STATE OF CALIFORNIA
GRANT REQUEST FORM (GRF)
CEC-270 (Revised 02/13)   CALIFORNIA ENERGY COMMISSION

New Agreement EPC-14-070 (To be completed by CGL Office)

Division	Agreement Manager:	MS-	Phone
ERDD	Anish Gautam	51	916-327-2382

Recipient's Legal Name	Federal ID Number
Wexus Technologies, Inc.	46-5066770

Title of Project
Wexus Energy and Water Management Mobile Software for the Agricultral Industry

Term and Amount	Start Date	End Date	Amount
	6/30/2015	3/29/2019	$ 4,000,000

Business Meeting Information			
☐ ARFVTP agreements under $75K delegated to Executive Director.			
Proposed Business Meeting Date	5/13/2015	☐ Consent	☒ Discussion
Business Meeting Presenter	Anish Gautam	Time Needed:	5 minutes
Please select one list serve. EPIC (Electric Program Investment Charge)			
Agenda Item Subject and Description			
Proposed resolution approving Agreement EPC-14-070 with Wexus Technologies, Inc for a $4,000,000 grant to deploy the Wexus (Water-Energy Nexus) mobile, cloud-based software for commercialization in California's agricultural industry. This cloud-based software will allow farmers to access their on-farm energy, water and cost information from any mobile device. With customized alerts and reporting, the mobile platform will allow farms to quickly respond to changes in energy usage, adjust and optimize equipment in the field and reduce operational expense due to energy costs.			

California Environmental Quality Act (CEQA) Compliance

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 project deals with data collection and analysis of existing equipment already in use at each deployment site. The project may include installation of small monitoring equipment that will not cause any damage to the physical environment and can be fully removed to leave the area as found when the project is complete.
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
   - ☐ Negative Declaration
   - ☐ Mitigated Negative Declaration
   - ☐ Environmental Impact Report
   - ☐ Statement of Overriding Considerations

List all subcontractors (major and minor) and equipment vendors: (attach additional sheets as necessary)

Legal Company Name:	Budget
The Regents of the University of California on behalf of the Davis	$ 428,843
Polaris Energy Services Inc.	$ 110,000
	$
	$
	$
	$
	$
	$
	$

List all key partners: (attach additional sheets as necessary)
Legal Company Name:

Budget Information				
Funding Source		**Funding Year of Appropriation**	**Budget List No.**	**Amount**
EPIC		14-15	301.001B	$4,000,000
				$
				$
				$
				$
				$
R&D Program Area:	EERO: IAW		TOTAL:	$4,000,000
Explanation for "Other" selection				
Reimbursement Contract #:			Federal Agreement #:	

Recipient's Administrator/ Officer				**Recipient's Project Manager**			
Name:	Chris Terrell			Name:	Chris Terrell		
Address:	1414 6TH AVE			Address:	1414 6TH AVE		
City, State, Zip:	SAN FRANCISCO, CA 94122-3811			City, State, Zip:	SAN FRANCISCO, CA 94122-3811		
Phone:	415-885-9476 /	Fax:	- -	Phone:	415-885-9476 /	Fax:	- -
E-Mail:	cterrell@wexusapp.com			E-Mail:	cterrell@wexusapp.com		

Selection Process Used	
☒ Competitive Solicitation	Solicitation #: PON-14-304
☐ First Come First Served Solicitation	

The following items should be attached to this GRF		
1. Exhibit A, Scope of Work		☒ Attached
2. Exhibit B, Budget Detail		☒ Attached
3. CEC 105, Questionnaire for Identifying Conflicts		☒ Attached
4. Recipient Resolution	☒ N/A	☐ Attached
5. CEQA Documentation	☐ N/A	☒ Attached

Agreement Manager	**Date**	**Office Manager**	**Date**	**Deputy Director**	**Date**

