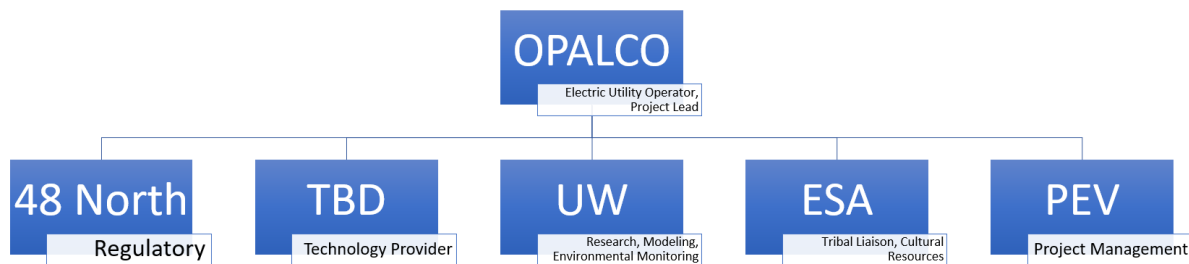


Orcas Power and Light Cooperative Rosario Strait Tidal Energy Project Topic Area 1

Technical Point of Contact
Russell H. Guerry, P.E.; Manager, Engineering
and Operations; Orcas Power and Light
Cooperative; RGuerry@opalco.com

Business Point of Contact
Suzanne Olson; Public Relations
Administrator; Orcas Power and Light
Cooperative; SOLson@opalco.com

Project Site Organization Chart



Orcas Power and Light Cooperative (OPALCO), is an energy cooperative that distributes energy to 20 islands in the San Juan Islands and will serve as the Project Lead and Site Developer. OPALCO will oversee the listed partners as well as facilitate other technology partners to utilize the Project Site based on the criteria outlined by the Department of Energy (DOE) in the Funding Opportunity Announcement (FOA).

48 North Solutions (48 North) is an aquatic-focused environmental firm based in the Seattle Area and will serve as the Regulatory Lead.

Environmental Science Associates (ESA), with an office in Seattle, will facilitate Tribal engagement and provide cultural resources services.

University of Washington (UW) is a partner institution in the Pacific Marine Energy Center (PMEC) and will provide research, modeling, and environmental monitoring services.

Pacific Energy Ventures (PEV), of Oregon, will provide project management services.

The Project Site will be located in the Rosario Strait, San Juan Islands, Washington State.

OPALCO is self-certifying the following: the proposed site is in state waters, the proposal includes one site, the proposed site does not have an existing FERC preliminary permit for an entity not listed on project partner list, the project will be using technology above TRL 7, and is close to commercialization for the scale and type of development proposed.

1. Project Overview

1.1. Background

Orcas Power and Light Cooperative (OPALCO) is a member-owned, non-profit cooperative utility that has provided energy services to San Juan County since 1937. OPALCO gets its power from the mainland via two aging submarine transmission cables and distributes energy to ~12,000 households and businesses covering around 173 square miles of land across 20 islands in the archipelago, located approximately 100 miles north of Seattle. These islands are connected via 25 submarine transmission cables. OPALCO's power supply system from the mainland is currently at capacity during peak usage events, such as extreme low temperatures.

As OPALCO stated in its 2020-2040 Long Range Plan, over the next 20 years, OPALCO projects steady growth in load as beneficial electrification of heating and transportation become the norm. San Juan County residents have put a priority on climate action and reducing carbon emissions, and have embraced EVs, with consistent 60+% annual growth of EVs over the past five years. In addition, WA Department of Transportation has started converting diesel ferries to hybrid electric eFerries. OPALCO expects their service area, which has four ferry terminals, to begin supporting eFerry charging in the 2030s. This will require an estimated 10 MW charging load spike during the 15- minute typical terminal time, off-loading and loading vehicles.

OPALCO also sees a shift from their current winter peak load to a more equal split between summer and winter load, as summer loads increase, and winter loads decrease due to climate change and electrification.

The NW Power and Conservation Council recently estimated that the loss-of-load probability in 2024 is 30% if coal-fired generators retire in 2024 as planned. To mitigate the impact of mainland Loss-of-Load, OPALCO's System Design will increase local renewable energy resources, including solar and tidal generation, and storage focused on increasing local energy resilience in population centers and critical systems. The advent of tidal energy in the next decade may help, since it has strong energy intensity and year-round performance, removing the need for large amounts of storage. However, tidal generation levelized cost of energy is currently out of reach.

1.2. Project Goal

The OPALCO Tidal Energy Project in the Rosario Strait aims to harness the power of tidal currents to generate clean and sustainable energy with the goal of developing a pilot tidal power program and eventually installing two to four 2+ MW tidal power generators.

By adding tidal power generation to the OPALCO grid, the project will enable the local area to reduce its reliance on imported power from the current limited area (three islands) where the mainland transmission resource connects to OPALCO's distribution system. Increasing diversity of connection points will enhance self-sufficiency and local energy security and resilience. In addition, the power can be used to help electrify the Washington Ferry System, thereby advancing marine renewable energy technologies to power ocean activities and decarbonize the maritime sector.

Rosario Strait has been chosen as the project location due to its persistent strong tidal currents. Its lower abundance of sensitive marine species such as orcas, humpback whales, and rockfish, ensures minimal disturbance to the local ecosystem. Another advantage of this location is its proximity to an existing connection for OPALCO at Blakely Island (the sixth largest of the San Juan Islands) located at the bottom of Rosario Strait. This strategic positioning allows for efficient power delivery across OPALCO's service territory through its extensive underwater cable system. The use of an existing site for interconnection enables the project to be transitioned into a commercial project that continues operation after the end of this FOA's period of performance. While Rosario Strait is home to several protected species under various acts and regulations, OPALCO is fully committed to minimizing risks to marine wildlife. The project's design and implementation prioritize the protection of these species and their habitats, aligning with the requirements of the Endangered Species Act, Marine Mammal Protection Act, and Magnuson-Stevens Act.

With more than eight decades of experience serving the San Juan Islands, OPALCO has developed a skilled workforce and established long-term relationships and partnerships with various organizations in the community. These resources, including divers, barge operators, and directional drilling operators, will contribute significantly to the success of the project. Details regarding the existing workforce and impact on future job creation can be found in the Community Benefits Plan.

1.3. DOE/WPTO Impact

The OPALCO Tidal Energy Project represents an exceptional opportunity to demonstrate the transformative impact of the Department of Energy's (DOE) funding, specifically through the Water Power Technologies Office (WPTO), and the ability to effectively achieve the goals outlined in Topic Area 1 of the FOA. First and foremost, the chosen location in Rosario Strait has been identified as the ideal site to develop a pilot tidal and/or current demonstration project in state waters. The turbines will seamlessly connect to OPALCO's grid and serve its extensive service territory, ensuring a broad reach for the generated clean energy. Importantly, OPALCO has previous experience with the complexity of installing submarine cables as well as navigating the permitting and licensing process, thereby enabling it to overcome these barriers to advancing tidal energy.

OPALCO is fully committed to engaging with various stakeholders, including Tribal Sovereign Nations, local and state authorities, labor organizations, regulatory bodies, and university research partners. By building upon existing local and state clean energy strategies, the project aims to leverage collaboration and synergy to maximize its impact.

The project location has the capacity to accommodate multiple tidal and/or current technologies, providing an opportunity to systematically select the most suitable technology for deployment at the site. This factor will attract competitive developers in the tidal and/or current energy sector, fostering technology integration and innovation. Initially, the goal is to develop a single pilot tidal power program and subsequently install two to four 2+ MW tidal power generators in Rosario Strait. While OPALCO has been exploring a project with Orbital Technologies, it is open to other vendors utilizing the site to further mature the industry.

In Phase 1, OPALCO will identify a technology partner to support this project. OPALCO is currently exploring potential technologies but has not yet selected a partner. For the purposes of this application, OPALCO has included information from Orbital Technologies, a potential technology-provider. Orbital has already conducted extensive studies on supply chains and technology components that can be built within the United States, particularly in the Pacific Northwest region where OPALCO operates. By leveraging an organized workforce and collaborating with local economic development agencies, OPALCO is committed to creating quality-clean energy jobs in the vicinity of the project site, ensuring tangible benefits for the local community. In addition, if Orbital is selected, they are committed to exploring manufacturing in the Pacific Northwest.

The University of Washington Marine Research Center will play a crucial role in leading research and development activities essential to quantify system performance and advance tidal and/or current technologies. From resource characterization to environmental monitoring and device performance testing, these R&D activities will significantly contribute to the overall progress and understanding of tidal and/or current energy.

OPALCO is determined to establish a long-term financial agreement that is reasonable and beneficial for its members, collaborating closely with technologies such as Orbital and/or other tidal energy vendors. The intention is to operate the site for the entire useful life of the equipment, which is estimated to be 40+ years. Furthermore, OPALCO is committed to collaborating with the DOE/WPTO beyond the grant performance period, providing valuable data that will aid in maturing the tidal energy industry beyond the scope of this project.

The OPALCO Tidal Energy Project showcases an opportunity to demonstrate the impact of DOE/WPTO funding while meeting the ambitious goals set forth in the FOA's Topic Area 1. Through strategic partnerships, cutting-edge technologies, rigorous R&D activities, and a long-term commitment to information sharing with other coastal communities and utilities, this project has the potential to pave the way for the widespread adoption of tidal and/or current energy, driving the clean energy transition and fostering sustainable economic growth.

1.4. Long-Term Constraints to Natural Resources

The Sovereign/Tribal Nations in the San Juan Islands have strong spiritual and cultural ties to salmon and other aquatic species in the region that include thousands of years of access and use for religious/cultural ceremonies, subsistence, and for commercial purposes. The proposed project would be located in the Usual and Accustomed (U&A) fishing area for the region's Sovereign/Tribal Nations who were signatory to the Treaty of Point Elliott (Treaty). The Treaty secures the tribe's "right of taking fish at usual and accustomed fishing grounds and stations." It is our understanding that the Tribal Nations have a sovereign right to govern their members and manage their lands and resources and that the United States recognizes tribes as sovereign nations and the rightful owners of the land through the signing of treaties that carry the weight of the U.S. Constitution. Engagement and collaboration with the Sovereign/Tribal Nations will be a key aspect of the development of the proposed project.

Since early 2022, the project team has been actively engaging with the Sovereign/Tribal Nations whose ancestral lands coincide with the San Juan Islands (Lummi Nation and Samish Nation) as

well as the Sovereign/Tribal Nations whose traditional territories and U&A fishing areas are in vicinity of the proposed project area, including the Swinomish Indian Tribe, Tulalip Tribes, and Suquamish Indian Tribe. The project team has been actively working to share information about the proposed project, including location and technology, to establish trust and seek meaningful engagement on the proposed project early in the process.

In addition to meeting with the Tribal Nations to understand their access and use of natural resources in the vicinity of the proposed project, we have been actively engaged with the Tribal Historic Preservation Officers (THPO) and cultural departments from each of these five Tribal Nations, previously mentioned. Based on feedback received from the THPOs and the fact that the proposed project aims to tie into existing infrastructure (e.g., submarine cable conduit and existing electrical grid), no impacts to tribal cultural resources or access are anticipated. Additional cultural resources studies and surveys are anticipated to occur as part of the permitting phase and to support compliance with Section 106 of the National Historic Preservation Act. The THPO's will be actively engaged throughout the process and have agreed to provide input on the delineation of the Area of Potential Effects (APE), as well as the identification and inventory methods that will be used to determine if significant tribal cultural resources are present within the APE. Preliminary desktop review and tribal review of the nearshore and upland areas in the vicinity of the proposed project indicates that there are no previously recorded tribal cultural resources (i.e., archaeological sites, traditional cultural places, buildings/structures of tribal importance). Based on the early engagement with the THPOs, our understanding is that impacts on tribal cultural resources will be avoided by the proposed project and will not have any limitations to access.

1.5. Climate Resilience Strategy

The OPALCO Tidal Energy Project has taken a proactive approach to incorporate a robust climate resilience strategy that accounts for climate impacts and extreme weather patterns.

One of the factors considered in the project's design is the limited direct effect of changes in water temperature on seawater density, resulting in minimal impact on power generation. While changing temperatures could potentially alter stratified flows in the Salish Sea where Rosario Strait is located, the secondary effect on residual currents is expected to be modest, generally on the order of 0.2 m/s or slower.

Sea level rise, another crucial aspect of climate change, is not anticipated to substantially affect the tidal prism in the Rosario Strait, thus having a limited impact on currents. The uplift in the region is expected to offset sea level rise, although further expertise is required to fully evaluate this aspect.

The project has also factored in the potential increase in storm activity, which could result in extreme currents from waves and storm surge. While these factors are currently considered secondary design considerations that do not directly affect power generation estimates, they have been incorporated into the design loads. Storm surge, affecting turbines at all depths, will be an ongoing design consideration. Turbines deployed closer to the surface will be designed to withstand larger wave events and ensure their survival.

The OPALCO Tidal Energy Project's comprehensive climate resilience strategy demonstrates its commitment to adapting to climate impacts and extreme weather patterns. By considering and addressing potential challenges, such as altered flows, sea level rise, and increased storm activity, the project ensures the long-term viability and effectiveness of the power generation infrastructure. This approach reflects the project's dedication to sustainable and resilient energy solutions, contributing to the broader goals of climate mitigation and adaptation.

