



Marine Energy: A Focus on Tidal

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Vice President - Development
Waterpower Week 2024



Patented technology, proven through 17 successful deployments since 2010



Who we are

- Founded 19 years ago, in Portland, Maine, US
- 45 employees in 4 countries (USA, Canada, Ireland & Chile)

What we do

- Convert kinetic energy in water currents into clean, predictable, affordable sources of renewable electricity
- Provide smart microgrid solutions powered by ORPC power systems

ORPC's objectives

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



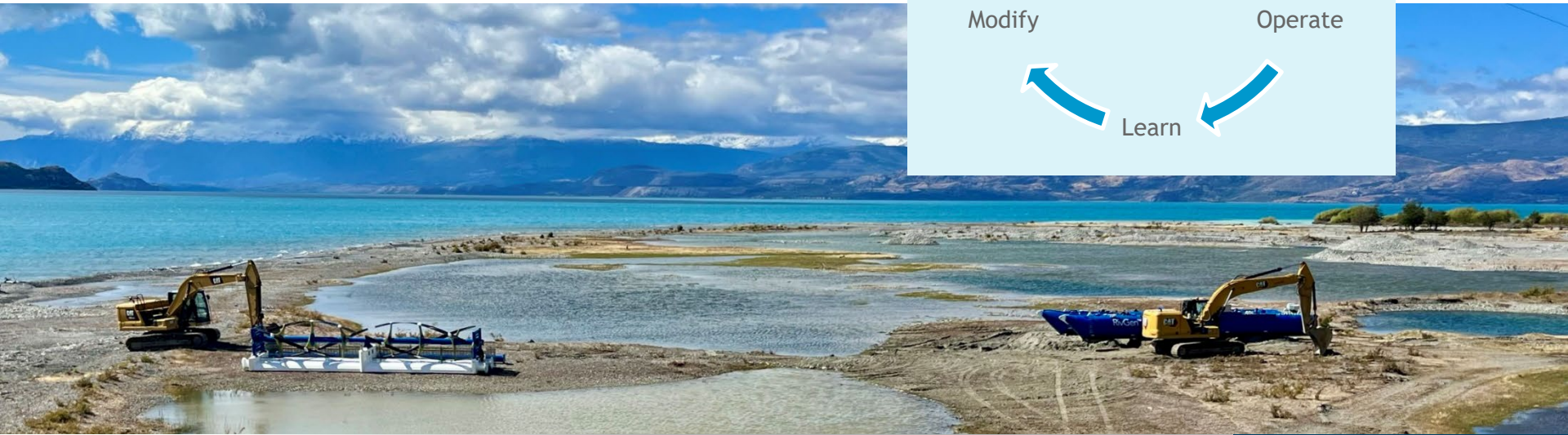
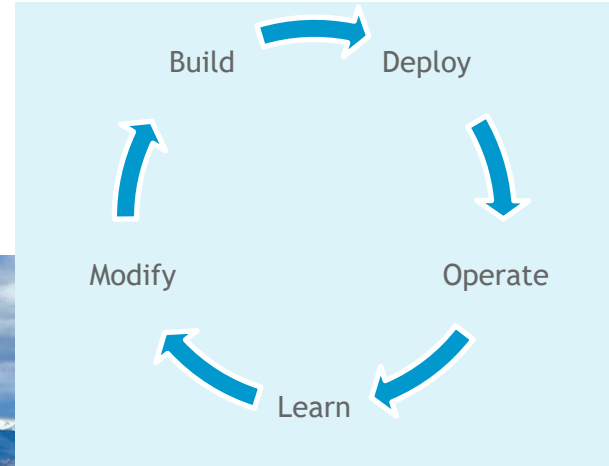


Proven Core Technology

ORPC Strategy: Get Devices in the Water



- Deployments in Canada, Alaska, Italy and in river and tidal settings in Maine have resulted in significant learning.



