FIDES HVDC STABILIZER

For offshore floating windfarm

Voltage SAG and efficiency

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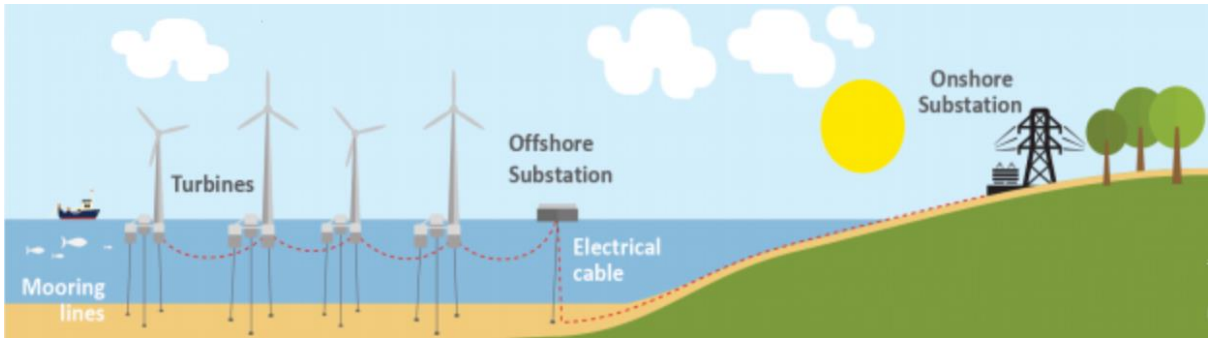

1. Goals and contents of technology development 1-1.

Final goal and evaluation method (1) Outline of the technology and product to be developed Floating offshore wind power is a new energy source with high technical difficulty, as many natural benefits follow. In particular, the natural environment of the sea must overcome physical measures and specificity in power generation that can withstand harsh environmental conditions at all times. In particular, unlike onshore wind power, power generation by floating wind power undergoes a change in gravity of the floating wind power generator by waves, and at that time, the wind turbine blades are affected and thus affect the amount of electricity generated.

Changes in the amount of electricity generated by waves always occur, and in the case of strong waves, the cycle of change in the amount of electricity generated will last a longer time, as shown in Figure 1 below. In order to produce and supply power, existing inverters and reactors do not make energy to supply the insufficient amount of power, so there is an obvious limit to maintaining power generation quality.

In particular, the floating offshore wind power generator business

is an initial market, and Korea's technology level is estimated at 77.7% of that of developed countries, and the technological gap with developed countries is being investigated in 5.3 years. The technology to achieve quality stabilization is an opportunity to secure and lead the global market uniquely.

As a technology such as an inverter that raises the voltage of the problem of lack of electric energy generation, which is caused by insufficient production of electric energy, the problem caused by insufficient power generation cannot be solved. In order to keep the power quality constant by actively compensating for the insufficient electrical energy, it is defined as the RMS (Root Mean Square RMS Average) system.