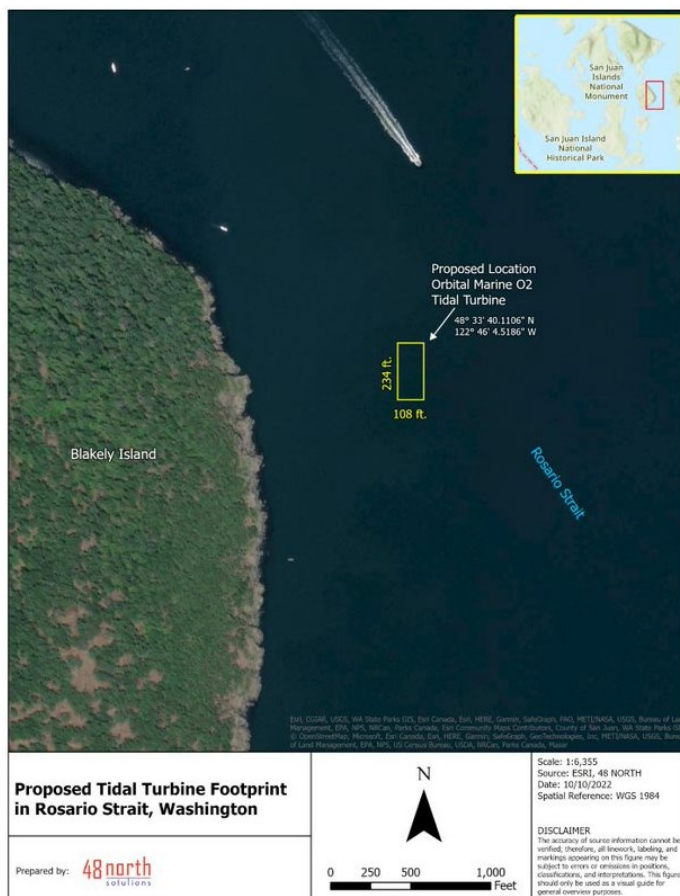
2. Site Development Description Impact

2.1. Tidal and/or Current Site Identification, Characterization, and Implementation Description

Confirmation of 1 site per application

The project will be implemented at a single location in the Rosario Strait to comply with the requirements of the FOA. Further details are provided in the next section.

Baseline information for proposed site



The proposed tidal energy demonstration site is in the Rosario Strait east of the San Juan Islands, northwest of mainland Washington State, in State Waters (Figure 1). A 2021 Department of Energy study identified Rosario Strait as one of the most suitable locations in the San Juan islands for tidal power development. The Testing and Access to Marine Energy Research (TEAMER) program identified this location based on analysis of logistical, regulatory and environmental conditions.

Figure 1. Proposed Tidal Turbine Footprint in Rosario Strait

OPALCO serves the four largest islands: San Juan, Orcas, Lopez, and Shaw, as well as 16 smaller inhabited islands. This scenic archipelago is a popular tourist and retirement destination. There are no bridges to these islands, so access is by ferry service, private boats, and planes. The natural beauty and isolation of the islands draws in many visitors in the summer but the isolation, high cost of living and tourism-based economy also present challenges for residents. Many jobs are hourly and seasonal. According to a recent United Way report, 37 percent of San Juan County residents (over 3,000 households) do not have enough income for a basic survival budget for rent, food, childcare, and other basic expenses. The Rosario Strait is located within the Samish Tribal Designated Statistical Area (TDSA), a Justice40 Initiative disadvantaged community.

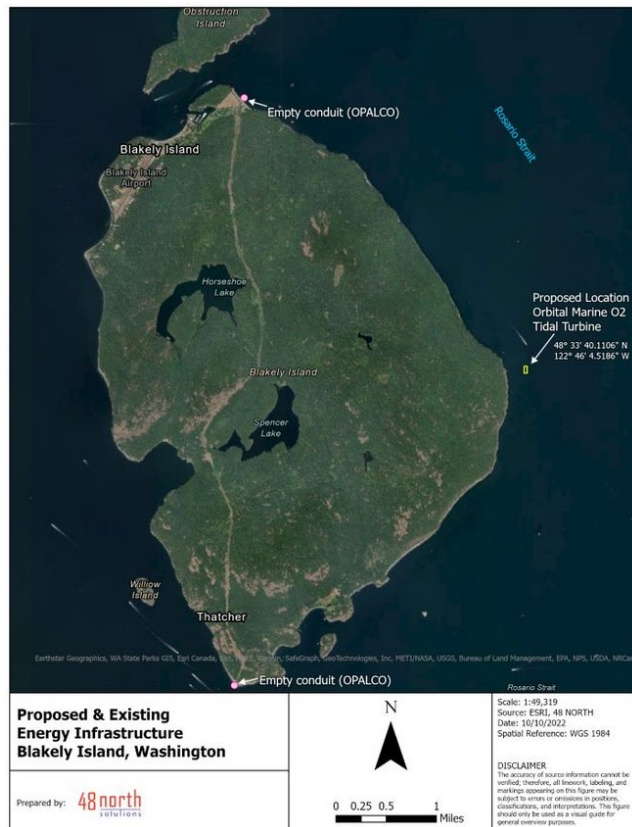


Figure 2. Proposed & Existing Energy Infrastructure on Blakely Island

The San Juan Island's close proximity to mountains and exposure to the Strait of Juan de Fuca fosters a range of habitats for a variety of aquatic, mammalian, vegetative species. The diverse ecosystem is the foundation for tourism-based economy and the resident's livelihoods. OPALCO is organized under the Rochdale Principles, noted in the Community Benefits Plan, which includes the tenet, "Concern for the Community", that upholds sustainable development. OPALCO is committed to collaborating with federal, state, and local regulatory agencies to proceed with this proposed project to protect the San Juan Islands' ecosystem in harmony with renewable clean energy. OPALCO has existing infrastructure (i.e., empty conduits), on Blakely Island where the pilot project (turbines) will connect to from the Rosario Strait (Figure 2).

This site is in a location where manufacturing and other marine supply chain companies are not well developed. However, Puget Sound is in close proximity and has a regionally significant industrial base in the maritime and aerospace sectors that can support technology providers in turbine manufacturing. Cluster organizations (e.g., Washington Maritime Blue) have helped develop diverse work force pipelines and increased sector-wide communication and collaboration. By demonstrating at Rosario Strait, OPALCO will be well positioned to expand tidal energy projects in further locations across the San Juan islands and incorporate other technology providers. OPALCO will look to partner with a technology provider that can manufacture turbines for commercial deployments in both the Puget Sound (e.g., Tacoma

Narrows) and Cook Inlet (as Washington State is the only significant industrial base in relative proximity to the Cook Inlet). The site can also accommodate 29m swept area rotors, a critical steppingstone to enable the Orbital technology to harness ocean currents, such as the Gulf Stream. Additional technology providers will be able to leverage the region's supply chain capabilities to meet the strategic objectives outlined in this FOA.

Feasibility

Plan to perform pre-deployment studies

OPALCO is in the process of conducting a feasibility study for the installation of tidal generation resources in this location in concert with a Washington State Department of Commerce Clean Energy Fund 4 Grid Modernization project. This report is anticipated to be completed in Q3 of 2023 with the assistance of Argonne National Laboratory. This study will also include the modeling of firming this potential resource via OPALCO's 1MW/2.7MWh battery system which is connected to this operational area. In addition, the study will identify if additional local battery resources are needed for optimal economic and operational use.

Relevance and Outcomes

Implementation plan

OPALCO will hire additional staff and consultants/contractors to assist in the construction and management of the project. OPALCO will use previously utilized companies for permitting (48 NORTH), and cultural outreach (ESA). Other contractors OPALCO has previously worked to successfully completed work including: 2017 Sumitomo installed ~3mi of 69kV cable from Lopez Island to San Juan Island, 2017 Harbor Offshore (now JF Brennen) handled the sensitive removal of decommissioned cable and installation of new cable through eel grass beds near the San Juan Island shore). Additionally, in-house engineering and operations staff will handle project management and oversight of design of distribution facilities for interconnection.

OPALCO has operated in the San Juan Islands since 1937 serving 20 islands via 25 submarine cables. The utility has local resources not limited to divers, barge operators, directional drilling operators, etc. OPALCO has long term relationships and partnerships with the San Juan County Preservation Trust, San Juan County Land Bank, San Juan County Ag Guild, the Family Resource Centers (on San Juan, Lopez and Orcas Islands). With their experience in conjunction with the contractors listed above, OPALCO has the expertise in obtaining resources to complete and continue operations of in-water generation resources.

The steps required to implement this project are described in detail in Section 3: Workplan and the Statement of Proposed Objectives. The project will operate in State Waters as described previously in this section.

Key project development and performance parameters

The key project milestones include the following phases:

1. Phase 1 (2024; 12 months): Preliminary Tidal Site Research and Development
2. Phase 2 (2025-2026; 24 months): Detailed Site Characterization
3. Phase 3 (2027; 12 months): Site Mobilization

4. Phase 4 (2028; 12 months): Site Commissioning and Technology Fabrication
5. Phase 5 (2029; 6 months): Testing and Operations

The success of the project will be measured based on the project milestones outlined in the workplan detailed in Section 3 of the Technical Volume and the Statement of Project Objectives (SOPO). Section 3 also includes Go/No-Go Decision Points to evaluate project performance. OPALCO can achieve its performance targets as they have successfully completed previous work. OPALCO has installed and operated submarine cables since the 1950s and is viewed as an industry leader in utility operations and community health. OPALCO has completed several grid modernization projects via the Washington State Department of Commerce Clean Energy Fund, with five projects totaling greater than \$10M of investment. Operationally they have multiple boats for supporting the 20-islands served with on-staff experience of submarine cable repair and installation dating over the last 40 years.

Site permitting

The regulatory and permitting process for tidal energy development mandates involvement by multiple federal and state agencies, as well as Tribal Nations. The Federal Energy Regulatory Commission (FERC) oversees the integration of power generated by marine energy, such as tidal devices, and its incorporation into the national grid. With the advancement of marine technology, FERC developed a pilot licensing process that allows a pilot project (less than 5 MW) to be tested over a short term (5 years) without need for a full licensing process under the Federal Power Act. The purpose of the pilot license is for testing marine energy devices, including interconnection with the electric grid, in an expedited manner, while minimizing the risk of adverse environmental effects. This process is designed to provide an expedited licensing process for demonstration projects while maintaining oversight and agency input.

To proceed with this licensing effort, OPALCO will first file material with FERC to obtain a Preliminary Permit that will not authorize OPALCO to construct but will give them guaranteed priority to the project area in Rosario Strait to conduct baseline studies while they prepare materials necessary for a license.

OPALCO will then file a request to use the pilot project licensing process with FERC concurrently with filing a notification of intent and draft application. OPALCO's request for a Preliminary Permit will describe how the project meets each of the licensing criteria, including the development of pre-filing documentation, a Notice of Intent and draft application, monitoring plan, and environmental safeguards. Working closely with FERC staff, OPALCO will cooperate closely with regional stakeholders, as well as consult with Tribal Nations and relevant federal, state, and local resource agencies.

Before FERC issues a Preliminary Permit, OPALCO will work closely with DOE and FERC to complete a National Environmental Policy Act (NEPA) review to assess the environmental and human impacts associated with OPALCO's proposed tidal energy project. Multiple federal statutes will be considered, and agencies consulted will be advised to include, the State Historic Preservation Office with Section 106 of the National Historic Preservation Act, both the National Marine Fisheries Service (NMFS) and US Fish and Wildlife Service on the Endangered Species Act and Marine Mammal Protection Act, and NMFS on the Magnuson-Stevens Fishery and

Conservation Act, to name but a few. Upon completion of the NEPA review, OPALCO will engage federal, state, and local agencies (i.e., US Army Corps of Engineers; Washington Departments of Ecology, Fish and Wildlife, and Natural Resources; and San Juan County) to obtain the necessary approvals and permits to deploy a pilot project.

Innovation and Impact

Necessary infrastructure proposed for the site

The additional 1-5 MW of turbine capacity impact to the area will give the grid area the ability to minimize the power imported from the three-island area, which is served solely by a mainland transmission resource. The impacts are unknown specifically yet per the PNNL TEAMER report. The proposed project area is the area with the least impact for the environment while still having flows to produce adequate renewable power.

To support the tidal energy infrastructure, the project requires the establishment of additional underbuilt overhead distribution circuits and distribution submarine cables. The support infrastructure required will be an additional underbuilt (to existing transmission line) overhead distribution circuit and distribution submarine cable to interconnect >5MW of generation (future ~10MW). These systems, which include protective and switching mechanisms, as well as a fiber optics communications system for control and monitoring, will support the safe and efficient operation of the tidal power generators.

OPALCO's existing substation has the capacity to sustain approximately 2.5 MW of generation. Any excess energy generated by the tidal power project can be seamlessly transported through OPALCO's robust transmission system to the other two substations, ensuring the optimal utilization of the generated power.

Nexus to OPALCO Grid

The project will be grid connected and will benefit from a pre-existing conduit on Blakely Island. This was installed by OPALCO in 2004 and will allow the project to cost-effectively connect to the OPALCO owned [12.5kV] distribution substation and transmission system. The proposed location, site characteristics, and existing infrastructure connecting to Blakely Island make the proposed project site ideal to support technology development and long-term success.

Ensure proposed site does not have an existing FERC preliminary permit

OPALCO has verified that the proposed site does not have an existing FERC preliminary permit.

Timing for permits

The full scope of permitting needs is described previously in this section and included in Section 3: Workplan as well as in the SOPO.

Project Decommissioning

OPALCO acknowledges the Preliminary Permit will require that the project be decommissioned, and the site remediated as directed by FERC. However, OPALCO's goal is to document that this is

a successful form of renewable energy and to move this pilot project to a commercial scale. They will work closely with FERC staff throughout the pilot deployment with the intent of transitioning to a standard license at the end of the pilot project term. If successful, OPALCO recognizes the continuation of this project would be evaluated in a full FERC proceeding with NEPA review and participation by all stakeholders. At the end of the project demonstration the intent is to continue operations per the Business Plan. At the time that the demonstration site needs to be decommissioned, OPALCO will follow the appropriate procedures.

2.2. Stakeholder/Community Description

Teaming arrangements

OPALCO has partnered with UW to provide research, modeling, and environmental monitoring services for the project. Subject matter experts from UW, specializing in marine renewable energy, will serve in an advisory capacity to OPALCO and may provide additional services as the project concept evolves. UW will document the project process to help further the development of tidal power technology to support future long-term success to scale the technology applications.

Partnerships with local, union, regulatory, and state stakeholders

OPALCO has a collective bargaining agreement in place with the International Brotherhood of Electrical Workers (IBEW) and its partners with three family resource centers on programs to provide financial assistance to members for their electric bills. The Co-op has an apprenticeship program that is certified by the state and participates in the Washington State Apprenticeship Program and longstanding training partnerships with the National Rural Electric Cooperative Association (NRECA) and the Northwest Public Power Association (NWPPA).

