Atargis Energy Corporation
Ocean Wave Energy
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Press Release

Atargis Energy successfully converts ocean wave energy to electricity using a Cycloidal Wave Energy Converter

College Station, TX / Colorado Springs, CO

Atargis Energy Corporation recently completed a successful testing campaign at the Texas A&M Offshore Technology Research Center in College Station, TX. This testing campaign was designed to establish the performance of the Atargis proprietary Cycloidal Wave Energy Converter (CycWEC) in a large offshore wave basin facility at a 1:10 scale. One of the major achievements is the conversion of power in simulated deep ocean waves to electric power. The 1:10 scale model delivered 370 Watts of electric power from the incoming wave. This is the first electricity produced by any CycWEC.

These tests, which are supported by the Department of Energy as well as private investors, have successfully advanced the Technology Readiness level of this novel wave energy converter. We expect further improved performance as our prototypes come closer to full ocean scale.

Atargis Energy will use all data and experience gathered to design a full scale ocean going prototype next. This prototype will have a design power of 5MW, which is enough to power more than 3000 average US households. The prototype design will then be scaled down for one more round of wave basin tests to be conducted in 2013, before the first ocean prototype at 1:4 scale will be deployed and tested in 2014.

Beyond electricity production and scientific data which will be published in upcoming conferences in open literature, these tests yielded a wealth of experience on how to improve the structural, electrical and software design of this type of wave energy converter. These improvements will not just increase performance, but also decrease construction cost and improve reliability for the upcoming prototypes. They are at least as important of a technical outcome in reaching the next technology readiness level as the actual data itself. By completing the present tests, Atargis Energy has advanced the technology readiness level of this wave energy converter from TRL 3 to TRL 4.

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About the Cycloidal Wave Energy Converter (CycWEC)

A CycWEC uses hydrofoils that create lift in order to interact efficiently with incoming ocean waves, and produces rotational shaft power that can directly drive a conventional generator. It operates fully submerged and can be shut down by feathering the hydrofoils in a storm in order to prevent storm induced damage. Thus it addresses the main problems that plague most if not all other wave energy converters, which are efficiency which is directly related to the cost of energy, as well as storm survival.

Past work, which was performed at the Air Force Academy under funding from the National Science foundation, showed that the CycWEC can extract more than 95% of the energy of a deep ocean wave in a small, 1:300 scale two dimensional wave flume experiment. However, no measurable electricity was produced in these experiments, due to the small scale. Thus, the present tests used a 1:10 scale prototype with a diameter of 2m and span of 4.5m which was tested in the offshore wave basin in July of 2012. The offshore wave basin, with a size of 30.5m by 45.7m and 5.8m of water depth, is one of the largest wave basins in the world. Wave heights up to 90cm can be generated to allow testing of offshore structures as well as wave energy converters. For the CycWEC, these were also the first tests in a wave basin where the wave energy converter is surrounded by water on all sides, which is very similar to an open ocean environment.

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