

Projects selected in today's announcement will focus on updating technologies and methods to improve the performance of conventional hydropower plants. The projects selected for negotiation of awards include:

Dehlsen Associates, LLC (Carpinteria, CA) will further develop and validate the Aquantis Current Plane ocean current turbine technology. The project will validate analytical design tools and develop the technology's direct drive component.

DOE share: up to \$750,000; Duration: up to 2 years

Dehlsen Associates, LLC (Carpinteria, CA) will first develop a bottom habitat survey methodology and siting study approach in accordance with all relevant regulatory agencies in the southeast Florida region; then they will determine the most suitable areas for mooring marine and hydrokinetic facilities based on the distribution of sensitive bottom habitats identified by existing and supplemental surveys.

DOE share: up to \$600,000; Duration: up to one year

Electric Power Research Institute (Palo Alto, CA) will develop and demonstrate an innovative approach using industry-proven analyses and modeling tools at the unit level, the plant level, the system level, and the regional/national level, over multiple time scales ranging from seconds to years in order to quantify and maximize the benefits provided by conventional and pumped storage hydroelectric projects to transmission grids.

DOE share: up to \$1.5 million; Duration: up to 2 years

Electric Power Research Institute (Palo Alto, CA) will perform a comprehensive assessment of existing United States in-stream hydrokinetic resources and the optimal achievable energy conversion rates which could be produced by future hydrokinetic turbine machines from those resources.

DOE share: up to \$500,000; Duration: up to one year

Electric Power Research Institute (Palo Alto, CA) will perform desktop and laboratory flume studies that will produce information needed to determine the potential for injury and mortality of fish that encounter hydrokinetic turbines of various designs installed in tidal and river environments. Behavioral patterns will also be investigated to assess the potential for disruptions in the upstream and downstream movements of fish.

DOE share: up to \$600,000; Duration: up to one year

Re Vision Consulting, LLC (Sacramento, CA) will develop life-cycle cost profiles for different site and wave, tidal, ocean current, and in-stream

hydrokinetic technology combinations using baseline representative commercial project development data from specific sites.

DOE share: up to \$500,000; Duration: up to one year

Hydro Research Foundation (Washington, DC) will establish a competitive Hydro Fellowship Program to award fellowships to approximately 27 graduate and doctoral level students for two-year periods of study, which shall include conducting relevant research in the fields of hydropower-related engineering and environmental sciences.

DOE share: up to \$1 million; Duration: up to 3 years

Georgia Tech Research Corporation (Atlanta, GA) will perform an ocean current resource potential database, which will then be used to develop a web-based interface and GIS (Geographic Information System) tools for understanding the locations and practical amount of energy that can be extracted from ocean currents.

DOE share: up to \$500,000; Duration: up to one year

Ocean Engineering and Energy Systems International, Inc (Honolulu, HI) will conduct baseline biological sampling studies of a proposed Ocean Thermal Energy Conversion site in Port Allen, Kauai, Hawaii in order to create a conceptual design of a site-specific warm water intake pipe.

DOE share: up to \$600,000; Duration: up to one year

Ocean Renewable Power Company (Portland, ME) will design a standard mooring system for hydrokinetic devices that will be moored below the surface and suspended in the water column in reversing tidal environments. The Ocean Renewable Power Company will validate its tidal turbine by deploying it in Western Passage, Maine.

DOE share: up to \$750,000; Duration: up to 2 years

Ocean Renewable Power Company (Portland, ME) will use a new combination of monitoring technologies to collect baseline data on pre-deployment patterns of marine mammal distribution in Cook Inlet, Alaska, with special emphasis on the endangered beluga whale. Monitoring during and after deployment will then occur to determine marine mammal interaction with the company's tidal turbine.

DOE share: up to \$600,000; Duration: up to one year

Harris Miller Miller & Hanson (Burlington, MA) will deploy two established tidal energy technologies near Martha's Vineyard and collect and analyze information related to sediment transport alteration and impacts on protected species.

DOE share: up to \$600,000; Duration: up to one year

Free Flow Power Corporation (Gloucester, MA) will design, implement, and test an electrically interconnected hydrokinetic turbine pylon installation to achieve maximum water-to-wire efficiency. Special emphasis will be placed on the design of a mooring system that maximizes efficiency of installation and maintenance.

DOE share: up to \$750,000; Duration: up to 2 years

Ocean Power Technologies, Inc (Pennington, NJ) will create conceptual prototype designs and model a prototype device of much increased power delivery. Modifications to the power take-off component and the implementation of a Design For Manufacture approach will reduce costs and address mass manufacturing issues.

DOE share: up to \$750,000; Duration: up to 2 years

Pennsylvania State University (University Park, PA) will support at least eight individual Master of Science (MS) or Doctoral (PhD) level research projects to identify and investigate topics in the hydropower industry for which academic research is of benefit to the industry, and thus generate new knowledge and technologies that will enhance the competitiveness of the U.S. hydropower industry in the global market.

DOE share: up to \$1 million; Duration: up to 3 years

Columbia Power Technologies, Inc (Charlottesville, VA) will optimize, demonstrate, and validate an intermediate-scale wave energy conversion device in preparation for a full-scale bay/ocean demonstration. Improvements in energy capture of this device will occur through research into hydrodynamics and advanced controls to better match the wave regime.

DOE share: up to \$750,000; Duration: up to 2 years

Columbia Power Technologies, Inc (Charlottesville, VA) will perform benchmark laboratory experiments and numerical modeling of the near-field and far-field impacts of wave scattering from an array of wave energy devices. This will provide the information needed to design arrays balancing performance with the mitigation of far-field impacts.

DOE share: up to \$600,000; Duration: up to one year

Lockheed Martin Corporation (Manassas, VA) will develop and describe designs, performance and life-cycle costs for both the nearshore and offshore Ocean Thermal Energy Conversion (OTEC) baseline cost figures.

DOE share: up to \$500,000; Duration: up to one year

Lockheed Martin Corporation (Manassas, VA) will develop a GIS-based dataset and software tool to assess the maximum practicably extractable energy from the global and domestic U.S. ocean thermal resource and identify regions viable for OTEC and Cold Seawater Based Air Conditioning.

DOE share: up to \$500,000; Duration: up to one year

Public Utility District #1 of Snohomish County (Everett, WA) will determine the types of aquatic species in Admiralty Inlet, Washington and will determine both baseline levels of background noise as well as the acoustic impacts that hydrokinetic turbines will have on these species.

DOE share: up to \$600,000; Duration: up to one year

Principle Power, Inc (Seattle, WA) will design, validate and determine the levelized cost of electricity for an innovative floating support structure that combines a number of wave and wind energy power take-off mechanisms, which will defray the mooring and installation costs associated with higher power output.

DOE share: up to \$750,000; Duration: up to 2 years