OPALCO has received Letters of Support from the following critical community stakeholders: San Juan County, the International Brotherhood of Electrical Workers (IBEW), and the Northwest Public Power Association (NWPPA). The following family resource centers on the islands also provided letters: Lopez Island Family Resource Center, Orcas Community Resource Center, and Joyce L. Sobel Family Resource Center.

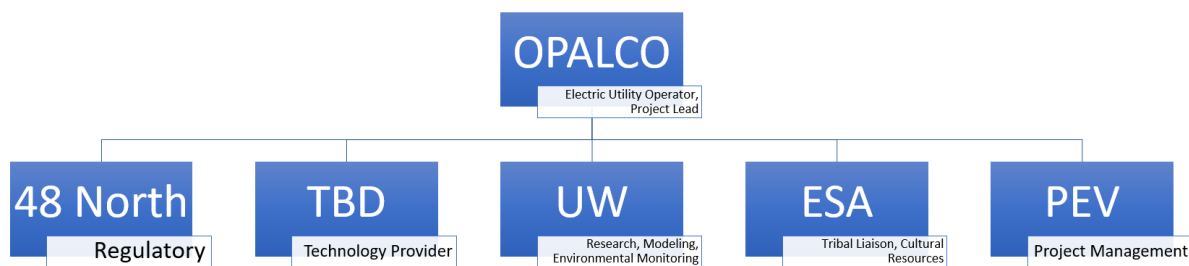
Plan for stakeholder and community engagement

As a member-owned utility cooperative and the sole provider of electricity to the San Juan Islands, OPALCO has been engaging with the entire community for decades. Stakeholders include its members, local government officials, the IBEW which represents 73% of OPALCO employees, Tribal Nations with ancestral lands in the region, a workforce development agency, a regional utility group that provides training, and social service agency that advocate for the most disadvantaged in the community. OPALCO's plan for developing and sustaining these partnerships begins with the formation of an advisory group and stakeholder meetings. Meetings will be held quarterly to launch the effort and then twice a year at later stages. Six stakeholder groups have already submitted letters of support. More broadly the community will be engaged through a series of community meetings, OPALCO board meetings and newsletters and social media campaigns.

Summary of Community Benefits Plan

OPALCO has a comprehensive approach to ensure this project enhances the local community. OPALCO has contracted with a diversity management consulting firm to assess OPALCO's policies and practices and to develop meaningful DEIA strategies, metrics, and benchmarks. OPALCO will continue its community, labor and tribal engagement to ensure there are benefits for residents and businesses in the Samish Tribal Designated Statical Area (TDSA). This project will benefit the community by creating new high-quality jobs and supporting existing jobs. OPALCO prioritizes hiring and providing training to veterans, and disabled adults. They are committed to utilizing the Washington State Office of Minority & Women's Business Enterprises (OMWBE) Certified Business Directory, in addition to previously identified stakeholders. These efforts will ensure that the project achieves the goal of 40% of the overall benefits of climate and clean energy investments flow to disadvantaged communities (DAC) since it is in the Samish TDSA. This project reduces the high energy burden on residents of this remote and rural archipelago and increases energy democracy by expanding local energy production. Additional details regarding OPALCO's approach can be found in the Community Benefits Plan.

2.3. Project and Business Model Description and Organizational Structure



OPALCO has a qualified local team with 46 employees who are experienced in managing all aspects of the utilities' projects from engineering and construction management to administration, accounting, and public engagement. OPALCO's engineering team has the skill and experience to manage the project in all phases from development to permitting, construction and maintenance. If successful in finding funding for this project, OPALCO would hire an additional consulting project manager (PEV) dedicated to the project for detailed project tracking and contractor management.

Project Management Plan

OPALCO's project management plan and approach to a risk register for the Rosario Strait Tidal Energy project is discussed in detail in Section 3 of this proposal. Section 3.5 addresses the risk register and mitigation strategies related to the community, project development, site accessibility/feasibility/sustainability, health and safety, and the environment. Section 3.6 provides a detailed project management plan.

How the site will be expanded after the completion of the project

OPALCO recognizes the long-term potential for the site to provide a renewable energy source to its members. The phased approach allows OPALCO and the benefiting community the

opportunity to evaluate the long-term feasibility and affordability of using tidal energy as a long-term resource. OPALCO intends to operate the tidal energy technology at the Rosario Strait for the full value of its operational life, which they anticipate will extend well beyond the 10 years stated in the FOA. Additional technology providers will continue to be encouraged to utilize the site for the benefit of OPALCO up to the 10MW capacity. OPALCO will also share findings with the broader electric utility community to ensure that this project serves as a model to encourage other similar projects in the region and beyond.

Market Transformation Plan

OPALCO has an 80+ year history of operating its infrastructure in a marine/island environment. The proposed tidal energy project can be easily incorporated into OPALCO's on-going operations. Through the phases outlined in the workplan, OPALCO will evaluate whether to operate the tidal energy technology itself, or if a purchase power agreement may be more suitable. This will be informed by the initial technology provider that is selected in Phase 1 and any additional providers that may join the project through the life of the grant. Any equipment/technology procured using federal funding is planned to be operational beyond the grant performance period to provide renewable energy to OPALCO's members.

Understanding of financing opportunities available

OPALCO understands that the federal funding landscape includes many mechanisms to support the long-term operation of tidal energy projects. This could include the Inflation Reduction Act, DOE's Loan Office Program, and other grants or loans for electric utilities. OPALCO is working with a federal financing company to ensure that it is aware of the evolving funding landscape and can be prepared to take advantage of new opportunities as they arise. OPALCO will continue to seek Washington state energy grants as well as loans from the Rural Utilities Service loan program.

Health and Safety considerations

Health and Safety considerations are summarized in Section 3.

2.4. Technology Identification Description

Technology Readiness Level

OPALCO completed a tidal energy technology and commercial readiness market assessment. This assessment concluded that Orbital offers a tidal power system which meets the DOE's TRL 7 or above criteria. The information provided in this section will refer to Orbital's technology; however, OPALCO remains committed to exploring other providers in Phase 1. Since a technology provider has not been selected per language provided in the FOA, OPALCO did not evaluate the tidal energy system against the International Electrotechnical Commission (IEC) TC114 62600-4 Technology Qualification standard. This activity will be encompassed into the first phase of this project, if awarded.

The example tidal power system (Figure 3) is predominately based on empirical evidence of over 3.2GWh of grid quality power produced over a 12- month period from the SR2000 and the onward performance of the O2. Incorporating Orbital's technology into the application provides an example of TRL 7 to meet the FOA criteria as required. The project site in the Rosario Strait will allow for

additional capacity for other technology providers to test their equipment and capabilities, thus furthering DOE's strategic objectives.

During Phase 1, OPALCO will explore

other potential technology partners who meet the TRL 7 requirement prior to selecting a technology partner.

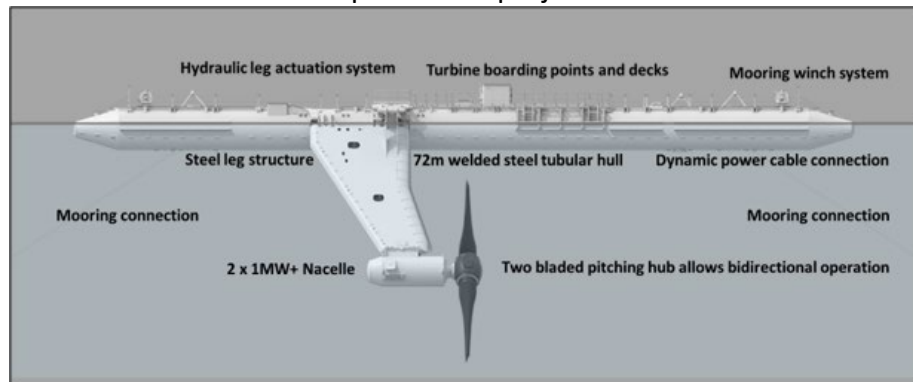


Figure 3. Example Tidal Power System

Previously conducted assessments (TEAMER report) indicates that locations throughout the San Juan Islands have sufficient current speeds to support tidal power generation. With support through the U.S. Department of Energy's TEAMER program, Orbital has evaluated four candidate locations for tidal turbine deployment: Spieden Channel, San Juan Channel, Rosario Strait, and Middle Channel and have shared this information with OPALCO. Of those, Rosario Strait presents the location with the least environmental impact, is not a ferry route or major navigation route. Resource and power performance assessment has been completed by UW (supported by TEAMER) and further project development has progressed (supported by Washington State Department of Commerce). Array spacing and mooring design has been completed by Orbital and has identified that this location has sufficient space to deploy multiple turbines with aggregate capacity of c.15MW.

The project will be grid connected and benefit from a pre-existing conduit on Blakely Island. This was installed by OPALCO in 2004 and will allow the project to cost effectively connect to the OPALCO-owned [12.5kV] distribution substation and transmission system.

The following description is included to illustrate the successful technology that could be implemented in the Rosario Strait. Beginning in 2002 the company tested multiple scale models to validate engineering models and demonstrate hydrodynamic / hydrostatic performance. They developed the first 'large scale' turbines with the fully grid connected 250kW SR250 for open water testing starting in 2007. In 2014 the company developed what was then the world's most powerful tidal turbine. Continuing to upgrade the technology, a project launched in 2021 and incorporated several unique innovations to reduce the generating cost of Orbital's tidal

technology from €300/MWh to €200/MWh¹. The Orbital “O2” turbine’s structural configuration is the basis for future scalability.



Figure 4. Orbital O2 2MW tidal turbine (delivered under H2020 FloTEC GA. 691916) and O2 tidal farm illustration.

If chosen, the project will incorporate many elements and experiences from Orbital’s work to date, and several important new innovative elements with the centerpiece being the floating tidal energy converter that is designed to be installed, maintained, and decommissioned utilizing modest, readily available work vessels. From an operational point of view, it is optimized for sites with low to moderate wave exposure such as Rosario Strait, with its robust construction moored via a turret configuration allowing it to passively weathervane with the tide.

3. Workplan

3.1. WBS and Task Description Summary

The following information addresses the Work Breakdown Structure and Task Description Summary as required in the FOA.

Phase 1 (2024; 12 months): Preliminary Tidal Site Research and Development

Goal: OPALCO will fully characterize the site

- Team (UW and partners) will perform physical and desktop data collection and analysis to fully characterize the site.
- Begin research and development to inform and understand interactions between the onshore and offshore environment and the technology.
- Create plans and schedules for licensing and environmental monitoring, site health and safety, site commercialization and economic analysis, stakeholder engagement (including local authorities for environmental permitting requirements), community benefits, supply chain procurement and finally technology selection and qualification. Address Buy America requirements to purchase materials made in the US or apply for waiver.
- Begin work on FERC License application in Q1 and submit in Q4.
- End of 2024 deliverables:
 - Technology Selection and Qualification Plan

¹ <https://cordis.europa.eu/project/id/691916>

Control Number: 2845-1502

- Preliminary Market Transformation Plan
- Health and Safety (H&S) Management Plan
- Preliminary Procurement Plan
- FERC draft Hydrokinetic Pilot Project License and Notice of Intent
- Contingency Reserve
- Submit/Draft Buy America Waiver if required

Phase 2 (2025-2026; 24 months): Detailed Site Characterization

Goal: OPALCO will continue the design and development of the site.

- Work with technology teaming partner to finalize the project design:
 - Detail the anchoring and submarine cable routing
 - In-service monitoring plan development, including installing cameras and sensing to monitor effects to wildlife in the vicinity of the project area Establish supply chain
- Establish stakeholder engagement activities
- Complete studies for NEPA permitting including Sonar surveys, sea floor surveys, detailed tidal flow surveys, full bathymetry surveys, acoustic surveys, marine wildlife surveys and monitoring
- Complete state and local permitting requirements
 - Tribal consultation
 - Expanded SEPA checklist
 - Submit small generation interconnection permit with BPA (Bonneville Power Administrations)
- End of 2025 deliverables:
 - Preliminary Technology Manufacturing Plan
 - Preliminary Connection, IO&M Plan
- End of 2026 deliverables:
 - Continuation Application, including:
 - Final Technology Selection and Qualification Plan
 - Site Innovation Hub Plan
 - Updated Community Benefits Plan (CBP)
 - Final Market and Transformation Plan
 - Final Stakeholder Engagement and CBP
 - Final H&S Plan
 - Final Procurement Plan
 - Final Environmental Management Plan
 - Final Risk Management and Risk Register Plans

Phase 3 (2027; 12 months): Site Mobilization

Goal: Physical build out and mobilization of the site

- Coordinate with turbine manufacturer to establish schedule
- Fabricate/procure submarine cables and anchors
- Contract and execute marine installation of anchors and cable:

Control Number: 2845-1502

- Place anchors
- Pull cable and terminate on shore
- Lay cable on sea floor with cap and surface marker on the water
- Upgrade land facilities to accommodate cable
- Install overhead circuit on existing structures
- Install protective equipment at Blakely substation
- End of 2027 deliverables:
 - Continuation Application, including:
 - Site Mobilization Report, which includes updates to all Phase 1 and Phase 2 deliverables

Phase 4 (2028; 12 months): Site Commissioning and Technology Fabrication

Goal: Tidal technology fabrication, mobilization, installation, and connection

- Finish fabrication, mobilize, install, and interconnect
- Tidal unit in-service testing activities
 - Communications, monitoring, and telemetry testing
- Commissioning process
 - Testing protective systems
 - Energizing
- End of 2028 deliverables:
 - Site Commissioning Report
 - Update reporting on activities as defined in the Stakeholder Engagement Plan and CBP
 - Final Site Infrastructure Report
 - Technology Certification Report
 - Connection IO&M Report
 - Final Market Transformation Plan
 - License and Environmental Report

