

GRANT REQUEST FORM (GRF)

CEC-270 (Revised 10/2015)

CALIFORNIA ENERGY COMMISSION

New Agreement EPC-15-050 (To be completed by CGL Office)

Division	Agreement Manager:	MS-	Phone
ERDD	Cecelia Golden	51	916-327-1423

Recipient's Legal Name	Federal ID Number
The Regents of the University of California, Davis	94-6033649

Title of Project
Winery Water and Energy Savings

Term and Amount	Start Date	End Date	Amount
	6/30/2016	12/31/2019	\$ 1,989,201

Business Meeting Information
 ARFVTP agreements under \$75K delegated to Executive Director.

Proposed Business Meeting Date	5/17/2016	<input type="checkbox"/> Consent	<input checked="" type="checkbox"/> Discussion
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Business Meeting Presenter	Kevin Mori	Time Needed:	5 minutes
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Please select one list serve. Electric Program Investment Charge (EPIC)

Agenda Item Subject and Description

UNIVERSITY OF CALIFORNIA, DAVIS. Proposed resolution approving agreement EP-15-050 with The Regents of the University of California, on behalf of the Davis campus, for a \$1,989,201 grant to demonstrate technologies to achieve water and energy savings in the wine processing sector. Technologies include a heat exchanger that reduces the energy requirements for processing white wine and a water treatment technology that enables indoor reuse of recycled winery water.

California Environmental Quality Act (CEQA) Compliance

- 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
- 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: CCR 14, § 15301, § 15303, and § 15306
 - Common Sense Exemption. 14 CCR 15061 (b) (3)



Explain reason why Agreement is exempt under the above section:

Cal. Code Regs., tit. 14, sec. 15301 provides that projects which consist of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, and which involve negligible or no expansion of use beyond that existing at the time of the lead agency's determination, are categorically exempt from the provisions of the California Environmental Quality Act. This project involves the installation of two different technology systems that include equipment that will be delivered on pre-assembled skids and hooked into plumbing and electrical connections at an existing and fully permitted wine production facility, the "Skylane" facility owned by Jackson Family Wines (JFW) in Sonoma County. The existing facility is a large warehouse, approximately 75,000 square feet (SF), that is used for wine processing including racking and bottling. The warehouse has a concrete floor and is approximately 30 feet tall with metal roofing. The facility is located in a business park in Santa Rosa, California. The two technology systems to be installed will consist of: 1) a process water treatment and reuse system called the Vibratory Shear Enhanced Process (VSEP) technology to recycle process wastewater for indoor reuse; and, 2) a white wine "cold stabilization" technology called the Wine-to-Wine Heat Exchanger. The VSEP system will come on two separate skids, will cover an area of approximately 600 SF, and the equipment will range from 7.5 feet to 16 feet tall. The heat exchanger technology will include a series of individual heat exchangers and will cover an area of approximately 200 SF and the equipment will range in height from 6.5 feet and smaller. The total footprint of the technology installations will be approximately 800 SF (1,200 SF including the exterior plumbing). Also added to the installation will be data measurement equipment including water flow meters installed in the piping systems (of minimal size). The installations will result in no expanded capacity at the "Skylane" facility. The technology systems will be integrated with the existing host facility heating and plumbing lines, utility connections, and infrastructure, which will require only minor ancillary equipment (e.g., valves) and materials (e.g., fittings.) for installation. Installation of equipment necessary for measurement and verification activities will be limited to instrumentation for data collection and analysis and will not alter existing facility equipment or operations. Therefore, the project will not have a significant effect on the environment and falls within section 15301.

Cal. Code Regs., tit. 14, sec. 15303 provides that projects which consist of construction and location of limited numbers of new, small facilities or structures, installation of small new equipment and facilities in small structures, and the conversion of existing small structures from one use to another where only minor modifications are made in the exterior of the structure, are categorically exempt from the provisions of CEQA. This project consists of installation of a predesigned VSEP reverse osmosis treatment system retrofitted to the facility's existing barrel washing process and installation of a predesigned PEI wine-to-wine heat exchanger retrofitted to the cold and warm wine streams of the existing "cold stabilization" system, as well as installation of equipment necessary to testing and evaluation of benefits, including increased energy efficiency, reduced greenhouse gas emissions, and reduced operating costs with favorable economic payback. The total footprint of the technology installations will be approximately 800 SF (1,200 SF including the exterior plumbing). Therefore, the project will not have a significant effect on the environment and falls within section 15303.

