Energy &
Homeland Security
energy.sandia.gov

DOE REFERENCE MODEL PROJECT

The Reference Model Project (RMP) launched six open-source marine hydrokinetic (MHK) technology point designs as reference models to benchmark performance and costs for industry developers.

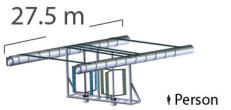
These open-source products, along with supporting documentation, are available at the RMP website http://energy.sandia.gov/rmp to facilitate their use in future R&D studies by industry, academia, and national laboratories.

Open-source products developed by the RMP include:

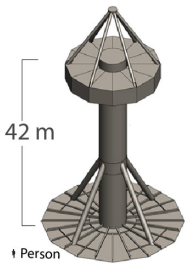
1. A detailed methodology for design and analysis of MHK devices and estimation of capital and operational costs, and levelized cost of energy (LCOE);
2. Design specifications and SolidWorks™ geometry files for each reference model device to allow exact replication for physical and numerical modeling studies;
3. Reference resource site information for designing MHK devices;
4. Physical model data sets for validating design modeling tools;
5. Spreadsheets with cost breakdown structures for calculating the LCOE for single devices and multiple unit arrays;
6. Logic models that provide environmental compliance requirements and methods for estimating their costs.

RMP products are also intended to be used by other MHK stakeholders such as government agencies to inform decision making and permitting-process development.

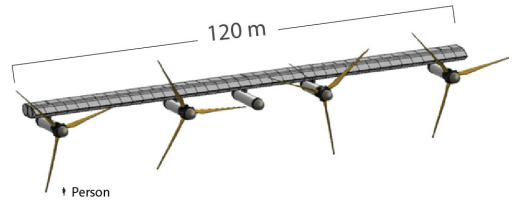
RM1
Tidal Current Turbine



RM2
River Current Turbine

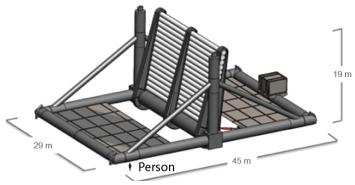


RM3
Wave Point Absorber

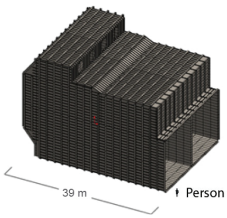


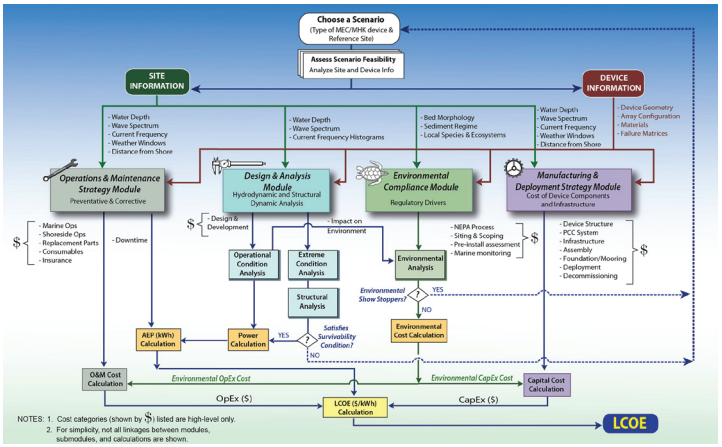
RM4
Ocean Current Turbine

RM5
Oscillating Surge Flap



RM6
Oscillating Water Column





Methodology for design, analysis, and LCOE estimation for MHK technologies.

CONTACT:

Vincent Neary
vsneary@sandia.gov
(505) 288-2638
energy.sandia.gov

Sandia National Laboratories is a multimission laboratory managed and operated by National Technology and Engineering Solutions of Sandia LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525. SAND2019-6109 M.