

GRANT REQUEST FORM (GRF)CEC-270 (Revised 10/2015)
COMMISSION

CALIFORNIA ENERGY

New Agreement EPC-17-049 (To be completed by CGL Office)

ERDD	Kenneth Schumann	43	916-327-1556
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San Diego Unified Port District (Port of San Diego)	95-2241453
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Port of San Diego Microgrid - Resiliency in Terminal Operations

6/13/2018	3/31/2023	\$ 4,985,272
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<input type="checkbox"/> ARFVTP agreements under \$75K delegated to Executive Director.

Proposed Business Meeting Date	5/9/2018	<input type="checkbox"/> Consent	<input checked="" type="checkbox"/> Discussion
Business Meeting Presenter	David Erne	Time Needed:	10 minutes

Please select one list serve. EPIC (Electric Program Investment Charge)

Agenda Item Subject and Description

SAN DIEGO UNIFIED PORT DISTRICT (PORT OF SAN DIEGO). Proposed resolution approving agreement EPC-17-049 with San Diego Unified Port District (Port of San Diego) for a \$4,985,272 grant to develop a new, permanent, renewable microgrid at the Port of San Diego that can be replicated at other seaport terminals and distribution facilities throughout California, the U.S., and internationally. The project will incorporate solar photovoltaic renewable generation, battery energy storage, energy efficiency improvements, and a centralized microgrid controller to allow key elements of the terminal to remain operational when islanded from the electrical grid for a minimum of 12 hours. The proposed microgrid will test the integration of four distributed energy resources. The Port of San Diego is providing \$4,629,936 in match funding. (EPIC funding) Contact: Kenneth Schumann

1. Is Agreement considered a "Project" under CEQA?
☒ Yes (skip to question 2) ☐ No (complete the following (PRC 21065 and 14 CCR 15378)):
 Explain why Agreement is not considered a "Project":
 Agreement will not cause direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment because

2. If Agreement is considered a "Project" under CEQA:
☐ a) Agreement **IS** exempt. (Attach draft NOE)
☐ Statutory Exemption. List PRC and/or CCR section number: _____
☐ Categorical Exemption. List CCR section number: _____
☐ Common Sense Exemption. 14 CCR 15061 (b) (3)
 Explain reason why Agreement is exempt under the above section:

☒ b) Agreement **IS NOT** exempt. (Consult with the legal office to determine next steps.)
 Check all that apply
☐ Initial Study ☒ Environmental Impact Report
http://www.energy.ca.gov/research/epic/environmental_review_documents.html#sandiego
☐ Negative Declaration ☐ Statement of Overriding Considerations
☐ Mitigated Negative Declaration

Legal Company Name:	Budget
Electric Power Research Institute, Inc.	\$ 419,997
The Regents of the University of California, on behalf of the San Diego campus	\$ 327,593
Burns and McDonnell Engineering Company, Inc.	\$ 397,338
TBD Electrical Infrastructure Contractor	\$ 1,277,312
TBD Geotechnical Contractor	\$ 30,000
TBD Lighting	\$ 80,000 (Match)
TBD Solar PPA Provider	\$ 197,189 (Match)
TBD Roofing Contractor	\$ 1,900,000 (Match)

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**List all key partners:** (attach additional sheets as necessary)

Legal Company Name:

Funding Source	Funding Year of Appropriation	Budget List No.	Amount
EPIC	17-18	301.001E	\$4,985,272
			\$
			\$
			\$
			\$
			\$
R&D Program Area:	ESRO: ETSI		\$4,985,272
Explanation for "Other" selection			
Reimbursement Contract #:		Federal Agreement #:	

Name:	Aimee Heim	Name:	Renée Yarmy
Address:	3165 Pacific Hwy	Address:	3165 Pacific Hwy
City, State, Zip:	San Diego, CA 92101-1128	City, State, Zip:	San Diego, CA 92101-1128
Phone:	619-686-6390 /	Fax:	- -
E-Mail:	aheim@portofsandiego.org	E-Mail:	ryarmy@portofsandiego.org

<input checked="" type="checkbox"/> Competitive Solicitation	Solicitation #: GFO-17-302
<input type="checkbox"/> First Come First Served Solicitation	

1. Exhibit A, Scope of Work	<input checked="" type="checkbox"/> Attached
2. Exhibit B, Budget Detail	<input checked="" type="checkbox"/> Attached
3. CEC 105, Questionnaire for Identifying Conflicts	<input checked="" type="checkbox"/> Attached
4. Recipient Resolution	<input checked="" type="checkbox"/> N/A <input type="checkbox"/> Attached
5. CEQA Documentation	<input type="checkbox"/> N/A <input checked="" type="checkbox"/> Attached

Agreement Manager

Date

Office Manager

Date

Deputy Director

Date

EXHIBIT A Scope of Work

I. TASK ACRONYM/TERM LISTS

A. Task List

Task #	CPR ¹	Task Name
1		General Project Tasks
2	X	Microgrid Design
3	X	Microgrid Construction
4		Operation and Maintenance
5		Field Testing and Evaluation
6		Evaluation of Project Benefits
7		Technology/Knowledge Transfer Activities

B. Acronym/Term List

Acronym/Term	Meaning
BMcD	Burns & McDonnell
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CPR	Critical Project Review
District	San Diego Unified Port District
GHG	Greenhouse Gas
HPS	High Pressure Sodium
LED	Light Emitting Diode
PPA	Power Purchase Agreement
PV	Photovoltaic
Recipient	San Diego Unified Port District
SDG&E	San Diego Gas and Electric
TAC	Technical Advisory Committee
TAMT	Tenth Avenue Marine Terminal

II. PURPOSE OF AGREEMENT, PROBLEM/SOLUTION STATEMENT, AND GOALS AND OBJECTIVES

A. Purpose of Agreement

The purpose of this Agreement is to fund the development of a replicable model for renewable-based microgrids at California ports and other goods movement facilities.

The Energy Commission issued solicitation GFO-17-302 Demonstrate Business Case for Advanced Microgrids in Support of California's Energy and GHG Policies to Demonstration of Standardized High-DER Penetration, Renewable-Based, Resilient and Commercially Viable Microgrids Located at California Military Bases, Ports, and Native American Tribes within IOU Service Territories. In response to GFO-17-302, San Diego Unified Port District (Recipient) submitted application #04, which was proposed for funding in the Energy Commission's Notice of Proposed Awards dated March 14, 2018. The Recipient's

¹ Please see subtask 1.3 in Part III of the Scope of Work (General Project Tasks) for a description of Critical Project Review (CPR) Meetings.

EXHIBIT A

Scope of Work

application and the Notice of Proposed Award issued are incorporated by reference to this Agreement in their entirety.

In the event of any conflict or inconsistency between the terms of the Solicitation and the terms of the Recipient's Application, the Solicitation shall control. In the event of any conflict or inconsistency between the Recipient's Application and the terms of the Energy Commission's Award, the Commission's Award shall control. Similarly, in the event of any conflict or inconsistency between the terms of this Agreement and the Recipient's Application, the terms of this Agreement shall control.

B. Problem/Solution Statement

Problem

California ports are electrifying their operations to move toward zero emission operations, which dramatically increases their reliance and impact on the local electric grid. The migration to all-electric terminals will result in many terminals at least tripling their peak power consumption, while becoming more susceptible to operational disruptions due to losses of grid power². Renewable microgrids provide a potential path to a carbon-free, resilient, and sustainable energy solution while reducing the effects on San Diego Gas and Electric's (SDG&E's) distribution system; however, the costs and operational uncertainties of microgrids at seaports present a barrier to adoption. Demonstration projects are needed to identify and overcome implementation challenges, while validating the operational and financial viability of microgrids at goods movement facilities.

Solution

The recipient will develop a solar + battery storage microgrid at the Port of San Diego's Tenth Avenue Marine Terminal (TAMT) to demonstrate the viability of a renewable-powered microgrid to seaport and goods movement industrial facilities. This project is also designed to demonstrate and evaluate innovative funding approaches to pay for key elements of the construction, operation, and maintenance of the microgrid using a power purchase agreement (PPA). This addresses a key issue with many industrial facilities that want the benefits of a renewable microgrid but cannot fund the capital expenses and are concerned about the additional maintenance of the equipment. The TAMT is an ideal demonstration facility because (1) it is located adjacent to the disadvantaged community of Barrio Logan; (2) it is an omni terminal that moves a wide range of goods; and (3) it supports critical maritime, military, and airport operations, serving as a U.S. Department of Defense Strategic Port. The TAMT Renewable Microgrid Project will serve as a repeatable technical, operational, and financial model for microgrid deployment at California goods movement facilities and beyond.

C. Goals and Objectives of the Agreement

Agreement Goals

The goal of this Agreement is to:

- Goal 1: Demonstrate a repeatable model for renewable-based microgrids at seaport terminals, goods movement centers, and industrial facilities
- Goal 2: Operate with renewable energy in island mode
- Goal 3: Reduce greenhouse gas emissions
- Goal 4: Increase penetration of renewable electricity
- Goal 5: Reduce electricity costs

² Port of Los Angeles Energy Management Action Plan, July 2014.

https://www.portoflosangeles.org/DOC/DRAFT%20POLA%20E-MAP_July%202014.pdf

EXHIBIT A

Scope of Work

- Goal 6: Demonstrate a standardized commercial microgrid system

Ratepayer Benefits:³ This Agreement will result in the ratepayer benefits of greater electricity reliability, lower costs, and increased safety. The TAMT Renewable Microgrid Project will increase electric reliability by using solar + storage to provide local and reliable capacity and energy in one of San Diego Gas & Electric's highest density load centers, while mitigating the duck curve⁴. The project will lower ratepayer costs by reducing the need for electric utility infrastructure improvement through consistent management of peak demand, in conjunction with other microgrid and energy storage projects. The evaluation of multiple funding options, including Power Purchase Agreements (PPAs), to construct, maintain, and operate a microgrid will demonstrate the effectiveness of various financial model options for reducing upfront capital investments for infrastructure, while providing reduced ongoing energy costs to ratepayers implementing similar projects. Since the PPA provider is contracted for the operation and maintenance of the system, this approach also helps to ensure that the microgrid is properly maintained throughout its life without placing an additional burden on the recipient's personnel. The proposed project will increase knowledge of microgrid safety by performing cyber security assessments of vulnerabilities and developing mitigation strategies. On a regional scale, the increase in energy resiliency at TAMT will benefit San Diego ratepayers, and citizens of the region, including the adjacent disadvantaged community of Barrio Logan, who rely on the recipient for emergency relief, supplies, and fuel in the event of a natural or manmade disaster that caused a disruption to the electrical grid.

Technological Advancement and Breakthroughs:⁵ This Agreement will lead to technological advancement and breakthroughs to overcome barriers to the achievement of the State of California's statutory energy goals by demonstrating the operational and financial viability of a renewable + storage microgrid at a marine cargo omni terminal that delivers cargo that economically benefits the region, supports military operations, and supplies the San Diego International Airport with jet fuel. Following the appropriate public selection process, a PPA will be structured to install and maintain solar panels for the purpose of generating renewable energy, for solar and for the operation and maintenance of the microgrid at a rate that is anticipated to provide net monthly and annual savings for the District. It is the financial structure and the application of a microgrid at a marine terminal that are the main components of the proposed TAMT Renewable Microgrid Project, helping to advance the deployment and adoption of microgrids.

Agreement Objectives

The objectives of this Agreement are to:

- Demonstrate the operational and financial viability of a solar + storage microgrid at TAMT, a marine omni terminal.

³ California Public Resources Code, Section 25711.5(a) requires projects funded by the Electric Program Investment Charge (EPIC) to result in ratepayer benefits. The California Public Utilities Commission, which established the EPIC in 2011, defines ratepayer benefits as greater reliability, lower costs, and increased safety (See CPUC "Phase 2" Decision 12-05-037 at page 19, May 24, 2012,

http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/167664.PDF).