Phase 5 (2029; 6 months): Testing and Operations

Goal: Power performance testing of tidal turbines

- Test tidal turbines for power performance
- Fully operationalize the turbines
- Develop and execute continued environmental monitoring plans, including acoustic and marine wildlife monitoring
- End of Q2 2029 deliverables:
 - Site Test and Operational Report
 - Type Certification
 - Technology Market Transformation Plan
 - BIL Compliance Report
 - Site Sustainability Report
 - Operations and Maintenance Continuation Plan

- Environmental Management Continuation Plan
- Final Social and Economic Impact Assessment

3.2. Milestone Summary

Table 1: Summary of Milestones

Milestone	Technical Criteria Used for Evaluation
Phase 1 (2024): Preliminary Tidal Site Research and Development	
2024 Q1: Begin desktop environmental and tidal data collection and analysis and begin work on 2024 deliverables	Establish working drafts of the thirteen deliverable documents discussed in Phase 1 Sec. 1.4 above
2024 Q2: Source and execution of contract with technology provider	Fully countersigned contract with technology provider
2024 Q3: Progress check for 2024 deliverables	Completion of at least 30% of the total deliverable documents discussed in Phase 1 Sec. 1.4 above
2024 Q4: Submission of FERC draft hydrokinetic pilot project license application	Proof of submittal through the FERC online portal
2024 Q4: Conclusion of Phase 1 data collection reporting and analysis	Completion of phase 1 data reporting
Phase 2 (2025-2026): Detailed Site Characterization	
2025 Q1: Begin design finalization with technology teaming partner	Completion of 60% Design drawings
2025 Q2: Start FERC Final License Application (FLA)	Creation of License Application in FERC online portal
2025 Q3: Start Environmental Assessment	Begin federal, state, local permitting
2025 Q4: Finalize site design, including supply chain	Completion of 100% Design drawings
2026 Q1: Start Stakeholder engagement activities	Hold at least one engagement activity identified in Community Benefits Plan
2026 Q2: Complete studies for NEPA permitting	Complete the six studies identified in Phase 2 Sec. 2.4 above
2026 Q3: Receive FERC License (estimated, subject to FERC review period)	Proof of receipt through FERC online portal
2026 Q4: Complete all NEPA, SEPA, and local permitting requirements	Complete the three permit applications identified in Phase 2 Sec. 2.5 above
Phase 3 (2027): Site Mobilization	
2027 Q1: Coordination with technology teaming partner to establish schedule	Mutually agreed final schedule with teaming partner
2027 Q2: Install anchors and cable	Completed engineering and installation of ancillary infrastructure
2027 Q3: Upgrade land facilities, circuits, and Blakely substation	Completed engineering and installation of structures identified in Phase 3 Sec. 3.4-3.5 above
2027 Q4: Complete Site Mobilization Report	Proof of transmittal to DOE
Phase 4 (2028): Site Commissioning and Technology Fabrication	
2028 Q1: Install turbines	Successful interconnection of turbines to cables
2028 Q2: Install turbines	Successful interconnection of turbines to cables
2028 Q3: Testing turbines	Passage of turbine quality assurance protocols
2028 Q4: Commission turbines	Passage of safety testing
Phase 5 (2029): Testing and Operations	

2029 Q1: Power performance testing	Passage of power performance testing
2029 Q2: Site test and operational report	Proof of transmittal to DOE

3.3. Go/No-Go Decision Points

Table 2. Summary of Go/No-Go Decision Points

Decision Point	Technical Criteria Used for Evaluation
Phase 1 (2024): Preliminary Tidal Site Research and Development	
Submission of FERC draft hydrokinetic pilot project license application	Proof of submittal through the FERC online portal
Phase 2 (2025-2026): Detailed Site Characterization	
End of Phase 2 WPTO Go/No-Go Review of site development activities	Extent to which the Phase 3 results demonstrate how OPALCO will meet FOA's goals and objectives (see FOA-002845 p. 33-34 for a complete list of evaluation criteria)
Phase 3 (2027): Site Mobilization	
End of Phase 3 WPTO Go/No-Go Review of site development activities	Extent to which the Phase 3 results demonstrate how OPALCO will meet FOA's goals and objectives (see FOA-002845 p. 36-37 for a complete list of evaluation criteria)
Phase 4 (2028): Site Commissioning and Technology Fabrication	
End of Phase 4 WPTO Go/No-Go review of site development activities.	Passage of turbine quality assurance protocols, passage of safety testing, and verification of interconnection to cables.
Phase 5 (2029): Testing and Operations	
OPALCO will commit to proper engineering and operating testing to ensure that the project meets the expected performance and generation capabilities. OPALCO will also re-examine permits and studies to ensure that impacted areas are surveyed, and mitigation/rehabilitation efforts are taken.	Not applicable – tidal energy technology will be operational and will be tested for efficiency.

3.4. Project Schedule

Table 3. Project Schedule

Task Description
Phase 1 (2024; 12 months): Preliminary Tidal/Current Site Research and Development
Perform physical and desktop data collection and analysis to fully characterize the site.
Begin research and development to inform and understand interactions between the onshore and offshore environment and the technology.
Create plans and schedules for licensing and environmental monitoring, site health and safety, site commercialization, stakeholder engagement (including local authorities for environmental permitting requirements), community benefits, supply chain procurement and finally technology selection and qualification.

<p>End of 2024 deliverables:</p> <ul style="list-style-type: none"> • Down-Select Report • Project Management Plan • Risk Management Plan • Resource Characterization Plan and end of Phase 1 data collection and reporting analysis • Preliminary Environmental Management Plan • Preliminary Stakeholder Engagement Plan • Baseline Social and Economic Impact Assessment • Updated Community Benefits Plan • Technology Selection and Qualification Plan • Preliminary Market Transformation Plan • Health and Safety (H&S) Management Plan • Preliminary Procurement Plan • FERC draft Hydrokinetic Pilot Project License and Notice of Intent • Contingency Reserve
Phase 2 (2025-2026; 24 months): Detailed Site Characterization
<p>Work with technology teaming partner to finalize the project design:</p> <ul style="list-style-type: none"> • Detail the anchoring and submarine cable routing • In-service monitoring plan development, including installing cameras and sensing to monitor effects to wildlife in the vicinity of the project area
Establish supply chain
Establish stakeholder engagement activities
Complete studies for NEPA permitting, including Sonar surveys, sea floor surveys, detailed tidal flow surveys, full bathymetry surveys, acoustic surveys, marine wildlife surveys and monitoring
<p>Complete state and local permitting requirements</p> <ul style="list-style-type: none"> • Tribal consultation • Expanded SEPA checklist • Submit small generation interconnection permit with BPA
<p>End of 2025 deliverables:</p> <ul style="list-style-type: none"> • Preliminary Technology Manufacturing Plan • Preliminary Connection, IO&M Plan
<p>End of 2026 deliverables:</p> <ul style="list-style-type: none"> • Continuation Application, including: <ul style="list-style-type: none"> • Final Technology Selection and Qualification Plan • Site Innovation Hub Plan • Updated Community Benefits Plan (CBP) • Final Market and Transformation Plan • Final Stakeholder Engagement and CBP • Final H&S Plan • Final Procurement Plan • Final Environmental Management Plan • Final Risk Management and Risk Register Plans
Phase 3 (2027; 12 months): Site Mobilization
Locally/regionally produce ancillary structures
Coordinate with turbine manufacturer
Fabricate/procure submarine cables and anchors
<p>Contract and execute marine installation of anchors and cable:</p> <ul style="list-style-type: none"> • Place anchors

Control Number: 2845-1502

<ul style="list-style-type: none"> • Pull cable and terminate on shore • Lay cable on sea floor with cap and surface marker on the water
Upgrade land facilities to accommodate cable
Install overhead circuit on existing structures
Install protective equipment at Blakely substation
End of 2027 deliverables: <ul style="list-style-type: none"> • Continuation Application, including: <ul style="list-style-type: none"> ○ Site Mobilization Report, which includes updates to all Phase 1 and Phase 2 deliverables
Phase 4 (2028; 12 months): Site Commissioning and Technology Fabrication
Finish fabrication, mobilize, install, and interconnect
Commissioning process <ul style="list-style-type: none"> • Testing protective systems • Energizing
Tidal unit in-service testing activities
Communications, monitoring, and telemetry testing
End of 2028 deliverables: <ul style="list-style-type: none"> • Site Commissioning Report • Update reporting on activities as defined in the Stakeholder Engagement Plan and CBP • Final Site Infrastructure Report • Technology Certification Report • Connection IO&M Report • Final Market Transformation Plan • License and Environmental Report
Phase 5 (2029; 6 months): Testing and Operations
Test tidal turbines for power performance
Develop and execute continued environmental monitoring plans, including acoustic and marine wildlife monitoring
End of Q2 2029 deliverables: <ul style="list-style-type: none"> • Site Test and Operational Report • Type Certification • Technology Market Transformation Plan • BIL Compliance Report • Site Sustainability Report • Operations and Maintenance Continuation Plan • Environmental Management Continuation Plan • Final Social and Economic Impact Assessment

3.5. Risk Register and Mitigation Strategy

The information below includes the risks associated with the following: Community engagement, Site development, Site accessibility, feasibility, sustainability, Health and safety, and Environmental risks.

3.5.1 Community Engagement

A Community Benefits Plan has been developed and is being submitted with this application. If awarded, an updated CBP will be developed. OPALCO has started a feasibility study with a comprehensive stakeholder outreach process. OPALCO is fully committed to engaging with various stakeholders, including Sovereign Nations, local and state authorities, labor

organizations, regulatory bodies, and university research partners. OPALCO will continue to build upon existing local and state clean energy strategies and the stakeholder input gathered.

Risk Register

Risks include community disapproval based on potential environmental impacts and social issues associated with tribal governments.

Mitigation strategy

Communication with stakeholders early and often is the mitigation strategy that will be used to identify potential conflicts as well as provide the opportunity to coordination with the potentially impacted communities on solutions. The tidal energy strategy for community engagement will continue to be robust as indicated in the current CBP and future update of CBP. Tribal community outreach specialists are part of this project. Environmental permitting also requires stakeholder input and will be a first step in mitigating any potential issues.

3.5.2 Site Development

This site was selected through US DOE TEAMER project (PNNL-32302, Environmental Information for Siting and Operation of Floating Tidal Turbines in U.S. Waters).

Risk Register

The proposed project will require collaboration and coordination with contractors during the design, planning, engineering, and construction phases of the project. The reliance on contractors presents budgetary and project management risks.

Mitigation strategy

To mitigate these risks, OPALCO will draw on its historical relationships with contractors who have worked on a similar project recently. With deepwater construction challenges like recovery and redeployment of instrumentation, a detailed marine construction work plan will be developed before construction to mitigate delays or cost overruns from unexpected construction impacts. The project team has high confidence that it will be able to contract the required tasks and effectively manage cost and execution risk.

3.5.3 Site accessibility

The equipment will be shipped from the manufacturer and will be a floating turbine system to be directly deployed to the water. The anchoring to the seabed (if this technology is utilized) will be reviewed and approved during the environmental and permitting review process. Most installation will be done using a multi-cat work vessel and a rigid inflatable boat. Accessing connections to existing substations to connect power on Blakely Island should not be an issue as OPALCO has right-of-way.

Risk Register

Site accessibility issues may arise based on permitting requirements from state and federal agencies. The Federal Energy Regulatory Commission regulates projects that utilize water for power generation. OPALCO in coordination with 48 North will submit an application for a Pilot License to begin construction and operation of the project. The proposed project must also comply with the Water Quality Certification under Section 401 of the Clean Water Act and

receive permit approvals from U.S. Army Corp of Engineers. Any permit delays or denial will postpone or possibly halt the project altogether.

Mitigation strategy

OPALCO will coordinate with 48 North to understand and comply with all state and federal regulations for permitting, construction, and monitoring for the proposed project. Beginning the permitting process early, staying on track, and including all the necessary details will be vital to obtaining all necessary permits needed to begin construction. Applying for a Joint Aquatic Resource Permit Application (JARPA) will streamline a portion of the permitting process. JARPA is a permit that covers environmental permits from multiple regulatory agencies, such as Hydraulic Project Approval, the Water Quality Certification under Section 401 of the Clean Water Act, and U.S. Army Corps of Engineers. These strategies can streamline the permitting process and ensure compliance with regulations to successfully begin construction on time.

3.5.4 Feasibility

This tidal project has been successful in multiple areas in Scotland. Multiple studies have been completed to investigate the feasibility of tidal power generation at this site. Both a study funded by the Washington Department of Commerce and the US DOE TEAMER project (PNNL-32302, Environmental Information for Siting and Operation of Floating Tidal Turbines in U.S. Waters) indicate the feasibility of tidal power generation at this site.

Risk Register

Long lead materials are at risk for delays during manufacturing and delivery given current global supply chain challenges.

Mitigation strategy

Close coordination between vendors and the engineering team will ensure project specifications are met to prevent manufacturing timeline delays. The project team will develop a procurement plan which includes delivery methods and timing. OPALCO has decades of experience in designing, constructing, maintaining, and operating transmission infrastructure, and this project will use proven designs, materials, and construction techniques. OPALCO's expertise includes studying and deploying innovations and new technologies, and the proposed project will incorporate design elements selected for their relevance to the location.

3.5.5 Sustainability

To date this technology has been effective for 18 months at sites in Scotland. It is a pilot project and any lessons learned from the Scotland sites can be utilized to improve the sustainability of the tidal power generation at this site.

Risk register

The usage of new energy technologies may pose a sustainability risk for the proposed project. Advances in technology or updates to best practices could potentially lead to better solutions for harvesting energy from tides.

Mitigation strategy

Employing the best practices and lessons from similar projects, such as the sites in Scotland, will help mitigate potential issues during the construction and implementation of the tidal power

generation site. Utilizing the latest technologies that are industry developed and tested will help mitigate the risk of using outdated technology to collect energy. OPALCO will work with partners and subject matter experts to ensure the technologies selected will create a sustainable project.

3.5.6 Health and safety

Construction and maintenance of marine sites hold inherent risks to staff, as does working with electric transmission and generation. OPALCO has a comprehensive Health and Safety Plan.

Risk register

Potential health and safety issues in installing and monitoring tidal energy equipment include navigational risk, vessel traffic, or power generation hazards.

