

# **An Optimal Selection Method for a Wind Energy Conversion System**

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## **Abstract**

There is much interest in using renewable energy sources such as wind, wave and sun to generate electrical energy. The local power companies, Trinidad & Tobago Electricity Commission (T&TEC) and Power Generation Company of Trinidad & Tobago (Powergen), have expressed an interest in wind power generation and integration to supplement its conventional fossil fuel, i.e., natural gas approach. The Caribbean island of Tobago was chosen for investigation into its wind power potential mainly due to its better alignment to the prevailing winds, i.e., the North-east Trades, than Trinidad. This paper focuses on an optimal selection method of matching a Wind Energy Conversion System (WECS) to wind regimes, such as Tobago. It incorporates various techniques and economical decisions that are to be considered and used when sizing available commercial WECS's to potential wind regimes.