at the time of

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<sup>32</sup> SCE followed the same process for all Management meetings to discuss each portion of the solicitation process as well as PRG meetings. At all these meetings, the Ownership team provided their review and assessment and then either departed the meeting or dropped off a call prior to members of the Solicitation team providing their perspective and analysis of the proposals.

bid selection.



In Merrimack Energy's opinion, the resulting EPC contract with Tesla was reasonably negotiated, was generally competitive with other storage contracts from the RA RFO process and other solicitations based on the information presented to the IE at the time of offer selection, and was generally in the best interests of customers assuming the costs proposed by Tesla were maintained.

Given the unique nature of this solicitation, the IE has no additional recommendations regarding this solicitation process.



**Confidential Attachments A through C**  
**(Pages 42 through 64) Redacted in their Entirety**

**Public Version**

**Southern California Edison Company Submission of a Bilateral Turnkey Contract With  
General Electric International, Inc. for EGT Kit for SCE Central and Grapeland Peakers  
Final Report of the Independent Evaluator**

**March, 2017**

***Southern California Edison Company***  
***Submission of a Bilateral Turnkey Contract With General***  
***Electric International, Inc. for EGT Kit for SCE Central***  
***and Grapeland Peakers***  
***Final Report of the***  
***Independent Evaluator***

***March 22, 2017***

***Prepared by***  
***Merrimack Energy Group, Inc.***



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## I. Introduction

### A. Overview

Southern California Edison Company (“SCE”) is submitting an Application to the California Public Utilities Commission (“CPUC”) seeking approval for two Utility-Owned Storage (“UOS”) projects with General Electric International (“GE International”) under a Design, Build, Transfer (“DBT”) contract structure. The Turnkey Engineering, Procurement, and Installation Agreements (“Turnkey Agreement(s)”) between SCE and GE International were executed on or around July 28, 2016. Under the agreements, GE will install its Enhanced Gas Turbine (“EGT”) LM6000 retrofit kit at two of SCE peaker sites.<sup>1</sup> Separate agreements were executed between SCE and GE International for each of the two peaker sites. The EGT LM6000 retrofit kit combines the Contractor’s battery energy storage system (“ESS” or “BESS”) technology with upgraded LM6000 gas turbine controls to enable greater versatility and value from SCE’s existing gas turbines by creating a hybrid power platform. The kit shall include upgrades to the existing LM6000 fuel delivery and emission control systems.

The parties also executed Purchase Orders for each of the two sites around July 28, 2016. Under the Purchase Orders agreed to by the parties, GE International would provide the necessary supervision, labor, materials, tools, and equipment on a Fixed Price basis to provide the Enhanced Gas Turbine (“EGT”) Battery Storage Project at the Center and Grapeland sites. The total authorized amount for the Purchase Order shall not exceed [REDACTED], not including applicable sales taxes, for the Center site and [REDACTED], not including applicable sales tax, for the Grapeland site.<sup>2</sup> The Scope of Work shall be performed in accordance with the document identified as “Turnkey Engineering, Procurement, and Installation Agreement (“Turnkey Agreement”) between Southern California Edison and General Electric International dated July 28, 2016.

According to the Scope of Work associated with the Turnkey Agreement, the Contractor shall design, manufacture and procure, deliver, install, test and commission and place into commercial operation within the established deadlines an EGT LM6000 retrofit kit at each site that shall include a battery Energy Storage System (“ESS”). The EGT shall be capable of providing resource adequacy (“RA”), and allows SCE to participate in the energy and ancillary services markets as a hybrid unit, including providing Spinning Reserves from a Pmin of 0 MW to a Pmax and 25 MW of regulation from 24 MW to Pmax in the CAISO market. As part of the EGT, Contractor shall provide an ESS having an initial capacity of 10 MW for 25 minutes.

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<sup>1</sup> SCE owns five peaker plants that were built as part of the 2006 New Generation procurement ordered by the CPUC. The peakers are located at the following sites: Grapeland, Mira-Loma, Barre, Cemter, and McGrath. The project sites selected are the Grapeland Peaker Facility and the Center Peaking Facility. All peakers utilize GE LM6000 gas turbine technology.

<sup>2</sup> This cost does not include sales tax or contingency.

As impetus for this project, GE International submitted a pricing proposal to SCE on June 10, 2016 for a complete scope project comprised of GE Enhanced Gas Turbine (EGT) solutions at SCE’s five LM6000 locations in southern California. GE Energy storage proposed to provide a complete scope project to install a GE Enhanced Gas Turbine upgrade to SCE’s LM6000 fleet. The EGT upgrade kit is comprised of a GE Battery Energy Storage System, GE LM6000 control upgrades to enable a 5-minute start and hybrid GE Gas Turbine and BESS operations. As described in the proposal, the GE kit would attach to the low side of the site GSU and will be self-contained with its own auxiliary power connection. Protection coordination and communication with the existing electrical system and GE turbine controller will be required.

The GE EGT will provide SCE with the following unique attributes for their GE LM6000 gas turbine fleet:

- Without Fuel Burn
  - 50 MW spinning reserve
  - Primary frequency response
  - 50 MW Flexible Response without start time
  - -8 to +5 MVAR Voltage support
- With Fuel Burn
  - 50 MWs Peaking Energy for local contingency
  - 25 MWs of High Speed Frequency Regulation

The cost proposal submitted by GE International in its proposal on June 10, 2016 is listed in Exhibit 1.

**Exhibit 1: Capital and Operating Cost Proposal for SCE Peakers**

Offer	Site	Installed Cost	Base O&M Annual	EGT Performance Guarantee (annual)
1	Grapeland			
2	Mira-Loma			
3	Barre			
4	Center			
5	McGrath			

Pursuant to regulatory requirements of the CPUC, SCE retained Merrimack Energy Group, Inc. (“Merrimack Energy”) as the Independent Evaluator (“IE”) for the Aliso Canyon Energy Storage (“ACES”) Request for Offers (“RFO”) for Resource Adequacy (“RA”) products as well as SCE’s Design, Build, Transfer (“DBT”) Request for Proposals (“RFP”) for projects to be built on SCE sites to be owned by SCE. Based on the role of the IE associated with the solicitation processes, SCE asked Merrimack Energy to also serve as IE on the bilateral contract with GE International.

## **B. Regulatory Requirements for the IE**

The requirements for participation by an IE in utility solicitations are outlined in Decisions (“D”).04-12-048 (Findings of Fact 94-95, Ordering Paragraph 28), D.06-05-039 (Finding of Fact 20, Conclusion of Law 3, Ordering Paragraph 8) of the CPUC, D.09-06-050 and D.10-07-042.

In D.04-12-048 (December 16, 2004), the CPUC required the use of an IE by investor-owned utilities (IOUs) in resource solicitations where there is an affiliated bidder or bidders, or where the utility proposed to build a project or where a bidder proposed to sell a project or build a project under a turnkey contract that would ultimately be owned by a utility. The CPUC generally endorsed the guidelines issued by the Federal Energy Regulatory Commission (“FERC”) for independent evaluation where an affiliate of the purchaser is a bidder in a competitive solicitation, but stated that the role of the IE would not be to make binding decisions on behalf of the utilities or administer the entire process.<sup>3</sup> Instead, the IE would be consulted by the IOU, along with the Procurement Review Group (“PRG”) on the design, administration, and evaluation aspects of the Request for Proposals (“RFP”). The Decision identifies the technical expertise and experience of the IE with regard to industry contracts, quantitative evaluation methodologies, power market derivatives, and other aspects of power project development. From a process standpoint, the IOU could contract directly with the IE, in consultation with its PRG, but the IE would coordinate with the Energy Division.

In D.06-05-039 (May 25, 2006), the CPUC required each IOU to employ an IE regarding all RFPs issued pursuant to the RPS, regardless of whether there are any utility-owned or affiliate-owned projects under consideration. In addition, the CPUC directed the IE for each RFP to provide separate reports (a preliminary report with the shortlist and final reports with IOU advice letters to approve contracts) on the entire bid, solicitation, evaluation and selection process, with the reports submitted to the utility, PRG, and CPUC and made available to the public (subject to confidential treatment of protected information). The IE would also make periodic presentations regarding its findings to the utility and the utility’s PRG consistent with preserving the independence of the IE by ensuring free and unfettered communication between the IE and the CPUC’s Energy Division, and an open, fair, and transparent process that the PRG could confirm.

In D.09-06-050 issued on June 18, 2009 in Rulemaking 08-08-009, Order Instituting Rulemaking to Continue Implementation and Administration of California Renewable Portfolio Standard Program, the CPUC required that bilateral contracts should be reviewed according to the same processes and standards as contracts that come through a solicitation. This includes review by the utility’s PRG and its IE, including a report filed by the IE.

In D.10-07-042 issued on July 29, 2010, the Commission reaffirmed the role of the IE and required the Energy Division to revise the IE Template to ensure that the IEs focus on their

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<sup>3</sup> Decision 04-12-048 at 129-37. The FERC guidelines are set forth in Ameren Energy Generating Company, 108 FERC ¶ 61,081 (June 29, 2004).

core responsibility of evaluating whether an IOU conducted a well-designed, fair, and transparent RFO for the purpose of obtaining the lowest market prices for ratepayers, taking into account many factors (e.g. project viability, transmission access, etc.).

This IE report is submitted in conformance with the above requirements and is generally consistent with the requirements outlined in the CPUC's Short Form IE Report Template.

### **C. Issues Addressed in this Report**

This report addresses Merrimack Energy's assessment regarding the following issues associated with the evaluation and execution of the bilateral agreements between SCE and GE International for EGT retrofit and storage projects at two of SCE's peaker facilities.

1. Review the background associated with the assessment and negotiations of the Turnkey Agreement between SCE and GE International;
2. Review and assessment of SCE's basis for pursuing bilateral contract negotiations with GE International;
3. Review and comment on the economic evaluation methodology to be used for assessing and valuing the EGT options;
4. Overview of the contract negotiation process;
5. Summary and assessment of the Turnkey contract between SCE and GE;
6. IE assessment of the reasonableness of the process leading to final negotiation and execution of the Turnkey Agreements;
7. Recommendations

## **II. Description of the Role of the IE throughout the Negotiation Process**

In compliance with D.09-06-050 SCE requested that Merrimack Energy serve as IE for SCE's bilateral contract negotiations with GE International for EGT systems at SCE peaker facilities in June 2016 based on Merrimack Energy's role of IE associated with SCE's Aliso Canyon RA RFO and DBT RFP solicitations in 2016.

Merrimack Energy's role during the contract negotiation process included the following:

- Merrimack Energy was retained to serve as Independent Evaluator for SCE's Aliso Canyon Solicitations (RA RFO for third-party providers and DBT RFP for Design, Build, Transfer options for a Supplier to provide a complete turnkey solution at SCE substation sites). In addition, the IE reviewed the valuation methodology and



- results and monitored contract negotiations with GE International as part of the overall IE assignment;
- Coordinated with SCE’s Evaluation Team which was responsible for developing the evaluation methodology for this turnkey option in conjunction with the evaluation methodology for DBT RFP and ACES RFO proposals;
  - Reviewed terms of the agreement and email exchanges between the parties and monitored contract negotiation sessions between the parties;
  - Participated in CAM meetings at which the GE agreement was discussed;
  - Participated in several discussions with SCE’s Evaluation Team regarding the economic analysis underlying SCE’s decision to negotiate the contract with GE International;
  - Prepared the final IE Report for filing with the Application.

### **III. Background to Resource Decision Process**

The issuance of the ACES Solicitation was required via Commission Resolution E-4791<sup>4</sup> authorizing expedited procurement of storage resources to help ensure electric reliability in the Los Angeles Basin due to the moratorium on gas injections and limited operations of the Aliso Canyon Gas Storage Facility. Under the Resolution, the Commission required SCE to hold an expedited competitive energy storage procurement solicitation to help alleviate an outage risk during the upcoming summer and winter of 2016-2017. Issuance of the ACES Solicitation was designed to meet this requirement.

Resolution E-4791 was a result of public policy efforts on behalf of the Governor and various state agencies to take all actions necessary to ensure the continued reliability of natural gas and electricity supplies in the coming months during the moratorium on gas injections into the Aliso Canyon Storage Facility. An Action Plan released by the California Energy Commission (“CEC”), the California Public Utilities Commission (“CPUC”), California Independent System Operator (“CAISO”), and the Los Angeles Department of Water and Power (“LADWP”) found that “Aliso Canyon plays an essential role in maintaining both natural gas and electric reliability in the greater Los Angeles area. As a result, the facility’s limited current operations create a distinct possibility of electricity service interruptions in the coming summer months.”<sup>5</sup>

The Resolution also identified the parameters for the storage procurement. These include:

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<sup>4</sup> Resolution E-4791 was issued by the California Public Utilities Commission on May 31, 2016.

<sup>5</sup> Aliso Canyon Action Plan to Preserve Gas and Electric Reliability for the Los Angeles Basin, [http://www.energy.ca.gov/2016\\_energypolicy/documents/2016-04-08\\_joint\\_agency\\_workshop/Aliso\\_Canyon\\_Action\\_Plan\\_to\\_Preserve\\_Gas\\_and\\_Electric\\_Reliability\\_for\\_the\\_Los\\_Angeles\\_Basin.pdf](http://www.energy.ca.gov/2016_energypolicy/documents/2016-04-08_joint_agency_workshop/Aliso_Canyon_Action_Plan_to_Preserve_Gas_and_Electric_Reliability_for_the_Los_Angeles_Basin.pdf).

- SCE may procure storage resources within its service area and to the extent the resources also qualify for Local Capacity Requirement (“LCR”) credits pursuant to D.13-02-015 and D.14-03-004, SCE will be granted the LCR credits consistent with their remaining authorization from D.15-11-041;
- SCE shall solicit in-front-of-the-meter (“IFOM”) energy storage that must be operational by December 31, 2016;
- All resources procured under the Aliso Canyon Energy Storage Solicitation must be interconnected in a location that helps to alleviate electric reliability concerns associated with the partial shutdown of the Aliso Canyon Gas Storage Facility and qualify for resource adequacy (“RA”) credit;
- Resources procured in the Aliso Canyon Energy Solicitation should be price-competitive with previous solicitations in which SCE has awarded contracts to energy storage resources, adjusting for different contract terms such as contract length and expedited delivery date impacts;
- SCE may enter into contracts with terms of 10 years or less.

Under the Resolution, SCE was also allowed to submit applications for utility-owned storage projects. The Commission found that this option would increase the likelihood of resources being timely developed. The Commission found it is reasonable to allow the utilities to pursue proposals for turnkey project development of “build and transfer” projects located at the utility’s substation or on utility-owned or operated sites.<sup>6</sup> SCE was required to submit utility-owned storage project applications for reasonableness review within 90 days after the operational start date of such projects. SCE may seek approval of, and obtain cost recovery treatment and Energy Storage target credit and LCR credit for any contracts resulting from the Aliso Canyon Energy Storage Solicitation through a Tier 3 Advice Letter.

As a result, SCE issued its 2016 Aliso Canyon Energy Storage Design, Build and Transfer (“DBT”) RFP on May 27, 2016. Under this RFP, SCE was seeking Sellers to supply fully operational energy storage projects to SCE on a fixed price, turnkey basis under which SCE would own the facility.

For the DBT RFP, SCE sought to procure DBT Projects from Sellers meeting the CPUC definition of Energy Storage as adopted in D.13-10-040. The DBT Projects should be designed to meet deliverability requirements to provide resource adequacy (“RA”) benefits and to participate in the CAISO energy and ancillary services markets.<sup>7</sup>

Consistent with the ownership options for storage projects for utilities under the Resolution, GE submitted a DBT proposal to SCE to enhance SCE’s LM6000 Gas Turbines/Peakers with a 10 MW/5 MWh Battery Storage System (BESS) at up to five of SCE’s peaker sites.

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<sup>6</sup> Resolution E-4791, p. 12.

<sup>7</sup> The inclusion of the DBT RFP required SCE to develop a Code of Conduct and separate project teams for the solicitations. The Code of Conduct is discussed in Section VII of this IE report.

SCE convened an Executive Session on June 14, 2016 to discuss the GE proposal and the capital authorization for the project. A high-level review of the GE proposal was provided by SCE staff along with the preliminary economic analysis. SCE's evaluation team identified the project as being economic based on preliminary analysis and also indicated that the project would be aligned with the Aliso Canyon Resolution E-4791 to develop energy storage resources to help alleviate electric reliability concerns associated with the partial shutdown of the Aliso Canyon gas storage facility. The view of the project team centered on the ability of the project to meet the 12/31/2016 schedule for project operations. SCE's evaluation team indicated that the project had a six-month lead time and would not be able to meet a 12/31/2016 online date if the project had to compete through the solicitation process schedule.

The original proposal as presented at the Executive Session consisted of five 10 MW/5 MWh GE Battery Energy Storage Systems ("BESS") that would be fully integrated with each of SCE's existing GE LM6000 aero-derivative gas turbines at SCE peaker sites to provide in-front-of-the-meter (IFOM) energy storage. SCE staff concluded that each project would contribute 1.25 MW of storage capacity toward SCE's energy storage mandate. SCE's preliminary analysis for installation of storage at all five peaker facilities would have a Benefit-to-Cost ratio of [REDACTED] (i.e. present value of Benefits divided by present value of Costs).

The evaluation team also identified additional benefits associated with the projects that were not modeled as part of the economic evaluation. These included:

- There is expected to be a major maintenance cost reduction for peaker operations;
- There is expected to be less emissions due to decreases in operating hours and starts;
- Black-start capability can be provided by the battery instead of the on-site natural gas units;
- There would be a future option to enhance each peaker with additional regulation capacity (.1 MW to 21 MW range).

The team also discussed the next steps going forward that includes (1) determine the competitiveness of the GE BESS proposals with other Utility-Owned storage options received through the DBT RFP process after the submission deadline for indicative proposals on June 17, 2016; (2) complete a technology assessment and detailed site specific evaluations of the GE proposal; and (3) review and approval of capital authorization.

### **Capital Review Team ("CRT") Meeting – June 30, 2016**

Similar to the DBT RFP which was based on utility ownership of a storage asset, SCE provided separate presentations by the Generation team as well as the Solicitation team to discuss the EGT option at the Capital Review Team meeting of June 30, 2016. Consistent with the Code of Conduct and SCE practice, the Generation team made its presentation and then left the meeting prior to the Solicitation team presenting its assessment.

The Generation team sought CRT approval for up to [REDACTED] in capital to enhance SCE's LM6000 gas turbines/peakers with what was now classified as a 10 MW/4.3 MWh Battery Energy Storage System ("BESS") at up to 5 peaker sites, subject to the Solicitation team evaluation results. The Generation Team noted that the Aliso Canyon CPUC Resolution allows SCE to submit applications for utility-owned storage projects. The projects selected through this Agreement will be placed in service no later than December 2016 and would be timely for meeting the reliability concerns associated with the partial shut-down of the Aliso Canyon gas storage facility.

The Generation team identified the overall benefits of the project as:

- Incremental 4-hour RA capacity of 1.075 MW per site;
- 50 MW of spinning reserve synchronized to the grid and online per site;
- Major maintenance capital deferred due to delayed outage schedule and fewer operating hours and starts;
- Lower emissions due to reduced fuel burn

With regard to cost, the Generation Team identified the Design, Build, Transfer costs associated with each project as well as the annual O&M costs and annual performance guarantees. The Generation Team identified the capital costs to be [REDACTED] for all five projects based on GE International's proposal, with sales tax estimated to be [REDACTED] and contingency of [REDACTED] for a total of [REDACTED] for all five sites.<sup>8</sup>

The Team also identified the risks associated with the projects and the options for mitigating the risks. Some of the key risks identified include:

- Commercial viability since GE has not completed an integrated battery system with a peaker unit as proposed in this project at any other site;
- Project timeline relative to the end of year requirement;
- Competitiveness with RFO/RFP offers;
- Realization of benefits (i.e. major maintenance cost savings);
- Operational risks;
- Site availability;
- Cost Risk.

The team identified mitigation measures associated with each risk item such as performance guarantees to address commercial viability, contingency applied to cost risk, and sensitivity analysis for calculation of project benefits.

The Generation Team also briefly discussed the evaluation process going forward, noting that SCE must make a showing of cost effectiveness and viability within the applicable proceeding using the same valuation methodology used for third-party projects.

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<sup>8</sup> The sales tax was based on 8.5% of total materials contract cost while the contingency amount was based on 11.2% of total project capital cost.

The Solicitation Team then provided its assessment of the EGT option. The key conclusions identified by the Solicitation team included the following:

- The economic justification for the project is heavily dependent on Ancillary Services revenue;
- SCE conducted sensitivity analysis for the Ancillary Services price forecast and also conducted sensitivity on achievable O&M cost savings. SCE concluded that [REDACTED]
- On the other hand, preliminary Aliso Canyon RA and DBT indicative bid Benefit-Cost ratios were [REDACTED].
- The Solicitation team recommended that SCE should pursue projects on [REDACTED] sites. The team noted that the value of A/S benefits decrease as each storage unit is added since the A/S spinning reserve market is limited and regional.

SCE management approved proceeding with EGT at two facilities on June 30, 2016.

For a two-unit option, SCE calculated the high end of the B/C ratio to be [REDACTED] under the base case with a B/C ratio of [REDACTED] in the lower bound case<sup>9</sup> (and [REDACTED] in a A/S price decline of [REDACTED] case).

#### **CAM Group Meeting – July 6, 2016**

SCE made the same two presentations to the CAM Group meeting as it had for the Capital Review Team meeting.<sup>10</sup> SCE did note that the Utility-Owned Storage option with GE would be rate based and costs would be recovered through the Cost Allocation Methodology as a reliability resource. SCE also stated that it intended to negotiate and execute a “build and design” turnkey bilateral contract with GE by early to mid-July to meet a 12/31/2016 in-service date. SCE also provided justification for the regulatory requirements associated with UOS projects.

SCE also discussed the same presentation made by the Solicitation team as described above.

During the CAM meeting, however, SCE also noted that the technology proposed by GE would be a first-time use. As the result, the projects would not have met the technical screens or thresholds imposed in the DBT RFP. The technology would essentially turn the peakers from a non-spin resource to a spin resource. The contract with GE would require a 12/31/2016 deadline. If they don’t come on-line SCE will halt the project and seek Commission approval of the costs. The peakers are existing CAM resources.

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<sup>9</sup> Lower Bound case assumes historical average A/S prices escalate by CPI ([REDACTED] from the base case).

<sup>10</sup> SCE provided five presentations at the July 6, 2016 CAM meeting, including two each for the DBT RFP and the GE Bilateral contract in conformance with the Code of Conduct as well as one presentation associated with the ACES RFO process.

## IV. Economic Analysis Supporting Decision

The economic analysis undertaken by SCE was designed to assess the present value of the costs and benefits associated with the EGT systems identified and to determine the benefits and costs of the project(s) and whether they are competitive with other utility-owned storage (UOS) proposals received through the Aliso Canyon Energy Storage Request for Proposals. Since time was of the essence, SCE intended to compare the Benefit/Cost ratio of the EGT options with the Benefit/Cost ratio calculated for the indicative bids submitted into the DBT RFP process on June 17, 2016. Given the unique nature of the EGT resource, the IE asked a number of questions of SCE's evaluation team to gain a perspective on the methodology used for the EGT assessment as well as the consistency of the methodologies for comparing the EGT resource assessment relative to the proposals submitted into the DBT RFP solicitation.

SCE developed an internal evaluation methodology designed to assess energy storage DBT proposals based on a full economic evaluation of the costs and benefits of an energy storage resource. For the DBT RFP and UOS assessments, SCE: (1) utilized a dispatch model to estimate market benefits; (2) included capacity benefits for RA; and (3) utilized a revenue requirements model to assess customer cost impacts since SCE would own the project. All costs and benefits are valued using SCE's latest forecasts for the applicable products. The result is a Net Present Value (NPV) calculation of the costs and benefits for each offer or option.

The capacity value included in the benefits calculation was the value of the countable Resource Adequacy capacity. As stated in the RA RFO, energy storage placed on the grid can have RA benefits provided the ESR meets the CPUC and the CAISO's RA eligibility requirements and the ESR has been found fully deliverable by the CAISO. The RA quantity is a monthly value specified in the Offer. For each of the EGT projects, the RA provided was calculated to be 1.075 MW per unit based on a 10MW/4.3 MWh BESS.<sup>11</sup> The resulting value was calculated by multiplying the quantity of qualifying RA capacity by the forecasted capacity price.

For calculation of the ancillary services revenue, SCE calculated the incremental value of the new EGT system relative to the existing peaker. SCE noted that the current peakers generate market revenue from energy and non-spinning reserves. The new EGT system will be integrated with the existing peaker. The new EGT system can provide all ancillary and grid support services. The incremental value of the new system over the existing peaker will come primarily from spinning reserve revenue, since the EGT system can provide spinning reserve service at the full capacity of the peaker, while the peaker is at minimum load of the battery. However, SCE noted that the spinning reserve market is limited and is regional in nature. As a result, the EGT systems will compete for spin awards among themselves and with other existing resources. Taking system reliability into consideration,

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<sup>11</sup> The battery has an effective discharge duration of 25.8 minutes. This equates to 1.075 MW of RA for every 10 MW of capacity.

some cycling units may need to be on in some off-peak hours at their minimum load in order for them to provide energy in the peak hours. Therefore, SCE needed to estimate the maximum number of hours an EGT system may receive spin awards given the number of EGT systems in the market.

This analysis illustrated that the number of hours of spin awards received would decrease based on the number of EGT systems placed into service. SCE used the production cost model Plexos to estimate the net profits for operating the existing peaker and the corresponding EGT against the forecasted future energy and Ancillary Service (A/S) prices for different EGT scenarios. SCE used the same price forecast from the ACES RFO. [REDACTED]

Once the cost and benefit streams were calculated, each stream was discounted by an annual discount factor to yield a single NPV value. SCE used a [REDACTED] for its NPV calculations. SCE typically uses a Benefit/Cost ratio metric to rank and evaluate utility-owned storage options.

[REDACTED]

As a result of the IE's concern over ancillary service revenues, SCE conducted several sensitivities of A/S price forecasts and evaluated the Benefit/Cost ratios under each sensitivity, [REDACTED]

Although SCE conducted an analysis of the benefits and costs for up to 5 EGT units, the 2-unit option, with one unit located at the Grapeland site and one unit at the Center site, was selected. Contracts were executed for these two sites. As a result, the analysis results presented below only focus on the two-unit option.

On the cost side, GE proposed a capital cost of [REDACTED] for the Grapeland site and [REDACTED] for the Center site. In addition, SCE included sales tax of [REDACTED] applied to materials components and a [REDACTED] cost contingency applied to materials and [REDACTED] cost contingency applied to non-materials,<sup>12</sup> for a total cost for the 2 units of [REDACTED]. These costs are amortized over [REDACTED] using SCE's Revenue Requirements model.

<sup>12</sup> The IE asked SCE if owners costs associated with the management and administration of the units are included in the evaluation results. SCE informed the IE that such costs were included in contingency.

In addition, each unit had projected fixed O&M costs of [REDACTED] per year and a performance guarantee of [REDACTED] per year, for a total annual first year cost of [REDACTED].

On the benefits side, SCE calculated the ancillary services and RA benefits over a 20-year time horizon. In addition, SCE estimates over [REDACTED] on a present value basis in major maintenance cost savings for the two peakers.

Based on the above analysis, for the base case, SCE estimates that total benefits would equate to [REDACTED] on a present value basis over 20 years compared to total cost of [REDACTED]. The Benefit to Cost ratio based on the above benefits and costs is [REDACTED]. Even if there are no major maintenance cost savings, the Benefit/Cost ratio would still be [REDACTED]. In contrast, the Benefit/Cost ratio for the Tesla proposal selected was estimated to be [REDACTED]. The table below provides a summary of the benefits and costs by category for the base case assessment for 2 units.

**Table 2: Base Case Benefit/Cost Analysis Results**

Benefit/Cost Category	NPV \$ (20 years)
<b>Benefits</b>	[REDACTED]
Ancillary Services	
Resource Adequacy	
Major Maintenance Savings	
Total Benefits	
<b>Costs</b>	
Capital Costs	
O&M Costs	
Total Cost	
Benefit/Cost Ratio	

SCE also calculated the benefit/cost ratio for the 2-unit option under several different sensitivity cases. The cases and results are provided in the table below.

**Table 3: B/C Sensitivity Cases**

Case	Description	B/C Ratio
[REDACTED]	[REDACTED]	[REDACTED]





## **V. Outreach to Bidders**

SCE negotiated the GE agreement as a bilateral contract. While GE did submit a letter proposal to SCE, the process to evaluate the proposal and reach final execution was based on a bilateral transaction given the unique nature of the proposal. SCE did not solicit offers for similar projects at the five sites proposed.

## **VI. Contract Negotiations Process**

During the contract negotiation process with GE, Merrimack Energy had the opportunity to monitor actual contract negotiations and review email exchanges between SCE and GE, to review proposals and to review mark-ups of the Turnkey contract between the parties during the negotiation process. The starting point for negotiations was the Turnkey Engineering, Procurement, Installation and Maintenance Agreement included as the standard agreement in the DBT RFP solicitation. The Agreement went through several major iterations and changes during the contract negotiation process to ensure the provisions of the standard turnkey storage contract would conform to the unique nature of this resource.

Negotiations began around July 1, 2016. SCE indicated to GE International that it intended to pursue contracts for only two of the peakers. Some of the early discussions focused on limitation of liability (GE indicated it could not sign a contract without a limitational liability clause), payment milestones/schedule/termination, substantial completion (ESS and EGT), Final Acceptance, Notice to Proceed prerequisites, GE vs SCE permit responsibilities, Performance Guarantees, and SCR scope. Both parties also recognized the importance of meeting the 12/31/2016 online date. The parties also discussed the triggers for the Notice to Proceed along with the time at which SCE would be expected to deliver the permits. The companies set a target date to complete negotiations by July 15, 2016.

The Companies exchanged several markups of the contract over the period from July 8, 2016 to July 22, 2016 and also addressed the Attachments to the Agreement during the same period. GE actually had a number of changes to the proforma Turnkey contract to reflect the requirements to both install the EGT system as well as the BESS. The parties negotiated consistently for three weeks, with both parties negotiating fairly but aggressively. The parties recognized the time constraints and although they did not meet the original target completion date of July 15, 2016 they were able for finally reach

resolution over a week later and executed the contract on July 28, 2016. The IE found that both parties had a resolve to complete the Agreement and worked diligently to that end.

On or around July 29, 2016 SCE provided Purchase Orders for each unit to GE for purposes of invoicing the work to be undertaken. The not to exceed amounts for each project is presented in Table 4.

**Table 4: Not-To-Exceed Cost for Each Peaker<sup>13</sup>**

Project	ESS/EGT	SCR/BOP/HMI	Total

Table 5 below provides a summary of the principal terms and conditions of the executed Turnkey Engineering, Procurement and Installation Agreement (“Turnkey Agreement”) between SCE and General Electric International for the EGT Kit and BESS for SCE Center and Grapeland Peakings. The Turnkey Agreement was based on SCE standard Turnkey Agreement that was used as a starting point for the Tesla Agreement emanating from the DBT RFP.

**Table 5: Summary of General Electric International Contract Provisions**

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<sup>13</sup>As indicated in the Purchase Order, these costs do not include applicable sales taxes. If the estimated sales taxes of at least [REDACTED] are added the total cost of the project would be at least [REDACTED], not including owners cost, which is [REDACTED].

<sup>14</sup> EGT Kit means the Enhanced Gas Turbine Equipment (including the ESS and the applicable software) at the project site and modifications work to the existing facility at the existing facility site, to be provided by the Contractor.













In addition to the provisions identified above, Section 4.8 addresses the integration between operation of the existing facilities and the performance of work associated with the installation and operations of the ESS and EGT Kit, including availability of the existing facilities, scheduling of outages, testing requirements, etc.

Section 7.1 also provides the Milestone Payment Table which is replicated below.







## VII Safeguards to Compare Affiliate Bids or Utility Owned Generation Options

Commission policy governing the procurement of utility-owned generation through competitive solicitations was included in D.07-12-052 (p. 209). The policy states:

“However, we reiterate that, as a precondition for conducting an RFO or RFP seeking utility ownership options, the IOU, in conjunction with its IE, PRG, and ED staff shall develop a strict code of conduct – to be signed by any and all IOU personnel involved in the solicitation process – to prevent sharing of sensitive information between staff involved in developing utility bids and staff who create the bid evaluation criteria and select winning bids.”

During an initial team meeting to discuss the solicitation process, SCE indicated that it intended to develop and issue an RFP for Design, Build, and Transfer (“DBT”) options for which SCE would ultimately own the project based on the anticipated provisions of the final Resolution E-4791. The IE raised the issue at that time whether SCE was developing a Code of Conduct for the solicitation given that a utility ownership option could potentially compete with a third-party offer.<sup>17</sup> SCE immediately began developing a Code of Conduct consistent with Commission policy and involved the IE in the process at that time.

SCE prepared the Aliso Canyon Energy Storage (“ACES”) RFO/RFP Confidentiality Protocol and Code of Conduct which applies to all SCE employees, contractors, and consultants engaged in the ACES RFO/RFP that SCE initiated in compliance with Resolution E-4791. In addition to the ACES RA RFO and DBT RFP processes, the Code of Conduct also covered the bilateral contract evaluation and negotiations with GE International. The Code of Conduct prevents the sharing of sensitive information between

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<sup>17</sup> Merrimack Energy had served as IE in another solicitation in California in which third-party and utility-owned options were allowed to compete and was aware of the Commission policy and Code of Conduct issues.

personnel involved in developing utility bids and personnel who create the bid evaluation criteria and select winning bids. Although SCE personnel will not actually be developing utility bids for the ACES RFP (or GE EGT options) since the ACES RFP is limited to bids by third parties for turnkey DBT projects, SCE is requiring all personnel who are engaged in all three processes (i.e. ACES RFO/RFP and GE bilateral negotiations) to adhere to the Code of Conduct.

The Code of Conduct created categories of employees (i.e., Energy Storage Solicitation Employees and Energy Storage Ownership Employees) along with their duties and functions, defined confidential information, identified access to confidential information by each category of employees, defined requirements associated with the transfer of employees between project teams, and the procedures for addressing any violations.

SCE conducted conference calls with employees subject to the Code of Conduct to address any questions about the Code of Conduct and also appointed an Attorney to oversee the Code of Conduct. SCE provided the IE a list of employees that are subject to the Code of Conduct along with identification of the employee category.

The IE was contacted by the appointed Attorney to oversee the Code of Conduct on two occasions regarding transfer of employees. In the first case, the IE was informed that several employees were not properly classified at the beginning of the solicitation process and were being reclassified based on their expected functions. SCE required these employees to re-sign the Code of Conduct and attest if they had received any confidential information. SCE determined there were no violations and informed the IE.

The IE was also informed that three ownership employees were inadvertently included on an email chain that included the costs incurred to mitigate reliability issues associated with the Aliso Canyon response as requested by the Energy Division. SCE's lead Attorney on the Code of Conduct informed the IE that only SCE's expected expenditures (including the cost of the contracts to be procured via the ACES RFO were identified) but there was no other context in terms of MW procured or information about the Bidders. Based on discussions with SCE it did not appear that this information would provide any competitive advantage to the DBT team.





An example of how the solicitation process has been conducted given the team structure under the Code of Conduct is the process undertaken by SCE for presentation of evaluation and shortlist results at the July 6, 2016 CAM meeting and again at the August 30, 2016 CAM/PRG meeting. At the July 6, 2016 meeting, SCE provided 5 presentations including one for the ACES RFO presented by the Energy Storage Solicitation team, two for the ACES DBT RFP (one by the Ownership team and one by the Solicitation Team on the economic analysis), and two for the utility-owned storage proposal by General Electric International at SCE Peaker sites (one by the generation team and one by the Solicitation team). Members of the generation team and DBT ownership team were not allowed to listen in on the presentations by the Solicitation team for any of the options.<sup>18</sup>

At the August 30, 2016 meeting of the CAM at which SCE presented its final evaluation of the DBT proposals, SCE maintained the same process as noted above. The Ownership team provided a review of the final project proposals, an overview of team activities leading to final proposal submission, and issues associated with the terms and conditions of the contract negotiations with each party. The Solicitation team then provided its assessment of the economic evaluation of each of the proposals submitted and the pros and cons of the selecting the top ranked proposal.



## **VIII. Recommendation For Contract Approval**

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<sup>18</sup> SCE followed the same process for all Management meetings to discuss each portion of the solicitation process as well as PRG meetings. At all these meetings, the Ownership team provided their review and assessment and then either departed the meeting or dropped off a call prior to members of the Solicitation team providing their perspective and analysis of the proposals.

The results of the bilateral negotiations with GE were generally consistent with the Commission's policy objectives. Under the Resolution, SCE was allowed to submit applications for utility-owned storage projects. The Commission found that this option would increase the likelihood of resources being timely developed. The Commission found it is reasonable to allow the utilities to pursue proposals for turnkey project development of "build and transfer" projects located at the utility's substation or on utility-owned or operated sites.<sup>19</sup> SCE was required to submit utility-owned storage project applications for reasonableness review within 90 days after the operational start date of such projects. The GE International EGT projects are consistent with this requirement and were designed to meet the December 31, 2016 in-service date target to help ensure electric reliability in the Los Angeles Basin due to the moratorium on gas injections and limited operations of the Aliso Canyon Gas Storage Facility.

The economics of the projects compare favorably with the Tesla contract on the basis of benefit/cost ratio. The economic value of the project is largely driven by the forecast of ancillary service prices in the CAISO market and the associated revenue generated through the ancillary service market. The benefit/cost ratio of the project generally exceeds 1.0 in most sensitivity cases based on SCE's forecasts.

From a project viability standpoint, one important factor is that the counterparty, GE International, is a subsidiary of General Electric Company and is a well-established engineering services company that has been in existence since 1961. The Company has a substantial presence in the gas-fired generation market worldwide. On the other hand, however, as related to this project this is the first commercial application of the EGT battery storage system, although the system is being implemented on existing GE generating units with many hours of operating experience.

Based on SCE's response to the IE's questions regarding the status of the project, it is the IE's understanding that the on-line date for the storage components of the project was December 30, 2016. The integration of the batteries and the peakers is expected later in March, 2017. SCE also informed the IE that the battery energy storage system contract with GE International has had no change orders, meaning that the projects are on budget relative to the Purchase Order.

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<sup>19</sup> Resolution E-4791, p. 12.

**Appendix D**  
**Code of Conduct**

**Southern California Edison Company**  
**Aliso Canyon Energy Storage Request for Offers/Proposals**  
**Confidentiality Protocol and Code of Conduct**

June 2016

In response to Resolution E-4791, on May 27, 2016, SCE launched two separate but concurrent competitive processes to procure energy storage resources to address the reliability issues caused by the partial shutdown of the Aliso Canyon natural gas storage facility: (1) a competitive Request for Offers (“RFO”) for third-party owned and operated resources that will supply Resource Adequacy (“RA-only”); and (2) a competitive Request for Proposals (“RFP”) to solicit proposals from bidders to sell to SCE fully operational energy storage systems that will be located on SCE-owned and operated sites on a fixed-price, turnkey basis (“Design, Build, Transfer Project(s)” or “DBT Project(s)”). This Aliso Canyon Energy Storage (“ACES”) RFO/RFP Confidentiality Protocol and Code of Conduct applies to all SCE employees, contractors, and consultants engaged in the ACES RFO/RFP that SCE initiated in compliance with Resolution E-4791.

**1. Purpose:**

As a precondition for conducting a solicitation that considers utility ownership options, the California Public Utilities Commission (“CPUC”) requires the utility, in conjunction with its Independent Evaluator, Procurement Review Group, and Energy Division staff, to develop a code of conduct to be signed by any utility personnel involved in the RFO process that prevents the sharing of sensitive information between personnel involved in developing utility bids and personnel who create the bid evaluation criteria and select winning bids.<sup>1</sup> Although SCE personnel will not be developing utility bids for the ACES RFP – that is, the ACES RFP is limited

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<sup>1</sup> Appendix A to this Code of Conduct is an excerpt from the CPUC Decision establishing this Code of Conduct requirement.

to bids by third parties for turnkey DBT Projects – in an abundance of caution, SCE is requiring all personnel who are engaged in the ACES RFO/RFP to adhere to this Code of Conduct.

**2. Categories of Employees:**

a. Employees who establish the requirements for, and evaluate the viability and costs of development, construction, and on-going operations (with the exception of interconnection costs) associated with third party offers, submitted in response to the ACES RFP leading to utility ownership (*i.e.*, DBT Projects) shall be referred to as “Energy Storage Ownership Employees.”

b. Employees who evaluate and select for SCE’s shortlist and final execution third party offers for RA-only Energy Storage Agreements (“ESAs”) or DBTs submitted in response to SCE’s ACES RFO/RFP shall be referred to as “Energy Storage Solicitation Employees.”

**3. Confidential Information:**

Confidential Information is generally defined as any non-public information that a participant in the ACES RFO/RFP would find commercially useful, including, but not limited to, information concerning the terms of an ACES RFO/RFP offer, proposed terms of any ESA or DBT Project, non-public transmission information, evaluation protocols, input assumptions, bid information not made generally available to non-participants, and evaluation results or negotiation strategy or tactics.

**4. Restrictions on Information Access:**

a. Access to Confidential Information.

i. Energy Storage Solicitation Employees shall have full access to Confidential Information.

ii. Energy Storage Ownership Employees may not have any access to Confidential Information as of the date of the ACES RFP launch except as follows: Energy Storage Ownership Employees are entitled to review and evaluate DBT offers submitted in response to the ACES RFP for the purpose of conducting due diligence

investigations; selecting the potential sites for DBT projects; developing the SCE ownership costs associated with each DBT offer, recommending technically feasible and RFP-compliant DBT offers for evaluation by Energy Storage Solicitation Employees, and negotiating the terms and conditions of any shortlisted DBT offers on behalf of SCE.

Ownership Employees shall not access Confidential Information in project files developed by the Energy Storage Solicitation Employees, and only employees authorized as Energy Storage Solicitation Employees will be granted access to these files.

b. Energy Storage Ownership Employees must obtain transmission information through publicly available information or the interconnection process, consistent with information made available to sellers in the ACES RFO, with the exception that Energy Storage Ownership Employees may receive information concerning ease of interconnection for the purpose of selecting potential sites for DBT projects.

**5. Non-discrimination Requirements for Offer Evaluation:**

Energy Storage Solicitation Employees and Energy Storage Ownership Employees will evaluate all offers on a non-discriminatory basis and will not engage in any activity to preferentially benefit utility-ownership proposals.

**6. Transfers Between Energy Storage Ownership and Energy Storage Solicitation Employees:**

An Energy Storage Solicitation Employee may not transfer to become an Energy Storage Ownership Employee until the ACES RFP process is completed, winners have been selected, and the application for approval has been submitted to the CPUC. Employees transferring from the Energy Storage Solicitation Employee team to the Ownership Employee team are expressly prohibited from using information gained from the Solicitation team in a discriminatory or exclusive fashion, to the benefit of the Ownership Employee team or to the detriment of other unaffiliated service providers. An Energy Storage Ownership Employee may



transfer to become an Energy Storage Solicitation Employee, but may not transfer back to be an Energy Storage Ownership Employee until the ACES RFP is completed, winners have been selected and the applications for approval have been submitted to the CPUC. Any transfer described in this paragraph shall be reported to SCE's Independent Evaluator ("IE").

**7. Violations:**

If an employee violates this Code of Conduct, SCE will provide notice of the violation to the Energy Division, SCE's Procurement Review Group ("PRG"), and the IE. SCE will consult with the Energy Division, PRG, and the IE regarding the appropriate remedies to address any Code of Conduct violation.

By signing below, I certify that I have read and agree to comply with the foregoing Code of Conduct, which shall be effective upon the date of execution noted below.

\_\_\_\_\_ Ownership or Solicitation Employee (Circle)  
Print Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Manager Name (Print)

\_\_\_\_\_  
Department

\_\_\_\_\_  
Date

Submit original and electronic copy of the completed form to: Serge Handschin, Project Manager, Market Regulation and Cost Recovery, Location GO5, 2nd Floor, Generation. Please keep a copy for your records.

## **Appendix A**

### **Policies governing the procurement of utility-owned generation through competitive solicitations, excerpted from D.07-12-052 (p. 209)**

#### **4.1.2.2. Discussion**

The Commission has repeatedly stated its desire to develop a functional competitive energy market in California, and as noted earlier in this section, we are in the process of implementing a number of programs and safety mechanisms in support of this end state. In the interim, we are operating in an evolving “hybrid market,” and the issue at hand represents one of the challenges posed by such a market.

In D.04-12-048, IOUs were instructed to compare UOG and IPP bids, but UOG bids were capped at initial offer costs, and a 50/50 savings sharing mechanism required that ratepayers and shareholders split any cost savings associated with the IOU delivering the project under budget. The IOUs and other parties have challenged the fairness of this requirement and requested that the Commission revisit this requirement, and this issue is addressed in subsection 4.1.4.

The PD disallowed any form of UOG bidding into competitive solicitations until a functional, transparent methodology for comparing the bids on a level playing field has been established. This prohibition was supported in comments by the IPP community, CLECA, SCE, and several other parties. However, a number of parties reference in their comments recent RFOs in which robust mechanisms for comparing PSA and PPA bids were developed and implemented, and the processes were deemed fairly and successfully administered by the PRGs, IEs, and this Commission.

We are sufficiently convinced by these arguments – and particularly by the positions articulated by TURN and DRA – that, recognizing the additional safeguards adopted in this

decision regarding IE, PRG and ED oversight of the RFO development process, we will relax for the moment the proposed restriction to exclude head-to-head competition between PPAs and PSAs (and in appropriate circumstances, EPCs). However, we reiterate that, as a precondition for conducting an RFO seeking utility ownership options, the IOU, in conjunction with its IE, PRG, and ED staff shall develop a strict code of conduct – to be signed by any and all IOU personnel involved in the RFO process – to prevent sharing of sensitive information between staff involved in developing utility bids and staff who create the bid evaluation criteria and select winning bids.<sup>2/</sup>

We will not, however, permit IOUs to recoup from ratepayers any bid development costs associated with losing PSA or EPC bids, in the event that any such costs are incurred.

We have insufficient experience at this time regarding how the different qualitative and quantitative attributes associated with straight Utility build bids and IPP bids that are identified in D.04-12-048 (performance risk, credit risk, 10-year versus life-of-asset price terms and operational flexibility) will be reconciled in order to perform meaningful, apples-to-apples comparisons of Utility build and IPP bids, so we retain the prohibition on Utility build bids in competitive RFOs at this time.<sup>3/</sup>

We encourage interested parties to introduce well-developed proposals in the 2008 LTPP proceeding that address the issues raised in D.04-12-048 and, at a minimum, the following additional concerns:

- How IOU bid development costs, particularly for unsuccessful bids, would be addressed (e.g., are these costs “at-risk” or are they ratepayer-guaranteed?);
- To the extent that penalty and reward components are added to UOG bids to make them more consistent with IPP bids, whether and how limits would be placed on the participation of the IOU’s ratebased resources on the proposed project (i.e., what would

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<sup>2/</sup> This code of conduct would be very similar to the codes of conduct and bans on preferential access to information that apply between a utility and its generation affiliates. Therefore, the internal IOU functions involved in project development and bid preparation (stet). Thus, if a utility were soliciting turnkey bids or EPC contracts as well as PPAs in a given solicitation, the individuals performing the bid evaluation would have to be functionally separated from the individuals preparing the bids (or the cost estimates) for projects that would ultimately be utility-owned (we note that some of the utilities already do this). Under this restriction, the employees developing the utility owned project would be barred from access to any evaluation protocols, input assumptions, or bid information not made generally available to outside bidders. This approach would provide assurance that the utility could not use “inside information” to the advantage of its own project, without requiring the publication of every detail of the bid evaluation protocol.

<sup>3/</sup> It should be noted that in this context Utility build bids do not include PPAs with affiliates.

prevent an IOU from re-directing its ratebased staff and other resources well in excess of the amounts estimated in its winning bid); or

- What further measures (outside of, or in addition to, those highlighted in this decision) will be taken to prevent sharing of sensitive information between staff involved in developing utility bids and staff who create the bid evaluation criteria and select winning projects?

We agree with parties and find it important to recognize that even the perception of bias in an RFO can be sufficient to dampen participation from other potential non-utility investors and developers are less likely to get support from capital markets if there is a perception that merchant bids will be undermined by utility built or affiliate projects. In order to address this bias issue – whether perceived or real – we have established many “checks and balances” on the front end and back end of the RFO process.<sup>4/</sup> Our goal with these additional safeguards is to eliminate any potential for impartiality at any stage of the RFO process – whether that RFO is seeking PPA only bids or merchant and utility owned bids.

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<sup>4/</sup> For example, increased requirements on the IOU to consult with the IE, PRG and ED staff on the development and implementation of an RFO including the bid evaluation criteria.