Exhibit A
Scope of Work

A. Task List

Task #	CPR[1]	Task Name
1		General Project Tasks
2		Confirm Deployment Sites and Conduct Baseline Energy Usage
3		Energy Analysis and Recommendations
4	X	Implementation and Continuous Customer Engagement
5		Continuous Energy Software Product Development
6		Evaluation of Project Benefits
7		Technology/Knowledge Transfer Activities
8		Production Readiness Plan

B. Acronym/Term List

Acronym/Term	Meaning
API	Application Programming Interface
BE	Back End
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CPR	Critical Project Review
FE	Front End
GIS	Geographic Information System
IOU	Investor Owned Utility
KPI	Key Performance Indicator
kW	Kilowatt
kWh	Kilowatt Hour
M&V	Measurement and Verification
PG&E	Pacific Gas & Electric
PUC	Public Utilities Commission
SaaS	Software As A Service
SCE	Southern California Edison
TAC	Technical Advisory Committee
UX	User Experience

[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

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

A. Purpose of Agreement

The purpose of this Agreement is to fund and further develop the Wexus (Water-Energy Nexus) mobile, cloud-based software platform for commercialization in California's agricultural industry. The Wexus platform leverages existing utility meter infrastructure to help agribusinesses to quickly access energy (and water) usage and cost data from virtually anywhere on mobile devices. Through customized alerts and reporting, the platform allows farms to quickly respond to changes in energy (and water) usage, adjust and optimize equipment in the field, and reduce operational expenses due to energy costs. This project will further extend existing energy-water data analysis, present data and results in an easy to understand form using text alerts, emails with charts, graphs and tables, , and remote controlling capabilities to the Wexus platform to optimize energy-water resource management in the agribusiness sector.

B. Problem/ Solution Statement

Problem

California's agricultural industry is one of the state's largest users of energy and water and has been historically underserved by a lack of effective efficiency technologies. The agriculture industry is also rapidly transitioning to the next generation of technology: mobile, cloud-based software, big data, and connected devices in the field. The combination of rising energy rates, increasing regulation and reporting, drought, and changing weather patterns, is driving demand for new agricultural energy efficiency solutions.

Farmers currently can't manage what they don't measure. As observed during the project team's experience in the energy industry, farmers can spend up to fifty percent more on energy than they need to, which leads to higher operational costs for farms and difficulty for the state of California in reaching energy efficiency goals. Three key areas are fueling the problem:

- Lack of data to make informed decisions. Farmers currently can't manage energy from the field, and most energy monitoring is via paper utility bills;
- Limited mobile capability and few mobile applications to better manage data and take action to reduce usage and costs;
- Farmers are operating with unconnected, analog equipment and hardware in the field. Based on our experience, most sensors around farms are not connected to cellular or Wi-Fi networks, making data retrieval expensive and cumbersome.

Solution

Through this agreement, the Wexus mobile software-as-a-service (SaaS) platform will solve the three key problems stated above and promote energy efficiency at three agricultural partner sites within IOU regions. The Wexus mobile software platform will drive energy efficiency through three key areas:

(1) A feature rich, comprehensive cloud platform connected to smart meter networks, which doesn't require additional hardware, paper bills, or spreadsheets.

(2) Full mobile capability, which issues alerts and notifications of high energy (and water) usage.

(3) Continuous, full system monitoring which identifies equipment in need of repairs or upgrades, and provides access to utility rebates and incentives to cover costs of new equipment.

C. Goals and Objectives of the Agreement

Agreement Goals

The goals of this Agreement are threefold:

- To engage agricultural deployment sites in California Investor Owned Utility (IOU) territories to participate in the Wexus mobile software project and to identify energy (and water) efficiency measures at these sites.
- To provide wider proof-of-concept and use cases for scaling the Wexus mobile software platform throughout IOU regions in California.
- To fully assist and train deployment sites in the effective use of the Wexus mobile software platform to quantify actual energy (and water) savings after measures have been implemented.

