ENERGY RECOVERY WIND TURBINE SYSTEM

PROJECT CODE: P058
Designed as a wind and exhaust air energy recovery system with safety enclosure to generate electricity, this new invention reuses exhaust air from any exhaust outlet to generate electricity or mechanical power. Compared to existing systems, which consume high amounts of electricity to transfer waste heat out to the atmosphere, this system has the advantages of having better safety features, more energy.
Cooling towers are heat removal devices used to transfer waste heat out to the atmosphere by means of water, fan or the combination of these. They are usually used in oil refineries, chemical plants and large buildings such as hospitals, offices and schools for removal of heat as well as to cool down the temperature within.

Cooling towers with ventilators are mechanically driven by fans and motors to draw out heated air from outlets of cooling towers. The drawn out air at the outlets usually has high wind speed and velocity.

With the vast demand of electrical energy, wind power electrical generator systems, where wind energy is converted to electrical energy through exhausted air, are known in numerous patented technologies. One prior art comprises a wind mill activating an air compressor to generate a supply of pressurised air and an air motor is activated by the supply of pressurised air to drive a generator. However, this technology utilises additional energy to pressurise the exhausted air and consequently increases its power consumption.

Another prior art relates to an energy recovery system that utilises exhaust air flow from a ventilation system or exhaust to generate electrical energy. While the prior art discloses a windmill that rotates about a vertical axis of the exhaust air flow, it does not explore the rotation of the windmill about a horizontal axis. Moreover, the technology provides a plurality of guide vanes that extends away from the body of the exhaust. Air flow is therefore not directed at an angle that optimises a wind-stream to interact with the windmill.

Therefore, there is a need for a system to capture maximum exhaust air flow in order to generate a sufficiently large amount of energy. The present invention has come out with a system to reuse exhaust air from any exhaust outlet to generate electricity and/or mechanical power.