Mitigation strategy

OPALCO will implement its workplace health and safety plan, the plan will be updated to address known risks. They will work with experienced contractors on marine pilot project implementation, gaining knowledge from previous installations to ensure the health and safety of workers. OPALCO has worked with partners to identify a project area outside of the major shipping lanes and typical recreational spaces.

3.5.7 Environmental risk

The OPALCO tidal energy project will undergo a rigorous permitting process, to ensure the site location and proposed project design will not have any adverse effects on the local environment. OPALCO, ESA, and 48 North will work together to apply for all appropriate permits to comply with all state and federal regulations. The proposed project will not be able to move forward without obtaining all necessary permits. If a single permit is delayed or denied the entire project will be at risk of being delayed or canceled. OPALCO, ESA, and 48 North all have experience working through these complex permitting processes to ensure the project comes to fruition.

Risk Register

The regulatory and permitting process for tidal energy development mandates involvement by multiple federal and state agencies, as well as Sovereign/Tribal Nations. These permitting processes are complex and pose a risk to successful project completion. A channel with deep water habitat, near shore habitat, intertidal marine habitat, and adjacent terrestrial habitats on Lopez Island, Decatur Island, and Anacortes compose this project's action area.

Mitigation strategy

The project team will draw on their significant experience with previous marine power projects. OPALCO has leveraged its technical capacities in National Environmental Policy Act (NEPA) compliance and engineering to successfully complete other marine projects. Through the permitting process OPALCO can utilize its organizational experience with different topographical, environmental, and regulatory challenges. Efforts will be made to avoid or minimize any potential impacts to the environment.

Community engagement and outreach will also need to be made to ensure that businesses and cultural resources are protected. Cultural and Environmental evaluations will be used to guide the design and implementation of this project.

3.6. Buy America Requirements for Infrastructure Projects

This project will involve the construction, alteration, maintenance and/or repair of public infrastructure in the United States, through the installation of the tidal project in the San Juan Island project area. All project funds allocated to the tasks subject to Buy America requirements will be used in accordance with section 70914 of the BIL.

3.7. Project Management

Roles

The overall project will be managed by experienced staff of the OPALCO project management team illustrated below and will provide overall project management. OPALCO has experience in managing these types of projects and is familiar with the types of challenges a construction project like this one will face from early design, permitting, and final construction. Specific project roles include:

OPALCO: Project Lead

48 North: Regulatory and Permitting

University of Washington: Resource Characterization

ESA: Regulatory and Permitting

Pacific Energy Ventures: Project Management

Handoffs/Interdependencies

The project team will evaluate how individual tasks relate to one another and develop a process to evaluate specific deliverables and milestones before moving on to future tasks. Milestones will be evaluated for completeness to ensure information and knowledge is effectively transferred from one work product to the next. The project team will also evaluate the relationships between specific tasks or activities to ensure that workflows are coordinated in such a way to meet overall project goals. Specifically, the project team will use tools like Gantt charts to manage critical interdependencies and relationships between tasks.

Technical and Management

Communication, subject matter expertise, and clear decision-making will be the foundation of OPALCO's technical management strategy. OPALCO will provide the necessary leadership to ensure project management goals are being met. OPALCO has included a project management consultant to ensure project goals are being met while meeting overall cost and schedule objectives. Project planning, scheduling, budgeting, and risk management will all play a role in ensuring milestones and deliverables are managed effectively, and that the right team members are contributed at the right level to meet project goals.

Risk Management

As described above, a risk register will be developed and maintained throughout the duration of the project, in accordance with the above risk register components. Project risks will be identified and discussed during regular team meetings. Risk and mitigation plans will be documented, reviewed, and updated over the life of the project. Much of the team's approach to risk management will center around monitoring the progress of milestones and deliverables and identifying gaps or issues early in the project phase.

Project Changes

Any project changes will be fully vetted by the project management team and partners, in coordination with DOE. OPALCO will establish a control process to ensure all proposed changes are documented, reviewed, and approved by the relevant project partner. Before any change is made or accepted, OPALCO will evaluate its potential impact on scope, cost, and schedule. The project team will also prioritize any potential changes to avoid unintended project impacts or unexcepted consequences.

Quality Assurance/Control

Quality assurance and control will be managed throughout the project. OPALCO will be responsible for managing the design, permitting, and construction process and providing qualified advice and/or corrections to relevant activities when required. OPALCO will rely on its project partners to ensure the specific areas they are responsible for meet quality control standards. OPALCO's approach to quality assurance will be proactive to reduce the risk of missteps on the front end. Specifically, OPALCO will attempt to predict or forecast potential issues before they have an opportunity to impact overall project goals.

Communications

With such a diverse team, OPALPO recognizes that a successful project will depend on effective communication between team members from the beginning all the way through the end of the project. The following channels and media will be utilized to ensure frequent and effective communication: 1) Web-based team management; documents, schedules, task lists, and databases, 2) Monthly Teams meetings, 3) One-on-one communication, and 4) Clear communication of milestones and deliverables to subcontractors. The project management team will hold scheduled progress review meetings with the subcontractors performing the delegated work to confirm that the project is progressing on time and on budget.

Team Qualifications

OPALCO has developed a well-qualified team that will help ensure project success, which is list below in the Table 5:

Table 4. Team Qualifications

Justin Klure, PEV, Managing Partner	Time Commitment: 50%
Summary of Qualifications and Experience: Justin Klure has over 15 years of experience managing complex, energy infrastructure projects for the U.S. Department of Energy. He will assist OPALCO with project management support, federal compliance, and administration activities.	
Award Responsibilities: Project Management	
Other Responsibilities Outside of the Award: Other client obligations	

Russell Guerry, OPALCO Manager of Operations and Engineering	Time Commitment: ~25%
Summary of Qualifications and Experience: B.S. in Electrical Engineering, WA and NC Professional Engineer (P.E.). Engineering Department consists of the IT, GIS, staking, metering, and substation maintenance and operations. Russell manages all system planning and design, manages the operations department in absence of Vice President of Operations. Russell was previously Vice President of Engineering at Edgecombe-Martin County Electric Cooperative in North Carolina.	
Award Responsibilities: System planning, designing, and operations management	
Other Responsibilities Outside of the Award: General daily responsibilities managing systems and operations at OPALCO.	
Robert Smallwood, OPALCO System Engineer	Time Commitment: ~25%
Summary of Qualifications and Experience: B.S. in Electrical Engineering Responsible for system planning, coordination and protection schemes, design specifications, submarine and substation maintenance, and automation. Robert was previously the Protection and Power Quality Engineer for Portland General Electric and Protection Engineer for POWER Engineers.	
Award Responsibilities: System planning, coordination and protection schemes, design specifications, submarine and substation maintenance, and automation.	
Other Responsibilities Outside of the Award: General daily responsibilities supporting systems at OPALCO.	
Cameron Fisher, 48 NORTH Managing Director	Time Commitment: 50%
Summary of Qualifications and Experience: Cameron has experience in regulatory compliance for marine projects stretches back to the 1990s. Cameron will lead regulatory issues and consenting.	
Award Responsibilities: Permit application development and compliance.	
Other Responsibilities Outside of the Award: Support OPALCO and other clients on similar work.	
Jim Thomson, PhD, Applied Physics Lab University of Washington, Sr. Principal Oceanographer	Time Commitment: 25%
Summary of Qualifications and Experience: Jim's research focuses on marine energy, measurement of tidal currents, ocean waves and turbulence.	
Award Responsibilities: Subject Matter Expert and Advisor	
Other Responsibilities Outside of the Award: Conducting research focused on measurement of tidal currents, turbulence and waves.	
Stacy Bumback, ESA Northwest Regional Director and Senior Vice President	Time Commitment: 50%
Summary of Qualifications and Experience: Stacy is a Registered Professional Archaeologist and has two decades of experience as a Cultural Resources Manager. Stacy has also been involved in complex Tribal Nation consultation efforts for a variety of projects across the western United States.	
Award Responsibilities: Support with Tribal engagement.	
Other Responsibilities Outside of the Award: Support OPALCO and other client on similar work	
Travis Neal, OPALCO Head Accountant	Time Commitment: ~25%
Summary of Qualifications and Experience: B.A. In Accounting. Head Accountant manages finances at OPALCO, supports securing grants funds, financial expert project support for major projects, grants, and work efforts. Travis has developed & manages the utilities nationally recognized on-bill financing program.	
Award Responsibilities: Financial reporting and tracking for	
Other Responsibilities Outside of the Award: General daily responsibilities supporting financials for OPALCO	
Suzanne Olson, OPALCO Public Relations Administrator	Time Commitment: ~25%
Summary of Qualifications and Experience: Public Relations Administrator develops and implement strategic communication plan: develop, write, edit and produce all publications, ads, exhibits, printed and online materials, long-range planning, manages legislative and public affairs, outreach and grassroots member engagement, and acts as the public information officer and spokesperson.	

Award Responsibilities: Internal and external communication
Other Responsibilities Outside of the Award: General daily responsibilities supporting internal and external communications for OPALCO.

3.8. Contingency Reserve

OPALCO will demonstrate that 10% of the total project cost has been set aside as part of their go/no-go continuation application for Phase 4 and before advancing to site commissioning and technology fabrication. The funds will be liquid, immediately available, and unrestricted monies dedicated exclusively to the purpose of mitigating project performance baseline risk. The contingency reserve will be in addition to the total project cost and will not be counted towards cost share until expended and once expended reimbursement from DOE is capped by the total federal share approved in the award. OPALCO will make every effort will be made to not reduce the scope of work to meet the requirement.

4. Technical Qualifications and Resources

4.1. Qualifications and Expertise

OPALCO will serve as the Project Lead, Principal Investigator, and Site Developer. OPALCO was founded in 1937 and has been providing services throughout the San Juan Islands including a network of submarine cables connecting the islands. OPALCO is leveraging previously successful projects that included 48 North and ESA on the team and they will use their regulatory compliance for marine projects and archeology expertise to provide domain specific services. UW brings their depth and comprehensive research on marine renewable energy conversion and its environmental effects, including optimizing the hydrodynamics and control of turbines and wave energy converters. UW will serve in an advisory capacity and may provide additional services as the project progresses. PEV will serve as project management to ensure each phase of the proposed project is on schedule.

The project team routinely manages complex utility construction projects from engineering, permitting and site preparation through energizing new facilities. Operating in a rural-remote islanded area, the team is skillful in navigating barriers and managing contractors to access the equipment and facilities to get the job done.

OPALCO's project management team interfaces with all teams involved in the project. The project management team works cross functionally with contracting & sourcing, engineering, operations, land, regulatory, permitting, risk management, project control, transmission system planning, and asset teams. OPALCO's breadth of experience and extensive pool of experts offers a unique ability to draw on best practices and integrated expertise across numerous disciplines – program management, electrical engineering, data analysis and construction – to improve operational performance and deliver better outcomes and experiences for customers.

Similarly, OPALCO's key personnel for this project will include highly skilled electrical engineers, scientists, mitigation specialists and climate experts with a deep knowledge and firsthand experience supporting submarine cable projects. For additional please review the Team Qualification section above.

4.2. Existing Equipment and Facilities

UW has significant instrumentation on hand for site characterization, including ADCPs, hydrophones and research vessels with experience of operating in high-current areas. OPALCO owns and operates 25 submarine cables with installed conduit for future use in key areas. In operating a power system on 20 islands, OPALCO has several work class vessels that can support day to day O&M of the marine test site.

4.3. Relevant Previous Work

The project team has prior experience with projects that are relevant to performing tasks of risk and complexity that are similar to the proposed project, as listed below in Table 5:

Table 5. Relevant Previous Work

Tidal Power Primary Assessment and Planning Project	\$150,000
Project Description: Collect data on tidal flows at the proposed project site and determine feasibility for a tidal generator project.	
Relevance to Proposed Project Objectives: This project will provide data to accelerate readiness for the Rosario Strait Tidal Energy Project and inform project design.	
Orcas Power & Light Cooperative Submarine Cable Replacement	\$15,000,000
Project Description: OPALCO replaced three miles of 69kV submarine cable from Lopez Island to San Juan Island through sensitive marine environment.	
Relevance to Proposed Project Objectives: OPALCO has previously worked on projects in sensitive marine environments with support from other partners. The proposed project is located in the same sensitive marine environment and OPALCO will manage partners to complete the project.	
Bailer Hill Hybrid Energy Storage System	\$2,400,000
Project Description: Develop a 1 MW/4 MWh Hybrid Energy Storage System to provide the local electric grid area with the following operational and economic benefits: demand reduction, transmission asset deferral, distribution asset deferral, Volt/VAR support, outage mitigation, and load shaping services.	
Relevance to Proposed Project Objectives: OPALCO has experience managing multiyear projects with large funding amounts. OPALCO will continue to foster best practices to successfully manage the proposed project.	

4.4. DOE/NNSA FFRDC technical services

OPALCO will not seek DOE/NNSA technical services for the proposed project.

4.5. Skills, certifications, and credentials of construction workforce

For construction of the Rosario Strait Tidal Energy Project, OPALCO will utilize a mixture of its own staff, whose skills are mentioned previously in the Technical Qualification and Resources section, and a technology provider, which has yet to be determined, to safety and successfully construct the project.

OPALCO has specialized education and training needs which are addressed internally and through longstanding partnerships with the National Rural Electric Cooperative Association (NRECA) and the Northwest Public Power Association (NWPPA). OPALCO develops its own

workforce through industry training courses, skills acquisition, peer mentoring and opportunities for advancement. NWPPA will develop a new training criterion for tidal power generation to ensure staff are trained to meet the needs of OPALCO.

4.6. Organizational coordination

Roles for Key Personnel and Business Agreements

OPALCO is the lead entity that will oversee the entire project from obligation through closeout and will fulfill all monitoring requirements. OPALCO will coordinate with all partners, manage, and integrate efforts throughout the entire project, initiate and sign business agreements, and will collaborate with subject matter expertise on technical decisions for the project.