⁴ https://www.caiso.com/documents/flexibleresourceshelprenewables_fastfacts.pdf

⁵ California Public Resources Code, Section 25711.5(a) also requires EPIC-funded projects to lead to technological advancement and breakthroughs to overcome barriers that prevent the achievement of the state's statutory and energy goals.

EXHIBIT A

Scope of Work

- Assess islanding capabilities under various battery storage system states of charge and solar generation scenarios to provide 12 hours of operation independent of the grid.
- Reduce greenhouse gas (GHG) emissions from electric power use by 100% relative to baseline conditions.
- Implement energy efficiency measures to reduce electricity use by greater than 20%.
- Use solar + storage microgrid to reduce annual energy costs by more than \$250,000.
- Ratepayer cost savings, environmental benefits to the community, and benefits to the utility through demand response.
- Develop an approach, lessons learned, and business case to support replicability at other facilities.

EXHIBIT A Scope of Work

III. TASK 1 GENERAL PROJECT TASKS

PRODUCTS

Subtask 1.1 Products

The goal of this subtask is to establish the requirements for submitting project products (e.g., reports, summaries, plans, and presentation materials). Unless otherwise specified by the Commission Agreement Manager (CAM), the Recipient must deliver products as required below by the dates listed in the **Project Schedule (Part V)**. Products that require a draft version are indicated by marking “**(draft and final)**” after the product name in the “Products” section of the task/subtask. If “(draft and final)” does not appear after the product name, only a final version of the product is required. With respect to due dates within this Scope of Work, “**days**” means working days.

The Recipient shall:

For products that require a draft version, including the Final Report Outline and Final Report

- Submit all draft products to the CAM for review and comment in accordance with the Project Schedule (Part V). The CAM will provide written comments to the Recipient on the draft product within 15 days of receipt, unless otherwise specified in the task/subtask for which the product is required.
- Consider incorporating all CAM comments into the final product. If the Recipient disagrees with any comment, provide a written response explaining why the comment was not incorporated into the final product.
- Submit the revised product and responses to comments within 10 days of notice by the CAM, unless the CAM specifies a longer time period, or approves a request for additional time.

For products that require a final version only

- Submit the product to the CAM for acceptance. The CAM may request minor revisions or explanations prior to acceptance.

For all products

- Submit all data and documents required as products in accordance with the following:

Instructions for Submitting Electronic Files and Developing Software:

○ **Electronic File Format**

- Submit all data and documents required as products under this Agreement in an electronic file format that is fully editable and compatible with the Energy Commission’s software and Microsoft (MS)-operating computing platforms, or with any other format approved by the CAM. Deliver an electronic copy of the full text of any Agreement data and documents in a format specified by the CAM, such as memory stick or CD-ROM.

The following describes the accepted formats for electronic data and documents provided to the Energy Commission as products under this Agreement, and establishes the software versions that will be required to review and approve all software products:

- Data sets will be in MS Access or MS Excel file format (version 2007 or later), or any other format approved by the CAM.

EXHIBIT A

Scope of Work

- Text documents will be in MS Word file format, version 2007 or later.
 - Documents intended for public distribution will be in PDF file format.
 - The Recipient must also provide the native Microsoft file format.
 - Project management documents will be in Microsoft Project file format, version 2007 or later.
- **Software Application Development**
- Use the following standard Application Architecture components in compatible versions for any software application development required by this Agreement (e.g., databases, models, modeling tools), unless the CAM approves other software applications such as open source programs:
- Microsoft ASP.NET framework (version 3.5 and up). Recommend 4.0.
 - Microsoft Internet Information Services (IIS), (version 6 and up)
 - Recommend 7.5.
 - Visual Studio.NET (version 2008 and up). Recommend 2010.
 - C# Programming Language with Presentation (UI), Business Object and Data Layers.
 - SQL (Structured Query Language).
 - Microsoft SQL Server 2008, Stored Procedures. Recommend 2008
 - R2.
 - Microsoft SQL Reporting Services. Recommend 2008 R2.
 - XML (external interfaces).

Any exceptions to the Electronic File Format requirements above must be approved in writing by the CAM. The CAM will consult with the Energy Commission's Information Technology Services Branch to determine whether the exceptions are allowable.

MEETINGS

Subtask 1.2 Kick-off Meeting

The goal of this subtask is to establish the lines of communication and procedures for implementing this Agreement.

The Recipient shall:

- Attend a "Kick-off" meeting with the CAM, the Commission Agreement Officer (CAO), and any other Energy Commission staff relevant to the Agreement. The Recipient will bring its Project Manager and any other individuals designated by the CAM to this meeting. The administrative and technical aspects of the Agreement will be discussed at the meeting. Prior to the meeting, the CAM will provide an agenda to all potential meeting participants. The meeting may take place in person or by electronic conferencing (e.g., WebEx), with approval of the CAM.

The administrative portion of the meeting will include discussion of the following:

- Terms and conditions of the Agreement;
- Administrative products (subtask 1.1);
- CPR meetings (subtask 1.3);
- Match fund documentation (subtask 1.7);
- Permit documentation (subtask 1.8);
- Subcontracts (subtask 1.9); and
- Any other relevant topics.

EXHIBIT A

Scope of Work

The technical portion of the meeting will include discussion of the following:

- The CAM's expectations for accomplishing tasks described in the Scope of Work;
 - An updated Project Schedule;
 - Technical products (subtask 1.1);
 - Progress reports and invoices (subtask 1.5);
 - Final Report (subtask 1.6);
 - Technical Advisory Committee meetings (subtasks 1.10 and 1.11);
 - Technology/Knowledge Transfer (Task 7); *and* Any other relevant topics.
- Provide an *Updated Project Schedule*, *List of Match Funds*, and *List of Permits*, as needed to reflect any changes in the documents.

The CAM shall:

- Designate the date and location of the meeting.
- Send the Recipient a *Kick-off Meeting Agenda*.

Recipient Products:

- Updated Project Schedule (if applicable)
- Updated List of Match Funds (if applicable)
- Updated List of Permits (if applicable)

CAM Product:

- Kick-off Meeting Agenda

Subtask 1.3 Critical Project Review (CPR) Meetings

The goal of this subtask is to determine if the project should continue to receive Energy Commission funding, and if so whether any modifications must be made to the tasks, products, schedule, or budget. CPR meetings provide the opportunity for frank discussions between the Energy Commission and the Recipient. As determined by the CAM, discussions may include project status, challenges, successes, advisory group findings and recommendations, final report preparation, and progress on technical transfer and production readiness activities (if applicable). Participants will include the CAM and the Recipient, and may include the CAO and any other individuals selected by the CAM to provide support to the Energy Commission.

CPR meetings generally take place at key, predetermined points in the Agreement, as determined by the CAM and as shown in the Task List on page 1 of this Exhibit. However, the CAM may schedule additional CPR meetings as necessary. The budget will be reallocated to cover the additional costs borne by the Recipient, but the overall Agreement amount will not increase. CPR meetings generally take place at the Energy Commission, but they may take place at another location, or may be conducted via electronic conferencing (e.g., WebEx) as determined by the CAM.

The Recipient shall:

- Prepare a *CPR Report* for each CPR meeting that: (1) discusses the progress of the Agreement toward achieving its goals and objectives; and (2) includes recommendations and conclusions regarding continued work on the project.

EXHIBIT A

Scope of Work

- Submit the CPR Report along with any other *Task Products* that correspond to the technical task for which the CPR meeting is required (i.e., if a CPR meeting is required for Task 2, submit the Task 2 products along with the CPR Report).
- Attend the CPR meeting.
- Present the CPR Report and any other required information at each CPR meeting.

The CAM shall:

- Determine the location, date, and time of each CPR meeting with the Recipient's input.
- Send the Recipient a *CPR Agenda* and a *List of Expected CPR Participants* in advance of the CPR meeting. If applicable, the agenda will include a discussion of match funding and permits.
- Conduct and make a record of each CPR meeting. Provide the Recipient with a *Schedule for Providing a Progress Determination* on continuation of the project.
- Determine whether to continue the project, and if so whether modifications are needed to the tasks, schedule, products, or budget for the remainder of the Agreement. If the CAM concludes that satisfactory progress is not being made, this conclusion will be referred to the Deputy Director of the Energy Research and Development Division.
- Provide the Recipient with a *Progress Determination* on continuation of the project, in accordance with the schedule. The Progress Determination may include a requirement that the Recipient revise one or more products.

Recipient Products:

- CPR Report(s)
- Task Products (draft and/or final as specified in the task)

CAM Products:

- CPR Agenda
- List of Expected CPR Participants
- Schedule for Providing a Progress Determination
- Progress Determination

Subtask 1.4 Final Meeting

The goal of this subtask is to complete the closeout of this Agreement.

The Recipient shall:

- Meet with Energy Commission staff to present project findings, conclusions, and recommendations. The final meeting must be completed during the closeout of this Agreement. This meeting will be attended by the Recipient and CAM, at a minimum. The meeting may occur in person or by electronic conferencing (e.g., WebEx), with approval of the CAM.

The technical and administrative aspects of Agreement closeout will be discussed at the meeting, which may be divided into two separate meetings at the CAM's discretion.

- The technical portion of the meeting will involve the presentation of findings, conclusions, and recommended next steps (if any) for the Agreement. The CAM will determine the appropriate meeting participants.
- The administrative portion of the meeting will involve a discussion with the CAM and the CAO of the following Agreement closeout items:
 - Disposition of any state-owned equipment.

EXHIBIT A

Scope of Work

- Need to file a Uniform Commercial Code Financing Statement (Form UCC-1) regarding the Energy Commission's interest in patented technology.
- The Energy Commission's request for specific "generated" data (not already provided in Agreement products).
- Need to document the Recipient's disclosure of "subject inventions" developed under the Agreement.
- "Surviving" Agreement provisions such as repayment provisions and confidential products.
- Final invoicing and release of retention.
- Prepare a *Final Meeting Agreement Summary* that documents any agreement made between the Recipient and Commission staff during the meeting.
- Prepare a *Schedule for Completing Agreement Closeout Activities*.
- Provide *All Draft and Final Written Products* on a CD-ROM or USB memory stick, organized by the tasks in the Agreement.

Products:

- Final Meeting Agreement Summary (if applicable)
- Schedule for Completing Agreement Closeout Activities
- All Draft and Final Written Products

REPORTS AND INVOICES

Subtask 1.5 Progress Reports and Invoices

The goals of this subtask are to: (1) periodically verify that satisfactory and continued progress is made towards achieving the project objectives of this Agreement; and (2) ensure that invoices contain all required information and are submitted in the appropriate format.

The Recipient shall:

- Submit a monthly *Progress Report* to the CAM. Each progress report must:
 - Summarize progress made on all Agreement activities as specified in the scope of work for the preceding month, including accomplishments, problems, milestones, products, schedule, fiscal status, and an assessment of the ability to complete the Agreement within the current budget and any anticipated cost overruns. See the Progress Report Format Attachment for the recommended specifications.
- Submit a monthly or quarterly *Invoice* that follows the instructions in the "Payment of Funds" section of the terms and conditions, including a financial report on Match Fund and in-state expenditures.

Products:

- Progress Reports
- Invoices

Subtask 1.6 Final Report

The goal of this subtask is to prepare a comprehensive Final Report that describes the original purpose, approach, results, and conclusions of the work performed under this Agreement. The CAM will review the Final Report, which will be due at least **two months** before the Agreement

EXHIBIT A

Scope of Work

end date. When creating the Final Report Outline and the Final Report, the Recipient must use the Style Manual provided by the CAM.

Subtask 1.6.1 Final Report Outline

The Recipient shall:

- Prepare a *Final Report Outline* in accordance with the *Style Manual* provided by the CAM. (See Task 1.1 for requirements for draft and final products.)

