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Selection of Renewables for Economic Regions with Diverse Conditions: The Case of Azerbaijan

Abstract: The objective of this paper is to study specifics of the selection of renewables for regions of Azerbaijan with diverse conditions. Information is obtained through the analysis of the regions' conditions and experts` opinions. Analysis reveals that geographical position, diversity of natural resources, and a variety of other factors of the five economic regions of the country require subdivision of these regions in the selection of renewables. Given that the selection of renewables is an MCDM task under a high degree of uncertainty, Z-number based models have been developed and Z-extension of the TOPSIS method has been used. Solutions have been derived based on direct calculations with Z-numbers. In the paper, results obtained for two regions are presented. In the case of one region, for the first part of the region, renewables are ranked as solar, wind, and hydro. For the second part, the ranking is as follows: hydro, wind, and solar. For the second region, the rankings of renewables for parts of the region are also different. Results show that in the case of uneven distribution of renewables and significant differences in factors influencing decision-making, it is necessary to subdivide economic regions and to use different models for the selection of renewables.