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## **TECHNO-ECONOMIC ASSESSMENT OF WIND ENERGY STORAGE TECHNOLOGIES VIA DECISION-MAKING MODELLING**

### **Abstract:**

Wind energy storage technologies should be improved by taking appropriate actions. However, all improvements increase the operational costs for the companies. Therefore, the most essential criteria should be identified to implement these actions efficiently. Accordingly, the purpose of this study is to understand the key issues for wind energy storage technologies. For this situation, a new model is established by using DEMATEL and TOPSIS techniques. Firstly, selected indicators are weighted via DEMATEL. Secondly, emerging seven economies are ranked with the help of TOPSIS. Hence, the main contribution of this study to the literature is that prior strategies can be identified for the improvements of the wind energy storage technologies by creating a new model. The results of this study can pave the way for the investors to increase the effectiveness of these projects. The findings indicate that technological development is the most critical issue for the performance improvements of the wind energy storage technologies. Durable materials and storage capacity are other critical factors for the development of these technologies. It is also stated that durable material is the most influencing factor since it affects all other criteria. On the other hand, storage capacity is the most influenced determinants because it is affected from all other items. In addition to them, it is also concluded that China is the most successful country with respect to the wind energy storage technology performance. Russia is another important emerging country in this framework.

### **Keywords:**

Wind Energy; Energy Storage; Techno-economic Assessment