

# Application of nitrogen in renewable energy



Wind energy is one of the fastest growing renewable energy sources. By the end of 2021, the cumulative installed capacity of wind power nationwide will be 328million kW, of which the cumulative installed capacity of onshore wind power will be 302million kW and the cumulative installed capacity of offshore wind power will be 26.39 million KW. With the growth of wind energy, the dependence on fossil fuels will be reduced, which can reduce carbon dioxide emissions and have a positive impact on the environment.

In order to ensure the effective operation of the wind turbine, nitrogen must be supplied to the turbine actuator. Because of this, the nitrogen generator is extremely beneficial to companies in the renewable energy industry.

## Use nitrogen to ensure efficient wind turbine operation

Wind turbines work by converting wind energy into electricity. This is achieved by a large blade connected to a high base. The blades are also connected to a hydraulic system

with accumulators. When the wind moves the blades, it activates the hydraulic system and accumulators, thus starting the process of generating energy for storage or immediate use.

The accumulator is essential for this operation and consists of two compartments - one filled with gas and the other with fluid. Due to the actuator design, inert gas is required to keep the two compartments separate. If the fluid absorbs any gas, it will affect the operation of the wind turbine. This is the source of nitrogen. A continuous supply of nitrogen helps prevent the contents of both actuator compartments from mixing in the event of leakage. Nitrogen is an ideal solution because it is completely inert, does not absorb moisture, does not burn or cause environmental harm.

#### Benefits of nitrogen generator for renewable energy applications

Nitrogen generators are the ideal solution for medium and large wind turbine energy applications. This is because one or more nitrogen generators can be connected to the wind turbine to provide a constant flow of nitrogen. Through the sensor and pressure valve system, the generator can provide on-demand nitrogen for the wind turbine, thus greatly reducing the opportunity of mixing the gas and fluid sides of the actuator.

