



## ***Feasibility of Offshore Wind Turbine Installation in Persian Gulf***

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### ***Abstract***

*Offshore wind turbines are of growing interest for methods of energy supply because of Environmental sustainability and their independence from the raw materials such as oil and fossil fuels. Onshore and Offshore wind turbine technology have developed at a fast pace over the last few years with some of the world's country however it has not used in Iran yet, Despite the rich wind resources that exist in Persian Gulf and Oman sea.*

*In this present study the monthly wind speed in various region of Persian Gulf, have been calculated using data provided by the International Comprehensive Ocean-Atmosphere Data Set (ICOADS) and Winfinder according to statistical analysis. The best area where wind turbines can be installed is assessed regarding to high wind speed areas, pipelines and gas fields and relevant ship and vessel traffic.*

### ***Introduction***

*Climate change is one of the major problems in today's world, Since the industrial revolution, Human activities, specially the use of fossil fuels to produce electricity is one of the possible causes of climate change. Use of renewable energy resources is one of the solutions proposed in this area and is strictly followed. Renewable energy sources are those that are not mortal such as solar energy, Wind energy, Sea wave energy, tidal energy and energy from Geothermal. Besides being renewable these resources are compatible with the environment and make no environmental pollution.[1] Renewable energies provide an opportunity to produce safe and sufficient energy so they created an opportunity for peaceful and safe development. Denmark, Germany and Finland have shown that the use of Wind energy is feasible technically and economically. World Wind Energy Association strategy is on this basis that by 2020 about 10% of world energy produced from wind energy. (word wind energy website 2002). The wind energy has been used for three thousand years. Until the early twentieth century wind energy was used for mechanical force to pumping water or grinding the Grain. Beginning of modern industrialization, the wind energy usage decreased and replaced With motor vehicle using Fossil fuel or electrical system. In the late 1970s, coinciding with the first oil price shock, a strong tendency to use of wind energy induced however, at this time the main focus, was on providing electrical energy from Wind energy instead of mechanical energy.[2] This method allows a stable and reliable source of energy with other energy sources as a backup of electrical network. The first wind turbines to generate electricity were produced in the early twentieth century and the technology of wind turbine Improved up to 1970s step by step. In the late 1990s, wind energy appeared as one of the most sustainable sources. During the last decade of the twentieth century,*