



STATE OF CALIFORNIA

GRANT REQUEST FORM (GRF)

CEC-270 (Revised 12/2019)

CALIFORNIA ENERGY COMMISSION

A) New Agreement # ARV-21-030 (to be completed by CGL office)

B) Division	Agreement Manager:	MS-	Phone
600 Fuels and Transportation Division	Alexander Wan	27	916-805-7477

C) Recipient's Legal Name	Federal ID #
San Francisco Bay Area Water Emergency Transportation Authority	94-3380498

D) Title of Project
WETA Zero-Emission Vessel Infrastructure Blueprint Plan

E) Term and Amount

Start Date	End Date	Amount
8 / 11 / 2021	04 / 28 / 2023	\$ 200,000

F) Business Meeting Information

- ARFVTP agreements \$75K and under delegated to Executive Director
 Proposed Business Meeting Date 08 / 11 / 2021 Consent Discussion
 Business Meeting Presenter Kathryn Reid Time Needed: 5 minutes
 Please select one list serve. Altfuels (AB118- ARFVTP)

Agenda Item Subject and Description:

San Francisco Bay Area Water Emergency Transportation Authority (WETA). Proposed resolution approving Agreement ARV-21-030 with WETA for a \$200,000 grant to develop a plan of action and milestones for implementation of zero-emission infrastructure to support transition of the WETA ferry fleet to zero-emission electric propulsion systems, and adopting staff's determination that this action is exempt from CEQA. (Clean Transportation Program funding). Contact: Alex Wan. (Staff Presentation: 5 minutes)

G) 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:
 - Agreement **IS** exempt.
 - Statutory Exemption. List PRC and/or CCR section number:
 - Categorical Exemption. List CCR section number: 14 CCR section 15306 – Information Collection
 - Common Sense Exemption. 14 CCR 15061 (b) (3) Explain reason why Agreement is exempt under the above section: Cal. Code Regs, tit. 14, §15306, Information Collection, provides that projects which consist of basic data collection, research 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 consists of developing a planning document for possible, future



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deployment of zero emission vehicles and related infrastructure equipment. The project will not cause direct physical changes to the environment, and there will be no physical construction. This project involves data collection, technology assessment, public outreach, administrative coordination efforts, planning, and similar activities. Therefore, the proposed project will have no significant effect on the environment and is categorically exempt under 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

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

Legal Company Name:	Budget
Arup North America, Ltd.	\$ 103,238.00
Aurora Marine Design	\$ 96,762.00
Stark Marine, Inc.	\$ 17,303.00

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

Legal Company Name:

J) Budget Information

Funding Source	Funding Year of Appropriation	Budget List Number	Amount
ARFVTP	FY 19/20	601.118L	\$200,000
Funding Source			\$

R&D Program Area: Select Program Area TOTAL: \$

Explanation for "Other" selection

Reimbursement Contract #: Federal Agreement #:

K) Recipient's Contact Information

1. Recipient's Administrator/Officer

Name: Lauren Gularte

Address: Pier 9, Suite 111

City, State, Zip: San Francisco, CA 94111

Phone: (415) 364-3188



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E-Mail: gulararte@watertransit.org

2. Recipient's Project Manager

Name: Tim Hanners

Address: Pier 9, Suite 111

CALIFORNIA ENERGY COMMISSION

City, State, Zip: San Francisco, CA
94111

Phone: 415-450-5285

E-Mail: hanners@watertransit.org

L) Selection Process Used

- Competitive Solicitation Solicitation #: GFO-20-601
- First Come First Served Solicitation Solicitation #: - -

M) 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 |
| 5. CEQA Documentation | <input checked="" type="checkbox"/> | N/A |

Agreement Manager

Date

Office Manager

Date

Deputy Director

Date

Exhibit A SCOPE OF WORK

TECHNICAL TASK LIST

Task #	CPR	Task Name
1		Administration
2		Technology Assessment
3		Vessel Energy Demand Estimates
4	X	Terminal Infrastructure Requirements
5		Workforce Impacts and Education Requirements
6		Emission Reductions
7		Project Fact Sheet
8		Blueprint