Recipient Products:

- Final Report Outline (draft and final)

CAM Product:

- Style Manual
- Comments on Draft Final Report Outline
- Acceptance of Final Report Outline

Subtask 1.6.2 Final Report

The Recipient shall:

- Prepare a *Final Report* for this Agreement in accordance with the approved Final Report Outline, Style Manual, and Final Report Template provided by the CAM with the following considerations:
 - Ensure that the report includes the following items, in the following order:
 - Cover page **(required)**
 - Credits page on the reverse side of cover with legal disclaimer **(required)**
 - Acknowledgements page (optional)
 - Preface **(required)**
 - Abstract, keywords, and citation page **(required)**
 - Table of Contents (required, followed by List of Figures and List of Tables, if needed)
 - Executive summary **(required)**
 - Body of the report **(required)**
 - References (if applicable)
 - Glossary/Acronyms (If more than 10 acronyms or abbreviations are used, it is required.)
 - Bibliography (if applicable)
 - Appendices (if applicable) (Create a separate volume if very large.)
 - Attachments (if applicable)
 - Ensure that the document is written in the third person.
 - Ensure that the Executive Summary is understandable to the lay public.
 - Briefly summarize the completed work. Succinctly describe the project results and whether or not the project goals were accomplished.
 - Identify which specific ratepayers can benefit from the project results and how they can achieve the benefits.
 - If it's necessary to use a technical term in the Executive Summary, provide a brief definition or explanation when the technical term is first used.
 - Follow the Style Guide format requirements for headings, figures/tables, citations, and acronyms/abbreviations.
 - Ensure that the document omits subjective comments and opinions. However, recommendations in the conclusion of the report are allowed.
 - Include a brief description of the project results in the Abstract.

EXHIBIT A

Scope of Work

- Submit a draft of the report to the CAM for review and comment. The CAM will provide written comments to the Recipient on the draft product within 15 days of receipt
- Consider incorporating all CAM comments into the Final Report. If the Recipient disagrees with any comment, provide a written response explaining why the comment was not incorporated into the final product
- Submit the revised Final Report and responses to comments within 10 days of notice by the CAM, unless the CAM specifies a longer time-period or approves a request for additional time.
- Submit one bound copy of the *Final Report* to the CAM along with *Written Responses to Comments on the Draft Final Report*.

Products:

- Final Report (draft and final)
- Written Responses to Comments on the Draft Final Report

CAM Product:

- Written Comments on the Draft Final Report

MATCH FUNDS, PERMITS, AND SUBCONTRACTS

Subtask 1.7 Match Funds

The goal of this subtask is to ensure that the Recipient obtains any match funds planned for this Agreement and applies them to the Agreement during the Agreement term.

While the costs to obtain and document match funds are not reimbursable under this Agreement, the Recipient may spend match funds for this task. The Recipient may only spend match funds during the Agreement term, either concurrently or prior to the use of Energy Commission funds. Match funds must be identified in writing, and the Recipient must obtain any associated commitments before incurring any costs for which the Recipient will request reimbursement.

The Recipient shall:

- Prepare a *Match Funds Status Letter* that documents the match funds committed to this Agreement. If no match funds were part of the proposal that led to the Energy Commission awarding this Agreement and none have been identified at the time this Agreement starts, then state this in the letter.

If match funds were a part of the proposal that led to the Energy Commission awarding this Agreement, then provide in the letter:

- A list of the match funds that identifies:
 - The amount of cash match funds, their source(s) (including a contact name, address, and telephone number), and the task(s) to which the match funds will be applied.
 - The amount of each in-kind contribution, a description of the contribution type (e.g., property, services), the documented market or book value, the source (including a contact name, address, and telephone number), and the task(s) to which the match funds will be applied. If the in-kind contribution is equipment or other tangible or real property, the Recipient must identify its owner and provide a contact name, address, telephone number, and the address where the property is located.

EXHIBIT A

Scope of Work

- If different from the solicitation application, provide a letter of commitment from an authorized representative of each source of match funding that the funds or contributions have been secured.
- At the Kick-off meeting, discuss match funds and the impact on the project if they are significantly reduced or not obtained as committed. If applicable, match funds will be included as a line item in the progress reports and will be a topic at CPR meetings.
- Provide a *Supplemental Match Funds Notification Letter* to the CAM of receipt of additional match funds.
- Provide a *Match Funds Reduction Notification Letter* to the CAM if existing match funds are reduced during the course of the Agreement. Reduction of match funds may trigger a CPR meeting.

Products:

- Match Funds Status Letter
- Supplemental Match Funds Notification Letter (if applicable)
- Match Funds Reduction Notification Letter (if applicable)

Subtask 1.8 Permits

The goal of this subtask is to obtain all permits required for work completed under this Agreement in advance of the date they are needed to keep the Agreement schedule on track. Permit costs and the expenses associated with obtaining permits are not reimbursable under this Agreement, with the exception of costs incurred by University of California recipients. Permits must be identified and obtained before the Recipient may incur any costs related to the use of the permit(s) for which the Recipient will request reimbursement.

The Recipient shall:

- Prepare a *Permit Status Letter* that documents the permits required to conduct this Agreement. If no permits are required at the start of this Agreement, then state this in the letter. If permits will be required during the course of the Agreement, provide in the letter:
 - A list of the permits that identifies: (1) the type of permit; and (2) the name, address, and telephone number of the permitting jurisdictions or lead agencies.
 - The schedule the Recipient will follow in applying for and obtaining the permits.

The list of permits and the schedule for obtaining them will be discussed at the Kick-off meeting (subtask 1.2), and a timetable for submitting the updated list, schedule, and copies of the permits will be developed. The impact on the project if the permits are not obtained in a timely fashion or are denied will also be discussed. If applicable, permits will be included as a line item in progress reports and will be a topic at CPR meetings.

- If during the course of the Agreement additional permits become necessary, then provide the CAM with an *Updated List of Permits* (including the appropriate information on each permit) and an *Updated Schedule for Acquiring Permits*.
- Send the CAM a *Copy of Each Approved Permit*.
- If during the course of the Agreement permits are not obtained on time or are denied, notify the CAM within 5 days. Either of these events may trigger a CPR meeting.

Products:

- Permit Status Letter
- Updated List of Permits (if applicable)
- Updated Schedule for Acquiring Permits (if applicable)

EXHIBIT A

Scope of Work

- Copy of Each Approved Permit (if applicable)

Subtask 1.9 Subcontracts

The goals of this subtask are to: (1) procure subcontracts required to carry out the tasks under this Agreement; and (2) ensure that the subcontracts are consistent with the terms and conditions of this Agreement.

The Recipient shall:

- Manage and coordinate subcontractor activities in accordance with the requirements of this Agreement. Incorporate this Agreement by reference into each subcontract.
- Include any required Energy Commission flow-down provisions in each subcontract, in addition to a statement that the terms of this Agreement will prevail if they conflict with the subcontract terms.
- If required by the CAM, submit a draft of each *Subcontract* required to conduct the work under this Agreement.
- Submit a final copy of the executed subcontract.
- Notify and receive written approval from the CAM prior to adding any new subcontractors (see the discussion of subcontractor additions in the terms and conditions).

Products:

- Subcontracts (draft if required by the CAM)

TECHNICAL ADVISORY COMMITTEE

Subtask 1.10 Technical Advisory Committee (TAC)

The goal of this subtask is to create an advisory committee for this Agreement. The TAC should be composed of diverse professionals. The composition will vary depending on interest, availability, and need. TAC members will serve at the CAM's discretion. The purpose of the TAC is to:

- Provide guidance in project direction. The guidance may include scope and methodologies, timing, and coordination with other projects. The guidance may be based on:
 - Technical area expertise;
 - Knowledge of market applications; or
 - Linkages between the agreement work and other past, present, or future projects (both public and private sectors) that TAC members are aware of in a particular area.
- Review products and provide recommendations for needed product adjustments, refinements, or enhancements.
- Evaluate the tangible benefits of the project to the state of California, and provide recommendations as needed to enhance the benefits.
- Provide recommendations regarding information dissemination, market pathways, or commercialization strategies relevant to the project products.

The TAC may be composed of qualified professionals spanning the following types of disciplines:

- Researchers knowledgeable about the project subject matter;
- Members of trades that will apply the results of the project (e.g., designers, engineers, architects, contractors, and trade representatives);
- Public interest market transformation implementers;
- Product developers relevant to the project;

EXHIBIT A

Scope of Work

- U.S. Department of Energy research managers, or experts from other federal or state agencies relevant to the project;
- Public interest environmental groups;
- Utility representatives;
- Air district staff; and
- Members of relevant technical society committees.

The Recipient shall:

- Prepare a *List of Potential TAC Members* that includes the names, companies, physical and electronic addresses, phone numbers of potential members, a summary of relevant experience and potential value to the project. The list will be discussed at the Kick-off meeting, and a schedule for recruiting members and holding the first TAC meeting will be developed.
- Recruit TAC members. Ensure that each individual understands member obligations and the TAC meeting schedule developed in subtask 1.11.
- Prepare a *List of TAC Members* once all TAC members have committed to serving on the TAC.
- Submit *Documentation of TAC Member Commitment* (such as Letters of Acceptance) from each TAC member.

Products:

- List of Potential TAC Members
- List of TAC Members
- Documentation of TAC Member Commitment

Subtask 1.11 TAC Meetings

The goal of this subtask is for the TAC to provide strategic guidance for the project by participating in regular meetings, which may be held via teleconference.

The Recipient shall:

- Discuss the TAC meeting schedule with the CAM at the Kick-off meeting. Determine the number and location of meetings (in-person and via teleconference) in consultation with the CAM.
- Prepare a *TAC Meeting Schedule* that will be presented to the TAC members during recruiting. Revise the schedule after the first TAC meeting to incorporate meeting comments.
- Prepare a *TAC Meeting Agenda* and *TAC Meeting Back-up Materials* for each TAC meeting.
- Organize and lead TAC meetings in accordance with the TAC Meeting Schedule. Changes to the schedule must be pre-approved in writing by the CAM.
- Prepare *TAC Meeting Summaries* that include any recommended resolutions of major TAC issues.

Products:

- TAC Meeting Schedule (draft and final)
- TAC Meeting Agendas (draft and final)
- TAC Meeting Back-up Materials
- TAC Meeting Summaries

EXHIBIT A

Scope of Work

IV. TECHNICAL TASKS

Products that require a draft version are indicated by marking “(draft and final)” after the product name in the “Products” section of the task/subtask. If “(draft and final)” does not appear after the product name, only a final version of the product is required. **Subtask 1.1 (Products)** describes the procedure for submitting products to the CAM.

TASK 2 MICROGRID DESIGN

The goal of this task is to design the microgrid. This includes preliminary assessment and design, as well as (1) system design modeling; (2) completion of final designs for lighting conversion, roof retrofits, electrical infrastructure upgrades, solar photovoltaic (PV) system, and battery storage system; (3) microgrid integration; (4) third party review of designs; and (5) obtain necessary permits from the City of San Diego and SDG&E for Rule 21 compliance.

The Recipient shall:

- Prepare and provide a *System Modeling and Optimization Presentation* to include, but not be limited to:
 - Identification of system loads
 - Identification of different DER mixes and battery sizes to optimize interruption, investment, and utility costs
 - Identification of different battery operation strategies
 - Identification of reliability benefits during power outages
 - Modeling results
- Prepare and provide a *Cyber Security Architecture Assessment* to include:
 - Cyber security architecture for the microgrid based on a high-level risk assessment. The risk assessment process will involve: identifying key assets, characterizing potential threats, assessing vulnerabilities and their impact, assessing threat likelihood, determining risk, and recommending security controls. Key findings will be documented in a *Cyber Security Architecture Assessment*.
- Prepare and provide a *Microgrid Design and Engineering Presentation* to include a summary of the 100% design documents. Designs will include but not be limited to:
 - High mast lighting conversion from high pressure sodium (HPS) to light emitting diode (LED) fixtures.
 - Roof retrofits to support a solar PV system with a design life of 25 years.
 - Upgrades to the 12-kV distribution system required to support microgrid functionality, including:
 - The primary switchgear at the point of interconnection with SDG&E will be modified to provide the necessary protection schemes for SDG&E’s Rule 21 interconnection requirements.
 - An existing, vault-mounted sectionalizing switch will be replaced to provide a connection point to the 12-kV distribution system.
 - A new, 480V switchboard will be provided to connect the solar PV and energy storage systems.
 - Microgrid component integration, including:
 - Rooftop solar PV system to meet lighting, security, warehouse, dry bulk, and fuel storage facility loads.
 - Battery storage system.
 - Centralized microgrid controller that will monitor the state of the 12-kV system.
 - Complete microgrid integration to meet needs for grid-tied and islanded modes of operation.

