Generator exhaust can be discharged into the wind shaft

Can an exhaust air energy recovery wind turbine generator have more than one turbine?
As mentioned in the design description section, an exhaust air energy recovery wind turbine generator system can consist of more than one wind turbine. Based on the outlet area of the cooling tower and the size of the turbine used in this experiment, it is possible to place two turbines.

What is exhaust air wind energy recovery turbine generator?
Installing this exhaust air wind energy recovery turbine generator is highly recommended for energy conservationin commercial buildings. It is not only capable of generating electricity constantly when an exhaust system is in operation but also reduce the power consumption by the exhaust air system.

Can a wind turbine generator be integrated above an exhaust air system?
The feasibilityof integrating the designed energy recovery wind turbine generator above an exhaust air system was evaluated by performing a series of tests on a fabricated small scaled model of cooling tower,followed by an actual unit of cooling tower provided by the manufacturer.

How to determine the optimum configuration of exhaust air energy recovery turbine generator?
Overall Performance EvaluationThree parameters that are taken into account in determining the optimum configuration of the exhaust air energy recovery turbine generator are the intake air flow rate,the fan motor power consumption,and the wind turbine performance.

Why do generator exhaust systems need to be properly designed?
Generator exhaust systems need to be properly designed to ensure correct engine performance and safe operation. System design has become more complex with the desire to keep emissions low,along with the desire to utilize the heat energy in the exhaust gas.

Can exhaust air energy recovery turbine generator improve cooling tower performance?
Based on the result,when the turbine is spinning at a high rotational speed,the cooling tower model experiences an increment in air flow rate and a reduction in fan motor power consumption. Thus,the exhaust air energy recovery turbine generator is capableof improving the cooling tower performance.

Download scientific diagram | Torque (T) and speed (W) in the low speed shaft (turbine) and in the high speed shaft (generator) of transmission train. As can be observed in Fig. 11, the wind ...

The electrostatic discharge effect has been widely studied in the high voltage field (Mainra et al., 2022; Prashad, 2006) but its impact on a wind turbine"s main shaft bearing has gone ...

A shaft is coupled with the turbine rotor. The shaft receives rotational energy from the rotor and starts rotating.

Generator exhaust can be discharged into the wind shaft

A generator called a steam generator connects to the shaft via a coil. The shaft ...

Exhaust stacks shall be configured to discharge the combustion gases vertically and shall not be equipped with any part or device that impedes the vertical exhaust flow of the emitted combustion gases.

A vertical axis wind turbine (VAWT) was positioned at the discharge outlet of a cooling tower electricity generator. To avoid a negative impact on the performance of the cooling tower and to optimize the turbine ...

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Parameter Cooling tower without wind turbine Cooling tower with wind turbine Percentage difference Average discharged wind velocity (m/s) Cooling tower fan rotational speed (rpm) ...

The generator is driven by a split-shaft drivetrain that decouples the turbine"s shaft from the shaft of the generator to provide independent control of their angular velocities.

blade tip, charges of opposite polarity, respect to the clouds charges, can be easily induce to the wind blades from the grou nd via its lightning pro tection system. 45 Additionally, the blads can ...

Harnessing wind energy from artificial, unnatural sources like the consistent exhaust air from a cooling tower outlet can be a solution to generate efficient power as it expels a high wind ...

Wind blowing faster than 1 m/s especially during harmattan, can redirect exhaust emissions; towards opposite direction of the right setting of generator in building environment (i.e. towards ...

It is possible to save up to 13% of cooling tower power by implementing this energy recovery system. The average discharge wind speed is tabulated and presented in five bands for each ...

This is a novel application of the DMST theory. Fig. 1 General arrangement of the exhaust air energy recovery turbine generator (Adapted from Ref. 10 with permission) 10 2. Design ...

opposite polarity, with respect to the clouds" charges, can be easily induced in the wind blades from the ground via the turbine"s lightning protection system. Additionally, the blades can be ...

generated from this system can be fed into the electricity grid. For 3000 units of cooling tower (2 m outlet diameter powered by a ... The discharged wind energy from the exhaust air system is ...

Highlights Exhaust air energy recovery system to recover part of the energy in discharged air. An innovative

way to generate electricity and reduce CO 2 emission. Equipped ...

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