**Appendix E**  
**Solicitation Materials**

**2016 ALISO CANYON ENERGY STORAGE DESIGN, BUILD AND TRANSFER RFP**

**RFP Participant Instructions**



SOUTHERN CALIFORNIA  
**EDISON**<sup>®</sup>

An *EDISON INTERNATIONAL*<sup>®</sup> Company

# **2016 ALISO CANYON ENERGY STORAGE DESIGN, BUILD AND TRANSFER RFP**

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## **REQUEST FOR PROPOSALS**

for

**Energy Storage**

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***RFP Participant Instructions***

***May 27, 2016***

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## ARTICLE ONE. GENERAL INFORMATION

### 1.01 Introduction

Southern California Edison (“SCE”) is issuing its 2016 Aliso Canyon Design, Build and Transfer Energy Storage request for proposals (“DBT RFP”) to solicit proposals (“Proposal” or “Proposals”) from bidders (“Seller” or “Sellers”) to supply:

- Fully operational energy storage systems on a fixed-price, turnkey basis (“DBT Project” or “DBT Projects”) with the objective of entering into agreements substantially in the form of SCE’s *Pro Forma* Engineering, Procurement and Construction Contract (“*Pro Forma* DBT Agreement”) with Sellers;
- Operational Performance Guarantees for a period of guaranteed performance on a fixed-price basis, with the objective of entering into agreements substantially in the form of SCE’s *Pro Forma* Operational Performance Guarantee Contract (“*Pro Forma* OPG Agreement”) with Sellers; and
- Maintenance Services, with the objective of entering into agreements substantially in the form of SCE’s *Pro Forma* Maintenance Agreement (“*Pro Forma* Maintenance Agreement”) with Sellers.

The final, negotiated versions of the DBT Agreement, OPG Agreement, and Maintenance Agreement to be entered into between SCE and a Seller are referred to in these RFP Instructions individually as a “Final Agreement” and, collectively, as the “Final Agreements”. These DBT RFP Instructions (“DBT RFP Instructions”) provide the following information on the DBT RFP:

- (a) Describe the eligibility requirements for the DBT Projects which SCE is soliciting;
- (b) Set forth the requirements of each Proposal submission, including waivers, representations, warranties and covenants deemed made for all purposes as part of the Proposal submission;
- (c) Document the rights that SCE reserves for itself regarding the DBT RFP; and
- (d) Set forth a timeframe for the DBT RFP.

These DBT RFP Instructions and all associated documents will be available at a later date on the DBT RFP Website, which may be found here:

<https://scees.accionpower.com><sup>1</sup>

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<sup>1</sup> All references to the DBT RFP Website herein refer to this website location.

## 1.02 DBT Projects Being Solicited

SCE is seeking to procure DBT Projects from Sellers meeting the California Public Utilities Commission (“CPUC”) definition of Energy Storage as adopted in Decision (“D.”) 13-10-040.

Seller shall design, finance, construct, commission, test and complete the DBT Project in accordance with the milestone schedule to be agreed upon by SCE and the Seller such that the DBT Project will be placed in commercial operation no later than December 31, 2016. The Seller’s responsibilities include obtaining applicable construction permits and other governmental authorizations and all other approvals required to construct the DBT Project, except that SCE will supply the required real property interests, use permits, and be responsible for interconnection of the DBT Project. SCE shall own the DBT Project. The DBT Projects should be designed to meet deliverability requirements to provide resource adequacy (“RA”) benefits and to participate in the CAISO energy and ancillary services markets.

## 1.03 Basic Terms and Conditions

- (a) SCE will provide DBT Project sites located on SCE-owned or controlled land near existing substations or generating facilities.
- (b) SCE will manage the interconnection process and obtain interconnection to SCE’s distribution and transmission system for the DBT Projects.
- (c) DBT Projects shall achieve final acceptance under the Final Agreement no later than December 31, 2016.
- (d) DBT Projects shall meet the definition of energy storage as defined in D.13-10-040.
- (e) DBT Projects must be based on commercialized technology (e.g., neither experimental, research, demonstration, nor development).
- (f) DBT Projects shall be connected at a Point of Common Coupling (“PCC”) at a physical location and voltage to be specified by SCE (usually between 12 and 66 kV).
- (g) Consistent with RA requirements, the DBT Project shall have a minimum discharge duration of not less than four hours at full power, as measured at the PCC.
- (h) DBT Projects’ PCCs and auxiliary load panels shall comply with applicable SCE Electric Service Requirements (“ESR”), which are available through a link on the DBT RFP Website. DBT Projects shall segregate auxiliary loads to be served by a separate service.

- (i) Seller shall ensure that all work conforms to and is in accordance with the Final Agreement and related documents, (including the specifications and design work), prudent utility practices, applicable laws, applicable standards, quality assurance procedures, permits, manufacturers' warranties on the equipment and materials supplied by the Seller and the DBT site plan, all of which shall be set forth in the *Pro Forma DBT* Agreement.
- (j) Seller shall ensure that the DBT Project will provide a monitoring and control interface, including all communication, metering, telemetry, and associated operation equipment, to enable automatic control for charging and discharging, and provide real-time monitoring information, as required to participate in the CAISO market.
- (k) The DBT Project shall connect to an SCE communication network, utilizing existing industry standard network protocols, as approved by SCE.
- (l) The Seller shall use independent, third-party inspection service for facilities and equipment (e.g., NETA certified for electrical equipment).
- (m) The Seller shall be responsible for all required construction permits and all other permits customarily obtained by a project contractor.
- (n) SCE will be responsible for all required use permits and all other permits customarily obtained by a project owner.
- (o) The Final Agreement shall contain operational performance guarantees for the DBT Project which assume a period of DBT Project performance at the guaranteed level for 5, 10, 15, and 20 years. Failure to achieve the operational performance guarantees will result in liquidated damages payable by the Seller throughout the period of guaranteed performance.
- (p) Proposals may be for DBT Projects sized at 5, 10, 15, and 20 MW, as well as the maximum capacity Seller can provide, if greater than 20 MW, as measured at the PCC. Proposals must be one of the following combinations:
- 5 MW
  - 5 MW and 10 MW
  - 5 MW, 10 MW and 15 MW
  - 5 MW, 10 MW, 15 MW and 20 MW
  - 5 MW, 10 MW, 15 MW, 20 MW and Maximum MW

- (q) Seller shall enter into a Maintenance Agreement with SCE to provide maintenance services for the DBT Project with a term that coincides with the operational performance guarantee. In its Proposal, Seller shall set forth the prices for fixed and variable maintenance services.
- (r) SCE encourages Diverse Business Enterprises (“DBE”)<sup>2</sup> to participate in the DBT RFP. To be considered as a DBE, Seller must provide a copy of a valid certificate from the CPUC that verifies DBE status of the firm and meet certain requirements. Information on SCE’s supplier diversity program can be found on the SCE website at this location:  
  
[www.sce.com/SD](http://www.sce.com/SD)
- (s) SCE will only consider Proposals that are substantially complete and include all of the applicable information, representations, warranties, and covenants as set forth in these DBT RFP Instructions.
- (t) SCE affiliates are permitted to participate in this DBT RFP. Seller must disclose whether or not it is an SCE affiliate.
- (u) In its Proposal, Seller shall demonstrate past experience designing and constructing similar projects by providing evidence of at least two other similarly sized, utility-connected energy storage systems.

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\*\*\* End of ARTICLE ONE \*\*\*

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<sup>2</sup> Diverse Business Enterprises means Women, Minority, Disabled Veteran (“WMDV”) and Lesbian, Gay, Bisexual and Transgender (“LGBT”) Business Enterprises as defined in CPUC General Order 156.

## ARTICLE TWO. PROJECT LOCATION AND PRODUCT PRICE

### 2.01 ESR Facility Location and Interconnection

SCE will specify DBT Project sites located on SCE-owned or controlled land near existing substations or generating facilities after notification to Sellers of selection to the Short-List.

The SCE-provided site will be located within SCE's service territory in the CAISO control area south of Path 26.

SCE will manage the interconnection process, including filing applications, participating in the study process, and paying all associated costs, including the cost of interconnection facilities.

### 2.02 DBT Project Price

The Proposal submitted by Seller shall be divided into three categories as follows:

- (a) DBT Project
  - (i) Fixed price, inclusive of all costs, including site development, engineering, procurement, permitting (related to construction), construction, installation, materials, shipping, documentation, and training activities;
  - (ii) The Seller shall provide the DBT Project fixed price as both: 1) lump-sum, paid upon final acceptance, and 2) four equal milestone payments spread over project construction.
- (b) Operational Performance Guarantees
  - (i) Fixed price for the period of guaranteed operational performance. The period of guaranteed operational performance is defined as the DBT Project maintaining the same fixed level of discharge power and discharge duration, availability, and efficiency range.
  - (ii) The Seller shall provide the Operational Performance Guarantees as both: 1) lump-sum, paid upon final acceptance, and 2) annual payments for the duration of guaranteed operational performance.
- (c) Maintenance Services
  - (i) An initial, fixed price service, inclusive of all scheduled maintenance activities as defined by the manufacturer (not including costs associated with maintaining performance for the period of guaranteed performance);

- (ii) An additional, variable price service, inclusive of any additional maintenance costs required when the DBT Project exceeds a Seller defined Base Energy Throughput (“BET”) annual usage.

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\*\*\* *End of ARTICLE TWO* \*\*\*

**ARTICLE THREE. DBT RFP SCHEDULE AND OFFER SUBMITTAL PROCESS**

3.01 RFP Schedule

<b>Dates</b>	<b>Event</b>
<b>May 27, 2016</b>	RFP Launch – SCE posts RFP Instructions, and certain other RFP documents on the RFP Website
<b>June 2, 2016, 1:00 pm Pacific Prevailing Time</b>	RFP Conference – SCE hosts RFP Bidders Conference
<b>June 17, 2016, 1:00 pm Pacific Prevailing Time</b>	Indicative Proposal deadline - Sellers submit Proposals and required documentation
<b>July 6, 2016</b>	Short-List notification – Date SCE will advise all Sellers on the Short-List status of their Proposals
<b>August 19, 2016</b>	Final Offer deadline – Short -Listed Sellers must submit final, binding offers
<b>September 2, 2016</b>	Final Notification – SCE notifies Sellers whether its final binding offer(s) and Final Agreement(s) are accepted for execution by SCE

\*\*\* *End of ARTICLE THREE* \*\*\*

## **ARTICLE FOUR.           ROLE OF INDPENDENT EVALUATOR**

### **4.01   Independent Evaluator (“IE”)**

CPUC Decision 08-11-008, Ordering Paragraph No. 2, requires an IE for all competitive solicitations that involve affiliate transactions, utility-owned or utility-turnkey offers, and for all solicitations that seek products two years or greater in duration, regardless of who participates.

In compliance with this requirement, SCE has retained Merrimack Energy Group, Inc. as the IE for SCE’s 2016 DBT RFP. Merrimack is currently in SCE’s pre-qualified pool of IEs and has prior experience overseeing the negotiation and evaluation of energy storage in California.

The IE will ensure that the solicitation process is fair to all qualified bidders, and that no SCE affiliate has an undue advantage over non-affiliates in the solicitation. The IE will be required to make a determination as to whether SCE’s final selection was fair and free from anti-competitive behavior, and was not unfairly influenced by its affiliate relationships. The IE may report its findings to various regulatory bodies overseeing SCE’s activities, and may testify in CPUC proceedings, as required or requested by SCE or the CPUC. Upon completion of the bid process to a solicitation, the IE will complete the an Independent Evaluator Report, with updates based on completion of the solicitation itself, for review by the CPUC and other applicable regulatory bodies.

The IE is expected to make recommendations to SCE for improvements to SCE’s solicitation process that the IE may have identified during the course of the solicitation activity. The IE, however, does not have the authority to mandate SCE to make any changes to its RFP process. SCE, not the IE, will conduct and administer the RFP solicitation and evaluation process. In addition, the IE may not negotiate with any bidder or counterparty on SCE’s behalf, serve as a single point of contact between SCE and bidders or counterparties, nor make binding decisions on behalf of SCE.

The following is the contact information for the IE:

Email: waynejoliver@gmail.com

Phone: 781-865-0007



## ARTICLE FIVE. SHORT-LISTING

### 5.01 Minimum Requirements

Sellers are required to follow all of the instructions contained in these RFP Instructions and subsequent amendments or revisions in order to be eligible to compete in the solicitation process.

### 5.02 Notification of Selection for the SCE Short-List

- (a) If SCE notifies Seller that its Proposal has been selected for SCE's Short-List and Seller would like to continue in the solicitation process, Seller shall submit to SCE a redline to the *Pro Forma* DBT Agreement, *Pro Forma* OPG Agreement, and *Pro Forma* Maintenance Agreement showing changes Seller wishes to negotiate with SCE. The *Pro Forma* DBT Agreement, *Pro Forma* OPG Agreement, and *Pro Forma* Maintenance Agreement will be located on the RFP Website. Sellers are reminded that a finite amount of time is allotted for the negotiation of the Final Agreement as outlined in the RFP Schedule.
- (b) If Seller's Proposal has been selected for SCE's Short-List and Seller does not wish to continue in the DBT RFP, SCE requests that Seller withdraw its Proposal from this DBT RFP in writing within five (5) business days after the Short-List notification from SCE.
- (c) If a Seller's Proposal has not been selected for SCE's Short-List, SCE will notify Seller on the date that SCE notifies all Sellers selected for the Short-List of their selection.

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\*\*\* End of ARTICLE FIVE \*\*\*

## **ARTICLE SIX. REGULATORY APPROVAL**

### 6.01 CPUC and FERC Approvals

SCE will submit the Final Agreements to the CPUC for approval by Application, which will be filed after final acceptance of the DBT Project(s) under the applicable Final Agreement(s).

In the event a transaction occurs between SCE and any of its Affiliates, such Final Agreement may also require Federal Energy Regulatory Commission (“FERC”) approval.

### 6.02 Support for Regulatory Purposes

SCE may request that Seller provide updates of any information requested in this DBT RFP for purposes of filing applications or advice letters with the CPUC and, if applicable, FERC for approval of any Final Agreement.

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\*\*\* *End of ARTICLE SEVEN* \*\*\*

## ARTICLE EIGHT. CONFIDENTIALITY, CONDUCT, AND SAFETY

### 8.01 Confidentiality

Sellers are required to enter into a Confidentiality Agreement with SCE when Proposals are submitted in the form set forth in the RFP launch documents.

### 8.02 Conduct

It is expected that the Parties will act in good faith in their dealings with each other with respect to this DBT RFP.

### 8.03 Safety

Seller must develop a written plan for the safe construction and maintenance of the ESR Facility as set forth in the *Pro Forma* Agreement.

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\*\*\* *End of ARTICLE EIGHT* \*\*\*

## **ARTICLE NINE. WAIVERS AND RESERVATION OF RIGHTS**

### **9.01 Termination of DBT RFP**

SCE reserves the right at any time to modify any dates specified in this DBT RFP or abandon this DBT RFP without notice, without assigning any reasons, and without liability of Edison International, SCE or any of their subsidiaries, affiliates or representatives to any Seller.

SCE will not be deemed to have accepted any Proposal, and will not be bound by any term thereof, unless and until authorized representatives of SCE and Seller execute a Final Agreement and, if appropriate, related collateral and other required agreements.

In the event that SCE terminates this DBT RFP, Seller shall be responsible for any expenses incurred by Seller as a result of this DBT RFP.

### **9.02 Release of SCE for any Delays**

Seller acknowledges that except for SCE's obligation to submit a fully executed Final Agreement to the CPUC for approval, Seller bears sole responsibility for obtaining all construction permits, financing, and other agreements necessary for Seller to perform under a Final Agreement, except as otherwise specified in the Final Agreements.

Seller further acknowledges and agrees that SCE shall have no liability for the:

- (a) Time required to complete any studies, obtain any required construction permits or enter into any agreements discussed or contemplated under this DBT RFP;
- (b) Time to construct the DBT Project.

### **9.03 Waived Claims**

By submitting an Proposal, Seller knowingly, voluntarily, and completely waives any rights under statute, regulation, state or federal constitution or common law to assert any claim, complaint or other challenge in any regulatory, judicial or other forum, including without limitation, the CPUC (except as expressly provided below), the FERC, the Superior Court of the State of California ("State Court") or any United States District Court ("Federal Court") concerning or related in any way to the DBT RFP or these RFP Instructions, including all exhibits, attachments, and appendices thereto ("Waived Claims"). Seller further expressly acknowledges and consents that if it asserts any Waived Claim at the CPUC, FERC, State Court or Federal Court, or otherwise in any forum, to the extent that Seller's Proposal has not already been disqualified, SCE is entitled to automatically disqualify this Proposal from further consideration in the DBT RFP or otherwise, and further, SCE may elect to terminate the DBT RFP.

By submitting an Proposal, Seller further agrees that the sole forum in which Seller may assert any challenge with respect to the conduct or results of the DBT RFP is at the CPUC. Seller further agrees that: (1) the sole means of challenging the conduct or results of the DBT RFP is a complaint filed under Article 3, Complaints and Commission Investigations, of Title 20, Public Utilities and Energy, of the California Code of Regulations, (2) the sole basis for any such protest shall be that SCE allegedly failed in a material respect to conduct the DBT RFP in accordance with these RFP Instructions; and (3) the exclusive remedy available to Seller in the case of such a protest shall be an order of the CPUC that SCE again conduct any portion of the DBT RFP that the CPUC determines was not previously conducted in accordance with these RFP Instructions (including any Associated Documents). Seller expressly waives any and all other remedies, including, without limitation, compensatory and/or exemplary damages, restitution, injunctive relief, interest, costs and/or attorneys' fees. Unless SCE elects to do otherwise in its sole discretion, during the pendency of such a protest the DBT RFP and any related regulatory proceedings related to the DBT RFP will continue as if the protest had not been filed, unless the CPUC issues an order suspending the DBT RFP or SCE has elected to terminate the DBT RFP.

Seller further acknowledges and agrees that if Seller asserts any Waived Claim, SCE shall be entitled to seek immediate dismissal of Seller's claim, complaint or other challenge, with prejudice, by filing a motion to dismiss (or similar procedural device) supported by the language in this Article Nine and that Seller will not challenge or oppose such a request for dismissal. Seller further acknowledges and agrees that if it asserts any Waived Claim, and if SCE successfully has that claim dismissed or transferred to the CPUC, Seller shall pay SCE's full costs and expenses incurred in seeking such dismissal or transfer, including reasonable attorneys' fees.

Seller agrees to indemnify, defend and hold harmless SCE from any and all claims by any other Seller asserted in response to the assertion of any Waived Claim by Seller or as a result of a Seller's protest to a filing at the CPUC resulting from the DBT RFP.

Except as expressly provided in these RFP Instructions, nothing in the RFP Instructions, including Seller's waiver of any Waived Claims as set forth above, shall in any way limit or otherwise affect the rights and remedies of SCE.

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\*\*\* End of ARTICLE NINE \*\*\*

## **ARTICLE TEN. COMMUNICATIONS**

10.01 For purposes of this DBT RFP, “Communications” means the exchange of any material information by electronic, written, oral or other means other than as expressly provided for herein.

All Communications concerning this DBT RFP, including Communications concerning the preparation of Proposals or other submissions to SCE related to the DBT RFP, should be submitted to SCE pursuant to instructions on the RFP Website.

SCE may, in its sole discretion, decline to respond to any correspondence or other inquiry without liability or responsibility.

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\*\*\* *End of ARTICLE TEN* \*\*\*

## ARTICLE ELEVEN. SCE RIGHTS AND DOCUMENT CONFLICTS

### 11.01 SCE's Rights

SCE may, at its sole discretion, enter into Final Agreements with one or more entities submitting Proposals that will provide the best value to SCE's customers considering a variety of factors as discussed below.

SCE reserves the right to reject any Proposal at any time on the grounds that it does not conform to the terms and conditions of these RFP Instructions.

SCE also retains the right, in its sole judgment, to:

- (a) Modify these RFP Instructions, and any of the Associated Documents, as it deems necessary;
- (b) Condition SCE's acceptance of any selected Proposal on a Seller's agreement to modifications thereto including any modifications that may be recommended by SCE's PRG as initially established in D.02-08-071 of the CPUC; and
- (c) Determine what is or is not "reasonable," as this term is used within these RFP Instructions.

### 11.02 Document Conflicts

In the event of any conflict between terms contained in these RFP Instructions, the *Pro Forma* Agreements, or the Proposal Form, the conflict will be resolved by the following priority of documents:

- (a) The *Pro Forma* Agreements;
- (b) These RFP Instructions; and
- (c) The Proposal Form.

Notwithstanding the foregoing, if a Final Agreement is executed between SCE and Seller, those documents will have precedence over the documents listed above.

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\*\*\* *End of ARTICLE ELEVEN* \*\*\*

**2016 Aliso Canyon Energy Storage Request For Offers and Design, Build and Transfer  
Request for Proposals**

**Bidders Conference Presentation**





# 2016 Aliso Canyon Energy Storage Request For Offers and Design, Build and Transfer Request for Proposals

## BIDDERS CONFERENCE

June 2, 2016

## **Bidder's Conference Call Recording**

- You can access an audio recording of the Bidder's Conference by downloading the .mp3 file in the ***Supporting Documents > b. Bidders Conference*** section of the Accion websites

# Agenda

- ◆ **Overview (Gene Lee)**      **12:00PM - 12:20PM**      ◆ **DBT RFP Materials (Loic Gaillac)**      **1:10 PM – 1:30PM**
  - Conference Scope
  - What is the ACES RFO/DBT RFP?
  - All Qualified ES Resources Encouraged to Participate
  - Keys to a Successful Proposal
  - Independent Evaluator
  - Supplier Diversity
  - Document Conflicts
- ◆ **Interconnection Service (Eduyng Castano)**      **12:20PM – 12:50PM**      ◆ **Valuation and Selection (Mike Freeman)**      **1:30PM – 1:50PM**
  - Fast Track
  - Independent Study
  - Interconnection – Where to Find Information
  - Interconnection – What You Can Find
  - RA Only Valuation & Selection Process
  - DBT Valuation & Selection Process
  - DBT Valuation Process
  - Market Price Forecasting
  - Valuation Components
- ◆ **ACES RFO Materials (Gene Lee)**      **12:50 PM – 1:10PM**      ◆ **Final Q&A**      **1:50PM – 2:00PM**
  - Eligibility Requirements
  - Products
  - Schedule
  - Offer Workbook

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# Overview

## Gene Lee

## **Bidders Conference Scope**

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- Today's focus is on SCE's **Aliso Canyon Energy Storage RFO and Design, Build and Transfer RFP**
- SCE will cover ES contracting, valuation, and interconnection at a high level and prefers to avoid specific questions related to a single ES technology type
- A recorded version of today's presentation will be available on the ES RFO website ([www.scees.actionpower.com](http://www.scees.actionpower.com))

## **What is the ACES RFO/DBT RFP?**

- In response to CPUC Resolution E-4971 SCE has issued the Aliso Canyon Energy Storage Request for Offers (RFO) and Design, Build and Transfer Request for Proposals (RFP)
- SCE is seeking Energy Storage resources to address electrical reliability risks due to the moratorium on injections into the Aliso Canyon Natural Gas Storage Facility
- Solicitation will take two tracks:
  - Request for Offers - Seller will design, build, own and operate energy storage facility, SCE purchases Resource Adequacy
  - Design, Build, Transfer Request for Proposals - Seller will design, build and transfer energy storage facility to SCE

## **All Qualified ES Resources Encouraged to Participate**

- The ACES RFO/DBT RFP is open to all eligible, commercial energy storage technologies
- SCE encourages open, constructive, and creative dialogue with market participants to meet the ES RFO needs
- Hybrid ES projects:
  - If the ES project is tied to existing generation, please contact the RFO/RFP team
  - ES projects developed as part of a new renewable resource should be bid into the Renewable Portfolio Standards RFP

## **Keys to a Successful Proposal**

- Read, understand and follow the instructions
- Know the deadlines and what is expected for each deadline
- If you have any questions at all, contact the ES RFO team
- After shortlisting, work with the assigned SCE contract manager during contract negotiations to identify and resolve larger issues first
- Be flexible and work with SCE on your storage proposals – this is a challenging effort



## **Independent Evaluator**

- Merrimack Energy Group, Inc. is the Independent Evaluator (IE) for this solicitation
  - Wayne Oliver – lead and key contact (waynejoliver26@gmail.com)
- Role of the IE is to ensure fair and equal treatment of all bidders by:
  - Monitoring SCE’s solicitation and negotiation processes
  - Monitoring SCE’s valuation methodologies and selection processes
- The IE is privy to all offers and correspondence between SCE and bidders, and is invited to participate in all negotiations

## **Supplier Diversity**

- SCE encourages Women-Owned, Minority-Owned, and Disabled Veteran-Owned Business Enterprises (“WMDVBE”) to participate in the RFO/RFP
- CPUC General Order 156 sets the rules governing the development of programs to increase participation of WMDVBEs in procurement of contracts from utilities as required by CPUC Code
- For additional information, please visit SCE’s website, [www.sce.com/SD](http://www.sce.com/SD)
- Guidance is also available at [www.sce.com/EnergyProcurement](http://www.sce.com/EnergyProcurement) under the heading “Help & Guidance”
- Contact Raj Roy at (626)302-1636 or [Rajdeep.Roy@sce.com](mailto:Rajdeep.Roy@sce.com) regarding power procurement opportunities and activities

## **Document Conflicts**

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- This presentation is intended to be a summary level discussion of the information and requirements established in the RFO/RFP materials
- To the extent that there are any inconsistencies between the information provided in this presentation and the requirements established in the RFO/RFP materials, the RFO/RFP materials shall govern

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# Interconnection Service

## Eduyng Castano

## Interconnection – Fast Track

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- Fast Track Summary
  - Intended for projects that can be interconnected without system upgrades
  - Limited to 3MW (Rule 21), or 5MW (WDAT, CAISO depending on location and/or on interconnection voltage)
  - A request for interconnection can be done at any time during the year
  - Process:
    - After all required information is submitted, a “fast track screen” review is performed (approx. 15 business days, depending on tariff)
      - If all screens pass, then an Interconnection Agreement is drafted and signed
      - If one or more screens fail, then SCE may propose additional reviews/modifications
      - SCE may propose a “supplemental review” to evaluate alternate configurations that may allow the project to pass the fast track screens (approx. an additional 20 business days, depending on tariff)
      - If project cannot pass the fast track screens, SCE may recommend to move the project to the independent/detailed study process, or to the cluster process

*Please review each tariff for specific eligibility requirements and timelines of the Fast Track*

## **Interconnection – Independent Study Track**

- Independent Study Process Summary
  - Intended for projects that can be studied without being affected by other projects in the queue
  - The “independence” of the project from others is evaluated by SCE/CAISO
  - No size limit
  - A request for interconnection can be done at any time during the year
  - Process:
    - After all required information is submitted, SCE evaluates the “independence” of the project from other projects currently in the interconnection queue
    - A “system impact study”, and/or a “facilities study” are performed to identify the necessary system upgrades
    - Each study can take from 45 to 60 business days (please review each tariff for expected study timelines)
    - Typically there is a “results meeting” after each study to discuss the results of the study
    - After the study(ies) are completed, an Interconnection Agreement is drafted and executed

# Interconnection – Where to Find Information

- Each tariff (of course)
- Visit our new Grid Interconnections Website
  - Go directly to it: [on.sce.com/gridinterconnections](http://on.sce.com/gridinterconnections)
  - Go to [sce.com](http://sce.com) and browse:

Home > Your Business > Generating Your Own Power > Grid Interconnections

The screenshot shows the Edison website interface. At the top, there is a navigation menu with options like 'Quick Services', 'Your Home', and 'Your Business'. Below the menu is a search bar and a 'Log In/Register' button. The main content area features a large image of wind turbines and a 'Learn More' button. The text on the page includes 'Connecting to Our Electrical System', 'Home > Your Business > Generating Your Own Power > Grid Interconnections', and 'WDAT Cluster Window Schedule Queue Cluster 9, Opening Date: Fri April 1, 2016, Closing Date: Mon May 2, 2016'. At the bottom, there is a footer with the Edison logo and the text 'SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL® Company'.





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# Questions



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# **ACES RFO Bid Materials Gene Lee**

## **ACES RFO Eligibility Requirements**

---

**Energy Storage Resources (ESRs) offered must meet the following eligibility requirements:**

- **Location** – Connected in SCE’s service territory in the CAISO control area south of Path 26
  - Transmission or distribution connected “in front of the meter”
  - Full deliverability is required to be eligible for Resource Adequacy (RA) Benefits
  - Energy Storage resources that are associated with existing generation (conventional or renewable) must be currently under contract to SCE to be considered
- Must have site control by the Offer deadline
- Projects in Western LA Basin preferred

## **ACES RFO Eligibility Requirements (cont.)**

- **Term** - set by Seller, must be 10 years or less
  - Must be online by December 31, 2016
- **Size** - must be a minimum of 0.5 MW
- **Technology** – must meet the CPUC objectives and definition of Energy Storage as adopted in D.13-10-040
  - Discharge minimum of 4 hours to qualify as RA, no maximum duration
  - Must use commercialized technology
- **Resource Adequacy** – Project must provide RA, however RA may be obtained after the December 31, 2016 online date
  - Seller must provide date that RA will be obtained

## Eligible Energy Storage Products

### Products Solicited in SCE's ACES RFO

Pro forma  
Agreements

Full RA provided by the 12/31/2016 online date

Project online by 12/31/2016, however Full RA provided  
at later date

- Resource Adequacy is necessary to avoid contracts that may have **adverse financial impacts** on SCE
- SCE reserves the right to not contract for offers that may result in **significant imputed debt**

## ACES RFO Schedule

Event	Milestone Dates
RFO Launch	May 27, 2016
Bidders' Conference	June 2, 2016
Offer submittal deadline	June 17, 2016 (1pm PPT)
Selection Notification	July 6, 2016
Negotiation deadline and Contract Execution	July 29, 2016

# ACES RFO Offer Workbook

2016 Aliso Canyon Energy Storage RFO Offer Workbook (RA Only).xlsx (Read-Only) - Excel

FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW DEVELOPER Workshare

J23

Southern California Edison

OFFER TEMPLATE: 2016 ALISO CANYON ENERGY STORAGE RFO  
FINAL OFFER 2016TBD001

Confidential

Offer Name: [Seller Name] - [Unit Name and Number] - ES001  
Storage Unit Name: [Unit Name and Number]

Project Unit ID: TBD  
Offer Number: 001

Facility Type: Storage  
Other Type: [Select Technology] Indicate if storage adds RA capacity to the CAISO (Check Start, End and RA Dates) RA must on the 1st of the month. Fill in Contract Capacity. Fill in Capacity Price. Fill in Interconnection Cost Cap.

Storage Unit Technology Detail:  
RA Capacity Incremental to the CAISO: 0  
Maximum constant discharge rate Storage Unit or Hybrid System (MW):

OFFER IS NOT COMPLETE: Seller Name and/or Energy Storage Unit Name fields are not filled in "Front Page" tab | Select Offer Type | Select Technology | Indicate if storage adds RA capacity to the CAISO (Check Start, End and RA Dates) RA must on the 1st of the month | Fill in Contract Capacity | Fill in Capacity Price | Fill in Interconnection Cost Cap |

CREATE OFFER BUTTON: Press button to create a sample offer (Offer can be incomplete)

NOTE: Total Nominal Capacity Payment is \$0,000

III. CAPACITY PRICES  
SCE Note: Prices fill out the following table with Monthly Capacity Prices as it will appear in the Agreement, Section 10.02. SCE will not be accepting escalating pricing over the term.

Year	Monthly Energy Capacity Price (\$/KW month)

IV. DELIVERY PERIOD  
SCE Note: Must be before 12/31/2016  
SCE Note: Must be less than 10 Years

Month	Expected Monthly RA Capacity (same as Contract Capacity) (MW)	Energy Storage Contract Capacity (MW)
January	0.00	
February	0.00	
March	0.00	
April	0.00	
May	0.00	
June	0.00	
July	0.00	
August	0.00	
September	0.00	
October	0.00	
November	0.00	
December	0.00	

V. CONTRACT CAPACITY  
SCE Note: Energy Storage Contract Capacity is Contract Capacity as it will appear in the Agreement

Front Page 1.02 OFFER TEMPLATE OFFERS 10.02 Raw Data

- One Offer Workbook per project (Each interconnection considered a separate project)
- In Tab 1.02 Seller provides descriptive information on RA attributes of project common for each offer (e.g., location, technology type, interconnection information)
- As RA only project, not necessary to set operating limits, VOM prices, etc.
- Offer Template used to create multiple offers that can vary by online date, date that RA will be provided and pricing

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# Questions





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# **DBT RFP**

# **Bid Materials**

## **Loïc Gaillac**

## DBT RFP Overview

---

### Design, Build and Transfer (DBT) Energy Storage Energy Storage Attributes

- **Seller to provide**
  - Fully operational energy storage system
    - Turnkey basis
  - Operational Performance Guarantees for a period of guaranteed performance
    - Maintain fixed level of performance
  - Maintenance Services
    - Scheduled and as a function of throughput
  
- **SCE to supply**
  - Sites located on SCE-owned or controlled land near existing substations or generating facilities
  - Interconnection to SCE's distribution and transmission system

## **DBT RFP Overview (cont.)**

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- **Operational Performance Guarantee Term** – provide performance guarantee for 5, 10, 15, and 20 years
- **Maintenance Services Approach** – fixed and variable cost based on a Seller-defined energy throughput and a tier system
- **System Capacity** – provide size of 5, 10, 15, 20MW and the maximum capacity the Seller can provide
- **Technology** – must meet the CPUC objectives and definition of Energy Storage as adopted in D.13-10-040
  - **Discharge** minimum of 4 hours to qualify as RA, no maximum duration
  - Must use **commercialized technology**
  - Seller must demonstrate **past experience** designing and constructing similar sized, utility-connected energy storage systems

## DBT RFP Schedule

Event	Milestone Dates
RFP Launch	May 27, 2016
Bidders' Conference	June 2, 2016
Indicative Offer deadline	June 17, 2016 (1pm PPT)
Short-List Notification	July 6, 2016
Final Offer Deadline	August 19, 2016
Final Notification	September 2, 2016



# DBT RFP Workbook

	A	B	C	D	E	F
1	<b>5 MW Offer</b>			<b>OFFER INCOMPLETE</b>		
2						
3	<b>Given Parameters</b>					
4						
5	<b>Item</b>					Units
6	<b>Guaranteed discharge power</b>		Value			MW
7			5			
8	<b>Offer Info</b>					
9						
10	<b>Item</b>					Units
11	<b>Period of guaranteed performance</b>		Value			Years
12	<b>Offer Provided</b>	5	10	15	20	
13						
14	<b>System Information</b>					
15						
16	<b>Item</b>					
17	<b>Seller Name</b>		Value			
18	Energy storage vendor name					
19	Energy storage model name/number					
20	Energy storage technology type					
21	Power conversion system vendor name					
22	Power conversion system model name/number					
23	Project integrator vendor name					
24						
25	<b>Technical Information</b>					
26						
27	<b>Item</b>					Units
28	<b>Period of Guaranteed Performance</b>		Value			Years
29	<b>Guaranteed discharge duration (4 h minimum)</b>	5	10	15	20	h
30	<b>Typical required site footprint</b>					sq. ft.
31	<b>Round trip efficiency, maximum</b>					%
32	<b>Round trip efficiency, guaranteed minimum</b>					%
33						
34	<b>Item</b>					Units
35	<b>Charge power, nominal</b>		Value			MW
36	<b>Maximum ramp rate, positive</b>					MW/minute
		<b>5 MW Offer</b>	<b>10 MW Offer</b>	<b>15 MW Offer</b>	<b>20 MW Offer</b>	<b>Maximum MW Offer</b>
		<b>General Information</b>				
		<b>Instructions</b>				

- One offer tab for each of the capacities requested (5, 10, 15, 20 MW and Max)
- In each tab, separate columns for the requested performance guarantee terms (5, 10, 15, 20 years)
- All entry fields have to be completed for the offer to be considered complete
- If a performance guarantee term is to be omitted, "No" must be inputted in the appropriate "Offer Provided" field
- If a power level is to be omitted, "No" must be inputted in all the "Offer Provided" fields

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# Questions



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# Valuation and Selection

## Michael Freeman

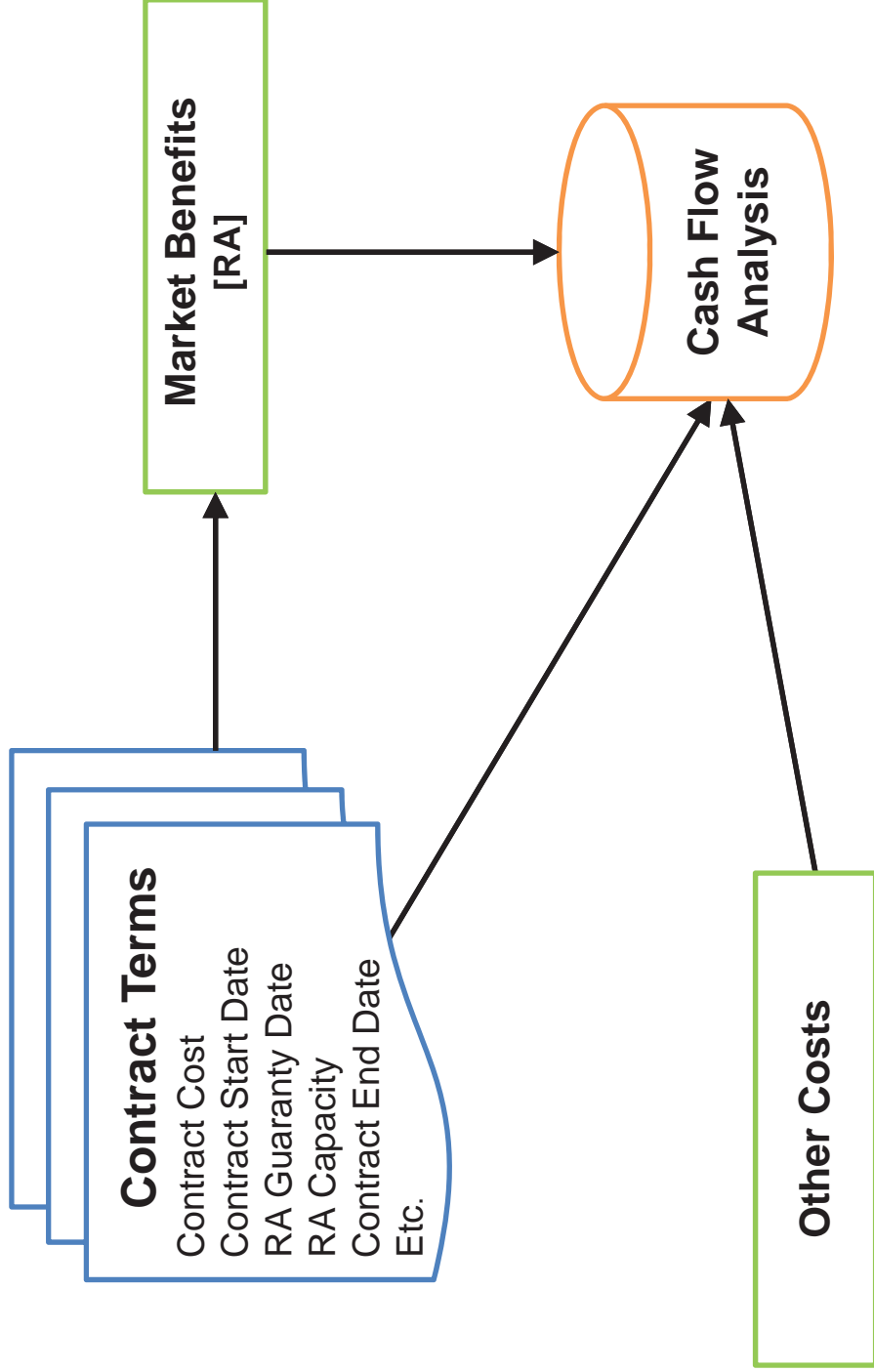


## **RA Only Valuation & Selection Process**

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- SCE incorporates “Least-Cost Best-Fit” principles by accounting for quantifiable attributes explicitly in the valuation process (“Least-Cost”) while qualitative attributes are accounted for implicitly in the selection process (“Best-Fit”)
- Value for each offer will be determined by using discounted cash flow analysis that generates a Net Present Value metric
- SCE will rank all conforming offers from highest to lowest NPV metric and select offers that are price-competitive with previously awarded energy storage contracts while taking into account the offers’ qualitative considerations

# RA Only Valuation Process



## **DBT Valuation & Selection Process**

---

- SCE incorporates “Least-Cost Best-Fit” principles by accounting for quantifiable attributes explicitly in the valuation process (“Least-Cost”) while qualitative attributes are accounted for implicitly in the selection process (“Best-Fit”)
- Value for each offer will be determined by using discounted cash flow analysis that generates a Net Present Value (NPV) metric
- SCE will rank all conforming offers from highest to lowest NPV metric and select offers that are price-competitive with previously awarded energy storage contracts while taking into account the offers’ qualitative considerations and counterparty and site limitations

# DBT Valuation Process

## Technical Parameters

- Round trip efficiency
- Max Charge/Discharge Power
- Max Energy (Duration of Guaranty)
- Charging Limits
- Etc.

## Other Contract Terms

- Energy Guaranty Costs
- Maintenance Costs
- Asset Costs
- Etc.

Market Benefits  
[Energy, AS & RA]

Cash Flow  
Analysis

Other Costs

## **Market Price Forecasting**

---

- **Capacity Price [ DBT & RA ]**
  - The development of the capacity price forecast utilizes market transactions and supply and demand fundamentals
  
- **Energy Price [ DBT ]**
  - Long term SP15 forecast derived from a blend of market and fundamental outlooks
  - Day-ahead / real-time variations
  
- **Ancillary Services Prices [ DBT ]**
  - Spin, non-spin and regulation (no black start value)
  - Fundamental impacts including (but not limited to) increasing amounts of intermittent generation are captured in AS market price projections

## **Valuation Components**

---

- **RA Capacity Benefit**
  - RA Capacity benefit will be based on the contract capacity and SCE's internal RA price forecast
  
- **Energy/AS Benefits & Dispatch Costs**
  - AS and Energy benefits as well as the dispatch costs are determined by production cost modeling of the asset's operating characteristics against market price forecasts
  
- **Contract Costs**
  - Contract Costs are based on RA contract's capacity and capacity price or DBT's asset cost and maintenance costs
  
- **Other Offer Benefits & Costs**
  - All costs and benefits not explicitly captured in the production simulation model will be assessed outside of the market benefit calculation process

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# Questions



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# Q&A Session

***Thank you for attending the  
ACES RFO/DBT RFP Bidders  
Conference!***



**2016 ALISO CANYON ENERGY STORAGE DESIGN, BUILD AND TRANSFER RFP**

**Energy Storage EPCM (RFP Version)**

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**TURNKEY ENGINEERING, PROCUREMENT,  
INSTALLATION AND MAINTENANCE  
AGREEMENT**

**BETWEEN**

**SOUTHERN CALIFORNIA EDISON COMPANY,  
a California corporation**

**AND**

---

**[supplier] a [state] [entity type]**

Dated as of \_\_\_\_\_, 2016

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**TURNKEY ENGINEERING, PROCUREMENT,  
INSTALLATION AND MAINTENANCE  
AGREEMENT**

THIS TURNKEY ENGINEERING, PROCUREMENT, INSTALLATION AND MAINTENANCE AGREEMENT (this “Agreement”), dated as of the date set forth on the cover page hereof (“Effective Date”), is by and between Southern California Edison Company, a California corporation (hereinafter called “Company”) and \_\_\_\_\_, a \_\_\_\_\_ (hereinafter called “Contractor”).

WITNESSETH:

WHEREAS, Company wishes to construct, own and operate a utility scale, electric battery energy storage system, to be built on the Property Site (as hereinafter defined) located in the Job Sites identified in the Statement of Work;

WHEREAS, Contractor has represented that it is experienced and qualified in providing technical assistance, licensing, engineering, procurement, supply, assembly, management, construction, installation, commissioning, start-up, testing, and operations and maintenance services, and that it possesses the requisite expertise and resources to complete the Work (as hereinafter defined);

WHEREAS, Contractor has agreed to provide, through itself or through Subcontractors and Vendors (as such terms are hereinafter defined), such Work on a “turn-key” basis for the Contract Price (as hereinafter defined); and

WHEREAS, Contractor has agreed to guarantee the timely and proper completion of the Work in strict accordance with the terms and conditions hereinafter set forth.

NOW, THEREFORE, in consideration of the foregoing premises, the mutual promises and covenants herein contained, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Company and Contractor hereby agree as follows:

**ARTICLE I.  
GENERAL MATTERS**

1.1 DEFINED TERMS.

As used in this Agreement, including the exhibits and other attachments hereto, each of the following terms shall have the meaning assigned to such term as set forth below:

“**Affiliate**” means, in relation to any Person, any other Person: (i) which directly or indirectly controls, or is controlled by, or is under common control with, such Person; or (ii) which directly or indirectly beneficially owns or holds fifty percent (50%) or more of any class of voting stock or other equity interests of such Person; or (iii) which has fifty percent (50%) or more of any class of voting stock or other equity interests that is directly or indirectly beneficially owned or held by such Person, or (iv) who either holds a general partnership interest in such Person or such Person holds a general partnership interest in the other Person. For purposes of this definition, the word “controls” means possession, directly or indirectly of the power to direct or cause the direction of the management or policies of a Person, whether through the ownership of voting securities or otherwise.

“**After-Tax Basis**” means, with respect to any indemnity payment to be received by any Person, the amount of such payment (the base payment) supplemented by a further payment (the additional payment) to that Person so that the sum of the base payment plus the additional payment shall, after deduction of the amount of all Federal, state, and local income Taxes required to be paid by such Person in respect of the receipt or accrual of the base payment and the additional payment (taking into account any reduction in such income Taxes resulting from Tax benefits realized by the recipient as a result of the payment or the event giving rise to the payment), be equal to the amount required to be received. Such calculations shall be made on the basis of the highest generally applicable Federal, state, and local income tax rates applicable to the Person for whom the calculation is being made for all relevant periods, and shall take into account the deductibility of state and local income taxes for Federal income tax purposes. The foregoing calculations shall be made by the recipient Person’s third party tax advisors.

“**Agreement**” has the meaning set forth in the first paragraph hereof, as same may be amended, supplemented or modified from time to time in accordance with the terms hereof.

“**Applicable Laws**” means any act, statute, law, regulation, permit, license, ordinance, rule, judgment, order, decree, directive, guideline or policy (to the extent mandatory) or any similar form of decision or determination by, or any interpretation or administration of, any of the foregoing by any Government Authority with jurisdiction over the ESS, the Job Site, the performance of the Work or other services to be performed under the Contract Documents.

“**Applicable Permits**” means any and all permits, clearances, licenses, authorizations, consents, filings, exemptions or approvals from or required by any Government Authority that are necessary for the performance of the Work, including, but not limited to, the clearances, licenses, authorizations, consents, filings, exemptions and approvals listed on Exhibit G and Exhibit H.

“**Builder’s Risk Policy**” has the meaning set forth in Section 9.1(f).

“**Business Day**” means any day other than a Saturday, Sunday or a legal holiday in the State of California where the Work is performed.

“**Change In Law**” means, with respect to any portion of the Work performed in the State of California, the enactment, adoption, promulgation, modification, repeal, decision, determination, interpretation or administration after the date of this Agreement of any Applicable Law of any Government Authority of the State of California or the modification after the date of this Agreement of any Company Permit issued or promulgated by any Government Authority of the State of California that establishes requirements that materially and adversely affect Contractor’s costs or schedule for performing the Work; provided, however, that a change in any state or local Tax law or any other law imposing a Tax, duty, levy, impost, fee, royalty, or charge for which Contractor is responsible hereunder shall not be a Change In Law pursuant to this Agreement.

“**Change Order**” has the meaning set forth in Section 6.1(a).

“**Changes**” has the meaning set forth in Section 6.1(a).

“**Company**” means Southern California Edison Company, a California corporation (as referenced in the opening paragraph hereof) and includes its legal successors and those assignees as may be designated by Company, in writing, pursuant to the terms of this Agreement.

“**Company Caused Delay**” means a material delay in Contractor’s performance of the



Work, which is actually and demonstrably caused directly and solely by Company's failure to perform any covenant of Company hereunder (other than by exercise of rights under this Agreement, including the exercise by Company of the right to have defective or nonconforming Work corrected or re-executed). Contractor expressly acknowledges and agrees that any delay that is due in part to Contractor's action or inaction is not a Company Caused Delay.

**"Company Event of Default"** has the meaning set forth in Section 15.6.

**"Company Permits"** means the Applicable Permits listed on Exhibit H.

**"Company Taxes"** has the meaning set forth in Section 4.5.

**"Computing System"** means Company's computers, servers, applications, files, electronic mail, electronic equipment, wireless devices, databases, data storage and other data resources, and Company-sponsored connections to the internet communications network.

**"Confidential Information"** has the meaning set forth in Section 18.3(a).

**"Contract Documents"** means the Purchase Order, this Agreement and all exhibits incorporated into this Agreement (as set forth in Section 1.3), as the same may be amended, supplemented or modified from time to time in accordance with the terms hereof.

**"Contract Price"** means the maximum sum payable by Company as stated in Section 7.1 for all labor, all materials, and all equipment, which sum shall be due in accordance with the terms of the Contract Documents as consideration for the timely performance of the Statement of Work to be performed by or through Contractor on a "turn-key" basis in order to complete the Project, all in strict accordance with the terms of the Contract Documents, which maximum sum is guaranteed by Contractor not to exceed the amount set forth in Section 7.1, which sum shall only be subject to adjustment in accordance with the Contract Documents. "Contractor" means \_\_\_\_\_, a \_\_\_\_\_ [ENTITY TYPE] (as referenced in the opening paragraph hereof), and includes its legal successors and permitted assignees as may be accepted by Company, in writing, pursuant to the terms of the Contract Documents.

