



# OPALCO

Co-op Run. Community Powered.

## Pilot Tidal Generator Project in Rosario Strait

Foster Hildreth, General Manager  
8 March 2024

# Orcas Power & Light Cooperative

- Member-owned, non-profit cooperative utility
- Serving San Juan County since 1937
- Distributes energy to 20 islands in the archipelago, only 4 ferry served islands
- ~11,700 Members; ~15,000 meter points
- Seven-member Board of Directors elected by members
- 49 Co-op staff members; Bargaining Unit (IBEW 77)
- Power supply contracted with BPA/PNGC
- Greater than 99.8% reliability



# Regional Energy Overview



## Generation and Load Profile

- PNW depends primarily on the Federal hydro system
- Federal hydro system is at capacity with no future growth anticipated
- Solar is limited in the region (winter peaking territory)
- Alternative renewable sources of firm power are limited to nuclear, hydrogen and tidal
- Loads are expected to triple by 2050 due to electrification of heating and transportation

## Cost of Power (per Pacific Northwest Generating Cooperative)

- Regional cost of power increasing with decarbonization
- BPA currently at \$45/MWh
- With load growth, BPA pricing forecast to \$110/MWh

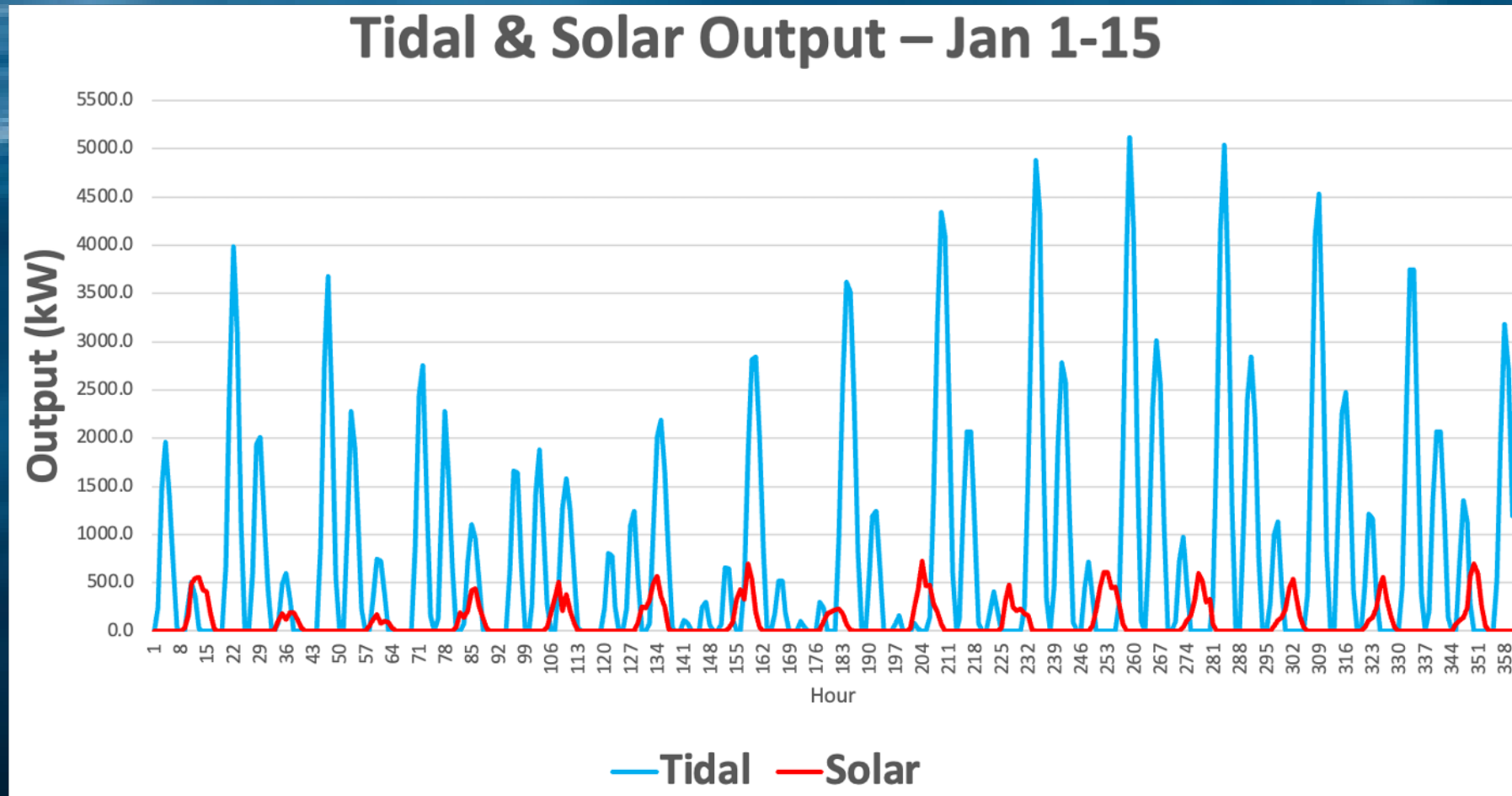
# OPALCO + Salish Sea = Tidal Energy Proving Ground

OPALCO is project developer, owner, operator, power purchaser and co-op customer



# Washington Tidal Energy: **Winter Production**

- Abundant year-round, unlike solar/wind, especially in winter during peak load
- Predictable, dependable, requiring 12 X less battery storage to firm



