عنوان مقاله:

Energy-innovation knowledge common connection point management in preventing outbreak of the Covid-۱۹ pandemic in a University

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خلاصه مقاله:

BACKGROUND AND OBJECTIVES: The new wave of the Covid-۱۹ pandemic has complicated the working conditions of higher education institutions in Ukraine. In this regard, saving energy resources of the university offers an opportunity to get out of the crisis. The purpose of the study is to develop a management system for energy complexes with non-conventional renewable energy sources in the context of preventing a new outbreak of Covid-۱۹ pandemic.METHODS: The method of Deutsche Gesellschaft für Nachhaltiges Bauen was used to conduct energy audits, construct energy profiles of university offices. The cluster analysis was used to perform energy certification of university offices according to the indicators of integral energy efficiency potential and the level of annual specific energy consumption. Fuzzy methods made it possible to classify all the buildings into ۳ categories (A, B, C) to prioritize their use in the light of Covid-۱۹ pandemic. The system for monitoring the attained level of energy efficiency is based on the use of discriminant analysis.FINDINGS: Implementation of the weighted strategy has proved that the classes will be given online, ۲۳% of all offices. Category A (administrative, technical, service buildings; laboratories with unique equipment with ۲۴-hour service) will be used in a pessimistic scenario (continuation of Covid-۱۹ pandemic). In the optimistic scenario (end of Covid-۱۹ pandemic), by means of the suggested energy efficiency monitoring system, the probability of using category A offices makes ۱۰۰%, B offices- ۵۰% and C offices - ۱۳%.CONCLUSION: Implementation of the developed energy efficiency action plan will offer the opportunity for the University to use reasonably the common connection point of knowledge management of energy complexes with non-conventional renewable energy sources in the context of preventing a new outbreak of the Covid-۱۹ pandemic. The profitability of implementing a weighted energy efficiency strategy is ۱۵%, with a payback period of ۶.۷ years for the purchase and installation of non-conventional renewable energy equipment. In the future, it would be advisable to convert gradually all of the remaining ۱۴ university buildings to the autonomous use of non-conventional renewable energy sources, using a common connection point for the knowledge management of the energy complexes.

کلمات کلیدی:
Efficiency, Audit, certification, Potential, Solar