Ocean and River Program

Ocean energy is divided into in-stream, tidal, and wave energy. In-stream and tidal energy technology consists of many designs, but all convert the kinetic energy of the flowing water into electricity, most using some type of turbine.

Turbine designs range from underwater wind turbine-style, to vertical- or horizontal-axis cross-flow turbines. As an emerging technology, wave energy conversion devices exist in a wide array of designs aiming to convert wave energy into electricity. While not as consistent as the tides, the amount of potential wave energy is frequently predictable days in advance.

River in-stream energy conversion (RISEC) devices work in a similar manner to tidal devices, but generally on a smaller scale.

AEA's ocean and river program works to identify and overcome barriers to the advancement and deployment of hydrokinetic devices in Alaska.

Current status:
Three river hydrokinetic demonstration projects awarded funding under AEA's Emerging Energy Technology Fund program have conducted field demonstrations of different devices in the summer of 2014, and two extended into the summer of 2015.

AEA has also partnered with the False Pass Tidal Project and Yakutat Wave Project to support resource assessments and with the Alaska Center for Energy and Power to develop debris mitigation technology for river hydrokinetic devices.

Program Highlights:

Three device manufactures conducted device demonstrations of RISEC devices in the summer of 2014: Ocean Renewable Power Company, Oceana Energy Company, and Boschma Research, Inc. With support from grants from AEA's Emerging Energy Technology Fund, the three different hydrokinetic devices were tested in the Kvichak and Tanana Rivers. The projects monitored power production and fish interaction with the devices. Operational testing at the Kvichak site in Igiugig was completed fall of 2015.

With assistance from a Renewable Energy Fund grant, the University of Alaska Anchorage has completed a statewide hydrokinetic assessment which includes river power data collected from thirty sites around the state. The University of Alaska Fairbanks continues development of a surface debris diversion device, which has been successfully used for RISEC device testing at the Tanana River test site at Nenana.

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