48 North is an aquatic-focused environmental firm that will serve as the Regulatory lead focusing on regulatory compliance for marine projects and archeology expertise to provide domain specific services. Cameron Fisher will be the lead point of contact for 48 North. Technology provider will supply tidal turbine technology to be utilized. The technology provider will be selected at a later date. UW is a partner institution in the PMEC and will provide research, modeling, and environmental monitoring services for the project. Staff supporting these efforts will include Jim Thomson. ESA is the Tribal Liaison lead and will provide cultural resources services. Stacy Bumback will be the lead point of contact for ESA. PEV will provide project management services for the duration of the grant.

Integration and Management

OPALCO will manage all five phases of the Work Plan, as detailed in Section 3.

Technical Decision-Making Process

OPALCO will adhere to the Go/No-Go process and consult with subject matter experts for technical decision making.

Public Arrangements

OPALCO will continue to engage the public about this proposed project planning and status, as detailed in Section 2.2 Stakeholder/Community Description. Intellectual Property issues

OPALCO will work with their partners regarding intellectual property issues.

Communication plans

OPALCO will work with their partners to develop communications plans to share information and garner feedback for the proposed project.

Statement of Project Objectives
2845-1517_OPALCO

Applicant: Orcas Power and Light Cooperative (OPALCO)
Project: Rosario Strait Tidal Energy Project

A. Project Objectives

This project will develop a pilot demonstration site and install two to four 2+ MW of tidal power generators and/or current capacity that meets current local, state, and federal regulatory requirements. The overall objective of this project is to perform the R&D activities that are needed to demonstrate commercial viability, enabling the pilot demonstration site to be transitioned into a commercial project that continues operation and provides opportunities for further development of the demonstration site into a large (> 5 MW), grid connected current energy project. Other specific project objectives include:

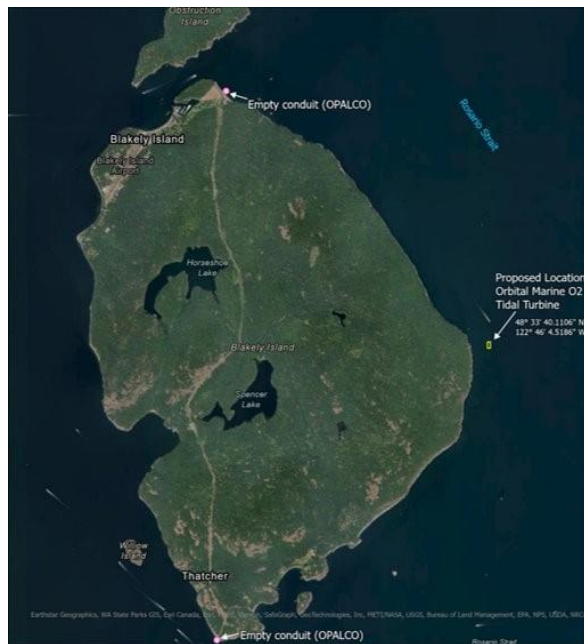
- Phase 1 (2024; 12 months): Preliminary Tidal Site Research and Development
- Phase 2 (2025-2026; 24 months): Detailed Site Characterization
- Phase 3 (2027; 12 months): Site Mobilization
- Phase 4 (2028; 12 months): Site Commissioning and Technology Fabrication
- Phase 5 (2029; 6 months): Testing and Operations

This project will provide a clear implementation plan to develop a demonstration site within five years that would install between two to four 2+ MW of tidal power generators and/or current installation(s) in line with proposed local, state, and federal requirements. Tidal and/or current turbines installed at the site will complete power performance testing and will operate at the site for a minimum of three months.

By adding tidal power generation to the OPALCO grid, the project will enable the local area to reduce its reliance on imported power from the current limited area (three islands) where the mainland transmission resource connects to OPALCO's distribution system. Increasing diversity of connection points will enhance self-sufficiency and local energy security and resilience. In addition, the power can be used to help electrify the Washington Ferry System, thereby advancing marine renewable energy technologies to power ocean activities and decarbonize the maritime sector.

The success of the project will be measured based on the project milestones outlined in the workplan detailed in Section 3 of the Technical Volume and the Statement of Project Objectives (SOPO). Section 3 also includes Go/No-Go Decision Points to evaluate project performance. OPALCO can achieve its performance targets as they have successfully completed previous work. OPALCO has installed and operated submarine cables since the 1950s and is viewed as an industry leader in utility operations and community health. OPALCO has completed several grid modernization projects via the Washington State Department of Commerce Clean Energy Fund for five projects totaling greater than \$10M of investment. Operationally they have multiple boats for supporting the 20-island served with on staff experience of submarine cable repair and installation dating over the last 40 years.

At the end of the project, the project team will deliver a working financial business model for tidal and/or current energy business model that allows for the site to continue operation after completion of the project and for how the site can be expanded after the project is complete. This will also include estimates for continued future economic benefits and community opportunities as the site reaches full commercialization.



Commented [NC1]: OPALCO: feel free to replace this with an updated project location figure

Figure 1: Proposed pilot demonstration site location and layout.

B. Technical Scope Summary

In Phase 1 BP1, the project team will fully characterize the site, and tasks will involve physical and desk top data collection and analysis. R&D in this phase is to inform and understand the interactions between the onshore, offshore environment and the technology, thereby improving confidence in the level of risk associated with these interactions. Plans and schedules will be created for licensing and environmental monitoring, site health and safety, site commercialization, stakeholder engagement, community benefits, supply chain procurement and finally technology selection and qualification. This phase will culminate in a FERC draft hydrokinetic pilot project license application submission.

A Down Select meeting will be held at the conclusion of Phase 1 BP1 where the project team will present the project goals, progress, and accomplishments to-date to the Water Power Technologies Office (WPTO).

In Phase 2 BP2, the detailed site design will be reviewed and refined with DOE and the FERC hydrokinetic pilot project license will be successfully secured.

A Go/No-Go meeting will be held at the conclusion of Phase 2 BP2 where the project team will present the project goals, progress, and accomplishments to-date to the Water Power Technologies Office (WPTO).

In Phase 3 and Phase 4 BP3, the focus will be on the physical build out or mobilization of the site. The onshore and offshore infrastructure development, finalization of the tidal and/or current technology manufacturing and fabrication acceptance tests, and IO&M SOPs should be complete.

A Go/No-Go meeting will be held at the conclusion of Phase 3 and Phase 4 BP3 where the project team will present the project goals, progress, and accomplishments to-date to the Water Power Technologies Office (WPTO).

In Phase 5 BP4, tidal technology fabrication, mobilization, installation, and connection activities will occur. A fully commissioned site will be ready for testing and operations, and the site will move to full operations once tidal and/or current turbines are ready for power performance testing. A Site Sustainability Report will be created to address site longevity with a plan for long-term permitting and licensing.

C. Tasks To Be Performed

PHASE 1/BUDGET PERIOD 1: PRELIMINARY TIDAL SITE R&D

TASK 0.0.0: Project Management

The project team will identify key tasks, develop schedule and allocate budget to complete the Phase 1 scope.

Deliverable 0.0.1: Project Management Plan

Subtask 0.1.0: Risk Management

The project team will identify risks and mitigation strategies.

Deliverable 0.1.1: Risk Management Plan

TASK 1.0.0 Site Characterization: Data Collection and Analysis

Project team will fully characterize the site. Tasks will involve physical and desk top data collection and analysis.

Deliverable 1.0.1: Resource Characterization Plan

Milestone 1.0.1: Conclusion of Phase 1 data collection reporting and analysis

Subtask 1.1.0 Stakeholder Engagement

Identify all relevant stakeholders and interested parties. Define their interests and expectations in the project.

Deliverable 1.1.1: Preliminary Stakeholder Engagement Plan

Subtask 1.2.0 Economic Analysis

This subtask will define how it provides benefits to local or disadvantaged communities. This task will identify and provide estimates on the economic or fiscal impacts for the site, number of jobs, and impact on the local community economy for development and sustainable operations for a tidal and/or current site.

Deliverable 1.2.1: Updated Community Benefits Plan

Deliverable 1.2.2: Baseline Social and Economic Impact Assessment

Subtask 1.3.0 Technology Qualification

This subtask will provide evidence and arguments to support claims that the technology under assessment will function reliably in a target operating environment within specific limits and with an acceptable level of confidence.

Deliverable 1.3.1: Technology Selection and Qualification Plan

Subtask 1.4.0 Market Research and Business Plan

This subtask will define the project mission and strategy, along with a business cash flow model for project development, which includes the initial 6 years and a forecast out to 10 years after period of performance of active award. Identify all procurement needs that will be needed for the development of the project.

Deliverable 1.4.1: Preliminary Market Transformation Plan

Deliverable 1.4.2: Preliminary Procurement Plan

Subtask 1.5.0 Health and Safety (H&S)

This subtask will identify and record all project H&S hazards using the NREL risk management register as described under the risk management plan.

Deliverable 1.5.1: Health and Safety (H&S) Management Plan

TASK 2.0.0 FERC License

Plans and schedules will be created for licensing, and a FERC License application will be submitted.

Subtask 2.1.0 License and/or Permit Analysis

Data collection and analysis to support the draft FERC hydrokinetic pilot project license and other regulatory applications for site permits.

Deliverable 2.1.1: Preliminary Environmental Management Plan

Deliverable 2.1.2: Regulatory Strategy

Subtask 2.2.0 FERC License and/or USACE Permit Application

Submit license and/or permit applications.

Deliverable 2.2.1: FERC draft Hydrokinetic Pilot Project License and Notice of Intent, or USACE permit.

Milestone 2.2.1: FERC License and/or USACE Permit Application Submission

Task 3.0.0: Down-Select Process and Negotiations of BP2-4 /or Project Closeout

NOTE: This task is estimated to take two (2) months and includes the following:

<i>Applicant submits final BP1 deliverables to WPTO Project Officer</i>	<i>End of BP1 Month 10</i>
<i>Down Select presentation to WPTO</i>	<i>Beginning of BP1 Month 11</i>
<i>WPTO issues Down Select decision</i>	<i>Approximately two to four weeks after DS presentation</i>
<i>Depending on the DS decision, WPTO and Applicant negotiate subsequent BP, or proceed to closeout BP1 award</i>	<i>Conducted during remaining time in BP1 from DS decision to end of BP1</i>

Down Select Deliverable 3.0.1: Down Select Report

Down Select Deliverable 3.0.2: Down Select presentation to WPTO

Down Select Milestone 3.0.1: Down Select Decision Received

Subtask 3.1.0: Negotiations of Phase 2-5 BP2-BP4 (or Closeout of BP1) depending on the Down Select decision.

PHASE 2 BUDGET PERIOD 2-5

FOA 2845 has a competitive Down-Select at the conclusion of Phase 1 BP1. Thus, all budget periods after BP1 will be subject to negotiations after the Down-Select. According to DOE, BP2-4 information is not required at the time of Application in the SOPO. Please see Technical Volume Section 4 Workplan for more information on budget periods 2-4. Project Management and Reporting

OPALCO will submit a Project Management Plan and a Risk Register in the first month of Phase 1 of the project. Both the Project Management Plan and the Risk Register will be revised in the tenth month of Phase 1 of the project and revisited throughout the term of the project. The Risk Register will follow the “Maine and Hydrokinetic Technology Development Risk” risk register template and will consider the risks that could be encountered during a potential device manufacturing, deployment, and testing project.

OPALCO will participate in the WPTO’s Peer Review program to inform programmatic decision making, enhance active project management; and modify or expand existing projects. OPALCO acknowledges the value of this program, which enables external stakeholders to provide feedback on the most impactful use of taxpayer funding and develop recommendations for the most efficient and effective ways to accelerate industry development in water power technologies. Reports and other deliverables will be provided in accordance with the Federal Assistance Reporting Checklist following the instructions included therein.

D. DOE Marine Energy Data Repository Plan

All data collected, as well as key deliverables, should be delivered in accordance with the Federal Assistance Reporting Checklist. Data will be uploaded either to the [EERE Project Management Center \(PMC\)](#), [DOE CODE](#), Interagency Edison ([iEdison](#)), USDOE Scientific and Technical Information management system ([OSTI elink](#)), to the relevant WPTO-funded [PRIMRE Knowledge Hubs](#) ([MHKDR](#), [Tethys](#), [Tethys Engineering](#), and [MRE Software](#)). Data should be uploaded as it is generated, but no later than the end of each reporting quarter in which the data is generated. The data will be made publicly available once it has been submitted, curated, and accepted into the appropriate system. Data submitted to MHKDR that have been identified as protected, or subject to a moratorium, will not be made publicly available until the period of protection is over or the moratorium has expired, and will be held in a secure section of the system. Protected Data will be treated according to the Intellectual Property Provisions of the Award.

Products resulting from WPTO financial assistance should be uploaded to the appropriate PRIMRE Knowledge Hub:

- **MHKDR**
 - o Data; including any modeling outputs, visualizations, schematics, videos, code, software, raw data or other digital assets suitable for public release should be uploaded to DOE Marine and Hydrokinetic Data Repository (<https://mhkdr.openei.org>). Additionally, the Marine Energy Data pipeline and MHKiT should be leveraged to convert data to a standardized format and can be used to automate the upload to the MHKDR. Data submitted to PRIMRE's MHKDR that have been identified as protected, or subject to a moratorium, will not be made publicly available until the period of protection is over or the moratorium has expired, and will be held in a secure section of the system.
 - o For more information, see the MHK Data Repository Training Video online at <https://youtube.com/openei> or access tutorials and frequently asked questions (FAQs) under "Help" at <https://mhkdr.openei.org>.
- **Tethys**
 - o Publications (such as journal articles, technical reports, conference papers, white papers, or as well as other public documents) focused on research, monitoring results, or technology development to assess and mitigate environmental effects of marine energy will be [contributed to Tethys](#). (<https://tethys.pnnl.gov/contributing-tethys>). All uploads are carried out by the Tethys team at PNNL.
- **Tethys Engineering**
 - o Publications (such as journal articles, technical reports, conference papers, white papers, or as well as other public documents) focused on technical and engineering information about marine energy will be contributed to Tethys Engineering (<https://tethys-engineering.pnnl.gov/contribute-tethys-engineering>). All uploads are carried out by the Tethys Engineering team at PNNL.
- **MRE Software**
 - o Software developed for marine energy applications should be hosted on the PRIMRE Code Catalog (https://openei.org/wiki/PRIMRE/Code_Catalog). Submit

software through the MRE Code Submission Form. Open-source software hosted on a public repository will automatically be forked into the GitHub MRE Code Hub (<https://github.com/MRE-Code-Hub>).

