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## Tidal Current Power Generation Making Use of a Bridge Pier

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**Summary:** There are several kinds of energy resources in the ocean but the utilization of the ocean energy is far behind the other natural energies such as solar and wind. A feasibility study on the tidal current power generation by making use of a bridge pier in the narrow strait is introduced in this report. There are several advantages to making use of a bridge pier for the tidal power generation. Current velocity increases near the pier, therefore the tidal power generation becomes more efficient because the power is proportional to the cubic of the current velocity. Furthermore, the pier is convenient for the maintenance of the hydraulic turbine and the power unit. The project is now underway at the Ikitsuki Bridge in Tatsuno-Seto Strait of Nagasaki Prefecture, where the tidal current was measured by the bottom mount ADCP for one month. The numerical simulations of the tidal current were conducted by the MEC Ocean Model, and the results were compared with the measurements. A long term estimation of the tidal current power is presented and the variation of the power by the lunar period is discussed. Lastly, the in-situ measurement results of the waves are presented.

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