TidGen Power System - Eastport, Maine

Tidal site testing in 2023



Subjected to Harsh Conditions



December 2023



December ice dam stopped flow, building thick ice cover

Ice dam dwindling with January thaw. Flow speeds increasing and operations have resumed



January 2024

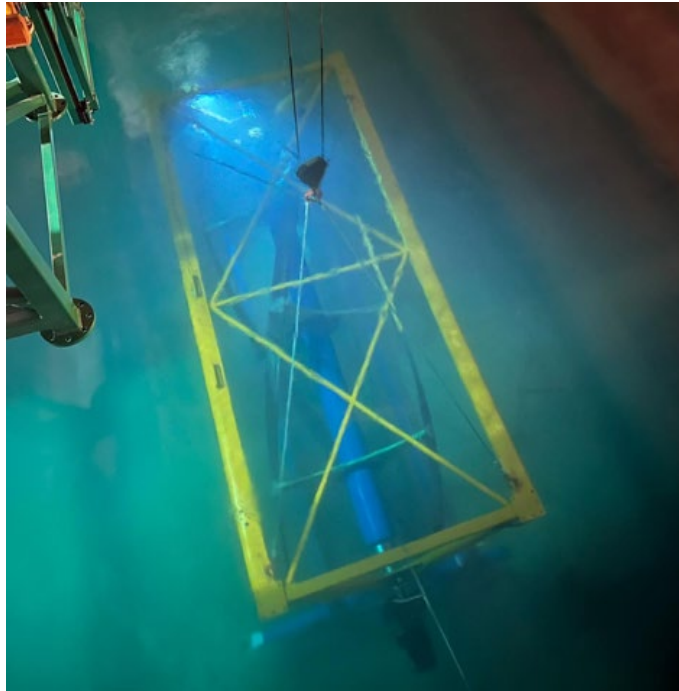




Tidal Energy Advancements

Tank Testing in Rome, Italy

6-8 week testing of RivGen sized turbine with fiber optic sensors along the length of the foil to measure dynamic forces



Strangford Lough, Northern Ireland



X-FLOW - Northern Ireland Green Innovation Challenge Fund Project

- X-Flow will advance further modelling, testing and analysis of the CRIMSON Project turbine at the Queen's University Belfast Tidal Test Site in Strangford Lough, Northern Ireland.
- First field deployment of an ORPC turbine in Europe.



False Pass, Alaska

- Project will advance a tidal energy project for the City of False Pass.
- Follows Phases 1 and 2 of a DOE SBIR-funded effort currently being completed in the community
- Will advance towards a predictable, local baseload renewable energy solution, in addition to providing long-term economic benefits
- Anticipated project start Q2 2024



False Pass City Government





Cook Inlet Opportunity

American Tidal Energy Project



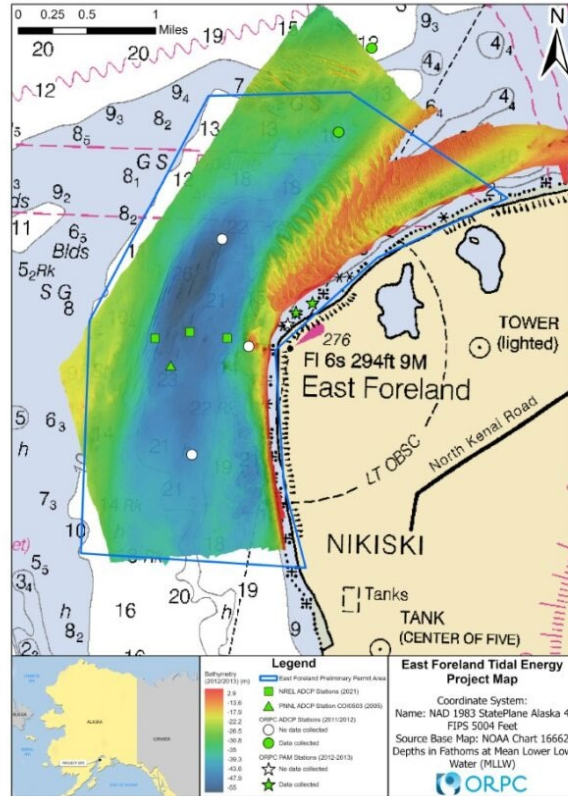
The American Tidal Energy Project's objective is to develop an Alaskan-based 1-5 MW tidal site that integrates the best of US tidal technologies to provide power to the grid and/or alternative end users, while involving the community and environmental stakeholders in the vision for, and implementation of, a commercial tidal energy project beyond the funding period



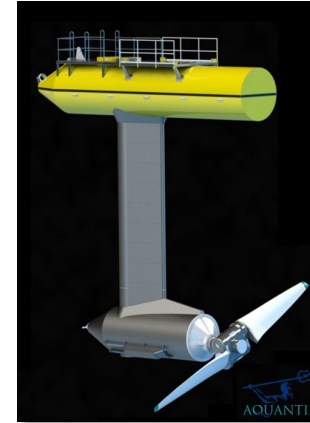
East Foreland

Partners

- Hatch
- Verdant
- Aquantis
- UAF
- Tidal Energy Corp.
- EMEC
- Terrasond
- Integral Consulting
- HT Harvey
- HDR
- HEA
- Hilcorp
- Shell
- AEA
- CIRI
- Kenai Peninsula Economic Development District



