

Abstract

This master's thesis is made of 74 pages, includes 46 figures, 9 tables, 1 presentation.

The thesis raises the question about the use of the energy potential of small rivers of Ukraine in order to save fuel and energy resources, decentralization of the total energy of the system and solve the problems of energy supply in remote and inaccessible rural areas. This question is relevant for Ukraine is now due to rising prices for fossil fuels and raising the issue of decentralization of the energy system and energy independence.

Work is related to identification of the factors that have negative impact on the functioning of the existing small hydropower plants, inhibit the development of small hydro power in Ukraine, search and justification of possible options to eliminate the negative factors, the analysis and the development of innovative approaches to the implementation of small hydropower facilities.

The aim of the work is to determine the energy performance of small hydropower facilities, analysis of existing implementations of small, mini and micro hydropower and problems associated with the development of small hydropower, to find ways to solve these problems, and the invention of new methods and techniques for development of small hydropower.

The object of this study is hydropower resources of Ukraine and, in particular, small hydropower resources.

Thesis shows the feasibility of the development and use of new equipment with the introduction of small hydro facilities and the feasibility of the development of small hydropower in general.

According to the results of the work were filed at the XIV International Conference
"Development of science in the XXI century"

Keywords: hydro, small hydro, energy efficiency, numerical modeling of fluid flow,
CFD, expediency, feasibility, micro-hydro turbine, pump as turbine(PAT).