Aresti Power Ltd designs, integrates, markets, installs and supports a wide range of high efficiency, reliability and quality wind powered products and systems. We provide small and medium sized wind turbines in the range from 100 W to 100 kW nominal output power, as well as, all the required electrical and electronic equipment for a complete electricity supplying system. Aresti Power Ltd is an authorized distributor of eoltec sas, a Wind Energy Systems designer and manufacturer French Company, focused on the development and production of modern medium size wind turbines (6 to 300kW), and of superwind GmbH, a dedicated to small wind turbines (350 to 1500W) German company.

Why Wind Energy?

For thousand of years, people have been harnessing wind energy, utilizing it in many applications and activities. Today, wind energy is still in the forefront of our energy needs, being the fastest growing industry in the world. Wind power is one of the leading technologies that can deliver clean and environmentally friendly electricity solutions in a vast area of applications.

Electricity production from wind turbines (generators) avoids the risks of using convectional fuels for the self-evident reason that there is no fuel. Wind is clean, free, indigenous and inexhaustible. The power generated from the wind is a very competitive, several times less costly alternative to solar energy power, but at the same time it can complement it in a very nice way. Useful Wind Energy may exist 24 hours a day, while useful Solar Energy may exist only for few hours in a day.

A wind turbine (wind generator) is a system that converts the kinetic energy of the wind into electricity. The principal of operation is similar to a hydroelectric generator. The main difference is the medium that is being utilized, running water for the first and blowing wind for the latter.

Wind turbines come in all sizes from those with rotors measuring less than a meter (for example sail boat applications) to those with rotors over 80 meters (> 1MW that are used for large wind station applications).
Small and medium sized wind turbines (SMWT), ranging from 100 W to 100 kW, play a vital role for many RES “no bulk” applications. There are a number of design type’s philosophies for SMWT

Experimentation has shown that the best design philosophy, with the objective of producing the maximum possible power for the lowest cost and at the same time at the highest reliability, is that of a horizontal upwind, 2 or 3 blades lifting style airfoil rotor, synchronous NdFeB neodymium permanent magnet design.

A Small Medium Wind Turbine system may include the following subsystems:

- The Blades (rotor) that converts the wind's energy into rotational shaft energy
- A nacelle containing a drive shaft and a permanent magnet generator that converts the shaft energy to electric three phase electricity
- A tail boom and Vane that orient the turbine into the wind and protect it from high winds
- Slip-rings, brushes and yaw bearing that transmit the electricity down the tower and help to turn the turbine towards the wind.
- A braking system (manual or auto) that slows or stops the blades from turning
- A tower or a pole
- Electronic equipment that convert ac energy to dc, charge and protect the batteries from overcharge or discharge
- Deep discharge high quality Batteries
- Inverter for dc-ac conversion for stand alone or grid connected ac electricity supply needs.

Typical Applications of Small and Medium Wind Turbine Systems

In the absence of connectivity to national electricity grid, or in areas where connectivity to national grid is difficult and expensive, or in applications, which require a mains independent power supply, the wind turbine systems provide a meaningful alternative, clean, silent and cost effective solution.

The small and medium wind turbines may be combined with photovoltaic generators and/or other alternative and conventional generators to form hybrid systems of unlimited and uninterruptible capabilities of electric power. Furthermore, they may be used as stand-alone or grid-connected systems.

Small and Medium wind turbines are playing an increasingly vital role in providing eco-friendly electricity and in water pumping applications. Also, rural communities can greatly benefit from small and medium scale systems, which is especially true for most Aegean islands, unattainable telecommunication station sites and difficult to approach Greek agricultural and cattle-rearing areas, where, large wind resources exist and even, if there is presence of national electricity supply it is often unstable and of poor quality.

Typical applications of small and medium wind turbine systems include: street and park lighting, farms, hotels, houses, rural village electrification, water pumping, sea water desalination, lighthouses, , illuminating advertising bill boards, mobile phone base stations, radio stations, security and surveillance systems, satellite and other telecommunication applications, telemetry systems, camping electricity, boat and yacht electricity and many more.