Aquantis



ORPC



Verdant

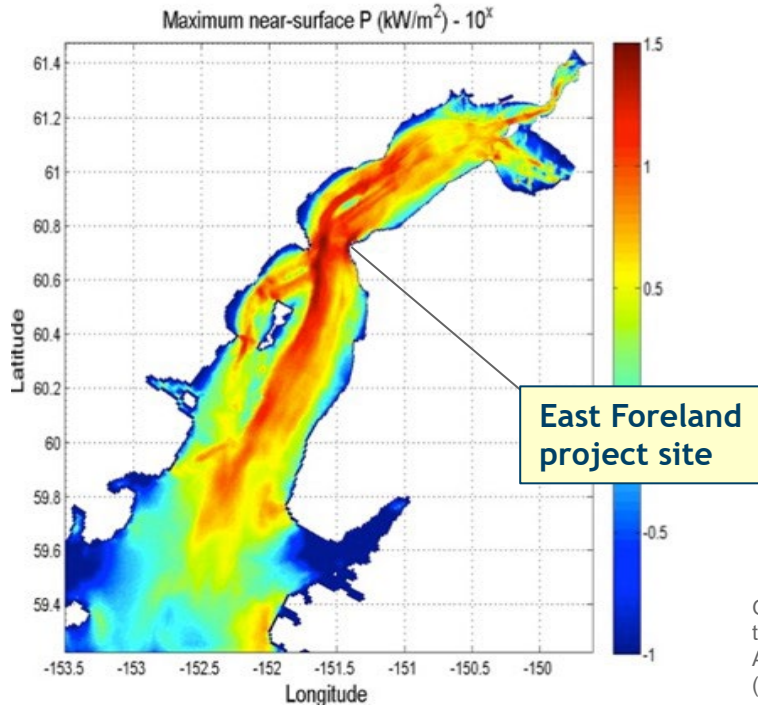


Advantages of Cook Inlet Site

- ✓ Tidal site near Hilcorp Rig Tender Dock
- ✓ Short connection to HEA grid
- ✓ Project components readily available:
 - ✓ Drag embedment anchors
 - ✓ Chain
 - ✓ Power cable
- ✓ Vessel uniquely equipped for installing anchors and devices
- ✓ Warehouse space available
- ✓ Laydown areas



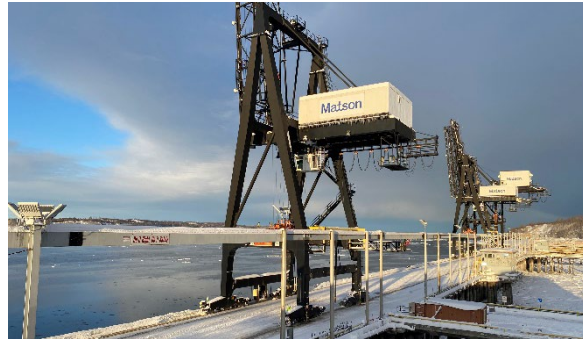
Tidal power in Alaska, and Cook Inlet specifically, can provide >100% of the region's energy needs enabling the potential to power significant future economic



- Premier tidal energy development site in the US
- Measured velocity site up to 4m/s at the East Foreland (ORPC's preliminary FERC permit in place)
- Resource ~ 18GWs¹
- 120 TWh of extractable annual energy; far in excess of Alaska energy demands

Graph: Cook Inlet – Tidal Power for the Railbelt NOAA & AEA project to assess Cook Inlet tidal energy, 2012. Insets from UAA modeling of ORPC investigated sites, 2013. *Haas et.al., Assessment of energy production potential from tidal streams in the United States (DOE/GO/1817-8). Georgia Tech Research Corporation, 2011

Tidal energy is a critical element to diversifying Alaska's energy landscape and urgent need for alternatives



East Foreland/Nikiski:

Baseload electricity for the grid and potential green ammonia production

Hilcorp:

Provide electricity to power idled platforms

Port MacKenzie:

Completed SBIR Phase I on green hydrogen production

Port of Alaska:

Green sustainable aviation fuel for the port and nearby defense facility(JBER)

Thank You

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