Ratepayer Benefits:[2] The Wexus mobile software project will benefit California ratepayers in Investor Owned Utility (IOU) territories by promoting greater electric grid reliability and lowered energy costs for farms. This project will aid the state of California in achieving statutory energy goals by engaging an underserved market in the agricultural sector, a significant energy user in the state. Through the scope of the project, agricultural IOU deployment sites in the field will be engaged with and encouraged to reduce their energy usage by up to ten percent at peak times of day, thereby enhancing demand response programs and reducing the need for peaking power plants. EPIC funding will provide the essential test bed to deploy this software solution and quickly scale it to IOU ratepayers.

Technological Advancement and Breakthroughs:[3] If the technology is successful, it will lead to technological advancement and breakthroughs to overcome barriers to the achievement of the State of California's statutory energy goals by providing agricultural deployment sites with mobile, cloud based, energy efficiency software and identifying energy and water efficiency measures to reduce energy use and peak demand. The software captures and re-formats utility meter, tariff and billing data, and sends customized reports to farmers. This aids in optimizing energy usage, reducing operational expenses due to energy costs, reducing greenhouse gas (GHG) emissions through peak power reductions, and relates these expenses to cost per acre metrics that aid in reporting.

Working with agricultural business ownersto reduce energy usage has historically been a large barrier to achieving the state's energy goals because agricultural business owners do not

[2] 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).

[3] 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.

traditionally relate their operational activities to actual energy usage. The Wexus software platform can overcome this barrier by relating specific business operations to actual energy (and water) usage and impact to the bottom line, which encourages cost savings and ultimately reduces energy usage.

Agreement Objectives

The objectives of this Agreement are threefold:

- To aid agricultural deployment sites in reducing their overall energy usage by providing actionable energy and cost data, including at peak times of day.
- Target potential energy reductions by up to ten percent from baseline usage.
- To continue to develop and refine the Wexus cloud based software platform through deep analysis of utility electric meter data, utility tariff and rate data, utility bills, water usage data, greenhouse gas emissions data and continued agricultural customer feedback at the site level.
- To engage agricultural deployment sites in continuing education and training on the effective and efficient use of the proposed technology to reduce their energy usage by up to ten percent, to identify potential energy savings measures in the field, and to quantify actual energy savings after savings measures have been implemented.

II. 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:

<u>For products that require a draft version</u>

- 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.
- Submit the final product to the CAM once agreement has been reached on the draft. The CAM will provide written approval of the final product within 15 days of receipt, unless otherwise specified in the task/subtask for which the product is required.
- If the CAM determines that the final product does not sufficiently incorporate his/her comments, submit the revised product to the CAM within 10 days of notice by the CAM, unless the CAM specifies a longer time period.

<u>For products that require a final version only</u>

- Submit the product to the CAM for approval.
- If the CAM determines that the product requires revision, submit the revised product to the CAM within 10 days of notice by the CAM, unless the CAM specifies a longer time period.

<u>For all products</u>

- Submit all data and documents required as products in accordance with the following <u>Instructions for Submitting Electronic Files and Developing Software</u>:

    - **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.

- 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 <u>administrative portion</u> 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.

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); 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.
- 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.
    - 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 all Agreement activities conducted by the Recipient for the preceding month, including 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.
    - Provide a synopsis of the project progress, including accomplishments, problems, milestones, products, schedule, fiscal status, and any evidence of progress such as photographs.
- Submit a monthly or quarterly *Invoice* that follows the instructions in the "Payment of Funds" section of the terms and conditions. In addition, each invoice must document and

verify:

- Energy Commission funds received by California-based entities;
- Energy Commission funds spent in California *(if applicable)*; and
- Match fund 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 and approve the Final Report, which will be due at least **two months** before the Agreement end date. When creating the Final Report Outline and the Final Report, the Recipient must use a 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.
- Submit a draft of the outline to the CAM for review and comment.
- Once agreement has been reached on the draft, submit the final outline to the CAM. The CAM will provide written approval of the final outline within 10 days of receipt.

