



## “Paying the Price”

**Biography:** Dr. Ralf Starzmann, Black Rock Tidal Power Inc.

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### ***Reducing the Price - Demonstrating the Economic Feasibility of Tidal Energy***

The newly founded company Black Rock Tidal Power (BRTP) is based in Halifax and offers tailor-made tidal energy converter systems and related services for the Bay of Fundy. BRTP has recently been awarded one of only two new demonstration berths for tidal power stations by the Nova Scotia government and will showcase its innovative technology at the Fundy Ocean Research Center for Energy (FORCE), Canada’s leading research centre for in-stream tidal energy.

Most of the existing tidal current energy systems that have been deployed to date are single turbines designed to rest on the seabed. The single turbine approach leads to enormous machines. Besides the high capital expenses for these huge machines, the operating expenses are significantly driven by the necessity to transport the devices to a maintenance base, requiring heavy gear, expensive vessels and suitable onshore infrastructure. BRTP is directly addressing these cost drivers with a new approach that combines the unique TRITON platform developed by TidalStream Ltd., with inexpensive small and robust tidal turbines developed by ship propulsion manufacturer SCHOTTEL.

The TRITON platform is semi-submerged, floating and freely aligning to the ocean flow, carrying a large number of inexpensive small tidal turbines. No heavy lift vessels are required for installation and maintenance operations; the device is towed to the site and anchored. Furthermore the device features easy maintenance access in situ and optimum energy capture in the upper part of the water column. The layout of SCHOTTEL’s tidal turbines is simple and robust, avoiding complex subsystems. It consists of a passive-adaptive three-bladed open rotor, planetary gear box and asynchronous generator, both cooled by the ambient water. It has no active pitch mechanism and a variable speed control is used.

The combination of a platform system and multiple simple low-cost turbines results in an extremely cost-effective tidal energy installation, both in terms of capital expenditure (CAPEX) and operational expenditure (OPEX). Also the availability is increased due to risk spreading by using multiple turbines. Finally, the proposed technology will enable BRTP to showcase economically feasible power from tidal currents already in the demonstration phase.