EXHIBIT A

Scope of Work

- Prepare and produce a *Microgrid Design Review Presentation* to summarize:
 - Independent third-party reviews of the microgrid design to confirm that the microgrid designs are optimized for use cases.
- Prepare a CPR Report #1 in accordance with subtask 1.3 (CPR Meetings)
- Participate in a CPR Meeting #1.

Products:

- System Modeling and Optimization Presentation
- Cyber Security Architecture Assessment (draft and final)
- Microgrid Design and Engineering Presentation
- Microgrid Design Review Presentation
- CPR Report #1

TASK 3 MICROGRID CONSTRUCTION

The goal of this task is to construct the microgrid, inclusive of energy efficiency upgrades and improvements to supporting infrastructure, as well as to install and commission the microgrid. Construction contracts may be entered following the appropriate public selection process(es).

The Recipient shall:

- Install the microgrid per the final engineering documentation completed in Task 2, including the *System Modeling and Optimization Presentation*, *Cyber Security Architecture Assessment*, *Microgrid Design and Engineering Presentation*, and *Microgrid Design Review Presentation*.
- . The microgrid installation will include, but is not limited to:
 - Convert lights from HPS to LED.
 - Retrofit and reroof warehouse to provide a roof capable of supporting a PV system, with a minimum life of 25 years.
 - Upgrade the following electrical infrastructure serving the District's 12-kV system:
 - The primary switchgear at the point of interconnection with SDG&E will be modified to provide the necessary protection schemes for SDG&E's Rule 21 interconnection requirements.
 - An existing, vault-mounted sectionalizing switch will be replaced to provide a connection point to the 12-kV distribution system.
 - A new, 480 V switchboard will be provided to connect the solar PV and energy storage systems.
 - A new 1,000-kVA pad-mounted transformer will be installed.
 - New duct bank will be installed to provide connection point to the 12-kV distribution system.
 - Enter into a PPA to purchase energy generated by the solar PV system.
 - Install solar PV system on the warehouse.
 - Install battery storage system adjacent to the warehouse.
 - Install a centralized microgrid controller.
- Provide *CAM Pictures of Installed Microgrid Equipment* with name plate capacities in *Progress Report*.
- Prepare and provide a *Commissioning Presentation* to summarize the commissioning of the microgrid in both grid-tied and islanded modes of operation. The commissioning will include:

EXHIBIT A

Scope of Work

- Conduct a final walkthrough to ensure the installation is in accordance with a licensed engineer's final design, and any documentation to ensure that the installed system meets all federal, state, local, and any applicable code requirements.
- Work with the PPA provider to test the desired sequences of operation for the electrical monitoring and control system.
- Optimization of load shifting/peak shaving, demand response, and islanded operations. The results of the commissioning effort will be documented in the *Commissioning Presentation*.
- Obtain *Rule 21 Permit to Operate* from SDG&E to demonstrate interconnection approval and provide a copy to the CAM
- Prepare a CPR Report #2 in accordance with subtask 1.3 (CPR Meetings)
- Participate in a CPR Meeting #2.

Products:

- Commissioning Presentation
- Copy of Rule 21 Permit to Operate
- CPR Report #2

TASK 4 OPERATION AND MAINTENANCE

The goal of this task is to arrange for and coordinate the long-term operation and maintenance of the microgrid system to maximize the benefits the District receives from the microgrid.

The Recipient shall:

- Operate and maintain the microgrid system. This includes establishment of operational and performance metrics under grid-tied and islanded modes of operation.
- Develop an *Operations and Maintenance Manual* containing relevant information for each microgrid component.
- Train facilities staff and first responders on system operations and safety features.
- Maintain all other components of the terminal's electrical infrastructure to support terminal and microgrid operations.

Products:

- Operation and Maintenance Manual (draft and final)

TASK 5 FIELD TESTING AND EVALUATION

The goal of this task is to perform field testing and evaluation of the microgrid functionality with a focus on the project's four DER elements.

The Recipient shall:

- Develop a *Measurement and Verification Plan*. The plan will assess: (1) energy efficiency savings, (2) solar + storage operational and financial performance, (3) islanded operations performance, (4) demand response financial performance, and (5) installation issues, microgrid performance and operational constraints, and ability of the system to respond to grid emergencies. The plan will include, but is not limited to:
 - Description of the systems to be tested
 - Description of the data collection methodology, including:
 - Data collection protocols
 - Data collection schedule

EXHIBIT A

Scope of Work

- Field demonstration of islanded operations, including:
 - Duration of simulated islanded operation
 - Environmental conditions
 - Target operational loads
- Justification for the tests
- Information storage and retention plan
- Expected performance
- Plans for documentation of technical, environmental and economic data, including, but not limited to:
 - Installation issues
 - Operational constraints
 - Operational performance, including duration of islanded mode capability
 - Response to grid emergencies.
 - Parameters that will measure and document successes, lessons learned, and best practices for the above.
- Description of a measurement and verification plan that includes, but is not limited to:
 - Energy Efficiency (EE) to measure before and after EE for the quantification of actual kW/kWh saved.
 - Demand Response (DR) including, but is not limited to:
 - kW/kWh provided when DR is used
 - Definition of how the DR is used; the services provided by the microgrid; and the proposed value provided for these microgrid load services
 - The values of integrated services and how the services can be verified, measured and valued
 - DR event performance information from the IOU or CA ISO for any DR services provided
- Collect data on the operational benefits of the microgrid monthly over the 12-month demonstration period, or other term approved by CAM in writing, per the *Measurement and Verification Plan*, including:
 - **Annual electricity savings:** The primary driver of end user energy reductions at the terminal will be the conversion of lighting from HPS to LED fixtures. Baseline annual energy usage prior to lighting conversion will be compared to usage following conversion and optimization.
 - **GHG emission reductions:** GHG emissions reductions will be calculated based on reductions in energy use from efficiency measures as well as the difference in the percentage of renewable energy powering the terminal from the solar PV and energy storage system as compared to that of SDG&E provided power.
 - **Energy cost reductions:** Modeled projections of energy costs will be compared to the Port's actual utility bills and PPA costs. The PPA provider will perform this assessment and provide a report to the Port monthly to document energy cost reductions.
 - **Peak load reduction and shifting:** Financial benefits of energy storage use optimization will be evaluated under peak shaving and load shifting scenarios.
 - **Net load shape (duck curve mitigation):** Net load shape will be modeled for a solar PV only installation and for solar + storage installation to assess the potential for the project to mitigate the duck curve. This baseline analysis will be used to evaluate actual performance and usage of the system during the evaluation period.

EXHIBIT A

Scope of Work

- **Security and safety:** Although the primary purpose of the microgrid is energy security, it is critical that the microgrid not introduce new vulnerabilities to the terminal. A cyber security assessment in collaboration with the District's Information Technology team will be conducted.
- Provide monthly *Microgrid Data Reports* to the CAM on field data collected for the one-year testing and evaluation period, or the term approved by the CAM in writing, that includes, but is not limited to:
 - Technical data
 - Operational data
 - Economic data
 - Environmental data
 - Other areas as determined by the CAM
- Provide a *Final Measurement and Verification Report* at the conclusion of the one-year testing and evaluation period.
- Perform ongoing monitoring of system performance, including solar output, battery state of charge, and cost reductions, using an automated system to quantify expected microgrid benefits for the life of the PPA.
- For 3 years beyond the term end date of this Agreement, deliver the following to the Energy Commission annually:
 - A confirmation that the microgrid system is operating
 - Any available summary performance data, benefits, or other relevant summary data reports that can be easily provided based on the data collecting systems installed.

Products:

- Measurement and Verification Plan (draft and final)
- Microgrid Data Reports
- Final Measurement and Verification Report (draft and final)

TASK 6 EVALUATION OF PROJECT BENEFITS

The goal of this task is to report the benefits resulting from this project.

The Recipient shall:

- Complete four Project Benefits Questionnaires that correspond to four main intervals in the Agreement: (1) Kick-off Meeting Benefits Questionnaire; (2) Mid-term Benefits Questionnaire; (3) Final Meeting Benefits Questionnaire; and (4) Three Years Beyond the Term End Date Benefits Questionnaire.
- Provide all key assumptions used to estimate projected benefits, including targeted market sector (e.g., population and geographic location), projected market penetration, baseline and projected energy use and cost, operating conditions, and emission reduction calculations. Examples of information that may be requested in the questionnaires include, but not limited to:
 - Reliability, resiliency and sustainability improvements as provided by the microgrid.
 - Net impacts on the larger grid's load and load shape as provided by the microgrid.
 - GHG reductions as provided by the microgrid, compared to using the utility grid for the electricity and also GHG reductions as provided by any new energy efficiency capabilities of the microgrid project.
 - The dollar value of energy savings as provided by the microgrid, each year.
 - The dollar value of any co-benefits that may accrue to the project, each year.

EXHIBIT A

Scope of Work

- Cost savings or increments compared to business as usual, as provided by the microgrid, including but not limited to technology and installation costs, operations and maintenance, and energy use.
- Benefit metrics for each of the different DER separated by the specific DER element (e.g., the value energy storage provides to the microgrid owner/operator, the value renewables provide to the microgrid owner/operator, the value demand response services provide to the microgrid owner/operator).
- Benefit of services as provided by the microgrid to the utility grid.
- For Product Development Projects and Project Demonstrations:
 - Published documents, including date, title, and periodical name.
 - Estimated or actual energy and cost savings, and estimated statewide energy savings once market potential has been realized. Identify all assumptions used in the estimates.
 - Greenhouse gas and criteria emissions reductions.
 - Other non-energy benefits such as reliability, public safety, lower operational cost, environmental improvement, indoor environmental quality, and societal benefits.
 - Data on potential job creation, market potential, economic development, and increased state revenue as a result of the project.
 - A discussion of project product downloads from websites, and publications in technical journals.
 - A comparison of project expectations and performance. Discuss whether the goals and objectives of the Agreement have been met and what improvements are needed, if any.
 - Additional Information for Product Development Projects:
 - Outcome of product development efforts, such copyrights and license agreements.
 - Units sold or projected to be sold in California and outside of California.
 - Total annual sales or projected annual sales (in dollars) of products developed under the Agreement.
 - Investment dollars/follow-on private funding as a result of Energy Commission funding.
 - Patent numbers and applications, along with dates and brief descriptions.
 - Additional Information for Product Demonstrations:
 - Outcome of demonstrations and status of technology.
 - Number of similar installations.
 - Jobs created/retained as a result of the Agreement.
- For Information/Tools and Other Research Studies:
 - Outcome of project.
 - Published documents, including date, title, and periodical name.
 - A discussion of policy development. State if the project has been cited in government policy publications or technical journals, or has been used to inform regulatory bodies.
 - The number of website downloads.
 - An estimate of how the project information has affected energy use and cost, or have resulted in other non-energy benefits.
 - An estimate of energy and non-energy benefits.
 - Data on potential job creation, market potential, economic development, and increased state revenue as a result of project.

EXHIBIT A

Scope of Work

- A discussion of project product downloads from websites, and publications in technical journals.
- A comparison of project expectations and performance. Discuss whether the goals and objectives of the Agreement have been met and what improvements are needed, if any.
- Respond to CAM questions regarding responses to the questionnaires.

The Energy Commission may send the Recipient similar questionnaires after the Agreement term ends. Responses to these questionnaires will be voluntary.

- Prepare a *Business Case Report*. As appropriate, the report will discuss the following:
 - How the microgrid system meets the critical needs of the intended end user/operator.
 - Define why the specific configuration has a high probability of being replicated in the future without EPIC funds.
 - Other areas as determined by the CAM.

