CLIMATE SOLUTIONS

OFFSHORE WIND

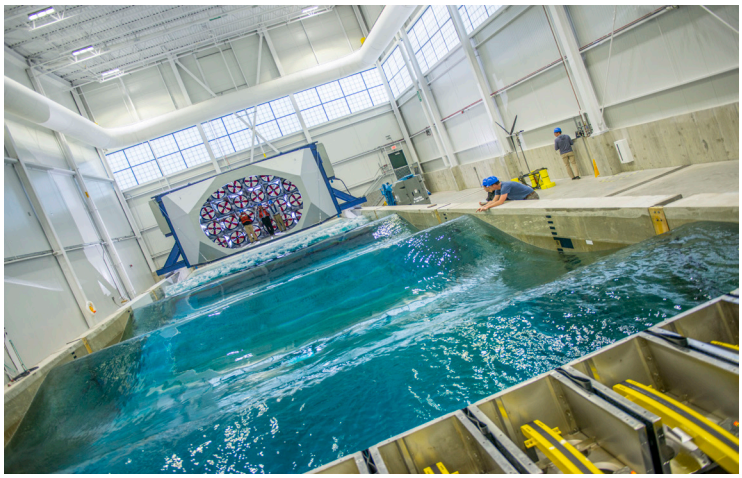
MAINE'S RENEWABLE ENERGY OPPORTUNITY

THE FUTURE IS FLOATING

The ASCC's Offshore Wind Team is the largest team in the U.S. dedicated to researching and developing innovative solutions to address **clean energy solutions**.

By 2050, projections indicate floating offshore wind will contribute a substantial 264 GW, constituting approximately 15% of all offshore wind energy worldwide. This underscores the significant growth trajectory and untapped potential within the industry. The ASCC is driving research on floating offshore wind, next-gen turbines, novel hull/mooring, and coastal resilience for renewable energy.

The Ocean Engineering & Energy team collaborates with businesses and other research institutions in developing products for the marine economy while offering hands-on training for students. These products include ocean energy devices such as floating offshore wind turbines, marine hydrokinetic devices (wave energy converters, tidal energy, etc.); aquaculture technology; improved boat and ship hulls; waterfront infrastructure such as bridges, piers, docks, and port facilities; as well as systems to protect coastal cities from effects of erosion and extreme storms.



Alfond Wind Wave Ocean Engineering Lab (W^2)

A Combined wind-wave simulation basin, the 5 meter deep pool contains a 16-paddle multi-directional wave generator, beach, movable wind machine, and variable water depth. We support instrumentation and in-house model design/ fabrication through use of a water jet, CNC machine, 3D printers, and a variety of materials including composites. The facility accurately simulates scaled wind and wave conditions, tow tests, and variable water depths, that represent some of the worst conditions possible anywhere on Earth.

Grid-connected VolturnUS 1:8 scale prototype

THE LARGEST TEAM DEDICATED TO FLOATING OFFSHORE WIND IN THE UNITED STATES.

Advancing renewable energy research and development with the largest university-based research team focused on floating offshore wind, next-generation turbines, optimized novel hull and mooring concepts.

NEXT GENERATION HULL DESIGN

VolturnUS+ is an ultra-lightweight, corrosion-resistant, concrete floating foundation for large-scale 15+MW offshore wind turbines. The VolturnUS+ hull utilizes a novel motion mitigation technology resulting in significant reductions in platform complexity, size, and costs as compared to a traditional floating foundation. An offshore demonstrator is planned for 2024 to increase the technology rediness level and advance towards commercialization.

DeepCwind CONSORTIUM

The **DeepCwind Company (DCW)**, established in 2016, serves to commercialize as well as provide design support for the University of Maine's floating offshore wind technologies worldwide. With more than 15 years of floating offshore wind design, DCW is pushing the boundaries of revolutionary understanding of floating wind development as the exclusive licenser of the University of Maine VolturnUS and VolturnUS+ Technologies.

SCALE MODEL TESTING

Fabrication can be completed with a variety of materials including metals, composites, plastics, foams, and others. Equipment in the ASCC lab facilities allows for in-house fabrication using a water jet, welder, CNC machine, 3D printer, and other options. Our scale model testing facility is equipped with a 1:50-scale offshore model, meticulously designed to replicate towing tests, varying water depths, and scaled wind and wave conditions.

The University of Maine's Advanced Structures and Composites Center, an ISO 17025 accredited testing laboratory, has a full suite of ASTM wood products testing capabilities within its accreditation scope (such as ASTM D143, D198, D1037, D4761, etc).