KEY NAME LIST

Task #	Key Personnel	Key Subcontractor(s)	Key Partner(s)
1	Tim Hanners (SF WETA) Chad Mason (SF WETA) Lauren Gularte (SF WETA)	Arup North America, Ltd. (Arup)	
2	Tim Hanners Chad Mason Lauren Gularte	Arup Aurora Marine Design	
3	Tim Hanners Chad Mason Lauren Gularte	Aurora Marine Design	
4	Tim Hanners Chad Mason Lauren Gularte	Arup	
5	Tim Hanners Chad Mason Lauren Gularte		

Task #	Key Personnel	Key Subcontractor(s)	Key Partner(s)
6	Tim Hanners Chad Mason Lauren Gularte	Arup	
7	Tim Hanners Chad Mason Lauren Gularte	Arup Aurora Marine Design	
8	Tim Hanners Chad Mason Lauren Gularte	Arup Aurora Marine Design	

GLOSSARY

Specific terms and acronyms used throughout this scope of work are defined as follows:

Term/ Acronym	Definition
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CEC	California Energy Commission
Clean Transportation Program	Formerly known as Alternative and Renewable Fuel and Vehicle Technology Program
CPR	Critical Project Review
EPA	U.S. Environmental Protection Agency
FTD	Fuels and Transportation Division
GHG	Greenhouse Gas
Recipient	San Francisco Bay Water Emergency Transportation Authority
TAG	Technical Advisory Group
WETA	San Francisco Bay Water Emergency Transportation Authority

BACKGROUND

Assembly Bill (AB) 118 (Núñez, Chapter 750, Statutes of 2007), created the Clean Transportation Program (formerly known as the Alternative and Renewable Fuel and Vehicle Technology Program). The statute authorizes the California Energy Commission (CEC) to develop and deploy alternative and renewable fuels and advanced transportation technologies to help attain the state's climate change policies. AB 8 (Perea, Chapter 401, Statutes of 2013) re-authorizes the Program through January 1, 2024, and specifies that the CEC allocate up to \$20 million per year (or up to 20 percent of each fiscal year's funds) in funding for hydrogen station development until at least 100 stations are operational. The Clean Transportation Program has an annual budget of approximately \$100 million and provides financial support for

projects that:

- Reduce California’s use and dependence on petroleum transportation fuels and increase the use of alternative and renewable fuels and advanced vehicle technologies.
- Produce sustainable alternative and renewable low-carbon fuels in California.
- Expand alternative fueling infrastructure and fueling stations.
- Improve the efficiency, performance, and market viability of alternative light-, medium-, and heavy-duty vehicle technologies.
- Retrofit medium- and heavy-duty on-road and non-road vehicle fleets to alternative technologies or fuel use.
- Expand the alternative fueling infrastructure available to existing fleets, public transit, and transportation corridors.
- Establish workforce training programs and conduct public outreach on the benefits of alternative transportation fuels and vehicle technologies.

The CEC issued GFO-20-601 entitled “Blueprints for Medium- and Heavy-Duty Zero-Emission Vehicle Infrastructure” under the CEC’s Clean Transportation Program. To be eligible for funding under GFO-20-601, projects must also be consistent with the CEC’s current Clean Transportation Program Investment Plan, updated annually. In response to GFO-20-601, the Recipient submitted Proposal #35, which was proposed for funding in the CEC’s Notice of Proposed Awards on April 8, 2021. GFO-20-601 and Recipient’s Application are hereby incorporated by reference into this Agreement in their entirety.

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

Problem Statement:

The ferry services operated by the San Francisco Bay Water Emergency Transportation Authority (WETA) currently carry approximately 3 million passengers per year on 5 routes serving 10 terminals. WETA’s fleet of 15 high speed, high capacity vessels are the cleanest in the nation, however, they still utilize diesel technology which results in greenhouse gas (GHG) emissions.