Products:

- Kick-off Meeting Benefits Questionnaire
- Mid-term Benefits Questionnaire
- Final Meeting Benefits Questionnaire
- Business Case Report (draft and final)

TASK 7 TECHNOLOGY/KNOWLEDGE TRANSFER ACTIVITIES

The goal of this task is to develop a plan to make the knowledge gained, experimental results, and lessons learned available to the public and key decision makers.

The Recipient shall:

- Prepare an *Initial Fact Sheet* at start of the project that describes the project. Use the format provided by the CAM.
- Prepare a *Final Project Fact Sheet* at the project's conclusion that discusses results. Use the format provided by the CAM.
- Prepare a *Technology/Knowledge Transfer Plan* that includes:
 - An explanation of how the knowledge gained from the project will be made available to the public, including the targeted market sector and potential outreach to end users, utilities, regulatory agencies, and others.
 - A description of the intended use(s) for and users of the project results.
 - Published documents, including date, title, and periodical name.
 - Copies of documents, fact sheets, journal articles, press releases, and other documents prepared for public dissemination. These documents must include the Legal Notice required in the terms and conditions. Indicate where and when the documents were disseminated.
 - A discussion of policy development. State if project has been or will be cited in government policy publications, or used to inform regulatory bodies.
 - The number of website downloads or public requests for project results.
 - Additional areas as determined by the CAM.
- Conduct technology transfer activities in accordance with the Technology/Knowledge Transfer Plan. These activities will be reported in the Progress Reports.

EXHIBIT A

Scope of Work

- When directed by the CAM, develop *Presentation Materials* for an Energy Commission-sponsored conference/workshop(s) on the project. Presentation materials must be approved by the CAM in writing prior to the conference/workshop(s).
- When directed by the CAM, participate in annual EPIC symposium(s) sponsored by the California Energy Commission.
- Provide at least six (6) *High Quality Digital Photographs* (minimum resolution of 1300x500 pixels in landscape ratio) of pre- and post-technology installation at the project sites or related project photographs.
- Prepare a *Technology/Knowledge Transfer Report* on technology transfer activities conducted during the project.

Products:

- Initial Fact Sheet (draft and final)
- Final Project Fact Sheet (draft and final)
- Presentation Materials (draft and final)
- High Quality Digital Photographs
- Technology/Knowledge Transfer Plan (draft and final)
- Technology/Knowledge Transfer Report (draft and final)

V. PROJECT SCHEDULE

Please see the attached Excel spreadsheet (Attachment Project Schedule).

Memorandum

To: Robert B. Weisenmiller
Karen Douglas
David Hochschild
Andrew McAllister
Janea A. Scott

Date: April 24, 2018

Telephone: (916) 327-1556

From: **Kenneth Schumann, Energy Analyst
Research and Development Division
California Energy Commission**

Subject: California Environmental Quality Act Analysis for EPC-17-049

I, Kenneth Schumann, am an Energy Analyst in the Research and Development Division, California Energy Commission, and am the Commission's Agreement Manager for proposed Agreement EPC-17-049 ("Agreement") with the San Diego Unified Port District ("District").

The project proposed under the Agreement is development of a renewable microgrid ("Renewable Microgrid Project") at the District's Tenth Avenue Marine Terminal ("TAMT"). Work will involve the construction, demonstration, and operation of a renewable microgrid to allow key elements of the TAMT to remain operational when islanded from the electrical grid.

Pursuant to my work in developing the Agreement, I have reviewed (1) the proposed agreement documents, and (2) California Environmental Quality Act ("CEQA") documents prepared by the lead agency, the District.

The first District's CEQA documents relevant to the Renewable Microgrid Project are a resolution by the District adopting the Final Environmental Impact Report (FEIR) for the TAMT Redevelopment Plan and Demolition and Initial Rail Component Project, a Statement of Overriding Considerations, a Mitigation Monitoring and Reporting Program ("MMRP"). The District also filed a Notice of Determination (NOD) for the FEIR.

The FEIR identified several significant impacts. Relevant to the Renewable Microgrid Project is Mitigation Measure – Greenhouse Gas # 6 (MM-GHG-6, discussed below in further detail), requiring the implementation of renewable energy projects or the purchase of greenhouse gas offsets in order to mitigate the increase in emissions resulting from the buildout of the TAMT plan. Even with the imposition and implementation of MM_GHG-6 there are still unavoidable significant impacts to GHGs associated with the larger TAMT redevelopment. As result, the District adopted a Statement of Overriding Considerations that found that, with respect to the TAMT redevelopment, such effects are considered acceptable because the benefits of the Sustainable Terminal Capacity ("STC") Alternative adopted by the District outweigh its unavoidable adverse environmental effects. I concur with the District's conclusions as contained in the Statement of Overriding Considerations.

With respect to the Renewable Microgrid Project proposed for funding under the agreement being considered by the Commission now, work under this proposed Agreement would satisfy MM-

GHG-6. The District's CEQA documents also include a Second Addendum to the FEIR that specifically addresses work proposed under the Renewable Microgrid Project/Agreement, a resolution by the District adopting the Second Addendum, and an NOD for the Addendum. The District has prepared the Second Addendum to the TAMT FEIR in accordance with CEQA and its implementing guidelines. Collectively with the above documents, these are the "District CEQA Documents."

The scope of work of the proposed Agreement has no omissions from, nor conflicts of information with, the District CEQA Documents.

The Second Addendum finds that development of the renewable microgrid would implement a mitigation requirement identified in the TAMT FEIR and that that the Renewable Microgrid Project would reduce greenhouse gas emissions associated with the TAMT Redevelopment Plan; that the Renewable Microgrid Project would not result in any new or more severe significant impacts or require mitigation measures not previously identified in the FEIR; that none of the conditions described in CEQA Guidelines section 15162 which would require the preparation of a subsequent EIR have occurred; and that only minor technical changes to the FEIR are necessary as a result of the proposed project, which are appropriately addressed in the Addendum to the FEIR.

More specifically, in 2016, the District adopted Resolution No. 2016-199 certifying the FEIR, adopting Findings of Fact and a Statement of Overriding Considerations, and adopting a Mitigation Monitoring and Reporting Program. The programmatic analysis of the TAMT Redevelopment Plan's Sustainable Terminal Capacity Alternative identifies "Mitigation Measure GHG-6," which requires the implementation of renewable energy projects or the purchase of greenhouse gas (GHG) offsets from a California Air Resources Board approved registry or a locally approved equivalent program. The renewable microgrid proposed under the Agreement implements a renewable energy project as identified in the mitigation measure and helps to satisfy a portion of the GHG reduction target required for plan buildout by year 2035.

The TAMT FEIR thoroughly analyzed the potential environmental effects of the TAMT Redevelopment Plan and includes extensive mitigation measures to avoid or reduce the potentially significant impacts on the environment. Although implementing a renewable energy project at TAMT was contemplated at the time the Final EIR was certified, the specific design details of the proposed Renewable Microgrid Project were not known. Now that the construction and operational details are known, the District has confirmed via the Addendum to the FEIR that the proposed renewable microgrid does not involve new or more severe significant environmental effects.

Furthermore, it is my independent and professional opinion that although the FEIR for the TAMT Redevelopment Plan identifies several significant effects, this Renewable Microgrid Project contemplated by the Agreement before the Commission would ameliorate those effects and is proposed by the District as a mitigation measure to the TAMT Redevelopment Plan. On balance there are economic, legal, social, technological or other benefits, including environmental benefits, associated with proceeding with the TAMT project and mitigation measures, sufficient to outweigh any significant unavoidable effects. This includes elimination of blight, more consistency with the District's general and redevelopment plans, job creation, and reduced GHG emissions associated with the Renewable Microgrid Project.

Based on my review and consideration of the above CEQA documents, it is my independent and professional opinion that, since the above CEQA documents have been finalized, there have been no new project changes, and no new, additional, or increased significant environmental impacts have occurred. Furthermore, I have not identified any new information which would change the conclusions of the District's CEQA documents, or render those conclusions inadequate.

It is also my independent and professional opinion that the work to be performed under the proposed Agreement falls within the scope of the District's CEQA documents, and that work under the Agreement will not result in any new significant environmental impacts and no new environmental documentation is required. I have not identified any new mitigation measures, within the Energy Commission's authority, that would lessen or further mitigate the impacts of the renewable microgrid project.

With respect to CEQA Guidelines section 15162, while the renewable microgrid design has occurred since certification of the FEIR, no new significant effects would be associated with the proposed design; no significant impacts would be substantially more severe than previously analyzed and disclosed in the FEIR; no mitigation measures or alternative previously found not to be feasible would in fact be feasible; and the mitigation measures identified in the FEIR would be the same and no new mitigation measures or alternatives have been identified that would substantially reduce one or more significant effect on the environment. Therefore, none of the conditions described in section 15162 which would require the preparation of a subsequent EIR have occurred.

The reasons for my conclusions are as follows:

The Agreement contains two main components with potential environmental impacts: construction and installation of the renewable microgrid equipment, including the retrofit of the roof at TAMT Warehouse B or Warehouse C, and operation of the renewable microgrid. Construction activities occur over a period of approximately 24 months. The construction and installation of the Renewable Microgrid includes: (1) retrofitting the roof at TAMT Warehouse B (approximately 291,000 SF in size) or Warehouse C (approximately 388,000 SF in size); (2) the retrofit of existing site lighting will involve replacing lighting fixtures with energy efficient site lighting and may result in fewer high mast lights at TAMT; (3) installing a 700 kW solar PV system on Warehouse B or Warehouse C that would be approximately between 30,000 and 60,000 SF in size; (4) installing a 700 kW/ 2,500 kWh ground-mounted battery system, consisting of one 40-foot and one 20-foot

shipping container (approximately 600 SF in area/ 8 feet in height), a new 2,500 KVA pad-mounted transformer (approximately 50 SF / 3 feet in height), and four new sections of 480V switchgear (approximately 150 SF / 5 feet in height) and (5) minor trenching and repaving (approximately 4 feet in depth and up to 300 feet in length depending upon final siting of associated equipment) to install a new duct bank that connects to the District's existing distribution system.

Transportation:

The TAMT redevelopment project considered in the FEIR by the District may result in significant impacts to transportation including delays at intersections during construction. I agree with the District's conclusion that, with respect to the TAMT redevelopment, such effects are considered acceptable because the benefits of the STC Alternative adopted by the District outweigh its unavoidable adverse environmental effects. As to the specific project now before the Commission,

i.e., the Renewable Microgrid Project, the proposed Agreement will result in short-term transportation impacts associated with overlapping construction projects. During the duration of the project the District will retain a traffic engineer, as required under MM-TRA (Traffic Study and Transportation Demand Management (TDM) for Specific Construction Projects) of the FEIR, to consider any potential transportation impacts. If the traffic study determines that the proposed construction activity may have a significant impact, it shall recommend mitigation measures to avoid or reduce the impact, which may include preparing a TDM Plan to address temporary impacts associated with construction vehicles and equipment.

Historical Resources:

The proposed Agreement will not result in any significant impacts to historical resources because neither Warehouse B or Warehouse C would be eligible for the California Register of Historical Resources as they are not an architectural masterwork, do not embody high artistic value, are not the product of an important milestone in engineering or building techniques, and are not associated with an important event or pattern of an event (*see* Part 2 of TAMT FEIR, pp. 4.4-18 to 4.4-19).

Noise/Odors:

As to the TAMT redevelopment project, there may be significant impact from construction activities within the area of the terminal. I agree with the District's conclusion that, with respect to the TAMT redevelopment, such effects are considered acceptable because the benefits of the STC Alternative adopted by the District outweigh its unavoidable adverse environmental effects. However, the Renewable Microgrid Project under the proposed Agreement will not result in noise or odors that would exceed permitted levels. Construction of the renewable microgrid would occur during a standard 8-hour, day shift (Monday through Friday), and the intermittent use of cranes, hoists, and other equipment would not exceed any noise standards. The long-term operation of the microgrid will result in no noise or odors that would exceed permitted levels.