Cal. Code Regs., tit. 14, sect. 15306 provides that projects which consist of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource are categorically exempt from the provisions of CEQA. This project entails extensive data collection and performance evaluation to document energy efficiency, energy cost reductions, installation requirements, and payback period to support adoption by industrial end-users of this innovative approach to increase both energy and water savings and overcome barriers to large-scale deployment. These M&V activities require the installation of instrumentation and data acquisition equipment, including computerized software, which will be tied into the systems for system monitoring. The results will include technical reports and presentations to disseminate the results to California wine processing industries, the California Energy Commission, and the public, including development of a Water Reuse Plan. For these reasons, the project will not have a significant effect on the environment and falls within section 15306.

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

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CALIFORNIA ENERGY COMMISSION



List all subcontractors (major and minor) and equipment vendors: (attach additional sheets as necessary)	
Legal Company Name:	Budget
Jackson Family Wines, Inc	\$ 1,300,000
	\$

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	\$1,989,201
			\$
			\$
R&D Program Area: EERO: IAW		TOTAL:	\$1,989,201
Explanation for "Other" selection			
Reimbursement Contract #:		Federal Agreement #:	

Recipient's Administrator/ Officer				Recipient's Project Manager			
Name:	Chris Dye-Hixenbaugh			Name:	Frank Loge		
Address:	1850 Research Park Dr Ste 300			Address:	1850 Research Park Dr Ste 300		
City, State, Zip:	Davis, CA 95618-6153			City, State, Zip:	Davis, CA 95618-6153		
Phone:	530-754-8034 /	Fax:	- -	Phone:	530-754-2297 /	Fax:	- -
E-Mail:	cddyed@ucdavis.edu			E-Mail:	fjloge@ucdavis.edu		

Selection Process Used	
<input checked="" type="checkbox"/> Competitive Solicitation	Solicitation #: GFO-15-317
<input type="checkbox"/> First Come First Served Solicitation	

The following items should be attached to this GRF			
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 checked="" type="checkbox"/> N/A	<input 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	N/A	General Project Tasks
2		Project Design, Permitting, and Installation
3	X	System Water Quality Monitoring and Analysis
4		Water Reuse Model Plan
5		Measurement, Verification, and Technology Investigation
6		Evaluation of Project Benefits
7		Technology/Knowledge Transfer Activities

B. Acronym/Term List

Acronym/Term	Meaning
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CPR	Critical Project Review
CWEE	Center for Water-Energy Efficiency, University of California at Davis
JFW	Jackson Family Wines
PEI	Process Engineers Inc. (Wine-to-Wine Heat Exchanger)
Recipient	The Regents of the University of California, Davis
TAC	Technical Advisory Committee
VSEP	Vibratory Shear Enhanced Processing

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

A. Purpose of Agreement

The purpose of this Agreement is to demonstrate two technologies to achieve water and energy savings in a large wine production facility located in Sonoma County. This project will advance and promote new and innovative water and energy efficiency strategies in the wine sector that are not currently deployed on a large scale. The project aims to increase widespread adoption of the technologies to increase water and energy efficiency in the California wine industry and beyond.

B. Problem/ Solution Statement

Problem

The wine industry is a large electricity consumer in California's food and beverage industry and is also a significant consumer of water. As such, the industry is a prime target for implementing energy and water efficiency technologies and strategies. The proposed project will demonstrate technologies and methods that are not widely

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

deployed in the wine industry but which have significant potential to reduce water and energy consumption in the wine industry. Technology deployment on a large scale and communicating the results are needed to spearhead industry adoption of these innovative strategies for achieving water and energy efficiency.

Solution

This project will advance and promote new and innovative water and energy efficiency strategies in the wine sector that are not currently deployed on a large scale. The project will include outreach strategies to gain interest and acceptance of these water and energy saving methods. In addition, the project will aim to break through barriers to indoor water reuse in wine production through developing a model Plan for implementing an indoor water reuse system and publicizing the results in accordance with Task 7 (Technology/Knowledge Transfer Activities).

C. Goals and Objectives of the Agreement

Agreement Goals

The goals of this Agreement are to:

- Advance the widespread deployment of an innovative wine-to-wine heat exchanger technology for significantly reducing the energy requirements of processing white wine.
- Advance the widespread deployment of an innovative water treatment technology for the purpose of indoor reuse of recycled winery water.
- Increase the acceptance and adoption of indoor reuse applications in the winery sector and beyond to achieve significant and long-term fresh water savings (and significant embedded energy savings) in the state of California.

