LIETUVOS ENERGETIKOS INSTITUTAS

PRIĖMIMAS Į DOKTORANTŪROS STUDIJAS 2026 M.

TEMOS PAVADINIMAS:

Integruota miesto kasybos strategija Lietuvai: techninis ir ekonominis modelis vertingų komponentų išgavimui iš dugno pelenų, su medžiagų įvertinimu ir galimo antrinio panaudojimo analize

MOKSLO KRYPTIS:

Aplinkos inžinerija (T 004)

TRUMPAS APRAŠAS:

The rapid growth of municipal solid waste and the increasing use of waste-to-energy technologies are creating new challenges in managing bottom ash, a significant by-product of incineration. In Lithuania, as in many other countries, this residue is mostly landfilled or stored, despite containing recoverable metals, minerals, and rare elements. The research focuses on transforming this underutilised waste stream into a valuable resource through the development of an integrated urban mining strategy suited to the Lithuanian context.

The goal is to convert bottom ash from a disposal problem into a source of secondary raw materials that can support sustainable industry and the circular economy. The study aims to develop a systematic model that links material characterisation, recovery technology, and techno-economic evaluation. This model will serve as a decision-making tool to assess the feasibility and efficiency of different valorisation pathways for bottom ash.

The key objectives are to determine the chemical and mineral composition of bottom ash from Lithuanian waste-to-energy plants, identify valuable components and assess their recovery potential, optimise extraction and purification methods for metals and minerals, and evaluate the quality and usability of residual materials for applications in construction or related sectors. A comprehensive techno-economic analysis will be performed to compare various recovery scenarios and define the most sustainable and cost-effective approaches.

This research is highly relevant to current environmental and industrial challenges. It addresses the growing need for sustainable resource management, reduction of landfill dependency, and advancement of the circular economy. By integrating advanced analytical methods with practical engineering and economic assessment, the study will provide scientific and valuable insights into how urban mining of bottom ash can contribute to resource efficiency and waste minimisation. The expected outcomes include a clear framework for bottom ash valorisation, evidence-based recommendations for policymakers and industry, and a demonstration of how waste can be transformed into a valuable component of sustainable development.

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Daugiau informacijos ir pilną disertacijų tyrimų tematikų sąrašą rasite adresu

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