Recipient Products:

- Final Report Outline (draft and final)

CAM Product:

- Style Manual

Subtask 1.6.2 Final Report

The Recipient shall:

- Prepare a *Final Report* for this Agreement in accordance with the approved Final Report Outline and the Style Manual provided by the CAM.
- Submit a draft of the report to the CAM for review and comment. Once agreement on the draft report has been reached, the CAM will forward the electronic version for Energy Commission internal approval. Once the CAM receives approval, he/she will provide written approval to the Recipient.
- Submit one bound copy of the Final Report to the CAM.

Products:

- Final Report (draft and final)

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.
    - A copy of 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)*
- 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;
- 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, and phone numbers of potential members. 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

III. 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 Confirm Deployment Sites and Conduct Baseline Energy Usage

The goal of this task is to confirm or select new deployment site(s), and to conduct baseline deployment site energy (and water) usage by accessing utility historical electric meter interval data, billing data, utility tariff data, customer location data, and input it into the Wexus software database.

The Recipient shall:

- Reach agreement with the Authorized Representative(s) of the selected deployment sites regarding the project timeline, space reserved for the project, equipment installation, permit and insurance, indemnity, and the Recipients use of installation, removal and support staff. The anticipated site locations are Rio Farms, Giacomazzi Dairy and Ramco Enterprises LP.
- If the selected deployment site(s) become unavailable during the project term (and to add additional deployment sites), work with the CAM to select new deployments site(s) and request CAM written approval to use the new sites.
- Execute a *Contract with each Deployment Site* that confirms the agreement reached above.
- Obtain a signed Public Utilities Commission (PUC) data privacy form from participating deployment sites to obtain IOU data and water utility data where available. For each deployment site, submit a copy of the approved *CPUC Data Privacy Form*.
- Download IOU energy & billing data files from each deployment site, re-format as necessary for use by Wexus software application.
- Create a customer account in the Wexus software and upload data files to software database. Submit *Proof of Customer Account* to CAM for each deployment site.
- Visit each customer deployment site(s) to audit operations and equipment
    - Document farm site/ranch names, acreages, and locations; meter names/numbers, locations, and utility billing account data; and existing energy using equipment types, locations, equipment operating hours, and specifications.
    - Document site operations and working hours through one-on-one interviews with owners, facility managers, and employees.
    - For each site, prepare *Customer Deployment Baseline Reports* to include the following but not limited to:
        - Overview of the deployment site, including locations and acreage of each farm; names, locations and account numbers of utility electric meters (and water meter if available); names and locations of water flowmeters (where available); type, and operating hours and specifications of equipment on site including irrigation pumps; and type of crops grown.
        - Customer site specific description on planting, harvesting and post-harvest processing of products
        - Listing of existing equipment, types, locations and nominal specifications

- Annual total energy and peak electric demand and cost for 2012, 2013 and 2014, where historical usage data is available for each utility meter, and corresponding rate schedule.
- Annual total water usage for 2012, 2013 and 2014, where water usage data is available and corresponding rate schedule.

Products:

- Contract with each Deployment Site
- CPUC Data Privacy Form(s)
- Proof of Customer Accounts
- Customer Deployment Baseline Reports

TASK 3 Energy Analysis and Recommendations

The goals of this task are to (1) provide training on the Wexus Software solution, (2) compile and analyze customer site information and energy (and water) data, (3) determine several potential energy (and water) savings measures and recommendations (4) continue to engage the customer/site to incorporate the energy savings measures into its operations.

