Runhua Huang

Professor Cannon

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Power Station: Goodbye Oil

Imagine if humans live in an environment with high concentrations of carbon dioxide and no oxygen. No one can survive in this environment. With the emergence of fossil fuels such as petroleum, the concentration of carbon dioxide in the atmosphere has increased compared to previous centuries. To solve this problem, some industries have begun to use other cleaner energy sources to replace fossil fuels such as petroleum. Power station is another area where research is advancing to decrease dependence on or to replace oil.

Some offshore power plants use sea breeze as the main force in the development of wind power plants. Wind is an intermittent renewable and clean energy. According to Musgrove, “Energy provided by wind power, though no panacea, has the potential to make a substantial contribution to meeting electricity needs in many countries.” (2009) One of the best advantages of offshore wind power is the wind resources are stable and the wind volume is sufficient. Offshore wind power is a low-cost power generation method. In some areas, the cost of power generation is lower than traditional coal-fired power or gas-fired power generation (Neslen 2014). However, wind energy may vary greatly in one day or several days. Therefore, wind power must be used with other power sources or storage facilities to provide a stable power source (Holttinen et al. 2009). At the same time, wind in some areas may not be effectively used, so power plants in some areas use nuclear energy as the power source for power plants.

Some power plants use nuclear energy to replace or assist wind power generation. Nuclear power plants are high-efficiency energy constructions, which have almost zero emissions of greenhouse gases and carbon dioxide. Nuclear power plants are usually regarded as the base load of the grid, because fuel costs only account for a small part of the production cost, and because nuclear energy are not easy to dispatch and are suitable as base load power suppliers. The energy density of nuclear fuel is several million times higher than that of fossil fuels. Therefore, the fuel used by nuclear power plants is small and convenient for transportation and storage. A 1,000-megawatt nuclear power plant only needs 30 metric tons of uranium fuel a year. According to a report by the International Atomic Energy Agency, as of June 2021, a total of 443 nuclear power plants are operating in 33 countries worldwide, and another 52 are under construction. Nuclear energy and wind energy are both clean energy, so power stations use these two energy sources to replace fossil fuels.

This article introduces two power generation methods commonly used in the field of power plants, namely wind power and nuclear power. These two kinds of clean energy have successfully replaced fossil fuels such as petroleum and have freed the power station field from relying on petroleum.

Works Cited

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