American Tidal Energy Project

May 8, 2025

ORPC

Patented Technology, Proven Through 18 Successful Deployments Since 2007

Who we are

- Founded 20 years ago. Headquartered in Portland, Maine, USA
- 50 employees in 4 countries (USA, Canada, Ireland, Chile)
- In Alaska since 2006

What we do

- Convert kinetic energy from moving water into clean, predictable, affordable sources of renewable electricity

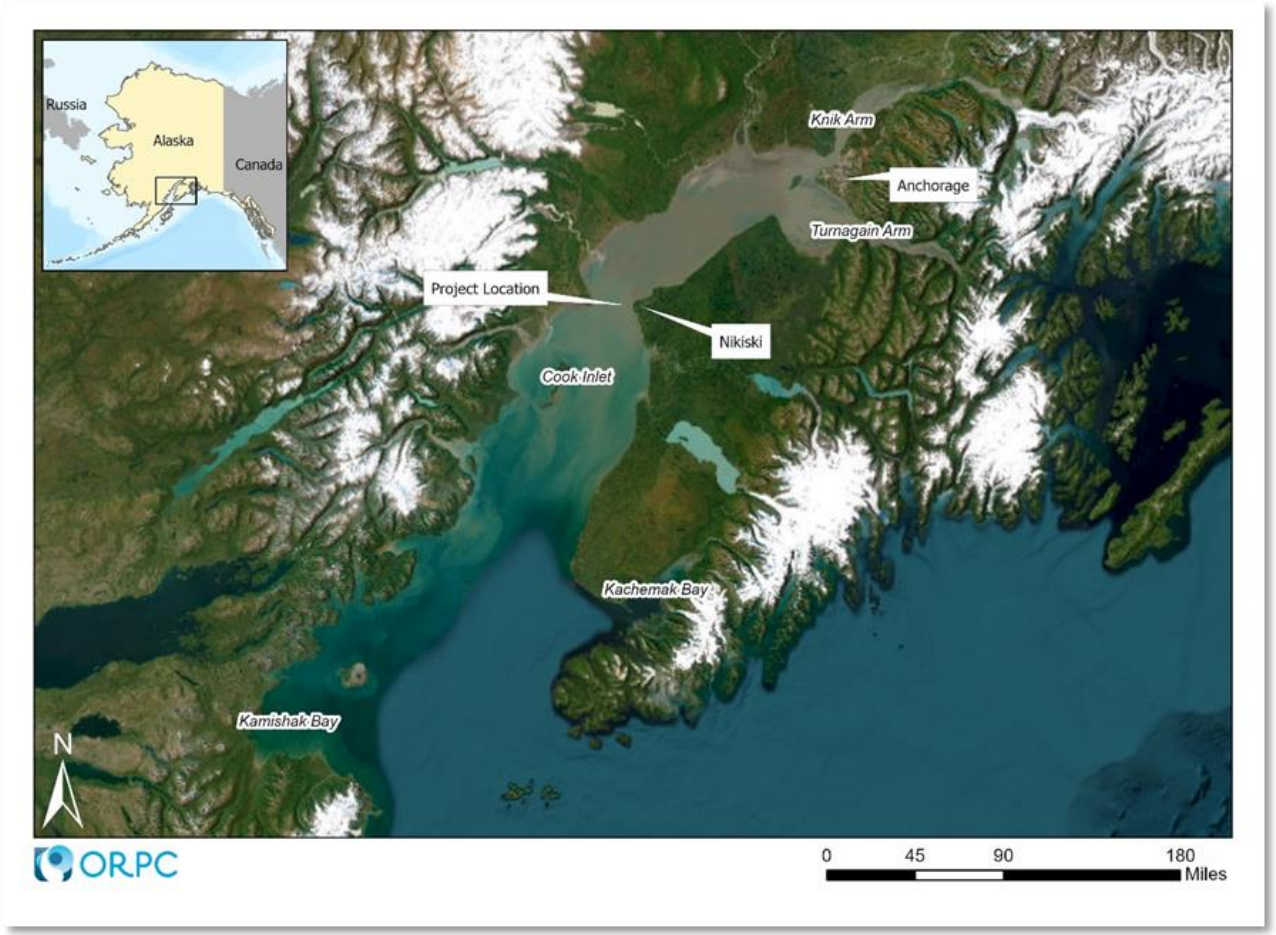
ORPC's objectives

- Develop clean energy solutions for remote communities and critical infrastructure
- Create local jobs for installing and maintaining equipment