**"Contractor Agents"** has the meaning set forth in Section 3.34(a).

**"Contractor Equipment"** means all of the equipment, materials, apparatus, structures, tools, supplies and other goods provided and used by Contractor and its Subcontractors and Vendors, whether owned, leased, rented or hired, for performance of the Work but which is not intended to be incorporated into the ESS.

**"Contractor Event of Default"** has the meaning set forth in Section 15.1.

**"Contractor Insurance Policies"** has the meaning set forth in Section 9.1.

**"Contractor Permits"** means all Applicable Permits, except those Applicable Permits specifically listed on Exhibit G.

**"Contractor Personnel"** means Contractor's and its Subcontractor's employees, temporary personnel, day laborers, agents and representatives involved in the performance of Contractor's obligations under the Agreement.

**"Contractor Project Engineering Manager"** means the person designated by Contractor as having the responsibility, authority and supervisory power of Contractor for the engineering and design of the ESS.

“**Contractor Project Manager**” means the person designated by Contractor as having the centralized responsibility, authority and supervisory power of Contractor for design, procurement, installation, testing and start-up of the ESS, as well as all matters relating to the administration of the provisions of the Contract Documents.

“**Contractor Site Manager**” means an employee of Contractor, working under the supervision of the Contractor Project Manager, located at the Job Site on a daily basis.

“**Contractor Taxes**” has the meaning set forth in Section 3.22(a).

“**Contractor’s Representative**” has the meaning given in Section 3.12(b).

“**Credit Rating**” means with respect to any entity, the rating then assigned to such entity’s unsecured, senior long-term debt obligations (not supported by third party credit enhancements) or if such entity does not have a rating for its senior unsecured long-term debt, then the rating then assigned to such entity as an issuer rating by the Ratings Agencies.

“**Critical Milestones**” means the Milestones set forth in Exhibit C.

“**Critical Path**” means a determination of the Project Schedule specifically illustrating those unique activities and durations that must be completed in sequence to complete the Work, which sequence shall be determined using critical path method precedence networking techniques applied by Contractor and approved by Company.

“**Damages**” has the meaning set forth in Section 16.1.

“**Day**” or “**day**” means a period of twenty-four (24) consecutive hours from 12:00 midnight (Pacific time), and shall include Saturdays, Sundays and all holidays except that in the event a time period set forth in the Contract Documents expires on a Day that is not a Business Day, such period shall be deemed to expire on the next Business Day thereafter.

“**Defect**” means, any designs, engineering, software, drawings, components, tools, Equipment, installation, construction, workmanship or Work that (i) do not conform to the terms of the Contract Documents, (ii) are not of uniform good quality, free from defects or deficiencies in design, application, manufacture or workmanship, or that contain improper or inferior workmanship, or (iii) would adversely affect (A) the performance of the ESS under anticipated operating conditions, (B) the continuous safe operation of the ESS during the ESS’s design life or (C) the structural integrity of the ESS. The term “Defects” shall neither be construed to include material damage caused by Company’s acts or omissions to the extent arising out of abuse, misuse, negligence in operation, maintenance and repair (unless such act or omission was taken or made at the direction of Contractor) or failure to follow Prudent Industry Practices, nor shall the term “Defects” be construed to include ordinary wear and tear. Anything to the contrary notwithstanding, the Parties agree that Work shall be considered to be defective if it does not conform to the usual and customary standards expected of experienced engineering, procurement, construction, installation and maintenance professionals in the major electric high power battery storage industry.

“**Dispute**” has the meaning set forth in Section 17.1.

“**Dollars**” or “**USD**” means lawful currency of the United States of America.

“**Drawings**” means (i) all specifications, calculations, designs, plans, drawings, engineering and analyses, and other documents which determine, establish, define or otherwise

describe the scope, quantity, and relationship of the components of the ESS, including the structure and foundation thereof, and (ii) all technical drawings, operating drawings, specifications, shop drawings, diagrams, illustrations, schedules and performance charts, calculations, samples, patterns, models, operation and maintenance manuals, piping and instrumentation diagrams, underground structure drawings, conduit and grounding drawings, lighting drawings, conduit and cable drawings, electric one-line's, electric schematics, connection diagrams and technical information of a like nature, prepared or modified by Contractor or any of its Subcontractors or Vendors, all of which are required to be delivered by Contractor, or any Subcontractor or Vendor, from time to time under the Contract Documents to Company which illustrates any of the Equipment or any other portion of the Work, either in components or as completed.

“**ESS**” means the electric energy storage system, including Software, to be located on the Property Site as more particularly described in the Statement of Work.

“**Environmental Plan**” has the meaning set forth in Section 3.18(d).

“**Equipment**” means all of the equipment, materials, apparatus, structures, tools, supplies, goods and other items provided by Contractor and its Subcontractors and Vendors (or by Company pursuant to Section 3.1(g)) that are installed or incorporated into the ESS or otherwise form or are intended to form part of the Work or the ESS (other than Contractor Equipment).

“**Equipment Tests**” means the tests further described in Exhibit A.

“**Exempt Equipment**” has the meaning set forth in Section 3.21(b).

“**Final Acceptance**” shall mean that all of the following have occurred: (i) Substantial Completion has been achieved; (ii) the Tests have been successfully completed and any Defects found have been corrected; (iii) the ESS has been manufactured and installed in accordance with the Contract Documents and the Drawings; (iv) the Final Plans accurately reflect the ESS as manufactured and installed; (v) the ESS is capable of being operated in a safe and proper manner in accordance with Applicable Laws and Applicable Permits (excluding for this purpose all variances or waivers of any Applicable Permits); (vi) Contractor shall have delivered to Company all operation and maintenance manuals and Final Plans in accordance with the Statement of Work; (vii) no defective or incomplete portions of the Work exist; (viii) either (A) all items on the Punch List have been completed or (B) the Parties have reached an agreement pursuant to Section 10.3(c) and Contractor has paid all amounts due to Company pursuant thereto; (ix) all of Contractor's cleanup and related obligations have been completed; (x) any and all Liens in respect to the ESS, the Contract Documents, the Equipment, the Job Site or any fixtures, personal property or Equipment included in the Work created by, through or under, or as a result of any act or omission of, Contractor or any Subcontractor, Vendor or other Person providing labor or materials in connection with the Work shall have been released or bonded in form satisfactory to Company (provided that Contractor's Lien Waiver and Release, in substantially the form of Exhibit K attached hereto from Contractor and Subcontractor's Certificate for Final Waiver of Liens in the form of Exhibit K-1 attached hereto from each Substantial Subcontractor and Substantial Vendor, shall be given concurrently with Final Acceptance and payment of amounts due by Company in connection therewith); (xi) Contractor shall have paid all Liquidated Damages due under the Contract Documents, if any; (xii) all other outstanding obligations of Contractor hereunder that Company has notified Contractor of shall have been satisfied; and (xiii) Company has approved of and signed the Final Acceptance Certificate pursuant to Section 10.6.

**“Final Acceptance Certificate”** means the certificate issued by Company indicating that Final Acceptance has been achieved by Contractor.

**“Final Acceptance Date”** means the date of achievement of Final Acceptance as indicated in the Final Acceptance Certificate pursuant to Section 10.5.

**“Final Plans”** means final Drawings and final specifications, as revised to reflect the changes during construction, and shall include, as relevant, as-built drawings, piping and instrumentation diagrams, underground structure drawings, electric one-lines, electric schematics and connection diagrams.

**“Fitch”** means Fitch Ratings Ltd. or its successor.

**“Force Majeure Event”** has the meaning set forth in Section 14.1.

**“Government Authority”** means any and all foreign, national, federal, state, county, city, municipal, local or regional authorities, departments, bodies, commissions, corporations, branches, directorates, agencies, ministries, courts, tribunals, judicial authorities, legislative bodies, administrative bodies, regulatory bodies, autonomous or quasi-autonomous entities or taxing authorities or any department, municipality or other political subdivision thereof.

**“Guaranteed Completion Date”** means the date specified in the Statement of Work, which Contractor guarantees that the Project shall achieve Substantial Completion, as such date may be extended in accordance with the terms hereof.

**“Hazardous Material”** means any hazardous or toxic chemicals, hazardous materials, hazardous waste, hazardous constituents, hazardous or toxic or radioactive substances or petroleum products (including crude oil or any fraction thereof), defined or regulated as such under any Applicable Laws.

**“Health Plan”** has the meaning set forth in Section 3.17(c).

**“Indemnified Person”** has the meaning set forth in Section 16.3(a).

**“Indemnifying Party”** has the meaning set forth in Section 16.3(a).

**“Initial Site Mobilization”** means the first instance when any of Contractor or its Subcontractors’ or Vendors’ Labor or other representatives is present on any of the Property Site after Company has issued the Notice to Proceed.

**“Intellectual Property Rights”** has the meaning set forth in Section 3.25(a).

**“Job Site”** means the Property Site and any other areas where Contractor may temporarily obtain care, custody and control, use, easement or license for purposes directly, indirectly or incidentally related to performance of, or as an accommodation to, the Work.

**“Labor”** means the workforce of the relevant Person, including its staff and employee and non-employee and skilled and unskilled workers.

**“Letter of Credit”** has the meaning set forth in Section 11.6.

**“Lien”** means any lien, security interest, mortgage, hypothecation, encumbrance or other restriction on title or property interest.

**“Liquidated Damages”** has the meaning set forth in Section 11.4(a).

**“Maintenance Period”** means the \_\_\_\_\_ year period following the Substantial

Completion Date during which Contractor shall maintain the ESS in accordance with the Maintenance Requirements.

“**Maintenance Requirements**” has the meaning set forth in Exhibit R.

“**Major Equipment**” means either (a) any item or component of the Project, the proper or efficient function of which affects the ESS’s performance or reliability, or (b) without duplication, the long lead-time items of Equipment and critical items of Equipment listed on Exhibit I, which must be procured by, or through, Contractor at a certain stage of the Work in order to ensure the timely completion of the Project.

“**Major Manufacturers**” means the manufacturers of the Major Equipment.

“**Milestones**” means the activities, events and targets, or combination thereof, set forth in Exhibit A.

“**Moody’s**” means Moody’s Investor Services, Inc. or its successor.

“**Notice to Proceed**” means the notice given from Company to Contractor directing Contractor to commence performance of the Work.

“**Notice to Proceed Date**” has the meaning set forth in Section 5.2(a).

“**Parties**” means collectively, Company and Contractor.

“**Party**” means individually, Company or Contractor.

“**Performance Guarantees**” has the meaning set forth in Section 11.3.

“**Performance Guarantee Period**” has the meaning set forth in Section 11.3(a).

“**Performance Requirements**” means the performance requirements set forth in Exhibit D that the ESS must meet in order to achieve Substantial Completion.

“**Performance Tests**” means actions taken as described in Article X and Exhibit D to verify the performance of the Project, including whether the Performance Requirements have been achieved.

“**Performance Liquidated Damages**” has the meaning set forth in Section 11.3(b).

“**Person**” means an individual, partnership, corporation, limited liability company, company, business trust, joint stock company, trust, unincorporated association, joint venture, Government Authority or other entity of whatever nature.

“**Post-Warranty Letter of Credit**” has the meaning set forth in Section 11.6(c).

“**Pre-Existing Hazardous Material**” means Hazardous Material that existed on or in the Property Site prior to Initial Site Mobilization by Contractor.

“**Production Notice To Proceed**” means the notice given from Company to Contractor directing Contractor to commence fabrication and assembly of the ESS at Contractor’s facility.

“**Prohibited Items**” means any pyrotechnics, explosives, firearms, weapons, alcoholic beverages, illegal drugs, or any items associated with those items.

“**Project**” means the ESS and all equipment, services and utilities related thereto which must be completed as part of the Statement of Work, all of which Contractor guarantees shall be designed, constructed, assembled, erected, commissioned, started, tested and otherwise completed

by, or through, Contractor in strict accordance with the provisions of the Contract Documents.

**“Project Schedule”** means the schedule for completion of the Work developed and maintained by Contractor, provided to Company, including all scheduled activities and durations required to perform the Work attached hereto as Exhibit A and provided electronically to Company in the format and frequency required in Exhibit A, or any time upon Company’s request.

**“Property Site”** means that certain piece of real property located in such places as may be identified by Company in the Notice to Proceed.

**“Prudent Industry Practices”** means the practices generally followed by the United States electric utility industry with respect to design, construction, operation, and maintenance of electric facilities (including but not limited to, the engineering, operating and safety practices generally followed by the electric utility industry).

**“Punch List”** has the meaning set forth in Section 10.4(b).

**“Purchase Order”** means that certain Purchase Order issued by Company and accepted by Contractor, as of the date hereof, as the same may be amended, supplemented or modified from time to time in accordance with the terms thereof.

**“Qualified Institution”** means either (A) a commercial bank or financial institution (that is not an Affiliate of Contractor or Contractor’s Parent Guarantor) organized under the laws of the United States or a political subdivision thereof or (B) a U.S. branch office of a foreign bank, with respect to both entities identified in clause (A) and (B), having (i) (a) Credit Ratings of at least “A-” by S&P, “A-” by Fitch and “A3” by Moody’s, if such entity is rated by the Ratings Agencies; (b) if such entity is rated by only two of the three Ratings Agencies, a Credit Rating from two of the three Ratings Agencies of at least “A-” by S&P, if such entity is rated by S&P, “A-” by Fitch, if such entity is rated by Fitch, and “A” by Moody’s, if such entity is rated by Moody’s; or (c) a Credit Rating of at least “A-” by S&P or “A3” by Moody’s, or “A-” by Fitch if such entity is rated by only one Ratings Agency, and (ii) having shareholder equity (determined in accordance with generally accepted accounting principles) of at least \$1,000,000,000.00 (ONE BILLION AND 00/100 DOLLARS).

**“Qualified Insurer”** has the meaning set forth in Section 9.3.

**“Quality Assurance Program”** has the meaning set forth in Section 3.34.

**“Ratings Agency”** means any of S&P, Moody’s, and Fitch (collectively the ‘Ratings Agencies’).

**“Reference Rate”** means the lesser of (i) the prime rate of interest for United States of America financial institutions as reported from time to time by *The Wall Street Journal* (New York Edition) plus two percent (2%) or (ii) the maximum rate permitted by Applicable Law.

**“Request for Payment”** means the written requests from Contractor to Company for payment hereunder.

**“Safe and Secure Workplace Policy”** means the safe and secure workplace policy of Company.

**“Safety Plan”** has the meaning set forth in Section 3.18(d).

**“Schedule Liquidated Damages”** has the meaning set forth in Section 11.2(a).

“**Statement of Work**” means the services and work to be provided, or caused to be provided, by or through Contractor under the Contract Documents for the Contract Price, as more particularly described in Exhibit A, as the same may be amended from time to time in accordance with the terms hereof, and which Statement of Work includes, without limitation, all licenses, technical assistance, engineering, assembly, construction management, construction, services, labor, materials, equipment, operations and management that are indicated on, inferable from, or incidental to, the Contract Documents or the Drawings prepared in connection with the Contract Documents or that are likely to be required in accordance with Applicable Law, or that are properly and customarily included within the general scope and magnitude of the work incorporated into similar projects having similar performance requirements, all in order to produce a Project that complies with the requirements of the Contract Documents.

“**Software**” means the object code Versions of any applications, programs, operating system software, computer software languages, utilities, other computer programs and Related Documentation, in whatever form or media, including the tangible media upon which such applications, programs, operating system software, computer software languages, utilities, other computer programs and Related Documentation are recorded or printed, together with all corrections, improvements, updates and releases thereof.

“**Subcontractor**” means any contractor, constructor or material man who performs any portion of the Statement of Work other than Contractor.

“**Substantial Completion**” shall mean that all of the following have occurred for the Project: (i) the Work has been completed in accordance with the Technical Specifications so that the ESS is ready for safe, efficient and reliable operation, including, without limitation, the completion of: (1) the Equipment for the Project has been installed with the required connections and controls; (2) all remaining electrical systems have been checked out and are ready for operation; (3) all electrical continuity and ground fault tests and all mechanical tests and calibrations have been completed; and (4) all instrumentation is operational and has been calibrated in accordance with manufacturers’ standards and guidelines and, where possible, loop checked.; (ii) the ESS has been interconnected with the Company’s electrical system in accordance with the Statement of Work and the Company’s interconnection requirements; (iii) the ESS is capable of being operated safely, reliably and normally in accordance with the requirements of all Applicable Laws, Applicable Permits and the Contract Documents at all operating conditions and modes specified in the Statement of Work (although minor portions of the Work not essential to its safe, normal and continuous operation may remain to be completed); (iv) the Performance Tests have been satisfactorily completed and the Performance Requirements have been achieved; (v) Contractor has provided Company with copies of all Contractor Permits; and (vi) Contractor shall have paid all Schedule Liquidated Damages due under the Contract Documents, if any.

“**Substantial Completion Date**” means the actual date of achieving Substantial Completion as determined pursuant to Section 10.4(b).

“**Substantial Subcontractor**” means those Subcontractors listed on Exhibit J and any other Subcontractor whose contract or contracts (in the aggregate) with Contractor require payments by Contractor totaling at least one hundred thousand Dollars (\$100,000).

“**Substantial Vendor**” means those Vendors listed on Exhibit J and any other Vendor whose contract or purchase orders (in the aggregate) with Contractor require payments by Contractor of at least one hundred thousand Dollars (\$100,000).

“**S&P**” means the Standard & Poor’s Rating Group (a division of McGraw-Hill, Inc.) or its successor.

“**Tax**” or “**Taxes**” shall mean all fees, taxes (including sales taxes, use taxes, stamp taxes, value-added taxes, ad valorem taxes and property taxes (personal and real, tangible and intangible), levies, assessments, withholdings and other charges and impositions of any nature), plus all related interest, penalties, fines and additions to tax, now or hereafter imposed by any federal, state, local or foreign government or other taxing authority (including penalties or other amounts payable pursuant to subtitle B of Title I of ERISA).

“**Technical Specifications**” means the design basis for the ESS, engineering plans and other technical data and documentation, all as specified in Exhibit A.

“**Termination Payment**” has the meaning set forth in Section 15.3(b).

“**Test Notice**” has the meaning set forth in Section 10.1(b).

“**Tests**” means collectively, actions taken to verify the performance of the Project, including achievement of the Performance Requirements.

“**Vendor**” means any supplier, manufacturer or vendor of Equipment to Contractor or any Subcontractor.

“**Version**” means a version of the Software, as signified by the number to the left of the decimal point (i.e., a change in numbers to the left of the decimal point represents a new Version, such as Version 1.0 to Version 2.0). A new Version of the Software shall include cumulative functionality of all prior Versions provided to Company.

“**Warranty Period**” has the meaning set forth in Section 12.1(d).

“**Warranty Period Letter of Credit**” has the meaning set forth in Section 11.6(b).

“**Work**” has the meaning set forth in Section 3.1(a).

## 1.2 INTERPRETATION.

Unless the context of the Contract Documents otherwise requires:

(a) the headings contained in this Agreement are used solely for convenience and do not constitute a part of this Agreement between the Parties, nor should they be used to aid in any manner to construe or interpret this Agreement;

(b) the gender of all words used herein shall include the masculine, feminine and neuter and the number of all words shall include the singular and plural words;

(c) the terms “hereof”, “herein” “hereto” and similar words refer to this entire Agreement and not to any particular Article, Section, Exhibit or any other subdivision of this Agreement;

(d) references to “Article,” “Section” or “Exhibit” are to this Agreement unless specified otherwise;

(e) reference to “this Agreement” (including any Exhibit hereto) or any other agreement, Exhibit, permit or document shall be construed as a reference to such agreement or document as the same may be amended, modified, supplemented or restated, and shall include a reference to any document which amends, modifies, supplements or restates, or



is entered into, made or given pursuant to or in accordance with its terms;

(f) references to any law, statute, rule, regulation, notification or statutory provision (including Applicable Laws, Applicable Permits and the Technical Specifications) shall be construed as a reference to the same as it may have been, or may from time to time be, amended, modified or re-enacted;

(g) references to any Person shall be construed as a reference to such Person's successors and permitted assigns; and

(h) references to "includes," "including" and similar phrases shall mean "including, without limitation."

### 1.3 EXHIBITS.

The following exhibits are attached to and incorporated into and made a part of this Agreement:

- (a) Exhibit A - Statement of Work, to include:
  - 1. Project Schedule
  - 2. Critical Milestones
  - 3. Division of Responsibilities Matrix
  - 4. ESS Specifications
  - 5. Applicable Standards
  - 6. Site Commissioning Tests
- (b) Exhibit B – Form of Substantial Completion Certificate
- (c) Exhibit C - Form of Final Acceptance Certificate
- (d) Exhibit D – Performance Requirements
- (e) Exhibit E - Form of Contractor Certificate for Partial Waiver of Liens
- (f) Exhibit E-1 - Form of Subcontractor Certificate for Partial Waiver of Liens
- (g) Exhibit F - Form of Contractor Parent Guaranty
- (h) Exhibit G - Contractor Permits
- (i) Exhibit H - Company Permits
- (j) Exhibit I - Major Equipment
- (k) Exhibit J - Approved Substantial Subcontractors and Substantial Vendors
- (l) Exhibit K - Form of Contractor Certificate for Final Waiver of Liens
- (m) Exhibit K-1 - Form of Subcontractor Certificate for Final Waiver of Liens
- (n) Exhibit L - Form of Letter of Credit
- (o) Exhibit L-1 - Schedule to Letter of Credit
- (p) Exhibit M – Performance Guarantees

- (q) Exhibit N – DBE Subcontracting Commitment and Reporting Requirements
- (r) Exhibit O – Access to Company’s Computing System
- (s) Exhibit P – Critical Infrastructure Protection Requirements
- (t) Exhibit Q – Schedule Liquidated Damages
- (u) Exhibit R – Maintenance Requirements
- (v) Exhibit S – Consent to Assignment
- (w) Exhibit T – Performance Liquidated Damages
- (x) Exhibit U – Project Labor Agreement

1.4 ORDER OF PRECEDENCE.

(a) In the event of conflicts among the terms of the Contract Documents, interpretations shall be based upon the following Contract Documents which are set forth in ranked order of precedence:

- (1) amendments, addenda or other modifications to the Contract Documents (including Change Orders) duly signed and issued after the signing of this Agreement, with those of a later date having precedence over those of an earlier date;
- (2) the Purchase Order;
- (3) this Agreement; and
- (4) the exhibits to this Agreement.

(b) In the event of conflicts among the Exhibits, interpretations shall be based on the following order of precedence:

- (1) Exhibit A – Statement of Work; and
- (2) The remaining Exhibits shall apply in alphabetical order.

In the event of a conflict among, or within, any other Contract Document(s) within any one of the levels set forth in the foregoing order of precedence, the more stringent requirements of such Contract Document(s) which are applicable to the obligations of Contractor shall take precedence over the less stringent requirements applicable thereto.

**ARTICLE II.  
RETENTION OF CONTRACTOR**

2.1 RETENTION OF CONTRACTOR.

Company hereby engages Contractor, and Contractor hereby agrees to be engaged by Company to perform the Work in accordance with the terms and conditions set forth herein.

2.2 STATUS OF CONTRACTOR; NO PARTNERSHIP.

Contractor shall be an independent contractor with respect to any and all Work performed and to be performed under the Contract Documents. The Contract Documents shall not be interpreted or construed to create an association, joint venture or partnership relationship among or between the Parties or any similar relationship, obligations or liabilities. Neither Party shall have any right, power or authority to enter into any agreement or undertaking for, act on behalf of,

or to act as or be an agent or representative of, or to otherwise bind or obligate the other Party.

### 2.3 SUBCONTRACTORS AND VENDORS.

(a) Subject to the terms hereof, Contractor shall have the right to have any portion of the Work performed by a Subcontractor or Vendor qualified to perform such Work pursuant to written subcontracts or written purchase orders; provided that Contractor shall not be relieved from any liability or obligation under the Contract Documents. Except as otherwise expressly provided in the Contract Documents, Contractor shall be solely responsible for engaging, managing, supervising and paying all such Subcontractors and Vendors. Contractor shall require that all Work performed, and all Equipment provided by Subcontractors and Vendors are received, inspected and otherwise furnished in accordance with the Contract Documents, and Contractor shall be solely liable for all acts, omissions, liabilities and Work (including Defects therein) of such Subcontractors and Vendors. Company shall not have any obligation or liability to any Subcontractor or Vendor. Nothing in any contract, subcontract or purchase order with any Subcontractor or Vendor shall in any way diminish or relieve Contractor from any duties and obligations under the Contract Documents; and each such contract, subcontract and purchase order must provide that the rights thereunder are assignable to Company or its designees at any time without the prior consent of the applicable Subcontractor or Vendor. No Subcontractor or Vendor is intended to be or shall be deemed a third-party beneficiary of the Contract Documents.

(b) A list of approved Substantial Subcontractors and Substantial Vendors as of the date hereof, including a brief description of the Work to be performed by such Persons, is attached hereto as Exhibit J. Contractor may retain those Substantial Subcontractors or Substantial Vendors which are set forth on Exhibit J. Company shall have the right to approve, in advance in writing, each additional Substantial Subcontractor and Substantial Vendor in accordance with the terms hereof. Prior to retaining any additional Substantial Subcontractors or Substantial Vendors, Contractor shall notify Company in writing and provide it with such information as necessary to enable Company to evaluate each such proposed Substantial Subcontractor or Substantial Vendor for the portion of the Work proposed to be performed by it. Within fifteen (15) days after receipt of such information, Company shall advise Contractor if any proposed Substantial Subcontractor or Substantial Vendor is unacceptable. If Company fails to object to any proposed Substantial Subcontractor or Substantial Vendor within such fifteen (15) day period, Contractor may retain such Substantial Subcontractor or Substantial Vendor for the portion of the Work proposed. If Company objects in writing within such fifteen (15) day period to such proposed Substantial Subcontractor or Substantial Vendor, Contractor shall not retain such proposed Substantial Subcontractor or Substantial Vendor. Approval of any Substantial Subcontractor or Substantial Vendor under this paragraph shall only be for the portion of the Work so approved. Contractor hereby acknowledges and agrees that the review and/or acceptance of any subcontract by Company and the acceptance of the approved Substantial Subcontractors and Substantial Vendors shall not: (i) modify, in any way, the obligations of Contractor pursuant to the Contract Documents; or (ii) be raised as a claim or as a defense or counterclaim to any claim in connection with the Contract Documents.

(c) Contractor shall submit to Company a copy of each purchase order or agreement entered into with a Subcontractor or Vendor. Each purchase order or agreement shall show, where applicable, the Vendor's or Subcontractor's name, manufacturer's or service provider's name, materials type, model number, size, quantity and lists of the Equipment ordered, or description of services, as appropriate, and shall be submitted to Company when issued for

purchase.

(d) Each subcontract and purchase order shall require such Subcontractor and Vendor to assume toward Contractor those terms and conditions of contracting which Contractor customarily includes in its subcontracts. At a minimum, all subcontracts shall require the Subcontractors to comply with Applicable Laws and Applicable Permits, shall provide that Company has the right of inspection as provided hereunder and require such Subcontractors and Vendors to (i) be subject to the labor obligations hereunder as well as the safety and security provisions of the Contract Documents, (ii) provide guarantees and warranties with respect to its portion of the Work and the Equipment, (iii) provide certificates of insurance as set forth herein, and (iv) be subject to the dispute resolution procedures as required herein. All subcontracts shall preserve and protect the rights of Company, shall not prejudice such rights and shall require each Subcontractor to enter into similar agreements with other Subcontractors.

(e) Unless otherwise agreed in writing by the Parties, all Work performed by a Subcontractor shall be performed pursuant to a written agreement between Contractor and Subcontractor, which agreement shall (i) require the Subcontractors to comply with Applicable Laws and Applicable Permits, provide that Company has the right of inspection as provided hereunder and require such Subcontractors (A) be subject to the labor obligations hereunder as well as the safety and security provisions of this Agreement, (B) provide guarantees, warranties and remedies with respect to the portion of the Work that are at least as favorable to Company as Contractor's guarantees, warranties and remedies hereunder with respect to such Work, (C) provide certificates of insurance substantially the same as required herein, and (D) require that disputes be resolved through arbitration; (ii) prohibit each Subcontractor from entering into subcontracts regarding its portion of the Work; (iii) provide a limitation of liability of not less than one hundred percent (100%) of the agreement value; (iv) provide a remedy for breach of any warranties at least as favorable to Company as the remedy for breach of warranty obligations contained herein; and (v) expressly provide that Company may direct Contractor to assign at any time Contractor's rights and obligations under such agreement to Company or its designees without the prior written consent of the applicable Subcontractor and shall include the following language to make Company an express third-party beneficiary of such agreement:

“The parties hereto agree and acknowledge that the services/ work/ equipment to be provided hereunder by Subcontractor will be incorporated into the energy storage system located at each Site. As such, the parties expressly agree that Company is a third party beneficiary of the purchase order entitled, in its own name, to enforce the purchase order against Subcontractor without first having to proceed against Contractor.”

### **ARTICLE III. CERTAIN OBLIGATIONS AND RESPONSIBILITIES OF CONTRACTOR**

#### **3.1 STATEMENT OF WORK; APPLICABLE STANDARDS.**

(a) Contractor shall (i) provide the services specified in the SOW and perform its other obligations hereunder, including completion of the Work and any warranty work hereunder, and (ii) manage, supervise, inspect and furnish all Labor, Equipment, Contractor Equipment, products and services for the foregoing, all on a turnkey basis, in accordance with the Contract Documents, including, without limitation, the Project Schedule and the Statement of Work, as the same may be modified from time to time in accordance with the terms hereof by a Change Order

or other amendment hereto (all of the foregoing being collectively referred to in this Agreement as the “Work”).

(b) Contractor shall perform the Work and turn the ESS over to Company in a manner that is (i) sufficient, complete and adequate in all respects necessary for the Project to successfully achieve Substantial Completion by the Guaranteed Completion Date; (ii) in conformance with professional standards and skill, expertise and diligence of design and construction professionals regularly involved in major power projects of similar size and nature to the Project; (iii) in compliance with the terms of the Contract Documents, the Technical Specifications, and all Applicable Laws and Applicable Permits; and (iv) approved as to form, use and content by public and private entities authorized to administer or enforce any building or construction code or standard whose approval of the final design of the ESS, or any portion thereof, is necessary for the construction, operation or interconnection of the ESS.

(c) Contractor has included within the Contract Price the cost to complete the entire Statement of Work. Items need not be specifically listed in the Contract Documents or in Exhibit A in order to be deemed to be items within the Statement of Work. It is understood that Contractor is better qualified to list exclusions than Company is to list inclusions. Therefore, any item or service indicated on the Contract Documents, inferable therefrom, incidental thereto or required in accordance with any Applicable Law is to be considered as part of the Statement of Work. In addition, the Statement of Work includes all that should be properly included and all that would be customarily included within the general scope and magnitude of the Work in order to achieve Substantial Completion. As a result, Contractor hereby waives any and all claims for an increase in the Contract Price or an extension of the Guaranteed Completion Date based, in whole or in part, upon an assertion that any certain license, technical assistance, engineering, assembly, construction, service, labor, material, equipment, operation or management is beyond the Statement of Work when such license, technical assistance, engineering, assembly, construction, service, labor, material, equipment, operation or management is indicated in the Contract Documents, the Drawings or other instruments of service prepared in connection with the Contract Documents, inferable therefrom, incidental thereto, required in accordance with any Applicable Law, Applicable Permits or otherwise necessary in order to complete the Project in accordance with and subject to the requirements of the Contract Documents.

(d) Contractor acknowledges that this Agreement constitutes an obligation with a maximum Contract Price as specified in Section 7.1 to (i) engineer, design, procure, construct, test, install and start up through Substantial Completion a turnkey Project, complete in every detail, within the time and for the purpose designated herein, (ii) achieve Final Acceptance, (iii) maintain the ESS in accordance with the Maintenance Requirements through the Maintenance Period, and (iv) comply with all of the warranty obligations set forth in this Agreement. References to the obligations of Contractor under this Agreement as being “turnkey” and performing the Work on a “turnkey basis” means that Contractor is obligated to supply all of the Equipment and design services, install all of the Equipment and supply all labor and to supply and perform all of the Work, in each case as may reasonably be required, necessary, incidental, or appropriate (whether or not specifically set forth in this Agreement) to complete the Work such that the Project satisfies the applicable terms, conditions, and Contractor’s obligations concerning the Performance Requirements and all other guarantees and requirements set forth in the Contract Documents, all for the Contract Price.

### 3.2 CONTROL AND METHOD OF THE WORK.

Subject to the terms hereof, Contractor shall be solely responsible for performing or causing to be performed the Work in accordance with the terms of the Contract Documents, and for all means, methods, techniques, sequences, procedures, and safety and security programs in connection with such performance. Contractor shall inform Company in advance concerning its plans for carrying out the Work.

### 3.3 COMPLIANCE WITH LAW.

Contractor shall comply, and shall cause all of its Subcontractors, Vendors and Persons that it has a right to direct and who are engaged in the performance of any of the Work to comply with, all Applicable Laws, and Applicable Permits. Contractor shall perform the Work in a manner designed to protect the environment on and off the Job Site and minimize damage or nuisance to Persons and property of the public or others, including damage or nuisance resulting from pollution, noise or other causes arising as a consequence of methods of construction or operation of the ESS. In the event of a conflict between the provisions of any of the Contract Documents and the requirements of any Applicable Laws or Applicable Permits applicable to the obligations of Contractor under the Contract Documents, the requirements of such Applicable Laws or Applicable Permits shall take precedence over such provisions of the Contract Documents. The provisions of this Section 3.3 shall not be construed as to limit Contractor's obligations and liabilities under Section 3.15.

### 3.4 CERTAIN MATTERS PERTAINING TO JOB SITE.

Contractor acknowledges that prior to the execution of this Agreement, Contractor (i) has made a complete and careful examination of the Job Site and the surrounding areas, drawings and specifications; (ii) has made a complete and careful examination to determine the difficulties and hazards incident to the performance of the Work, including (A) the location of the Project, (B) the proximity of the Project to adjacent facilities and structures, (C) the conditions of the roads and waterways in the vicinity of the Job Site, including the conditions affecting shipping and transportation, access, disposal, handling and storage of materials, (D) the nature and character of the soil, terrain, and surface conditions of the Job Site, (E) the labor conditions in the region of the Job Site, (F) Applicable Laws and Applicable Permits, (G) rights of Company regarding the Job Site as set forth herein, (H) the local weather conditions based upon previous weather data, (I) the qualifications of all Subcontractors and Vendors, and (J) all other matters known or which a prudent contractor should know that might affect Contractor's performance under this Agreement or the design, engineering, procurement, construction, installation, start-up, demonstration and testing of the ESS; and (iii) has determined to Contractor's satisfaction the nature and extent of such difficulties and hazards.

### 3.5 ENVIRONMENTAL, HEALTH AND SAFETY REQUIREMENTS.

(a) The "Southern California Edison ENVIRONMENTAL, HEALTH & SAFETY HANDBOOK FOR CONTRACTORS" and the "SUPPLIER CODE OF CONDUCT," which may be updated from time to time, are located on Company's website at <http://www.sce.com/contractorhandbook> and <https://www.sce.com/Supplier Code of Conduct.pdf>, respectively, and incorporated herein by reference in their entirety. Contractor shall immediately

notify the Company representative if Contractor is unable to satisfy any of these requirements. With at least two (2) days' advance notice, Company may terminate this Agreement for cause and without liability or notice to Contractor if Contractor fails to satisfy any of these requirements within five (5) days' of being notified by Company. However, Company may immediately suspend the performance of the Work under this Agreement without notice if the Contractor violates any Federal, State, or local regulations or in the case of an emergency endangering life or property.

(b) Responsibility. Contractor shall be solely responsible for the safety and health of personnel and the prevention of industrial accidents and illness arising out of the performance of the Work.

### 3.6 SAFETY NOTIFICATIONS.

#### (a) Hazardous Substances and Material Safety Data Sheets.

(1) Prior to performing the Project Work, Contractor shall submit to the Company representative a list of all Hazardous Materials to be used in performing the Work. Contractor shall maintain a list of all Hazardous Materials used at the Job Site. A material safety data sheet ("MSDS") shall be readily available from Contractor for each Hazardous Material at the Job Site for which a manufacturer has prepared an MSDS. For purposes of this Agreement, "readily available" means that Contractor shall produce an MSDS for review within fifteen (15) minutes of the MSDS being requested by Company's representative or by an official from a Governmental Authority.

(2) MSDSs shall comply with the Federal (29 CFR 1910.1200) and California (Title 8, CCR 5194) OSHA Hazard Communication Standards.

#### (b) Container Labeling Requirements.

(1) All containers of Hazardous Materials shall be properly labeled in accordance with Applicable Laws.

(2) These labels shall be clearly legible and capable of withstanding normal shipping and handling while maintaining legibility. Any container received at the Project Site without labels, or with illegible information, is subject to rejection and return to Contractor at Contractor's expense.

(3) Labels of new chemical products shall be legible and bear the manufacturer's label and shall include, at a minimum:

(4) Identification of any Hazardous Material;

(5) Appropriate hazard warnings; and

(6) Name and address of manufacturer, importer, or other responsible party.

(7) Manufacturer labels that are illegible shall be replaced with a label bearing the required data. Each container of Hazardous Materials not in the manufacturer's original container shall be labeled, tagged or marked with the following information:

(8) Identification of the Hazardous Material; and

(9) Appropriate hazard warnings.

(c) California’s Proposition 65 – Toxic Enforcement Act Requirements.

(1) Contractor is hereby warned that exposure to chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm may occur at Company facilities. Upon request, Company shall make available to Contractor and its employees an MSDS for such chemical exposures at the Job Site. Contractor shall inform the Contractor Agents performing any of the Work at the Job Site of the above information.

(2) From the time that Contractor enters the Job Site or begins the Work until the time the Work is completed, Contractor shall, and shall require any Contractor Agents to, issue warnings for exposure to chemicals that Contractor may use in connection with the Work or that Contractor is aware of, and that are known to the State of California to cause cancer, birth defects, or other reproductive harm to personnel at the Job Site. Contractor shall also warn the Company representative of any exposure which may continue after Contractor has completed the Project Work. Such warnings may take the form of an MSDS.

(d) Asbestos Notification.

(1) Company’s buildings and structures are of such an age that they may contain asbestos-containing materials (“ACMs”) and asbestos-containing-construction-materials (“ACCMs”). Company has conducted limited surveys of its structures; therefore, all suspect ACMs are assumed to be asbestos containing until proven otherwise through survey and analysis.

(2) All suspect ACMs must be surveyed by a certified asbestos consultant in California prior to any renovation, demolition or other activity that could disturb suspect ACMs. The survey shall be provided to the SCE Corporate Environment, Health and Safety Asbestos Program Manager (“APM”) at least fifteen (15) Business Days prior to the start of the Work. The APM will provide direction for projects that could disturb ACMs or ACCMs. ACMs or ACCMs that could be disturbed must be removed in compliance with Applicable Laws by a contractor that has the proper asbestos registrations.

3.7 SUBCONTRACTING WITH DIVERSE BUSINESS ENTERPRISES (“DBE”).

(a) Subcontractor Commitment and Reporting. The DBE Subcontracting Commitment and Reporting Requirements are set forth in Exhibit N. As required by Exhibit N, Contractor shall deliver to Company a monthly report setting forth the actual payments made to DBE subcontractors in support of the ESS, Equipment, Software, or Work provided by Contractor under this Agreement.

(b) DBE Plan. Contractor shall develop and deliver to Company upon its request, a DBE plan to utilize DBE subcontractors in its performance of the Work in accordance with Diverse Business Enterprise Subcontracting Commitment and Reporting Requirements (the “DBE Plan”).

3.8 COMPUTING SYSTEM ACCESS AND SECURITY REVIEW OBLIGATIONS.

Contractor shall comply with all requirements set forth in the Access to Company’s Computing System as set forth in Exhibit O.

3.9 CRITICAL INFRASTRUCTURE PROTECTION REQUIREMENTS. Contractor shall comply with all requirements set forth in the Critical Infrastructure Protection Requirements as set forth in Exhibit P.



3.10 JOB SITE ACCESS REQUIREMENTS.

(a) Compliance with Job Site Access Requirements. If Contractor is given access to any Job Site, then such access is subject to Contractor Personnel's compliance with all Company policies and Contractor's obligations set forth in this Agreement. Access to any Job Site is strictly for the purpose of Contractor's performance of the Work during the Term, but not otherwise. In no event shall Contractor, its Personnel or Subcontractor access or make use of the Job Site for any other purpose. Contractor shall reimburse Company for any costs and expenses incurred due to any breach of this Section 3.10.

(b) Denial of Access. Company reserves the right to deny Job Site access to any employee, representative, agent, or invitee of Contractor or any Subcontractor, at Company's sole discretion.

(c) Notification of Convictions. Throughout the term of the Agreement, Contractor shall immediately notify Company whenever Contractor becomes aware that any employee, representative, or agent of Contractor or any of its Subcontractors is currently charged with, has been convicted of, or is on probation or parole for, any crime against person or property, or any felony. Contractor will also immediately remove that employee, representative, or agent from the Job Site, and revoke their access to Company's Computing Systems.

(d) Visitor Badge Requirement. All visitors to a Job Site must comply with that Job Site's specific visitor access requirements.

(e) Extended Stay Badge Requirement. Persons requesting to have access to the Job Site at least three (3) times a week for a period of thirty (30) days or more must obtain a Job Site badge from Company prior to performing any Work. Each person must submit a complete Temporary Access Authorization Questionnaire or other form as required by Company.

(f) Escort Requirement. Pending approval of a badge or repeated visitor access, all persons requesting Job Site access must be escorted by Company personnel while at the Job Site. Contingent workers should not be given visitor access pending the approval of a badge; this should be completed prior to granting access.

(g) Fitness for Duty.

(1) Fitness. Contractor Personnel and its Subcontractor's personnel at the Job Site must:

(A) Report for work in a manner fit to do their job;

(B) Not consume or be under the influence of or in possession of any alcoholic beverages or of any controlled substance (except a controlled substance as prescribed by a physician that does not affect that individual's ability to properly and safely perform his or her duties); and

(C) Is not currently charged with, convicted of, or on probation or parole for any crime against person or property, or any felony.

(2) Inspection. Contractor, its Subcontractors and their respective employees, representatives, and agents shall not bring onto or keep any Prohibited Items at the Jobsite or on any Edison-owned or -leased property. In order to ensure Contractor's compliance with this Section 3.10, Company-authorized representatives may, without notice, search work

areas and other common areas, lockers, storage areas, vehicles, persons, or personal effects on Company-owned or -leased property at any time, using any reasonable means including detection dog teams.

(3) Compliance. Contractor shall advise its Personnel, Subcontractors, representatives, and agents of the requirements of this Section 3.10 before they enter a Job Site and, if any violations are found, immediately remove the violating Personnel, Subcontractor, representative, or agent from the Job site.

(h) Harassment. Company supports a diverse work force and prohibits unlawful employment discrimination and harassment, including sexual harassment, in accordance with Applicable Laws. Whenever present on a Company Job Site, property or facilities, Contractor shall require its employees, Subcontractors, agents, and representatives to comply with all Applicable Laws and standards prohibiting conduct that might reasonably be construed as violating Applicable Laws, including conduct such as making sexually suggestive or discriminatory jokes or remarks, touching, assaulting, making gestures of a threatening, sexual or suggestive nature, and impeding or blocking any Company's employee's, subcontractor's, or agent's movement.

### 3.11 BACKGROUND CHECKS.

All persons issued a Company Jobsite badge will undergo a security background check for criminal convictions, and are subject to recurring background investigations throughout the duration of their assignment, which may either be performed by Company or a Company designee at Company's sole discretion. Company is responsible for its costs for performing background investigations. Company's Corporate Security Department will be the sole determiner if access to the Jobsite should be granted, not granted, or revoked.

### 3.12 REMOVAL OF PERSONNEL AND RETURN OF BADGES AND EQUIPMENT.

When Contractor's or any of its Subcontractor's employee, representative, or agent with Jobsite access is reassigned to non-Company work, or is no longer employed by Contractor or Subcontractor, Contractor shall immediately inform the Company Representative and, as applicable, Company Corporate Security. Upon receipt of notification, Company may immediately revoke that person's Jobsite access, as the case may be. Contractor shall confirm such verbal notification by providing notice to the Company representative, or designee, within twenty-four (24) hours of the verbal notification. Contractor shall immediately deliver all equipment, access badges and other Company identification, and any other equipment that may have been issued or loaned to such re-assigned or terminated Contractor or Subcontractor personnel. If Contractor and Company agree that such access should be restored, the employee shall be re-processed as set forth in Sections 3.10, "Jobsite Access Requirements," and 3.11, "Background Checks," of this Agreement.

### 3.13 COMPANY ACCESS TO JOB SITE.

Contractor shall provide unrestricted access to the Job Site and the Work at all times to Company, Company's other contractors and their respective employees, representatives, agents and consultants; provided, however, that in the absence of an emergency or a default by Contractor hereunder, (i) Company or each such person shall give reasonable prior notice to Contractor and (ii) Contractor may provide, and each such person shall accept, an escort or any safety equipment or measures that Contractor, in its reasonable discretion, deems necessary or advisable.

3.14 INSPECTION AND TESTING OF WORK IN PROGRESS.

(a) Each item of Equipment to be supplied by Contractor shall be subject to inspection and testing during and upon completion of its fabrication and installation in accordance with the provisions of the Statement of Work. Without limiting the foregoing, Contractor shall be responsible for inspection and testing of the Equipment in accordance with standard inspection practices and as required by applicable specifications before their shipment and shall be responsible for successful completion of the Equipment Tests.

(b) Contractor shall perform such detailed inspection and testing of work in progress at intervals appropriate to the stage of construction or fabrication of the Project as is necessary to ensure that such work is proceeding in accordance with the Contract Documents. At least ten (10) Business Days prior to the time Contractor or its representative intends to inspect any item of Equipment, Contractor shall notify Company in writing of such inspection which notice shall state the date, time and place where such inspection is to be conducted. Company and its designated agent may, at their option and at its expense, accompany Contractor to the inspection by notifying Contractor in writing within five (5) Business Days of receipt of notice of the inspection. Company's failure to notify Contractor within the permitted time period shall be deemed to be a decision by Company not to attend the inspection. Contractor shall arrange for access to the manufacturer's facilities to permit any such inspection to be conducted smoothly. With respect to any inspection that Company chooses not to attend, Contractor (i) shall keep Company informed in all material respects of the progress and quality of all work; (ii) shall advise Company of any deficiencies revealed through such inspections and of the measures proposed to remedy such deficiencies; and (iii) shall, upon Company's request, provide Company with a reasonable opportunity to review Contractor's records with respect to such inspections. Contractor shall include the right to inspection by Company or its representative in all subcontracts and purchase orders.

(c) Contractor shall permit Company, and as authorized by Company, any party designated by Company to inspect, test and observe the Work from time to time; provided, however, that none of such Persons shall have any authority or responsibility for such Work. Contractor shall provide Company each month during performance of the Work with a schedule of all testing proposed for the following forty-five (45) day period in compliance with the requirements of the Statement of Work.

3.15 NO WAIVER OF RESPONSIBILITY.

No inspection made, acceptance of Work, payment of money or approval given by Company shall relieve Contractor of its obligations for the proper performance of the Work in accordance with the terms hereof. Company may reject any Work with Defects or which is not in accordance with the requirements of the Contract Documents, regardless of the stage of completion, the time or place of discovery of error, and whether Company previously accepted any or all of such Work through oversight or otherwise. No approval given by Company, in and of itself, shall be considered as an assumption of risk or liability by any such Person. Any such approval shall mean that the Person giving the approval has no objection to the adoption or use by Contractor of the matter approved at Contractor's own risk and responsibility. Contractor shall have no claim relating to any such matter approved, including any claims relating to the failure or inefficiency of any method approved.

### 3.16 DEFECTIVE WORK.

Contractor shall, at its sole cost and expense and without reimbursement hereunder, correct or replace any Work that contains a Defect, or is not otherwise in accordance with the Contract Documents. Equipment that has been replaced, if situated on the Job Site, shall be removed by Contractor from the Job Site at its sole cost and expense and without reimbursement hereunder. If Contractor or any Subcontractor defaults or neglects to carry out the Statement of Work in accordance with the Contract Documents and Contractor fails within a reasonable period of time (as reasonably determined by Contractor) after it knows or should have known of such default or neglects to commence and continue correction of such default or neglect with diligence and promptness, Company may, without prejudice to other remedies Company may have under this Agreement or otherwise at law or equity, correct such deficiencies. In such event, an appropriate Change Order shall be issued reducing the Contract Price and deducting from payments then or thereafter due to Contractor the cost of correcting such deficiencies, including compensation for the costs to enforce this provision (including attorneys' fees) and any consultant's additional services and expenses made necessary by such default, neglect or failure. If payments then or thereafter due to Contractor are not sufficient to cover such amounts, Contractor shall pay the difference to Company within three (3) days from Company's request therefor. Contractor shall correct any and all deficiencies as required by the Contract Documents notwithstanding any actual or possible legal obligation or duty of a Subcontractor concerning same and nothing contained in this Section 3.8 shall modify Contractor's obligation to achieve Final Acceptance in accordance with the Contract Documents. Contractor shall seek sales tax refund from the appropriate governmental entity on Equipment found to be defective or assist Company in seeking the refund, in the event Company direct pays the sales or use tax.

