Powered by the Sea

UNH receives $10M award to lead Atlantic Marine Energy Center

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BENEATH THE MEMORIAL BRIDGE IN PORTSMOUTH, N.H., UNH'S LIVING BRIDGE PROJECT PROVIDES TIDAL ENERGY.

UNH'S LIVING BRIDGE PROJECT EXPLORES TIDAL ENERGY ON THE PISCATAQUA RIVER BENEATH MEMORIAL BRIDGE.

Anyone who's swum, surfed or boated in the ocean has felt the power of its tides and waves. Now, with major funding from the U.S. Department of Energy, UNH researchers will launch a research center that seeks to harness that power as a major source of renewable energy.

The new Atlantic Marine Energy Center (AMEC), led by UNH in partnership with several East Coast universities, has been awarded $9.7 million over four years from the U.S. Department of Energy (DOE). The center will focus on research and development to address ongoing needs for sustainable renewable ocean energy. It will be one of only four National Marine Renewable Energy Centers (NMREC) in the country.

"This is an exciting opportunity to expand on existing research and advance new technologies in a rapidly evolving field," says Martin Wosnik, associate professor of mechanical engineering and AMEC director and principal investigator. "We're looking forward to working with our partners on new solutions for marine energy, building upon current projects and implementing vital laboratory capabilities and open water testing sites for future advancements."

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AMEC will be a consortium of academic institutions including UNH, Stony Brook University, Lehigh University and Coastal Studies Institute, which is administered by East Carolina University. Partnering with each other, as well as with several other key energy collaborators, researchers and engineers will work to further ocean energy technology through research, education and outreach, complementing work being done at the DOE's National Labs. The applications developed by the partners will help power the "blue economy" — an emerging concept that encourages better use of the ocean as a resource while reducing environmental harm.

Scientists and engineers from each institution, including faculty and students, will work in the field, the laboratory or computationally to study and implement ocean energy projects. The focus will be on the scientific understanding and overall effectiveness of wave energy and tidal energy conversion, including wave powered water pumps and tidal turbine farms. Crossover research will explore applications for ocean sensing, aquaculture, resilient coastal communities, supply chains, marine foundations and marine microgrids.

Expansion of existing projects will include UNH's Living Bridge project, located on the Piscataqua River in Portsmouth, which provides tidal energy to the iconic Memorial Bridge between New Hampshire and Maine. Researchers will pursue accreditation for the project to become a scaled test site for tidal energy. The Coastal Studies Institute's Jennette Pier project, located in the Outer Banks of North Carolina, will be developed as an accredited, scaled test site specifically for wave energy.

“Being selected for this DOE award is a testament to the continued accomplishments and innovations of UNH’s scientists and engineers,” says Diane Foster, director of UNH’s School of Marine Science and Ocean Engineering. “It recognizes the achievements made at our state-of-the-art facilities, which are easily accessible to the Gulf of Maine, and has put UNH at the forefront of marine energy research for over a decade.”

Along with the partner universities, AMEC will also collaborate with the National Renewable Energy Laboratory, Sandia National Laboratories, Pacific Northwest National Laboratory, European Marine Energy Center and Old Dominion University.

The research will be funded by DOE’s Office of Energy Efficiency and Renewable Energy (EERE) under the Water Power Technologies Office (WPTO) Award Number DE-EE0009450.

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