Community Benefits Plan

Introduction and Background

The Rosario Strait project area is located within the Samish Tribal Designated Statistical Area (TDSA), a Justice40 Initiative disadvantaged community. The purpose of this plan is to describe OPALCO's vision for ensuring that the four core interdependent policy priorities - engaging communities and labor; investing in America's workforce; advancing diversity, equity, inclusion, and accessibility; and implementing Justice40 - are addressed and that the benefits of this project are shared broadly. The plan includes a range of actions and activities, some that broadly apply to all OPALCO's work and others that are project specific. As a result, many activities will be ongoing, some are planned, others will be developed with community partners over time.

OPALCO intends to build on this organizational Community Benefits Strategy by creating an advisory group to solicit, gather and evaluate community input related to the community benefits strategy and any initiatives and policies that result from the process and document. This group will be formed during Phase 1 and will draw from representatives of local stakeholder groups, including Family Resource Centers, Tribal/Sovereign Nations, IBEW Local 77, and co-op members.

OPALCO has contracted with The Gatling Agency, a Minority- and Women-Owned diversity management consulting firm, to develop a Community Benefits Strategy for OPALCO's general operations and to inform the tidal energy project's Community Benefits Plan over the lifetime of the project. Work to assess OPALCO's policies and practices and to develop meaningful DEIA strategies, metrics and benchmarks began in June 2023.

OPALCO, a member-owned, non-profit cooperative utility is organized under the Rochdale Principles, also known as the seven cooperative principles (see table below). These principles not only guide the operations and mission of the organization but will also shape the development and implementation of the Community Benefits Plan.

Plan highlights

- Extensive community, labor and tribal engagement.
- New collective bargaining agreement with the IBEW
- Creation of an advisory group comprised of local stakeholders.
- Development of a clean, renewable energy source that will provide greater energy resilience and independence in a Justice40 community.

FULL-TIME EQUIVALENT POSITIONS SUPPORTED BY FISCAL YEAR						
	FY 1	FY 2	FY 3	FY 4	FY 5	Total
FTEs	8.08	9.56	25.43	51.88	16.48	111.43

Rochdale Principles	
1. Open and Voluntary Membership	Membership in a cooperative is open to all people who can reasonably use its services and stand willing to accept the responsibilities of membership, regardless of race, religion, gender, or economic circumstances.
2. Democratic Member Control	Cooperatives are democratic organizations controlled by their members, who actively participate in setting policies and making decisions. Representatives (directors/trustees) are elected among the membership and are accountable to them. In primary cooperatives, members have equal voting rights (one member, one vote); cooperatives at other levels are organized in a democratic manner.
3. Members' Economic Participation	Members contribute equitably to, and democratically control, the capital of their cooperative. At least part of that capital remains the common property of the cooperative. Members allocate surpluses for any or all of the following purposes: developing the cooperative; setting up reserves; benefiting members in proportion to their transactions with the cooperative; and supporting other activities approved by the membership.
4. Autonomy and Independence	Cooperatives are autonomous, self-help organizations controlled by their members. If they enter into agreements with other organizations, including governments, or raise capital from external sources, they do so on terms that ensure democratic control as well as their unique identity.
5. Education, Training, and Information	Education and training for members, elected representatives (directors/trustees), CEOs, and employees help them effectively contribute to the development of their cooperatives. Communications about the nature and benefits of cooperatives, particularly with the general public and opinion leaders, help boost cooperative understanding.
6. Cooperation Among Cooperatives	By working together through local, national, regional and international structures, cooperatives improve services, bolster local economies, and deal more effectively with social and community needs.
7. Concern for Community	Cooperatives work for the sustainable development of their communities through policies supported by the membership.

Area description

The Samish TDSA is comprised of the San Juan Islands in San Juan Co. and a portion of Fidalgo Island in Skagit Co. The Lummi and Salish peoples have lived in the San Juan Islands for thousands of years, with early European settlements being established in the mid-19th Century. Today, OPALCO serves the four largest islands: San Juan, Orcas, Lopez and Shaw as well as 16 smaller inhabited islands. This scenic archipelago is a popular tourist and retirement destination. There are no bridges to these islands, so access is by ferry service, private boats and planes. The natural beauty and isolation of the islands draws in many visitors in the summer but the isolation, high cost of living and tourism-based economy also present challenges for residents. Many jobs are hourly and seasonal. According to a recent United Way report, 37 percent of San Juan Co. residents (over 3,000 households) do not have enough income for a basic survival budget for rent, food, childcare, and other basic expenses. The Washington State Department of Commerce tracks households below 200 percent of the Federal poverty line with an energy burden of more than six percent. In San Juan Co., 22 percent of households (1,786) meet these criteria. The average annual excess burden per household is \$2,044, the highest in the state.

This project is important in a number of ways because it will provide consistent, reliable, renewable energy with innovative technology that will generate high quality jobs for an area dominated by seasonal service sector employment. The project will directly benefit the

residents and businesses in OPALCO's service area in San Juan Co. and will offer employment opportunities for the larger region.

Community Engagement

OPALCO has a long history of engaging with the community, starting with its formation as an electric cooperative in 1937. As a member-owned utility cooperative and the sole provider of electricity to the San Juan Islands, there is little difference between co-op members and the community as a whole. Everyone in the San Juan Islands with an electric bill is a co-op member.

Members are engaged in a number of traditional ways such as monthly board meetings, bill inserts, advertising in local news outlets, regular newsletters, through elected representatives to the board, and social media. In addition to these traditional methods, OPALCO hosts member workshops and events on topics related to decarbonization, rates and governance issues on a near monthly basis. OPALCO hosted a virtual workshop on March 22, 2023, to introduce the tidal project concept and answer questions from the community. Approximately 50 people attended this workshop. On April 22, 2023, OPALCO facilitated the Island Innovation Lab with presentations and guest speakers on tidal energy and other newer technologies. About 60 community members participated in this event. The tidal presentation is available to the public as a pdf on OPALCO's website and the Innovation Lab panel was recorded - and includes a presentation by Oliver Wragg of Orbital Marine Power, a renewable energy company developing tidal energy technologies.

This project has generated considerable interest and excitement from the community and OPALCO plans to continue offering virtual workshops for the community on tidal energy and potential projects over the next year. OPALCO plans to host 15 Island Way Workshops from 2024-2028 (4 in Phase 1), multiple community events each year, a workshop for elected officials in Phase 1, and quarterly stakeholder meetings the first two years of the project.

OPALCO also has longstanding partnerships with three family resource centers on the islands: Lopez Island Family Resource Center, Orcas Community Resource Center, and San Juan Island Family Resource Center. These social service organizations are focused on providing a full support network for their community's most vulnerable residents. OPALCO currently partners with these resource centers to conduct outreach, determine eligibility, and facilitate the application process for two OPALCO programs that provide financial assistance to members for their electric bills.

In addition to the services they provide, these family resource centers also advocate on behalf of disadvantaged community members. OPALCO will continue to partner with the family resource centers and, In Phase 1, OPALCO will host a meeting with family resource center representatives to consult with them about how the tidal project can best benefit their clientele. Engagement with the family resource centers beyond Phase 1 will evolve based on mutual considerations. Engagement will focus on ways they can help ensure that the most disadvantaged members of the community are best positioned to take advantage of the jobs created through this project as well as exploring more formal community benefits agreements.

This tidal project will likely be the first deployment in the region, providing a model for others to learn from and an opportunity to collaborate on solutions and strategy development. During Phase 1, OPALCO will host virtual workshops throughout the tidal development process to engage with local, regional and state partners such as DOE and WA DOC staff, utilities, construction and technology providers, public policy makers and regional labs. Once there is a tidal generator in the water, OPALCO would continue to share lessons learned and provide on-site field trips as appropriate.

Tribal Engagement

Engagement and collaboration with the Tribal Nations will be a key aspect of project development. The Tribal Nations with ancestral lands in the San Juan Islands have strong spiritual and cultural ties to salmon and other aquatic species in the region that includes thousands of years of access and use for religious/cultural ceremonies, subsistence, and for commercial purposes. The proposed project would be in the Usual and Accustomed (U&A) fishing area for the region's Tribal Nations who were signatory to the Treaty of Point Elliott (Treaty). It is our understanding that the Tribal Nations have a sovereign right to govern their members and manage their lands and resources and that the United States recognized tribes as sovereign nations and the rightful owners of the land through the signing of treaties that carry the weight of the U.S. Constitution. In each instance of referring to “tribes,” we acknowledge the sovereignty of Tribal Nations.

OPALCO has contracted with Environmental Science Associates, an employee-owned environmental consulting firm with expertise in tribal relations, to help with tribal engagement broadly and specifically for this tidal project. Since early 2022, the project team has been actively engaging with the Tribal Nations whose ancestral lands include the archipelago of the San Juan Islands (Lummi Nation and Samish Nation) as well as the Tribal Nations whose traditional territories and U&A fishing areas are in the vicinity of the proposed project area including the Swinomish Indian Tribe, Tulalip Tribes, and Suquamish Indian Tribe. The project team has been actively working to share information about the proposed project, including location and technology, to establish trust and seek meaningful engagement on the proposed project early in the process. To date, there have been eight meetings with tribal representatives from these five Tribal Nations. The tribal representatives that have participated in our meetings have been actively sharing the project details with the tribal fishing community and tribal governments to solicit feedback on the types of fishing done in this vicinity and the methods used to identify any possible constraints. Quarterly meetings are planned for Phase 1, including more formal presentations to the tribal governments and fisheries commissions. These early discussions have been positive, and we are optimistic that any impacts to tribal fishing/natural resources can be avoided, minimized, or mitigated through these engagement efforts.

In addition to meeting with the Tribal Nations to understand their access and use of natural resources in vicinity of the proposed project we have been actively engaged with the Tribal Historic Preservation Officers (THPO) and cultural departments from each of these five Tribal

Nations. Based on feedback received from the THPOs and the fact that the proposed project anticipates tying into existing infrastructure (e.g., submarine cable conduit and existing electrical grid), no impacts to tribal cultural resources or access are anticipated. Additional cultural resources studies and surveys are anticipated to occur as part of the permitting phase and to support compliance with Section 106 of the National Historic Preservation Act. The THPO's will be actively engaged throughout the process and have agreed to provide input on the delineation of the Area of Potential Effects (APE), as well as the identification and inventory methods that will be used to determine if significant tribal cultural resources are present within the APE. Preliminary desktop review and tribal review of the nearshore and upland areas in the vicinity of the proposed project indicates that there are no previously recorded tribal cultural resources (i.e., archaeological sites, traditional cultural places, buildings/structures of tribal importance). Based on early engagement with the THPOs, our understanding is that the proposed project avoids impacts to tribal cultural resources and won't limit access.

Phase 1 work will focus on getting additional input and letters of support from the THPOs. Engagement beyond Phase 1 will evolve based on mutual considerations but is expected to include further collaboration around the review of cultural resources in the project area and ensuring the project will not impact access to these resources, as well as exploring more formal community benefits agreements.

Labor Engagement

OPALCO workers first unionized through the IBEW Local 77 in 1987 and 73% of current employees are union members. The existing collective bargaining agreement between OPALCO and the IBEW Local 77 covers the period from 1/1/2019 to 12/31/2023. Lineworkers and other technical positions working on this project are included in this agreement. OPALCO and IBEW are currently negotiating the next agreement and expect to complete negotiations before the current agreement expires.

Labor engagement in Phase I and beyond will focus on ensuring that the terms of the collective bargaining agreement are being met, that newly created jobs at OPALCO will fall under the terms of the collective bargaining agreement, and that training and workforce safety for this project are adequate.

As demonstrated above and by the list of organizations providing letters of support below, OPALCO has and will continue to engage with a broad range of local governments, Tribal governments, labor unions and community-based organizations that support or work with underserved communities.

<i>Organization Name</i>	<i>Type</i>
International Brotherhood of Electrical Workers	Labor Union
Sherwood Community Services	Services for people with disabilities
San Juan County Council	Local Government
Lopez Island Family Resource Center	Social Services
NWPPA	Workforce Training

Orcas Community Resource Center	Social Services
Joyce L. Sobel Family Resource Center	Social Services

Investing in the American Workforce

This project is estimated to generate at least 111 full-time equivalent (FTE) positions over the life of the project. One FTE reflects a single full-time position for one year. The number of jobs created and where they will be located will depend on the technology chosen to generate energy and the company selected to provide that technology. It is expected that manufacturing will take place in the region and installation and improvements will be done on site. Should this project prove successful, it could launch the development of a supply chain for the expansion of tidal energy generation at this and other sites in the U.S.

As noted above, OPALCO workers first unionized through the IBEW Local 77 in 1987 and 73% of current OPALCO employees are union members. The existing collective bargaining agreement between OPALCO and the IBEW Local 77 covers the period from 1/1/2019 to 12/31/2023. Linesman and other technical positions working on this project are included in this agreement. OPALCO and IBEW are currently negotiating the next agreement and expect to complete negotiations before the current agreement expires. The current agreement features favorable conditions including wages above prevailing rates and significantly higher than other jobs in San Juan Co., family insurance benefits, a generous pension benefit multiplier, standby time, and time off allowances for sick leave/vacation.

As a result of the collective bargaining agreement, OPALCO wages are above prevailing wage scales for employees. For any contract that requires a prevailing wage, OPALCO contracts at or above the prevailing wage and, in some cases, is also mandated to meet Davis Beacon federal standards.

Because OPALCO is located in a remote area, all employees live in the service area. 96% percent of OPALCO employees are also member-owners with a voice in all operations of the Co-op.

