"Gheorghe Asachi" Technical University of Iasi, Romania

RESEARCH ON SECURITY INDEX SYSTEM OF CRITICAL ENERGY INFRASTRUCTURE UNDER THE BACKGROUND OF CARBON EMISSION REDUCTION

Ran Li[*]

School of Architecture, Tianjin University, China, No. 92, Weijin Road, Nankai District, Tianjin

Abstract

The key energy infrastructure will produce a large amount of CO_2 and other harmful gases in the operation process, so the implementation of carbon emission reduction in the key energy infrastructure field is of great significance to the construction of the national economy. There are many security risks in the process of implementing carbon emission reduction for key energy infrastructure. Strengthening the security of key energy infrastructure has become a more challenging task, and its security evaluation is an important guarantee work. Therefore, strengthening the security of critical energy infrastructure has become a more challenging task, and its security evaluation is an important guarantee work. However, in previous studies, most of the selection of evaluation indicators only analyzed the principles, and did not deal with the relevance and redundancy of the indicators. In view of the complex index system of the safety assessment system, the high cost of diagnosis and maintenance, and the long time required for one assessment, this paper constructs an assessment index system based on the analysis of the factors affecting the safety of key energy infrastructure, and proposes an improved distinguishable matrix based on The rough set attribute reduction algorithm based on the method simplifies the evaluation system indicators on the premise of ensuring the same classification quality. On the premise of ensuring the same classification quality, the evaluation index system is simplified. The improved algorithm reduces the complexity of time and space, can effectively and accurately identify risks in the operation of key energy infrastructure, enhance the security of key energy infrastructure, and provide guarantee for carbon emission reduction of key energy infrastructure.

Key words: carbon emissions, discernibility matrix improvement, critical energy infrastructure, evaluation system, rough set attribute reduction

Received: November, 2022; Revised final: December, 2022; Accepted: December, 2022; Published in final edited form: December, 2022

---

[*]Author to whom all correspondence should be addressed: e-mail: lirantju@gmail.com