### 3.17 CLEAN-UP.

(a) Without limiting the provisions of Section 3.15, Contractor shall at all times keep the Job Site reasonably free from waste, rubbish and Hazardous Material, other than Pre-Existing Hazardous Material, relating to its Work. Contractor shall maintain the Job Site in a neat and orderly condition throughout the performance of the Work. Contractor shall employ sufficient personnel to clean its office at the Job Site and work areas each working day and shall cooperate with the other Persons working at the Job Site to keep the Job Site clean.

(b) Prior to the Final Acceptance Date, Contractor shall (i) remove all Contractor Equipment from the Job Site (other than equipment, supplies and materials necessary or useful to the operation or maintenance of the Facilities and Equipment and equipment, supplies and materials directed by Company to remain at the Job Site until completion of the Facilities), (ii) clean out all pits, pipes, chambers and conduits, (iii) tear down and remove all temporary structures on the Job Site built by it or its Subcontractors and restore such areas to their prior condition, except as required by Applicable Law, Section 3.15 or any other provision of this Agreement, and (iv) remove all waste, rubbish and Hazardous Material from and around the Job Site, except that Contractor shall not be required to excavate, remove, transport or otherwise dispose of (A) Pre-Existing Hazardous Material on the Job Site, other than as set forth in Section 3.15(a)(iv), or (B) any waste, rubbish or Hazardous Material caused by Company or its representatives.

### 3.18 OBTAINING, MAINTAINING AND IDENTIFYING PERMITS.

(a) Contractor shall obtain and maintain all Contractor Permits in a timely manner.

In addition, Contractor shall provide all assistance reasonably requested by Company in connection with Company's efforts to obtain and maintain the Company Permits, including, without limitation, witnesses testimony, depositions, preparation of exhibits, technical calculations and attending meetings. In the event that any Applicable Permit is required for the Facilities or to perform the Work that is not identified in the Contract Documents, Contractor or Company, as applicable, shall promptly, after it becomes aware of the need for such Applicable Permit, notify the other Party that such Applicable Permit is required. If such permit is of a nature typically obtained by contractors in similar projects, Contractor shall, at its sole cost and expense and without reimbursement hereunder, be obligated to obtain and maintain such Applicable Permit on behalf of Company. Otherwise, Company shall obtain and maintain such Applicable Permit.

(b) All Applicable Permits (other than any building permits (but excluding any applicable occupancy certificates) or other Applicable Permits designated as either "To be issued in the name of Contractor" or "To be issued in the name of the Company and Contractor" on Exhibit G or Exhibit H) shall be issued in the name of Company unless otherwise required by Applicable Law or such Applicable Permit. If any Contractor Permit (or application therefor) is in the name of Company or otherwise requires action by Company, Company shall, upon the request of Contractor, sign such application or take such action as reasonably appropriate.

(c) Company reserves the right to review any such application of Contractor; provided, however, that Company's exercise of such right shall not under any circumstances, be considered an approval of the necessity, effect or contents of such application or related permit. Contractor shall deliver to Company true and complete copies of all Applicable Permits obtained by Contractor upon its receipt thereof. Contractor shall use best efforts to identify in writing to Company all Applicable Permits and other government requirements for performance of the Work not identified in the Contract Documents, or shall confirm in writing that, to the best of Contractor's knowledge, there are no such Applicable Permits or other government requirements other than as identified in the Contract Documents prior to the date of this Agreement.

### 3.19 LABOR.

(a) General. Contractor shall be responsible for retaining all Labor necessary for it to perform its obligations hereunder and comply with the provisions hereof, all in accordance with Applicable Laws. Contractor shall comply with the provisions of the Project Labor Agreement and other applicable labor agreements listed in Exhibit T and all successor or follow on agreements entered into by Company that are applicable to the Project. Contractor shall be responsible for all costs incurred in complying with this Section 3.19 or otherwise associated with its Labor, including, without limitation, costs incurred by any member of its Labor, whether by direct contract or subcontract, for medical treatment, transport and accommodation as a result of injuries or illness arising from engagement or employment in the execution of the Work.

(b) Engagement of Labor. Contractor shall make its own arrangements for the engagement of all Labor in connection with the Contract Documents and the performance of the Work. Contractor shall employ in the performance of the Work only Labor, whether supervisors, skilled workers or laborers, who are competent to perform their assigned duties in a safe and secure manner and shall use all reasonable efforts to cause its Subcontractors and Vendors to adhere to the same standard with respect to their Labor.

(c) Identification. Contractor shall identify each member of its and its Subcontractor's and Vendor's Labor in accordance with the standards and procedures that are mutually acceptable to the Parties.

(d) Supply of Services for Labor. Contractor shall provide and maintain at the Job Site, in accordance with Applicable Laws and Applicable Permits, such accommodations, services and amenities as necessary for all Labor employed for the purpose of or in connection with the Contract Documents, including all water supply (both for drinking and other purposes), electricity supply, sanitation, safety, security, fire prevention and fire-fighting equipment, refuse disposal systems and other requirements in connection with such accommodations or amenities.

(e) Compliance with Company Policies Project Management and Contractor's Representative.

(f) Project Management. Contractor has designated a project management team, as set forth in the Statement of Work, Exhibit A, and any future members of the project management team must be approved by Company in writing prior to his/her designation, which approval shall not be unreasonably withheld. During the performance of the Work from the Initial Site Mobilization through Substantial Completion, Contractor shall maintain continuously at the Job Site adequate management, supervisory, administrative, security and technical personnel, including the Contractor Site Manager, to ensure expeditious and competent handling of all matters related to the Work, according to its determination of the staffing required for this purpose. Contractor will not re-assign, remove or replace the Contractor Project Manager, Contractor Project Engineering Manager or Contractor Site Manager without Company's prior written consent, which consent shall not be unreasonably withheld. Contractor shall promptly replace its Contractor Project Manager, Contractor Project Engineering Manager or Contractor Site Manager, upon written request of Company, if such individual is disorderly or if in Company's opinion, such individual is otherwise unsuitable for his or her position and responsibilities.

(g) Contractor's Representative. Contractor shall appoint one individual (the "Contractor's Representative"), with the prior written consent of Company, which shall not be unreasonably withheld, who shall be authorized to act on behalf of Contractor and with whom Company may consult at all reasonable times, and whose instructions, requests and decisions in writing will be binding upon Contractor. Contractor shall not remove or replace such representative without Company's prior written consent, which consent shall not be unreasonably withheld.

### 3.20 COOPERATION WITH OTHER CONTRACTORS/COMMUNITY.

(a) Contractor acknowledges that work may be performed by others at the Job Site during the execution of Work under this Agreement. Contractor further acknowledges that Company, through itself or through its employees, subcontractors or agents, may continue to work and perform activities in connection therewith at and around the Job Site during the execution of the Work under this Agreement. Contractor shall cooperate and cause its Subcontractors and Vendors to cooperate with Company and other unrelated contractors who may be working at or near the Job Site in order to assure that neither Contractor, nor any of its Subcontractors or Vendors unreasonably hinders or increases, or makes more difficult than necessary the work being done by Company and such other unrelated contractors. Contractor agrees to perform the Work in full

cooperation with such others and to permit, without charge, reasonable access to, and use of, the Job Site and the Work, by said others or by Company, whether such Work is partially or entirely complete, when such access or use is reasonably necessary for the performance and completion of the work of others. All material and labor shall be furnished, and the Work performed, at such time or times as shall be for the best interest of all contractors concerned, to the end that all Work, and the work of any separate contractor, will be properly coordinated and completed in accordance with the applicable schedules and the times of completion required by the Contract Documents.

(b) In addition to complying with all Applicable Laws and Applicable Permits, Contractor shall use reasonable efforts, and cause its Subcontractors and Vendors to use their reasonable efforts, to assist Company in creating, assessing and carrying out programs which shall, during all phases of the Work, minimize the impacts upon the host community caused by the construction of the Project. Such programs shall include: (i) sequencing of the Work so as to minimize the impacts of noise and dust at and around the Job Site; and (ii) using local labor and other resources whenever possible and cost effective.

### 3.21 PROTECTION AND SAFETY.

(a) Prior to the Substantial Completion Date, Contractor shall be responsible for the security, protection and safety of all Persons (including members of the public and the employees, agents, contractors, consultants and representatives of Company, Contractor and its Subcontractors and Vendors, and other contractors and subcontractors) and all public and private property (including structures, sewers and service facilities above and below ground, along, beneath, above, across or near the Job Site) that are at or near the Job Site or that are in any manner affected by the performance of the Work. As of the Substantial Completion Date, Company shall have operational control over the Project. Upon successful achievement of Substantial Completion and notwithstanding the foregoing, Contractor shall remain responsible for the security, protection and safety of all Persons performing any portion of the Work at the direction of Contractor.

(b) Contractor shall initiate and maintain reasonable safety precautions and accident prevention programs for the Job Site and in the performance of the Work, which shall be in compliance with all Applicable Laws and Applicable Permits, to prevent injury to persons or damage to property on, about or adjacent to the Job Site and in the performance of the Work at the Job Site. Without limiting the generality of the foregoing, Contractor shall furnish and maintain all necessary safety equipment such as signs and warning lights as required to provide adequate protection to persons and property.

(c) Contractor shall promptly provide Company with (i) written notification of all Occupational Safety and Health Act recordable events; (ii) written notifications and copies of all citations by Government Authorities concerning accidents or safety violations at the Job Site; (iii) written reports of near misses at the Job Site; and (iv) copies of written accident reports for lost time accidents.

### 3.22 ENVIRONMENTAL MATTERS.

(a) Hazardous Material. Contractor shall, and shall cause its Subcontractors and Vendors to, comply with all Applicable Laws relating to Hazardous Material and all Applicable Permits. Without limiting the generality of the foregoing:

(1) Contractor shall, and shall cause its Subcontractors and Vendors to, apply for, obtain, comply with, maintain and renew all Applicable Permits required of Contractor

by Applicable Laws regarding Hazardous Material that are necessary, customary or advisable for the performance of the Work. Contractor shall, and shall cause its Subcontractors and Vendors to, have an independent Environmental Protection Agency identification number for disposal of Hazardous Material under the Contract Documents if and as required under Applicable Laws or Applicable Permits.

(2) Contractor shall conduct its activities under the Contract Documents, and shall cause each of its Subcontractors to conduct its activities, in a manner designed to prevent pollution of the environment or any other release of any Hazardous Material by Contractor and its Subcontractors and Vendors in a manner or at a level requiring remediation pursuant to any Applicable Law.

(3) Contractor shall not cause or allow the release or disposal of Hazardous Material at the Job Site, bring Hazardous Material to the Job Site, or transport Hazardous Material from the Job Site, except in accordance with Applicable Law and Applicable Permits. Contractor shall be responsible for the management of and proper disposal of all Hazardous Material brought onto or generated at the Job Site by it or its Subcontractors or Vendors, if any. Contractor shall cause all such Hazardous Material brought onto or generated at the Job Site by it or its Subcontractors or Vendors, if any, (A) to be transported only by carriers maintaining valid permits and operating in compliance with such permits and laws regarding Hazardous Material pursuant to manifest and shipping documents identifying only Contractor as the generator of waste or person who arranged for waste disposal, and (B) to be treated and disposed of only at treatment, storage and disposal facilities maintaining valid permits operating in compliance with such permits and laws regarding Hazardous Material, from which, to the best of Contractor's knowledge, there has been and will be no release of Hazardous Material. Contractor shall submit to Company a list of all Hazardous Material to be brought onto or generated at the Job Site prior to bringing or generating such Hazardous Material onto or at the Job Site. Contractor shall keep Company informed as to the status of all Hazardous Material on the Job Site and disposal of all Hazardous Material from the Job Site.

(4) If Contractor or any of its Subcontractors or Vendors releases any Hazardous Material on, at, or from the Job Site, or becomes aware of any Person who has stored, released or disposed of Hazardous Material on, at, or from the Job Site during the Work, Contractor shall immediately notify Company in writing. If Contractor's Work involved the area where such release occurred, Contractor shall immediately stop any Work affecting the area. Contractor shall, at its sole cost and expense and without reimbursement hereunder, diligently proceed to take all necessary or desirable remedial action to clean up fully the contamination caused by (A) any negligent release by Contractor or any of its Subcontractors or Vendors of any Pre-Existing Hazardous Material, and (B) any Hazardous Material that was brought onto or generated at the Job Site by Contractor or any of its Subcontractors or Vendors, whether on or off the Job Site. Company shall have the right to approve, in advance, the disposal site for such Hazardous Material and any subcontractor utilized by Contractor to dispose of such Hazardous Material. Prior to disposing of such Hazardous Material, Contractor shall notify Company in writing and provide Company with such information as necessary to enable Company to evaluate such disposal site and subcontractor. Contractor shall be responsible, at its sole cost and expense and without reimbursement hereunder, for remedial action to clean up fully the



contamination referenced in clauses (A) and (B) of this Section 3.15(a)(iv).

(b) Waste Treatment and Disposal. Without limiting the foregoing:

(1) *Toxic Waste and Industrial Hazards*: Contractor shall be responsible for the proper management and disposal of all toxic waste and industrial hazards brought onto or generated at the Job Site by it or its Subcontractors or Vendors, if any. Contractor shall, and shall cause its Subcontractors and Vendors to, comply with all Applicable Laws, Applicable Permits and applicable safety standards related to the treatment, storage, disposal, transportation and handling of toxic wastes and industrial hazards. Contractor shall not store or dispose of toxic wastes and industrial hazards near groundwater, surface water or drainage systems. Liquid wastes shall not be dumped onto the ground or in any groundwater, surface water or drainage systems. All waste oil and grease resulting from performance of the Work, including activities performed by Subcontractors and Vendors, shall be collected and disposed of in a manner that prevents contamination to soil, ground water, and surface water, and incinerated if possible. Vehicle maintenance shall be conducted in safe areas away from watercourses and oil or fluid runoff shall be collected in grease traps. Toxic waste and industrial hazard storage containers shall be well-labeled.

(2) *Environmentally sensitive areas*: Contractor shall perform the Work in such a manner so as to protect environmentally sensitive areas and water supplies.

(c) Fuel Storage. The location, facilities, safety measures and environmental and pollution control in connection with storage of fuel or like substances shall comply with all Applicable Laws and Applicable Permits.

### 3.23 FIRE PREVENTION.

(a) Contractor shall be responsible for providing adequate fire prevention and protection of the ESS and shall take all reasonable precautions to minimize the risk of fire at the Job Site. Contractor shall provide instruction to the Labor in fire prevention control and shall provide appropriate fire-fighting and fire protection equipment and systems at the Job Site.

(b) Contractor shall promptly collect and remove combustible debris and waste material from the Job Site in accordance with Applicable Laws and Applicable Permits, and shall not permit such debris and material to accumulate. Contractor shall not allow fires for any purpose in the vicinity of the Work and shall agree upon the appropriateness of any such fires with Company. Any areas damaged by fire which are considered by Company to have been initiated by Contractor's or Subcontractors' Labor shall be re-cultivated and otherwise rehabilitated by Contractor.

(c) Contractor will complete all systems, procedures and Equipment constituting the ESS fire protection system as necessary during construction to protect Work in progress, in particular with regard to fuel and other flammable materials.

### 3.24 REPORTS, PLANS AND MANUALS.

(a) Status Reports. Contractor shall prepare and submit to Company written progress reports as set forth in the Statement of Work. In accordance with Section 5.3 hereof, Contractor shall also report any events which may affect the Project Schedule, including any Force Majeure Events, liens on the Property Site or the Project, changes in Contractor's financial condition, or any asserted violations of Applicable Laws.

(b) Reporting of Accidents. Contractor shall report in writing to Company (and, to the extent required by any Applicable Law or Applicable Permit, the appropriate Government Authority) details of any accident that is on or about the Job Site immediately after its occurrence, but in any event not later than four (4) hours after such accident occurs. In the case of any fatality or serious injury or accident, Contractor shall, in addition, notify Company (and, to the extent required by any Applicable Law or Applicable Permit, the appropriate Government Authority) immediately.

(c) Health Plan and Environmental Plan. No later than thirty (30) days after the Effective Date of this Agreement, Contractor shall prepare and submit to Company (i) a health plan that includes health, first aid facility/area with qualified attendant and emergency procedures to be used at the Job Site (the “Health Plan”); and (ii) an environmental plan that includes (A) a Hazardous Material, waste and industrial hazards management and disposal program which details the controlled usage and treatment of all Hazardous Material, toxic wastes, industrial hazards, solid waste and other waste brought onto, used or produced at the Job Site or in relation to the Work and outlines a management structure for carrying out the specific provisions of such program, (B) an environmental protection and management program, (C) the description, Job Site and drawings of construction facilities and temporary works, and (D) description and commitment of anticipated mitigation measures that will be used to ensure compliance with Applicable Permits (the “Environmental Plan”, as more particularly described in Exhibit A). The Health Plan and Environmental Plan shall be consistent with all Applicable Laws and Applicable Permits and shall be submitted to Company for review and comment. Contractor shall either promptly make changes to such Health Plan or Environmental Plan incorporating the comments of Company or negotiate and resolve in good faith with Company any such changes. Contractor shall comply and ensure that its Subcontractors comply with the Health Plan and Environmental Plan and the Safe and Secure Workplace Policy.

(d) Meetings. During the performance of the Statement of Work, Contractor and Company shall, at a minimum, conduct meetings each month at a mutually convenient time and date for the purpose of reviewing the progress of the Statement of Work, the latest progress reports, the Health Plan, the Environmental Plan, the Safety Plan, Quality Assurance Program, Contractor’s and Subcontractors’ adherence to the Statement of Work and the Project Schedule as well as the status of any claims on the Project and claims submitted pursuant to the terms of the Contract Documents. Contractor shall prepare detailed minutes of each such meeting, in form and content acceptable to Company, and shall distribute same to Company within three (3) Business Days after such meeting.

(e) Contractor Not Relieved of Duties or Responsibilities. Neither the submission to or review or approval by Company of progress and other reports, plans and manuals, certifications, nor the provision of general descriptions shall relieve Contractor of any of its duties or responsibilities under the Contract Documents.

### 3.25 DRAWINGS, ENGINEERING DATA AND OTHER MATERIALS.

(a) All Drawings, Final Plans, reports and other information (except financial, accounting and payroll records) furnished to Contractor, or prepared by it, its Subcontractors or others in connection with the performance of the Work, whenever provided, shall be kept by Contractor in an orderly and catalogued fashion for reference by Company during the performance by Contractor of the Work. Contractor shall maintain at least one (1) copy of all Drawings, Final

Plans, Change Orders and other modifications in good order and marked to record all changes made during performance of the Work, including, without limitation, all field deviations from the construction drawings. As a condition precedent to Final Acceptance, or upon the earlier termination of this Agreement, Contractor shall transfer the Final Plans to Company and they shall become the sole property of Company.

(b) Contractor shall furnish Company with documents that correctly reflect, with substantial completeness, the ESS or the Work against which progress is claimed as a condition precedent to Company's obligation to approve a Request for Payment. Final Plans (in both hard copy and magnetic media at no extra charge to Company), if not furnished earlier, shall be furnished to Company upon Contractor's request for a Final Acceptance Certificate or upon the earlier termination of this Agreement. Contractor and any of its Subcontractors, as applicable, may retain copies all such documents for their records, subject to the confidentiality provisions of this Agreement.

(c) Contractor shall submit all Drawings in electronic format to Company in accordance with Exhibit A for review and comment as provided in the Statement of Work. Based upon Company's comments, if any, Contractor shall resolve Company's comments. Contractor shall revise such Drawings from time to time, as required to reflect any changes, in the actual installation of any individual Equipment or system or the ESS as a whole. Notwithstanding anything contained herein to the contrary, Company's review and/or acceptance of the Drawings, or any portion thereof, shall not in any way relieve Contractor of any of its obligations or warranties set forth herein, including, but not limited to, its full responsibility for the accuracy of the dimensions, details, integrity and quality of the Drawings.

### 3.26 OPERATING AND MAINTENANCE MANUALS.

Contractor shall supply Company copies of manuals and/or handbooks as set forth in the Statement of Work which provide, either in a single manual or handbook or collectively, complete operating and maintenance instructions (including inventories of spare parts and tools and parts lists with ordering instructions) for each major piece of Equipment and system of the ESS. Each such manual and handbook shall comply with the requirements of the Statement of Work, including with respect to matters such as quantity, content and the time when such manuals are to be supplied to Company, and shall be substantially complete and delivered to Company prior to Substantial Completion in order to support training of personnel and start-up and testing of the ESS.

### 3.27 ACCOUNTING INFORMATION.

During the term of this Agreement and continuing for five (5) years after the completion of the Work, Contractor will provide Company with any reasonably necessary assistance, including providing all documents, cost information and other information that Company believes necessary, in a form reasonably acceptable to Company, for Company's federal, state or local tax filings, exemptions or positions advocated by Company, including, without limitation, sales, use and property taxes, and to address audits conducted by a Government Authority.

### 3.28 CONTRACTOR TAXES.

(a) Except for Company Taxes, Contractor shall, as required by Applicable Law, pay and administer any and all Taxes and duties incurred or payable in connection with the Work,

including, without limitation, taxes based on or related to the income, receipts, capital or net worth of Contractor, except for Company Taxes (collectively, “Contractor Taxes”). Contractor shall cooperate with Company to endeavor to minimize any Company Taxes. Contractor shall make reasonable efforts to make available to Company and to claim any and all applicable sales and/or use tax exemptions, credits or deductions relating to the ESS and Equipment available to itself or Company, including but not limited to any sale-for-resale exemption under Applicable Law and any manufacturing exemption under Applicable Law (as determined by Company with Contractor’s reasonable assistance) and, at the direction of Company, Contractor agrees to take such action as may be reasonably required to allow such property, to the extent possible, to qualify for any applicable sales or use tax exemption. If required in connection with the purchase of any such property from its Vendors, to the extent permitted by Applicable Law, Contractor agrees to provide its Vendors a resale certificate as approved by the State of California, as applicable reflecting the fact that Contractor is purchasing such property for resale to Company. Company to provide Direct Pay Certificates, as applicable. Contractor agrees to take any other action reasonably necessary to ensure that the purchase of qualifying machinery with respect to the Work is exempt from sales and use tax under Applicable Law. To the extent Contractor is required by Applicable Law to collect sales tax from Company, Contractor shall collect sales tax from Company on all materials physically incorporated in the ESS that are not subject to exemption unless Company has elected to provide Contractor with a direct pay certificate issued to Company by the State of California. In the event that an assessment for sales and/or use or excise taxes are levied against Contractor, any Subcontractor or Vendor, Contractor shall promptly notify Company and furnish to Company a copy of such assessment. In the event that Company determines that the assessment should be contested and so notifies Contractor in writing, Company may, at Company’s sole cost and expense, file such documents as are necessary to contest such assessment. Company shall exclusively control any contest, assessment or other action regarding any such taxes or assessments, or any penalties or interest in respect thereof. In addition to Contractor’s other obligations as set forth herein, Contractor shall cooperate with and assist Company, at Company’s expense, in any contest or proceeding relating to Taxes payable by Company hereunder.

(b) Exempt Equipment. Some of the machinery, equipment, parts or other items of tangible personal property to be incorporated into the ESS may be exempt from certain taxes (such exempt items, the “Exempt Equipment”). Company, with Contractor’s assistance, and will determine which purchases constitute purchases of Exempt Equipment, and Contractor and Company will take reasonably necessary actions to ensure that such Exempt Equipment qualifies for applicable tax exemptions.

### 3.29 CLAIMS AND LIENS FOR LABOR AND MATERIALS.

If Company is paying when due all undisputed amounts in accordance with the Contract Documents, Contractor shall, at its sole cost and expense and without reimbursement hereunder, discharge and cause to be released, whether by payment or posting of an appropriate surety bond in accordance with Applicable Law, within fifteen (15) days after receipt of a written demand from Company, any Lien in respect to the ESS, the Contract Documents, the Equipment, the Job Site or any fixtures or personal property included in the Work (whether or not any such Lien is valid or enforceable) created by, through or under, or as a result of any act or omission (or alleged act or omission) of, Contractor or any Subcontractor, Vendor or other Person providing labor or materials within the scope of Contractor’s Work.

### 3.30 SPARE PARTS AVAILABILITY.

(a) Operating Spare Parts. At least sixty (60) days prior to the Substantial Completion Date, Contractor shall provide Company with each manufacturer's recommended spare parts list for the Equipment, which list shall include part numbers, recommended quantities, price, mean times to failure, mean times to repair and a description of lead times necessary for orders of such spare parts, in each case to the extent reasonably available to Contractor. Contractor agrees to use all commercially reasonable efforts to:

(1) obtain from each Major Manufacturer an assignable guaranty that such Major Manufacturer will have available for purchase by Company for a period of seven (7) years after the Substantial Completion Date, all spare parts for the Major Equipment supplied by such Major Manufacturer required to keep the ESS in good operating condition, it being understood that some of such parts are not "shelf items" and will have to be manufactured by the Major Manufacturer after it receives an order for them;

(2) make spare parts (other than spare parts for the Major Equipment) available for purchase by Company for a period of seven (7) years after the Substantial Completion Date to the extent that Contractor is able to obtain them from the manufacturer who supplied them for the ESS as originally built; and

(3) find another source that can supply such spare parts if Contractor is unable to obtain such spare parts from such manufacturer.

### 3.31 CONTRACTOR'S OBLIGATION TO NOTIFY.

Contractor shall keep Company advised as to the status of the Equipment and Work and shall promptly inform Company and the in writing upon the occurrence of any of the following: (i) any occurrence or event that may be expected to impact the schedule for delivery and/or installation of Equipment; (ii) any technical problem not anticipated at the start of the Work or of significant magnitude that may impact the ESS or any component thereof or the Project Schedule; (iii) any Defect; and (iv) any material changes to previously submitted information. Company shall have the right to verify the information provided by Contractor. In connection therewith, Contractor shall identify those items provided to Company that would enable Company to verify such information in an expedient manner.

### 3.32 INTELLECTUAL PROPERTY RIGHTS.

(a) Rights and Ownership. Company's rights to inventions, discoveries, trade secrets, patents, copyrights and other intellectual property (hereinafter, collectively the "Intellectual Property Rights"), used or developed by Contractor in the performance of the Work, shall be governed by the following provisions:

(i) If Intellectual Property Rights conceived, developed or reduced to practice by Contractor prior to the performance of the Work are used in or become integral with the Work, or are necessary for Company to have complete enjoyment of the Work, Contractor hereby grants to Company a non-exclusive, irrevocable, royalty-free license, as may be required by Company for complete enjoyment of the Work, including, but not limited to, the right to reproduce, correct, repair, replace, maintain, translate, publish, use, modify, copy or dispose of any or all of the Work and grant sublicenses to others with respect to the Work.

(ii) If the Work, or Company's complete enjoyment of the Work, is

likely to require Intellectual Property Rights that were conceived, developed or reduced to practice by a Subcontractor prior to the performance of the Work, then Contractor shall secure (before commencing Work that requires the use of these Intellectual Property Rights) on Company's behalf, the necessary Intellectual Property Rights by grant from the Subcontractor or in the form of a royalty-free license that is irrevocable and provides Company with the right to reproduce, correct, repair, replace, maintain, translate, publish, use, modify, copy or dispose of any or all of the Work. Contractor shall assure that the Intellectual Property Rights provided by its Subcontractors in all cases satisfy the following requirements for minimum Intellectual Property Rights: the Intellectual Property Rights include all of the rights described above, except the right to make "commercial use" of the Intellectual Property Rights, where commercial use is defined as a transfer or sale of the Intellectual Property Rights for consideration and where such transfer or sale is not part of any transfer or sale of participation or ownership rights in the Project. Commercial use as defined in the preceding sentence shall not be interpreted to include any use of the Intellectual Property Rights at the Job Site or at non-Job Site locations where Company determines that such use is necessary to repair, modify or replace any portion of the Work.

(iii) If the Work requires inclusion of the Intellectual Property Rights of others and Company agrees such rights cannot be secured by Contractor as described in Section 3.25(a)(iii), then Contractor shall either procure, at no additional cost to Company, the necessary Intellectual Property Rights so as to allow Company the complete enjoyment of the Work, including the right to reproduce, correct, repair, replace, maintain, translate, publish, use, modify, copy or dispose of any or all of the Work, and grant sublicenses to others with respect to the Work, or revise the Work so that no such license is required. Any Intellectual Property Rights procured hereunder shall be in writing and shall be irrevocable and royalty-free to Company.

(b) Contractor Cooperation. Cooperation by Contractor in assigning and transferring these Intellectual Property Rights shall consist of (i) obtaining written approval from all Subcontractors to grant Intellectual Property Rights, in the form described herein, as part of performance of the subcontracted Work; and (ii) where the Subcontractor refuses to grant these Intellectual Property Rights, then securing the minimum Intellectual Property Rights described in Section 3.25(a)(iii) and use reasonable efforts to obtain such additional Intellectual Property Rights as Company determines are necessary for Company's complete enjoyment of the Work, as further described in Section 3.25(a)(iii). If Contractor is unable to obtain these lesser rights, then Company may refuse to allow Contractor to use the Subcontractor until this issue has been resolved, without such refusal constituting a Company Caused Delay or otherwise entitling Contractor to any relief through a Change Order.

(c) No Additional Compensation. Nothing in this Section 3.25 shall require payment by Company of any compensation for Intellectual Property Rights, or for any assignments or assurances required hereunder, since payment for the Work includes payment for any related Intellectual Property Rights. If Contractor is unable to secure Intellectual Property Rights from a Subcontractor without paying additional consideration for these rights, then Contractor must obtain Company's written approval to proceed with the Subcontractor and may only seek reimbursement for such payments where these payments are approved by Company in writing.

(d) Without limiting any of the provisions of this Agreement, if Company or contractor is prevented from completing the Work or any part thereof, or if Company is prevented from the use, operation, or enjoyment of the Project, the Work, or any Equipment as a result of a claim, action or proceeding by any person for unauthorized disclosure, infringement or use of any

Intellectual Property Rights arising from (i) Contractor's performance (or that of its Affiliates or Subcontractors) under this Agreement, (ii) any Intellectual Property Rights licensed to Company hereunder, or (iii) use of any Equipment, then Contractor shall (at its sole cost and expense and without reimbursement hereunder) promptly, but in no event later than thirty (30) Days from the date of any action or proceeding (such period to be extended an additional thirty (30) days if such cure is being diligently pursued but is not capable of cure within such initial thirty (30) day period), take all actions necessary to remove such impediment, including (A) securing termination of the injunction and procuring for Company or its Affiliates or assigns, as applicable, the right to use such Work or Intellectual Property Rights in connection with the completion of the Work and for the use, operation, maintenance, repair, replacement, expansion and alteration of the Work and the Project, without obligation or liability; or (B) as approved by Company, replacing such Work with a non-infringing equivalent or modifying same to become non-infringing but subject to all the requirements of this Agreement. Contractor shall timely notify Company in writing of any claims which Contractor may receive alleging infringement of any Intellectual Property Rights which may affect Contractor's performance of the Work under this Agreement or the use, operation, maintenance, repair, replacement, expansion or alteration of the Work or the Project or any subsystem or component thereof.

(e) At Company's option and sole discretion and in addition to Company's other remedies provided in this Agreement or otherwise available at law or equity, Contractor shall immediately refund all monies paid by Company to Contractor for the Intellectual Property Rights, should Contractor fail to remove such impediment within a reasonable time.

(f) Contractor shall not include any unauthorized copyrighted or proprietary material not otherwise in compliance with this Section 3.25 in any documentation or written data furnished to Company, unless agreed to in writing by the Company Representative.

(g) This Section shall survive the termination or expiration of this Agreement.

### 3.33 EMERGENCIES.

In the event of any emergency that endangers or could endanger life or property, Contractor shall take such action as may be reasonable and necessary to prevent, avoid or mitigate injury, damage or loss and shall, as soon as possible, report any such incidents, including Contractor's response and actions with respect thereto, to Company.

## **ARTICLE IV. CERTAIN OBLIGATIONS OF COMPANY**

### 4.1 THE PROPERTY SITE .

Company shall obtain the Company Permits necessary for Contractor to have access to, and perform the Work on the Property Site.

### 4.2 PERMITS.

Company shall, with Contractor's reasonable assistance, timely obtain and maintain, at its own cost and expense, all Company Permits. In addition, Company shall execute such applications as Contractor may reasonably request in connection with obtaining any of the Contractor Permits. Company shall deliver to Contractor evidence that the Company Permits necessary to begin construction of the ESS have been received by Company or, if any such required Company Permit has not actually been issued, that it has been approved for issuance, or in the

opinion of Company, will be approved for issuance.

#### 4.3 ACCESS TO PROPERTY SITE.

Subject to Section 3.33 and Section 3.10, from the date of this Agreement until Final Acceptance, Company shall permit the employees and agents of Contractor and its Subcontractors and Vendors to have uninterrupted access to the portions of the Property Site constituting the Job Site as may be reasonably required by Contractor in order to perform the Work, subject to all easements, restrictions, access road construction and other matters which may affect ingress and egress to the Job Site and such restrictions as may be reasonably imposed by Company in order to assure that only authorized persons enter the Property Site. Thereafter, upon reasonable notice and during reasonable times, and subject to such restrictions as may be reasonably imposed by Company and provided to Contractor in order to assure that only authorized persons enter the Property Site, Company shall permit the employees and agents of Contractor and its Subcontractors and Vendors to have access to the Property Site as necessary to repair or replace Defects or other Work that is not in compliance with the Contract Documents. As used above, the references to access contemplate that not only will the individuals referred to be permitted to enter upon and leave the Property Site but that they also will be permitted to bring onto and remove from the Property Site any and all kinds of Contractor Equipment.

#### 4.4 RIGHTS OF WAY.

Company shall obtain, at its own cost and expense, any easements and rights of way over the property of others for the construction of the site access road as required, in order that Contractor Equipment, its personnel and its Subcontractors and Vendors have ingress to and egress from the Property Site.

#### 4.5 COMPANY TAXES.

Company shall pay, or reimburse to the Contractor within thirty (30) Days of receipt of an invoice and evidence of payment by Contractor, all real property taxes assessed against the Property Site, any real or personal property taxes assessed against Equipment located at the Job Site, and any permanent use charges or assessments such as water or sewer, and, subject to Section 3.21, Company shall be responsible for the payment of, or reimbursement to Contractor of, state or local sales and/or use Taxes in connection with the purchase of all Equipment, except for such taxes Company contests in good faith (collectively, "Company Taxes"). Contractor shall be responsible for the cost of additional Taxes, penalties or interest, which shall be paid to Company within thirty (30) days of request therefore, to the extent that Company is required to pay such additional Taxes, penalties or interest because Contractor failed to use reasonable efforts to follow written instructions of Company appropriately or to comply with its obligations under Section 3.21.

#### 4.6 COMPANY'S COOPERATION.

Company shall cooperate in all material respects to permit Contractor to perform its obligations hereunder and shall make reasonable efforts to supply to Contractor, in a timely manner, either directly or indirectly, material information and data that is available to Company and that is required for the performance of the Work; provided, however, Company does not warrant the correctness of the information and documentation provided hereunder, except that the Company Permits provided by Company to Contractor are true and correct copies of the permits issued by the applicable Governmental Authority. Company may provide or may have provided Contractor with copies of certain studies, reports or other information (including oral statements),



Contractor acknowledges and agrees that (A) all such documents or information have been or will be provided as background information and as an accommodation to Contractor, (B) Company makes no representations or warranties with respect to the accuracy of such documents or the information (including oral statements) or opinions therein contained or expressed and (C) it is not relying on Company for any information, data, inferences, conclusions, or other information with respect to the Job Site, including the surface and subsurface conditions of the Job Site and the surrounding areas; provided that Contractor may rely upon the information contained in the Company Permits.

## **ARTICLE V. PROJECT SCHEDULE**

### 5.1 COMMENCEMENT OF WORK.

After the date hereof, subject to Section 5.2, Contractor will commence performance of the Work so as to ensure completion of the Work in accordance with the terms hereof.

### 5.2 NOTICE TO PROCEED.

The Business Day after which Company provides Contractor with the Notice to Proceed shall be the "Notice to Proceed Date". On the Notice to Proceed Date, Contractor shall commence and shall thereafter diligently pursue the Work, assigning to it a priority that should reasonably permit the attainment of Substantial Completion on or before the Guaranteed Completion Date. Contractor shall proceed with the performance of the Work in accordance with the Project Schedules.

### 5.3 PROJECT SCHEDULE.

Contractor shall perform the Work in compliance with the Project Schedule, including completing the Work required by the Guaranteed Completion Date and the Final Acceptance Date. Contractor hereby covenants and warrants to Company that in undertaking to complete the Work in accordance with the terms hereof, Contractor has taken into consideration and made reasonable allowances for hindrances and delays incident to such Work. Contractor shall provide the reports as required herein, and shall provide any further information required by Company or as Company may reasonably request to verify actual progress and forecast future progress of the Work. Contractor shall promptly notify Company in writing of any occurrence that Contractor has reason to believe will adversely affect the completion of that phase of the Work by the Guaranteed Completion Date or materially adversely affect completion of the Work in accordance with the Project Schedule. Contractor will specify in said notice the corrective action planned by Contractor to overcome the effect of the delay or potential delay.

### 5.4 LIQUIDATED DAMAGES.

Nothing contained in this Article V shall relieve Contractor of its obligation to pay Schedule Liquidated Damages in the event that Substantial Completion is not achieved by the Guaranteed Completion Date.

## **ARTICLE VI. CHANGE ORDERS**

### 6.1 CHANGE ORDER AT COMPANY'S REQUEST.

(a) Company may at any time, by written notice to Contractor, request an addition to or deletion from or other changes in the Work (together with any necessary or requested amendments to this Agreement with respect thereto) (hereinafter “Change” or “Changes” by submitting a written request for Change Order). Contractor shall reasonably review and consider such requested Change and shall make a written response thereto to Company within seven (7) days after receiving such request. If Contractor believes that giving effect to any Change requested by Company will increase or decrease its cost of performing the Work, shorten or lengthen the time needed for completion of the Work, require modification of its warranties in Article XII or require a modification of any other provisions of the Contract Documents, its response to the Change request shall set forth such changes (including any amendments to the Contract Documents) that Contractor deems necessary as a result of the requested Change and its justification therefore. If Contractor accepts the Changes requested by Company (together with any amendments to the Contract Documents specified therein) or if the Parties agree upon a modification of such requested Changes, the Parties shall set forth the agreed upon Change in the Work and agreed upon amendments to the Contract Documents, if any, in a written change order signed by the Parties (a “Change Order”). Each Change Order shall constitute a final settlement of all items covered therein, including any adjustment to the Contract Price for any impact on, or delay or acceleration in, performing the Work. If the Parties do not agree upon all terms of the Change Order or if the Parties dispute whether Contractor is entitled to a Change Order pursuant to any provision of this Article VI, Contractor shall proceed with such Work (including any Work covered by the disputed Change whether agreed to be within the Statement of Work or outside the Statement of Work) and the dispute shall be resolved in accordance with Article XVII; provided that if the Parties are unable to reach agreement on the cost of a requested Change, Contractor shall perform the requested Change and the cost therefor shall be determined in accordance with Section 6.3 pending resolution of the dispute pursuant to Article XVII.

(b) Company may at any time, by written notice to Contractor, propose Changes in the Work or the Project Schedule due to a Force Majeure Event or a Company Caused Delay. If there is an impact that will actually, demonstrably, adversely and materially affect the Critical Path of the Work as a result of such Force Majeure Event or a Company Caused Delay, then the Parties agree to bargain reasonably and in good-faith for the execution of a mutually acceptable Change Order. Force Majeure Events will only entitle Contractor to extensions of the Project Schedule.

## 6.2 CHANGE ORDERS REQUESTED BY CONTRACTOR.

(a) It is the intent of Company and Contractor that the Statement of Work attached hereto as Exhibit A includes all items necessary for the proper execution and completion of the Work. As more particularly described in Section 3.1(c), work not described in the Statement of Work attached hereto as Exhibit A shall be considered part of the Work if such work is consistent with and reasonably inferable from the Statement of Work, so that an engineering, procurement construction and maintenance contractor of Contractor’s experience and expertise should have anticipated that the work would have been required.

(b) Subject to paragraphs (c) and (d) below, Contractor may at any time, by written notice to Company, request a Change in the Work (together with any necessary or requested amendments to the Contract Documents) due to the events described in Section 6.2(c). If Contractor believes that such requested Change will increase or decrease its cost of performing the Work, lengthen or shorten the time needed for completion of the Work, require modification of its warranties in Article XII or require a modification of any other provisions of the Contract

Documents, it shall notify Company of such, setting forth its justification for and effect of such changes, within ten (10) days after making a request for a Change. If Company accepts the Changes requested by Contractor (together with amendments to the Contract Documents specified therein, if any), or if the Parties agree upon a modification of such requested Changes, the Parties shall set forth the agreed upon Change in the Work and agreed upon amendments to the Contract Documents, if any, in a written Change Order signed by the Parties.

(c) Contractor may at any time, by written notice to Company, propose Changes in the Work or the Critical Milestones: (i) due to a Force Majeure Event, provided that such Force Majeure Event has an impact that will actually, demonstrably, adversely and materially affect the Critical Path of the Work and further provided that Contractor complies with requirements provided in Article XIV and Section 6.2(b); (ii) due to a Company Caused Delay, provided that such Company Caused Delay has a demonstrable material cost increase to Contractor and/or schedule impact that will actually, demonstrably, adversely and materially affect the Critical Path of the Work and further provided that Contractor complies with the requirements set forth in Article XIV; (iii) due to a Change In Law; provided that such Change In Law prevents Contractor from performing all or a portion of the Work, has a demonstrable material cost increase to Contractor and/or has a schedule impact that will actually, demonstrably, adversely and materially affect the Critical Path of the Work, and further provided that Contractor shall diligently make adjustments to minimize the effect of such Change In Law on the Project; or (iv) due to certain unforeseeable subsurface conditions, Pre-Existing Hazardous Material and wetland areas but only to the extent provided in Section 3.15(a)(iv). Unless the foregoing conditions are met, Contractor may not request a Change in the Work or Critical Milestones due to a Force Majeure Event, Company Caused Delay, Change In Law or unforeseeable subsurface conditions. If Contractor has met all of the applicable condition precedents for a requested Change, then the Parties agree to bargain reasonably and in good faith for the execution of a mutually acceptable Change Order. If in such event the Parties are unable to agree on a mutually acceptable Change Order, then the dispute shall be resolved in accordance with Article XVII. Any extension permitted under this Section 6.2 shall be of an equitable duration designed to reflect the delay actually caused by the relevant event despite Contractor's efforts to mitigate the same. Notwithstanding anything contained in this Agreement to the contrary, Force Majeure Events will only entitle Contractor to extensions of the Project Schedule; provided, however, if the Force Majeure Event exceeds fifteen (15) Days, Contractor shall be entitled to an increase in the Contract Price for all reasonable amounts incurred after such fifteen (15) Day period as a result of such Force Majeure Event.

(d) If Contractor knows of circumstances or events that do or may require a Change in the Work or Project Schedule, and Contractor does not provide written notification to Company of such within fifteen (15) days after the date Contractor knows or should have known (in the exercise of due diligence) of such circumstances or events, then Contractor shall not have any right to request or require any additional consideration or other changes as to Contract Price, schedule, warranty obligations or other provisions hereof, and Contractor shall have waived any claims or offsets against Company, with respect to any Change Order or any necessary Change in the Work or Project Schedule arising out of such circumstances or events.

### 6.3 CHANGES TO CONTRACT PRICE; DISPUTES.

A Change Order initiated by either Party may have the effect of either increasing or decreasing the Contract Price. Any Contractor response to a Change Order under Section 6.1 and any Contractor request for Changes under Section 6.2, shall be accompanied by a description

of the estimated cost of such change (separating materials, labor and overhead) to Company. In addition, in the event that Company and Contractor agree that Contractor is entitled to a Change Order but are unable to reach agreement on the terms of such a Change Order for a Change requested by either Company or Contractor pursuant to this Article VI, at the direction of Company (and only at the direction of Company), Company's proposed Changes shall become effective as a Change Order and Contractor shall continue to perform the Work in accordance with such Change Order and the proposed Changes shall be performed by Contractor based upon a fixed lump sum, as determined by Company, pending resolution of the dispute pursuant to Article XVII. In connection with any dispute regarding a Change, Company shall have the right to audit and inspect Contractor's records and accounts relating to any such Change, including composite rates for all labor and quantities and costs of material and equipment.

#### 6.4 INFORMATION REQUESTS.

Company may request that Contractor provide written information (prior to the issuance of a request for Changes) regarding the effect of a contemplated Change on pricing, scheduling, warranty obligations or on other terms of the Contract Documents. The purpose of such a request will be to determine whether or not a Change will be requested. Contractor shall provide the requested information to Company within fourteen (14) days after the receipt of said request. Contractor will be allowed to reasonably delay its response to such request to the extent that fulfilling such request would significantly delay progress on the Work, unless Company agrees to extend the required completion date for the affected Milestone. Such an information request is not a Change Order and does not authorize Contractor to commence performance of the contemplated change in Statement of Work.

#### 6.5 MINOR CHANGES.

Company shall have the direct authority to issue clarifications and order minor changes in the Work, effected by written order, which do not involve any adjustment to the Contract Price or the Guaranteed Completion Date; provided that such clarifications and changes are consistent with the intent of the Contract Documents. Such clarifications and changes shall be binding on Company and Contractor. Contractor shall carry out such written orders promptly and Contractor shall receive no adjustment in the Contract Price nor shall there be any change to the Contract Documents.

### **ARTICLE VII. CONTRACT PRICE; PAYMENTS TO CONTRACTOR**

#### 7.1 CONTRACT PRICE.

Company shall pay Contractor the Contract Price, equal to the amount set forth in the Purchase Order, which will separately state the cost for Equipment and labor, as full payment for all Work to be performed by Contractor under the Contract Documents. The only amounts that may be payable to Contractor pursuant to the terms hereof in addition to the Contract Price are indemnification payments, if any, required to be made pursuant to Section 16.2. Except as expressly provided herein, payments of the Contract Price shall be made based on progress on completion of Activities in the Schedule of Values and made in accordance with the Progress Payment Table ("Progress Payments"), subject to the terms and conditions hereof.

#### 7.2 REQUESTS FOR PAYMENT.

(a) Commencing after the date of this Agreement, prior to the tenth (10th) day of

each month following any month in which Contractor achieves measurable progress against one or more Activities, Contractor may submit to Company a Request for Payment (separating materials and labor) for the value of the progress made against the applicable Activity during the previous month. Each Request For Payment shall be accompanied by a cover sheet summarizing the total amount invoiced to date, amounts previously invoiced and current invoice amount, and shall also recap the contract value, showing the original contract amount, value of approved change orders and revised contract amount, and provide, for each Activity in the Schedule of Values, 1) the value attributed to the applicable Activity which had been previously paid by Company, 2) the value attributed to the applicable Activity which had been earned during the month for which the applicable Request for Payment is being submitted, 3) the total value attributed to the applicable Activity which has been earned to date, 4) the total value of the applicable Activity, and 5) a monthly update of the Work Schedule that indicates the actual percent complete of each task of work. Monthly pay requests will not be processed without receipt of the monthly Work Schedule update.

(b) Each Request for Payment shall be accompanied by a Progress Achievement Certificate duly executed by the Contractor's Project Manager, Contractor's Site Manager and the Company's Representative (if approved), that sets forth the units of work completed, inspected and approved during the billing period.

(c) Within thirty (30) days after its receipt of a Request for Payment, provided that Contractor has delivered any amendments to the Letter of Credit required in accordance with Section 7.5 and all Lien waivers required in accordance with Section 7.5(b), Company shall pay to an account specified in a written notice by Contractor the amount that remains after the deduction from the payment requested of the following amounts: (i) any portion thereof that Company disputes in good faith as not being due and owing, (ii) any overpayment made by Company for any previous period, (iii) any Liquidated Damages (including interest thereon) and (v) any amounts withheld pursuant to Sections 7.3(c), 7.5(a) and (vi) any costs incurred by Company in enforcing Section 6.2(b), Section 14.5, or any other provision hereof (including attorneys' and other consultants' fees) regardless of whether such provisions expressly provide for withholding or set-off. Company shall not be obligated to make more than one payment during each month. If Contractor provides a Request for Payment after the tenth (10th) day of the month, Company shall not be obligated to make payment until thirty (30) days after the first day of the succeeding month following Company's receipt thereof. Disputes as to the completion of Work shall be resolved as soon as reasonably possible pursuant to Article XVII of this Agreement; provided, however, that Company shall be required to pay only those amounts for Work to be completed as contained in the Request For Payment during the month immediately following such Request for Payment, except those amounts that are disputed in good faith, pending the resolution of such dispute pursuant to the terms of this Agreement.

