

An Atlantic Marine Energy Center (AMEC) for Advancing the Marine Energy Industry and Powering the Blue Economy

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Overview

The **Atlantic Marine Energy Center (AMEC)** is a national marine energy center, sponsored by the U.S. Department of Energy, with a mission to advance the Marine Energy industry and Power the Blue Economy.

AMEC operates as a university-led consortium between the University of New Hampshire (UNH), Stony Brook University (SBU), Lehigh University (LU), and the Coastal Studies Institute (CSI, NC) to address the ongoing needs for research, development, and testing in support of wave and tidal and ocean current energy.



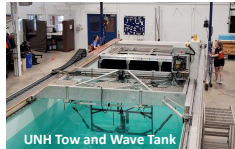
AMEC partners and collaborates with the National Renewable Energy Laboratory (NREL), Sandia National Laboratories (SNL), Pacific Northwest National Laboratory (PNNL), and the European Marine Energy Center (EMEC)



AMEC supports utility-scale Marine Energy development and a broad range of Powering the Blue Economy applications, through analytical, numerical, and laboratory modeling and deployments at well-understood open-water test sites.

AMEC Vision Statement

- Advance Marine Energy technologies and Powering the Blue Economy applications of different sizes to the marketplace
- Support and collaborate with Marine Energy and Powering the Blue Economy industry and enhance their capacity to innovate
- Engage with industry and academic partners, including Offshore Wind, for MRE sector workforce and supply chain development
- Promote stakeholder engagement and holistic environmental assessments to advance responsible MRE development
- Seek broader academic and industry collaboration along the U.S. East Coast
- Perform cross-cutting research to advance MRE and PBE industries in challenge areas.



Establish / Operate AMEC

- AMEC Strategy
- Industry Partnership Development
- Coordination with UMERC

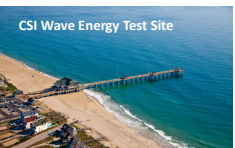
Stakeholder Outreach and Engagement

- Seek input, analysis and assessment
- Develop quantitative and qualitative stakeholder engagement tools, share and report results
- AMEC website, social media presence



Accredited Scaled Tidal and Wave Testing

- Accreditation planning, gap assessment
- NEPA consultations
- Assessment (Audit) and Post-Assessment

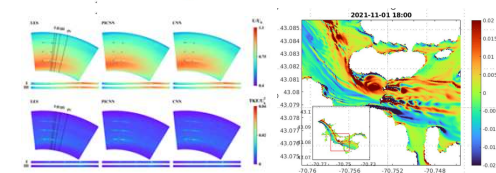
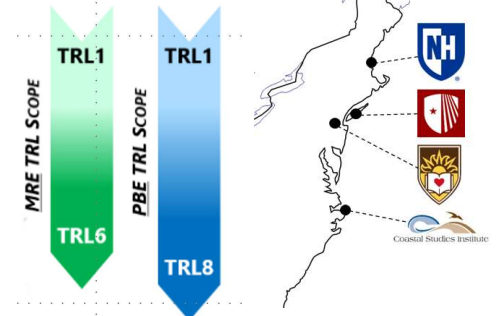
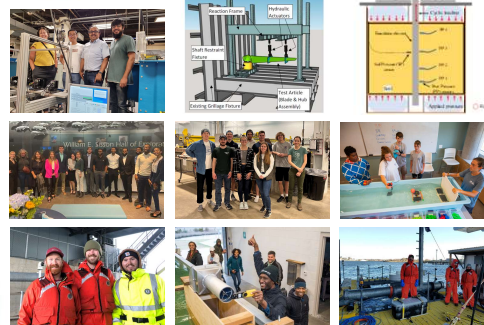
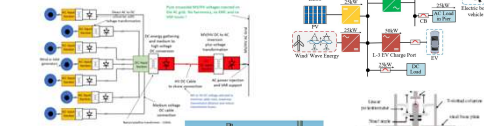


Education and Workforce Development

- Education and Workforce Development Activities
- ME/PBE curriculum, Undergraduates, K-12, DEI focus
- AMEC webinars and public engagements

Infrastructures Upgrades, Capabilities Dev.

- Axial flow turbine (AFT) test bed for UNH Towing Tank
- UNH Memorial Bridge acoustic camera, instrumentation
- SBU Digital Twinning via Computational Fluid Dynamics
- SBU Smart Mobile Grids and Power Conversion
- Lehigh Water Tunnel Speed Up
- Lehigh Fatigue Test Rig
- Lehigh Soil Foundation Test Rig
- CSI Jennette's Pier Upgrade



Cross-Cutting Research Topics

- Integrating waterway and tidal turbulence into MRE design by digital twinning at laboratory and field scales
- Assessing hydrodynamic impacts of single and multiple marine energy units on the marine environment
- Power at Sea - Wave Energy Powered Water Pump (MRE) Physics-based data-driven reduced-order models for site-specific optimization of MHK arrays
- Decision Support Platform for Coastal Communities' Power Infrastructure Resilience
- Performance and design of foundations supporting marine energy devices
- Supply Chain Optimization
- Storage Integration across MRE – from Power Grid to Blue Economy Markets



AMEC participants / Co-PIs:
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CSI: G. Bonner, L. Dubbs, M. Muglia, L. D'Anna, M. Gabr, I. Husain;
NREL: Nathan Tom, Scott Jenne, Aiden Bharath, George Hagerman (formerly Old Dominion U.);
SNL: V. Neary, B. Gunawan;
PNNL: A. Copping, R. Cavagnaro;
EMEC: Myles Heward, Rob Flynn

