



Development research for wind power weather insurance index through analysis of weather elements and new renewable energy

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Recently, social interests and concerns regarding weather risk are gradually growing with increase in frequency of unusual phenomena. Actually, the threat to many vulnerable industries (sensitive to climate conditions) such as agriculture, architecture, logistics, transportation, clothing, home appliance, and food is increasing. According to climate change scenario reports published by National Institute of Meteorological Research (NIMR) in 2012, temperature and precipitation are expected to increase by 4.8% and 13.2% respectively with current status of CO₂ emissions (RCP 8.5) at the end of the 21st century. Furthermore, most of areas in Korea except some mountainous areas are also expected to shift from temperate climate to subtropical climate.

In the context of climate change, the intensity of severe weathers such as heavy rainfalls and droughts is enhanced, which, in turn, increases the necessity and importance of weather insurance. However, most insurance market is small and limited to policy insurance like crop disaster insurance, and natural disaster insurance in Korea. The reason for poor and small weather insurance market could result from the lack of recognition of weather risk management even though all economic components (firms, governments, and households) are significantly influenced by weather.

However, fortunately, new renewable energy and leisure industry which are vulnerable to weather risk are in a long term uptrend and the interest of weather risk is also getting larger and larger in Korea. So, in the long run, growth potential of weather insurance market in Korea might be higher than ever.

Therefore, in this study, the capacity of power generation per hour and hourly wind speed are analyzed to develop and test weather insurance index for wind power, and then the effectiveness of weather insurance index are investigated and the guidance will be derived to objectively calculate the weather insurance index.