

# WIND POWER (RENEWABLE ENERGY) IN PAKISTAN

By

**Engr. Muhammad Imran Qamar**

The wind of change is blown and world has now emphasizing towards new technologies out of which renewable energy is important one. Keeping in view the commercial and industrial consumption of oil and gas everyone is conscious to have some alternate resource for energy production. Wind is also one of the resources for the power generation. A wind turbine is a device that converts kinetic energy from the wind, also called wind energy, into mechanical energy; a process known as wind power. If the mechanical energy is used to produce electricity, the device may be called wind turbine or wind power plant. If the mechanical energy is used to drive machinery, such as for grinding grain or pumping water, the device is called a windmill or wind pump. Similarly, it may be called wind charger when it is used to charge batteries.

The result of over a millennium of windmill development and modern engineering, today's wind turbines are manufactured in a wide range of vertical and horizontal axis types. The smallest turbines are used for applications such as battery charging or auxiliary power on boats; while large grid connected arrays of turbines are becoming an increasingly important source of wind power-produced commercial electricity.

Pakistan is also facing electricity shortfall since last decade, to overcome this issue a step towards renewable energy is taken and government showed interest, a survey report had been issued showing that Pakistan has an ideal wind corridor in Islamabad, Thatta and Karachi region. Minimum wind speed required to run the turbine ranges from 3~4 km/s; it's our fortune that our wind corridors receives 6~7.5 m/s which is an ideal wind for wind turbines. Survey reports have shown that Pakistan can produce 300,000 MW electricity from wind and solar energy, whereas actual requirement of Pakistan is estimated at 22,000 MW.

Pakistan's first 50 MW Wind Farm Project was started in Jhampir (Sindh) by Zurlo Enerji engineering a Turkish company and completed five wind turbines out of which one was uninstalled. Capacity of each turbine was 1.2 MW ; currently four turbines are operational so far generating 4.8 MW. Unfortunately the project stands closed due to some local issues as well as financial matters.

A 49.5 MW wind farm project by Fauji Fertilizer Company Energy Limited (FFCEL) was awarded to Nordex (Germany) and Descon Engineering Ltd. (Pakistan). Both companies started the project with full concentration, unfortunately around 50 armed local intruders severely beaten the project team causing the suspension of project execution for three months. In July 2011, the work was resumed. Installation of 33 No's of wind turbines (1.5 MW each) was successfully completed in July 2012 and the project is now in commissioning phase and will be operational soon.



### FFCEL Wind Farm Project at Jhampir, Sindh

Zurlo Enerji has again started 50.4 MW wind farm project at Jhampir at the stage when FFCEL wind farm project was resumed. Zurlo Enerji is installing the Vestas wind turbines manufactured by Denmark; each turbine is capable of producing 1.8 MW electricity. Almost 15 No's of turbines have been erected so far and remaining will be completed in near future.

Two more wind farm projects of 50 MW each having 40 No's of wind turbines (FWEL I & FWEL II) have started in Gharo area, both projects are again awarded to Nordex and Descon Engineering Ltd. 20 No's of turbines will produce 50 MW (2.5 MW each) expected completion is first quarter of 2014.

The story doesn't end here, it's actually the start of a revolution, and there are plans of using maximum wind energy for electricity generation. Alternate Energy Development Board (AEDB) has so far allocated land to 18 wind IPPs (Independent Power Producers), 13 have submitted feasibility reports and electricity generation license is issued to 06 IPPs, a queue of projects will be launched very soon.