The Recipient shall:

- Prepare and submit to CAM, *Customer Training Materials* including but not limited to:
    - Training Schedule for each deployment site
    - Software User Manual
    - PowerPoint presentations
    - Frequently Asked Questions
- Schedule and conduct customer training session(s) using Customer Training Materials to help customers understand how to use the software. Training sessions can be conducted via in-person meetings or through use of communications technologies like webinars or teleconferencing.
- Analyze customer energy and billing data and determine energy (and water) saving measures and recommendations
- Prepare and send Bi-Weekly Energy Reports to deployment sites with historical and current energy and cost data, energy (and water) savings recommendations, and information about utility rebates and incentives. Submit *Bi-Weekly Energy Reports* to the CAM with the corresponding monthly progress report.
- Conduct bi-weekly customer follow up meetings to gather feedback about software features and implement changes as necessary.
- Prepare and submit to CAM, a *Monthly Software Change/Update Matrix* based on the bi-weekly customer follow up meetings and submit with corresponding monthly progress reports.
- Send text alerts to deployment sites alerting them to high peak energy usage. Submit copies/screen shots of *Text Alert Messages* sent to deployment customers with monthly progress reports.
- Conduct additional site visits as necessary to meet with deployment sites and audit additional equipment. Prepare and submit to CAM as part of corresponding monthly progress reports, *Customer Site Visits Reports* (as necessary) to discuss follow-up site visits.
- Prepare *Customer Analysis Report* for each deployment site to include but not be limited to the following:

Exhibit A
Scope of Work

- Energy Intensity Mapping
    - Characterization of agricultural irrigation distribution systems for deployment sites
    - Integration of on-site water and energy consumption data to calculate energy intensity values for every pump in the system
    - Geographic Information System (GIS) map of the energy intensity for all irrigated zones on each farm
    - Integration of the energy intensity analysis directly into the Wexus cloud platform
    - Identify energy (and water) and cost saving measures and payback

- Peak Load Consumption Analysis
    - Alignment of all hourly electricity data by day, weekday, weekend day, month, season and year
    - Daily load curve visualization by system component and system-wide
    - Identification of peak load hour (and associated electricity demand) by day, week, month, season and year
    - Integration of load analysis analytics with Wexus cloud platform and associated mobile access

- Predictive Irrigation Analysis
    - Identification of additional external data sets relevant to irrigation decision-making
    - Integration of data sets into a cloud–based predictive modeling platform
    - Rigorous testing of predictive modeling algorithms to optimize timing and volume of irrigation
    - Integration of cloud-based predictive modeling to Wexus mobile interface

- Agricultural Water-Energy Benchmarking
    - Identification of crop products that are applicable for cross-comparison across partner farms
    - Calculations of individual farm performance relative to the network average
    - Design of data visualization and messaging to communicate benchmarking status to farmers via the Wexus application

Products:

- Customer Training Materials
- Bi-Weekly Site Energy Reports
- Monthly Software Change/Update Matrix (include in monthly progress reports)
- Text Alerts Messages (include in monthly progress reports)
- Customer Site Visit Reports (as necessary, include in monthly progress reports)
- Customer Analysis Reports

TASK 4 Implementation and Continuous Customer Engagement

The goals of this task are to (1) continue to engage deployment sites and track which specific energy and water savings (where water data is available) measures have been implemented, (2) install irrigation pump energy monitoring and controls equipment at the three deployment sites and (3) determine which specific measures still need to be implemented to reach energy efficiency targets of up to 10 percent reduction from baseline use.

The Recipient shall:

