

# **Renewable Energy - Wind Energy - Offshore vs. Onshore**

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## **Abstract**

Renewable energy is a good source of energy without polluting our environment. This study focuses on wind energy especially onshore and offshore wind turbine. A hypothesis is used for identifying onshore wind turbine or offshore wind turbines produces more energy. Wind energy converts air motion into electrical energy. Many countries are using wind energy as their alternative energy source. Main components of wind turbine are blades, tower and electric generator including gearboxes. Blades can be made in USA or Mexico for a wind turbine in USA. It is costly from USA and is bit cheaper from Mexico. Gearbox can be available from USA, Mexico or Asia. It is cheaper from Asia. Tower can have from Mexico or USA. It can be cheaper from Mexico. There are many other options to get those parts. This study presents how to get those cost effect way. Offshore wind turbines are tend to be more efficient than onshore because wind speed and direction are more consistent. Offshore wind turbine produces more energy. However, it is expensive. As renewable energy source is getting cheaper, more people would be using renewable energy for every day's use.

## **Keywords**

Renewable energy, wind turbine, onshore, offshore and supply chain.

## **Biography**

**Anas Ali** is a middle school student at Crescent Academy International, Canton, Michigan, USA. He has received presidential award and participated in the IEOM Middle School and High School STEM Poster Competition at Lawrence Tech in 2017, 2018, 2019 and 2020. Anas also joined the STEM poster competition of the Science and Engineering Fair of Metro Detroit in 2021. He served in various clubs including Honor Society and Academic Games. He and his team placed the 2nd place in the Super tournament of Academic Games in Grand Rapids, Michigan, USA in 2019. Anas has visited Austria, Canada, France, Italy and Turkey.