### 7.3 GENERAL PROVISIONS FOR PAYMENTS.

(a) If applicable, any payment by Company shall be accompanied by a notice to Contractor specifying the amount of each deduction and setting forth the reason(s) why the deduction is justified. If undisputed amounts are due and unpaid by Company, Contractor shall be entitled to payment of such amount, plus interest thereon at the Reference Rate (established as of the first day of the month on the month payment is due) from the date that such amount should have been paid until the date of such payment; provided, however, any amounts disputed by Company shall not be subject to the interest thereon. NOTWITHSTANDING ANY PROVISION

OF THIS AGREEMENT TO THE CONTRARY, FAILURE BY COMPANY TO PAY ANY AMOUNT DISPUTED IN GOOD FAITH, UNTIL RESOLUTION OF SUCH DISPUTE IN ACCORDANCE WITH THIS AGREEMENT, SHALL NOT ALLEVIATE, DIMINISH, OR MODIFY IN ANY RESPECT CONTRACTOR'S OBLIGATIONS TO PERFORM HEREUNDER, INCLUDING CONTRACTOR'S OBLIGATION TO MEET THE GUARANTEED COMPLETION DATE.

(b) Failure or forbearance on the part of Company in withholding any amounts due under a Request for Payment or invoice shall not be construed as accepting or acquiescing to any disputed claims. In addition, the making of any payment by Company shall not constitute an admission by it that the Work covered by such payment (or any Work previously performed) is satisfactory or timely performed, and Company shall have the same right to challenge the satisfactoriness and timeliness of such Work as if it had not made such payment. If, after any such payment has been made, it is subsequently determined that Contractor was not entitled to all or a portion of any such payment, including any DOE Disallowed Cost, Contractor shall promptly refund all or a portion of such payment to Company with interest thereon at the Reference Rate (established as of the first day of the month in which the payment is due) from the date that Contractor received such payment to the date of refund.

(c) Notwithstanding any other provision to the contrary contained herein, Company, in addition to its rights set forth in Section 7.5, shall have no obligation to make payments to Contractor hereunder and Company may decide not to certify payment or may nullify the whole or a part of a certification for payment made pursuant to a previous Request for Payment to such extent as may be necessary in Company's opinion to protect Company from loss because of: (i) defective Work not remedied; (ii) third party claims filed (including Liens), or reasonable evidence indicating probable filing of such claims; (iii) failure of Contractor to make payments when due to Subcontractors or Vendors; (iv) damage to Company or another contractor, including damage to the property of Company or any of its Affiliates but only to the extent Contractor may be liable for such damage pursuant to this Agreement; (v) Contractor's, or any Subcontractor's or Vendor's failure to carry out the Statement of Work in accordance with the Contract Documents; or (vi) the occurrence of a Contractor Event of Default. Company shall release payments withheld pursuant to this Section 7.3(c) within thirty (30) days from the date when Contractor cures all such breaches to the satisfaction of Company.

(d) Each payment made pursuant to this Article shall be paid directly to Contractor. Such payment shall be wire-transferred to an account or accounts designated by Contractor in its Request for Payment.

7.4 [INTENTIONALLY OMITTED].

7.5 LIENS.

(a) Provided Company has paid Contractor all undisputed amounts due to Contractor as required in this Agreement, within fifteen (15) days of receiving any notice of any Lien filed by any Subcontractor, or any Person working for, or through, Contractor or any Subcontractor, Contractor shall cause such Lien to be discharged or satisfied by bond. The expense of discharging or satisfying by bond any such Lien shall not be a part of the Contract Price payable to Contractor. If Company receives notice of any such Lien, Company shall provide notice thereof to Contractor. Contractor shall promptly commence all necessary proceedings to discharge or satisfy by bond any such Lien as soon as possible. Without limiting Contractor's obligation to discharge or satisfy any Lien as required in this Section 7.5, Company shall have the right to retain and withhold from amounts payable to Contractor in an amount sufficient to indemnify Company against any such Lien until such time as Company becomes satisfied that such Lien is discharged or satisfied by bond.

(b) As a condition precedent to the making of any payment hereunder, Contractor and each of its Substantial Subcontractors and Substantial Vendors shall provide Company with a certificate in the form attached hereto as Exhibit H and Exhibit H-1. Contractor shall provide such certificates simultaneously with each Request for Payment.

(c) Acceptance by Contractor of the final payment shall constitute a release by Contractor of Company, Affiliates, and every officer and agent thereof from all liens (whether statutory or otherwise and including mechanics' or suppliers' liens), claims and liability hereunder with respect to any Work performed or furnished in connection with this Agreement, or for any act or omission of Company or of any person relating to or affecting this Agreement, except claims which (i) Contractor does not have actual knowledge of at the time of such payment, (ii) accrue after the date of such payment or (iii) for which Contractor has delivered a dispute notice to Company. No payment by Company shall be deemed a waiver by Company of any obligation of Contractor under this Agreement.

**ARTICLE VIII.  
TITLE, RISK OF LOSS AND POSSESSION**

8.1 CLEAR TITLE.

Contractor warrants and guarantees that legal title to and the ownership of the Work delivered to Company pursuant to this Agreement (including, without limitation, all Equipment, patents, licenses, Drawings, Final Plans, operation and maintenance manuals and the operating spare parts as required by the Statement of Work) shall pass to Company, free and clear of any and all Liens caused or created by Contractor, its Subcontractors or Vendors upon payment to Contractor of the portion of the Contract Price then actually due to Contractor in connection with the Request For Payment as provided in the Contract Documents; provided that for all Equipment, title shall pass to Company upon such payment only if title has previously been transferred to Contractor, otherwise, title shall pass to Company at such time as Contractor has acquired title to the Equipment, but in no event later than delivery of such Equipment to the Job Site. Notwithstanding anything to the contrary, the costs of unloading and transporting to the Job Site are included in the Contract Price.

8.2 RISK OF LOSS.

(a) From the date hereof until the Substantial Completion Date, Contractor hereby

assumes the risk of loss for the Project and the Work, including: (a) any Equipment whether on or off the Job Site, (b) all other Work completed on or off the Job Site and (c) all Work in progress. All Equipment not yet incorporated into the ESS shall be stored in secured areas. Contractor shall bear the responsibility of preserving, safeguarding, and maintaining such Equipment and any other completed Work and Work in progress (including spare parts provided by Company). If any loss, damage, theft or destruction occurs to the Work, on or off the Job Site, for which Contractor has so assumed the risk of loss, Contractor shall promptly repair or replace the Project or the Work affected thereby; provided that, subject to Contractor's obligations pursuant to Section 9.12, Company shall cooperate with Contractor in obtaining the proceeds of the Builder's Risk Policy required to be maintained pursuant to Section 9.1(i). Contractor shall be responsible for all costs incurred that are not paid to Company by the insurer under the Builder's Risk Policy in connection with repair or replacement of the Project or the Work and any such costs shall not be reimbursable costs.

(b) Risk of loss for the Project and the Work shall pass to Company (excluding Contractor Equipment and other items to be removed by Contractor, which shall remain the responsibility of Contractor) until 11:59 pm, Pacific Time, on the Substantial Completion Date. Subject to the foregoing, from and after the date of the transfer of risk of loss (a) Company shall assume all risk of physical loss or damage thereto, and all responsibility for compliance by the ESS with applicable safety and environmental laws, and all other Applicable Laws and (b) Company shall, and does hereby, release Contractor from, and Company will and shall cause insurers to waive its right of subrogation against Contractor and its Vendors and Subcontractors for loss or damage to the ESS which may thereafter occur; provided, however, Contractor shall continue to be responsible, at its sole cost and expense and without reimbursement from Company, after the Substantial Completion Date for claims, physical loss or damage to the Work to the extent resulting from Contractor's, Subcontractor's, Vendor's or any of their respective employees or agents negligent acts or omissions, and/or failure to comply with the requirements of the Contract Documents.

## **ARTICLE IX. INSURANCE**

### 9.1 CONTRACTOR INSURANCE POLICIES.

Upon execution of this Agreement and continuing through the Final Acceptance Date or earlier termination of this Agreement, whichever is later (except as otherwise provided below in this Section 9.1), Contractor and its Subcontractors, shall, at its sole cost and expense, obtain and maintain in effect those insurance policies and minimum limits of coverage as specified below and such additional coverage as may be required by Applicable Laws (the "Contractor Insurance Policies"), with insurance companies authorized to do business in the state in which the Work is to be performed, with an A.M. Best's Insurance Rating of "A-, VII" or better. In no way do these minimum insurance requirements limit or relieve Contractor of the obligations assumed elsewhere in this Agreement, including but not limited to Contractor's defense and indemnity obligations:

(a) Workers' Compensation Insurance with statutory limits, as required by the state having jurisdiction over Contractor's employees, or the state in which the Work is performed, and Employer's Liability Insurance with limits of not less than:

- (1) Bodily Injury by accident - \$1,000,000 USD each accident



- (2) Bodily Injury by disease - \$1,000,000 USD policy limit
- (3) Bodily Injury by disease - \$1,000,000 USD each employee.

The Employers' Liability Insurance shall not contain an Occupational Disease exclusion.

(b) Commercial General Liability Insurance, written on an "occurrence," not claims-made, basis, covering all operations by or on behalf of Contractor arising out of or connected with the Agreement, including coverage for bodily injury, property damage (including property damage to third party property in Contractor's care, custody, or control, or third party property over which Contractor is exercising physical control), personal and advertising injury, and products/completed operations, and (i) liability of Licensor that would be imposed without the Agreement or (ii) liability assumed by the Licensor in a contract or agreement that is an "insured contract." Such insurance shall bear a limit of at least \$2,000,000 USD per occurrence and \$4,000,000 USD annual aggregate. Defense costs shall be outside of policy limits. This insurance shall contain standard cross-liability and severability of interest provisions, and shall be maintained for not less than three years after Final Acceptance or the earlier termination of this Agreement, whichever is later, or shall include supplemental extended reporting period coverage for not less than three years after Final Acceptance or the earlier termination of this Agreement, whichever is later.

(c) Commercial Automobile Liability Insurance, covering bodily injury and property damage with a combined single limit of not less than \$1,000,000 USD each accident. Such insurance shall cover liability arising out of the use of Contractor's owned, non-owned and hired vehicles in the performance of the Work.

(d) Umbrella/Excess Liability Insurance, written on an occurrence, and not claims-made basis, providing coverage excess of the underlying Employer's Liability, Commercial General Liability, and Commercial Automobile Liability insurance, on terms at least as broad as the underlying coverage, with limits of \$50,000,000 USD per occurrence and annual aggregate. Such insurance shall be maintained for not less than three years after Final Acceptance or earlier termination of this Agreement, whichever is later, or shall include supplemental extended reporting period coverage for not less than three years after Final Acceptance or earlier termination of this Agreement, whichever is later.

(e) For Contractor and Subcontractors performing engineering architecture, design or similar professional services Work, Professional Liability (Errors and Omissions) Insurance covering negligent acts, errors and omissions and wrongful acts in the performance of the Work. Such insurance shall have limits of not less than \$5,000,000 USD per claim and in the annual aggregate. The review and approval of the design portions of the Work by Company shall not constitute a release of Contractor's or Subcontractor's liability for any negligent acts, errors or omissions or wrongful acts associated therewith. Such insurance shall have a retroactive date that equals or precedes the Effective Date of this Agreement. This insurance shall be maintained for not less than three years after Final Acceptance or earlier termination of this Agreement, whichever is later, or shall include supplemental extended reporting period coverage for not less than three years after Final Acceptance or earlier termination of this Agreement, whichever is later.

(f) For Contractor's or Subcontractor's performing Work involving Hazardous Material (whether brought onto or existing at the property), Pollution Liability Insurance, with limits of not less than \$5,000,000 USD each occurrence or each claim and in the annual aggregate,

covering losses caused by pollution conditions that arise from the operations of the Contractor or Subcontractors, including but not limited to, coverage for the following: (i) bodily injury, sickness, disease, mental anguish or shock sustained by any person, including death; (ii) property damage including physical injury to or destruction of tangible property including the resulting loss of use thereof, clean-up costs, and the loss of use of tangible property that has not been physically injured or destroyed; and (iii) defense including costs, charges and expenses incurred in the investigation, adjustment or defense of claims for such compensatory damages. Such insurance shall have a retroactive date that equals or precedes the Effective Date of this Agreement. This Insurance shall be maintained for not less than three years after Final Acceptance or earlier termination of this Agreement, whichever is later, or shall include supplemental extended reporting period coverage for not less than three years after Final Acceptance or earlier termination of this Agreement, whichever is later.

(g) Inland Marine "property or equipment floater" insurance covering all property, tools and equipment, including mobile construction equipment, owned, leased, rented or hired by the Contractor or Subcontractors performing Work at the Job Site. Coverage shall apply to such property while it is located at the Job Site or located at temporary off-site storage or staging areas, or while in land-based transit to the Job Site within the continental United States on an all-risk basis, in limits not less than the full replacement cost value of such equipment.

(h) Builders Risk or Installation Floater Insurance. Within fifteen (15) days after Contractor notifies Company in writing that it will construct improvements at, or deliver materials to, the Job Site that may be insured pursuant to a builder's risk policy and continuing through Final Acceptance, Contractor shall obtain and maintain in force an Builders Risk or Installation Floater Insurance policy (the "Builders Risk Policy") naming Contractor, and Subcontractors of any tier performing Work at the Site, as insureds. Company shall be named as an additional insured thereunder. The Builders Risk Policy shall cover all equipment, machinery, supplies, and other property intended to be permanently incorporated in the Project for which title or risk of loss shall have passed at the time of loss to an insured on an "all risk" basis, and shall not be less than 100% of the replacement value of the Work for physical damage to property and related expenses, and may also contain sub-limits for losses due to earthquake (including sinkhole), flood, as well as other sub-limits according to insurance company underwriting guidelines. Coverage shall include expediting expense coverage. Coverage shall apply to such property while it is located at the Job Site or located at temporary off-site storage or staging areas, or while in land-based transit to the Job Site within the continental United States. A certificate of insurance evidencing the Builders Risk Policy and the insurance binder regarding the Builder's Risk Policy shall be furnished to Company within fifteen (15) days after Contractor notifies Company in writing that it will construct improvements at, or deliver materials to, the Job Site that may be insured pursuant to a builder's risk policy, provided all such sub-limits and deductibles shall be subject to the prior written consent of the Company. Company and Contractor agree to waive all rights of recovery against each other for damages caused by fire and/or other perils to the extent covered by the Builder's Risk Policy. Contractor shall cause the underwriter of the Builder's Risk Policy to waive all rights of subrogation the insurance carrier may have against Company for loss of or damages to the Work. Notwithstanding anything contained in this Agreement to the contrary, including Section 8.2(a), all proceeds from Delay in Start-Up insurance, if any, shall inure solely to the benefit of Company. Exclusions from such Builders Risk insurance may include, but are not limited to, the following: (1) loss resulting from mysterious disappearance or caused by any wrongful removal of any property of a named insured or any additional insured by the employee(s)

of such named insured or additional insured, (2) loss or damage to any automobiles, (3) loss or damage covered by a manufacturer's warranty or guarantee.

(i) Ocean Marine Cargo Insurance for any equipment, machinery, supplies, and other property intended to be permanently incorporated in the Project to be transported by ocean going vessels, unless such property is already insured under INCO terms of trade.

## 9.2 FORM OF CONTRACTOR INSURANCE POLICIES.

(a) Each Contractor's Insurance Policy shall be written on an occurrence basis and contain deductibles in amounts approved in writing by the Company. Subject to the limits and coverages specified in Section 9.1, and except for Workers' Compensation, Contractor shall name Company, designated Affiliates of Company, and any other Person designated by Company with respect to the Project (including their respective officers, directors and employees) as additional insureds on Contractor's liability policies as required to be carried by Contractor by the provisions of Section 9.1 of this Agreement for liabilities of Contractor under the Contract Documents. Each Contractor's Insurance Policy shall provide, either in its printed text or by endorsement, (i) that it shall be primary with respect to the interest of Company, designated Affiliates of Company (including their respective officers, directors and employees) and (ii) that any other insurance maintained by Company, designated Affiliates of Company is in excess and not contributory to Contractor Insurance Policies in all instances regardless of any like insurance coverage that Company, designated Affiliates of Company may have.

(b) Contractor shall require the issuers of the coverages specified in Section 9.1 to amend such Contractor Insurance Policies to: (i) include a waiver of all rights of subrogation against Company, and designated Affiliates of Company and any other Person designated by Company with respect to the Project and their respective directors, officers and employees, (ii) contain a severability of interest provision, (iii) provide that aggregate limits for the coverages specified in Section 9.1(c), Section 9.1(d), Section 9.1(e) and Section 9.1(f) if any, apply separately to each of Contractor's jobs or projects; (iv) provide that none of the Company or designated Affiliates of Company or their respective directors, officers or employees shall be liable for the payment of premiums under such policy, (v) provide that complete copies of all inspection or other reports required or performed for the insurer shall be provided to Company within thirty (30) days of delivery to Contractor, (vi) provide that Company must be given at least sixty (60) days' prior written notice (and Contractor will use all reasonable efforts to require ninety (90) days' prior written notice) of any change in, non-renewal or cancellation of such coverages that are initiated by insurer, and (vii) provide that Company must be given at least sixty (60) days' prior written notice (and Contractor will use all reasonable efforts to require ninety (90) days' prior written notice) of any change in, non-renewal or cancellation of such coverages that are initiated by Contractor.

(c) Contractor shall be responsible for additional costs associated with modifying inadequate coverage, terms and conditions to meet the requirements of this Agreement. Contractor shall comply with all the conditions stipulated in each of the insurance policies. Contractor shall make no material alteration to the terms of any insurance required herein without the prior written approval of Company. If an insurer makes (or purports to make) any such alteration, Contractor shall notify Company immediately. If any such notice is sent from an office outside the United States, it will be sent by international courier. Contractor shall be responsible to insure against risk of loss or damage to any Contractor Equipment and other equipment and tools that will not be

incorporated into or become part of the Project.

9.3 QUALIFIED INSURERS.

All Contractor Insurance Policies shall be written by insurers reasonably acceptable to Company and that are rated “A-” VII or higher by A.M. Best’s Key Rating Guide, or as may be approved in writing by Company from time to time (a “Qualified Insurer”).

9.4 CERTIFICATES OF INSURANCE.

Contractor shall require all insurers under Contractor Insurance Policies to provide Company and such other interested Persons as may be designated by Company with certificates of insurance, in form and substance acceptable to Company, evidencing and describing the insurance policies and endorsements maintained hereunder within fifteen (15) days of commencement of the Work, but in no event later than the date Contractor enters the Job Site, or upon issuance of such policies, if earlier, and on each issuance anniversary while such insurance is in effect. The certificates of insurance shall evidence and describe the insurance policies and endorsements, including, without limitation, the requirements for the additional insured and waiver of subrogation as described in Section 9.2. Notwithstanding anything to the contrary contained herein, evidence of such coverage shall be provided to Company as a condition precedent to Initial Site Mobilization.

9.5 INSPECTION OF CONTRACTOR’S INSURANCE POLICIES.

In respect of all Contractor Insurance Policies purchased specifically for the Project, Contractor shall, when so requested by Company, produce Contractor’s policies of insurance and confirmation of premium payment for such policies. If policies have not been secured on a project specific basis, Contractor may delete proprietary information not relevant to Contractor/Company project prior to transmission.

9.6 SUBCONTRACTORS’ INSURANCE.

Before permitting any of its Subcontractors to perform any Work at the Job Site, Contractor shall obtain a certificate of insurance from each such Subcontractor evidencing that such Subcontractor has obtained the insurance required of Subcontractors by Contractor. All policies of Subcontractors shall include a waiver of any right of subrogation of the insurers thereunder against Company and Contractor, and any right of the insurers to set-off or counterclaim, offset or any other deduction, whether by attachment or otherwise, in respect of any liability or any such Person insured under such policy. Policies provided by Subcontractors and Vendors shall be in amounts and upon conditions as are customarily and normally provided in the power generation industry.

9.7 REMEDY ON FAILURE TO INSURE; INSURANCE INDEMNIFICATION.

If Contractor shall fail to obtain and keep in force Contractor Insurance Policies, Company may, without limiting any other remedy it may have available under this Agreement or otherwise at law or equity, obtain and keep in force any such insurance and pay such premium or premiums as may be necessary for that purpose and recover from Contractor whether by way of deduction, offset or otherwise the cost of obtaining and maintaining such insurance. If Contractor fails to comply with any of the provisions of this Article IX or any insurance requirements in the Purchase Order, Contractor shall, at its own cost, defend, indemnify, and hold harmless Company, its Affiliates and its and their respective officers, directors, agents, employees, assigns, and

successors in interest, from and against any and all liabilities, damages, losses, claims, demands, actions, penalties, assessments, interest, causes of action, costs, including attorney's fees (which shall include allocable costs of in-house counsel) and expenses or any of them, arising out of or in connection with the performance or non-performance of the Work by Contractor any Subcontractor, or its or their respective officers, directors, employees or agents to the extent that Company would have been protected had Contractor complied with all of the provisions of this Article.

9.8 MANAGEMENT OF INSURANCE POLICIES.

Contractor shall be responsible for managing and administering all Contractor Insurance Policies, including the payment of all deductibles and self-insured retention amounts, the filing of all claims and the taking of all necessary and proper steps to collect any proceeds on behalf of the relevant insured Person. Contractor shall at all times keep Company informed of the filing and progress of any claim. In the event Contractor collects proceeds on behalf of other Persons, it shall ensure that these are paid directly from the insurers to the relevant Person and, in the event that it receives any such proceeds, it shall, unless otherwise directed by Company, pay such proceed to such Party forthwith and prior thereto, hold the same in trust for the recipient.

9.9 COMPANY INSURANCE POLICIES.

Prior to the Initial Site Mobilization by Contractor and continuing through the Final Acceptance Date, Company shall obtain and maintain in force with responsible and reputable insurance carriers, subject to usual and customary terms, exclusions and limitations and deductible provisions the following insurance of the types set forth below; provided, however, Company may self-insure any or all of such coverages:

- (a) Workers' Compensation covering all of Company's employees - statutory limit;
- (b) Employers' Liability covering all of Company's employees; and

(c) Property Insurance. After Substantial Completion and through the end of the Warranty Period, Company shall provide property insurance for the ESS and the Property Site in an amount and on terms that Company deems reasonable.

9.10 FORM OF COMPANY'S POLICIES.

Subject to Section 9.1(i), prior to the Initial Site Mobilization by Contractor, Company shall provide Contractor with a certificate of insurance evidencing those policies set forth in Section 9.9. As it applies to this Agreement, Company provided insurance required pursuant to Section 9.9 shall: (a) except for Workers' Compensation, name Contractor and its Subcontractors as additional insureds thereunder only as their respective interests may appear but only with respect to Work performed pursuant to this Agreement; (b) provide a waiver of subrogation in favor of Contractor; (c) unless otherwise noted and where applicable, provide that all amounts of coverage, deductibles and claims payments be in U.S. Dollars; and (d) not be inclusive of coverage of Contractor Equipment or any Subcontractor's mobile equipment, tools or other equipment.

9.11 CONTRACTOR'S ASSISTANCE.

In the event a loss is sustained under any of Company's policies, such loss will be adjusted by Company with the insurance companies. Contractor will assist Company in the adjustment of losses. Contractor shall replace or repair any loss or damage and complete the Work

(so long as Contractor is compensated therefore in accordance with this Agreement) in accordance with the Contract Documents. Contractor shall cooperate with Company in obtaining and maintaining the insurance policies of Company and shall provide all Drawings, Final Plans, certificates and other information that Company or its insurers may reasonably require. Contractor shall with all due diligence comply with the conditions of Company's insurance policies and all reasonable requirements of the insurers in connection with the settlement of claims, the recovery of losses and the prevention of accidents and shall bear, at its sole cost and expense and without reimbursement hereunder, the consequences of any failure to do so.

9.12 REPAIR OR REPLACEMENT COST RESPONSIBILITY OF CONTRACTOR.

Until the Substantial Completion Date, Contractor shall have the risk of loss to the Project in accordance with Section 8.2 and full responsibility for the cost of replacing the loss of or repairing the damage to any portion of the Project, including all Equipment, regardless of whether Company has title thereto under this Agreement, except to the extent such loss or damage is the result of negligence, gross negligence or willful misconduct of Company.

9.13 RESPONSIBILITY FOR SAFE DELIVERY OF MATERIALS OF CONTRACTOR.

In addition to Section 8.2, Contractor shall comply with all requirements set forth in all policies, including transport or marine/inland marine cargo insurance policies.

9.14 NO LIMITATION ON LIABILITY.

Nothing in this Article IX shall be deemed to limit Contractor's liability under the Contract Documents regardless of the insurance coverages required by this Article. Except for the coverage limits of liability for insurance companies set forth in Section 9.1, no limitation of liability provided to Contractor under the Contract Documents is intended nor shall run to the benefit of any insurance company or in any way prejudice, alter, diminish, abridge or reduce, in any respect, the amount of proceeds of insurance otherwise payable to Company under coverage required to be carried by Contractor under the Contract Documents, it being the intent of the Parties that the full amount of insurance coverage bargained for be actually available notwithstanding any limitation of liability contained in the Contract Documents, if any. Company assumes no responsibility for the solvency of any insurer or the failure of any insurer to settle any claim.

## **ARTICLE X.**

### **TESTS, SUBSTANTIAL COMPLETION AND FINAL ACCEPTANCE**

10.1 GENERAL.

(a) All Tests conducted by either Party shall be in accordance with the Contract Documents, applicable manufacturers' instructions and warranty requirements, Applicable Laws, Applicable Permits, Prudent Industry Practices and any and all applicable rules. Except as otherwise provided in this Agreement, the Party performing the Tests shall provide the other Party with at least ten (10) Business Days' advance written notice of the Tests. Company and its respective authorized representatives or third parties, shall have the right to inspect the Work and to be present during the Tests performed by Contractor. The Party performing the Test shall provide a written report of the Test results to the other Party immediately upon such report becoming available to the Party performing the Test.

(b) Prior to performing any Test, Contractor shall deliver to Company a written notice thereof (a "Test Notice") specifying a date for commencement of any or all of the Tests.

Contractor shall deliver a Test Notice at least ten (10) Business Days prior to the commencement of any Test. Company shall, within five (5) Business Days after its receipt of such Test Notice, deliver to Contractor a written notice (i) accepting such Test Notice or (ii) denying that the prerequisites for performing such Test have been completed and stating the facts upon which such reasonable denial is based. Upon receipt of such notice, Contractor shall take such action as is appropriate to remedy the conditions described in such notice from Company. Following any such remedial action, Contractor shall deliver to Company a new Test Notice conforming to the requirements of this paragraph (b), and the provisions of this paragraph (b) shall apply with respect to such new Test Notice in the same manner as they applied with respect to the original Test Notice. The foregoing procedure shall be repeated as often as necessary until Company no longer rejects the Test Notice; provided, however, if Contractor is required to notify following receipt of Company's written notice in which Company denies that the prerequisites for performing a task have been completed, such re-notification may be given within five (5) Business Days of such notice by Company, and Company shall have three (3) Business Days following the receipt of such resubmitted notice to file written objections as described above. Contractor shall reschedule Tests as requested by Company to reasonably accommodate the schedules of Persons whom Company deems necessary to attend the Tests. Contractor shall promptly notify Company of any proposed change in the schedule of Tests and may not conduct any such test under such proposed changed schedule unless Company receives reasonable advance notice of the actual date of commencement of such rescheduled test. Contractor shall reimburse Company for all additional direct costs reasonably and necessarily incurred by Company due to Contractor's failure to provide written notice in accordance with this Section 10.1(b) or due to Contractor's failure to prepare any portion of the Work for inspections or testing after having provided notice to Company of any such inspection or test.

## 10.2 PERFORMANCE TESTS.

No Performance Tests will be performed unless the Project (a) is capable of being energized and operated safely, normally and continuously in accordance with the requirements of the Contract Documents at all operating conditions and modes specified in the Statement of Work (although minor portions of the Project not essential to its safe, continuous and reliable operation may remain to be completed), and (b) is ready for the Performance Tests to be performed in accordance with the Contract Documents. The Performance Tests shall be performed by Contractor or Company, as set forth in Exhibit D, with the cooperation of the other Party. Contractor acknowledges and agrees that Company may engage third parties to assist with or conduct the Performance Tests. Each Performance Test shall be conducted in accordance with the terms of the Contract Documents, including the Statement of Work, after complying with the notice provisions of Section 10.1(b). If the Project achieves the Performance Requirements, Contractor shall, upon satisfaction of the other requirements to Substantial Completion, submit a notice of Substantial Completion in accordance with Section 10.4(a). If the Project fails all or any part of the Performance Tests, Contractor shall take appropriate corrective action and the Performance Tests shall be performed again. If the Project fails all or any part of the retest, Contractor shall take appropriate corrective action and the Performance Tests shall be repeated. If Contractor fails to achieve the Performance Requirements and satisfy all of the other requirements of Substantial Completion on or prior to the Guaranteed Completion Date, Contractor shall pay Schedule Liquidated Damages in accordance with Section 11.2 hereof. In addition, the Performance Tests shall be repeated in accordance with Section 10.2 during the applicable time periods set forth in Section 11.1.

### 10.3 PUNCH LIST.

(a) At all times during performance of the Work, Contractor shall maintain a list setting forth parts of the Work which remain to be performed in order to confirm that the Work fully complies with the terms of the Contract Documents. Contractor shall promptly provide a copy of such list to Company upon request. Contractor shall make such revisions to such list as and when requested by Company from time to time.

(b) No later than five (5) days after the Substantial Completion Date, Contractor shall prepare and submit to Company a comprehensive list (the "Punch List") of items to be completed for the Project to reach Final Acceptance. Contractor shall make such revisions to the Punch List as and when requested by Company from time to time. However, Contractor shall not be obligated to include any items on the Punch List if such items: (i) directly relate to any part of the Work for which Company has taken operational care, custody and control and (ii) are submitted by Company more than twenty one (21) days after Company took operational care, custody and control over such part of the Work.

(c) Upon request of Company, the Parties shall reasonably agree upon the commercial value of all items on the Punch List that have not been completed. The Parties agree that with respect to Punch List items that remain uncompleted and which are preventing Final Acceptance, it may be more expedient for Company to complete such Punch List items, at its election and option. If the Parties are able to agree upon the commercial value of all items on the Punch List, and Company so elects, at its sole discretion, Company may, in lieu of requiring Contractor to complete the Punch List items, require Contractor to pay to Company an amount equal to one hundred fifty percent (150%) of the commercial value of the remaining Punch List items as agreed upon by Company. Company shall have the right to offset such amount owed by Contractor against any amounts owed by Company to Contractor at Final Acceptance, or otherwise under the Contract Documents.

### 10.4 SUBSTANTIAL COMPLETION.

(a) After Contractor determines that all of the requirements for Substantial Completion have been completed, Contractor shall provide written notice thereof to Company.

(b) Within ten (10) Business Days following receipt by Company of such notice of Substantial Completion, Company shall notify Contractor in writing whether or not Contractor has fulfilled the requirements of Substantial Completion. If Contractor has fulfilled the requirements of Substantial Completion, Company shall notify Contractor that it has achieved Substantial Completion. If Contractor has not fulfilled such requirements for Substantial Completion, Company shall specify in such notice to Contractor in reasonable detail the reasons for determining that the requirements for Substantial Completion have not been met. Contractor shall promptly act to correct such deficiencies so as to achieve Substantial Completion as soon as possible (and no later than by the Guaranteed Completion Date if such date has not already passed). Following any such remedial action, Contractor shall deliver to Company and the a new notice of Substantial Completion and the provisions of this Section 10.5(b) shall apply with respect to such new Substantial Completion notice in the same manner as they applied to the original Substantial Completion notice. The foregoing procedure shall be repeated as often as necessary, so long as Contractor is paying when due Schedule Liquidated Damages (if applicable), until Substantial Completion has been achieved. The date on which Substantial Completion is achieved by Contractor shall be the "Substantial Completion Date."



#### 10.5 FINAL ACCEPTANCE OF THE ESS.

Contractor shall achieve Final Acceptance within thirty (30) Days after the Substantial Completion Date. After achieving Substantial Completion in accordance with Section 10.4, when Contractor determines that all of the requirements for Final Acceptance have been completed (other than execution of the Final Acceptance Certificate by Company), or when Contractor has elected to or is required to declare Final Acceptance pursuant to Section 10.5, Contractor shall submit a proposed Final Acceptance Certificate, in substantially the form attached hereto as Exhibit B, to Company. As soon thereafter as reasonably practicable, a team consisting of representatives of Company and Contractor shall make a final inspection of the ESS. Within ten (10) Business Days following such final inspection, Company shall notify Contractor in writing whether Contractor has fulfilled the requirements of the Contract Documents to reach Final Acceptance (other than execution of the Final Acceptance Certificate by Company). If such requirements have been fulfilled, Company will execute the proposed Final Acceptance Certificate. If the requirements for Final Acceptance have not been fulfilled, then Company shall deliver a written notice to such effect to Contractor describing in reasonable detail the deficiencies noted and corrective action recommended, including projected target dates for the completion of such incomplete or remedial Work. Contractor shall promptly act to correct any such deficiencies. The procedure set forth in this Section 10.5 shall be repeated as necessary, until the earlier of (i) Contractor has fulfilled the requirements for the issuance of the Final Acceptance Certificate and Company executes such certificate or (ii) termination of this Agreement.

#### 10.6 CHANGES IN GUARANTEED DATES.

Except as otherwise set forth herein, no action by Company or Contractor (unless Company specifically agrees to the contrary) required or permitted under this Article X shall affect the Guaranteed Completion Date or any other scheduled date described or defined under the terms of the Project Schedule or other Contract Document.

### **ARTICLE XI. CONTRACTOR GUARANTEES AND LIQUIDATED DAMAGES**

#### 11.1 COMPLETION GUARANTEE.

(a) Contractor hereby guarantees that Substantial Completion will occur no later than the Guaranteed Completion Date.

(b) Subject to Company's other rights as set forth in this Agreement and subject to the provisions of this Section 11.1, in the event that Substantial Completion occurs after the Guaranteed Completion Date but Contractor achieves Substantial Completion within sixty (60) Days after the Guaranteed Completion Date, Contractor shall pay and Company shall accept as its sole remedy for each and every day of such delay after the Guaranteed Completion Date the Schedule Liquidated Damages described in Section 11.2.

(c) If and in the event Contractor fails to achieve Substantial Completion within sixty (60) Days of the Guaranteed Completion Date, then (i) Contractor shall be considered in default, and may, at Company's sole and exclusive discretion, be terminated in accordance with Article XV of this Agreement, and (ii) Contractor shall continue to pay the Schedule Liquidated Damages described in Section 11.2 until the exhaustion of the aggregate amount of Schedule Liquidated Damages, payable by Contractor hereunder in accordance with Section 11.5(c).

## 11.2 SCHEDULE LIQUIDATED DAMAGES.

(a) Company and Contractor acknowledge and agree that any failure to achieve Substantial Completion for the Project by the Guaranteed Completion Date will directly cause substantial damage to Company, which damage cannot be ascertained with reasonable certainty. Accordingly, if Contractor shall fail to achieve Substantial Completion for the Project by the Guaranteed Completion Date, subject to Section 11.4(c), it shall pay to Company, as liquidated and agreed damages and not as a penalty, an amount (collectively, the “Schedule Liquidated Damages”) as set forth in Exhibit Q for each Day (or portion thereof) that Substantial Completion is delayed beyond the Guaranteed Completion Date, commencing with the first Day following the Guaranteed Completion Date.

(b) It is understood and agreed between the Parties that the terms, conditions and amounts fixed pursuant to this Article XI as Schedule Liquidated Damages are reasonable, considering the damages that Company would sustain, and that these amounts are agreed upon and fixed as Schedule Liquidated Damages because of the difficulty of ascertaining the exact amount of damages that would be sustained by Company. Payment of Schedule Liquidated Damages are the exclusive remedies for delays if and in the event the Project ultimately achieves Substantial Completion before the earlier of \_\_\_\_\_ (\_\_\_\_\_) Days after the Guaranteed Completion Date or such date on which the aggregate amount of Schedule Liquidated Damages is exhausted. Further, subject to the last sentence of this paragraph and Section 15.1(a) and Section 15.1(c) and provided Contractor (i) has not otherwise materially breached this Agreement and (ii) is paying the assessed Schedule Liquidated Damages, the failure to achieve Substantial Completion by the Guaranteed Completion Date shall not be considered an event of default under the Contract Documents. Notwithstanding anything contained herein to the contrary, in the event that Contractor has not achieved Substantial Completion but has reached its maximum liability hereunder for payment of Schedule Liquidated Damages in accordance with Section 11.4(c), Contractor shall be in breach of this Agreement.

## 11.3 PERFORMANCE GUARANTEES.

(a) Contractor hereby guarantees that the ESS will operate to meet or exceed the performance levels set forth in Exhibit M (the “Performance Guarantees for the \_\_\_\_\_-year period following the Substantial Completion Date (“Performance Guarantee Period”).

(b) Company and Contractor acknowledge and agree that any failure to meet the Performance Guarantees will directly cause substantial damage to Company, which damage cannot be ascertained with reasonable certainty. Accordingly, if Contractor shall fail to meet the Performance Guarantees, subject to Section 11.4(c), it shall pay to Company, as liquidated and agreed damages and not as a penalty, an amount (collectively, the “Performance Liquidated Damages”) as set forth in Exhibit S for each Day (or portion thereof) that Contractor shall fail to meet the Performance Guarantees, commencing with the first Day Contractor fails to meet the Performance Guarantees.

(c) It is understood and agreed between the Parties that the terms, conditions and amounts fixed pursuant to this Article XI as Performance Liquidated Damages are reasonable, considering the damages that Company would sustain, and that these amounts are agreed upon and fixed as Performance Liquidated Damages because of the difficulty of ascertaining the exact

amount of damages that would be sustained by Company. Payment of Performance Liquidated Damages are the exclusive remedies for Contractor's failure to meet the Performance Guarantees.

#### 11.4 PAYMENT OF LIQUIDATED DAMAGES.

(a) Schedule Liquidated Damages and Performance Liquidated Damages (together, "Liquidated Damages"), if any, under this Article XI shall accrue on a daily basis for each Day (or portion thereof) of delay. Any amounts not paid when due shall accrue interest from the due date until paid at the Reference Rate (established as of the first day of the month in which payment is due).

(b) Except as provided in Section 11.4(c), Contractor's obligation to pay Liquidated Damages when and as provided in this Article is an absolute and unconditional obligation, and shall not be released, discharged, diminished, or in any way affected by (i) any default by Company in the performance or observance of any of its obligations hereunder; provided that Company has paid all undisputed amounts due to Contractor hereunder, or any other circumstances, happening, condition or event. Contractor shall pay such Liquidated Damages without deduction, set-off, reduction or counterclaim.

(c) Notwithstanding anything contained herein to the contrary, Schedule Liquidated Damages shall not exceed an amount equal to \_\_\_\_\_ percent (\_\_\_\_%) of the Contract Price, and Performance Liquidated Damages shall not exceed an amount equal to \_\_\_\_\_ percent (\_\_\_\_%) of the Contract Price.

(d) Company shall have the right to offset any amounts owing to Company under this Article against payments or other amounts owing to Contractor and to exercise its rights against any security provided by or for the benefit of Contractor, in such order as Company may elect in its sole discretion.

#### 11.5 ABSOLUTE OBLIGATIONS.

The Parties understand and agree that Contractor's obligation to achieve the Substantial Completion is an absolute obligation, which must be achieved. There are no Liquidated Damages payable by Contractor hereunder which would excuse Contractor from achieving Substantial Completion for the Project. Notwithstanding anything contained herein to the contrary, after the Project has achieved Substantial Completion and during the time period prior to Final Acceptance, the Project shall be capable of being operated in accordance with all the ESS's operating procedures and all Applicable Laws, Applicable Permits and the other requirements of the Contract Documents, and all operating conditions specified in the Statement of Work. The obligations set forth in this Section 11.6 are absolute obligations of Contractor regardless of the amounts and expenses required to be incurred by Contractor to satisfy such obligation, and notwithstanding that such amounts may exceed the Contract Price.

#### 11.6 LETTER OF CREDIT.

(a) Prior to commencing the Work, Contractor shall deliver to Company a letter of credit, in the form attached hereto as Exhibit L, issued by a Qualified Institution in the amount of \_\_\_\_\_ percent (\_\_\_\_%) of the Contract Price, as may be amended (the "Letter of Credit"), to secure Contractor's payment and performance obligations under this Agreement, a drawing against which Letter of Credit may be made by Company, its successors or permitted assigns, in the event that: (a) a Contractor Event of Default has occurred; (b) Company has not

received proof of replacement of the Letter of Credit reasonably satisfactory to it at least thirty (30) days prior to the expiration date of the Letter of Credit; (c) the issuer of the Letter of Credit no longer qualifies as a Qualified Institution; (d) the Letter of Credit was amended or modified without the prior written consent of Company; or, (e) a provision of the Letter of Credit has ceased to be valid and binding on, or enforceable against, the issuer or the issuer has disaffirmed an obligation under the Letter of Credit. In the event that Company draws upon the Letter of Credit for any cause set forth in subsections (b) through (e) above, inclusive, Company shall hold the proceeds from such drawing in trust, for the benefit of Contractor, pending the delivery by Contractor to Company of a replacement Letter of Credit which satisfies the requirements set forth in this Section 11.6, and upon the delivery thereof, Company shall return to Contractor the proceeds held in trust, less any sums to which Company may be entitled pursuant to clause (a) above.

(b) Upon achieving Final Acceptance of the Work, Contractor shall deliver to Company a replacement letter of credit, in the form attached hereto as Exhibit L, issued by a Qualified Institution in the amount of \_\_\_\_\_ percent (\_\_\_\_%) of the Contract Price, as may be amended (the "Warranty Period Letter of Credit"), to secure Contractor's obligations under Section 11.3 and Article XII, a drawing against which Warranty Period Letter of Credit, may be made by Company, its successors and assigns, in the event that (a) a Defect or other breach of a warranty under Section 12.1 arises during the Warranty Period that Contractor fails to remedy as required under Section 12.2; (b) Company has not received proof of replacement of the Warranty Period Letter of Credit reasonably satisfactory to it at least thirty (30) days prior to the expiration date of the Warranty Period Letter of Credit; (c) the issuer of the Warranty Period Letter of Credit no longer qualifies as a Qualified Institution; (d) the Warranty Period Letter of Credit was amended or modified without the prior written consent of Company; or, (e) a provision of the Warranty Period Letter of Credit has ceased to be valid and binding on, or enforceable against, the issuer or the issuer has disaffirmed an obligation under the Warranty Period Letter of Credit. In the event that Company draws upon the Warranty Period Letter of Credit for any cause set forth in subsections (b) through (e) above, inclusive, Company shall hold the proceeds from such drawing in trust, for the benefit of Contractor, pending the delivery by Contractor to Company of a replacement Warranty Period Letter of Credit which satisfies the requirements set forth in this Section 11.6, and upon the delivery thereof, Company shall return to Contractor the proceeds held in trust, less any sums to which Company may be entitled pursuant to clause (a) above.

(c) Upon expiration of the Warranty Period, Contractor shall deliver to Company a replacement letter of credit, in the form attached hereto as Exhibit L, issued by a Qualified Institution in the amount of \_\_\_\_\_ percent (\_\_\_\_%) of the Contract Price, as may be amended (the "Post-Warranty Letter of Credit"), to secure Contractor's obligations under Section 11.3, a drawing against which Post-Warranty Letter of Credit, may be made by Company, its successors and assigns, in the event that (a) the ESS fails to meet the Performance Guarantees; (b) Company has not received proof of replacement of the Post-Warranty Letter of Credit reasonably satisfactory to it at least thirty (30) days prior to the expiration date of the Post-Warranty Letter of Credit; (c) the issuer of the Post-Warranty Letter of Credit no longer qualifies as a Qualified Institution; (d) the Post-Warranty Letter of Credit was amended or modified without the prior written consent of Company; or, (e) a provision of the Post-Warranty Letter of Credit has ceased to be valid and binding on, or enforceable against, the issuer or the issuer has disaffirmed an obligation under the Post-Warranty Letter of Credit. In the event that Company draws upon the Post-Warranty Letter of Credit for any cause set forth in subsections (b) through (e) above,

inclusive, Company shall hold the proceeds from such drawing in trust, for the benefit of Contractor, pending the delivery by Contractor to Company of a replacement Post-Warranty Letter of Credit which satisfies the requirements set forth in this Section 11.6, and upon the delivery thereof, Company shall return to Contractor the proceeds held in trust, less any sums to which Company may be entitled pursuant to clause (a) above.

## **ARTICLE XII. CONTRACTOR'S WARRANTIES**

### 12.1 WARRANTIES.

(a) Contractor warrants to Company that all Equipment shall be (i) new and of good quality, (ii) free from improper workmanship and Defects, (iii) conform to all applicable requirements of all Applicable Laws and all Applicable Permits, and (iv) fit for Company's use in connection with electric power transmission facilities.

(b) Contractor warrants to Company that the Work will be performed in a good and workmanlike manner, and that the ESS will: (i) conform to and be designed, engineered and constructed in accordance with the Drawings, Statement of Work, all Applicable Laws and Applicable Permits and other terms of the Contract Documents; (ii) conform with, and be designed and engineered according to professional standards and skill, expertise and diligence of design professionals regularly involved in major electric power facilities projects similar to the Project; and (iii) contain the Equipment, supplies and materials described in the Statement of Work.

(c) Contractor warrants to Company that none of the Work, the ESS, the Equipment, the Drawings, Final Plans and the design, engineering and other services rendered by Contractor hereunder, nor the use or ownership thereof by Company in accordance with the licenses granted hereunder, infringes, violates or constitutes a misappropriation of any trade secrets, proprietary rights, intellectual property rights, patents, copyrights or trademarks.

(d) Except as expressly stated herein to the contrary, Contractor warrants that it shall remedy, in accordance with Section 12.2, any Defects in the Work due to faulty design, materials or workmanship which appear within the \_\_\_\_\_ (\_\_\_\_) year period following Substantial Completion (as such period may be extended in accordance with the terms hereof, the "Warranty Period"). Contractor shall bear all costs of corrections and repairs during the Warranty Period. The provisions of this Section 12.1 apply to Work performed by Subcontractors and Vendors as well as Work performed directly by Contractor. The provisions of this Article XII do not apply to corrective work caused by the acts or omissions of Company or any separate contractor of Company. If and in the event Company notifies Contractor of a Defect within the Warranty Period, Contractor, at Contractor's expense, shall perform all Work necessary to remedy the Defect, and the repair or replacement Work performed by Contractor to accomplish that purpose shall be subject to the same Warranty Period. Contractor's obligations to remedy any Defects surfacing after the Warranty Period shall be limited by the proceeds, if any, of any applicable insurance policy. Contractor agrees to reasonably cooperate with Company to effect the collection of any such insurance proceeds.

(e) THE WARRANTIES OF CONTRACTOR SET FORTH IN THIS AGREEMENT ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER STATUTORY, EXPRESS OR IMPLIED (INCLUDING ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ALL

WARRANTIES ARISING FROM COURSE OF DEALING AND USAGE OF TRADE). The foregoing sentence is not intended to disclaim any other obligations of Contractor set forth herein.

12.2 REPAIR OF NONCONFORMING WORK.

(a) If the Work or the ESS are found to contain Defects, or Contractor is otherwise in breach of any of the warranties set forth in Section 12.1 within the Warranty Period, Contractor shall at its sole cost and expense and without reimbursement hereunder, correct, repair or replace such Defect or otherwise cure such breach as promptly as practicable upon being given notice thereof. Company shall provide Contractor with reasonable access to the ESS in order to perform its obligation under this Article and the Parties shall schedule such corrections or replacements as necessary so as to minimize disruptions to the operation of the ESS. Contractor shall bear all costs and expenses associated with correcting any Defect or breach of warranty, including, without limitation, necessary disassembly, transportation, reassembly and retesting, as well as reworking, repair or replacement of such Work, disassembly and reassembly of piping, ducts, machinery, Equipment or other Work as necessary to give access to improper, defective or non-conforming Work and correction, removal or repair of any damage to other work or property that arises from the Defect. If Contractor is obligated to repair, replace or renew any Equipment, item or portion of the Work hereunder, Contractor will undertake a technical analysis of the problem and correct the “root cause” unless Contractor can demonstrate to Company’s satisfaction that there is not a risk of the reoccurrence of such problem. Contractor’s obligations under this Section 12.2 shall not be impaired or otherwise adversely affected by any actual or possible legal obligation or duty of any Vendor or Subcontractor to Contractor or Company concerning any Defect or breach of warranty.

(b) If Contractor fails to complete or commence with due diligence to complete the correction of any Defect or cure of any breach of warranty as required herein within ten (10) days after receipt of written request from Company to perform such obligations, then Company may correct or cause to be corrected such Defect or cure such breach of warranty and Contractor shall be liable for all reasonable costs, charges, and expenses incurred by Company in connection therewith (including reasonable and necessary consultants’ fees), and Contractor shall, within fifteen (15) days after request therefore, pay to Company an amount equal to such costs, charges, and expenses. Any such request by Company shall be accompanied by proper documentation evidencing such costs, charges and expenses. Any amounts not paid when due shall accrue interest at the Reference Rate (established as of the first day of the month in which payment is due) from the date due until paid. Company and Contractor agree to treat (and shall cause each of their respective Affiliates to treat) any payment made pursuant to this Section as an adjustment to the Contract Price unless a final determination (which shall include execution of an Internal Revenue Service Form 870-AD or successor form) provides otherwise.