- Install all required hardware and software at each deployment site to ensure full implementation and utilization of the Wexus Software application.
- Continue to download new energy and billing data files from IOUs serving the deployment sites, re-format as necessary, on a daily basis.
- Continue to analyze customer energy and billing data and compile energy savings recommendations.
- Continue to prepare and send *Bi-Weekly Site Energy Reports* to deployment sites (and to CAM with monthly progress reports) with historical and current energy (and water) and cost data, energy (and water) savings recommendations, and information about utility rebates and incentives.
- Create and send a *Monthly Summary Energy Reports* (via email) to deployment sites (and to CAM with monthly progress reports) showing actual impacts of implemented energy and water saving measures on energy (and water) usage and cost; compare the usage and spending data to the prior year with pre and post-project energy use (kilowatt hours, kilowatts, gallons per min/hour) and cost data. All estimates of energy savings and GHG impacts will be calculated using the References for Calculating Electricity End-Use, Electricity Demand, and GHG Emissions (PON-14-304, Attachment 14).
- Conduct bi-weekly customer follow up meetings to gather feedback about software features and implement changes as necessary.
- Create and submit to CAM, a *Monthly Software Change/Update Matrix* based on the bi-weekly customer follow up meetings.
- Install all site-specific required irrigation pump energy monitoring and controls equipment (energy and water monitoring system, including energy and flow meters, data logers, wireless modem, relays, etc) at the three deployment sites.
- Refine and integrate the Wexus mobile software platform with the subcontractor hardware and software to allow deployment sites to remotely control irrigation pumps and avoid peak energy usage and costs.
- Prepare and obtain signed *Letter(s) of Acceptance and Deployment* for each deployment site Authorized Representative that includes but is not limited to:
    - Lists the number and identifies the locations of each irrigation pump energy monitoring and controls equipment installed
    - Acknowledges Deployment site's acceptance of subcontractor provided irrigation pump energy monitoring and controls equipment
    - Confirms all required hardware and software installed for full utilization of the Wexus software application
- Participate in CPR meeting and prepare CPR report per Task 1.3

Products:

- Bi-Weekly Site Energy Reports (submitted with monthly progress reports)
- Monthly Summary Energy Reports (submitted with monthly progress reports)

- Monthly Software Change/Update Matrix
- Signed Letter(s) of Acceptance and Deployment
- CPR Report

TASK 5 Continuous Energy Software Product Development

The goal of this task is to further develop the technical aspects of the Wexus software through the use of industry standard product management techniques and practices for cloud based, mobile software with our product development team.

The Recipient shall:

- Use the software standard Build-Measure-Learn process to achieve continuous software product development.
- Conduct and document the Build Phase and prepare *Build Phase Report* to include (but not be limited to):
    - A product roadmap with three phases: pre-launch, pre-market fit, post-market fit.
    - User Experience (UX) design: build prototypes using wire framing & storyboarding. Build customer personas, empathy maps/features, and user stories.
    - Front end (FE) features.
    - Back end (BE) database features & data integrations.
- Conduct and document the Measure Phase and prepare *Measure Phase Report* to include (but not be limited to):
    - Testing: Validate product features with usability tests, and split, Alpha/Beta testing.
    - Metrics and Reporting: Build user metrics reports and create Key Performance Indicators (KPIs).
- Conduct and document the Learn Phase and prepare *Learn Phase Report* to include (but not limited to):
    - Metrics & Reporting: Track ongoing user metrics reports and key performance indicators (KPIs).
    - Bi-weekly customer interviews.

Products:

- Build Phase Report
- Measure Phase Report
- Learn Phase Report

TASK 6 Evaluation of Project Benefits

One goal of this task is to have an independent third party verify actual project benefits, including the pre and post-project energy usage figures (kilowatt hours, kilowatts) and cost data. The measurement and verification (M&V) subcontractor will collect a robust set of data on historical water and energy consumption at each of the three deployment sites, and then compare these baseline values to the water and energy consumption observed at the same sites over the life of the project. The project team will also submit three benefits questionnaires.