# Project



- Our approach focuses on stewardship and supporting the San Juan community with a renewable energy focus.
- Floating Stream Tidal Generation (per unit)
  - ~2.4 MW Peak Output
  - ~5 GWh of annual generation

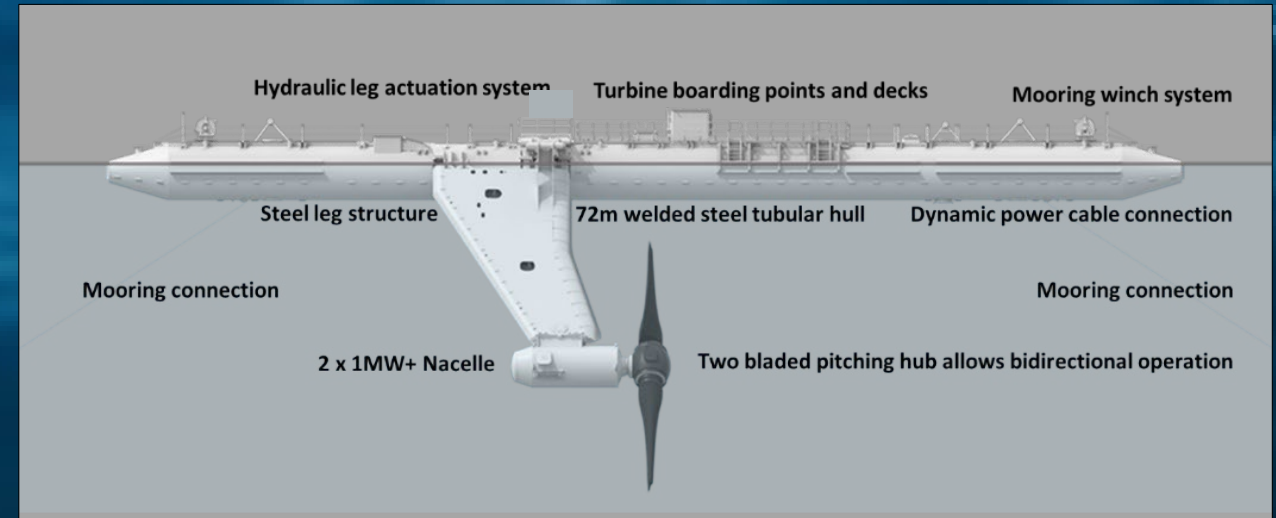


- Project Partners
  - University of Washington - Resource Characterization
  - Orbital Marine Power – Technology Provider
  - Pacific Energy Ventures, LLC – Project Management
  - 48 North Solutions, Inc. – Regulatory Permitting
  - Environmental Science Associates – Tribal Engagement and Cultural Permitting

# Orbital O2 Option: Description



- Currently, turbine in operation in Orkney Islands, Scotland
  - 12+ months in-water
- Dimensions (current design)
  - Total Length – 243ft
  - Total Width – 194ft
  - Main Tube Width – 13ft
  - Blades – 65ft Diameter
  - Average 8.5 RPM, tip speed of 29 ft/s
- Anchored at four points
  - Concrete blocks or bolted to rocks



# Proposed Site





# Project Milestones

Milestone	2024				2025				2026				2027				2028				2029			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Phase 1 - Preliminary Research and Development</b>	Phase 1 - Preliminary Research and Development																							
Desktop Environmental					Desktop Environmental																			
Data Collection					Data Collection																			
Contracting - Technology Provider					Contracting - Technology Provider																			
FERC Draft Hydrokinetic Pilot License Application Submittal					FERC Draft Hydrokinetic Pilot License Application Submittal																			
Establish Community Benefits Advisory Committee					Establish Community Benefits Advisory Committee																			
Reporting and Analysis					Reporting and Analysis																			
<b>Phase 2 - Detailed Site Characteristics</b>	Phase 2 - Detailed Site Characteristics																							
Technology Provider - 60% Design					Technology Provider - 60% Design																			
FERC License Application					FERC License Application																			
Environmental Assessment					Environmental Assessment																			
Site Design (including supply chain) - 100%					Site Design (including supply chain) - 100%																			
Stakeholder engagement																					Stakeholder engagement			
NEPA/SEPA/Local Permitting					NEPA/SEPA/Local Permitting																			
<b>Phase 3 - Site Mobilization</b>	Phase 3 - Site Mobilization																							
Technology Provider - Scheduling Established					Technology Provider - Scheduling Established																			
Installation of Anchoring and Submarine Cable																	Installation of Anchoring and Submarine Cable							
Installation of Land based facilities																	Installation of Land based facilities							
Mobilization Report																	Mobilization Report							
<b>Phase 4 - Site Commissioning and Technology Fabrication</b>	Phase 4 - Site Commissioning and Technology Fabrication																							
Tidal Unit Installation																	Tidal Unit Installation							
Testing																	Testing							
Commissioning																					Commissioning			
<b>Phase 5 - Testing and Operations</b>	Phase 5 -																							
Power Performance Testing																					Power Performance Testing			
Site Testing and Operational Report																					Site Testing and Operational Report			

Phase 1

# Closing Summary



- OPALCO is in a unique competitive position as the lead entity, project developer, owner, operator, power purchaser and provider, and co-op customer
- Infrastructure in place for pilot project: no shoreline disruption
- 87 years of experience operating in marine environment
- Strong, qualified team with capacity and track record to accomplish logistically complex capital projects
- Steady engagement with members/consumers/stakeholders is a co-op norm
- OPALCO is ready and able to put the first tidal device in US waters and share its success stories throughout the nation

# Our Co-op Team Thanks You!