(c) If, during the Warranty Period, Contractor shall change, repair or replace any Major Equipment item or component, Company, in its reasonable discretion, may require Contractor to assist Company in conducting any test required by Company with respect to the affected Equipment; provided, however, in connection with any performance of a test pursuant to this Section 12.2(c), appropriate allowance with respect to the performance of such Equipment shall be made for the fact that such Equipment may have operated prior thereto. If after running such test pursuant to this Section 12.2(c), the results indicate Contractor has not fulfilled any of its warranty obligations and there is a degradation in the performance of the Project and such degradation results from the warranty Work performed in accordance with this Article XII, then

Contractor shall repair, correct or replace such affected Equipment and assist the Company in re-running such test until the results no longer indicate a degradation in the performance of the Project resulting from the warranty Work performed in accordance with this Article XII.

### 12.3 PROPRIETARY RIGHTS.

Without limiting any of the provisions of this Agreement, if Company or Contractor is prevented from completing the ESS, the Work or any part thereof, or from the use, operation, or enjoyment of the ESS, the Work or any part thereof as a result of a claim, action or proceeding by any Person for unauthorized disclosure, infringement or use of any trade secrets, proprietary rights, intellectual property rights, patents, copyrights or trademarks arising from Contractor's performance (or that of its Subcontractors or Vendors) under the Contract Documents, including, without limitation, the Work, Equipment, the Drawings, the Final Plans or other items and services provided by Contractor or any Subcontractor or Vendor hereunder, Contractor shall promptly, but in no event later than thirty (30) days from the date of any action or proceeding, take all actions necessary to remove such impediment, including (a) secure termination of the injunction and procure for Company or its Affiliates or assigns, as applicable, the right to use such materials, Equipment, Drawings or Final Plans in connection with the operation and maintenance of the Project, without obligation or liability; or (b) replace such materials, Equipment, Drawings or Final Plans, with a non-infringing equivalent, or modify same to become non-infringing, all at Contractor's sole cost and expense and without reimbursement hereunder, but subject to all the requirements of the Contract Documents.

### 12.4 REPAIRS AND TESTING BY COMPANY.

(a) During the Warranty Period, without prior notice to Contractor and without affecting the warranties of Contractor hereunder, Company shall be permitted to (i) make repairs or replacements on Equipment so long as the repair or replacement involves the correct installation of spare parts, and (ii) adjust the Equipment as outlined in the instruction manuals provided by Contractor or any Subcontractor or Vendor, or as agreed by Contractor or any Subcontractor or Vendor.

(b) In the event of an emergency and if, in the reasonable judgment of Company, the delay that would result from giving notice to Contractor could cause serious loss or damage which could be prevented by immediate action, any action (including correction of Defects) may be taken by Company or a third party chosen by Company, without giving prior notice to Contractor, and in the case of a Defect, the reasonable cost of correction shall be paid by Contractor. In the event such action is taken by Company, Contractor shall be promptly notified within five (5) Business Days after correction efforts are implemented, and shall assist whenever and wherever possible in making the necessary corrections. All such warranties obtained shall be in addition to, and shall not alter the warranties of, Contractor. Upon Company's request, Contractor shall use all reasonable efforts to force Subcontractors to honor warranties including, but not limited to, filing suit to enforce same.

### 12.5 VENDORS AND SUBCONTRACTORS.

Contractor shall, for the protection of Contractor and Company, obtain from the Vendors and Subcontractors such guarantees and warranties with respect to Work performed and Equipment supplied, used and installed hereunder as are reasonably obtainable, which guarantees and warranties shall equal or exceed those set forth in Section 12.1 and shall be made available

and assignable to Company to the full extent of the terms thereof upon the expiration of Contractor's warranty hereunder. Company shall be an express third party beneficiary of all such guarantees and warranties, provided such third party beneficiary rights shall not be effective unless this Agreement has been terminated. To the extent available, Company shall have the right to require Contractor to secure additional warranty or extended guarantee protection pursuant to a Change Order issued in accordance with the provisions of Article VI. Upon the earlier of the Substantial Completion Date or termination of this Agreement, Contractor shall deliver to Company copies of all relevant contracts providing for such guarantees and warranties.

12.6 ASSIGNMENT OF WARRANTIES.

Upon the expiration of the Warranty Period or termination of this Agreement, Contractor shall assign to Company all warranties received by it from Subcontractors and Vendors or otherwise obtained under Section 12.5 (or the ESS or Work in the event of termination of this Agreement). Such assignment of warranties to Company must also allow Company to further assign such warranties.

12.7 SURVIVAL OF WARRANTIES.

The provisions of this Article XII shall survive the expiration or termination of this Agreement.

**ARTICLE XIII.  
REPRESENTATIONS**

13.1 REPRESENTATIONS AND WARRANTIES.

(a) Contractor represents and warrants to Company that:

(1) Contractor is a corporation, duly incorporated/formed/organized, validly existing and in good standing under the laws of the State of \_\_\_\_\_, and is duly authorized and qualified to conduct business in the State of California;

(2) Contractor has all requisite power and authority to conduct its business, own its properties and execute and deliver this Agreement and perform its obligations hereunder in accordance with the terms hereof;

(3) the execution, delivery, and performance of the Contract Documents have been duly authorized by all requisite corporate action and this Agreement constitutes the legal, valid and binding obligation of Contractor, enforceable against Contractor in accordance with its terms;

(4) neither the execution, delivery or performance of the Contract Documents conflicts with, or results in a violation or breach of the terms, conditions or provisions of, or constitutes a default under, the organizational documents of Contractor or any agreement, contract, indenture or other instrument under which Contractor or its assets are bound, nor violates or conflicts with any Applicable Law or any judgment, decree, order, writ, injunction or award applicable to Contractor;

(5) Contractor is not in violation of any Applicable Law or Applicable Permit, which violations, individually or in the aggregate, would affect its performance of its obligations under the Contract Documents;

(6) Contractor is the holder of all governmental consents, licenses,



permissions and other authorizations and Applicable Permits required to operate and conduct its business now and as contemplated by the Contract Documents, other than Contractor Permits and Company Permits which will be obtained in accordance with the terms of the Contract Documents;

(7) there is no pending controversy, legal action, arbitration proceeding, administrative proceeding or investigation instituted, or to the best of Contractor's knowledge threatened, against or affecting, or that could affect, the legality, validity and enforceability of the Contract Documents or the performance by Contractor of its obligations under the Contract Documents, nor does Contractor know of any basis for any such controversy, action, proceeding or investigation;

(8) Contractor has examined this Agreement, including all Exhibits attached hereto, thoroughly and become familiar with all its terms and provisions;

(9) Contractor, by itself and through its Subcontractors and Vendors, has the full experience and proper qualifications to design and perform the Work and to construct the ESS in accordance with the terms of the Contract Documents;

(10) Contractor has visited and examined the Property Site and is fully familiar with such Property Site and surrounding areas and based on such visit and examination has no reason to believe that Contractor will be unable to complete the Work in accordance with the Contract Documents;

(11) to the best of its knowledge, Contractor has reviewed all other documents and information necessary and available to Contractor in order to ascertain the nature, location and scope of the Work, the character and accessibility of the Property Site, the existence of obstacles to construction of the ESS and performance of the Work, the availability of facilities and utilities, and the location and character of existing or adjacent work or structures;

(12) Contractor owns or has the right to use all patents, trademarks, service marks, tradenames, copyrights, licenses, franchises, permits and intellectual property rights necessary to perform the Work without conflict with the rights of others;

(13) Contractor is financially solvent, able to pay its debts as they mature, and possessed of sufficient working capital to complete its obligations under this Agreement;

(14) all Persons who will perform any portion of the Work have and will have all business and professional certifications required by Applicable Law to perform their respective services under this Agreement; and

(15) the access rights granted to or obtained by Contractor to the Job Site are adequate for the performance of the Work and operation of the ESS.

(b) Company represents and warrants to Contractor that:

(1) Company is a corporation, duly incorporated, validly existing, and in good standing under the laws of the State of California and is duly authorized and qualified to conduct business in the State of California;

(2) Company has all requisite power and authority to conduct its business, own its properties and execute and deliver the Contract Documents and perform its obligations hereunder in accordance with the terms hereof;

(3) the execution, delivery, and performance of the Contract Documents have

been duly authorized by all requisite corporate action and this Agreement constitutes the legal, valid and binding obligation of Company, enforceable against Company in accordance with its terms;

(4) neither the execution, delivery or performance of the Contract Documents conflicts with, or results in a violation or breach of the terms, conditions or provisions of, or constitutes a default under, the organizational documents of Company or any agreement, contract, indenture or other instrument under which Company or its assets are bound, nor violates or conflicts with any Applicable Law or any judgment, decree, order, writ, injunction or award applicable to Company;

(5) Company is not in violation of any Applicable Law or Applicable Permit, which violations, individually or in the aggregate, would affect its performance of its obligations under the Contract Documents;

(6) Company is the holder of all governmental consents, licenses, permissions and other authorizations and Applicable Permits required to operate and conduct its business now and as contemplated by the Contract Documents, other than Company Permits which will be obtained in accordance with the terms of the Contract Documents;

(7) there is no pending controversy, legal action, arbitration proceeding, administrative proceeding or investigation instituted, or to the best of Company's knowledge threatened, against or affecting, or that could affect, the legality, validity and enforceability of the Contract Documents or the performance by Company of its obligations under the Contract Documents, nor does Company know of any basis for any such controversy, action, proceeding or investigation; and

(8) Company shall be financially solvent, able to pay its debts as they mature, and possessed of sufficient working capital to complete its obligations under this Agreement.

13.2 SURVIVAL OF REPRESENTATIONS AND WARRANTIES.

The representations and warranties of Contractor and Company herein shall survive execution and termination of this Agreement.

**ARTICLE XIV.  
FORCE MAJEURE AND OWNER CAUSED DELAY**

14.1 DEFINITION OF FORCE MAJEURE EVENT.

As used herein, the term "Force Majeure Event" shall mean any event or circumstance, or combination of events or circumstances, that arises after the date hereof, is beyond the reasonable control of the Party claiming the Force Majeure Event, and is unavoidable or could not be prevented or overcome by the reasonable efforts and due diligence of the Party claiming the Force Majeure Event. Without limiting the generality of the foregoing, events that may give rise to a Force Majeure Event include, without limitation, acts of God, natural disasters, fires, earthquakes, lightning, floods, storms, civil disturbances, terrorism, riots, war, and the action of or failure to act on the part of any Government Authority having or asserting jurisdiction that is binding upon the Parties and has been opposed by all reasonable means, in each case, that meet the definition of Force Majeure Event as set forth above. Notwithstanding the foregoing, the definition of "Force Majeure Event" shall not include: strikes, work stoppages (or deteriorations), slowdowns or other labor actions; any labor or manpower shortages; unavailability, late delivery,

failure, breakage or malfunction of equipment or materials or events that affect the cost of equipment or materials; economic hardship (including lack of money); perils of sea; delays in transportation (including delays in clearing customs) other than delays in transportation resulting from accidents or closure of roads or other transportation route by Government Authorities; changes in Applicable Laws; weather conditions as recorded by the National Oceanic and Atmospheric Administration over the past fifty (50) years in the vicinity of the Project Site or elsewhere; actions of a Government Authority with respect to Contractor's compliance with Applicable Laws or Applicable Permits; any failure by the Contractor to obtain and/or maintain any Applicable Permit it is required obtain and/or maintain hereunder; any other act, omission, delay, default or failure (financial or otherwise) of a Subcontractor.

#### 14.2 NOTICE OF FORCE MAJEURE EVENT.

The Party claiming a Force Majeure Event shall within five (5) Business Days after it knows or should have known of the occurrence of the Force Majeure Event (or in any event, no later than sixty (60) days after the commencement of the Force Majeure Event), give the other Party written notice describing the details of the cause and nature of the Force Majeure Event, the anticipated length of delay due to the Force Majeure Event and any other affect on the Party's performance of its obligations hereunder; provided that if the Force Majeure Event results in a breakdown of communications rendering it not reasonably practicable to give notice within the applicable time limit specified herein, then the Party claiming a Force Majeure Event shall give such notice as soon as reasonably practicable after the reinstatement of communications, but no later than five (5) Business Days after such reinstatement. Within fifteen (15) days after initial notification, such Party shall provide sufficient proof of the occurrence and duration of such Force Majeure Event to the other Party's reasonable satisfaction and shall thereafter provide the other Party with periodic supplemental updates to reflect any change in information given to the other Party as often as requested by the other Party. The Party claiming the Force Majeure Event shall give notice to the other Party of (a) the cessation of the relevant Force Majeure Event and (b) the cessation of the effects of such Force Majeure Event on the performance by it of its obligations under the Contract Documents as soon as practicable after becoming aware thereof. No Force Majeure Event shall relieve any Party from performing those of its obligations that are not affected by the Force Majeure Event.

#### 14.3 DELAY AND ADJUSTMENT TO GUARANTEED COMPLETION DATE DUE TO FORCE MAJEURE EVENT.

So long as the conditions set forth in this Section 14.3 are satisfied, and subject to Section 14.7, neither Party shall be responsible or liable for or deemed in breach of this Agreement because of any failure or delay in complying with its obligations under or pursuant to the Contract Documents to the extent that such failure has been caused, or contributed to, by one or more Force Majeure Events or its effects or by any combination thereof, and in such event:

(a) except as otherwise provided herein, the performance by the Party claiming the Force Majeure Event of its obligations hereunder shall be suspended, and in the event that such Party is required to start or complete an action during a specific period of time, such start date or period for completion shall be extended, on the condition that: (i) such suspension of performance and extension of time shall be of no greater scope and of no longer duration than is required by the effects of the Force Majeure Event; (ii) the Party claiming the Force Majeure Event complies with Section 14.2; and (iii) the Party claiming the Force Majeure Event continually uses commercially

reasonable efforts to alleviate and mitigate the cause and effect of the Force Majeure Event and remedy its inability to perform;

(b) in the event Contractor desires to claim a Force Majeure Event, it must submit a request for Changes pursuant to Section 6.2(b) and Contractor shall be entitled to suspension of performance or extension of time (including an extension of the Guaranteed Completion Date if otherwise allowed pursuant to Section 6.1(b)) pursuant to a Change Order in accordance with the principles of this Section 14.3 and 6.1(b); provided Contractor shall not be entitled to any relief for a Force Majeure Event unless such Force Majeure Event has been shown to Company's reasonable satisfaction to actually, demonstrably, adversely and materially affect the Critical Path of the Work; and

(c) Contractor's failure to comply with this Section 14.3 shall constitute a waiver of any claims as a result of a Force Majeure Event.

#### 14.4 REMOVAL OF FORCE MAJEURE.

If, within a reasonable time after an Force Majeure Event that has caused Contractor to suspend or delay performance of the Work, action to be undertaken at the expense of Company has been identified and recommended to Contractor, and Contractor has failed within five (5) days after receipt of notice thereof from Company to take such action as Contractor could lawfully and reasonably initiate to remove or relieve either the Force Majeure Event or its direct or indirect effects, Company may, in its sole discretion and after notice to Contractor, initiate such reasonable measures as will be designed to remove or relieve such Force Majeure Event or its direct or indirect effects and thereafter require Contractor to resume full or partial performance of the Work. If the action recommended by Company is agreed to by Contractor but Contractor does not take such action and Company performs such measures, to the extent Contractor's failure to take such measures results in expense in addition to what Company would have paid to Contractor (as part of the original Contract Price) had Contractor taken such measures, such additional expense shall be for Contractor's account.

#### 14.5 NOTICE OF COMPANY CAUSED DELAY.

In the event Contractor desires to claim a Company Caused Delay, Contractor shall within five (5) Business Days after it knows or should have known of the occurrence of the Company Caused Delay, give Company written notice describing the details of the Company Caused Delay, the anticipated length of such delay and any other effect on Contractor's performance of its obligations hereunder. Within fifteen (15) days after initial notification, Contractor shall (i) provide to Company reasonable evidence of the occurrence and duration of such Company Caused Delay; and (ii) thereafter provide Company with periodic supplemental updates to reflect any change in information given to Company as often as requested by Company.

#### 14.6 DELAY AND ADJUSTMENT TO CONTRACT PRICE DUE TO COMPANY CAUSED DELAY.

So long as the conditions set forth in this Section 14.6 are satisfied and subject to Section 14.7, Contractor shall not be responsible or liable for or deemed in breach of the Contract Documents because of any failure or delay in completing the Work in accordance with the Project Schedule or achieving Substantial Completion by the Guaranteed Completion Date to the extent that such failure has been caused by one or more Company Caused Delays, and in such event, the start date or period for completion of any portion of the Work shall be extended and the Contract

Price shall be equitably adjusted pursuant to a Change Order, on the condition that: (i) such suspension of performance and extension of time shall be of no greater scope and of no longer duration than is required by the effects of the Company Caused Delay; (ii) Contractor complies with Section 14.5; (iii) the Company Caused Delay actually, demonstrably, adversely and materially affects the Critical Path of the Work; and (iv) Contractor provides all assistance reasonably requested by Company for the elimination or mitigation of the Company Caused Delay. In the event Contractor desires to claim a Company Caused Delay, it must submit a request for Changes pursuant to Section 6.2(b), and Contractor shall be entitled to suspension of performance or extension of time (including an extension of the Guaranteed Completion Date) together with demonstrated, justified and reasonable additional costs, including but not limited to, idle equipment costs, incurred by reason of such delay to the extent agreed upon by the Parties pursuant to a Change Order in accordance with Section 6.2(b). Failure to comply with the terms of this Section 14.6 shall constitute a waiver of any claims for an adjustment in the Project Schedule or an increase in the Contract Price as a result of a Company Caused Delay.

#### 14.7 PERFORMANCE NOT EXCUSED.

The payment of money owed shall not be excused because of a Force Majeure Event or Company Caused Delay. In addition, a Party shall not be excused under this Article from timely performance of its obligations hereunder to the extent that the claimed Force Majeure Event or Company Caused Delay was caused by any negligent or intentional acts, errors, or omissions, or for any breach or default of the Contract Documents by such Party. Furthermore, no suspension of performance or extension of time shall relieve the Party benefiting therefrom from any liability for any breach of the obligations that were suspended or failure to comply with the time period that was extended to the extent such breach or failure occurred prior to the occurrence of the applicable Force Majeure Event or Company Caused Delay. Notwithstanding anything contained herein to the contrary, Contractor shall not withdraw Contractor's Equipment and personnel from the Job Site or otherwise demobilize without the prior authorization of Company. Contractor shall be entitled to receive reimbursement for its reasonably incurred costs of a demobilization and/or remobilization required as a result of any Force Majeure Event.

### **ARTICLE XV. TERMINATION**

#### 15.1 CONTRACTOR EVENTS OF DEFAULT.

The occurrence and continuation of any of the following events shall constitute an event of default by Contractor (each a "Contractor Event of Default"):

- (a) the failure of Contractor to achieve Substantial Completion within \_\_\_\_\_ ( ) days after the Guaranteed Completion Date;
- (b) the failure of Contractor to achieve Final Acceptance prior to thirty (30) Days after the Substantial Completion Date;
- (c) the ESS, during the period of time between Substantial Completion and Final Acceptance, is not capable of being operated in accordance with ESS operating procedures and all Applicable Laws and Applicable Permits, and other requirements of this Agreement, and all operating conditions specified in the Statement of Work;
- (d) any failure by Contractor to make any payment or payments required to be made to Company under the Contract Documents within five (5) Business Days after receipt of written

notice from Company of Contractor's failure to make such other payment or payments (except, in the case of payments other than Liquidated Damages, to the extent Contractor disputes such other payment or payments in good faith and in accordance with the terms of this Agreement);

(e) any breach by Contractor of any representation or warranty contained in Sections 13.1(a)(i) through 13.1(a)(xv);

(f) any breach by Contractor of any obligation, covenant or agreement hereunder other than those breaches specified in this Section 15.1 and (i) such breach is not cured by Contractor within fifteen (15) days after notice thereof from Company, or (ii) if such breach is not capable of being cured within such fifteen (15) day period (as determined by Company in its sole discretion), Contractor fails to (A) commence to cure such breach within such fifteen (15) day period, (B) thereafter diligently proceed to cure such breach in a manner satisfactory to Company in its sole discretion, or (C) cure such breach within ninety (90) days after notice thereof from Company;

(g) any of the following occurs: (i) Contractor consents to the appointment of or taking possession by, a receiver, a trustee, custodian, or liquidator of itself or of a substantial part of its assets, or fails or admits in writing its inability to pay its debts generally as they become due, or makes a general assignment for the benefit of creditors; (ii) Contractor files a voluntary petition in bankruptcy or a voluntary petition or an answer seeking reorganization in a proceeding under any applicable bankruptcy or insolvency laws or an answer admitting the material allegations of a petition filed against it in any such proceeding, or seeks relief by voluntary petition, answers or consents, under the provisions of any now existing or future bankruptcy, insolvency or other similar law providing for the liquidation, reorganization, or winding up of corporations, or providing for an agreement, composition, extension, or adjustment with its creditors; (iii) a substantial part of Contractor's assets is subject to the appointment of a receiver, trustee, liquidator, or custodian by court order and such order shall remain in effect for more than thirty (30) days; or (iv) Contractor is adjudged bankrupt or insolvent, has any property sequestered by court order and such order shall remain in effect for more than thirty (30) days, or has filed against it a petition under any bankruptcy, reorganization, arrangement, insolvency, readjustment of debt, dissolution or liquidation law of any jurisdiction, whether now or hereafter in effect, and such petition shall not be dismissed within thirty (30) days of such filing;

(h) the dissolution of Contractor, except for the purpose of merger, consolidation or reorganization where the successor expressly assumes Contractor's obligations hereunder and such assignment and assumption does not materially adversely affect the ability of the successor to perform its obligations under the Contract Documents;

(i) the transfer by Contractor of (i) all or a substantial portion of the rights and/or obligations of Contractor hereunder, except for an assignment permitted hereunder, or (ii) all or a substantial portion of the assets or obligations of Contractor, except where the transferee expressly assumes the transferred obligations and such transfer does not materially adversely affect the ability of Contractor or the transferee, as applicable, to perform its obligations under the Contract Documents, as determined by Company in its sole discretion;

(j) the failure of Contractor to provide and maintain in full force and effect any Letter of Credit as required pursuant to Section 11.6;

(k) any failure by Contractor to maintain the insurance coverages required of it in

accordance with Article IX; or

(l) any failure of Contractor to maintain any Letter of Credit once it has been issued in accordance with Section 11.6.

15.2 TERMINATION BY COMPANY DUE TO CONTRACTOR DEFAULT; OTHER REMEDIES.

(a) Upon the occurrence and during the continuance of a Contractor Event of Default, Company may, at its option, terminate this Agreement, without prejudice to any other rights and remedies available to Company under this Agreement or otherwise at law or equity, by giving written notice thereof to Contractor, which termination shall be effective upon the giving of such notice by Company.

(b) In the event of a termination by Company under this Section 15.2, Company shall have the right to take possession of and use all of the Contractor Equipment located at the Job Site on the date of such termination for the purpose of completing the Work and may employ any other Person to complete the Work by whatever method that Company may deem necessary. In addition, Company may make such expenditures as in Company's sole judgment will accomplish the timely completion of the Work in accordance with the terms hereof.

(c) In the event of termination by Company under this Section 15.2, Contractor shall not be entitled to receive any further payments under the Contract Documents, except for payments for Work completed prior to such termination for which Contractor has not previously been paid. Company shall be entitled to offset against such amount due to Contractor any amounts due to Company by Contractor. Any amounts due to Contractor under this Section 15.2(c) shall be paid to Contractor within thirty (30) days after the Final Acceptance Date (as achieved by the substitute contractor).

(d) In the event of termination by Company under this Section 15.2, Contractor shall be responsible for and shall reimburse Company for the following amounts: (i) all costs and expenses incurred by Company to engage a substitute contractor to complete (or cure deficiencies in) the Work, including, without limitation, overhead and legal, engineering and other professional expenses; (ii) all costs and expenses incurred in connection with the termination of the Contract Documents, including costs and expenses incurred in connection with the obligations set forth under Section 15.9; (iii) the amount by which (A) the cost to complete (or cure deficiencies in) the Work, exceeds (B) the balance of the Contract Price unpaid at the time of the termination; and (iv) all actual damages occasioned by reason of said default, except that Contractor agrees that Schedule Liquidated Damages shall apply in lieu of delay damages for late completion.

(e) Upon the occurrence and during the continuance of a Contractor Event of Default and after the expiration of any applicable cure periods but prior to termination of this Agreement by Company, Company may, without prejudice to any of its other rights or remedies available under this Agreement or otherwise at law or equity, (i) seek performance by any guarantor of Contractor's obligations hereunder, (ii) seek equitable relief to cause Contractor to take action or to refrain from taking action pursuant to this Agreement, or to make restitution of amounts improperly received under this Agreement, (iii) make such payments or perform such obligations as are required to cure such Contractor Event of Default, draw on or make a claim against the Letter of Credit or other security provided pursuant to this Agreement and/or offset the cost of such payment or performance against payments otherwise due to Contractor under this Agreement; provided that Company shall be under no obligation to cure any such Contractor Event

of Default, or (iv) seek damages as provided in Section 15.2(d), including proceeding against any bond, guarantee, letter of credit, or other security given by or for the benefit of Contractor for its performance under this Agreement.

(f) The rights and remedies available to Company pursuant to this Section 15.2 shall not be exclusive with respect to any other right or remedy of the Company provided for in this Agreement or otherwise available at law or equity.

### 15.3 TERMINATION BY COMPANY FOR CONVENIENCE.

(a) Company may terminate this Agreement at any time for any reason in its sole discretion by giving written notice thereof to Contractor, which termination shall be effective upon the giving of such notice by Company. Upon receiving any such notice of termination, Contractor shall stop performing the Work and, except as otherwise directed by Company, shall cancel as quickly as possible all orders placed by it with Subcontractors and Vendors and shall use all reasonable efforts to minimize cancellation charges and other costs and expenses associated with the termination of this Agreement. Contractor shall also promptly assign all subcontracts and purchase orders which Company wishes to retain in accordance with Section 15.9.

(b) In the event of a termination by Company under this Section 15.3, Contractor shall be entitled to receive a termination payment (the "Termination Payment") equal to the sum of the following, without duplication: (i) that portion of the Contract Price that is applicable to Work completed up to the date of termination that has not previously been paid to Contractor (as determined below); (ii) the expenses reasonably incurred by Contractor in withdrawing Contractor's Equipment and personnel from the Job Site and in otherwise demobilizing; (iii) the expenses reasonably incurred by Contractor in terminating contracts with Subcontractors and Vendors pertaining to the Work (excluding fees of any Affiliates of Contractor), except to the extent Company has instructed Contractor not to terminate such contracts, in which event such contract will be assigned to Company, subject to Company's assumption of same and, if required, Company's adequate assurance to such Subcontractors or Vendors regarding Company's ability to pay; and (iv) the expenses incurred in connection with Contractor's obligations set forth under Section 15.9 (to the extent not otherwise reimbursed pursuant to the preceding clause (i)).

(c) Company and Contractor shall determine the amount due to Contractor pursuant to the preceding clause (b)(i) in accordance with the rates set forth in the Purchase Order for partially completed Work. Contractor shall document the costs claimed under clauses (b)(ii), (b)(iii), and (b)(iv) above to Company's reasonable satisfaction and shall supply Company with copies of the Subcontractor and Vendor invoices and other receipts covering amounts claimed under such clauses. Contractor shall submit an invoice to Company for the Termination Payment with the supporting information and documents referred to above, and Company shall pay such invoice within thirty (30) days after its receipt of same unless it disputes any portion thereof, in which event Company shall only pay the undisputed portion of the Termination Payment within such thirty (30) day period and the dispute over the remainder of the claimed Termination Payment may be resolved pursuant to Article XVII. Contractor shall utilize reasonable commercial efforts to include termination for convenience provision with terms similar to the foregoing in all subcontracts, contracts and purchase orders.

(d) Any amount owed pursuant to Section 15.3(b) shall be subject to adjustment to the extent any Work contains Defects.



#### 15.4 SUSPENSION BY COMPANY FOR CONVENIENCE.

(a) Company may suspend all or a portion of the Work to be performed under the Contract Documents at any time for any reason in its sole discretion by giving written notice thereof to Contractor. Such suspension shall continue for the period specified in the notice of suspension; provided that Contractor agrees to resume performance of the Work promptly upon receipt of notice from Company. Upon receiving any such notice of suspension, unless the notice requires otherwise, Contractor shall: (i) immediately discontinue the Work on the date and to the extent specified in the notice; (ii) place no further orders or subcontracts for Equipment, services or facilities with respect to suspended Work, other than to the extent required in the notice; (iii) promptly make every reasonable effort to obtain suspension, with terms satisfactory to Company, of all orders, subcontracts and rental agreements to the extent they relate to performance of suspended Work; (iv) continue to protect and maintain the Work performed, including those portions on which Work has been suspended; and (v) take any other reasonable steps to minimize costs and expenses associated with such suspension.

(b) Except as provided in Section 15.4(c), as full compensation for any suspension under this Section 15.4, Contractor will be reimbursed by Company for the costs, as reasonably incurred, without duplication of any item, to the extent that such costs directly result from such suspension of the Work and to the extent that they do not reflect reimbursement for Contractor's, Vendors' or Subcontractors' anticipated profit from unperformed Work, including: (i) a standby charge, without mark-up or multiplier, sufficient to compensate Contractor for the direct costs attributable to keeping, to the extent required in the suspension notice, its organization and the Contractor Equipment committed to the Work on a standby basis, as agreed to by Company and Contractor; provided that Contractor shall substantiate such charge with supporting information acceptable to Company; (ii) all necessary and reasonable costs incurred in connection with demobilization and remobilization of Contractor's facility and Labor and the Contractor Equipment; and (iii) an equitable amount to reimburse Contractor for the cost of receiving, maintaining and protecting that portion of Work upon which performance has been suspended, as agreed to by Company and Contractor.

(c) Upon delivery of notice by Company to Contractor to resume suspended Work, Contractor shall immediately resume performance under the Contract Documents to the extent required in the notice. Contractor may request a Change Order as a result of a suspension of Work under this Section 15.4 within fourteen (14) days after receipt of notice to resume the suspended Work; provided that such suspension was not due to Contractor's negligence, willful misconduct or noncompliance with the terms of this Agreement and; provided, further, that during resumption of the Work Contractor shall use reasonable efforts to minimize the affect on the Critical Path of the Work. Contractor shall submit to Company a request for Changes in accordance with Article VI and such request shall be accompanied by sufficient documentation setting forth the schedule impact and monetary extent of such claim in sufficient detail to permit thorough analysis by Company; provided that if such information is not available within such fourteen (14) day period, Contractor shall notify Company of such circumstance within such fourteen (14) day period and provide an expected date (which shall be as soon as reasonably practicable) for providing such information. If Contractor does not submit a request for Changes within such fourteen (14) day period and provide the information regarding schedule and monetary impact as required above within such fourteen (14) day period (or by the expected date if not possible during such fourteen (14) day period), Contractor shall not be entitled to any additional consideration or

other amendments hereto and shall be deemed to have waived all claims and offsets against Company as a result of the suspension of Work. Contractor shall permit access by Company to pertinent records for purposes of reviewing the claims by Contractor of schedule and monetary impact.

(d) No adjustment to the Guaranteed Completion Date, Contract Price or other terms herein shall be made for any suspension of Work under this Section 15.4 to the extent that performance would have been suspended, delayed or interrupted as a result of any Force Majeure Event or Contractor's noncompliance with the requirements of the Contract Documents. Contractor shall use reasonable commercial efforts to include a suspension for convenience provision with terms similar to the foregoing in all subcontracts and purchase orders.

15.5 TERMINATION DUE TO FORCE MAJEURE EVENT. If a Force Majeure Event has occurred and continues for a period of at least three hundred sixty-five (365) days, then, notwithstanding that the Parties may by reason thereof have been granted an extension of required dates, either Party may deliver a written notice to the other Party stating its intention to terminate this Agreement. If at the expiration of thirty (30) days after the other Party's receipt of such notice, the Force Majeure Event is continuing, this Agreement shall terminate immediately. In the event of such termination, Contractor shall be entitled to receive payments accrued for Work completed prior to such termination for which Contractor has not previously been paid. The amount of consideration for such completed Work shall be determined by Company in accordance with the rates set forth in the Purchase Order for partially completed Work. Each Party shall bear its own costs and expenses in connection with a termination of this Agreement pursuant to this Section 15.5.

15.6 COMPANY EVENTS OF DEFAULT. The occurrence and continuation of any of the following events shall constitute an event of default by Company (each, a "Company Event of Default"):

(a) a failure by Company to make payment of any undisputed amount when due, and such breach is not cured by Company within thirty (30) days after Company's receipt of notice thereof from Contractor;

(b) any breach by Company of any representation or non-monetary obligation herein, and such breach is not cured by Company within thirty (30) days after Company's receipt of notice thereof from Contractor, or if such breach is not capable of being cured within such thirty (30) day period (as determined by Contractor in its reasonable discretion), Company (A) fails to commence to cure such breach within such thirty (30) day period, or (B) fails to thereafter diligently proceed to cure such breach; or

(c) any breach by Company of any representation or warranty contained in Sections 13.1(b)(i) through 13.1(b)(viii).

15.7 TERMINATION BY CONTRACTOR DUE TO COMPANY DEFAULT.

(a) Subject to Section 15.7(b), upon the occurrence and during the continuance of a Company Event of Default beyond the applicable grace period, Contractor may terminate this Agreement thirty (30) Days after giving written notice thereof to Company (or fifteen (15) Days after giving written notice of a default pursuant to Section 15.6(a)) so long as the amount owed by Company (other than any amount disputed in accordance with the terms of this Agreement) is not paid within such period.

(b) In the event of such termination, Contractor shall have the rights afforded to it for a termination for convenience pursuant to Section 15.3.

15.8 CONTINUING OBLIGATIONS AND REMEDIES DURING EVENT OF DEFAULT.

In the event of the occurrence of any default hereunder (a) neither Party shall be relieved of any of its liabilities or obligations hereunder, unless and until such liabilities and obligations are terminated in accordance with the provisions hereof, and (b) each Party shall have the right to pursue any right or remedy available to it.

15.9 OBLIGATIONS UPON TERMINATION.

Upon a termination of this Agreement pursuant to this Article XV: (a) Contractor shall leave the Job Site and remove from the Job Site all the Contractor Equipment, waste, rubbish and Hazardous Material (for which Contractor is responsible to remove pursuant to Section 3.15(a)) as Company may request; (b) Company shall take possession of the Job Site and of the Equipment (whether at the Job Site, in transit or otherwise); (c) Contractor shall promptly assign to Company or its designee any contract rights (including warranties, licenses, patents and copyrights) that it has to any and all Equipment and the Work, including, without limitation, contracts with Subcontractors and Vendors, and Contractor shall execute such documents as may be reasonably requested by Company to evidence such assignment, subject to Company's assumption of same; (d) Contractor shall promptly furnish Company with copies of all Drawings and, to the extent available, Final Plans; (e) Contractor shall provide Company and its designee with the right to use, free of charge, all patented, copyrighted and other proprietary information relating to the Work that Company deems necessary to complete the Work, and Contractor shall execute such documents as may be reasonably requested by Company to evidence such right; (f) Contractor shall assist Company in preparing an inventory of all Equipment in use or in storage at the Job Site; and (g) Contractor shall take such other action as required hereunder upon termination of this Agreement.

15.10 TERMINATION AND SURVIVAL OF TERMS.

Upon termination of this Agreement pursuant to this Article XV, the rights and obligations of the Parties hereunder shall terminate, except for (a) rights and obligations accrued as of the date of termination, (b) rights and obligations arising out of events occurring prior to the date of termination and (c) the rights and obligations of the Parties which survive termination, including the rights and obligations forth in Articles VII and XII.

**ARTICLE XVI.  
INDEMNIFICATION**

16.1 CONTRACTOR INDEMNIFICATION.

Contractor agrees to indemnify, defend and hold Company and its Affiliates, respective directors, officers, employees, representatives, agents, advisors, consultants, counsel and assigns harmless from and against, on an After-Tax Basis, any and all losses, claims, obligations, demands, assessments, penalties, liabilities, costs, damages and expenses (including attorneys' fees and expenses) (collectively, "Damages") asserted against or incurred by such indemnitees by reason of or resulting from any and all of the following:

(a) Any bodily injury, death or damage to property, including Company's property, caused by any act or omission (including strict liability) relating to or arising out of the

performance of the Work, of Contractor or any Affiliate thereof, any Subcontractor or Vendor, or anyone directly or indirectly employed by any of them, or anyone for whose acts such Person may be liable;

(b) any third party (excluding Affiliates of Company) claims resulting in bodily injury, death or damage to property arising out of defective and/or nonconforming Work relating to or arising out of the performance of the Work;

(c) claims by any Government Authority for any Contractor Taxes;

(d) any pollution or contamination which may originate from sources in Contractor's and its Subcontractors' and Vendors' possession, use and control or caused by the negligent release by Contractor or its Subcontractors or Vendors (excluding Pre-Existing Hazardous Material, other than as provided in (e) below, and Hazardous Material brought to the Job Site by Company), including, without limitation, from Hazardous Material, toxic waste, industrial hazards, sanitary waste, fuel, lubricant, motor oil, paint, solvent, bilge and garbage;

(e) any release or exacerbation of Pre-Existing Hazardous Materials or rendering removal or remediation of Pre-Existing Hazardous Materials more costly, which in any of such events is caused by any negligent act or omission of Contractor or any Affiliate thereof, any Subcontractor or Vendor, or anyone directly or indirectly employed by any of them, or anyone for whose acts such Person may be liable;

(f) to the extent Company has paid all undisputed amounts due pursuant to the Contract Documents, any Lien, as set forth in Section 3.23, on the Equipment, the Job Site or any fixtures or personal property included in the Work (whether or not any such Lien is valid or enforceable) created by, through or under, or as a result of any negligent act or omission (or alleged act or omission) of, Contractor or any Subcontractor, Vendor or other Person providing labor or materials in connection with the Work;

(g) any claim, action or proceeding by any Person for unauthorized disclosure, infringement or use of any trade secrets, proprietary rights, intellectual property rights, patents, copyrights or trademarks arising from (i) Contractor's performance (or that of its Affiliates, Subcontractors or Vendors) under the Contract Documents, including, without limitation, the Work, Equipment, Drawings, Final Plans or other items and services provided by Contractor or any Subcontractor or Vendor hereunder, (ii) the design, use or ownership of the Drawings and Final Plans in accordance with the use intended therefore pursuant to the Contract Documents, (iii) the design, construction, use, operation or ownership of the ESS or any portion thereof. Without limiting the provisions of Section 12.3, if Company is enjoined from completing the Project or any part thereof, or from the use, operation or enjoyment of the Project or any part thereof, as a result of such claim or legal action or any litigation based thereon, Contractor shall promptly use its best efforts to have such injunction removed at no cost to Company;

(h) any vitiation of any insurance policy procured under Article IX as a result of Contractor's failure to comply with any of the requirements set forth in such policy or any other act by Contractor or any Subcontractor or Vendor; provided that such failure shall only apply to Company's insurance policies to the extent such requirements are set forth in and Contractor has been provided with copies of such policies;

(i) any failure of Contractor to comply with Applicable Laws or the conditions or provisions of Applicable Permits, including any Applicable Laws or Applicable Permits related to

endangered species; and

(j) any claims with respect to employer's liability or worker's compensation filed by any employee of Contractor or any of its Subcontractors or Vendors.

#### 16.2 COMPANY INDEMNIFICATION.

Company agrees to indemnify, defend and hold Contractor and its Affiliates and their respective directors, officers, employees, representatives, agents, advisors, consultants and counsel harmless from and against, on an After-Tax Basis, any and all Damages asserted against or incurred by such indemnitees by reason of or resulting from any and all of the following:

(a) claims by any Government Authority for any Company Taxes;

(b) any Pre-Existing Hazardous Material on the Property Site, except to the extent covered by Section 16.1(e); and

(c) Company's or any of its Affiliates' or a contractor's (excluding Contractor) use of Drawings or Final Plans in connection with any other facility to be owned, operated, constructed or developed by Company or any of its Affiliates.

#### 16.3 CONDITIONS OF INDEMNIFICATION.

The respective rights and obligations of the Parties and the other indemnitees under this Article XVI with respect to claims resulting from the assertion of liability by third parties shall be subject to the following terms and conditions:

(a) Notice of Proceedings. Within fourteen (14) days (or such earlier time as might be required to avoid prejudicing the indemnifying Party's position) after receipt of notice of commencement of any legal action or of any claims against such indemnitee in respect of which indemnification will be sought, the Person claiming to be indemnified under the terms of this Section 16.3 (the "Indemnified Person") shall give the Party from which indemnification is sought (the "Indemnifying Party") written notice thereof, together with a copy of such claim, process or other legal pleading. Failure of the Indemnified Person to give such notice will not reduce or relieve the Indemnifying Party of liability hereunder unless and to the extent that the Indemnifying Party was precluded from defending such claim, action, suit or proceeding as a result of the failure of the Indemnified Person to give such notice. In any event, the failure to so notify shall not relieve the Indemnifying Party from any liability that it may have to the Indemnified Person otherwise than under this Article XVI.

(b) Conduct of Proceedings. Each Party and each other indemnitee shall have the right, but not the obligation, to contest, defend and litigate any claim, action, suit or proceeding by any third party alleged or asserted against it arising out of any matter in respect of which it is entitled to be indemnified hereunder and the reasonable costs and expenses thereof (including reasonable attorneys' fees and expert witness fees) shall be subject to the said indemnity; provided that the indemnifying Party shall be entitled, at its option, to assume and control the defense of such claim, action, suit or proceeding at its expense upon its giving written notice thereof to the Indemnified Person. The Indemnified Person shall provide reasonable assistance to the Indemnifying Party, at the Indemnifying Party's expense, in connection with such claim, action, suit or proceeding. Upon such assumption, the Indemnifying Party shall reimburse the Indemnified Person for the reasonable costs and expenses previously incurred by it prior to the assumption of such defense by the Indemnifying Party. The Indemnifying Party shall keep the

Indemnified Person informed as to the status and progress of such claim, action, suit or proceeding. Except as set forth in paragraph (c) below, in the event the Indemnifying Party assumes the control of the defense, the Indemnifying Party will not be liable to the Indemnified Person under this Article for any legal fees or expenses subsequently incurred by the Indemnified Person in connection with such defense. The Indemnifying Party shall control the settlement of all claims over which it has assumed the defense; provided, however, that the Indemnifying Party shall not agree to or conclude any settlement that affects the Indemnified Person without the prior written approval of the Indemnified Person, (whose said approval shall not be unreasonably withheld).

(c) Representation. In the event the Indemnifying Party assumes control of the defense, the Indemnified Person shall have the right to employ its own counsel and such counsel may participate in such claim, action, suit or proceeding, but the fees and expenses of such counsel shall be at the expense of such Indemnified Person, when and as incurred, unless: (i) the employment of counsel by such indemnified Person has been authorized in writing by the Indemnifying Party; (ii) the Indemnified Person shall have reasonably concluded that there may be a conflict of interest between the Indemnifying Party and the Indemnified Person in the conduct of the defense of such action; or (iii) the Indemnified Person shall have reasonably concluded and specifically notified the Indemnifying Party either that there may be specific defense available to it which are different from or additional to those available to the Indemnifying Party. If any of the preceding clauses (i) through (iii) shall be applicable, then counsel for the Indemnified Person shall have the right to direct the defense of such claim, action, suit or proceeding on behalf of the Indemnified Person and the reasonable fees and expenses of such counsel shall be reimbursed by the Indemnifying Party.

#### 16.4 CONTRIBUTORY NEGLIGENCE.

Except as provided in Section 16.2(b), if the joint, concurring, comparative or contributory fault, negligence or willful misconduct of the Parties gives rise to Damages for which a Party is entitled to indemnification under this Article, then such Damages shall be allocated between the Parties in proportion to their respective degrees of fault, negligence or willful misconduct contributing to such Damages.

#### 16.5 REMEDIES NOT EXCLUSIVE.

The rights of indemnity shall not be exclusive with respect to any other right or remedy provided for in the Contract Documents or otherwise available at law or equity.

#### 16.6 SURVIVAL OF INDEMNIFICATION.

The indemnification provisions of this Article shall survive the Final Acceptance Date and the termination of this Agreement.

### **ARTICLE XVII. DISPUTE RESOLUTION**

#### 17.1 NEGOTIATIONS.

In the event of any dispute, controversy or claim between the Parties arising out of or relating to the Contract Documents, or the breach, termination or invalidity thereof (collectively, a “Dispute”), the Parties shall attempt in the first instance to resolve such Dispute by negotiations between an Executive of Company, or their designee, and an Officer of Contractor. The disputing Party shall give the other Party written notice of the Dispute. Within thirty (30) days after receipt

of such notice, the receiving Party shall submit a written response to the disputing Party. The notice and response shall include a statement of the relevant Party's position and a summary of the evidence and arguments supporting its position. The Executive of Company, or designee, and the Officer of Contractor shall meet at a mutually acceptable time and place within thirty (30) days after the date of the disputing Party's notice and thereafter as often as they reasonably deem necessary to exchange relevant information and to attempt to resolve the Dispute.

## 17.2 ARBITRATION OF DISPUTE.

(a) If a Dispute has not been resolved through negotiation within ninety (90) days after the date of the notice of Dispute received pursuant to Section 17.1, and Company invokes the provisions of this Section 17.2, the Dispute shall be finally settled and resolved by binding arbitration before a single, neutral arbitrator, in accordance with the laws of the State of California, without regard to principles of conflicts of laws. Except as provided for herein, the arbitration shall be conducted by the arbitrator in accordance with the rules and procedures for arbitration of complex business disputes for the organization with which the arbitrator is associated; absent the existence of such rules and procedures, the arbitration shall be conducted in accordance with the California Arbitration Act, California Code of Civil Procedure 1280 *et seq.* Company may exercise its right to arbitrate a Dispute in accordance with this Section 17.2 at any time, and any such dispute shall be thereafter exclusively treated as subject to the arbitration proceeding.

(b) The Parties will cooperate with one another in promptly selecting the arbitrator and shall further cooperate in scheduling the arbitration to commence not later than sixty (60) days from the date of Company's initial written demand for arbitration. If, notwithstanding their good faith efforts, the Parties are unable to agree on a mutually acceptable arbitrator, the arbitrator shall be appointed as provided for in California Code of Civil Procedure Section 1281.6.

(c) The arbitration proceeding shall be conducted in the County of Los Angeles, California, United States of America, or such other location upon which the Parties to the arbitration proceeding may agree, in the English language; and all testimony or documentary evidence shall be submitted in English.

(d) To facilitate the comprehensive resolution of related Disputes, and upon request by either Party, the arbitrator may, at any time before the first oral hearing of evidence, consolidate the arbitration proceeding with any other arbitration proceeding between or among the Parties arising from or out of any other contract or relationship between or among them.

(e) At any hearing of oral evidence, each Party to the arbitration proceeding or its legal counsel shall have the right to present and examine its witnesses and to cross-examine the witnesses of the other Party. No evidence of any Party's witness shall be presented in written form unless the other Party shall have the opportunity to cross examine such witness, except as the Parties to the arbitration proceeding otherwise agree in writing or except under extraordinary circumstances where the interest of justice requires a different procedure. A Party shall communicate to the arbitrator and the opposing parties the names and addresses of each witness whose written or spoken testimony it intends to present in the arbitration proceeding and the subject matters upon which, and the languages in which, they will testify at least forty-five (45) days prior to the date of the hearing at which such witness may testify. Furthermore, any Person named by a Party to be a witness shall be made available for deposition by the opposing parties at least twenty (20) days prior to the hearing at which such witness may testify.

(f) If the prevailing Party makes a claim during the arbitration proceeding, the arbitral award in favor of such Party shall include an award for pre-award (pre-judgment) interest and costs for legal representation and assistance.

(g) Any decision or award of the arbitrator shall be final and binding upon the Parties to the arbitration proceeding. The Parties hereby waive, to the extent permitted by any Applicable Law, and agree not to invoke or exercise, any and all rights to appeal, review or impugn such decision or award by any court or tribunal. The Parties agree that the arbitral decision or award may be enforced against the Parties to the arbitration proceeding or their assets wherever they may be found, and that a judgment upon the arbitral decision or award may be entered in any court having jurisdiction thereof.

(h) If any Party to an arbitration proceeding fails or refuses to comply with any arbitral decision or award within twenty (20) days after the date on which it receives notice of the decision or award, the other Party, the arbitrator or their attorneys-in-fact may immediately proceed to request the judicial approval necessary for the execution of such decision or award before a competent judge of the domicile of such refusing Party or before any other court of competent jurisdiction. Any award of monetary damages shall bear interest from and including the award date to but excluding the date of payment in full at the lesser of twenty-five percent (25%) per annum or the maximum contractual interest rate permissible under the applicable laws of the State of California. Further, if any prevailing Party is required to retain counsel to enforce the arbitral decision or award, the Party against which the decision or award is made shall reimburse the prevailing Party for all reasonable fees and expenses incurred and paid to said counsel for such service, together with interest thereon from and including the payment date to, but excluding, the date of reimbursement in full at the lesser of twenty-five percent (25%) per annum or the maximum contractual interest rate permissible under the applicable laws of the State of California.

