



DOCTORAL RESEARCH TOPIC:

Application of the Machine-learning based methods on the path to the buildings' sector decarbonisation

RESEARCH FIELD:

Energetics and Power Engineering (T 006)

BRIEF DESCRIPTION OF RESEARCH TOPIC:

As practice shows, an increase of requirements for energy efficiency of new buildings is not enough to achieve significant energy savings and decarbonisation of the buildings' sector, as most of the sector are existing inefficient buildings. The importance of renovation is emphasized in Directive 2018/844 / EU. The goal presented in European Commission's strategy for 2030 is to double the annual building renovation rate and promote deep renovation. To accelerate the renovation process, artificial intelligence (machine learning), which is already applied in many other areas, could be employed. The literature review shows (Hong et al. 2020), that application of machine learning methods in the field of buildings energy performance analysis is increasing during different life cycle stages of the building, but there is still a lack of research related to retrofitted buildings. To train machine-learning based models, BigData is required. Here lies a great potential for employment of the BigData collected by energy suppliers.

The work aims to develop a methodology based on machine learning that will help stakeholders to make optimal decisions regarding renovation priorities and renovation measures that will allow maximum decarbonisation of the buildings' sector.

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