WETA has consistently been an environmental leader in developing new clean diesel technology for use on passenger ferry vessels. Beginning with its first vessels, the Gemini Class series constructed in 2007, WETA pushed for the development and implementation of new diesel engine after-treatment technology. This resulted in these vessels exceeding EPA’s then-current Tier 2 emissions standards by 97 percent, proving to the industry that increasingly stringent Federal emissions requirements were achievable. WETA’s newest fleet of 3 high speed vessels are the first passenger vessels in the country to achieve EPA’s Tier 4 emissions standards and will reduce an estimated 10 tons of NOx, PM and CO emissions annually, utilizing a combination of selective catalytic reduction and diesel oxidation catalyst technologies. These have been innovative and cutting-edge achievements for the passenger ferry vessel industry. However, more needs to be done to support the ambitious and incredibly important goals set by California’s leaders for reducing harmful emissions and decreasing the climate impacts of transportation. Implementing zero-emission technology is the next logical step for WETA to help California meet the GHG reduction goals outlined in AB 32 which establishes a goal to reduce

GHGs to 40 percent below 1990 levels by 2030. The time is now to push this new technology forward for the vessel industry and help meet these critical environmental goals. With implementation of this project, WETA can create a plan to convert California's largest public ferry fleet to zero-emission technology and contribute towards meeting California's emission reduction goals.

Zero-emission technology does not currently exist for high-speed, high-capacity ferries. The first all-electric vessels in the world entered service less than five years ago. All of the electric vessels built to date are low speed (less than 12 knots) with limited range (short trip applications only). Currently, there are no all-electric vessels that can meet the demands required for high-speed commute service. Significant obstacles exist including:

- Speed fast enough to meet the schedules for commute ferry service.
- Batteries that are light enough and powerful enough to power the vessel at high speed (even for short distances).
- Charging infrastructure sufficient to re-charge batteries during short unloading and loading periods.
- Lack of sufficient power capacity at terminal locations.

Each of these issues is being addressed within a different industry sector yet integration is required to implement a successful ferry service. As advances are made in each of these areas, the feasibility of zero-emission ferries on San Francisco Bay increases. By laying out a blueprint for the system that addresses and integrates all of these technologies, WETA will be positioned to incrementally adopt the new technology as it becomes feasible and substantially reduce the amount of transit-generated GHG within the San Francisco Bay airshed.

Goals of the Agreement:

The goal of this Agreement is to develop a plan to transition ferry operations on San Francisco Bay to zero-emission ferries using electric propulsion systems, with an emphasis on resolving the technical and regulatory barriers for the shore side infrastructure.

Objectives of the Agreement:

The objectives of this Agreement are to develop a plan of action and milestones for implementation of zero-emission energy infrastructure to support transition of the WETA ferry fleet to zero-emission electric propulsion systems. The plan will first target the proof of concept through representative existing and potential new service routes, reflecting both short and medium distance routes, and identify scalable and flexible recharging systems that can be applied across the WETA fleet and further to other ferry and harbor fleets.

Project achievement will be documented by the published blueprint which describes an actionable, feasible plan, and identifies specific technical, regulatory or other impediments which must be resolved that will then enable implementation. These impediments would also be hindering other similar initiatives, and so, measurable progress under this project would be directly applicable to the ability to implement zero-emissions ferry technology and the success of its implementation.

The foundational energy requirements analysis will also support future work to expand to hydrogen fuel cell technology where electrification may be less practicable or feasible.

TASK 1 ADMINISTRATION

Task 1.1 Attend Kick-off Meeting

August 11, 2021

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Scope of Work

ARV-21-030
San Francisco Bay Area Water
Emergency Transportation Authority

The goal of this task is to establish the lines of communication and procedures for implementing this Agreement. The Commission Agreement Manager (CAM) shall designate the date and location of this meeting and provide an agenda to the Recipient prior to the meeting.

The Recipient shall:

- Attend a “Kick-Off” meeting with the CAM, the Commission Agreement Officer (CAO), and a representative of the California Energy Commission (CEC) Accounting Office. The Recipient shall bring their Project Manager, Agreement Administrator, Accounting Officer, and any others determined necessary by the Recipient or specifically requested by the CAM to this meeting.
- Discuss the following administrative and technical aspects of this Agreement:
 - Agreement Terms and Conditions
 - Critical Project Review (Task 1.2)
 - Match fund documentation (Task 1.6) No reimbursable work may be done until this documentation is in place.
 - Permit documentation (Task 1.7)
 - Subcontracts needed to carry out project (Task 1.8)
 - The CAM’s expectations for accomplishing tasks described in the Scope of Work
 - An updated Schedule of Products and Due Dates
 - Monthly Progress Reports (Task 1.4)
 - Technical Products (Product Guidelines located in Section 5 of the Terms and Conditions)
 - Final Report (Task 1.5)

Recipient Products:

- Updated Schedule of Products
- Updated List of Match Funds
- Updated List of Permits

Commission Agreement Manager Product:

- Kick-Off Meeting Agenda

Task 1.2 Critical Project Review (CPR) Meetings

CPRs provide the opportunity for frank discussions between the CEC and the Recipient. The goal of this task is to determine if the project should continue to receive CEC funding to complete this Agreement and to identify any needed modifications to the tasks, products, schedule or budget.