Traffic:

The proposed Agreement will not have any significant impacts to roadway segments or intersections based on the daily roadway segment analysis identified in the FEIR (*see* Part 2 of TAMT FEIR - Table 4.10-21 p. 4.10-31). Construction of the renewable microgrid would temporarily increase traffic at the TAMT, but would not result in any significant impacts to roadway segments or intersections based on the daily roadway segment analysis identified in the FEIR. The long-term operation of the renewable microgrid would result in a nominal increase to traffic at the site, with an estimated 1 to 5 worker trips associated with the ongoing operation and maintenance of the facility. This increase in traffic is so nominal as to result in no significant impact to the environment.

Air Quality:

The proposed Agreement will result in construction-related emissions during construction, installation, trenching and repaving phases. As to the TAMT redevelopment project, project emissions could exceed significance thresholds. I agree with the District's conclusion that, with respect to the TAMT redevelopment, such effects are considered acceptable because the benefits of the STC Alternative adopted by the District outweigh its unavoidable adverse environmental effects. As to construction of the project under consideration by the Commission now, Renewable Microgrid Project will involve intermittent use of cranes and/or hoists for the roof repair and solar installations, as well as some small equipment for minor trenching for conduit and battery installation and other work. Emissions associated with this equipment would not exceed any federal or state air quality standard, nor would construction of the project contribute substantially to non-attainment criteria pollutants identified for the San Diego region (Part 2 of TAMT Final EIR pg. 4.2-38 to 4.2-45).

Soil Contamination:

The proposed Agreement will not create a significant hazard to the public or the environment. By requiring compliance with the TAMT Soil Management Plan and implementing engineering controls and best management practices, impacts would be less than significant. Furthermore, the trenching associated with the renewable microgrid would be approximately 4 to 6-feet in depth and it is unlikely hazardous substances would be encountered given the relatively shallow depth of the trenching.

Aesthetics:

Technological requirements concerning the size and structure of new gantry cranes for the TAMT redevelopment make infeasible mitigation measures or alternatives to substantially lessen the visual impact of the cranes. While the changes as a result of the TAMT are consistent with the industrial character of the terminal area, there would be unavoidable significant visual impacts. I agree with the District's conclusion that, with respect to the TAMT redevelopment, such effects are considered acceptable because the benefits of the STC Alternative adopted by the District outweigh its unavoidable adverse environmental effects. The Renewable Microgrid Project will have no significant impacts on aesthetics.

Mitigation Measure GHG-6:

The TAMT FEIR identifies Mitigation Measure GHG-6, which requires renewable energy to be incorporated within the TAMT to help reduce GHG emissions associated with increased cargo throughput anticipated over the next 20-years. The proposed Agreement will (1) convert high-mast high pressure sodium (HPS) lights to energy efficient lighting to reduce electricity loads; and (2) provide an approximately 700-kW / 2,500- kWh lithium ion battery energy storage system that creates solar generation shifting capabilities and backup power to the terminal, which will contribute to the State's energy goals and reduce GHG emissions. Therefore, this Agreement will not result in any new or more significant impacts than were analyzed in the FEIR.

(59)

San Diego Unified Port District
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SECOND ADDENDUM TO

FINAL ENVIRONMENTAL IMPACT REPORT

(SCH #2015-031046; UPD #EIR-2015-39)

TENTH AVENUE MARINE TERMINAL REDEVELOPMENT PLAN

AND DEMOLITION AND INITIAL RAIL COMPONENT

IMPLEMENTATION AND INSTALLATION OF A

RENEWABLE MICROGRID

AT THE TENTH AVENUE MARINE TERMINAL

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1.0 INTRODUCTION

This is the Second Addendum to the Final Environmental Impact Report (Final EIR) for the Tenth Avenue Marine Terminal (TAMT) Redevelopment Plan and Demolition and Initial Rail Component Project (Project) (SCH# 2015-031046; UPD# EIR-2015-39). The Final EIR addressed all of the potential environmental effects of the Project, which included impacts related to long-term buildout of the TAMT Redevelopment Plan (2035 horizon year), as well as project-level impacts related to the Demolition and Initial Rail Component Project, which is scheduled to be completed in early 2020.

This Second Addendum addresses implementation of one of the mitigation measures identified in the Final EIR to reduce greenhouse gas emissions associated with the TAMT Redevelopment Plan. Referred to as “Mitigation Measure GHG-6,” this measure requires the implementation of renewable energy projects or the purchase of greenhouse gas (GHG) offsets from a California Air Resources Board approved registry or a locally approved equivalent program which will achieve an annual reduction of 18,206 MTCO_{2e} by full buildout of the TAMT Redevelopment Plan in 2035. This Second Addendum was prepared pursuant to the California Environmental Quality Act (CEQA) and its implementing guidelines (CEQA Guidelines). CEQA Guidelines Section 15164 provides that a lead agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in CEQA Guidelines Section 15162 calling for the preparation of a subsequent EIR have occurred.

The San Diego Unified Port District (District) is the lead agency for the TAMT Project, which includes a variety of infrastructure investments that may be undertaken over the long term to accommodate an increase the TAMT’s capabilities and capacity. On December 13, 2016, the District took the following actions:

- Certified the Final EIR, Resolution No. 2016-199;
- Adopted the Sustainable Terminal Capacity Scenario and the “Tenth Avenue Marine Terminal Redevelopment Plan” prepared by Vickerman & Associates, LLC and amended by staff, Resolution No. 2016-200; and
- Authorized issuance of non-appealable Coastal Development Permit No. 2016-09 for the Project, that includes demolition of transit sheds 1 and 2, completion of initial rail improvements, and the completion of other site improvements, Resolution No. 2016-201.

In May 2017, the final engineering design work for Phase I of the Demolition and Initial Rail Component Project was completed and resulted in an increase of onsite, above-grade improvements. In particular, the proposed updated Project includes approximately 7,630

square feet (SF) of above-grade improvements, which is 2,348 SF larger than the improvements proposed by the original Project. District staff conducted additional environmental analysis on the project-level design changes and concluded that the updated Project did not meet any of the conditions calling for the preparation of a subsequent EIR or a supplemental EIR, as described in Sections 15162 or 15163, and therefore, prepared an Addendum to the TAMT Final EIR. On July 11, 2017, the District took the following actions:

- Certified the Addendum to the Final EIR, Resolution No. 2017-100; and
- Authorized an Amendment to the non-appealable Coastal Development Permit No. 2016-09 for the Demolition and Initial Rail Component Project, Resolution No. 2017-101.

The TAMT Final EIR identifies several mitigation measures that must be implemented over the life of the Redevelopment Plan (horizon year 2035) to address significant and unavoidable impacts related to the Project. One of these mitigation measures is Mitigation Measure GHG-6, which requires the implementation of renewable energy projects or the purchase of greenhouse gas (GHG) offsets from a California Air Resources Board approved registry or a locally approved equivalent program for future operations associated with the TAMT Redevelopment Plan. More specifically, Mitigation Measure GHG-6 requires an annual reduction of 18,206 MTCO_{2e} by Plan Buildout in 2035.¹ This mitigation requirement can be satisfied by implementing a renewable energy project (either within the District's jurisdiction or within the adjacent community, such as the City of San Diego), purchasing GHG offsets, or any combination of these two options. The District proposes to satisfy a portion of this requirement by installing a Renewable Microgrid on the TAMT that includes the installation and subsequent use of solar panels on the roof of Warehouse B or Warehouse C, an energy storage system, energy efficiency improvements, and electrical infrastructure upgrades. At this time, the installation of a Renewable Microgrid at TAMT is expected to result in a reduction of 361 MTCO_{2e} annually, which would fulfill approximately 2% of the TAMT's Redevelopment Plan's Final EIR requirement for the 2035 buildout year². The District is recommending the Board adopt this Second Addendum to the TAMT Final EIR in order to implement the Renewable Microgrid.

¹ Please note that the TAMT Final EIR requires an 18,206 MTCO_{2e} annual metric ton reduction under the Sustainable Terminal Capacity (STC) Scenario at Plan Buildout in 2035, which was the Project Alternative approved by the Board of Port Commissioners on December 13, 2016.

² Greenhouse Gas Emission (or CO_{2e}) reductions are calculated by estimating the number of kilowatt hours that would be reduced, based on the overall composition of the electrical grid that was identified in the Final EIR's baseline analysis. Therefore, the 361 MTCO_{2e} reduction assumed in this analysis is based on the SDG&E electrical grid composition that was in place during the Final EIR's baseline, which averaged the 2013 renewable portfolio

2.0 THE PREVIOUSLY CERTIFIED EIR AND FIRST ADDENDUM.

On December 13, 2016, the District adopted Resolution No. 2016-199, which certified the Final EIR and adopted a Mitigation Monitoring and Reporting Program (MMRP). On December 14, 2016, the District filed a Notice of Determination with the County Clerk of San Diego County and the State Office of Planning and Research. No lawsuits were filed concerning the District's certification of the Final EIR and therefore, pursuant to Public Resources Code section 21167.2, the Final EIR is conclusively presumed to comply with CEQA.

On July 11, 2017, the District adopted Resolution No. 2017-0144 which adopted the First Addendum to the Final EIR that modified the design of the Project based on the final engineering design work for Project Phase 1 that was completed in May 2017. On July 12, 2017, the District filed a Notice of Determination with the County Clerk of San Diego County and the State Office of Planning and Research.

Copies of the Final EIR, the MMRP and the First Addendum are available on the District's website (www.portofsandiego.org) and can be viewed during normal business hours at the office of the Office of the District Clerk located at 3165 Pacific Highway, San Diego, CA 92101. The Final EIR's Mitigation Monitoring and Reporting Program (MMRP) is provided as Attachment 1.

3.0 ENVIRONMENTAL ANALYSIS.

The Final EIR thoroughly analyzed the potential environmental effects of the Project and recommended extensive mitigation measures to avoid or reduce the Project's potential significant impacts on the environment. The mitigation measures adopted by the Board when it certified the Final EIR, including Mitigation Measure GHG-6, are set forth in the MMRP. Based on preliminary estimates, Warehouse B has the capacity to support approximately 3.1 megawatts of solar photovoltaic (PV). Available areas identified on Warehouse C have the capacity to support approximately 1 megawatt³ of solar PV. At this time therefore, the District is proposing to implement the Renewable Microgrid described

standard of 24% with the 2014 renewable portfolio standard of 32.2%. This yields an estimate of approximately 28.1% renewable resources, with a conversion rate of 699.5 pounds per megawatt hour. The Renewable Microgrid reductions are attributed to the use of 100% renewable energy and battery storage which provide a net annual energy reduction of approximately 858,000 kWh (272.23 MT CO₂e) and reduction in energy consumption through lighting energy efficiency measures of approximately 280,000 kWh (88.84 tons of CO₂e).

³ Although the size of the Warehouse C roof (approximately 388,000 SF in size) is considerably larger than Warehouse B (291,000 SF in size), the amount of area to accommodate solar panels is assumed to be less for Warehouse C because of the proposed Mitsubishi project that is currently being evaluated by the District. This analysis assumes that the battery storage and electrical infrastructure would be similar at both locations and there would be an approximately 361 MT CO₂e reduction based on installing PV panels on Warehouses B or C.

below as partial implementation of Mitigation Measure GHG-6: “Implement a renewable energy project or purchase the equivalent GHG offsets from a California Air Resources Board Approved Registry or a Locally Approved Equivalent Program for Future Operations Associated with the TAMT Plan”.

The specific design of the Renewable Microgrid was not known at the time the Final EIR was certified. However since then, the Renewable Microgrid has been designed to:

- 1) Retrofit the roof at TAMT Warehouse B (approximately 291,000 SF in size) or Warehouse C (approximately 388,000 SF in size);
- 2) Retrofit existing high mast lighting (approximately 29 light poles) within the eastern areas of the terminal to energy efficient site lighting, for an estimated savings of 280,000 kilowatt hours per year;
- 3) Install a 700 kilowatt (kW) solar PV system on Warehouse B or Warehouse C that would be approximately between 30,000 and 60,000 SF in size;
- 4) Install a 700 kW/ 2,500 kilowatt hour (kWh) ground-mounted battery system, consisting of one 40-foot and one 20-foot shipping containers (approximately 600 SF in area/ 8 feet in height), a new 2,500 kilo-volt-ampere (KVA) pad-mounted transformer (approximately 50 SF / 3 feet in height), and four new sections of 480 volt (V) switchgear (approximately 150 SF / 5 feet in height);
- 5) Perform minor trenching and repaving (approximately 4 feet in depth and up to 300 feet in length depending upon final siting of associated equipment) to install a new duct bank that connects to the District’s existing distribution system; and
- 6) Install various electrical upgrades, such as solar inverters and switches into existing manholes.

