DUT DURBAN UNIVERSITY OF TECHNOLOGY

ELECTRICAL POWER ENGINEERING

Department of Electrical Power Engineering

Postgraduate Research Template

#	Student Name / Surname	Namhla Faith Mtukushe	Start Date	2019	Supervisor	Dr E.E Ojo
	Title of Project	The Analytical Study on the Establishment of a Tidal Power Plant in South Africa	Completion	2020	Co-Supervisor(s)	
	Program of Study (M Eng. / D Eng.)		Master of Engineering			
	Student #	21240801	Email Address		Nana.mtukushe@gmail.com	

Synopsis of Research Project: (< 300 words)

Over 80% of South Africa's electrical energy is generated from the combustion of fossil fuel. Burning of these fossil fuels greatly contributes to climate change as they release undesired gasses into the atmosphere. The concerning issue of climate change together with the depleting capacity of the fossil fuel necessitates the need to explore alternative energy sources. Renewable energy sources such as tidal power is an alternative renewable energy source to mitigate these problems. This is because there is vast amount of this form of energy available couple with the ability to generate clean energy for generating electricity. Tidal power is more reliable compared to solar and wind as tides are highly predictable. The aim of the study is to explore the possibility of establishing a tidal power plant in South Africa using an analytical modelling and simulation methodology. In this study, the literature of tidal energy is reviewed, considering an analysis of tidal waves, the existing tidal plants and the tide phenomena. The different available tidal technologies and energy conversion methods are used as a baseline for this study to develop an analytical model and simulate the model using MATLAB/SIMULINK. The analytical and simulation results are analysed to ascertain the feasibility of design and construct a tidal power plant in South Africa in order to cater for the ever increase demand for electricity.

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