The CAM may schedule CPR meetings as necessary, and meeting costs will be borne by the Recipient.

Meeting participants include the CAM and the Recipient and may include the CAO, the Fuels and Transportation Division (FTD) program lead, other CEC staff and Management as well as other individuals selected by the CAM to provide support to the CEC.

The CAM shall:

- Determine the location, date, and time of each CPR meeting with the Recipient. These meetings generally take place at the CEC, but they may take place at another location or remotely. [Assumed to be virtual meeting to minimize pandemic risks and reduce project costs.]
- Send the Recipient the agenda and a list of expected participants in advance of each CPR. If applicable, the agenda shall include a discussion on both match funding and permits.
- Conduct and make a record of each CPR meeting. Prepare a schedule for providing the written determination described below.
- Determine whether to continue the project, and if continuing, whether or not modifications are needed to the tasks, schedule, products, and/or budget for the remainder of the Agreement. Modifications to the Agreement may require a formal amendment (please see section 8 of the Terms and Conditions). If the CAM concludes that satisfactory progress is not being made, this conclusion will be referred to the Lead Commissioner for Transportation for his or her concurrence.
- Provide the Recipient with a written determination in accordance with the schedule. The written response may include a requirement for the Recipient to revise one or more product(s) that were included in the CPR.

The Recipient shall:

- Prepare a CPR Report for each CPR that discusses the progress of the Agreement toward achieving its goals and objectives. This report shall include recommendations and conclusions regarding continued work of the projects. This report shall be submitted along with any other products identified in this scope of work. The Recipient shall submit these documents to the CAM and any other designated reviewers at least 15 working days in advance of each CPR meeting.
- Present the required information at each CPR meeting and participate in a discussion about the Agreement.

CAM Products:

- Agenda and a list of expected participants
- Schedule for written determination
- Written determination

Recipient Product:

- CPR Report(s)

Task 1.3 Final Meeting

The goal of this task is to closeout this Agreement.

The Recipient shall:

- Meet with CEC staff to present the findings, conclusions, and recommendations. The final meeting must be completed during the closeout of this Agreement. [Assumed to be virtual meeting to minimize pandemic risks and reduce project costs.]

This meeting will be attended by, at a minimum, the Recipient, the Commission Grants Office Officer, and the CAM. The technical and administrative aspects of Agreement closeout will be discussed at the meeting, which may be two separate meetings at the discretion of the CAM.

The technical portion of the meeting shall present an assessment of the degree to which project and task goals and objectives were achieved, findings, conclusions, recommended next steps (if any) for the Agreement, and recommendations for improvements. The CAM will determine the appropriate meeting participants.

The administrative portion of the meeting shall be a discussion with the CAM and the Grants Officer about the following Agreement closeout items:

- What to do with any equipment purchased with CEC funds (Options) [N/A for this Agreement]
 - CEC request for specific "generated" data (not already provided in Agreement products)
 - Need to document Recipient's disclosure of "subject inventions" developed under the Agreement
 - "Surviving" Agreement provisions
 - Final invoicing and release of retention
- Prepare a schedule for completing the closeout activities for this Agreement.

Products:

- Written documentation of meeting agreements
- Schedule for completing closeout activities

Task 1.4 Monthly Progress Reports

The goal of this task is to periodically verify that satisfactory and continued progress is made towards achieving the objectives of this Agreement on time and within budget.

The objectives of this task are to summarize activities performed during the reporting period, to identify activities planned for the next reporting period, to identify issues that may affect performance and expenditures, and to form the basis for determining whether invoices are consistent with work performed.

The Recipient shall:

- Prepare a Monthly Progress Report which summarizes all Agreement activities conducted by the Recipient for the reporting period, including an assessment of the ability to complete the Agreement within the current budget and any anticipated cost overruns. Each progress report is due to the CAM within 10 days

of the end of the reporting period. The recommended specifications for each progress report are contained in Section 6 of the Terms and Conditions of this Agreement.

