



University of Washington/ Northwest National Marine Renewable Energy Center Tidal Current Technology Test Protocol, Instrumentation, Design Code, and Oceanographic Modeling Collaboration

**Cooperative Research and
Development Final Report**

CRADA Number: CRD-11-452

NREL Technical Contact: Frederick R. Driscoll

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In accordance with Requirements set forth in Article XI, A.(3), of the CRADA document, this document is the final CRADA report, including a list of Subject Inventions, to be forwarded to the Office of Science and Technical Information as part of the commitment to the public to demonstrate results of federally funded research.

Parties to the Agreement: University of Washington

CRADA Number: CRD-11-452

CRADA Title: University of Washington/Northwest National Marine Renewable Energy Center Tidal Current Technology Test Protocol, Instrumentation, Design Code, and Oceanographic Modeling Collaboration

Joint Work Statement Funding Table Showing DOE Commitment:

Estimated Costs	NREL Shared Resources
Year 1	\$8,500.00
Year 2	\$8,500.00
Year 3	\$8,000.00
TOTALS	\$25,000.00

Abstract of CRADA Work:

The University of Washington (UW) – Northwest National Marine Renewable Energy Center (UW-NNMREC) and the National Renewable Energy Laboratory (NREL) will collaborate to advance research and development (R&D) of Marine Hydrokinetic (MHK) renewable energy technology, specifically renewable energy captured from ocean tidal currents. UW-NNMREC is endeavoring to establish infrastructure, capabilities and tools to support in-water testing of marine energy technology. NREL is leveraging its experience and capabilities in field testing of wind systems to develop protocols and instrumentation to advance field testing of MHK systems. Under this work, UW-NNMREC and NREL will work together to develop a common instrumentation system and testing methodologies, standards and protocols. UW-NNMREC is also establishing simulation capabilities for MHK turbine and turbine arrays. NREL has extensive experience in wind turbine array modeling and is developing several computer based numerical simulation capabilities for MHK systems. Under this CRADA, UW-NNMREC and NREL will work together to augment single device and array modeling codes. As part of this effort UW NNMREC will also work with NREL to run simulations on NREL’s high performance computer system.

Summary of Research Results:

NREL worked with UW to develop a set of MHK testing protocols relevant to tidal turbines, NREL assisted UW in the development and deployment of an advanced turbulence measurement systems. UW also assisted NREL in the development of the open-source Turbsim software.

Subject Inventions Listing:

None

Report Date:

20 October 2016

Responsible Technical Contact at Alliance/NREL:

Frederick R. Driscoll

Name and email address of POC at company:

Brian Polagye, bpolagye@uw.edu

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