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MULTI-CRITERIA SUSTAINABILITY ASSESSMENT - A TOOL FOR EVALUATION OF NEW ENERGY SYSTEM

ABSTRACT

One of perspective methods for the evaluation of quality of energy system is the multi-criteria sustainability assessment, based on the analysis and synthesis of indicators expressing different aspects of the system. Application of this methodology in the cases of information deficiency (ASPID methodology) enables evaluation of various energy systems. In the paper, the multi-criteria sustainability assessment of energy systems of various energy sources is used to evaluate the energy power system of Bosnia and Herzegovina. Eight different energy system options are taken into a consideration as the potential options for the capacity building within the energy power system of Bosnia and Herzegovina. It has included various renewable sources and fossil fuel clean technologies. Within the multi-criteria sustainability assessment method, sustainability indicators and weighting coefficients are defined and calculated, including: resource indicator, environment indicator, social indicator and economic indicator with respective weighting factors. The methodology includes the system of stochastic models of uncertainty in order to realize the assessment from various supporting systems, and to obtain respective normalization indexes by using non-numeric (ordinal), non-exact (interval), and non-complete information (NNN- information), for sources of various reliability and probability. By the analysis of multi-criteria sustainability assessment of selected options, the decision makers could be enabled to form opinion on quality of considered energy systems, and from the aspect of sustainability, make selection an optimum option of energy system.

KEYWORDS

[sustainability](#), [energy power sistem](#), [sustainability indicators](#), [single criteria analysis](#), [multi-criteria sustainability assessment](#)

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