U.S. DEPARTMENT OF ENERGY · EU Horizon 2020 · ALASKA ENERGY AUTHORITY · seai SUSTAINABLE ENERGY AUTHORITY OF IRELAND · Natural Resources Canada

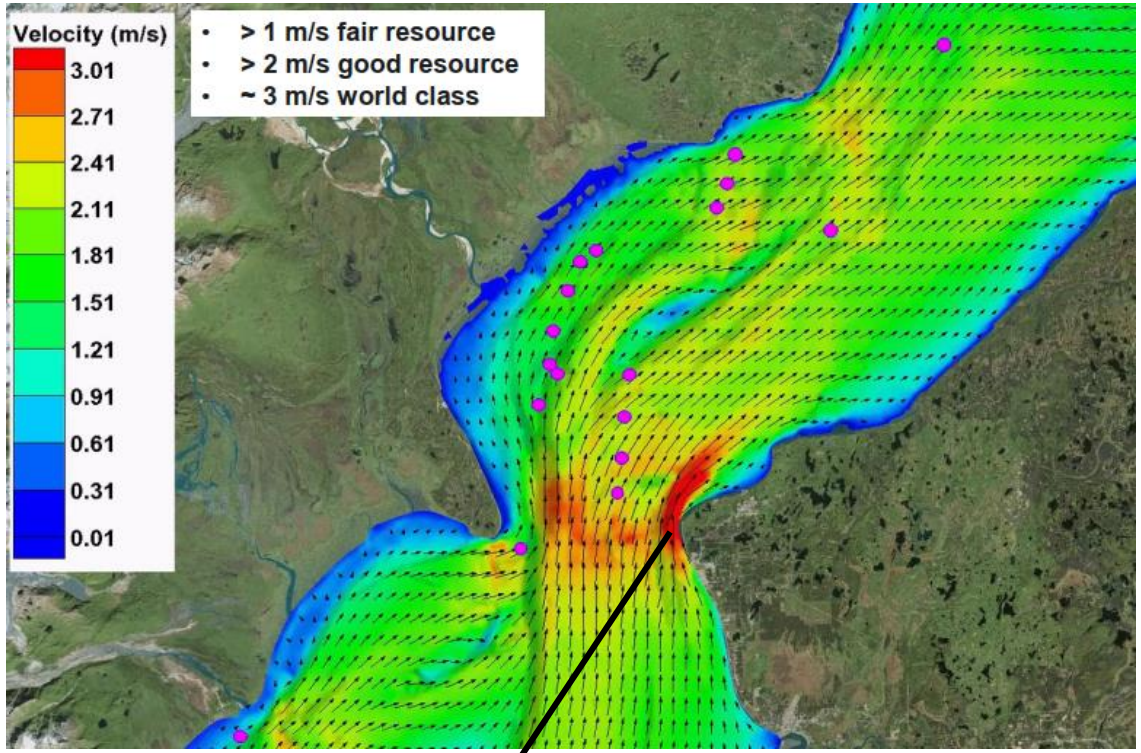
The Big Picture

- Develop a commercially viable, standalone tidal energy market in Cook Inlet supplying clean, reliable, predictable, and affordable power to the Railbelt grid



Why East Foreland, Cook Inlet?

Tidal power in Alaska, and Cook Inlet specifically, can provide >100% of the region's energy needs enabling the potential to power significant future economic growth



- East Foreland = Premier tidal energy development site in the U.S.
- Measured velocity can reach up to 4 m/s at the East Foreland
- Resource ~ 18 GWs[1]
- Tidal energy could play an important role in decarbonizing Alaska's railbelt[2]

[1] *Wang, T. and Z. Yang, 2020. A Tidal Hydrodynamic Model for Cook Inlet, Alaska, to Support Tidal Energy Resource Characterization. J. Mar. Sci. Eng. 2020, 8(4), 254; https://doi.org/10.3390/jmse8040254*