An analysis of the potential environmental impacts from implementing the Renewable Microgrid is as follows:

- **Construction and Installation:** The construction and installation of the Renewable Microgrid includes: (1) retrofitting the roof at TAMT Warehouse B (approximately 291,000 SF in size) or Warehouse C (approximately 388,000 SF in size); (2) the retrofit of existing site lighting will involve replacing lighting fixtures with energy efficient site lighting and may result in fewer high mast lights at TAMT; (3) installing a 700 kW solar PV system on Warehouse B or Warehouse C that would be approximately between 30,000 and 60,000 SF in size; (4) installing a 700 kW/ 2,500 kWh ground-mounted battery system, consisting of one 40-foot and one 20-foot

shipping containers (approximately 600 SF in area/ 8 feet in height), a new 2,500 KVA pad-mounted transformer (approximately 50 SF / 3 feet in height), and four new sections of 480V switchgear (approximately 150 SF / 5 feet in height) and (5) minor trenching and repaving (approximately 4 feet in depth and up to 300 feet in length depending upon final siting of associated equipment) to install a new duct bank that connects to the District's existing distribution system.

Construction is estimated to take approximately 24 months over the course of four phases: (1) roof retrofit; (2) electrical infrastructure upgrades and energy efficiency retrofits; (3) renewable energy installation; and (4) battery storage installation. The construction would occur an average of 8 hours per day (Monday – Friday). The roof retrofit will take approximately twelve months and involve up to 20 workers per day. The installation of the electrical infrastructure, energy efficiency improvements, solar PV, and battery storage is estimated to overlap with the roof retrofit for a period of approximately 6 months, and take approximately 18 months total. Electrical infrastructure upgrades and installation of renewable energy and battery storage would involve an average of 5 to 10 workers per day. Construction equipment is likely to include cranes, and/or hoists for roof upgrades, solar PV panel installation, and battery and electrical hardware, as well as a dump truck and cement truck to transport materials. Because it is anticipated that construction of the Renewable Microgrid will overlap with construction of the Demolition and Initial Rail Component Project⁴, and because it may also overlap with construction of the Mitsubishi Cement Project⁵, the District will retain a qualified traffic engineer to consider potential transportation impacts associated with any overlapping construction projects, as required under MM-TRA-2 (Traffic Study and Transportation Demand Management (TDM) for Specific Construction Projects) of the Final EIR. If the traffic study determines that the proposed construction activity may have a significant impact, it shall recommend mitigation measures to avoid or reduce the impact, which may include preparing a TDM Plan to address temporary impacts associated with construction vehicles and equipment.

⁴ Construction of the Demolition and Initial Rail Component began in December 2017 and is scheduled to be completed in May 2020.

⁵ In June 2015, the Board of Port Commissioners granted a Conditional Agreement to Mitsubishi Cement Corporation (Mitsubishi) which outlines the framework necessary for Mitsubishi to obtain the appropriate entitlements necessary for operation of a cement import terminal. The Conditional Agreement was subsequently updated in September 2017 to extend the term and update certain business terms. In April 2016, the District initiated environmental review of the Mitsubishi Project in accordance with CEQA. The project is currently scheduled to be considered by the BPC in Fall of 2018. If the BPC decides to certify Mitsubishi's environmental document and enter into a lease, construction of the Mitsubishi Project could begin in the fourth quarter of 2018.

Construction and installation will not result in any significant impacts to historical resources because the Final EIR determined neither Warehouse B or Warehouse C would be eligible for the California Register of Historical Resources because they are not an architectural masterwork, do not embody high artistic value, are not the product of an important milestone in engineering or building techniques, and are not associated with an important event or pattern of an event (Part 2 of TAMT Final EIR pg.4.4-18 to 4.4-19). Additionally, the noise and odors related to this phase of the Renewable Microgrid would not exceed permitted levels. Finally, although this phase of the Renewable Microgrid would temporarily increase traffic with up to 30 workers traveling to and from the project site during construction would not result in any significant impacts to roadway segments or intersections based on the daily roadway segment analysis identified in the Final EIR (Part of TAMT Final EIR – Table 4.10-21 pg. 4.10-31). Furthermore, the long-term operation of the Renewable Microgrid would result in a nominal increase to traffic at the site, with an estimated 1 to 5 worker trips associated with ongoing operation and maintenance of the facility.

Trenching and Repaving: The trenching and repaving components of the Renewable Microgrid include: (1) minor trenching and repaving (approximately 4 feet in depth and up to 300 feet in length) to install a new duct bank that connects to the District's existing distribution system; and (2) various electrical upgrades, such as installing solar inverters and switches into existing manholes.

Trenching and repaving work will occur during the 18 month electric infrastructure upgrade and installation period identified above. Construction equipment is likely to include a mini-excavator and/or trencher to do light trenching, a cable puller/tugger to pull cable through aboveground and underground conduit, and a paver and/or roller to repave the area. It is anticipated that all soil would be re-compacted and reused on-site with minimal material transported off-site.

Trenching and repaving will not result in any significant environmental impacts. The Final EIR determined that there have been seven previous on-site contamination and clean-ups and six of the seven been closed since certification of the Final EIR (Part of TAMT Final EIR pg. 4.7-3 to 4.7-6), and the remaining Water Street site was closed September 13, 2017. By requiring compliance with the TAMT Soil Management Plan and implementing engineering controls and best management practices, impacts would be less than significant and the Renewable Microgrid would not create a significant hazard to the public or the environment. Additionally, the noise and odors related to this phase of the Renewable Microgrid would not exceed permitted levels. Finally, although this phase of the Renewable Microgrid would temporarily increase traffic with up to 30 workers traveling to and

from the project site during the estimated six months of construction overlap with the roof replacement (and only 5 to 10 workers during the actual 18 months planned for electrical infrastructure upgrades and installation of microgrid components), the long term operation of the Renewable Microgrid would not result in a significant increase of traffic at the site.

- **Use:** Pursuant to Mitigation Measure GHG-6, the Final EIR requires renewable energy to be incorporated within the TAMT to help reduce GHG emissions associated with increased cargo throughput anticipated over the next 20-years. Upon installation, the Renewable Microgrid will: (1) convert high-mast high pressure sodium (HPS) lights to energy efficient lighting to reduce electricity loads; and (2) provide an approximately 700-kW / 2,500- kWh lithium ion battery energy storage system that creates solar generation shifting capabilities and backup power to the terminal. Charging the battery during the day with solar energy and discharging it overnight will minimize generation on the local San Diego Gas & Electric (SDG&E) system. Additionally, the battery storage and management system would be used to participate in the demand response program to reduce grid-tied loads in response to utility Critical Peak Pricing events.

The Renewable Microgrid would provide benefits in the form of contributing to the State's energy goals and reducing GHG emissions. Therefore, this modification to the Project will not result in any new or more significant impacts than were analyzed in the Final EIR.

4.0 DETERMINATION TO PREPARE AN ADDENDUM

Pursuant to CEQA Guidelines Section 15168(c), subsequent activities in a program must be examined in light of the program EIR to determine whether an additional environmental document must be prepared. If the District finds that pursuant to CEQA Guidelines Section 15162, no new effects could occur or no new mitigation measures would be required, the District can approve the activity as being within the scope of the project covered by the Final EIR and no new environmental document is required.

CEQA Guidelines Sections 15162 through 15164 set forth the criteria for determining the appropriate environmental documentation, if any, which may be required after a lead agency has certified an EIR and approved a project. Pursuant to CEQA Guidelines Section 15162 and 15164, the District makes the following findings:

CEQA Guidelines Section 15162:

CEQA Guidelines Section 15162(a) provides that when an EIR has been certified for a project, no subsequent EIR shall be prepared for that project unless the lead agency

determines, on the basis of substantial evidence in light of the whole record, that one or more of the following conditions has occurred:

- (1) Substantial changes are proposed in the project which will require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

Discussion: As discussed in previous sections of this Second Addendum, the Renewable Microgrid would not require major revisions to the Final EIR because it does not involve new or more severe significant environmental effects. Instead, the Renewable Microgrid will implement Mitigation Measure GHG-6 identified in the Final EIR, which requires the implementation of a renewable energy project for the purposes of offsetting the effects of greenhouse gas emissions. Although implementing a renewable energy project at TAMT was contemplated at the time the Final EIR was certified, the specific design details of the proposed Renewable Microgrid were not known at that time. Now that the construction and operational details discussed in this Second Addendum are known, the District can confirm that it does not involve new or more severe significant effects.

Retrofitting the roof would take approximately 12 months and involve no more than 20 workers (Monday through Friday) working a standard 8-hour day shift, whereas installation of the electrical infrastructure and battery would take approximately 18 months and involve between five to 10 workers working 8 hours per day. It is anticipated that the roof retrofit and installation of electrical infrastructure would overlap for a period of approximately 6 months, yielding a maximum of 30 workers traveling to and from the site during this period. Based on the existing traffic counts and peak-hour level of service conditions identified in the Final EIR for the near-term Demolition and Initial Rail Component Project (Part 2 of TAMT Final EIR pg. 4.10-29 to 4.10-38), all potential impacts to roadway segments and intersections would be less than significant given the small numbers of construction workers (e.g., up to 30 during the most intensive construction period) that would be needed. In addition, the Final EIR for the Demolition and Initial Rail Component Project determined the 96-acre Marine Terminal has excess parking capacity (with an estimated 239 parking spaces identified on-site) and could accommodate the additional 20 construction workers on-site (Part 2 of TAMT Final EIR pg. 4.10-58 to 4.10-59).

Construction of the Renewable Microgrid would also involve intermittent use of cranes and/or hoists for the roof repair and solar installations, as well as some

small equipment for minor trenching for conduit and battery installation and other work. Emissions associated with this equipment would not exceed any federal or state air quality standard, nor would construction of the project contribute substantially to non-attainment criteria pollutants identified for the San Diego region (Part 2 of TAMT Final EIR pg. 4.2-38 to 4.2-45). Furthermore, the trenching would be approximately 4 to 6-feet in depth and it is unlikely hazardous substances would be encountered given the relatively shallow depth of the trenching. However, the Final EIR requires the contractor to comply with the TAMT Soil Management Plan (Mitigation Measure Hazard-1) and to implement engineering controls and best management practices (Mitigation Measure Hazard-2), to ensure that any existing contamination is reduced to a less than significant level. As mentioned earlier, construction of the Project would occur during a standard 8-hour, day shift (Monday through Friday), and the intermittent use of the cranes, hoists, and other equipment would not exceed any noise standards. Therefore, construction of the Renewable Microgrid would not result in any new, or more severe significant environmental effects.

Furthermore, ongoing operation of the Renewable Microgrid would not result in any new significant environmental effects, nor would it increase the severity of previously identified environmental effects. Once constructed, the District will enter into a contract with a Power Purchase Agreement (PPA) provider that will include ongoing operation and maintenance of the installed system (solar, storage, and supporting infrastructure) for the 20-year life of the solar PPA. The off-site roadways have adequate capacity to handle the estimated 1 to 5 worker trips associated with ongoing operation and maintenance of the facility (Part 2 of TAMT Final EIR, – Table 4.10-21 pg. 4.10-31) , and the 96-acre marine terminal facility has adequate onsite parking for these workers (Part 2 of TAMT Final EIR pg. 4.10-58 to 4.10-59). Once constructed, the District's Energy Team's Program Manager will serve as the prime contractor responsible for the overall success of the project, which will include coordinating the work of professional and educational aspects of the Renewable Microgrid and making sure regulatory reporting requirements are completed. Once operational, the Renewable Microgrid is estimated to yield the following environmental benefits:

- **Annual Electricity Savings** of approximately 280,000 kWh through energy efficiency achieved by converting terminal lighting to more energy efficient lighting⁶, equivalent to approximately 88.84 MT CO₂e annually.

