

ARIEL – An Industry-Driven, Multi-Asset Testbed for Developing, Testing, and Certifying Offshore Wind and Other Marine Energy Technologies

24 January 2024

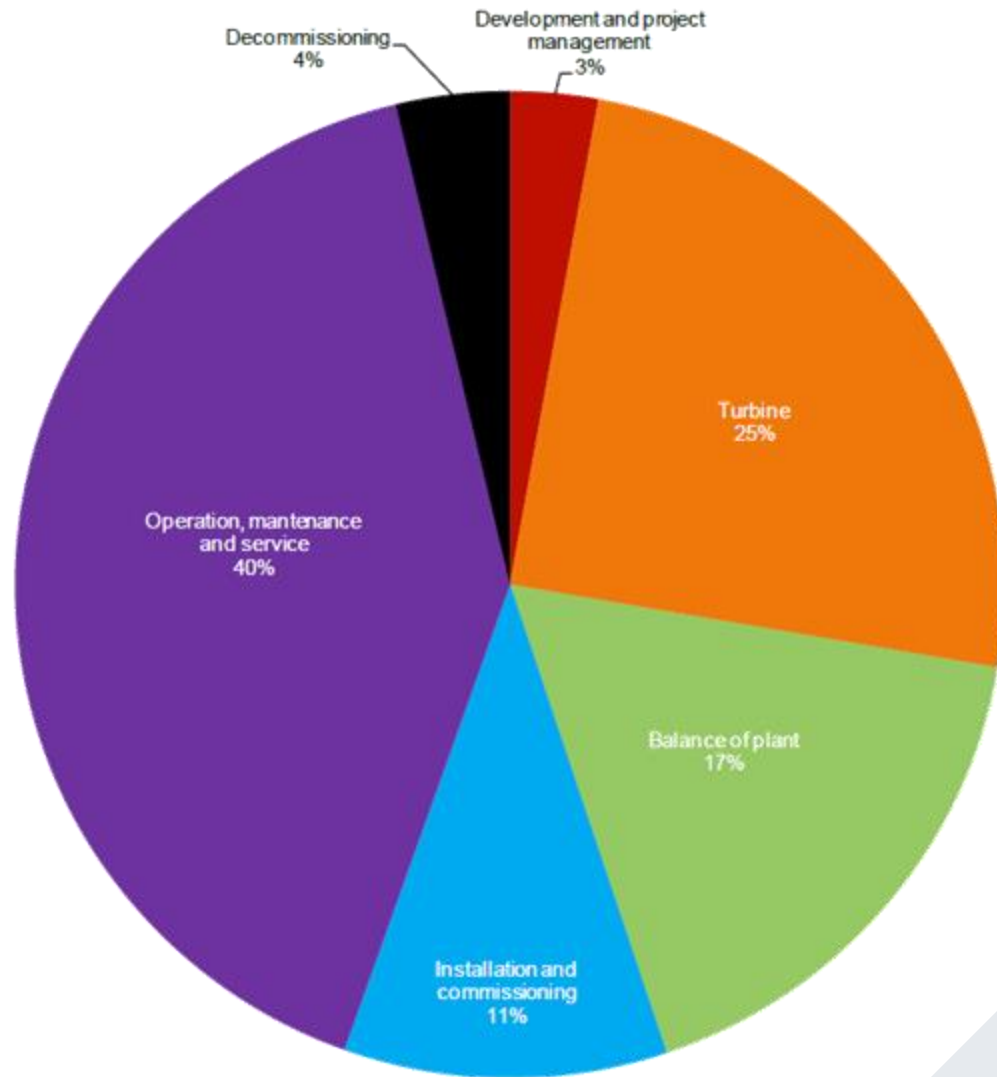
Jerry Cronin

jcronin@odu.edu



OLD DOMINION
UNIVERSITY

The Need / Opportunity: Reduce Energy Costs to Make Offshore Renewable Energy More Economically Competitive



Potential Targets throughout the lifecycle

- Survey & Permitting
- Installation
- O&M
- Materials & Equipment
- Supply Chain





ARIEL Program Approach

Create and operate a multi-asset testbed for development, testing, and third-party certification of solutions to reduce costs and improve the safety of survey, permitting, construction, O&M, and decommissioning activities associated with the development of offshore renewable energy (ORE)

Offer solution providers a structured environment in which they can develop and test new products and services.

Accelerate job creation in the emerging US offshore wind (OSW) and other ORE industries by fostering innovation and facilitating developers' adoption of new technologies.

Assist the Commonwealth of Virginia to maintain a leadership position as a best-in-class ecosystem for offshore energy developments





Potential ARIEL Program Elements

- Access to the only existing OSW turbines and research lease areas in federal US water (Virginia Energy, in coordination with Dominion Energy)
- Additional sea and shore-based testbed elements
- Instrumentation and data collection/analytics for evaluating and measuring new solution; (VA Universities)
- Regularly updated, peer-reviewed, open-source benchmark data against which to determine the ROI of new products and services. (Ex: National Renewable Energy Lab – OSW O&M Database)
- Third-party certification of solutions and technologies (American Bureau of Shipping)
- Industry-driven projects and challenge competitions to spur innovation in key areas where MRE developers have identified opportunities to reduce LCOE and improve performance and safety; and
- Access to business incubation and acceleration partners to assist in commercializing new technologies.



ARIEL Potential Partners & Facilities



MASS-CEC
Blade Test
Facility



CVOW and Virginia Research Leases



Chesapeake Bay Bridge
Tunnel, Third Island



Willoughby Bay UxV TestSite





Current Status and Planning

- Partnership and construction planning conducted with City of Norfolk for Willoughby Test Site Asset. (Launch Mid-2024)
- Awarded EPIC planning prize from Department of Energy to further ARIEL concept (December 22)
- Developed innovation challenge with NATO around topics directly applicable to survey and asset monitoring (Challenge June 23)
- Contracted as Power Connector with National Renewable Energy Lab (NREL) to support Marine Renewable Energy efforts. (September 2023)
- Support from Navy Mid-Atlantic TechBridge for ARIEL indicating strong Navy interest in capability
- **(Award Pending) Phase 1 NOAA Ocean Climate Data Accelerator Planning Grant with focus on Offshore Renewable Energy. Will compete for Phase 2 - \$10M award (Winter 2024)**
- Seeking funding sources to underwrite comprehensive planning and initial operations
- Reconfirming and adding partner assets and capabilities





Ask

- Provide a Letter of Support for ODU pursuit of OLDCC (DOD) funding for the planning and initial implementation
- Identify ARIEL as the framework of choice for managing the Virginia Offshore Research Leases (Under existing authority)
- Participate in ARIEL and NOAA Data Accelerator Program advisory groups
- Support a future ask to the General Assembly for resourcing framework implementation and operation





All hail, great master! Grave sir, hail! I come
To answer thy best pleasure, be 't to fly,
To swim, to dive into the fire, to ride
On the curled cloud. To thy strong bidding, task
Ariel and all his quality.

(Shakespeare - *The Tempest*, Act I.ii.)

(Likely inspired by the shipwreck of the Sea Venture in 1609 in Bermuda
on her way to resupply Jamestown, Virginia)