[2] *National Renewable Energy Laboratory. 2024. Evaluating the Impact of Tidal Energy in the Cook Inlet on Alaska's Railbelt Electrical Grid. April 2024. Technical Report: NREL/TP-5700-85943. https://www.nrel.gov/docs/fy24osti/85943.pdf.*

Project Funding Broken Down into Five Phases

Down Select Scheduled for April/May 2025

Phase 1 – 2024/2025
(Two Awardees)

$3M - ORPC
East Foreland,
Alaska Project

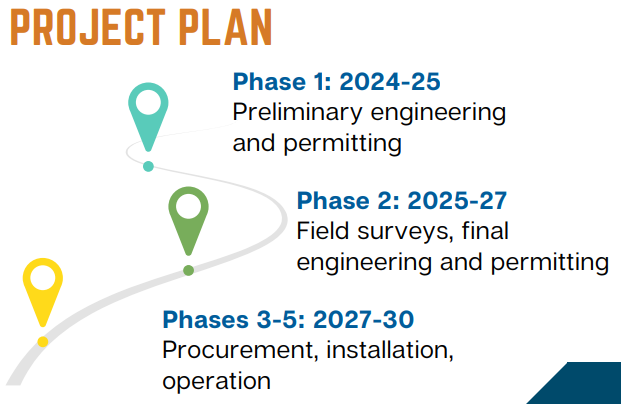
$3M - OPALCO
Puget Sound,
Washington
Project

Down Select
(Starting April 2025)

$29M to be **awarded** to one project

Phases 2 – 5
(2025-2030)

- Develop site for commercial use
- Deploy and operate 1 – 5 MW
- Establish local-based supply chain and prepare for scale-up
- Develop a local workforce
- Establish environmental monitoring pathway for marine life



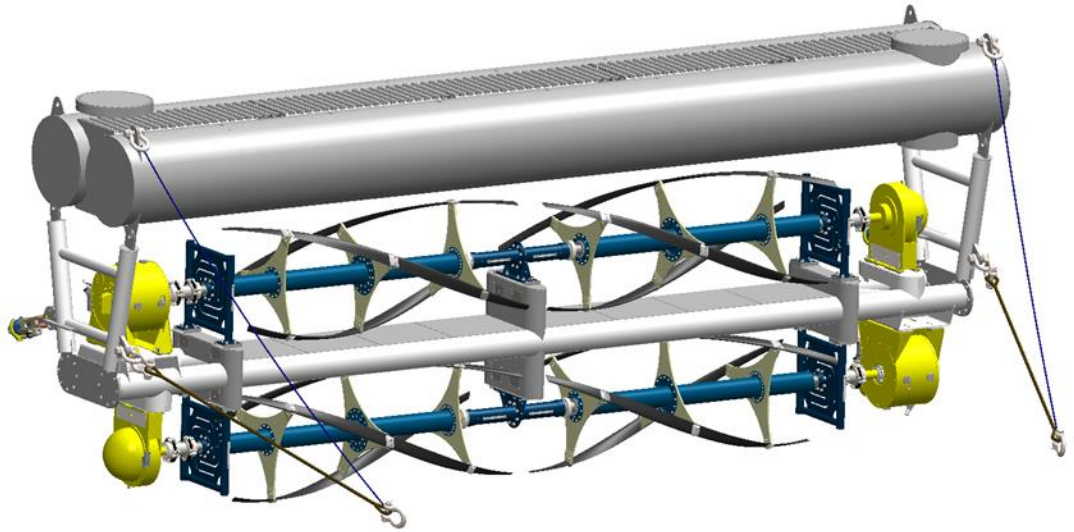
Funding level of the grant program can significantly advance the U.S. tidal industry

ORPC TidGen80®

- Submerged cross flow turbine
  - Multiple rows of counter rotating turbines
- The turbines are supported in the water column by a buoyancy system and moored to the seafloor with a mooring spread
- Same turbine system as used in Igiugig, AK & Cobscook Bay, ME
- Length: 23 ft (7 m); Width: 58 ft (17.6 m); Height: 20 ft (6m)