(i) All deadlines specified in this Section 17.2 may be extended by the written agreement of the Parties to the Dispute.

### 17.3 LITIGATION.

(a) If a Dispute has not been resolved through negotiation within ninety (90) days after the date of the notice of Dispute received pursuant to Section 17.1 and Company has not exercised its right to arbitration of such Dispute pursuant to Section 17.2, the Parties agree that any litigation related to any Dispute shall be brought and enforced in, and each of the Parties hereby submits to the jurisdiction of, the federal courts of the United States for the Central District of California or the courts of the State of California in Los Angeles County. The Parties irrevocably waive any objection which any of them may now or hereafter have to the bringing of any such action or proceeding in such respective jurisdictions, including any objection to the laying of venue based on the grounds of forum non conveniens and any objection based on the grounds of lack of in personam jurisdiction. The Parties agree that, if Company exercises its right to arbitrate pursuant to Section 17.2 any Dispute that is the subject of litigation under this Section 17.3, the Parties shall cause such litigation to be dismissed with prejudice.

(b) If the prevailing Party makes a claim during the litigation proceeding, the court's award in favor of such Party shall include an award for pre-award (pre-judgment) interest and costs for legal representation and assistance, including attorneys' fees and costs at the trial court and all appellate levels. Any award of monetary damages in any action or proceeding under



this Section 17.3 shall bear interest from and including the award date to but excluding the date of payment in full at the lesser of twenty-five percent (25%) per annum or the maximum contractual interest rate permissible under the applicable laws of the State of California.

17.4 CONTINUING OBLIGATIONS AND RIGHTS.

When any Dispute occurs and is the subject of negotiations or litigation, Contractor shall continue the Work in accordance with the Project Schedule and the terms hereof and Company shall continue to make payments of undisputed amounts in accordance with the Contract Documents, and the Parties shall otherwise continue to exercise their rights, and fulfill their respective obligations, under the Contract Documents.

17.5 TOLLING STATUTE OF LIMITATIONS.

All applicable statutes of limitation and defenses based upon the passage of time and similar contractual limitations shall be tolled while the procedures specified in this Article XVII are pending. The Parties will take such action, if any, required to effectuate such tolling. Without prejudice to the procedures specified in this Article XVII, a Party may file a complaint for statute of limitations purposes, if in its sole judgment such action may be necessary to preserve its claims or defenses. Despite such action, the Parties will continue to participate in good faith in the procedures specified in this Article XVII.

17.6 COSTS.

The prevailing Party in any action or proceeding shall be entitled to recover from the other Party all of its reasonable costs and expenses incurred in connection with such action or proceeding, including reasonable attorneys' fees and costs at the trial court and all appellate levels.

17.7 SOLE AND EXCLUSIVE PROCEDURES.

The procedures specified in this Article XVII shall be the sole, exclusive procedures for the resolution of Disputes; provided, however, that any Party may seek a preliminary injunction or other preliminary judicial relief if, in its reasonable, good-faith judgment, such action is necessary to avoid irreparable damage. Despite such action, the Parties shall continue to participate in good faith in the procedures specified in this Article XVII.

**ARTICLE XVIII.  
MISCELLANEOUS**

18.1 ASSIGNMENT.

(a) Except as expressly permitted in the Contract Documents, neither Party shall assign this Agreement, the Contract Documents or any portion hereof, or any of the rights or obligations hereunder, whether by operation of law or otherwise, without the prior written consent of the other Party. This Agreement shall inure to the benefit of, and be binding upon, the successors and permitted assigns of the Parties.

(b) Company shall be entitled to assign this Agreement, the Contract Documents and its rights herein without the consent of Contractor to any of Company's Affiliates that has a direct or indirect interest in the Project.

(c) Contractor hereby assigns to Company, subject to acceptance of such assignment by Company, all agreements with the Substantial Vendors and Substantial Subcontractors, to perform any portion of the Work pursuant to this Agreement, together with all

other agreements that may be required pursuant to this Agreement, including, NERC CIP Agreements and confidentiality agreements. Contractor shall cause all such agreements with the Substantial Vendors and Substantial Subcontractors to include a consent to this assignment in the form set forth in Exhibit S (a “Consent to Assignment”). Promptly upon the execution of any such agreement with any Substantial Vendor or Substantial Subcontractor, Contractor shall deliver a fully executed Consent to Assignment to Company.

## 18.2 GOOD FAITH DEALINGS.

The Parties undertake to act fairly and in good faith in relation to the performance and implementation of the Contract Documents and to take such other reasonable measures as may be necessary for the realization of its purposes and objectives.

## 18.3 CONFIDENTIALITY.

(a) For purposes of this Agreement, “Confidential Information” shall mean (i) the contents of the Contract Documents, (ii) and any information relating to the negotiations or performance of the Contract Documents and (iii) any information provided pursuant to the Contract Documents relating to the Project, Facilities, Company, Contractor or their Affiliates which (A) the disclosing Party designates in writing as confidential, proprietary or the like and which is received by the other Party; (B) by its nature is such that the receiving Party should reasonably conclude that possession of such information is of material commercial or competitive value to the disclosing Party; or (C) relates to the configuration, operation, management processes or profitability of the Facilities. Information shall be Confidential Information for the purposes hereof regardless of (x) the form in which it is communicated or maintained (whether oral, written, electronic or visual); (y) whether of a business, financial, legal, technical, managerial or other nature; and (z) whether prepared by the disclosing Party or otherwise. Each Party agrees to hold all Confidential Information in confidence and not disclose it other than to its Affiliates, Subcontractors, Vendors, employees, directors, officers, agents, advisors or representatives (collectively, the “Personnel”). Each Party agrees that only Personnel who need to have access to Confidential Information in order to perform their duties will be authorized to receive the same, and then only to the extent needed and provided such Personnel have been advised of the obligations and restrictions set forth in this Section 18.3. Each Party shall be responsible for any breach of this Agreement by its Personnel.

(b) Notwithstanding the foregoing, information shall not be deemed to be Confidential Information where: (i) it is or becomes public information or otherwise generally available to the public through no act of or failure to act by the receiving Party; (ii) it was, prior to the date of this Agreement, already in the possession of the receiving Party and was not received by such Party directly or indirectly from the other Party; (iii) it is rightfully received by the receiving Party from a third party who is not prohibited from disclosing it to such Party and is not breaching any agreement by disclosing it to such Party; (iv) it is independently developed by the receiving Party without benefit of Confidential Information received from the other Party; (v) it is the exclusive property of the Party disclosing such information; (vi) a license has been granted to the disclosing Party with respect to such information hereunder, (vii) it is necessary or advisable for Company to exercise its Intellectual Property Rights under this Agreement; or (viii) it is necessary or advisable to disclose such information for the purpose of enforcing the disclosing Party’s rights hereunder. Specific information shall not be deemed to be within the foregoing exceptions merely because it is embraced by more general information within such exceptions, nor shall a combination of features be deemed to be within such exceptions merely because the

individual features are within such exceptions.

(c) If a Party is required by Applicable Law or any Government Authority to disclose any Confidential Information, such Party shall promptly notify the other Party of such requirement prior to disclosure so that the other Party may seek an appropriate protective order and/or waive compliance with the terms of this Section 18.3. If such protective order or other remedy is not obtained, then such Party shall furnish only that portion of the Confidential Information which is legally required to be furnished by the court order; provided, however, that prior to making any such disclosure, such Party will (i) minimize the amount of Confidential Information to be provided consistent with the interests of the other Party and (ii) make every reasonable effort (which shall include participation by the other Party in discussions with the Government Authority involved) to secure confidential treatment of the Confidential Information to be provided. If efforts to secure confidential treatment are not successful, the other Party shall have the prior right to revise such information in a manner consonant with its interests and the requirements of the Government Authority involved.

(d) Each Party acknowledges that the other Party would not have an adequate remedy at law for money damages if the covenants contained in this Section 18.3 were breached and that any such breach would cause the other Party irreparable harm. Accordingly, each Party also agrees that in the event of any breach or threatened breach of this Section 18.3 by such Party or its Personnel, the other Party, in addition to any other remedies it may have at law or equity, shall be entitled, without the requirement of posting a bond or other security, to equitable relief, including injunctive relief and specific performance.

(e) All right and title to, and interest in, Company's Confidential Information shall remain with Company. All Confidential Information obtained, developed or created by or for Contractor exclusively for the Project, including copies thereof, is the exclusive property of Company whether delivered to Company or not. No right or license is granted to Contractor or any third party respecting the use of Confidential Information owned by Company by virtue of this Agreement, except to the extent required for Contractor's performance of its obligations hereunder. At any time upon written request by a disclosing Party, the other Party shall promptly return to such Party all its Confidential Information, including all copies thereof, and shall promptly purge all electronic copies of such Confidential Information; provided that the other Party shall be entitled to keep one (1) copy of such Confidential Information for its legal records. The return of Confidential Information to the disclosing Party, the purging of electronic copies of Confidential Information or the retention of a copy of Confidential Information for legal records shall not release a Party from its obligations hereunder with respect to such Confidential Information.

(f) Contractor shall coordinate with Company with respect to, and provide advance copies to Company for review of, the text of any proposed announcement or publication that include any non-public information concerning the Work prior to the dissemination thereof to the public or to any Person other than Subcontractors, Vendors, or advisors of Contractor, in each case, who agree to keep such information confidential. If Company delivers written notice to Contractor rejecting any such proposed announcement or publication within two (2) Business Days after receiving such advance copies, Contractor shall not make such public announcement or publication; provided, however, that Contractor may disseminate or release such information in response to requirements of Government Authorities.

18.4 NOTICE.

Whenever a provision of the Contract Documents requires or permits any consent, approval, notice, request, or demand from one Party to another, the consent approval, notice, request, or demand must be in writing to be effective and shall be deemed to be delivered and received (a) if personally delivered or if delivered by telegram or courier service, when actually received by the Party to whom notice is sent, (b) if delivered by telex or facsimile, on the first Business Day following the day transmitted (with confirmation of receipt), or (c) if delivered by mail (whether actually received or not), at the close of business on the third Business Day following the day when placed in the mail, postage prepaid, certified or registered, addressed to the appropriate Party, at the address and/or facsimile numbers of such Party set forth below (or at such other address as such Party may designate by written notice to the other Party in accordance with this Section 18.4):

If to Contractor:

**Contact**

**Address**

**Phone**

**Fax**

with a copy to:

**Contact**

**Address**

**Phone**

**Fax**

If to Company:

**Contact**

**Address**

**Phone**

**Fax**

With a copy to:

**Contact**

**Address**

**Phone**

**Fax**

Any Party may change its address, facsimile number or e-mail address for the

purposes of this Agreement by giving notice thereof to the other Party in the manner provided herein.

18.5 WAIVER.

No delay, failure or refusal on the part of any Party to exercise or enforce any right under the Contract Documents shall impair such right or be construed as a waiver of such right or any obligation of another Party, nor shall any single or partial exercise of any right hereunder preclude other or further exercise of any right. The failure of a Party to give notice to the other Parties of a breach of the Contract Documents shall not constitute a waiver thereof. Any waiver of any obligation or right hereunder shall not constitute a waiver of any other obligation or right, then existing or arising in the future. Each Party shall have the right to waive any of the terms and conditions of the Contract Documents that are for its benefit. To be effective, a waiver of any obligation or right must be in writing and signed by the Party waiving such obligation or right.

18.6 SEVERABILITY.

If any provision of the Contract Documents is held to be illegal, invalid, or unenforceable under present or future laws, such provision shall be fully severable; the Contract Documents shall be construed and enforced as if such illegal, invalid or unenforceable provision had never comprised a part of the Contract Documents; and the remaining provisions of the Contract Documents shall remain in full force and effect and shall not be affected by the illegal, invalid, or unenforceable provision or by its severance from the Contract Documents. Furthermore, in lieu of such illegal, invalid or unenforceable provision, there shall be added automatically as a part of the Contract Documents a provision as similar in its terms to such illegal, invalid or unenforceable provision as may be possible and be legal, valid and enforceable.

18.7 GOVERNING LAW.

The Contract Documents, and the rights and obligations of the Parties under or pursuant to the Contract Documents, shall be interpreted and construed according to the substantive laws of the State of California (regardless of California's or any other jurisdiction's choice of law rules).

18.8 ENTIRE AGREEMENT; AMENDMENTS.

The Contract Documents contain the entire understanding of the Parties with respect to the subject matter hereof and supersede all prior agreements, arrangements, discussions and undertakings between the Parties (whether written or oral) with respect to the subject matter hereof. The Contract Documents may only be amended by written instrument signed by the Parties.

18.9 EXPENSES AND FURTHER ASSURANCES.

Each Party shall pay its own costs and expenses, without reimbursement hereunder, in relation to the negotiation, preparation, execution and carrying into effect of the Contract Documents. Each Party shall, from time to time on being requested to do so by, and at the cost and expense of, the other Party, do all such acts and/or execute and deliver all such instruments and assurances as are reasonably necessary for carrying out or giving full effect to the terms of the Contract Documents.

18.10 NO THIRD PARTY BENEFICIARY.

Except with respect to the rights of the permitted successors and assigns and as provided above and the rights of indemnitees under Article XVI and Section 18.14(c), (a) nothing in the Contract Documents nor any action taken hereunder shall be construed to create any duty, liability or standard of care to any Person that is not a Party, (b) no person that is not a Party shall have any rights or interest, direct or indirect, in the Contract Documents or the services to be provided hereunder, and (c) the Contract Documents are intended solely for the benefit of the Parties, and the Parties expressly disclaim any intent to create any rights in any third party as a third-party beneficiary to the Contract Documents or the services to be provided hereunder.

18.11 OFFSET.

Notwithstanding any other provision hereof, any and all amounts owing or to be paid by Company to Contractor hereunder or otherwise, shall be subject to offset and reduction in an amount equal to any amounts that may be owing at any time by Contractor to Company.

18.12 COUNTERPARTS.

This Agreement may be executed in multiple counterparts, each of which shall be deemed an original, and all of which together shall constitute one and the same instrument.

18.13 WAIVER FOR CONSEQUENTIAL DAMAGES.

Except for Liquidated Damages, recovery under any indemnity covering claims by third parties, warranty claims made by the Company, Contractor's obligation to indemnify under Section 9.7, and damages payable by Contractor to Company pursuant to Section 15.2(d), and notwithstanding anything else in this Agreement to the contrary, Contractor and Company waive claims against each other for any indirect, special or consequential damages arising out of or relating to this Agreement. This mutual waiver includes:

(a) Damages incurred by Company for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity, or the services of such persons;

(b) Damages incurred by Contractor for principal office expenses, including the compensation of personnel stationed there, for loss of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the work; and

(c) This mutual waiver is applicable, without limitation, to all consequential damages due to either Party's termination in accordance with Article XV.

18.14 LIMITS OF LIABILITY.

(a) In no event shall the aggregate damages payable by Company hereunder exceed the Contract Price (as the same may increase from time to time in accordance with the terms of this Agreement); provided, however, such limitation of liability shall not apply to: (i) Company's indemnification obligations under the Contract Documents, including its indemnification obligations set forth in Article XVI; (ii) any loss or damage arising out of or connected with Company's gross negligence, fraud, willful misconduct or illegal or unlawful acts; or (iii) risks insured through insurance required under this Agreement, it being the Parties' specific intent that the limitation of liability shall not relieve the insurers' or guarantors' obligations for such insured risks. Contractor's sole recourse for any damages or liabilities due to Contractor by Company

pursuant to this Agreement shall be limited to the assets of Company (which include the Project) without recourse individually or collectively to the assets of the members or the Affiliates of Company, or their respective officers, directors, employees or agents of Company, its members or their Affiliates.

(b) Releases from and limitation of liability set forth herein shall apply regardless of whether the claim is brought under contract, tort (including negligence, gross negligence and strict liability) or other theory of law, and shall extend to the officers, directors, employees, company affiliates and related entities of such Party and its partners and related entities.

18.15 RECORDS RETENTION.

Contractor agrees to retain for a period of three (3) years from the expiration or earlier termination of this Agreement all records relating to its performance of the Work or Contractor's warranty obligations herein, and to cause all Subcontractors and Vendors engaged in connection with the Work or the performance by Contractor of its warranty obligations herein to retain for the same period all their records relating to the Work.

18.16 SUCCESSORS AND ASSIGNS.

Subject to Section 18.1, this Agreement shall be binding on the Parties hereto and on their respective successors and assigns.

18.17 FINANCIAL ASSURANCES.

If Company determines that Contractor's financial condition has deteriorated so as to create a risk of loss to Company, then Company may, in addition to exercising any of its other rights set forth in this Agreement, inform Contractor in writing of such insecurity, and as Company shall direct in its sole discretion, Contractor shall immediately: (a) provide written assurance within five (5) Days that the Contractor is capable of performing and completing the Work and its obligations under the Contract Documents; (b) increase the forms and/or amounts of security; (c) require direct payment or co-payment to Subcontractors; (d) adjust the amount of Work to be performed by Contractor with corresponding adjustments to the Contract Price; and/or (e) assign to Company any agreement or purchase order with a Subcontractor or Vendor, provided that Contractor shall remain responsible for its obligations under such agreement or purchase order.

18.18 PUBLIC DISCLOSURES.

Contractor shall not use Company, or any Affiliate of Company, either in name or likeness, in any article, press release, promotional material or other published information in any media without the prior written consent of Company's Corporate Communications Department.

18.19 SERVICE MARKS.

Neither Party shall, without the prior written consent of the other Party, use the name, service marks or trademarks of the other Party. Contractor shall not use Company's name, service marks or trademarks without the prior written consent from Company's Corporate Communications Department.

**REMAINDER OF PAGE INTENTIONALLY LEFT BLANK;  
SIGNATURES APPEAR ON FOLLOWING PAGE.**

**IN WITNESS WHEREOF** the Parties have executed and delivered this Agreement as of the Effective Date first above written.

\_\_\_\_\_,  
a \_\_\_\_\_

**SOUTHERN CALIFORNIA EDISON  
COMPANY**, a California corporation

By: \_\_\_\_\_

By: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Date Signed: \_\_\_\_\_, 2016

Date Signed: \_\_\_\_\_, 2016



**Market Participant Confidentiality Agreement**

**CONFIDENTIALITY AGREEMENT**

This confidentiality agreement (“Agreement”) dated as of \_\_\_\_\_, (the “Effective Date”) is entered into between Southern California Edison Company, a California corporation (“SCE”), and \_\_\_\_\_, a \_\_\_\_\_ (“Participant”). SCE and Participant are sometimes referred to herein individually as a “Party” and collectively as the “Parties”.

**RECITALS**

- A. SCE may from time to time issue requests for offers (“RFO”) or requests for proposals (“RFP”) seeking proposals from potential sellers to sell to SCE Potential Products (as defined below). Such RFOs may also seek requests from potential buyers to submit bids to buy Potential Products from SCE as well. In addition, SCE may also from time to time issue requests for bids (“RFB”) seeking bids from potential buyers to buy Potential Products from SCE (RFO, RFP and RFB shall be collectively referred to as “Solicitation”). The Parties seek to create a single universal confidentiality agreement that will be applicable to future Solicitations where the Participant has submitted one (1) or more offers or bids in response to a Solicitation.
- B. In response to a Solicitation, Participant and SCE would like to negotiate a potential agreement (“Potential Agreement”) for the sale or purchase of the Potential Products (the “Negotiations”).
- C. Each of the Parties desires that any Confidential Information (as defined below) that may be provided by it or on its behalf to the other Party or its respective Representatives (as defined below) will be kept confidential by such other Party and its Representatives.
- D. It is the Parties desire to have this Agreement be applicable to all future Solicitations issued by SCE for Potential Products in which the Participant may participate.

NOW, THEREFORE, in consideration of these recitals and the agreements contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties, intending to be legally bound, agree as follows:

**ARTICLE 1  
DEFINITIONS**

Section 1.1 Certain Defined Terms. For purposes of this Agreement, the following terms shall have the following meanings:

- a) “Potential Products” means (i) physical electric energy or capacity, including renewable energy; (ii) physical natural gas; (iii) financial derivative products related thereto; or (iv) other such products related thereto.
- b) “Representatives” means the officers, directors, subcontractors, affiliates, employees, legal counsel, accountants, lenders, advisors, or ratings agencies and other agents of a Party utilized in connection with a Solicitation, a Potential Agreement, or Negotiations, and in the case of SCE, includes an Independent Evaluator (as such term is used in California Public Utilities Commission (“CPUC”) Decision (“D.”) 04-012-048 or such successor decision at the time the Solicitation is issued) (the “Independent Evaluator”).
- c) “Review Material” means any and all written (including electronic communications), orally conveyed or recorded information, data, analyses, documents, and materials furnished or made available by a Party or its Representatives to the other Party or its Representatives in connection with a Solicitation or Negotiations, and any and all analyses, compilations, studies, documents, or other material prepared by the receiving Party or its Representatives to the extent containing or based upon such information, data, analyses, documents, and materials, but does not include information, data, analyses, documents, and materials that (i) are when furnished, or thereafter become, available to the public other than as a result of a disclosure by the receiving Party or its Representatives, or (ii) are already in the possession of or become available to the receiving Party or its Representatives on a non-confidential basis from a source other than the disclosing Party or its Representatives, provided that, to the best knowledge of the receiving Party or its Representatives, as the case may be, such

source is not and was not bound by an obligation of confidentiality to the disclosing Party or its Representatives, or (iii) the receiving Party or its Representatives can demonstrate has been independently developed without a violation of this Agreement.

## **ARTICLE 2 CONFIDENTIALITY**

Section 2.1 Confidentiality Obligations. Except as otherwise expressly agreed in writing by the other Party, and except as otherwise agreed in Section 2.2 below, each receiving Party shall, and shall cause its Representatives to (a) keep strictly confidential and take reasonable precautions to protect against the disclosure of (i) the fact that Participant has submitted an offer or bid in a Solicitation, (ii) the fact that the Parties are evaluating, discussing, or negotiating a Potential Agreement, or have done so, (iii) the terms, conditions, or other facts with respect to any Potential Agreement (including any commercial terms related thereto) except as otherwise provided for in a resulting agreement, and (iv) all Review Material (any and all information described in (i)-(iv) of this section shall be referred to herein as “Confidential Information”), and (b) use all Confidential Information solely for the purpose of evaluating a Potential Agreement and not for any other purpose; *provided*, that a Party may disclose Confidential Information to those of its Representatives who need to know such information for the purposes of evaluating a Potential Agreement if, but only if, before being told of such matters or being given access to Confidential Information, such Representatives are informed of the confidentiality thereof and the requirements of this Agreement, and are directed to comply with the requirements of this Agreement. Each Party will be responsible for any breach of this Agreement by its Representatives.

### Section 2.2 Permitted Disclosures.

- a) SCE and the Independent Evaluator may disclose any Confidential Information to (1) duly authorized regulatory and governmental agencies or entities, including without limitation the CPUC and all divisions thereof, California Energy Commission (“CEC”), and Federal Energy Regulatory Commission (“FERC”); (2) SCE’s Procurement Review Group (the “PRG”), a group of non-market participants including members of the CPUC, and other governmental agencies, and consumer groups established by the CPUC in D.02-08-071 and D.03-06-071 (or such applicable decisions in effect at the time of the Solicitation); and (3) the California Independent System Operator (“CAISO”).

Neither SCE nor the Independent Evaluator shall have any liability whatsoever to Participant in the event of any unauthorized use or disclosure by a governmental or regulatory agency or entity, including, without limitation, the CPUC and all divisions thereof, CEC, FERC, PRG or CAISO, of any Confidential Information or other information disclosed to any of them by SCE or its Representatives.

- b) Other than those entities set forth in Section 2.2(c), the Parties may disclose any Confidential Information to the extent necessary in order to comply with any law or any order issued by a court or entity with competent jurisdiction over the disclosing Party, or in connection with a discovery request of a party to any proceeding before the foregoing.
- c) Other than those entities set forth in Section 2.2(b), SCE and its Representatives may disclose any Confidential Information to the extent necessary in order to comply with (1) any applicable regulation, decision, rule, subpoena, or order of the CPUC, CEC, FERC, any administrative agency, legislative body or other tribunal; (2) any exchange, control area or CAISO rule; or (3) any discovery or data request of a party to any proceeding pending before any entity set forth in Section 2.2(a).

### Section 2.3 Duty to Seek Protection.

- a) In connection with requests or orders to produce Confidential Information in the circumstances provided in Section 2.2(b) (by deposition, interrogatories, requests for information or documents, subpoena, order or similar legal process) each Party (i) will promptly notify the other Party of the existence, terms, and circumstances of such

requirement(s) so that such other Party may seek an appropriate protective order or waive compliance with the provisions of this Agreement, and (ii) will, and will cause its Representatives to, cooperate fully with such other Party in seeking to limit or prevent such disclosure of such Confidential Information.

- b) If a Party complies with Section 2.3(a) but it or its Representatives are compelled, in the written opinion of its legal counsel, to make a disclosure of Confidential Information in response to a requirement described in Section 2.3(a) or else stand liable for contempt or suffer other penalty, the compelled person may disclose only that portion of the Confidential Information which it is legally required to disclose, and will exercise its best efforts to obtain reliable assurance that confidential treatment will be accorded to Confidential Information.

Section 2.4 Ownership and Return of Information. All Confidential Information shall be and remain the property of the Party providing it. Nothing in this Agreement shall be construed as granting any rights in or to Confidential Information to the Party or Representatives receiving it, except the right of review and use in accordance with the terms of this Agreement. Notwithstanding the foregoing, the Parties shall have the right to retain copies of the Review Material, subject to the confidentiality requirements herein.

Section 2.5 No Representation or Warranty. Neither Party makes any representation or warranty as to the accuracy or completeness of any Review Material in connection with this Agreement, except as otherwise agreed to in writing. Neither Party nor its Representatives shall have any liability relating to or arising from the other Party's use of or reliance upon Confidential Information in connection with this Agreement.

### ARTICLE 3 MISCELLANEOUS

Section 3.1 Enforcement. The Parties agree that irreparable damage would occur if this Agreement were not performed in accordance with its terms or were otherwise breached. Accordingly, a Party may be entitled to seek an injunction or injunctions to prevent breaches of this Agreement and to enforce specifically its provisions in any court of competent jurisdiction, in addition to any other remedy to which the Party may be entitled by law or equity.

Section 3.2 Entire Agreement. This Agreement constitutes the entire understanding of the Parties with respect to the subject matter hereof.

Section 3.3 Severability. If any provision of this Agreement is held by a court of competent jurisdiction to be unenforceable, the remaining provisions shall remain in full force and effect so long as the economic and legal substance of this Agreement are not affected in a manner materially adverse to either Party.

Section 3.4 Headings. Descriptive headings are for convenience only and will not control or affect the meaning or construction of any provision of this Agreement.

Section 3.5 Counterparts. This Agreement may be executed in one (1) or more counterparts, each such executed counterpart being an original instrument but together constituting one (1) agreement.

Section 3.6 Notices. Any communications required or permitted pursuant to this Agreement shall be deemed to have been given (a) on the second business day after being deposited in the U.S. mail, registered or certified and with proper postage prepaid, (b) on the first business day after being deposited with FedEx or other recognized overnight courier service with proper fees prepaid, or (c) on the business day on which it is sent by fax with confirmed receipt:

if to SCE:

Southern California Edison Company  
2244 Walnut Grove Avenue  
G.O.1, Quad 1C  
Rosemead, California 91770  
Attention: EP&M Contracts Management  
Fax: 626-302-8168

With a copy to:  
Attention: Manager, SCE Law Department - Power Procurement Section  
Fax: 626-302-1935

if to Participant:

[Participant: FILL IN NOTICE INFORMATION]

or to such other address or fax number as either Party may, from time to time, designate in a written notice given in a like manner.

Section 3.7 Successors and Assigns. This Agreement shall be binding upon, and inure to the benefit of, the Parties and their respective successors and assigns. Rights and obligations under this Agreement shall not be assignable by either Party or their successors or assigns without the prior written consent of the other Party. This Agreement is not intended to confer any rights or remedies upon any other Persons other than the Parties.

Section 3.8 Choice of Law. This Agreement will be governed by and construed and enforced in accordance with the internal laws of the State of California, without giving effect to the conflict of law principles thereof.

Section 3.9 Amendment and Waiver. This Agreement may only be amended by a writing signed by both Parties. Any waiver of the requirements and provisions of this Agreement must be in a writing signed by the Party waiving its rights hereunder. The failure of either Party to enforce at any time any of the provisions of this Agreement or to require at any time performance by the other Party of any of such provisions shall in no way be construed as a waiver of such provision or a relinquishment of the right to enforce such provision thereafter.

Section 3.10 No Waiver of Privileges. Nothing in this Agreement is intended to waive any attorney-client, work-product, or other privilege applicable to any statement, document, communication or other material of a Party or the Parties.

Section 3.11 Term. This Agreement is effective as of the Effective Date. Either Party may terminate this Agreement for any reason or no reason, with or without cause, by providing thirty (30) days prior written notice to the other of its intention to terminate; provided, however, that the terms of this Agreement remain applicable to any Confidential Information created or received with respect to a submitted offer or bid in response to a Solicitation for a period of five years (5) from the date the Confidential Information is created or received.

Section 3.12 No Agency. Nothing in this Agreement shall be construed to render either Party an agent, employee, representative, joint venturer or partner of the other Party.

Section 3.13 No Commitment to Enter into a Potential Agreement. The Parties' entry into this Agreement, the exchange of Review Material by the Parties, and the Negotiations, do not separately or together constitute or imply a commitment of the Parties to enter into a Potential Agreement or any other agreement. If the Parties elect to enter into binding commitments with respect to any offer or bid in response to a Solicitation, such commitments will be explicitly stated in a separate written agreement executed by both Parties.

Section 3.14 Authority. The signatories hereto represent that they have been duly authorized to enter into this Agreement on behalf of the Party for whom they sign.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by their respective duly authorized representative as of the date first written above.

SOUTHERN CALIFORNIA EDISON COMPANY

By: \_\_\_\_\_  
Name:  
Its:

[PARTICIPANT NAME]

\_\_\_\_\_  
By: \_\_\_\_\_  
Name:  
Its:

**Southern California Edison Company**

**2016 Aliso Canyon Energy Storage Design, Build and Transfer (“DBT”) RFP**

**Workbook Instructions**

# Instructions

## Introduction

For more information, see Notes on individual worksheets in this document, and the 2016 Aliso Canyon DBT Energy Storage RFP instructions document.

The Seller should provide offers for 5, 10, 15, 20 MW, and the maximum MW the Seller can provide, each with a 4 hour minimum discharge duration, discharge power, and round trip efficiency guaranteed for a period of operational performance of 5, 10, 15, and 20 years.

Allowable power combinations are a) 5 MW, b) 5 MW and 10 MW, c) 5 MW, 10 MW, and 15 MW, d) 5 MW, 10 MW, 15 MW, and 20 MW, e) 5 MW, 10 MW, 15 MW, 20 MW and Maximum MW.

## Legend

Static content

Input

Notes

## Steps

1. Complete the General Information worksheet
2. Complete the 5, 10, 15, and 20 MW worksheets
3. Complete the Maximum MW worksheet

*Be sure to indicate the total MW and number of systems deliverable to SCE by 12-31-2016. If you can't deliver the larger sizes, complete the smaller sizes as appropriate, but don't skip sizes. What is the largest MW 4 hour system you can deliver?*

## Round Trip Efficiency Criteria

Starting from a random or unknown state of charge, charge to a full charge, and then discharge to a full discharge. Reset energy meters. Charge at maximum power possible to a full charge in no more than 6 hours, idle for no more than 15 minutes after reaching a full charge, and then discharge at the guaranteed power to a full discharge. Divide the discharge energy by the charge energy to calculate the round trip efficiency.

## Base Energy Throughput (BET)

The Base Energy Throughput (BET) is the total discharge energy allocation for the Project over the course of a year (Tier 1 allocation), as allowed by the Seller. If the Project discharges more than the BET in a given year, the Seller may define up to three additional tiers (Tiers 2 through 4), expressed as a percentage of the BET, each of which may incur different variable maintenance costs charged in USD/MWh. The total energy discharged resets each year (i.e., the Project resets to Tier 1 each year). Tier 1 does not incur variable maintenance costs.





## 5 MW Offer

All applicable fields have to be completed

**OFFER INCOMPLETE**

### Given Parameters

Item	Value	Units	Notes
Guaranteed discharge power	5	MW	Project shall have a guaranteed discharge power of 5 MW at point of common coupling, for period of guaranteed performance

### Offer Info

Item	Value	Units	Notes
Period of guaranteed performance Offer Provided	5	Years	Drop down list. Seller can offer Project with 5, 10, 15, and 20 year periods of guaranteed performance, TBD during Final Agreement.
	10	Years	
	15	Years	
	20	Years	

### System Information

Item	Value
Seller Name	
Energy storage vendor name	
Energy storage model name/number	
Energy storage technology type	
Power conversion system vendor name	
Power conversion system model name/number	
Project integrator vendor name	

Populate based on General Information Tab

Drop down list

### Technical Information

Item	Value	Units	Notes
Period of Guaranteed Performance	5	Years	
Guaranteed discharge duration (4 h minimum)	10	h	Project shall have a guaranteed discharge duration of at least 4 h for the period of operational guaranteed performance
Typical required site footprint	15	sq. ft.	Including all components, setbacks, and clearances; not including utility interconnection facilities
Round trip efficiency, maximum		%	See Round Trip Efficiency Criteria in Instructions tab
Round trip efficiency, guaranteed minimum		%	See Round Trip Efficiency Criteria in Instructions tab

Project shall have a guaranteed discharge duration of at least 4 h for the period of operational guaranteed performance  
Including all components, setbacks, and clearances; not including utility interconnection facilities  
See Round Trip Efficiency Criteria in Instructions tab  
See Round Trip Efficiency Criteria in Instructions tab

Item	Value	Units	Notes
Charge power, nominal		MW	Nominal charge power for at least 75 % of the SOC operating range; not including any foldbacks or tapering
Maximum ramp rate, positive		MW/minute	Maximum rate of change when increasing power (positive value)
Maximum ramp rate, negative		MW/minute	Maximum rate of change when decreasing power (positive value)
Average station power (auxiliary power)		kw	Average station/auxiliary power load via station/auxiliary service
Average primary standby power (idle power)		kw	Average primary power load (positive) or generation (negative) via primary service, while idle (ex.: no active dispatch command)
Charge power limitations			Drop down list

Nominal charge power for at least 75 % of the SOC operating range; not including any foldbacks or tapering  
Maximum rate of change when increasing power (positive value)  
Maximum rate of change when decreasing power (positive value)  
Average station/auxiliary power load via station/auxiliary service  
Average primary power load (positive) or generation (negative) via primary service, while idle (ex.: no active dispatch command)  
Drop down list

Lower SOC	Upper SOC (inclusive)	Charge power acceptance (MW)
0%		
0%		
0%	100%	

Define three SOC ranges and associated charge power limitation, if applicable

### Price Information

SOC Range, low  
SOC Range, medium  
SOC Range, high

### DBT Project

Option 1: Lump Sum Payment

Item	Value	Units	Notes
Period of Guaranteed Performance	5	Years	
Total lump sum (see Note for PCC voltage)	10	USD	Total lump sum at final acceptance, assume 12 kV PCC for 5 and 10 MW Projects, and 66 kV PCC for 15 and 20 MW Projects

Option 2: Four Equal Payments

Total of four equal payments spread over Project construction, assume 12 kV PCC for 5 and 10 MW Projects, and 66 kV PCC for 15 and 20 MW Projects

Item	Period of Guaranteed Performance	Value	Units	Notes
Total of four equal payments (see Note for PCC voltage)	5	10	Years	USD
		15		
		20		

**Operational Performance Guarantees**

**Option 1: Lump Sum Payment**

Item	Period of Guaranteed Performance	Value	Units	Notes
Total lump sum	5	10	Years	USD
		15		
		20		

**Option 2: Annual Payments**

Item	Period of Guaranteed Performance	Value	Units	Notes
Operational performance guarantee price, year 1	5	10	Years	USD/year
Operational performance guarantee price, year 2				USD/year
Operational performance guarantee price, year 3				USD/year
Operational performance guarantee price, year 4				USD/year
Operational performance guarantee price, year 5				USD/year
Operational performance guarantee price, year 6				USD/year
Operational performance guarantee price, year 7				USD/year
Operational performance guarantee price, year 8				USD/year
Operational performance guarantee price, year 9				USD/year
Operational performance guarantee price, year 10				USD/year
Operational performance guarantee price, year 11				USD/year
Operational performance guarantee price, year 12				USD/year
Operational performance guarantee price, year 13				USD/year
Operational performance guarantee price, year 14				USD/year
Operational performance guarantee price, year 15				USD/year
Operational performance guarantee price, year 16				USD/year
Operational performance guarantee price, year 17				USD/year
Operational performance guarantee price, year 18				USD/year
Operational performance guarantee price, year 19				USD/year
Operational performance guarantee price, year 20				USD/year

**Maintenance Services**

**Fixed Maintenance: Annual Payments**

Item	Period of Guaranteed Performance	Value	Units	Notes
Fixed maintenance price, year 1	5	10	Years	USD/year
Fixed maintenance price, year 2				USD/year
Fixed maintenance price, year 3				USD/year
Fixed maintenance price, year 4				USD/year
Fixed maintenance price, year 5				USD/year
Fixed maintenance price, year 6				USD/year
Fixed maintenance price, year 7				USD/year
Fixed maintenance price, year 8				USD/year
Fixed maintenance price, year 9				USD/year
Fixed maintenance price, year 10				USD/year
Fixed maintenance price, year 11				USD/year
Fixed maintenance price, year 12				USD/year
Fixed maintenance price, year 13				USD/year
Fixed maintenance price, year 14				USD/year
Fixed maintenance price, year 15				USD/year
Fixed maintenance price, year 16				USD/year
Fixed maintenance price, year 17				USD/year
Fixed maintenance price, year 18				USD/year

Fixed maintenance price, year 19  
 Fixed maintenance price, year 20

USD/year  
 USD/year

Variable Maintenance: Annual Payments

Item	Value	Units	Notes
Base energy throughput (BET)		MWh/year	Base Energy Throughput (BET) is the total discharge energy allocation for the Project over the course of a year (Tier 1 allocation), as allowed by the Seller; see instructions tab.

Tier 1 (BET)	Lower boundary (% of BET)	Upper boundary (% of BET, inclusive)
Tier 2	0%	100%
Tier 3	100%	
Tier 4	0%	

Notes  
 Energy discharged within the BET does not incur variable maintenance costs  
 Any energy discharged beyond the BET incurs variable maintenance costs, which may increase from Tiers 2 through 4. Enter the upper boundary of Tiers 2 and 3. The upper boundary for Tier 4 is calculated based on the BET and guaranteed discharge power (Tier 4 upper boundary equal Max. capacity \* Three Full Day/day \* 365 days/year).

Item	Period of Guaranteed Performance	5	10	15	20	Units	Notes
Variable maintenance price, year 1, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 1, tier 2						USD/MWh	
Variable maintenance price, year 1, tier 3						USD/MWh	
Variable maintenance price, year 1, tier 4						USD/MWh	
Variable maintenance price, year 2, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 2, tier 2						USD/MWh	
Variable maintenance price, year 2, tier 3						USD/MWh	
Variable maintenance price, year 2, tier 4						USD/MWh	
Variable maintenance price, year 3, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 3, tier 2						USD/MWh	
Variable maintenance price, year 3, tier 3						USD/MWh	
Variable maintenance price, year 3, tier 4						USD/MWh	
Variable maintenance price, year 4, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 4, tier 2						USD/MWh	
Variable maintenance price, year 4, tier 3						USD/MWh	
Variable maintenance price, year 4, tier 4						USD/MWh	
Variable maintenance price, year 5, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 5, tier 2						USD/MWh	
Variable maintenance price, year 5, tier 3						USD/MWh	
Variable maintenance price, year 5, tier 4						USD/MWh	
Variable maintenance price, year 6, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 6, tier 2						USD/MWh	
Variable maintenance price, year 6, tier 3						USD/MWh	
Variable maintenance price, year 6, tier 4						USD/MWh	
Variable maintenance price, year 7, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 7, tier 2						USD/MWh	
Variable maintenance price, year 7, tier 3						USD/MWh	
Variable maintenance price, year 7, tier 4						USD/MWh	
Variable maintenance price, year 8, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 8, tier 2						USD/MWh	
Variable maintenance price, year 8, tier 3						USD/MWh	
Variable maintenance price, year 8, tier 4						USD/MWh	
Variable maintenance price, year 9, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 9, tier 2						USD/MWh	
Variable maintenance price, year 9, tier 3						USD/MWh	
Variable maintenance price, year 9, tier 4						USD/MWh	
Variable maintenance price, year 10, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 10, tier 2						USD/MWh	
Variable maintenance price, year 10, tier 3						USD/MWh	
Variable maintenance price, year 10, tier 4						USD/MWh	
Variable maintenance price, year 11, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 11, tier 2						USD/MWh	
Variable maintenance price, year 11, tier 3						USD/MWh	
Variable maintenance price, year 11, tier 4						USD/MWh	

Variable maintenance price, year 12, tier 1	\$0	\$0	USD/MWh
Variable maintenance price, year 12, tier 2			USD/MWh
Variable maintenance price, year 12, tier 3			USD/MWh
Variable maintenance price, year 12, tier 4			USD/MWh
Variable maintenance price, year 13, tier 1	\$0	\$0	USD/MWh
Variable maintenance price, year 13, tier 2			USD/MWh
Variable maintenance price, year 13, tier 3			USD/MWh
Variable maintenance price, year 13, tier 4			USD/MWh
Variable maintenance price, year 14, tier 1	\$0	\$0	USD/MWh
Variable maintenance price, year 14, tier 2			USD/MWh
Variable maintenance price, year 14, tier 3			USD/MWh
Variable maintenance price, year 14, tier 4			USD/MWh
Variable maintenance price, year 15, tier 1	\$0	\$0	USD/MWh
Variable maintenance price, year 15, tier 2			USD/MWh
Variable maintenance price, year 15, tier 3			USD/MWh
Variable maintenance price, year 15, tier 4			USD/MWh
Variable maintenance price, year 16, tier 1		\$0	USD/MWh
Variable maintenance price, year 16, tier 2			USD/MWh
Variable maintenance price, year 16, tier 3			USD/MWh
Variable maintenance price, year 16, tier 4			USD/MWh
Variable maintenance price, year 17, tier 1		\$0	USD/MWh
Variable maintenance price, year 17, tier 2			USD/MWh
Variable maintenance price, year 17, tier 3			USD/MWh
Variable maintenance price, year 17, tier 4			USD/MWh
Variable maintenance price, year 18, tier 1		\$0	USD/MWh
Variable maintenance price, year 18, tier 2			USD/MWh
Variable maintenance price, year 18, tier 3			USD/MWh
Variable maintenance price, year 18, tier 4			USD/MWh
Variable maintenance price, year 19, tier 1		\$0	USD/MWh
Variable maintenance price, year 19, tier 2			USD/MWh
Variable maintenance price, year 19, tier 3			USD/MWh
Variable maintenance price, year 19, tier 4			USD/MWh
Variable maintenance price, year 20, tier 1		\$0	USD/MWh
Variable maintenance price, year 20, tier 2			USD/MWh
Variable maintenance price, year 20, tier 3			USD/MWh
Variable maintenance price, year 20, tier 4			USD/MWh

**Additional Information**

The information below this row will not be part of the Final Agreement and is for SCE informational use only.

Item	Value			Units	Notes
	5	10	15		
<b>Period of Guaranteed Performance</b>				Years	
Estimated useful life (EUL) of Project, including the period of guaranteed performance and any years thereafter				Years	Ex.: if the period of guaranteed performance is 10 years, and if the system has 6 years of remaining life, then the EUL is 16 years
Estimated decrease in power per year while still maintaining the guaranteed discharge duration (4 h), from the end of the period of guaranteed performance to the EUL				MW/year	Ex.: if the period of guaranteed performance is 10 years, and if the EUL is 16 years, and if the Project is estimated to loose an average of 0.5 MW per year while still maintaining a 4 hour discharge duration for years 11 through 16, then the estimated decrease in power per year is 0.5 MW
Estimated fixed maintenance costs, from the end of the period of guaranteed performance to the EUL				USD/year	
Estimated decommissioning cost after EUL				USD	Including decommissioning, scrapping/recycling, and site restoration

# 10 MW Offer

All applicable fields have to be completed

OFFER INCOMPLETE

## Given Parameters

Item	Value	Units	Notes
Guaranteed discharge power	10	MW	Project shall have a guaranteed discharge power of 5 MW at point of common coupling, for period of guaranteed performance

## Offer Info

Item	Value	Units	Notes
Period of guaranteed performance Offer Provided	5	Years	Drop down list. Seller can offer Project with 5, 10, 15, and 20 year periods of guaranteed performance, TBD during Final Agreement.
	10	Years	
	15	Years	
	20	Years	

## System Information

Item	Value
Seller Name	
Energy storage vendor name	
Energy storage model name/number	
Energy storage technology type	
Power conversion system vendor name	
Power conversion system model name/number	
Project integrator vendor name	

Populate based on General Information Tab

Drop down list

## Technical Information

Item	Value	Units	Notes
Period of Guaranteed Performance	5	Years	
Guaranteed discharge duration (4 h minimum)	10	h	Project shall have a guaranteed discharge duration of at least 4 h for the period of operational guaranteed performance
Typical required site footprint	15	sq. ft.	Including all components, setbacks, and clearances; not including utility interconnection facilities
Round trip efficiency, maximum		%	See Round Trip Efficiency Criteria in Instructions tab
Round trip efficiency, guaranteed minimum		%	See Round Trip Efficiency Criteria in Instructions tab

Item	Value	Units	Notes
Charge power, nominal		MW	Nominal charge power for at least 75 % of the SOC operating range; not including any foldbacks or tapering
Maximum ramp rate, positive		MW/minute	Maximum rate of change when increasing power (positive value)
Maximum ramp rate, negative		MW/minute	Maximum rate of change when decreasing power (positive value)
Average station power (auxiliary power)		kw	Average station/auxiliary power load via station/auxiliary service
Average primary standby power (idle power)		kw	Average primary power load (positive) or generation (negative) via primary service, while idle (ex.: no active dispatch command)
Charge power limitations			Drop down list

Lower SOC		Upper SOC	
(inclusive)	Charge power acceptance (MW)	(inclusive)	Charge power acceptance (MW)
0%		0%	
0%		0%	
0%		100%	

Define three SOC ranges and associated charge power limitation, if applicable

## Price Information

### DBT Project

Option 1: Lump Sum Payment

Item	Value	Units	Notes
Period of Guaranteed Performance	5	Years	
Total lump sum (see Note for PCC voltage)	10	USD	Total lump sum at final acceptance, assume 12 kV PCC for 5 and 10 MW Projects, and 66 kV PCC for 15 and 20 MW Projects

Option 2: Four Equal Payments

Total of four equal payments spread over Project construction, assume 12 kV PCC for 5 and 10 MW Projects, and 66 kV PCC for 15 and 20 MW Projects

Item	Period of Guaranteed Performance	Value	Units	Notes
Total of four equal payments (see Note for PCC voltage)	5	10	Years	USD
		15		
		20		

**Operational Performance Guarantees**

**Option 1: Lump Sum Payment**

Item	Period of Guaranteed Performance	Value	Units	Notes
Total lump sum	5	10	Years	USD
		15		
		20		

**Option 2: Annual Payments**

Item	Period of Guaranteed Performance	Value	Units	Notes
Operational performance guarantee price, year 1	5	10	USD/year	
Operational performance guarantee price, year 2			USD/year	
Operational performance guarantee price, year 3			USD/year	
Operational performance guarantee price, year 4			USD/year	
Operational performance guarantee price, year 5			USD/year	
Operational performance guarantee price, year 6			USD/year	
Operational performance guarantee price, year 7			USD/year	
Operational performance guarantee price, year 8			USD/year	
Operational performance guarantee price, year 9			USD/year	
Operational performance guarantee price, year 10			USD/year	
Operational performance guarantee price, year 11			USD/year	
Operational performance guarantee price, year 12			USD/year	
Operational performance guarantee price, year 13			USD/year	
Operational performance guarantee price, year 14			USD/year	
Operational performance guarantee price, year 15			USD/year	
Operational performance guarantee price, year 16			USD/year	
Operational performance guarantee price, year 17			USD/year	
Operational performance guarantee price, year 18			USD/year	
Operational performance guarantee price, year 19			USD/year	
Operational performance guarantee price, year 20			USD/year	

**Maintenance Services**

**Fixed Maintenance: Annual Payments**

Item	Period of Guaranteed Performance	Value	Units	Notes
Fixed maintenance price, year 1	5	10	USD/year	
Fixed maintenance price, year 2			USD/year	
Fixed maintenance price, year 3			USD/year	
Fixed maintenance price, year 4			USD/year	
Fixed maintenance price, year 5			USD/year	
Fixed maintenance price, year 6			USD/year	
Fixed maintenance price, year 7			USD/year	
Fixed maintenance price, year 8			USD/year	
Fixed maintenance price, year 9			USD/year	
Fixed maintenance price, year 10			USD/year	
Fixed maintenance price, year 11			USD/year	
Fixed maintenance price, year 12			USD/year	
Fixed maintenance price, year 13			USD/year	
Fixed maintenance price, year 14			USD/year	
Fixed maintenance price, year 15			USD/year	
Fixed maintenance price, year 16			USD/year	
Fixed maintenance price, year 17			USD/year	
Fixed maintenance price, year 18			USD/year	

Fixed maintenance price, year 19  
 Fixed maintenance price, year 20

USD/year  
 USD/year

Variable Maintenance: Annual Payments

Item	Value	Units	Notes
Base energy throughput (BET)		MWh/year	Base Energy Throughput (BET) is the total discharge energy allocation for the Project over the course of a year (Tier 1 allocation), as allowed by the Seller; see instructions tab.