Workforce Development

As a rural electric cooperative, OPALCO has specialized education and training needs which are addressed internally and through longstanding partnerships with the National Rural Electric Cooperative Association (NRECA) and the Northwest Public Power Association (NWPPA). OPALCO develops its own workforce through industry training courses, skills acquisition, peer mentoring and opportunities for advancement in a number of ways. They have a robust paid apprenticeship program for lineworkers. The apprentice program includes on-the-job training as well as evening and weekend training sessions through the Washington State Apprenticeship Program. OPALCO also has a mandatory, on-demand, self-directed training program each year that is improved and evolved through staff/worker feedback. All staff have access to and are encouraged to participate in skills training and career development courses through the NRECA, the NWPPA and other industry programs.

OPALCO'S structured four-year apprenticeship program culminates in an IBEW Journeyman Lineworker certificate. The apprenticeship program is registered with and approved by the State of Washington. During the training period, apprentices must work full time and advance through the seven steps of the program. Four lineworkers are currently in the apprenticeship program. New lineworker hires will be expected to participate in the apprenticeship program.

The Co-op prioritizes hiring from the local, remote communities it serves and provides living wage career opportunities in an area dominated by seasonal service sector jobs. OPALCO has a long history of hiring veterans and helping them access their GI Bill benefits during training, and hiring disabled adults through Sherwood Community Services which provides vocational services in the region.

OPALCO has a workplace safety manual that addresses health and safety. There is also a safety committee that meets monthly to address any issues, plan trainings and coordinate participation in the Rural Electric Safety Achievement Program (RESAP). RESAP is a peer review program where lineworkers regularly review other utility's safety practices and assess workplace risks. OPALCO also contracts with Northwest Safety Services LLC to oversee its safety education program and provides all-staff (inside and outside staff) training 2-4 times a year.

The manufacturing and installation of the turbine technology that is being considered for this project will generate an estimated 92 FTEs somewhere in the United States. If this project is selected for full funding, OPALCO will engage with state and regional partners to work with the turbine provider on establishing a manufacturing facility in the region. The successful testing of this new technology will likely lead to additional tidal energy projects and additional manufacturing opportunities.

The Northwest Workforce Council (NWC) is responsible for governance and oversight of the workforce development system in Whatcom, Skagit, Island and San Juan counties. The NWC's core business is to improve the ability of the region's workforce to meet the demands of business and industry. It does this in part by investing in training in high demand occupations and running WorkSource One-Stop Centers (including one on San Juan Island) which link job seekers to job opportunities, provide career information and job search training, and function as the access point to an array of training resources. Customized services are available for veterans, and to help traditionally underserved populations enter successful jobs and careers.

Phase 1 efforts will focus on continued training for OPALCO staff and educating the NWC about the project and consulting with them about developing a workforce development plan if the project is selected and a manufacturing facility is in the region. Engagement beyond Phase 1 will be focused on developing the workforce needed to manufacture the turbine technology and ensuring that OPALCO's new hires and exiting employees are trained in this new technology. This will include partnering with the NWPPA to develop new training criteria for tidal power generation.

Diversity, Equity, Inclusion, and Accessibility (DEIA)

As noted above, OPALCO has contracted with The Gatling Agency, a Minority- and Women-Owned diversity management consulting firm, to develop a Community Benefits Strategy for OPALCO's general operations to assess its policies and develop meaningful DEI strategies, metrics and benchmarks. This work is underway and is expected to be completed in Phase 1. This work will inform the tidal energy project's Community Benefits Plan over the lifetime of the project.

The Washington State Office of Minority & Women's Business Enterprises (OMWBE) certifies small businesses owned and controlled by minority, women, and socially and economically disadvantaged persons. OPALCO is committed to using OMWBE's Certified Business Directory to identify and notify firms of upcoming procurement and contracting opportunities. OPALCO will also use a separate database to identify Veteran Owned Businesses. For the tidal project, there are likely to be significant earthwork, permitting, archeological, barge work and underwater construction contracts awarded, as well as a full range of technical, administrative and operations contracts if manufacturing for the tidal generator can be located in the territory.

For the tidal project, OPALCO will work with the NWC, the three family resource centers in the islands and the Samish and other Tribal Nations to recruit for open positions. OPALCO will also include prioritized outreach to the Samish and/or other marginalized communities as well as Justice40 disadvantaged communities in project contracts.

OPALCO has a relationship with the U.S. Department of Veterans Affairs and can offer employment using the GI Bill. The specifics of the GI Bill vary depending on the candidate/employee's service status. There are currently two lineworker apprentices utilizing the GI Bill, which ensures that they do not sacrifice pay opportunities due to their service. In one case, the apprentice is paid directly by the GI Bill in addition to the employee's pay package through OPALCO, which ensures that this apprentice is earning 100% of a full journeyman Lineman's standard of pay while undergoing training and the pay steps of the apprentice program.

OPALCO also works with Sherwood Community Services to employ disabled adults in their offices. These employees are hired at the starting wage of OPALCO's union contract (\$21.11/hr), which is notably higher than the minimum wage (\$14.49/hr).

In addition to finalizing the Community Benefits Strategy, DEIA efforts in Phase 1 and beyond will include staff and Board training, engagement with the family/community resource centers and outreach to OMWBE certified businesses.

Justice40 Initiative

This project contributes to meeting the objective that 40% of the overall benefits of climate and clean energy investments flow to disadvantaged communities. The project area is located within the Samish TDSA, a Justice40 identified disadvantaged community. TDSAs are statistical

geographic areas identified and delineated by the U.S. Census Bureau in partnership with federally recognized tribes that do not have a reservation or off-reservation trust land. The primary purpose for delineating a TDSA is to obtain meaningful statistical data for a recognized tribe within a specific geographic area encompassing a substantial concentration of tribal members. The Samish TDSA incorporates all of San Juan Co. and a portion of Fidalgo Island in Skagit Co. The Samish TDSA is classified as a Justice40 disadvantaged community under the DOE's Energy Justice Mapping Tool. Census Tract 53057940600 in Anacortes on Fidalgo Island and within the Samish TDSA is a disadvantaged community. There are also a number of tribal lands and other disadvantaged communities nearby that could benefit from employment opportunities that arise as a result of this project. These include the adjacent Swinomish Reservation, two census tracts in nearby Mt. Vernon (53057952200 and 53057952500) and the Lummi Reservation.

This project will generate a wide range of benefits for residents and businesses in the Samish TDSA. These benefits will begin with the creation of new high-quality jobs and the support of existing jobs in the Disadvantaged Community (DAC) and will continue as long as tidal energy is generated (which is expected to be 20+ years). Job creation was addressed in the workforce development section, but 111 FTEs are expected to be created and residents of the Samish TDSA will be recruited and prioritized for hiring for positions in the region.

The OPALCO Tidal Energy Project in the Rosario Strait represents a groundbreaking initiative to harness the power of tidal currents to generate clean and sustainable energy for a disadvantaged community. With the goal of developing a pilot tidal power program and eventually installing two to four 2+ MW tidal power generators, this project can help transform the energy landscape and usher in a new era of renewable power. By adding tidal power generation to the grid, the project will enable the Samish TDSA to reduce its reliance on power from the mainland. This project will foster sustainable growth of the blue economy in the San Juan Islands by advancing marine renewable energy technologies. The additional 1-5 MW of power generation will help to offset the exponential growth projected with decarbonization, giving OPALCO a firm source of power to smooth intermittent resources like solar, and shave peak power issues on the system during extreme temperatures and future electric ferry charging at the four terminals on the islands.

The high cost of this nascent technology makes this project unfeasible without Federal funding. If funded, one of the benefits will be the access to and adoption of a new clean energy technology for this DAC. Although a large percentage of OPALCO's power is from renewable sources, this will increase parity in clean energy technology because it will be generated within a DAC by member-owned utility located in that community.

The tidal generator is projected to produce 1-5 MW/year. At that rate, this project will increase energy democracy in the San Juan Islands by expanding local energy production by over 60 percent. It will also create the foundation for additional tidal turbines and increase local energy production in the future.

The tidal generator will decrease energy burden in DACs over the long term by hedging future load growth and rate increases over the twenty-year life of the first project. This will also lay the groundwork for additional generators at the same location. Energy costs are projected to increase at least 6% each year over the next 3-5 years and as much as 20% (or more) as the state of Washington Clean Energy Transformation Act (CETA) deadlines hit post 2030. The tidal project will mitigate open market purchases with its firm production of clean power and reduce costly market rate purchases. This will also enable future projects in this site to further benefit the Co-op and consumers by matching growth with predictable tidal production to offset the cost and higher carbon profile of market purchases. The tidal generation will provide a small local power supply integrated into the distribution system that the utility will manage to maximize cost savings during disruptive events, which are forecast to become more frequent during the decarbonization transition. DACs are disproportionately impacted during disruptive events: they are less likely to have a back-up power source and more likely to live in less energy efficient or weatherized homes. Tidal power is a reliable source of local power: there will be a steady stream of generation every six hours including and especially in winter when solar production is low-to-none and cold temperatures pose the greatest risk to DACs.

OPALCO supports the most disadvantaged members of the community through several programs that provide grants to reduce monthly electric bills. It also increases access to low-cost capital for home energy efficiency projects through its Switch it Up on-bill financing program and a partnership with the Opportunity Council for income-qualified improvements. OPALCO supports these programs, in part through revenues generated from their solar and wind facilities.

As noted above, job creation is another benefit of the project that will flow to DACs.

OPALCO has contracted with Environmental Science Associates to help with Tribal engagement broadly and specifically for this tidal project. Since early 2022, the project team has been actively engaging with the Tribal Nations whose ancestral lands include the San Juan Islands (Lummi Nation and Samish Nation) as well as the Tribal Nations whose traditional territories and fishing areas are in the vicinity of the proposed project area, including the Swinomish Indian Tribe, Tulalip Tribes, and Suquamish Indian Tribe.

In addition to meeting with the Tribal Nations to understand their access and use of natural resources in vicinity of the proposed project, OPALCO has been actively engaged with the Tribal Historic Preservation Officers (THPO) and cultural departments from each of these five Tribal Nations. Based on feedback received from the THPOs and the fact that the proposed project anticipates tying into existing infrastructure (e.g., submarine cable conduit and existing electrical grid) no impacts to tribal cultural resources or access are anticipated. Additional cultural resources studies and surveys will occur as part of the permitting phase and to support compliance with Section 106 of the National Historic Preservation Act. The THPO's will be actively engaged throughout the process and have agreed to provide input on the delineation of the Area of Potential Effects (APE), as well as the identification and inventory of methods that

will be used to determine if significant tribal cultural resources are present within the APE. Preliminary desktop review and tribal review of the nearshore and upland areas in the vicinity of the proposed project indicates that there are no previously recorded tribal cultural resources (i.e., archaeological sites, traditional cultural places, buildings/structures of tribal importance).

Early engagement with the THPOs indicates that impacts to tribal cultural resources will be avoided by the proposed project and no limitations to access will occur. Impacts on the environment will be assessed during the permitting phase and monitored throughout the life of the project by teaming partners at UW. The results will be shared with the community through annual reports, social media and meetings with community representatives.

Phase 1 work will focus on getting additional input and addressing any issues raised by the THPOs. Efforts beyond Phase 1 will evolve based on mutual considerations and the results of the permitting process but is expected to include further collaboration around the review of cultural resources in the project area to ensure the project will not impact access to these resources, as well as exploring more formal community benefits agreements.

SMART Milestones

- By the end of Year One, OPALCO will:
 - Complete its Community Benefits Strategy and form an advisory group (primarily social service providers) to solicit, gather and evaluate input about the community benefits strategy and this plan. The advisory group will meet at least twice.
 - Host 6 virtual workshops, 4 in-person events, and engage with 3 unique stakeholder groups (San Juan Co., Sovereign Nations and Elected Officials) on a quarterly basis.
 - Have a DEIA Action Plan in place and at least one training session complete for leadership.
- By the end of Year Two, OPALCO will:
 - Provide outside training to its engineering team on tidal systems operations and maintenance.
 - Host 4 more virtual workshops, 3 in-person events, and engage with 3 unique stakeholder groups (San Juan Co., Sovereign Nations and Elected Officials) on a quarterly basis.
 - Establish annual DEIA training material and schedule for all staff and leadership.
- By the end of Year Three, OPALCO will:
 - Identify and approach at least 3 new DEIA enterprises in the region to respond to project requests for proposals as suppliers, vendors, or subcontractors.
 - Establish a formal partnership with the NWPPA to develop new training criteria for tidal power generation.
 - Host 4 more virtual workshops, 3 in-person events, and engage with 3 unique stakeholder groups (San Juan Co., Sovereign Nations and Elected Officials) on a quarterly basis.
- By the end of Year Four, OPALCO will:

- Create an agreement with some number of Sovereign Nations with usual and accustomed fishing rights in the area about the monitoring of the site to ensure that impacts to fishing are minimized.
- Document its achievements, challenges, lessons learned, and recommendations in a report to ensure any necessary adjustments can be made before the final year.
- Host 2 more virtual workshops, 3 in-person events, and engage with 3 unique stakeholder groups (San Juan Co., Sovereign Nations and Elected Officials) on a quarterly basis.
- By the end of Year Five, OPALCO will:
 - Incorporate tidal energy training into its apprenticeship program and have at least one new employee enrolled in the apprenticeship program.
 - Have hosted a total of 17 virtual workshops on the project and benefits, 15 in-person events and kept stakeholders updated at least 20 times.

MILESTONE DELIVERY BY FISCAL YEAR					
MILESTONE (by whom)	FY 1	FY 2	FY 3	FY 4	FY 5
Community Benefits Strategy (Communications Team)					
Advisory Group (Communications Team)	x				
DEIA Action Plan (Communications Team)	x				
Community/Stakeholder Engagement (Communications Team)	x	x	x	x	x
Staff Training on Tidal (Engineering Team)		x			
DEIA Training for Staff (Management Team)		x	x	x	x
Identification of DEIA Enterprises (Management Team)		x	x		
Establish Partnership for Tidal Training Program (Management Team)			x		
Agreement on Fishing Rights in Project Location (Management Team)				x	
Documentation of Achievements (Engineering/Communications Team)				x	
Tidal Incorporation into Apprenticeship Program (Management Team)					x
New Apprentice Position (Management Team)					x