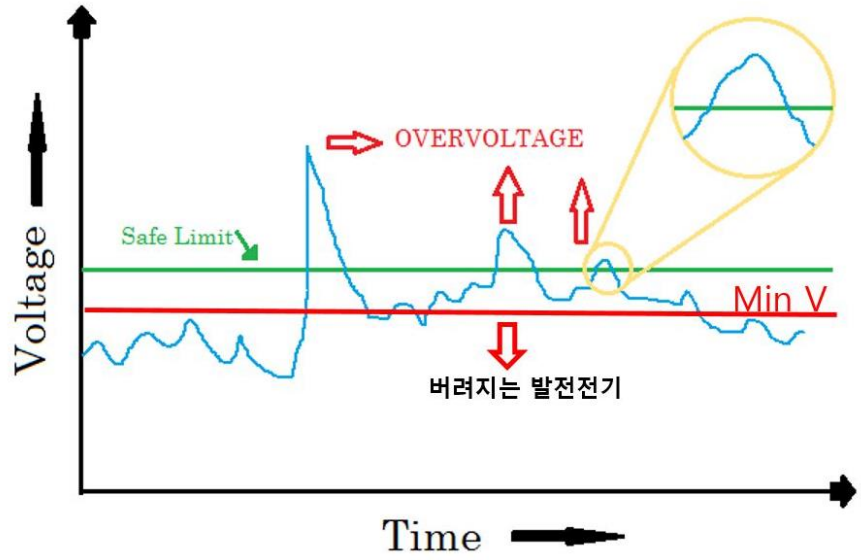

Fig 1. Power generation output example of floating offshore power generation

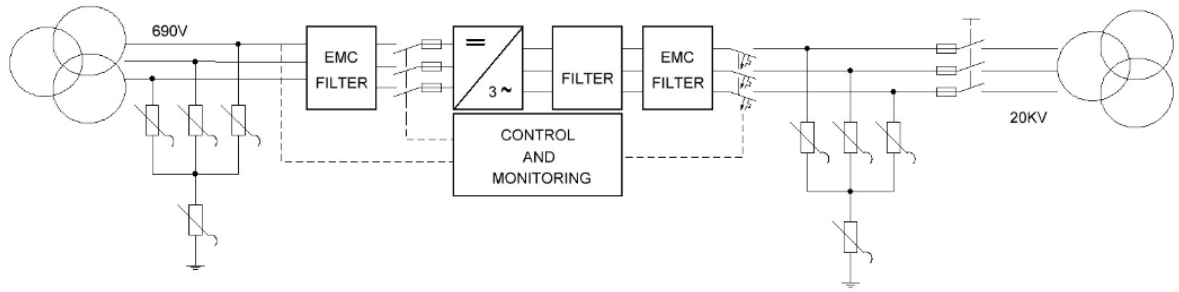

Fig 2 Floating wind power system RMS block

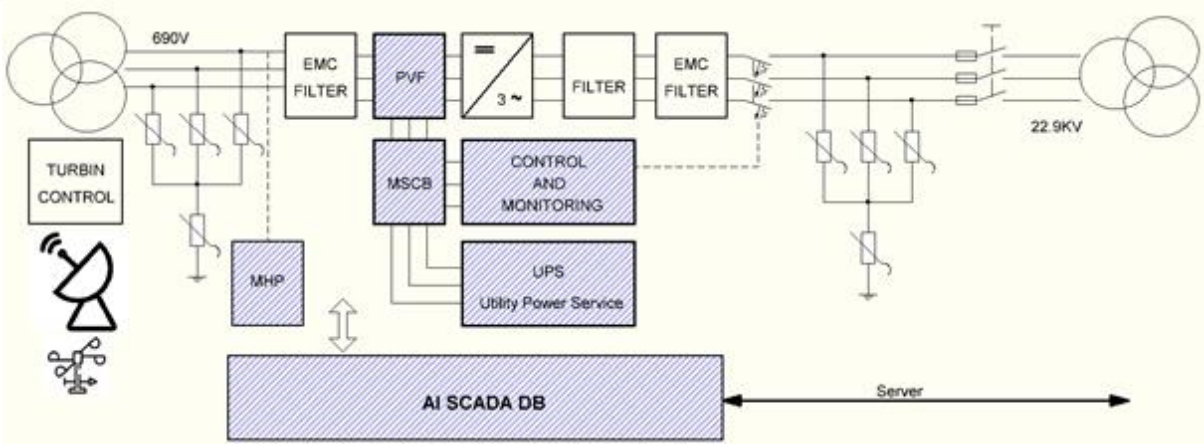

Fig 2-1 RMS system block for floating offshore wind power generator

Each function of the RMS and substation facility to maintain the existing power quality is composed of passive elements, and the performance of RMS also compensates for power loss, physical size, and RMS due to the method of compensating by cutting the generated power by using a reactor method. Due to the technical difference of the method, the standard of the minimum value of the RMS input voltage of the generated power is set high, thereby causing a problem of the power boosting system circuit.

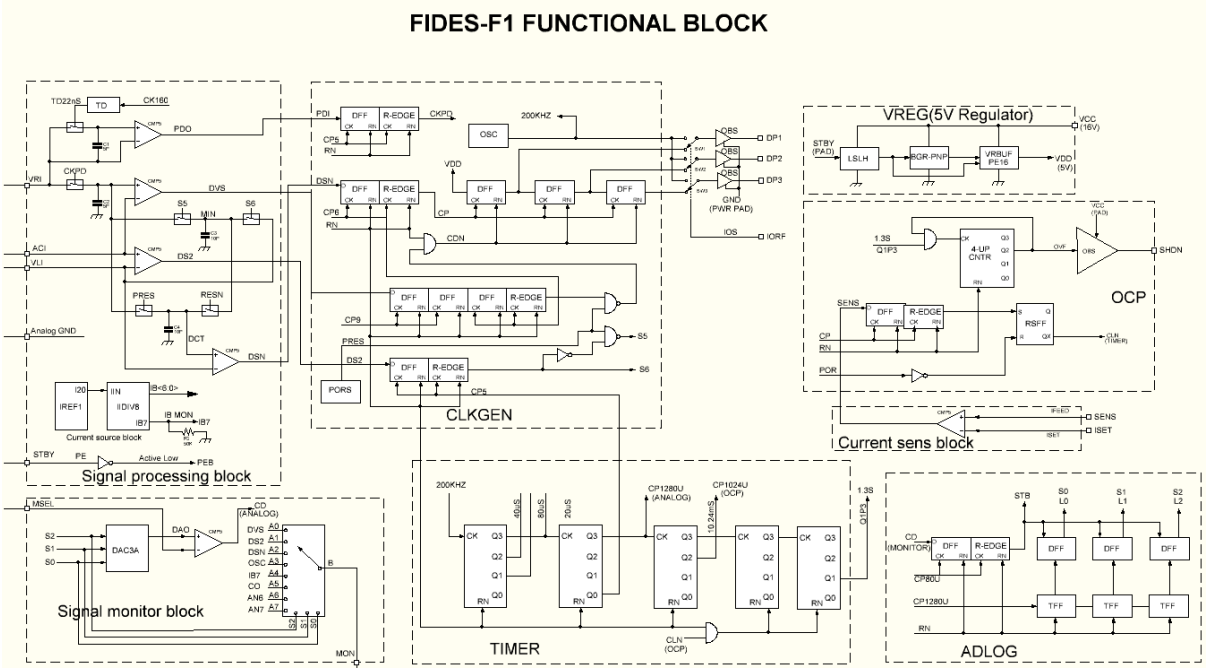

Fig 3 Voltage SAG system by valley fill block for HVDC

This power drop compensation controller circuit monitors the drop(Voltage SAG) in the generated voltage of the wind turbine and compensates the electricity stored in the super-capacitor to the MVDC when the generated voltage falls below the set threshold. Track to ensure power quality.