

# The Potential of Hydrokinetic Energy Harnessing in Pahang River Basin



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**Abstract** This paper focuses on studying the potential of the hydrokinetic energy harnessing along the longest river in Peninsular Malaysia, which is the Pahang River. The data such water discharge and water depth on ten selected sites at the Telemetry Gauging Station (GS) owned by Department of Drainage and Irrigation, Malaysia (DID) have been used for the assessment of hydrokinetic potentials. The Flow Duration Curve (FDC) at the potential site has been plotted to analyse the Q50. This assessment study indicated that the two rivers along the Pahang River basin have a significant potential for hydrokinetic energy harnessing. Subsequently, four different types of turbines with different size and power coefficient ( $C_p$ ) has been used to calculate the output power and total annual energy yield. The estimated annual energy yield for Sg. Pahang at Lubuk Paku is ranging from 69.5 to 173.7 MWh. Whereas Sg. Pahang at Temerloh is between 45.54 and 113.8 MWh per year.

**Keywords** Hydrokinetic energy harnessing · Pahang River basin · H-Darrieus turbines

## 1 Introduction

The increase in awareness due to the importance of renewable energy is significant worldwide [1]. The depletion of fossil fuels, high CO<sub>2</sub> emission, global warming and environmental pollution are the main factor to move forward for sustainable environment [2, 3]. Therefore, the renewable energy (RE) resources such as biomass [4], geothermal [5], hydro [6], solar [7] and wind [8] are provided the cleanest source of energy with minimal impact to the environment [6]. Renewable energy has been

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