- In the first Monthly Progress Report and first invoice, document and verify match expenditures and provide a synopsis of project progress, if match funds have been expended or if work funded with match share has occurred after the notice of proposed award but before execution of the grant agreement. If no match funds have been expended or if no work funded with match share has occurred before execution, then state this in the report. All pre-execution match expenditures must conform to the requirements in the Terms and Conditions of this Agreement.

Product:

- Monthly Progress Reports

Task 1.5 Final Report

The goal of the Final Report is to assess the project's success in achieving the Agreement's goals and objectives, advancing science and technology, and providing energy-related and other benefits to California.

The objectives of the Final Report are to clearly and completely describe the project's purpose, approach, activities performed, results, and advancements in science and technology; to present a public assessment of the success of the project as measured by the degree to which goals and objectives were achieved; to make insightful observations based on results obtained; to draw conclusions; and to make recommendations for further projects and improvements to the FTD project management processes.

The Final Report shall be a public document. If the Recipient has obtained confidential status from the CEC and will be preparing a confidential version of the Final Report as well, the Recipient shall perform the following activities for both the public and confidential versions of the Final Report.

The Recipient shall:

- Prepare an Outline of the Final Report.
- Prepare a Final Report following the latest version of the Final Report guidelines which will be provided by the CAM. The CAM shall provide written comments on the Draft Final Report within fifteen (15) working days of receipt. The Final Report must be completed at least 60 days before the end of the Agreement Term.
- Submit one copy of the Final Report with the final invoice.

Products:

- Outline of the Final Report
- Draft Final Report
- Final Report

Task 1.6 Identify and Obtain Matching Funds

The goal of this task is to ensure that the match funds planned for this Agreement are obtained for and applied to this Agreement during the term of this Agreement.

The costs to obtain and document match fund commitments are not reimbursable through this Agreement. Although the CEC budget for this task will be zero dollars, the Recipient may utilize match funds for this task. Match funds shall be spent concurrently or in advance of CEC funds for each task during the term of this Agreement. Match funds must be identified in writing and the associated commitments obtained before the Recipient can incur any costs for which the Recipient will request reimbursement.

The Recipient shall:

- Prepare a letter documenting the match funding committed to this Agreement and submit it to the CAM at least 2 working days prior to the kick-off meeting. If no match funds were part of the proposal that led to the CEC awarding this Agreement and none have been identified at the time this Agreement starts, then state such in the letter. If match funds were a part of the proposal that led to the CEC awarding this Agreement, then provide in the letter a list of the match funds that identifies the:
 - Amount of each cash match fund, its source, including a contact name, address and telephone number and the task(s) to which the match funds will be applied.
 - Amount of each in-kind contribution, a description, documented market or book value, and its 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 shall identify its owner and provide a contact name, address and telephone number, and the address where the property is located.
- Provide a copy of the letter of commitment from an authorized representative of each source of cash match funding or in-kind contributions that these funds or contributions have been secured. For match funds provided by a grant a copy of the executed grant shall be submitted in place of a letter of commitment.
- Discuss match funds and the implications to the Agreement if they are reduced or not obtained as committed, at the kick-off meeting. If applicable, match funds will be included as a line item in the progress reports and will be a topic at CPR meetings.
- Provide the appropriate information to the CAM if during the course of the Agreement additional match funds are received.
- Notify the CAM within 10 days if during the course of the Agreement existing match funds are reduced. Reduction in match funds must be approved through a formal amendment to the Agreement and may trigger an additional CPR meeting.

Products:

- A letter regarding match funds or stating that no match funds are provided

- Copy(ies) of each match fund commitment letter(s) (if applicable)
- Letter(s) for new match funds (if applicable)
- Letter that match funds were reduced (if applicable)

Task 1.7 Identify and Obtain Required Permits

The goal of this task 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. Although the CEC budget for this task will be zero dollars, the Recipient shall budget match funds for any expected expenditures associated with obtaining permits. Permits must be identified in writing and obtained before the Recipient can make any expenditure for which a permit is required.

