BLUSTREAM®

INNOVATIVE SECOND-GENERATION HIGH-OUTPUT TURBINE

Tide-related currents can be exploited by hydro turbines to produce an abundant and inexhaustible supply of renewable energy. This is particularly valuable not only because the supply is predictable but because it is also virtually independent from weather conditions.
The BluStream® project involves developing innovative, high-tech hydro-turbine technology that features two diverging nozzles, attached to each other by a linking arm and capable of automatically re-orientating to face the direction of the current to optimise hydrokinetic energy extraction.
The tidal current flow is accelerated via the nozzle and this, combined with a high-tech turbine runner, enables higher rotational speeds of the alternator to be obtained than was the case with first-generation hydro turbines. This significantly reduces the dimensions of the alternator directly coupled to the turbine runner.
At the end of the project, a series of tests and measurements will be carried out on a full-size demonstrator installed in the sea at Bréhat to validate the BluStream® design.
The ultimate industrial aim of the project is to offer energy suppliers a hydro turbine that is both efficient and economical. Several BluStream® hydro turbines could be combined to create a hydro-turbine farm producing several tens, if not hundreds, of megawatts of electricity, depending on the energy-generating potential of the location where the industrial unit is installed.

Partners

Companies

Le Gaz Intégral (LGI), Nanterre [Project Developer]
Bernard et Bonnefond, Saint-Étienne
Guinard Énergies, Ville d'Avray et Brest

Research centers

ENSTA Bretagne, Brest
Ifremer, Brest

Funder

- Bpifrance

Labelisation

20/05/2011

Overall budget

11 010 K€