

PNNL-32874

# Integrated Renewable Energy Systems

CRADA 557 (78138/70234/79092/75747/78119)

May 2022

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Washington State Department of  
Commerce

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# **Integrated Renewable Energy Systems**

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Abstract

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## Abstract

Pacific Northwest National Laboratory (PNNL) operates the Department of Energy's (DOE) only dedicated marine laboratory at the PNNL-Sequim campus. PNNL is leading research in the blue economy and marine energy applications and building collaboration between DOE and multiple partners in the state of Washington and beyond. With Washington State support, the Integrated Renewable Energy System (IRES) demonstration testbed proposed here will advance research by developing and testing renewable energy production, management, and use for multiple marine applications (e.g., ocean observations, underwater vehicles, aquaculture). It will also advance energy resiliency for coastal communities by developing an integrated renewable energy test platform that will model how multiple renewable energy resources could power shoreline businesses or communities (Figure 1). The test bed will demonstrate how different renewable systems can be integrated to reduce carbon emissions and contribute to a net zero emissions site and provide lessons, controls, and protocols that will help to expand energy options for shoreline and maritime businesses. The integrated system is expected to serve as a test bed for shoreline power and ocean energy technologies for years to come.

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