The Recipient shall:

- Prepare a letter documenting the permits required to conduct this Agreement and submit it to the CAM at least 2 working days prior to the kick-off meeting. If there are no permits required at the start of this Agreement, then state such in the letter. If it is known at the beginning of the Agreement that permits will be required during the course of the Agreement, provide in the letter:
 - A list of the permits that identifies the:
 - Type of permit
 - Name, address and telephone number of the permitting jurisdictions or lead agencies
 - The schedule the Recipient will follow in applying for and obtaining these permits.
- Discuss the list of permits and the schedule for obtaining them at the kick-off meeting and develop a timetable for submitting the updated list, schedule and the copies of the permits. The implications to the Agreement 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 the Progress Reports and will be a topic at CPR meetings.
- If during the course of the Agreement additional permits become necessary, provide the appropriate information on each permit and an updated schedule to the CAM.
- As permits are obtained, send a copy of each approved permit to the CAM.
- If during the course of the Agreement permits are not obtained on time or are denied, notify the CAM within 5 working days. Either of these events may trigger an additional CPR.

Products:

- Letter documenting the permits or stating that no permits are required
- A copy of each approved permit (if applicable)

- Updated list of permits as they change during the term of the Agreement (if applicable)
- Updated schedule for acquiring permits as changes occur during the term of the Agreement (if applicable)
- A copy of each final approved permit (if applicable)

Task 1.8 Obtain and Execute Subcontracts

The goal of this task is to ensure quality products and to procure subcontractors required to carry out the tasks under this Agreement consistent with the Agreement Terms and Conditions and the Recipient’s own procurement policies and procedures. It will also provide CEC an opportunity to review the subcontracts to ensure that the tasks are consistent with this Agreement, and that the budgeted expenditures are reasonable and consistent with applicable cost principles.

The Recipient shall:

- Manage and coordinate subcontractor activities.
- Submit a draft of each subcontract required to conduct the work under this Agreement to the CAM for review.
- Submit a final copy of the executed subcontract.
- If Recipient decides to add new subcontractors, then the Recipient shall notify the CAM.

Products:

- Letter describing the subcontracts needed, or stating that no subcontracts are required
- Draft subcontracts
- Final subcontracts

TECHNICAL TASKS

TASK 2 TECHNOLOGY ASSESSMENT

The goal of this task is to understand prior work on zero-emission ferries applicable to the San Francisco Bay Area to avoid duplication and identify gaps in knowledge and sources for data that can be used in developing the final blueprint. Potential suitable technologies, primarily electric battery and hydrogen fuel cell, will be identified along with current operations that are similar in scale to WETA’s San Francisco Bay services.

The Recipient shall:

- Conduct a site visit, in conjunction with the Kick-off Meeting, of each representative route terminal location. Representative routes are determined by existing and near term WETA routes in the Central Bay. This includes San Francisco, Treasure Island, and Alameda.
- Collect and organize prior studies and plans related to low- and zero-emission ferries in the San Francisco Bay Area.

- Assemble a list of hybrid and zero-emission ferry vessels worldwide that are comparable to the WETA fleet (delivered or under construction).
- Prepare a *Synopsis Memo* summarizing, at minimum: prior studies and analyses related to low-emission and zero-emission ferries applicable to San Francisco Bay.
- Provide a copy of the *Synopsis Memo* to the CAM.
- Conduct a market survey of commercial marine battery system manufacturers noting those with class approval and those manufactured in the United States.
- Develop a list of current and projected marine battery performance parameters (e.g., weight, capacity, service life) and unit cost estimates.
- Conduct a market survey of rapid charging systems delivered or commercially available (include performance parameters, as available).
- Prepare a *Zero-Emission Electric Ferries Technology Assessment Memo* summarizing, at minimum: the market surveys, marine battery performance parameters, and current state of the art for zero-emission electric ferries worldwide. The Zero-Emission Electric Ferries Technology Assessment Memo will also summarize all the actions of this task.
- Provide a copy of the *Zero-Emission Electric Ferries Technology Assessment Memo* to the CAM.
- Conduct community outreach, including surveys/comment cards and in person information sharing.

Products:

- Synopsis Memo
- Zero-Emission Electric Ferries Technology Assessment Memo

TASK 3 VESSEL ENERGY DEMAND ESTIMATES

The goal of this task is to develop estimates of the energy required to maintain the current level of service, including transit time and dwell time, on representative short and medium length routes within the WETA system.

