MILITARY INSTITUTE OF SCIENCE & TECHNOLOGY (MIST)

Prospect of tidal energy in Bangladesh

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This is to certify that the work presented in this thesis titled "**Prospect of tidal energy in Bangladesh**" is an outcome of the investigation carried out by the authors under the supervision of **Prof Dr. Muhammed Mahbubur Razzaque**, Dept. of Mechanical Engineering, Bangladesh University of Engineering & Technology (BUET), Dhaka 1000, Bangladesh. This thesis or any part of it has not been submitted elsewhere for the award of any other degree or other similar title.

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ABSTRACT

Tidal energy is one of the cheapest energy that we find naturally like wind energy & solar energy. The source of this energy is water tide. Tidal energy conversion techniques exploit the natural rise and fall of the level of the oceans caused principally by the interaction of the gravitational fields in the planetary system of the Earth, the Sun and the Moon. The main periods of these tides are diurnal at about 24 h and semidiurnal at about 12 h 25 min. A tidal turbine is a device for extracting energy from marine currents, and functions in a manner similar like wind turbine. There are different types of tidal turbine basically they are classified based on their turbine blade orientation. Some of them are called horizontal axis, vertical axis, helical horizontal axis, and helical vertical axis tidal turbine. Turbine shaft is connected with the generator. A generator mainly produce power, changing the kinetic energy of current into a turning force by setting a water turbine in the direction of tidal current. Because of the massive size of the oceans and the prediction accuracy of tidal, it is more preferable than any other renewable sources. While the discussion in this paper focuses mainly on Sandwip, Khepupara and Hiron point. The messages are relevant for other areas that have the potential to engage in Tidal Power. So the main objective of our project is to find which one is best for harnessing potential energy among these three areas.

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NOMENCLATURE

NOTATION	DEFINATION
CD	Chart Datum
MLWS	Mean low water spring
MLWN	Mean Low water neaps
MHWS	Mean high water spring
MHWN	Mean high water neap
MSL	Mean see level
MTL	Mean tide level
HAT	Highest Astronomical Tide
LAT	Lowest Astronomical Tide
MHW	Mean High Water
MLW	Mean Low Water
MHHW	Mean Higher High Water
MLLW	Mean Lower Low Water
DTL	Diurnal Tide Level
MN	Mean Range of Tide
DHQ	Mean Diurnal High Water Inequality
DLQ	Mean Diurnal Low Water Inequality
GT	Great Diurnal Range