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The Recipient shall:

- Work with the M&V subcontractor to create individual Measurement and Verification Plan (M&V Plan) for each deployment site. The M&V Plan shall specify what data will be collected, how data will be collected and by whom, when data will be collected, at what intervals and resolution, how data will be verified, stored, accessed and used for analysis, and the types of analysis to be performed.
- Prepare and submit to the CAM, a Summary Measurement and Verification Report for each deployment site to verify pre and post project energy usage every three months through the life of the project agreement term. The report will include but not be limited to:
  - Historical and actual energy and water use
  - Historical and actual peak demand
  - Discussion on peak demand reduction and goal for 10% energy reductions from baseline usage
  - Discussion on involvement in IOU sponsored Demand Response programs
  - Direct cost savings
  - Operational improvements resulting from the Wexus software solution

- Collect five years of historical data (where available) at highest resolution available to establish robust baseline of both water and energy consumption, as well as peak electricity demand, for each of the three deployment sites participating in the project.
- Establish ongoing monitoring tools to illustrate current usage relative to the historical benchmark.
- Ensure quality assurance and quality control on historical data.
- Conduct calculation of total energy and water savings, and peak load reduction, over the life of the Wexus deployment for each farm relative to the historical baseline.
- Prepare a Final Measurement Verification Report that details the monitoring and verification methodology, results, calculation of total energy, and water savings, peak load reduction, efficiency measures implemented and conclusion for all deployment sites.
- Complete three Project Benefits Questionnaires that correspond to three main intervals in the Agreement: (1) Kick-off Meeting Benefits Questionnaire; (2) Mid-term Benefits Questionnaire; and (3) Final Meeting 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:

- 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 has 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.

  - 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.

Products:
- Measurement and Verification Plan (for each site)
- Summary Measurement and Verification Reports
- Final Measurement Verification Report
- Kick-off Meeting Benefits Questionnaire
- Mid-term Benefits Questionnaire
- Final Meeting Benefits Questionnaire

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.
- When directed by the CAM, develop *Presentation Materials* for an Energy Commission-sponsored conference/workshop on the results of the project.
- 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)
- Technology/Knowledge Transfer Plan (draft and final)
- Technology/Knowledge Transfer Report (draft and final)

TASK 8 Production Readiness Plan

The goal of this task is to determine the steps that will lead to the manufacturing of technologies developed in this project or to the commercialization of the project's results.

The Recipient shall:

- Prepare a *Production Readiness Plan*. The degree of detail in the plan should be proportional to the complexity of producing or commercializing the proposed product, and to its state of development. As appropriate, the plan will discuss the following:
    - Critical production processes, equipment, facilities, personnel resources, and support systems needed to produce a commercially viable product.
    - Internal manufacturing facilities, supplier technologies, capacity constraints imposed by the design under consideration, design-critical elements, and the use of hazardous or non-recyclable materials. The product manufacturing effort may include "proof of production processes."
    - The estimated cost of production.
    - The expected investment threshold needed to launch the commercial product.
    - An implementation plan to ramp up to full production.
    - The outcome of product development efforts, such as copyrights and license agreements.
    - Patent numbers and applications, along with dates and brief descriptions.
    - Other areas as determined by the CAM.

Products:

- Production Readiness Plan (draft and final)

IV. PROJECT SCHEDULE

Please see the attached Excel spreadsheet.

RESOLUTION NO: 15-0513

STATE OF CALIFORNIA

STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION - RE: WEXUS TECHNOLOGIES, INC.

RESOLVED, that the State Energy Resources Conservation and Development Commission (Energy Commission) adopts the staff CEQA findings contained in the Agreement Request Form; and

RESOLVED, that the Energy Commission approves Agreement EPC-14-070 from PON-14-304 with **Wexus Technologies, Inc.** for a **$4,000,000** grant to deploy Wexus (Water-Energy Nexus) mobile, cloud-based software for commercialization in California's agricultural industry. The software will allow farmers to access their on-farm energy, water and cost information from any mobile device and to quickly respond to changes in energy usage, adjust and optimize equipment in the field and reduce operational expense due to energy costs; and

FURTHER BE IT RESOLVED, that the Executive Director or his/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 13, 2015.

AYE: [List of Commissioners]
NAY: [List of Commissioners]
ABSENT: [List of Commissioners]
ABSTAIN: [List of Commissioners]

Harriet Kallemeyn,
Secretariat