The Recipient shall:

- Review and optimize routes and operating profiles to maximize energy efficiency.
- Document the power requirements for each vessel on the runs that they would be capable of doing during implementation.
- Document the calculated vessel energy demand for each terminal for each of the phases, based on the routes, route profiles and vessels serving WETA terminals, so that infrastructure needs can be determined.
- Prepare *Summary Energy Demand Technical Memo* that describes, at minimum: the power demand and energy supply requirements at the Downtown San Francisco, Treasure Island, Oakland, and Alameda terminals, and a summary of the actions of this task.

- Provide a copy of the *Summary Energy Demand Technical Memo* to the CAM.

Products:

- Summary Energy Demand Technical Memo

TASK 4 TERMINAL INFRASTRUCTURE REQUIREMENTS

The goal of this task is to determine the requirements for providing zero-emission electrical power supplies at each proposed terminal, including rapid charging systems, energy storage (if required) and management equipment, and utility grid connections and improvements. The general characteristics of an energy transfer system will be developed that can be used for other terminals. To ensure WETA can carry out its mandate to provide emergency ferry service, options for resiliency will be explored to ensure the ferry system is operational in the event the electrical grid is non-operational. This task will also discuss the combination of technologies and systems that offer the best mix of economic, environmental, and technical performance specific to the project/region.

The Recipient shall:

- Identify electric utility providers within the San Francisco Bay Area and the substation(s) nearest each of the WETA ferry terminals. For each substation, work with the local utility to identify the current capacity, normal demands, and peak demands.
- Identify potential electrical billing rates at each of the proposed terminals.
- Determine terminal constraints including available space and shoreline development regulations.
- Develop conceptual level site plans for energy management, storage, and transfer equipment at the Downtown San Francisco, Treasure Island, Oakland, and Alameda terminals. Site plans will be developed using available aerial photography for backgrounds.
- Evaluate current electrical capacity against the calculated energy demands at each of the terminals.
- Evaluate applicability to the other existing WETA terminals and those terminals identified for system expansion in the current WETA Strategic Plan Vision for 2035.
- Identify options to ensure resiliency of the ferry system in the event the electrical grid is not operating.
- Prepare *Terminal Infrastructure Requirements Technical Memo*, including, at minimum: functional requirements, resiliency options, terminal constraints, site plans and billing rates for each proposed terminal, applicability to the other existing WETA terminals and those terminals identified for system expansion in the current WETA Strategic Plan Vision for 2035, and summary of the actions of this task.
- Provide a copy of the *Terminal Infrastructure Requirements Technical Memo* to the CAM.

Products:

- Terminal Infrastructure Requirements Technical Memo
[CPR WILL BE HELD IN THIS TASK. See Task 1.2 for details]

TASK 5 WORKFORCE IMPACTS AND EDUCATION REQUIREMENTS

The goal of this task is to define the new skills and knowledge that will be necessary to successfully support the energy requirements for zero-emission electric ferries. This will include the modification, addition and deletion of key shore-side functional roles and training requirements as well as collaboration with local community colleges and universities to adapt existing or develop new programs.

The Recipient shall:

- Identify new roles and training requirements for zero-emission ferry infrastructure maintenance and operations.
- Identify existing roles and functions that would not be necessary with a zero-emission ferry fleet.
- Collaborate with regional institutions to review existing training programs and identify modifications or additions needed to ensure an adequate workforce for successful operation of a zero-emission ferry fleet.
- Prepare a *Workforce Impacts and Educational Requirements Memo* that will include, at minimum: roles and training requirements for zero-emission ferry infrastructure maintenance and operations, existing roles and functions that would not be necessary with a zero-emission ferry fleet, findings of the review of existing training programs, any workforce issues that could create risk for the successful implementation of a zero-emission ferry system, and a summary of the actions of this task.
- Provide a copy of the *Workforce Impacts and Educational Requirements Memo* to the CAM.

Products:

- Workforce Impacts and Educational Requirements Memo

TASK 6 EMISSION REDUCTIONS

The goal of this task is to document the opportunity for reducing GHG and other emissions with operating zero-emission vessels on representative medium and short service routes. This analysis will help prioritize routes or services to get the most benefit from future investments.

The Recipient shall:

- Estimate the emissions reduction associated with zero-emission operations compared to conventional propulsion ferries on the representative routes.
- Estimate the emissions impact of removing the ferry riding commuters, tourists, and others from the surface road system, for the representative routes and considering WETA's vision for an expanded service system by 2035.