Tier	Lower boundary (% of BET)	Upper boundary (% of BET, inclusive)	Notes
Tier 1 (BET)	0%	100%	Energy discharged within the BET does not incur variable maintenance costs
Tier 2	100%		Any energy discharged beyond the BET incurs variable maintenance costs, which may increase from Tiers 2 through 4. Enter the upper boundary of Tiers 2 and 3. The upper boundary for Tier 4 is calculated based on the BET and guaranteed discharge power (Tier 4 upper boundary equal Max. capacity * Three Full Day/day * 365 days/year).
Tier 3	0%		
Tier 4	0%		

Item	5	10	15	20	Units	Notes
<b>Period of Guaranteed Performance</b>					<b>Years</b>	
Variable maintenance price, year 1, tier 1	\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 1, tier 2					USD/MWh	
Variable maintenance price, year 1, tier 3					USD/MWh	
Variable maintenance price, year 1, tier 4					USD/MWh	
Variable maintenance price, year 2, tier 1	\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 2, tier 2					USD/MWh	
Variable maintenance price, year 2, tier 3					USD/MWh	
Variable maintenance price, year 2, tier 4					USD/MWh	
Variable maintenance price, year 3, tier 1	\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 3, tier 2					USD/MWh	
Variable maintenance price, year 3, tier 3					USD/MWh	
Variable maintenance price, year 3, tier 4					USD/MWh	
Variable maintenance price, year 4, tier 1	\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 4, tier 2					USD/MWh	
Variable maintenance price, year 4, tier 3					USD/MWh	
Variable maintenance price, year 4, tier 4					USD/MWh	
Variable maintenance price, year 5, tier 1	\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 5, tier 2					USD/MWh	
Variable maintenance price, year 5, tier 3					USD/MWh	
Variable maintenance price, year 5, tier 4					USD/MWh	
Variable maintenance price, year 6, tier 1	\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 6, tier 2					USD/MWh	
Variable maintenance price, year 6, tier 3					USD/MWh	
Variable maintenance price, year 6, tier 4					USD/MWh	
Variable maintenance price, year 7, tier 1	\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 7, tier 2					USD/MWh	
Variable maintenance price, year 7, tier 3					USD/MWh	
Variable maintenance price, year 7, tier 4					USD/MWh	
Variable maintenance price, year 8, tier 1	\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 8, tier 2					USD/MWh	
Variable maintenance price, year 8, tier 3					USD/MWh	
Variable maintenance price, year 8, tier 4					USD/MWh	
Variable maintenance price, year 9, tier 1	\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 9, tier 2					USD/MWh	
Variable maintenance price, year 9, tier 3					USD/MWh	
Variable maintenance price, year 9, tier 4					USD/MWh	
Variable maintenance price, year 10, tier 1	\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 10, tier 2					USD/MWh	
Variable maintenance price, year 10, tier 3					USD/MWh	
Variable maintenance price, year 10, tier 4					USD/MWh	
Variable maintenance price, year 11, tier 1	\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 11, tier 2					USD/MWh	
Variable maintenance price, year 11, tier 3					USD/MWh	
Variable maintenance price, year 11, tier 4					USD/MWh	



Variable maintenance price, year 12, tier 1	\$0	\$0	USD/MWh
Variable maintenance price, year 12, tier 2			USD/MWh
Variable maintenance price, year 12, tier 3			USD/MWh
Variable maintenance price, year 12, tier 4			USD/MWh
Variable maintenance price, year 13, tier 1	\$0	\$0	USD/MWh
Variable maintenance price, year 13, tier 2			USD/MWh
Variable maintenance price, year 13, tier 3			USD/MWh
Variable maintenance price, year 13, tier 4			USD/MWh
Variable maintenance price, year 14, tier 1	\$0	\$0	USD/MWh
Variable maintenance price, year 14, tier 2			USD/MWh
Variable maintenance price, year 14, tier 3			USD/MWh
Variable maintenance price, year 14, tier 4			USD/MWh
Variable maintenance price, year 15, tier 1	\$0	\$0	USD/MWh
Variable maintenance price, year 15, tier 2			USD/MWh
Variable maintenance price, year 15, tier 3			USD/MWh
Variable maintenance price, year 15, tier 4			USD/MWh
Variable maintenance price, year 16, tier 1		\$0	USD/MWh
Variable maintenance price, year 16, tier 2			USD/MWh
Variable maintenance price, year 16, tier 3			USD/MWh
Variable maintenance price, year 16, tier 4			USD/MWh
Variable maintenance price, year 17, tier 1		\$0	USD/MWh
Variable maintenance price, year 17, tier 2			USD/MWh
Variable maintenance price, year 17, tier 3			USD/MWh
Variable maintenance price, year 17, tier 4			USD/MWh
Variable maintenance price, year 18, tier 1		\$0	USD/MWh
Variable maintenance price, year 18, tier 2			USD/MWh
Variable maintenance price, year 18, tier 3			USD/MWh
Variable maintenance price, year 18, tier 4			USD/MWh
Variable maintenance price, year 19, tier 1		\$0	USD/MWh
Variable maintenance price, year 19, tier 2			USD/MWh
Variable maintenance price, year 19, tier 3			USD/MWh
Variable maintenance price, year 19, tier 4			USD/MWh
Variable maintenance price, year 20, tier 1		\$0	USD/MWh
Variable maintenance price, year 20, tier 2			USD/MWh
Variable maintenance price, year 20, tier 3			USD/MWh
Variable maintenance price, year 20, tier 4			USD/MWh

**Additional Information**

The information below this row will not be part of the Final Agreement and is for SCE informational use only.

Item	Value			Units	Notes
	5	10	15		
<b>Period of Guaranteed Performance</b>				Years	
Estimated useful life (EUL) of Project, including the period of guaranteed performance and any years thereafter				Years	Ex.: if the period of guaranteed performance is 10 years, and if the system has 6 years of remaining life, then the EUL is 16 years
Estimated decrease in power per year while still maintaining the guaranteed discharge duration (4 h), from the end of the period of guaranteed performance to the EUL				MW/year	Ex.: if the period of guaranteed performance is 10 years, and if the EUL is 16 years, and if the Project is estimated to loose an average of 0.5 MW per year while still maintaining a 4 hour discharge duration for years 11 through 16, then the estimated decrease in power per year is 0.5 MW
Estimated fixed maintenance costs, from the end of the period of guaranteed performance to the EUL				USD/year	
Estimated decommissioning cost after EUL				USD	Including decommissioning, scrapping/recycling, and site restoration

# 15 MW Offer

All applicable fields have to be completed

**OFFER INCOMPLETE**

## Given Parameters

Item	Value	Units	Notes
Guaranteed discharge power	15	MW	Project shall have a guaranteed discharge power of 5 MW at point of common coupling, for period of guaranteed performance

## Offer Info

Item	Value	Units	Notes
Period of guaranteed performance Offer Provided	5	Years	Drop down list. Seller can offer Project with 5, 10, 15, and 20 year periods of guaranteed performance, TBD during Final Agreement.
	10	Years	
	15	Years	
	20	Years	

## System Information

Item	Value
Seller Name	
Energy storage vendor name	
Energy storage model name/number	
Energy storage technology type	
Power conversion system vendor name	
Power conversion system model name/number	
Project integrator vendor name	

Populate based on General Information Tab

Drop down list

## Technical Information

Item	Value	Units	Notes
Period of Guaranteed Performance	5	Years	
Guaranteed discharge duration (4 h minimum)	15	h	Project shall have a guaranteed discharge duration of at least 4 h for the period of operational guaranteed performance
Typical required site footprint		sq. ft.	Including all components, setbacks, and clearances; not including utility interconnection facilities
Round trip efficiency, maximum		%	See Round Trip Efficiency Criteria in Instructions tab
Round trip efficiency, guaranteed minimum		%	See Round Trip Efficiency Criteria in Instructions tab

Item	Value	Units	Notes
Charge power, nominal		MW	Nominal charge power for at least 75 % of the SOC operating range; not including any foldbacks or tapering
Maximum ramp rate, positive		MW/minute	Maximum rate of change when increasing power (positive value)
Maximum ramp rate, negative		MW/minute	Maximum rate of change when decreasing power (positive value)
Average station power (auxiliary power)		kw	Average station/auxiliary power load via station/auxiliary service
Average primary standby power (idle power)		kw	Average primary power load (positive) or generation (negative) via primary service, while idle (ex.: no active dispatch command)
Charge power limitations			Drop down list

Lower SOC	Upper SOC (inclusive)	Charge power acceptance (MW)
0%		
0%		
0%	100%	

Define three SOC ranges and associated charge power limitation, if applicable

## Price Information

### DBT Project

Option 1: Lump Sum Payment

Item	Value	Units	Notes
Period of Guaranteed Performance	5	Years	
Total lump sum (see Note for PCC voltage)	15	USD	Total lump sum at final acceptance, assume 12 kV PCC for 5 and 10 MW Projects, and 66 kV PCC for 15 and 20 MW Projects

Option 2: Four Equal Payments

Total of four equal payments spread over Project construction, assume 12 kV PCC for 5 and 10 MW Projects, and 66 kV PCC for 15 and 20 MW Projects

Item	Period of Guaranteed Performance	Value	Units	Notes
Total of four equal payments (see Note for PCC voltage)	5	10	Years	USD
		15		
		20		

**Operational Performance Guarantees**

**Option 1: Lump Sum Payment**

Item	Period of Guaranteed Performance	Value	Units	Notes
Total lump sum	5	10	Years	USD
		15		
		20		

**Option 2: Annual Payments**

Item	Period of Guaranteed Performance	Value	Units	Notes
Operational performance guarantee price, year 1	5	10	Years	USD/year
Operational performance guarantee price, year 2				USD/year
Operational performance guarantee price, year 3				USD/year
Operational performance guarantee price, year 4				USD/year
Operational performance guarantee price, year 5				USD/year
Operational performance guarantee price, year 6				USD/year
Operational performance guarantee price, year 7				USD/year
Operational performance guarantee price, year 8				USD/year
Operational performance guarantee price, year 9				USD/year
Operational performance guarantee price, year 10				USD/year
Operational performance guarantee price, year 11				USD/year
Operational performance guarantee price, year 12				USD/year
Operational performance guarantee price, year 13				USD/year
Operational performance guarantee price, year 14				USD/year
Operational performance guarantee price, year 15				USD/year
Operational performance guarantee price, year 16				USD/year
Operational performance guarantee price, year 17				USD/year
Operational performance guarantee price, year 18				USD/year
Operational performance guarantee price, year 19				USD/year
Operational performance guarantee price, year 20				USD/year

**Maintenance Services**

**Fixed Maintenance: Annual Payments**

Item	Period of Guaranteed Performance	Value	Units	Notes
Fixed maintenance price, year 1	5	10	Years	USD/year
Fixed maintenance price, year 2				USD/year
Fixed maintenance price, year 3				USD/year
Fixed maintenance price, year 4				USD/year
Fixed maintenance price, year 5				USD/year
Fixed maintenance price, year 6				USD/year
Fixed maintenance price, year 7				USD/year
Fixed maintenance price, year 8				USD/year
Fixed maintenance price, year 9				USD/year
Fixed maintenance price, year 10				USD/year
Fixed maintenance price, year 11				USD/year
Fixed maintenance price, year 12				USD/year
Fixed maintenance price, year 13				USD/year
Fixed maintenance price, year 14				USD/year
Fixed maintenance price, year 15				USD/year
Fixed maintenance price, year 16				USD/year
Fixed maintenance price, year 17				USD/year
Fixed maintenance price, year 18				USD/year

Fixed maintenance price, year 19  
 Fixed maintenance price, year 20

USD/year  
 USD/year

Variable Maintenance: Annual Payments

Item	Value	Units	Notes
Base energy throughput (BET)		MWh/year	Base Energy Throughput (BET) is the total discharge energy allocation for the Project over the course of a year (Tier 1 allocation), as allowed by the Seller; see instructions tab.

Tier 1 (BET)	Lower boundary (% of BET)	Upper boundary (% of BET, inclusive)
Tier 2	0%	100%
Tier 3	100%	
Tier 4	0%	

Notes  
 Energy discharged within the BET does not incur variable maintenance costs  
 Any energy discharged beyond the BET incurs variable maintenance costs, which may increase from Tiers 2 through 4. Enter the upper boundary of Tiers 2 and 3. The upper boundary for Tier 4 is calculated based on the BET and guaranteed discharge power (Tier 4 upper boundary equal Max. capacity \* Three Full Day/day \* 365 days/year).

Item	Period of Guaranteed Performance	5	10	15	20	Units	Notes
Variable maintenance price, year 1, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 1, tier 2						USD/MWh	
Variable maintenance price, year 1, tier 3						USD/MWh	
Variable maintenance price, year 1, tier 4						USD/MWh	
Variable maintenance price, year 2, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 2, tier 2						USD/MWh	
Variable maintenance price, year 2, tier 3						USD/MWh	
Variable maintenance price, year 2, tier 4						USD/MWh	
Variable maintenance price, year 3, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 3, tier 2						USD/MWh	
Variable maintenance price, year 3, tier 3						USD/MWh	
Variable maintenance price, year 3, tier 4						USD/MWh	
Variable maintenance price, year 4, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 4, tier 2						USD/MWh	
Variable maintenance price, year 4, tier 3						USD/MWh	
Variable maintenance price, year 4, tier 4						USD/MWh	
Variable maintenance price, year 5, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 5, tier 2						USD/MWh	
Variable maintenance price, year 5, tier 3						USD/MWh	
Variable maintenance price, year 5, tier 4						USD/MWh	
Variable maintenance price, year 6, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 6, tier 2						USD/MWh	
Variable maintenance price, year 6, tier 3						USD/MWh	
Variable maintenance price, year 6, tier 4						USD/MWh	
Variable maintenance price, year 7, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 7, tier 2						USD/MWh	
Variable maintenance price, year 7, tier 3						USD/MWh	
Variable maintenance price, year 7, tier 4						USD/MWh	
Variable maintenance price, year 8, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 8, tier 2						USD/MWh	
Variable maintenance price, year 8, tier 3						USD/MWh	
Variable maintenance price, year 8, tier 4						USD/MWh	
Variable maintenance price, year 9, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 9, tier 2						USD/MWh	
Variable maintenance price, year 9, tier 3						USD/MWh	
Variable maintenance price, year 9, tier 4						USD/MWh	
Variable maintenance price, year 10, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 10, tier 2						USD/MWh	
Variable maintenance price, year 10, tier 3						USD/MWh	
Variable maintenance price, year 10, tier 4						USD/MWh	
Variable maintenance price, year 11, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 11, tier 2						USD/MWh	
Variable maintenance price, year 11, tier 3						USD/MWh	
Variable maintenance price, year 11, tier 4						USD/MWh	

Variable maintenance price, year 12, tier 1	\$0	\$0	USD/MWh
Variable maintenance price, year 12, tier 2			USD/MWh
Variable maintenance price, year 12, tier 3			USD/MWh
Variable maintenance price, year 12, tier 4			USD/MWh
Variable maintenance price, year 13, tier 1	\$0	\$0	USD/MWh
Variable maintenance price, year 13, tier 2			USD/MWh
Variable maintenance price, year 13, tier 3			USD/MWh
Variable maintenance price, year 13, tier 4			USD/MWh
Variable maintenance price, year 14, tier 1	\$0	\$0	USD/MWh
Variable maintenance price, year 14, tier 2			USD/MWh
Variable maintenance price, year 14, tier 3			USD/MWh
Variable maintenance price, year 14, tier 4			USD/MWh
Variable maintenance price, year 15, tier 1	\$0	\$0	USD/MWh
Variable maintenance price, year 15, tier 2			USD/MWh
Variable maintenance price, year 15, tier 3			USD/MWh
Variable maintenance price, year 15, tier 4			USD/MWh
Variable maintenance price, year 16, tier 1		\$0	USD/MWh
Variable maintenance price, year 16, tier 2			USD/MWh
Variable maintenance price, year 16, tier 3			USD/MWh
Variable maintenance price, year 16, tier 4			USD/MWh
Variable maintenance price, year 17, tier 1		\$0	USD/MWh
Variable maintenance price, year 17, tier 2			USD/MWh
Variable maintenance price, year 17, tier 3			USD/MWh
Variable maintenance price, year 17, tier 4			USD/MWh
Variable maintenance price, year 18, tier 1		\$0	USD/MWh
Variable maintenance price, year 18, tier 2			USD/MWh
Variable maintenance price, year 18, tier 3			USD/MWh
Variable maintenance price, year 18, tier 4			USD/MWh
Variable maintenance price, year 19, tier 1		\$0	USD/MWh
Variable maintenance price, year 19, tier 2			USD/MWh
Variable maintenance price, year 19, tier 3			USD/MWh
Variable maintenance price, year 19, tier 4			USD/MWh
Variable maintenance price, year 20, tier 1		\$0	USD/MWh
Variable maintenance price, year 20, tier 2			USD/MWh
Variable maintenance price, year 20, tier 3			USD/MWh
Variable maintenance price, year 20, tier 4			USD/MWh

### Additional Information

The information below this row will not be part of the Final Agreement and is for SCE informational use only.

Item	Value				Units	Notes
	5	10	15	20		
<b>Period of Guaranteed Performance</b>					Years	
Estimated useful life (EUL) of Project, including the period of guaranteed performance and any years thereafter					Years	Ex.: if the period of guaranteed performance is 10 years, and if the system has 6 years of remaining life, then the EUL is 16 years
Estimated decrease in power per year while still maintaining the guaranteed discharge duration (4 h), from the end of the period of guaranteed performance to the EUL					MW/year	Ex.: if the period of guaranteed performance is 10 years, and if the EUL is 16 years, and if the Project is estimated to loose an average of 0.5 MW per year while still maintaining a 4 hour discharge duration for years 11 through 16, then the estimated decrease in power per year is 0.5 MW
Estimated fixed maintenance costs, from the end of the period of guaranteed performance to the EUL					USD/year	
Estimated decommissioning cost after EUL					USD	Including decommissioning, scrapping/recycling, and site restoration

## 20 MW Offer

All applicable fields have to be completed

**OFFER INCOMPLETE**

### Given Parameters

Item	Value	Units	Notes
Guaranteed discharge power	20	MW	Project shall have a guaranteed discharge power of 5 MW at point of common coupling, for period of guaranteed performance

### Offer Info

Item	Value	Units	Notes
Period of guaranteed performance Offer Provided	5	Years	Drop down list. Seller can offer Project with 5, 10, 15, and 20 year periods of guaranteed performance, TBD during Final Agreement.
	10	Years	
	15	Years	
	20	Years	

### System Information

Item	Value
Seller Name	
Energy storage vendor name	
Energy storage model name/number	
Energy storage technology type	
Power conversion system vendor name	
Power conversion system model name/number	
Project integrator vendor name	

Populate based on General Information Tab

Drop down list

### Technical Information

Item	Value	Units	Notes
Period of Guaranteed Performance	5	Years	
Guaranteed discharge duration (4 h minimum)	10	h	Project shall have a guaranteed discharge duration of at least 4 h for the period of operational guaranteed performance
Typical required site footprint	15	sq. ft.	Including all components, setbacks, and clearances; not including utility interconnection facilities
Round trip efficiency, maximum		%	See Round Trip Efficiency Criteria in Instructions tab
Round trip efficiency, guaranteed minimum		%	See Round Trip Efficiency Criteria in Instructions tab

Project shall have a guaranteed discharge duration of at least 4 h for the period of operational guaranteed performance  
Including all components, setbacks, and clearances; not including utility interconnection facilities  
See Round Trip Efficiency Criteria in Instructions tab  
See Round Trip Efficiency Criteria in Instructions tab

Item	Value	Units	Notes
Charge power, nominal		MW	Nominal charge power for at least 75 % of the SOC operating range; not including any foldbacks or tapering
Maximum ramp rate, positive		MW/minute	Maximum rate of change when increasing power (positive value)
Maximum ramp rate, negative		MW/minute	Maximum rate of change when decreasing power (positive value)
Average station power (auxiliary power)		kw	Average station/auxiliary power load via station/auxiliary service
Average primary standby power (idle power)		kw	Average primary power load (positive) or generation (negative) via primary service, while idle (ex.: no active dispatch command)
Charge power limitations			Drop down list

Nominal charge power for at least 75 % of the SOC operating range; not including any foldbacks or tapering  
Maximum rate of change when increasing power (positive value)  
Maximum rate of change when decreasing power (positive value)  
Average station/auxiliary power load via station/auxiliary service  
Average primary power load (positive) or generation (negative) via primary service, while idle (ex.: no active dispatch command)  
Drop down list

Lower SOC	Upper SOC (inclusive)	Charge power acceptance (MW)
0%		
0%		
0%	100%	

Define three SOC ranges and associated charge power limitation, if applicable

### Price Information

#### DBT Project

Option 1: Lump Sum Payment

Item	Value	Units	Notes
Period of Guaranteed Performance	5	Years	
Total lump sum (see Note for PCC voltage)	15	USD	Total lump sum at final acceptance, assume 12 kV PCC for 5 and 10 MW Projects, and 66 kV PCC for 15 and 20 MW Projects

Option 2: Four Equal Payments

Total of four equal payments spread over Project construction, assume 12 kV PCC for 5 and 10 MW Projects, and 66 kV PCC for 15 and 20 MW Projects

Item	Period of Guaranteed Performance	Value	Units	Notes
	Total of four equal payments (see Note for PCC voltage)	5 10 15 20	Years USD	

**Operational Performance Guarantees**

**Option 1: Lump Sum Payment**

Item	Period of Guaranteed Performance	Value	Units	Notes
	Total lump sum	5 10 15 20	Years USD	

**Option 2: Annual Payments**

Item	Period of Guaranteed Performance	Value	Units	Notes
	Operational performance guarantee price, year 1	5 10 15 20	USD/year	
	Operational performance guarantee price, year 2		USD/year	
	Operational performance guarantee price, year 3		USD/year	
	Operational performance guarantee price, year 4		USD/year	
	Operational performance guarantee price, year 5		USD/year	
	Operational performance guarantee price, year 6		USD/year	
	Operational performance guarantee price, year 7		USD/year	
	Operational performance guarantee price, year 8		USD/year	
	Operational performance guarantee price, year 9		USD/year	
	Operational performance guarantee price, year 10		USD/year	
	Operational performance guarantee price, year 11		USD/year	
	Operational performance guarantee price, year 12		USD/year	
	Operational performance guarantee price, year 13		USD/year	
	Operational performance guarantee price, year 14		USD/year	
	Operational performance guarantee price, year 15		USD/year	
	Operational performance guarantee price, year 16		USD/year	
	Operational performance guarantee price, year 17		USD/year	
	Operational performance guarantee price, year 18		USD/year	
	Operational performance guarantee price, year 19		USD/year	
	Operational performance guarantee price, year 20		USD/year	

**Maintenance Services**

**Fixed Maintenance: Annual Payments**

Item	Period of Guaranteed Performance	Value	Units	Notes
	Fixed maintenance price, year 1	5 10 15 20	USD/year	
	Fixed maintenance price, year 2		USD/year	
	Fixed maintenance price, year 3		USD/year	
	Fixed maintenance price, year 4		USD/year	
	Fixed maintenance price, year 5		USD/year	
	Fixed maintenance price, year 6		USD/year	
	Fixed maintenance price, year 7		USD/year	
	Fixed maintenance price, year 8		USD/year	
	Fixed maintenance price, year 9		USD/year	
	Fixed maintenance price, year 10		USD/year	
	Fixed maintenance price, year 11		USD/year	
	Fixed maintenance price, year 12		USD/year	
	Fixed maintenance price, year 13		USD/year	
	Fixed maintenance price, year 14		USD/year	
	Fixed maintenance price, year 15		USD/year	
	Fixed maintenance price, year 16		USD/year	
	Fixed maintenance price, year 17		USD/year	
	Fixed maintenance price, year 18		USD/year	

Fixed maintenance price, year 19  
 Fixed maintenance price, year 20

USD/year  
 USD/year

Variable Maintenance: Annual Payments

Item	Value	Units	Notes
Base energy throughput (BET)		MWh/year	Base Energy Throughput (BET) is the total discharge energy allocation for the Project over the course of a year (Tier 1 allocation), as allowed by the Seller; see instructions tab.

Upper boundary (% of BET, inclusive)

100%
------

Lower boundary (% of BET)

0%
100%
0%

Notes  
 Energy discharged within the BET does not incur variable maintenance costs  
 Any energy discharged beyond the BET incurs variable maintenance costs, which may increase from Tiers 2 through 4. Enter the upper boundary of Tiers 2 and 3. The upper boundary for Tier 4 is calculated based on the BET and guaranteed discharge power (Tier 4 upper boundary equal Max. capacity \* Three Full Day/day \* 365 days/year).

Notes

Item	Period of Guaranteed Performance	5	10	15	20	Units	Notes
Variable maintenance price, year 1, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 1, tier 2						USD/MWh	
Variable maintenance price, year 1, tier 3						USD/MWh	
Variable maintenance price, year 1, tier 4						USD/MWh	
Variable maintenance price, year 2, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 2, tier 2						USD/MWh	
Variable maintenance price, year 2, tier 3						USD/MWh	
Variable maintenance price, year 2, tier 4						USD/MWh	
Variable maintenance price, year 3, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 3, tier 2						USD/MWh	
Variable maintenance price, year 3, tier 3						USD/MWh	
Variable maintenance price, year 3, tier 4						USD/MWh	
Variable maintenance price, year 4, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 4, tier 2						USD/MWh	
Variable maintenance price, year 4, tier 3						USD/MWh	
Variable maintenance price, year 4, tier 4						USD/MWh	
Variable maintenance price, year 5, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 5, tier 2						USD/MWh	
Variable maintenance price, year 5, tier 3						USD/MWh	
Variable maintenance price, year 5, tier 4						USD/MWh	
Variable maintenance price, year 6, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 6, tier 2						USD/MWh	
Variable maintenance price, year 6, tier 3						USD/MWh	
Variable maintenance price, year 6, tier 4						USD/MWh	
Variable maintenance price, year 7, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 7, tier 2						USD/MWh	
Variable maintenance price, year 7, tier 3						USD/MWh	
Variable maintenance price, year 7, tier 4						USD/MWh	
Variable maintenance price, year 8, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 8, tier 2						USD/MWh	
Variable maintenance price, year 8, tier 3						USD/MWh	
Variable maintenance price, year 8, tier 4						USD/MWh	
Variable maintenance price, year 9, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 9, tier 2						USD/MWh	
Variable maintenance price, year 9, tier 3						USD/MWh	
Variable maintenance price, year 9, tier 4						USD/MWh	
Variable maintenance price, year 10, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 10, tier 2						USD/MWh	
Variable maintenance price, year 10, tier 3						USD/MWh	
Variable maintenance price, year 10, tier 4						USD/MWh	
Variable maintenance price, year 11, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 11, tier 2						USD/MWh	
Variable maintenance price, year 11, tier 3						USD/MWh	
Variable maintenance price, year 11, tier 4						USD/MWh	



Variable maintenance price, year 12, tier 1	\$0	\$0	USD/MWh
Variable maintenance price, year 12, tier 2			USD/MWh
Variable maintenance price, year 12, tier 3			USD/MWh
Variable maintenance price, year 12, tier 4			USD/MWh
Variable maintenance price, year 13, tier 1	\$0	\$0	USD/MWh
Variable maintenance price, year 13, tier 2			USD/MWh
Variable maintenance price, year 13, tier 3			USD/MWh
Variable maintenance price, year 13, tier 4			USD/MWh
Variable maintenance price, year 14, tier 1	\$0	\$0	USD/MWh
Variable maintenance price, year 14, tier 2			USD/MWh
Variable maintenance price, year 14, tier 3			USD/MWh
Variable maintenance price, year 14, tier 4			USD/MWh
Variable maintenance price, year 15, tier 1	\$0	\$0	USD/MWh
Variable maintenance price, year 15, tier 2			USD/MWh
Variable maintenance price, year 15, tier 3			USD/MWh
Variable maintenance price, year 15, tier 4			USD/MWh
Variable maintenance price, year 16, tier 1		\$0	USD/MWh
Variable maintenance price, year 16, tier 2			USD/MWh
Variable maintenance price, year 16, tier 3			USD/MWh
Variable maintenance price, year 16, tier 4			USD/MWh
Variable maintenance price, year 17, tier 1		\$0	USD/MWh
Variable maintenance price, year 17, tier 2			USD/MWh
Variable maintenance price, year 17, tier 3			USD/MWh
Variable maintenance price, year 17, tier 4			USD/MWh
Variable maintenance price, year 18, tier 1		\$0	USD/MWh
Variable maintenance price, year 18, tier 2			USD/MWh
Variable maintenance price, year 18, tier 3			USD/MWh
Variable maintenance price, year 18, tier 4			USD/MWh
Variable maintenance price, year 19, tier 1		\$0	USD/MWh
Variable maintenance price, year 19, tier 2			USD/MWh
Variable maintenance price, year 19, tier 3			USD/MWh
Variable maintenance price, year 19, tier 4			USD/MWh
Variable maintenance price, year 20, tier 1		\$0	USD/MWh
Variable maintenance price, year 20, tier 2			USD/MWh
Variable maintenance price, year 20, tier 3			USD/MWh
Variable maintenance price, year 20, tier 4			USD/MWh

### Additional Information

The information below this row will not be part of the Final Agreement and is for SCE informational use only.

Item	Value				Units	Notes
	5	10	15	20		
<b>Period of Guaranteed Performance</b>					Years	
Estimated useful life (EUL) of Project, including the period of guaranteed performance and any years thereafter					Years	Ex.: if the period of guaranteed performance is 10 years, and if the system has 6 years of remaining life, then the EUL is 16 years
Estimated decrease in power per year while still maintaining the guaranteed discharge duration (4 h), from the end of the period of guaranteed performance to the EUL					MW/year	Ex.: if the period of guaranteed performance is 10 years, and if the EUL is 16 years, and if the Project is estimated to loose an average of 0.5 MW per year while still maintaining a 4 hour discharge duration for years 11 through 16, then the estimated decrease in power per year is 0.5 MW
Estimated fixed maintenance costs, from the end of the period of guaranteed performance to the EUL					USD/year	
Estimated decommissioning cost after EUL					USD	Including decommissioning, scrapping/recycling, and site restoration

# Maximum MW Offer

All applicable fields have to be completed

**OFFER INCOMPLETE**

## Parameters

Item	Value	Units	Notes
Guaranteed discharge power		MW	Project shall have a guaranteed discharge power of 5 MW at point of common coupling, for period of guaranteed performance

## Offer Info

Item	Value	Units	Notes
Period of guaranteed performance Offer Provided	5	Years	Drop down list. Seller can offer Project with 5, 10, 15, and 20 year periods of guaranteed performance, TBD during Final Agreement.
	10		
	15		
	20		

## System Information

Item	Value
Seller Name	
Energy storage vendor name	
Energy storage model name/number	
Energy storage technology type	
Power conversion system vendor name	
Power conversion system model name/number	
Project integrator vendor name	

Populate based on General Information Tab

Drop down list

## Technical Information

Item	Value	Units	Notes
Period of Guaranteed Performance	5	Years	Project shall have a guaranteed discharge duration of at least 4 h for the period of operational guaranteed performance
Guaranteed discharge duration (4 h minimum)	15	h	Including all components, setbacks, and clearances; not including utility interconnection facilities
Typical required site footprint	20	sq. ft.	See Round Trip Efficiency Criteria in Instructions tab
Round trip efficiency, maximum		%	See Round Trip Efficiency Criteria in Instructions tab
Round trip efficiency, guaranteed minimum		%	

Item	Value	Units	Notes
Charge power, nominal		MW	Nominal charge power for at least 75 % of the SOC operating range; not including any foldbacks or tapering
Maximum ramp rate, positive		MW/minute	Maximum rate of change when increasing power (positive value)
Maximum ramp rate, negative		MW/minute	Maximum rate of change when decreasing power (positive value)
Average station power (auxiliary power)		kw	Average station/auxiliary power load via station/auxiliary service
Average primary standby power (idle power)		kw	Average primary power load (positive) or generation (negative) via primary service, while idle (ex.: no active dispatch command)
Charge power limitations			Drop down list

Lower SOC	Upper SOC (inclusive)	Charge power acceptance (MW)
0%		
0%		
0%	100%	

Define three SOC ranges and associated charge power limitation, if applicable

## Price Information

### DBT Project

Option 1: Lump Sum Payment

Item	Value	Units	Notes
Period of Guaranteed Performance	5	Years	
Total lump sum (see Note for PCC voltage)	15	USD	Total lump sum at final acceptance, assume 12 kV PCC for 5 and 10 MW Projects, and 66 kV PCC for 15 and 20 MW Projects

Option 2: Four Equal Payments

Total of four equal payments spread over Project construction, assume 12 kV PCC for 5 and 10 MW Projects, and 66 kV PCC for 15 and 20 MW Projects

Item	Period of Guaranteed Performance	Value	Units	Notes
Total of four equal payments (see Note for PCC voltage)	5	10	Years	USD
		15		
		20		

**Operational Performance Guarantees**

**Option 1: Lump Sum Payment**

Item	Period of Guaranteed Performance	Value	Units	Notes
Total lump sum	5	10	Years	USD
		15		
		20		

**Option 2: Annual Payments**

Item	Period of Guaranteed Performance	Value	Units	Notes
Operational performance guarantee price, year 1	5	10	Years	USD/year
Operational performance guarantee price, year 2				USD/year
Operational performance guarantee price, year 3				USD/year
Operational performance guarantee price, year 4				USD/year
Operational performance guarantee price, year 5				USD/year
Operational performance guarantee price, year 6				USD/year
Operational performance guarantee price, year 7				USD/year
Operational performance guarantee price, year 8				USD/year
Operational performance guarantee price, year 9				USD/year
Operational performance guarantee price, year 10				USD/year
Operational performance guarantee price, year 11				USD/year
Operational performance guarantee price, year 12				USD/year
Operational performance guarantee price, year 13				USD/year
Operational performance guarantee price, year 14				USD/year
Operational performance guarantee price, year 15				USD/year
Operational performance guarantee price, year 16				USD/year
Operational performance guarantee price, year 17				USD/year
Operational performance guarantee price, year 18				USD/year
Operational performance guarantee price, year 19				USD/year
Operational performance guarantee price, year 20				USD/year

**Maintenance Services**

**Fixed Maintenance: Annual Payments**

Item	Period of Guaranteed Performance	Value	Units	Notes
Fixed maintenance price, year 1	5	10	Years	USD/year
Fixed maintenance price, year 2				USD/year
Fixed maintenance price, year 3				USD/year
Fixed maintenance price, year 4				USD/year
Fixed maintenance price, year 5				USD/year
Fixed maintenance price, year 6				USD/year
Fixed maintenance price, year 7				USD/year
Fixed maintenance price, year 8				USD/year
Fixed maintenance price, year 9				USD/year
Fixed maintenance price, year 10				USD/year
Fixed maintenance price, year 11				USD/year
Fixed maintenance price, year 12				USD/year
Fixed maintenance price, year 13				USD/year
Fixed maintenance price, year 14				USD/year
Fixed maintenance price, year 15				USD/year
Fixed maintenance price, year 16				USD/year
Fixed maintenance price, year 17				USD/year
Fixed maintenance price, year 18				USD/year

Fixed maintenance price, year 19  
 Fixed maintenance price, year 20

USD/year  
 USD/year

Variable Maintenance: Annual Payments

Item	Value	Units	Notes
Base energy throughput (BET)		MWh/year	Base Energy Throughput (BET) is the total discharge energy allocation for the Project over the course of a year (Tier 1 allocation), as allowed by the Seller; see instructions tab.

Tier 1 (BET)	Lower boundary (% of BET)	Upper boundary (% of BET, inclusive)
Tier 2	0%	100%
Tier 3	100%	
Tier 4	0%	

Notes  
 Energy discharged within the BET does not incur variable maintenance costs  
 Any energy discharged beyond the BET incurs variable maintenance costs, which may increase from Tiers 2 through 4. Enter the upper boundary of Tiers 2 and 3. The upper boundary for Tier 4 is calculated based on the BET and guaranteed discharge power (Tier 4 upper boundary equal Max. capacity \* Three Full Day/day \* 365 days/year).

Item	Period of Guaranteed Performance	5	10	15	20	Units	Notes
Variable maintenance price, year 1, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 1, tier 2						USD/MWh	
Variable maintenance price, year 1, tier 3						USD/MWh	
Variable maintenance price, year 1, tier 4						USD/MWh	
Variable maintenance price, year 2, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 2, tier 2						USD/MWh	
Variable maintenance price, year 2, tier 3						USD/MWh	
Variable maintenance price, year 2, tier 4						USD/MWh	
Variable maintenance price, year 3, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 3, tier 2						USD/MWh	
Variable maintenance price, year 3, tier 3						USD/MWh	
Variable maintenance price, year 3, tier 4						USD/MWh	
Variable maintenance price, year 4, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 4, tier 2						USD/MWh	
Variable maintenance price, year 4, tier 3						USD/MWh	
Variable maintenance price, year 4, tier 4						USD/MWh	
Variable maintenance price, year 5, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 5, tier 2						USD/MWh	
Variable maintenance price, year 5, tier 3						USD/MWh	
Variable maintenance price, year 5, tier 4						USD/MWh	
Variable maintenance price, year 6, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 6, tier 2						USD/MWh	
Variable maintenance price, year 6, tier 3						USD/MWh	
Variable maintenance price, year 6, tier 4						USD/MWh	
Variable maintenance price, year 7, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 7, tier 2						USD/MWh	
Variable maintenance price, year 7, tier 3						USD/MWh	
Variable maintenance price, year 7, tier 4						USD/MWh	
Variable maintenance price, year 8, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 8, tier 2						USD/MWh	
Variable maintenance price, year 8, tier 3						USD/MWh	
Variable maintenance price, year 8, tier 4						USD/MWh	
Variable maintenance price, year 9, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 9, tier 2						USD/MWh	
Variable maintenance price, year 9, tier 3						USD/MWh	
Variable maintenance price, year 9, tier 4						USD/MWh	
Variable maintenance price, year 10, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 10, tier 2						USD/MWh	
Variable maintenance price, year 10, tier 3						USD/MWh	
Variable maintenance price, year 10, tier 4						USD/MWh	
Variable maintenance price, year 11, tier 1		\$0	\$0	\$0	\$0	USD/MWh	
Variable maintenance price, year 11, tier 2						USD/MWh	
Variable maintenance price, year 11, tier 3						USD/MWh	
Variable maintenance price, year 11, tier 4						USD/MWh	

Variable maintenance price, year 12, tier 1	\$0	\$0	USD/MWh
Variable maintenance price, year 12, tier 2			USD/MWh
Variable maintenance price, year 12, tier 3			USD/MWh
Variable maintenance price, year 12, tier 4			USD/MWh
Variable maintenance price, year 13, tier 1	\$0	\$0	USD/MWh
Variable maintenance price, year 13, tier 2			USD/MWh
Variable maintenance price, year 13, tier 3			USD/MWh
Variable maintenance price, year 13, tier 4			USD/MWh
Variable maintenance price, year 14, tier 1	\$0	\$0	USD/MWh
Variable maintenance price, year 14, tier 2			USD/MWh
Variable maintenance price, year 14, tier 3			USD/MWh
Variable maintenance price, year 14, tier 4			USD/MWh
Variable maintenance price, year 15, tier 1	\$0	\$0	USD/MWh
Variable maintenance price, year 15, tier 2			USD/MWh
Variable maintenance price, year 15, tier 3			USD/MWh
Variable maintenance price, year 15, tier 4			USD/MWh
Variable maintenance price, year 16, tier 1		\$0	USD/MWh
Variable maintenance price, year 16, tier 2			USD/MWh
Variable maintenance price, year 16, tier 3			USD/MWh
Variable maintenance price, year 16, tier 4			USD/MWh
Variable maintenance price, year 17, tier 1		\$0	USD/MWh
Variable maintenance price, year 17, tier 2			USD/MWh
Variable maintenance price, year 17, tier 3			USD/MWh
Variable maintenance price, year 17, tier 4			USD/MWh
Variable maintenance price, year 18, tier 1		\$0	USD/MWh
Variable maintenance price, year 18, tier 2			USD/MWh
Variable maintenance price, year 18, tier 3			USD/MWh
Variable maintenance price, year 18, tier 4			USD/MWh
Variable maintenance price, year 19, tier 1		\$0	USD/MWh
Variable maintenance price, year 19, tier 2			USD/MWh
Variable maintenance price, year 19, tier 3			USD/MWh
Variable maintenance price, year 19, tier 4			USD/MWh
Variable maintenance price, year 20, tier 1		\$0	USD/MWh
Variable maintenance price, year 20, tier 2			USD/MWh
Variable maintenance price, year 20, tier 3			USD/MWh
Variable maintenance price, year 20, tier 4			USD/MWh

**Additional Information**

The information below this row will not be part of the Final Agreement and is for SCE informational use only.

Item	Value			Units	Notes
	5	10	15		
<b>Period of Guaranteed Performance</b>				Years	
Estimated useful life (EUL) of Project, including the period of guaranteed performance and any years thereafter				Years	Ex.: if the period of guaranteed performance is 10 years, and if the system has 6 years of remaining life, then the EUL is 16 years
Estimated decrease in power per year while still maintaining the guaranteed discharge duration (4 h), from the end of the period of guaranteed performance to the EUL				MW/year	Ex.: if the period of guaranteed performance is 10 years, and if the EUL is 16 years, and if the Project is estimated to loose an average of 0.5 MW per year while still maintaining a 4 hour discharge duration for years 11 through 16, then the estimated decrease in power per year is 0.5 MW
Estimated fixed maintenance costs, from the end of the period of guaranteed performance to the EUL				USD/year	
Estimated decommissioning cost after EUL				USD	Including decommissioning, scrapping/recycling, and site restoration



**Confidential Appendix F**

**CEP Spreadsheet Results (Redacted in its Entirety)**

**Appendix G**

**SED Energy Storage Safety Checklist**



## ATTACHMENT A

### SED Safety Inspection Items for Energy Storage

August 12, 2016

**Thank you to PG&E, SCE, SDG&E, NGK, NEC, CESA,  
Amber Kinetics and the SED Generation Inspection Section**

California has begun to add large amounts of utility-scale, grid-connected energy storage to its electrical grid. This stems in significant part from CPUC proceeding R.15-02-011, several Commission decisions, and AB 2514, which require the California utilities to procure 1,325 MW of energy storage by 2020, to be operational by 2024. These storage technologies benefit California in multiple ways.

However, these storage technologies also concentrate large amounts of energy in small spaces and require new kinds of safety inspections distinct from those used for existing energy equipment. As a result, Commission Decision 16-01-032 directs the Commission's Safety and Enforcement Division to develop guidelines for its own inspectors to use when looking at energy storage devices at utility-owned sites.

SED convened a working group consisting of California's major utilities, energy storage developers, codes and standards experts, and industry associations to advise and contribute to the development of a checklist for SED inspectors to use. Below is the inspection checklist developed by this working group. Its items are organized generally in order of what an inspector may find during a walk-through of an energy storage site.

- **Is an overall safety plan in place?**
  - Does the facility have a safety plan documented?
  - Does it address manmade and natural disasters like wildfire, earthquake, flood, chemical spill, toxic gas release, explosion, terrorism, etc.?
  - Does it include outreach to first responders and local authorities? i.e. conduct periodic drill with fire, police, hazmat, etc.
  - Does it include training?
  - Are signage and safety placards compliant with American National Standards Institute, National Fire Protection Association, and other applicable standards?
  - Does the facility have a monthly in-service inspections and maintenance checklist?
    - Storage management system (fire monitors, SO<sub>2</sub> monitors, wind sock, log book, smoke detectors, etc.)
    - Fire plan box (on substation fence)
    - Equipment (generators, transformers, switch gear and control cabinet, battery towers, etc.)
  - Does the facility have maintenance records, such as a preventative maintenance log?
  - Does the facility have an appropriate access protocol?
- **Is the facility inspected regularly by the company or utility per manufacturer's recommendations?**
  - Battery Modules.
    - Inspection of cables and wiring.
    - Torque check of bolted connections (when applicable)
    - Insulation resistance measurement (per industry standards)
    - Heater resistance.
    - Battery residence.
  - Cable run.
    - IR or Ultrasound inspection of terminals

- Insulation resistance measurement (per industry standards)
  - SO<sub>2</sub> detector if applicable.
  - Control cabinet.
    - Inspection of cables and wiring.
  - Total system.
    - Protection relay test.
- **Is the facility inspected regularly by the company or utility, per manufacturer's recommendations? (flywheels only)**
  - At commissioning, are flywheel units properly installed, with civil design per manufacturer specification?
  - Inspection of cables and wiring.
  - Insulation resistance measurement of cables.
  - Run automated control system test. Verifies control connectivity, functionality of internal sensors within each flywheel unit – voltage, current, vibration sensing, and vacuum system state. Test carried out from control center.
- **SED inspectors have examined the following** (all inspections will include both visual and records review)
  - Interconnection equipment
    - Inspect interconnection equipment for visual defects, i.e. insulator bushing intact and clean (shiny, not broken or chipped).
    - Interconnection equipment includes, but not limited to the following:
      - Transformer (check nitrogen tank supply if nitrogen-blanketed, inspect connector / enclosure for hotspot, inspect bushing for defect, review oil samples for dissolved gases, moisture and particulate).
      - Circuit breaker (oil-filled, vacuum, or SF6).
      - Disconnect switch (observe any apparent binding on gear linkages).
      - Lighting arrester and bus-bar (inspect for visual defect).
      - Test remote operability of interconnection equipment.
  - Storage facility
    - Observe any signs of break-in, intrusion, or vandalism.
    - Inspect facility for appropriate fire protection system, i.e. CO<sub>2</sub> suppression (gas cylinders securely fastened per OSHA), sprinkler, fire alarm, detector, extinguisher (C for electrical fire and D for metal (lithium) fire). Review inspection records per NFPA.
    - Inspect SO<sub>2</sub> detector /ask worker to perform operational test. Check if gas sensor and/or vacuum pump (integral to detector) are in working order (Applicable to NaS storage only).
    - Check for wind sock and ensure it is in good condition (Applicable to NaS storage only).
    - Check ambient temperature and humidity to ensure proper operating condition is maintained. Question: Is facility wired to alarm if operating conditions fall out-of-range?
    - Check facility for onsite spares (for frequently failed components). Does facility have a periodic parts replacement list? Are spare parts replenished as needed?
    - Inspect conditions of facility walking and working surfaces, including stairs and railings.
  - Battery enclosure
    - Observe signs of localized overheating (if enclosure shows different color shades or if metal surface is warped, this is indicative of overheating and problem with the battery module inside). Inspect enclosure for damage or signs of structural defect. Inspect for hotspots with IR gun.
    - Inspect air fan/conditioner and filter. Check if fan is running quietly, not squealing or shaking violently. Inspect filter for cleanliness.
    - Check if enclosure is weather-proof and properly grounded.

- Inspect all electrical and control panel terminal connections for hotspots, corrosion, looseness, or physical damage.
- Inspect inverters for hotspots, mechanical, and/or structural defects.
- Inspect certifications of all energy storage equipment/component. Are they certified per latest National Electrical Code, Underwriters Laboratory, and applicable standards?
- Battery module (varies by technology)
  - Observe any unusual smell, leak or spill. Feel any unusual heat flux.
  - Check that modules are generally intact and not damaged.
  - Check that wire connectors are clean (not corroded) and not loose or damaged. Perform a heat scan if needed.
  - Ensure all protective relays are tested and calibrated; check calibration stickers.
  - Ensure all cable is secured and in good conditions (not frayed, melted, cut, bended, or otherwise damaged).
- Hazardous materials policy and management program if applicable
  - Are all records kept and maintained per the requirements of the regulations for the site? For example, training.
  - Has a manifest of hazardous material kept on site been generated?
  - Are SDSs available for all hazardous materials kept on site?
  - Is proper hazardous waste disposal in place if required?
  - Are the hazardous materials handled and stored per the regulations?
  - Do the hazardous materials emergency response plan and the equipment to respond to it meet the policy and management program?

Because energy storage technology will evolve over time, this checklist will also need to evolve over time. This list is intended as a beginning point for SED inspectors, who will learn along with the technologies as they develop. In the future, inspection items may be added for as-to-yet unforeseen technologies. Existing inspection items may be changed in response to lessons learned and emerging best practices acquired by SED inspectors and their advisors.

California may be the first state to initiate an energy storage inspection guideline for its inspectors. As other states focus on these technologies, they can draw from this guideline or possibly join together with California to optimize the ways that these technologies are made safe.

**(End of Attachment A)**

**Confidential Appendix H**

**GE EGT Preliminary Pricing Proposal (Redacted in Entirety)**