Ratepayer Benefits:² This Agreement will result in the ratepayer benefits of greater electricity reliability and lower costs through increased energy efficiency of a large-scale production facility and the potential for increased energy efficiency in a sector that is a significant energy consumer in the state. This project will directly benefit ratepayers by avoiding the marginal costs of electricity supply expansion and improving electricity reliability by reducing energy demand on the regional grid.

Technological Advancement and Breakthroughs:³ This Agreement will lead to technological advancement and breakthroughs to overcome barriers to the achievement of the State of California's statutory energy goals. The full-scale technology deployment and validation, along with marketing and communicating the technology benefits, will help the wine industry to gain knowledge and acceptance needed for widespread deployment of efficient technology currently absent in the industry.

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.

Exhibit A Scope of Work

Widespread deployment of the technologies and methods will lead to direct and embedded energy savings in the wine industry. Given the impact this industry has on water and energy resource use in the state, widespread use of these technologies can help achieve energy efficiency and overcome barriers to achieving the state's energy goals.

Agreement Objectives

The objectives of the project are as follows:

- Lower the energy and water footprint of a large winery facility through innovative water and energy-saving technologies and methods.
- Serve as a demonstration of process wastewater recycling for indoor water reuse (not widely practiced in the California wine, food, and beverage industries).
- Develop a full understanding of the barriers to indoor water reuse in the wine industry and how they can be addressed through design, permitting strategies, and communication between the industry and regulatory authorities.
- Develop the design requirements and permitting strategies for streamlining the implementation of process wastewater recycling and indoor water reuse.

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:

Exhibit A Scope of Work

- 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 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);

Exhibit A Scope of Work

- 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.

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

Exhibit A Scope of Work

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.
 - 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.

Exhibit A Scope of Work

- 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*)

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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;

Exhibit A Scope of Work

- 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

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: PROJECT DESIGN, PERMITTING, AND INSTALLATION

The goals of this task are to finalize the design of the water treatment and reuse systems and the heat exchanger technology; permit the systems with the local regulatory agency; and have the systems installed and ready for operation.

The Recipient shall:

- Coordinate with Jackson Family Wines (JFW) to ensure the correct number and placement of energy and water measuring devices to be included in both technology deployments (for the purpose of measuring and verifying project water and energy savings).
- Design and Commission the white wine heat exchanger
- Design and Commission the indoor water treatment technology
- Coordinate with technology vendors to finalize the vendor design and provide a *Project Design Plan Report* which includes, but is not limited to, copies of the project design including mechanical; electrical and plumbing systems; and a summary of the design process and identification of issues and constraints.
- Complete engineering design work required to connect mechanical, electrical, and plumbing systems to the technologies.
- Obtain permits pursuant to Task 1.8.
- Coordinate with the County permitting agency to understand permitting requirements for the project's indoor water reuse component.
- Document and track the permitting process from start to completion.
- Coordinate with JFW to competitively select subcontractor to install technology equipment and perform mechanical, plumbing, and electrical work.
- Develop the *Construction Completion Report* to notify CAM of the end of construction and the beginning of the operation period for the technology demonstration, and to identify the installation process and any issues encountered.

Products:

- Project Design Plan Report
- Copies of Permits
- Construction Completion Report

TASK 3: SYSTEM WATER QUALITY MONITORING AND ANALYSIS

The goal of this task is to monitor the water quality performance of the Vibratory Shear Enhanced Processing (VSEP) water treatment system for effectively recycling the winery barrel wash water. This task will include taking multiple water quality samples for testing the treated water on a monthly basis for the 12-month project demonstration period. Testing and analysis of these samples for the project duration is a key step in verifying the technology for use as a recycling system in the wine industry, and necessary to gain wide acceptance by the industry and regulatory officials.

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The Recipient shall:

- Develop a *System Water Quality Testing Plan* for performing monthly water quality testing for a period of 12 months. The plan shall include a description of the testing to be conducted, the specific location and number of samples to be taken, and the types of water quality constituents to be tested for.
- Transport bottled water samples from the JFW facility to UCD for testing.
- Perform water quality testing in a UCD water quality testing laboratory to validate the technology's ability to consistently produce water to potable standards suitable for winery indoor reuse.
- Document water quality results.
- Analyze monthly data continuously. Modify the *System Water Quality Testing Plan* as needed to increase or decrease sample sizes or type of constituent testing.
- Prepare a *System Water Quality Report* that describes the results of the water quality testing over the 12 months period.
- Prepare a *CPR Report* and participate in a CPR Meeting per subtask 1.3.