- Identify benefits to disadvantaged communities¹, low-income communities², priority populations³, and/or tribal lands⁴.
- Prepare an *Emissions Reduction Technical Memo*, including, at minimum: emissions reduction and benefits information and a summary of actions of this task. The memo should also include information about the emissions impact of removing the ferry riding commuters, tourists, and others from the surface road system, for the representative routes and considering WETA's vision for an expanded service system by 2035.
- Provide a copy of *Emissions Reduction Technical Memo* to the CAM.

Products:

- Emissions Reduction Technical Memo

TASK 7 PROJECT FACT SHEET

The goal of this task is to develop an initial and final project fact sheet that describes the CEC-funded project and the benefits resulting from the project for the public and key decision makers.

The Recipient shall:

- Prepare an *Initial Project Fact Sheet* at start of the project that describes the project and the expected benefits. Use the format provided by the CAM.
- Prepare a *Final Project Fact Sheet* at the project's conclusion that describes the project, the actual benefits resulting from the project, and lessons learned from implementing the project. Use the format provided by the CAM.
- Provide at least six *high quality digital photographs* (minimum resolution of 1300x500 pixels in landscape ratio) from the project.

Products:

- Initial Project Fact Sheet
- Final Project Fact Sheet
- High Quality Digital Photographs

¹ Disadvantaged communities are defined as communities scoring in the top 25th percentile according to the most recent California Communities Environmental Health Screening Tool: CalEnviroScreen Version 3.0 (<https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30>)

² CalEnviroScreen Version 3.0 (www.arb.ca.gov/cci-communityinvestments)

³ Priority populations include residents of (1) census tracts identified as disadvantaged by California Environmental Protection Agency per SB 535, (2) census tracts identified as low-income per AB1550, or (3) a low-income household per AB 1550. The following web link provides interactive maps to aid in determining geographic eligibility for disadvantaged and low-income communities: www.arb.ca.gov/cci-communityinvestments.

⁴ Tribal lands refer to lands located in the State of California that are tribally owned lands, buildings, or facilities.

TASK 8 BLUEPRINT

The goal of this task is to develop a 10- to 20-year implementation plan to deploy zero-emission electric ferries in WETA service. The plan will summarize the findings of Tasks 2 through 6. The opportunities for electric propulsion implementation will be noted for each representative route length, and will consider planned future routes. In addition, the Blueprint will include an implementation schedule, preliminary capital and operating cost estimates for the infrastructure improvements, identification of key project partners, and recommendations for next steps.

The Recipient shall:

- Develop an implementation schedule for terminal improvements to enable zero-emission electric ferry service.
- Develop estimates for capital costs associated with terminal improvements.
- Identify key project partners necessary to implement the Blueprint.
- Prepare a *Draft Blueprint for Implementation of WETA Zero-Emission Ferry Infrastructure* for review. At minimum, the Blueprint will summarize the findings of Tasks 2 through 6 and include information about opportunities for electric propulsion implementation for each representative route length and planned future routes, an implementation schedule, preliminary capital and operating cost estimates for the infrastructure improvements, identification of key project partners, and recommendations for next steps. It will also provide an implementation schedule for terminal improvements to enable zero-emission electric ferry service.
- Incorporate or address comments received on the Draft Blueprint.
- Prepare a *Final Blueprint for Implementation of WETA Zero-Emission Ferry Infrastructure*.

Products:

- Draft Blueprint for Implementation of WETA Zero-Emission Ferry Infrastructure
- Final Blueprint for Implementation of WETA Zero-Emission Ferry Infrastructure

STATE OF CALIFORNIA

STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION SAN FRANCISCO BAY AREA WATER EMERGENCY
TRANSPORTATION AUTHORITY (WETA)

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

RESOLVED, that the CEC approves Agreement ARV-21-030 with WETA for a \$200,000 grant to develop a plan of action and milestones for implementation of zero-emission infrastructure to support transition of the WETA ferry fleet to zero-emission electric propulsion systems; and

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

CERTIFICATION

The undersigned Secretariat to the CEC 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 CEC held on August 11, 2021.

AYE:

NAY:

ABSENT:

ABSTAIN:

Liza Lopez
Secretariat