Power Rating

- Generates power between 0.8-3.5 m/s
- 80 kW at 2.25 m/s
- 230 kW at 3.5 m/s



Proteus AR-Series

Company Intro

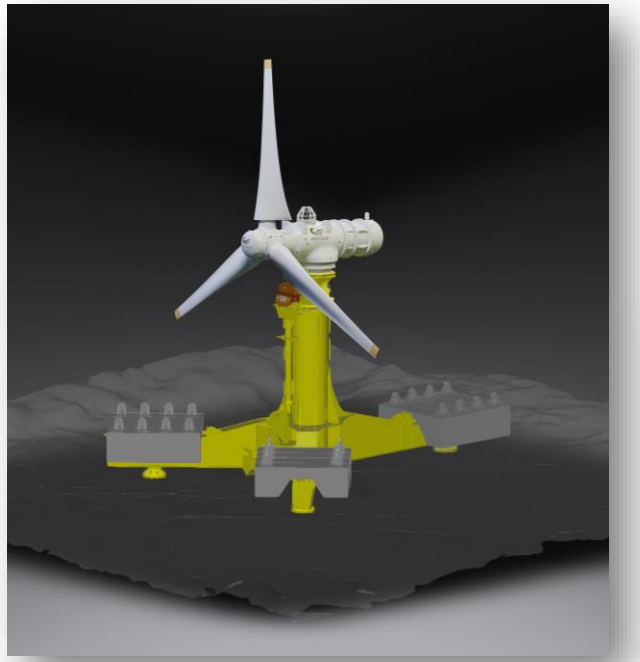
- 22 years' experience
- 25 deployments in six countries
- Technologies generated over 20GWh

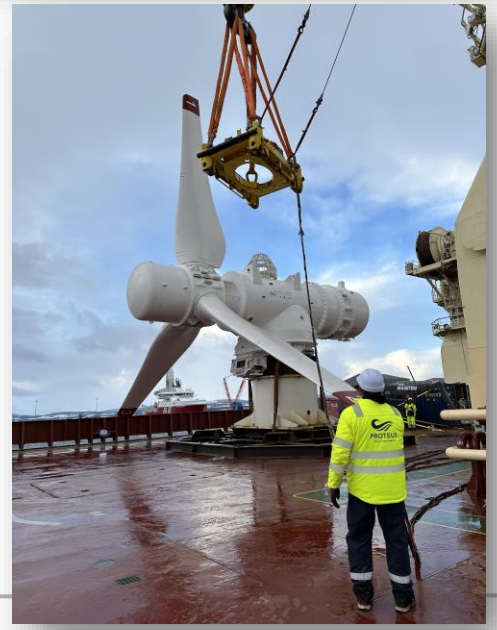
System Highlights

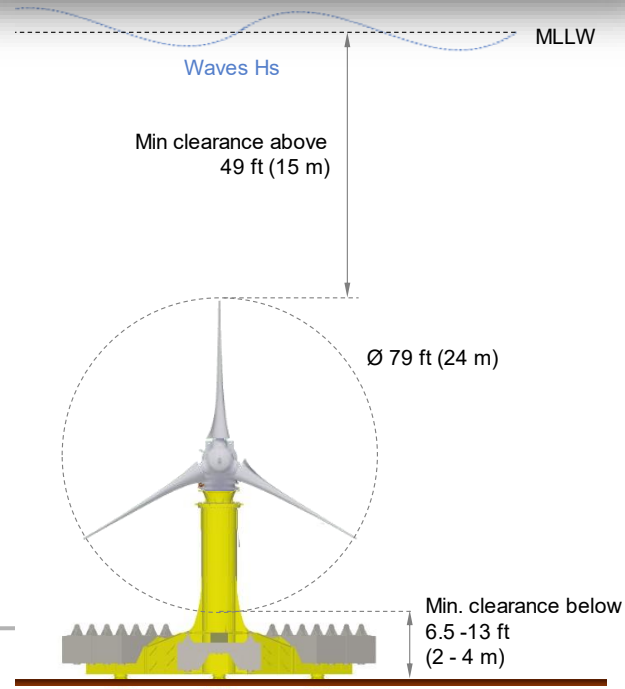
- Horizontal axis, single rotor turbine
- 3 advanced composite quick fit foils
- Reliable, modular architecture
- Seabed mounted foundations, no visual pollution
- No navigation or surface impact risk