Products:

- System Water Quality Testing Plan
- System Water Quality Report

TASK 4: WATER REUSE MODEL PLAN

The goal of this task is to develop a model Plan to aid in the widespread deployment of indoor water reuse technologies for California wine production (and beyond) through the development of a *Water Reuse Model Plan*. The goal of the Plan is to detail the requirements of the applicable state and local indoor water reuse code and standards, design and treatment requirements, and strategies for navigating the permit process. The Plan will aid wineries, engineers, and regulatory officials in simplifying and streamlining the permitting process for indoor water reuse systems.

The Recipient shall:

- Document and track the permitting process from start to completion.
- Research and detail the barriers to indoor water reuse in California's industrial and commercial sectors and identify all stakeholders and regulatory agencies.
- Coordinate with appropriate permitting agencies and industry stakeholders to understand installation and permitting requirements for similar systems.
- Reach out to permitting agencies in other counties to develop a full perspective on the barriers to implementation of similar systems, and strategies for permitting.
- Coordinate with design professionals experienced in processing indoor water reuse permits in California to further understand barriers and document lessons learned.
- Develop a literature review on indoor water reuse in California and summarize the applicable California codes and standards.
- Develop a *Water Reuse Model Plan* that outlines the findings resulting from activities performed under this Task, and establishes strategies for successful permitting. The plan will include, but is not limited to, a case study based on the JFW indoor water reuse permitting strategy and a detailed description of the project benefits (e.g., water reuse potential, energy savings, cost savings, and water quality performance).

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Products:

- Water Reuse Model Plan (draft and final)

TASK 5: MEASUREMENT, VERIFICATION, AND TECHNOLOGY INVESTIGATION

The goal of this task is to measure the water and/or energy savings over the 12-month project deployment period to verify the water and/or energy savings potential of both the VSEP water treatment and reuse system, and the wine-to-wine heat exchanger.

The Recipient shall:

- Conduct site visits to perform an initial deployment site review and 2-3 follow-up visits, after the technology systems are operating. All site visits to include interviews of key staff.
- Develop a *Measurement and Verification Plan* that describes how the baseline will be established and how the energy and water savings will be measured.
- Compile water and energy data into a project specific database, including data cleaning, organization, and management.
- Perform measurement and verification calculations to calculate and tabulate water and energy savings.
- Provide ongoing M&V of cost savings, benefits, and performance post-EPIC funding, in accordance with the *Measurement and Verification Plan*.
- Develop a *Measurement and Verification Quarterly Progress Report* that describes the results of all measurement and verification activities and determination of actual energy and water savings. Submission of the progress reports will begin 4/30/18 and continue to 10/31/19.
- Conduct site visits and interviews throughout the project period with JFW employees, that investigates the following:
 - Benefits and barriers associated with large scale deployment.
 - Role of end-user behavior at the demonstration facilities and ways to ensure actual long term energy and water savings are sustainable.
 - Critical market players, including regulatory agencies, water and electric utilities, and their role(s) in commercial deployment of the technologies.
- Write a *Project Measurement, Verification, and Technology Investigation Report* that incorporates results of the *Measurement and Verification Progress Reports* and the investigative research conducted with JFW employees.

Products:

- Measurement and Verification Plan
- Measurement and Verification Quarterly Progress Reports
- Project Measurement, Verification, and Technology Investigation Report

TASK 6: EVALUATION OF PROJECT BENEFITS

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

The Recipient shall:

- 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,

Exhibit A Scope of Work

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.

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.

Products:

- 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 whether the project has been or will be cited in government policy publications, and if it will be 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(s) on the project.
- When directed by the CAM, participate in annual EPIC symposium(s) sponsored by the California Energy Commission.

Exhibit A Scope of Work

- Provide at least (6) six *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.

STATE OF CALIFORNIA

STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION - RE: UNIVERSITY OF CALIFORNIA, DAVIS

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

RESOLVED, that the Energy Commission approves Agreement EPC-15-050 from GFO-15-317 with the Regents of the University of California, on behalf of the Davis campus, for a \$1,989,201 grant to demonstrate technologies to achieve water and energy savings in the wine processing sector. Technologies include a heat exchanger that reduces the energy requirements for processing white wine and a water treatment technology that enables indoor reuse of recycled winery water; 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 17, 2016.

AYE: [List of Commissioners]

NAY: [List of Commissioners]

ABSENT: [List of Commissioners]

ABSTAIN: [List of Commissioners]

Cody Goldthrite,
Secretariat