⁶ For the purposes of and as required by the California Energy Commission (CEC) Grant application, the District utilized the California Independent System Operator (CAISO) 2016-2017 average emissions factor (lbs/MWh)

- **Peak Load Reduction** from 336 kW to 92 kW using solar, battery storage, and energy efficient lighting conversions.
- **GHG Reductions** of 361 MT CO₂e per year. These reductions are attributed to the use of 100% renewable energy and battery storage which provide a net annual energy reduction of approximately 858,000 kWh (272.23MT CO₂e) and reduction in energy consumption through lighting energy efficiency measures of approximately 280,000 kWh (88.84 MT CO₂e).

Based on the project-specific construction and operational details associated with the Renewable Microgrid, there are no substantial changes proposed to the TAMT Redevelopment Plan which would require major revisions of the previous EIR, nor would the Renewable Microgrid result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

(2) Substantial changes that would occur with respect to the circumstances under which the project is undertaken which would require major revisions of the previous EIR due to the involvement of new significant effects or a substantial increase in the severity of previously identified significant effects; or

Discussion: As discussed under Subsection (1), above, and in Section 3.0 of this Second Addendum, Environmental Analysis, no substantial change in the circumstances under which the TAMT Redevelopment Plan will be undertaken has been identified which will result in any new or more severe environmental effects. The existing conditions at TAMT that were identified in the Final EIR (December 2016) and the First Addendum (July 2017) are similar to the terminal's existing conditions when the Renewable Microgrid application was finalized in August 2017. The tenants, amount of cargo throughput and number of employees working at TAMT and overall circumstances are not substantially different than what was identified in the Final EIR. The Final EIR (December 2016) and First Addendum (July 2017) both contemplated construction of the Demolition and Initial Rail Component Project beginning in 2017 and continuing

derived through the use of StorageVet modeling, estimating a reduction of approximately 310 MT CO₂e. Due to the increasing procurement of renewables by San Diego Gas and Electric, the on-site GHG reductions are lower due to an electric grid that is approximately 43% renewables (as of calendar year 2016), equivalent to an emissions factor of 533.56 lbs/MWh. [Source: San Diego Gas and Electric. Application for Approval of its 2018 Electric Procurement Revenue Requirement Forecasts and GHG-Related Forecasts. Published November 2017. Template D-5, Page 16 Online at: <https://www.sdge.com/sites/default/files/regulatory/FINAL%20Public%20November%20Update.pdf>] For the purposes of this analysis, the District has utilized the 2013 SDG&E electricity emissions factor of 712.4 lbs/MWh, equivalent to approximately 24% renewables, which is consistent with the EIR baseline analysis.

through to January 2020. Actual construction of the Demolition and Initial Rail Component started in December 2017 and is on-track to be completed in early 2020. As a result, the Renewable Microgrid would not require major revisions to the Final EIR.

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete, shows any of the following:

- A. The project will have one or more significant effects not discussed in the previous EIR;

Discussion: As discussed under Subsection (1), above, and in Section 3.0 of this Second Addendum, Environmental Analysis, no new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the Final EIR was certified as complete by the District, shows that the Renewable Microgrid will have any new significant effects not discussed in the Final EIR.

- B. Significant effects previously examined will be substantially more severe than shown in the previous EIR;

Discussion: As discussed under Subsection (1), above, and in Section 3.0 of this Second Addendum, Environmental Analysis, no new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the Final EIR was certified as complete by the District, shows that the Renewable Microgrid will have any new significant effects not discussed in the Final EIR.

- C. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

Discussion: No new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the Final EIR was certified as complete by the District, shows that any mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the Project. Instead, as

discussed under Subsection (1), above, and in Section 3.0 of this Second Addendum, Environmental Analysis, the Renewable Microgrid will implement Mitigation Measure GHG-6 and will directly reduce GHG emissions through incorporation of solar PV generation, lighting retrofits to improve energy efficiency, and demand response. On-site energy storage and solar energy would allow critical port infrastructure to remain operational through grid outages, maintaining power to critical functions. The Renewable Microgrid would result in a reduction of GHG emissions annually by an estimated 361 MT CO₂e from baseline District electric power use through energy efficiency, renewable generation, and battery storage.

- D. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

Discussion: No new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the Final EIR was certified as complete by the District, shows that any mitigation measures or alternatives which are considerably different from those analyzed in the Final EIR would substantially reduce one or more significant effects on the environment. The Final EIR for the long-term TAMT Redevelopment Plan identified several mitigation measures to reduce GHG emissions associated with long-term buildout of the Plan. These measures require the District to incorporate new, modern terminal equipment and machinery (such as replacing diesel-powered cargo handling equipment with electric cargo handling equipment) and to develop new programs to track and incentivize the procurement of lower-emitting equipment through the life of the Redevelopment Plan (2035). The project proponent has agreed to adopt all of mitigation measures identified in the Final EIR (December 2016). As mentioned earlier, the Renewable Microgrid implements Mitigation Measure GHG-6 and helps the District begin to meet the 18,206 MTCO₂e annual performance standard for year 2035 identified in Mitigation Measure GHG-6 in the Final EIR. This measure requires implementation of a renewable energy project for the purposes of offsetting the effects of GHG emissions. Therefore, there are no mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment.

CEQA Guidelines Section 15164:

CEQA Guidelines Section 15164(a) provides that the lead agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but

none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred.

Discussion: Although some changes and additions to the project are necessary, none of the conditions described in CEQA Guidelines Section 15162 calling for preparation of a subsequent EIR have occurred. As discussed above, the Renewable Microgrid was contemplated at the time the Final EIR was certified, however the specific project details were not known at that time; now that these details are known, the District can confirm that it does not involve new or more severe significant effects and therefore, none of the conditions described in Section 15162 have occurred.

5.0 CONCLUSION

Pursuant to CEQA Guidelines Sections 15162 and 15164, based on the information contained in this Second Addendum and in the record of these proceedings, the District finds that none of the conditions that require the preparation of a subsequent EIR pursuant to CEQA Guidelines Section 15162(a) have occurred. The District further finds that the specific project details of the Renewable Microgrid satisfy the provisions of Mitigation Measure GHG-6 required by the Final EIR and, therefore, this Second Addendum constitutes adequate compliance with CEQA for the proposed formal action of the Board to approve the Renewable Microgrid.

ATTACHMENTS

1. Tenth Avenue Marine Terminal Redevelopment Plan and Demolition and Initial Rail Component Final EIR Mitigation Monitoring and Reporting Program (MMRP)

California Energy Commission

May 9, 2018 Business Meeting – Agenda Item #27a

San Diego Unified Port District:

Tenth Avenue Marine Terminal Renewable Microgrid Project

The full California Environmental Quality Act (CEQA) supporting documentation for EPC-17-049 can be obtained at:

http://www.energy.ca.gov/research/epic/environmental_review_documents.html#sandiego

RESOLUTION NO: _____

STATE OF CALIFORNIA

**STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION**

RESOLUTION - RE: SAN DIEGO UNIFIED PORT DISTRICT

WHEREAS, the San Diego Unified Port District ("District") has requested funding for the Tenth Avenue Marine Terminal Renewable Microgrid Project ("Renewable Microgrid Project") at the Port of San Diego Tenth Avenue Marine Terminal ("TAMT"); and

WHEREAS, the District is the lead agency for the Tenth Avenue Marine Terminal Redevelopment Plan pursuant to the California Environmental Quality Act (hereafter, "CEQA") (Pub. Resources Code section 21000 et seq.) and the State CEQA Guidelines (Cal. Code Regs., tit. 14, section 15000 et seq.); and

WHEREAS, the District prepared a Final Environmental Impact Report ("FEIR"), Mitigation Monitoring and Reporting Program, and Statement of Overriding Considerations to determine and make findings regarding the possible environmental impacts of the TAMT redevelopment project, which identified the Renewable Microgrid Project as a mitigation measure; and

WHEREAS, the FEIR found that the TAMT Redevelopment Plan would have significant, unavoidable impacts in the areas of Air Quality and Health Risk; Transportation, Circulation, and Parking; Noise and Vibration; Greenhouse Gas Emissions and Climate Change; and Aesthetics and Visual Resources; and

WHEREAS, on December 13, 2016, the Board of Port Commissioners of the District considered the FEIR, mitigation monitoring plan, and statement of overriding considerations and adopted Resolution 2016-199, adopting the FEIR, making all necessary findings, and adopting a Mitigation Monitoring and Reporting Program (MMRP), as well as a Statement of Overriding Considerations; and

WHEREAS, the FEIR and the MMRP for the TAMT Redevelopment Plan includes Mitigation Measure – Greenhouse Gas # 6 (MM-GHG-6), which requires the implementation of renewable energy projects or the purchase of greenhouse gas offsets; and

WHEREAS the District proposes to satisfy a portion of the requirements of MM-GHG-6 by completing the Renewable Microgrid Project; and

WHEREAS, the District prepared a Second Addendum to the FEIR that specifically considers the environmental impacts of the Renewable Microgrid Project; and

WHEREAS, on April 10, 2018, the Board of Port Commissioners of the District adopted Resolution 2018-016, adopting the Second Addendum and making all necessary findings; and

WHEREAS, Energy Commission is considering proposed Agreement EPC-17-049, Tenth Avenue Marine Terminal Renewable Microgrid Project ("EPC-17-049"), a grant to fund construction and operation of a renewable microgrid at the TAMT; and

WHEREAS, the Energy Commission is the responsible agency for EPC-17-049 and, pursuant to State CEQA Guidelines sections 15091, 15092 and 15096, desires to make

certain findings; and

WHEREAS, the Energy Commission has reviewed and considered the FEIR, the Second Addendum, (the “District CEQA Documents”), and other related documents in the record before it;

THEREFORE BE IT RESOLVED, that the Energy Commission finds, on the basis of the entire record before it, that since the District CEQA Documents were adopted by the District, there have been no substantial changes to the project and no substantial changes in project circumstances that would require major revisions to the District CEQA Documents due to the involvement of new significant environmental effects or a substantial increase in the severity of previously-identified significant impacts, and there is no new information of substantial importance that would be added by moving forward with the Renewable Microgrid Project/EPC-17-049 that would change the conclusions set forth in the District CEQA Documents; and

BE IT FURTHER RESOLVED, as to the work considered by the FEIR which identifies the Renewable Microgrid Project as a mitigation measure, the Commission finds that on balance there are economic, legal, social, technological or other benefits, including environmental benefits, associated with proceeding with the project and mitigation measures, sufficient to outweigh any significant unavoidable effects. This includes elimination of blight, more consistency with the District's general and redevelopment plans, job creation, and reduced GHG emissions associated with the Renewable Microgrid Project; and

BE IT FURTHER RESOLVED, that the Energy Commission has not identified any feasible alternative or additional feasible mitigation measures within its power that would substantially lessen or avoid any significant effect the Renewable Microgrid Project would have on the environment; and

BE IT FURTHER RESOLVED, that this document authorizes the Executive Director or his or her designee to prepare and file a Notice of Determination on behalf of the Energy Commission; and

BE IT FURTHER RESOLVED, that the Energy Commission approves Agreement EPC-17-049 with San Diego Unified Port District for \$4,985,272; and

BE IT FURTHER RESOLVED, that the Executive Director or his or her designee shall execute the same on behalf of the Energy Commission.

CERTIFICATION

The undersigned Secretariat to the Commission does hereby certify that the foregoing is a full, true, and correct copy of a Resolution duly and regularly adopted at a meeting of the California Energy Commission held on May 9, 2017.

AYE: [List of Commissioners]

NAY: [List of Commissioners]

ABSENT: [List of Commissioners]

ABSTAIN: [List of Commissioners]

Cody Goldthrite,
Secretariat