Tech Specs

- Production flow speed: 0.7 – 5 m/s
- Power output: 1.75 MW (at 2.6 m/s)
- Rotor speed: 12rpm (5 seconds per rotation)
- Turbine mass: 170 tonnes







Celebrating 20 years of innovating sustainable river and tidal energy solutions

Project Partners & Supporters

- KPEDD
- HEA
- UAF
- Tidal Energy Corp.
- Hilcorp
- AEA
- Hatch
- Proteus MR
- Aquantis
- Terrasond (Acteon Geo-services)
- HDR
- EMEC
- Integral Consulting
- HT Harvey
- Shell
- Northern Economics

Technical support from:

- Pacific Northwest National Laboratory
- Sandia National Laboratory

Project Accomplishments

- 17 Phase 1 Deliverables submitted to DOE
  - 1350-page Draft Pilot License Application for FERC – public comment period is open until May 17th
- 20 letters of support gathered, including 10 from Kenai stakeholders, as well as Senator Murkowski and Governor Dunleavy
- Groundwork laid well for future phases of the project

Thank You!

Questions? Please contact Doug Johnson at djohnson@orpc.co

Project website: americantidalenergy.com

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Regulatory Requirements

FERC Pilot License

- Federal Power Act
- National Environmental Policy Act
- Clean Water Act
  - AK DEC waived all water quality certifications for FERC jurisdictional projects in 1999
- Coastal Zone Management Act
  - Not applicable to AK
- Magnuson-Stevens Fishery Conservation and Management Act
- Marine Mammal Protection Act
- Endangered Species Act
- Bald and Golden Eagle Protection Act
- Migratory Bird Treaty Act
- National Historic Preservation Act
- Tribal Consultation
- Fish and Wildlife Coordination Act
- Rivers and Harbors Act
- Marine Protection, Research, and Sanctuaries Act
- Wild and Scenic Rivers Act
- Federal Land Management Policy Act

ORPC TidGen Prior Environmental Study & Monitoring Work

Cobscook Bay Tidal Energy Project (P-12711) 2012-2013

- Marine Mammal Presence & Interaction Monitoring
- Fisheries & Marine Life Presence & Interaction Monitoring
- Bird Presence & Behavoir Monitoring
- Benthic & Biofouling Monitoring
- Acoustic Monitoring
  - Recorded noise below NOAA Level B Harassment Threshold
- Hydraulic Monitoring

No negative effects identified

Proteus AR Series Prior Environmental Study & Monitoring Work

PROTEUS MARINE RENEWABLES

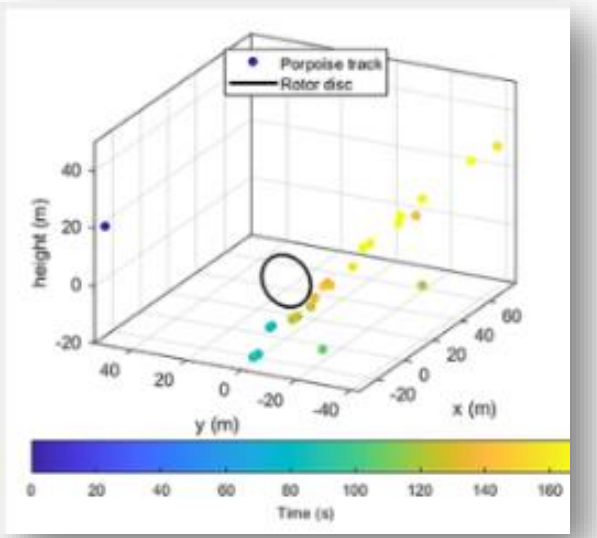
ORPC

SeaGen (Strangford Lough, Northern Ireland), 2008-2012:

- No major impacts on marine mammals detected
- No significant change to the flow

MeyGen (Pentland Firth, Scotland), 2018 to present:

- Subsea sonar and hydrophone live data recorded
- Porpoise evasion observed during turbine operation
- Results show that the risk of collision is low
- Acoustic data recording used in modelling concluded low risk of impact on marine life behavior



Japan (Naru Straight) 2021:

- Visual observations of tropical fish around the rotor

No negative effects identified over the operating periods