

**TO THE MEMBERS OF THE SCIENTIFIC JURY
FOR THE PROCEDURE FOR THE ACQUISITION
OF THE DOCTOR OF THE ESD FOR THE DOCTORAL PROGRAM
"FINANCE, MONEY CIRCULATION, CREDIT AND INSURANCE
(FINANCE)**

OPINION

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Dissertation topic: "Financial and economic evaluation of investments in the production of energy-efficient building materials".

Research supervisor: Prof. Stoyan Stanimirov Prodanov, PhD

Basis for writing the opinion: Order of the Rector of the Academy of Economics "D. A. Tsenov"- Svishtov, No 1127/ 22.11.2023.

The Opinion brought to your attention has been prepared in accordance with the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Rules for its Implementation and the Rules for the Development of the Academic Staff in the SA "D. A. Tsenov" - Svishtov.

1. General characteristics of the dissertation work

The present thesis on "Financial and economic evaluation of investments in the production of energy-efficient building materials" was developed in a volume of 266 standart computer pages. It consists of an introduction, three chapters, a conclusion, a list of used literature and applications. The individual parts of the thesis are well structured, there is a logical connection and dependence

between them, in full compliance with the requirements for the development of a dissertation for the award of the ESD “Doctor of..”. The list of cited sources includes 107 titles. 76 tables and 28 figures were used in the presentation of the theme.

Certainly, the topic of the dissertation chosen by the doctoral student is of significant relevance and practical applicability, which is confirmed by the conducted survey of attitudes towards investments in the production and consumption of energy-efficient building materials

The subject of the research in the dissertation is the consumer attitude to search for insulating building materials for energy efficiency, which forms a positive financial and economic assessment for investments in their production.

The main research thesis in the dissertation is that the development of technologies for the production of insulating building materials forms a supply, which ensures the demand from customers for financially and economically sound solutions for investments in energy efficiency projects of the building stock in the midst of high goals of the 'green deal' of the European Union.

The main objective of the dissertation is to justify the demand for investment in the production of insulating building materials for the purpose of improving energy efficiency, by studying the theoretical and technological aspects of this process and the financial and economic impact of these investments on consumers.

To achieve this goal, the dissertation student sets himself three **main tasks**:

1. To derive the theoretical constructs of energy efficiency investments.
2. To justify the methodological framework and the management context in the process of implementing energy efficiency projects.
3. To carry out a survey of the attitudes of end-users towards investments in energy efficiency with a scalable quality.

In order to achieve the research objective of the dissertation, solve the research tasks set and realize the research thesis, various methods and approaches were used, including: literature review, historical research, analysis and synthesis, system analysis, retrospective data analysis, inductive-deductive method, verbal-graphic modeling and survey research, etc. The results were processed by IBM SPSS Statistics with the application of discrete statistics modules.

The thesis report is 32 pages long and gives a good idea of the content of the dissertation. The style and language of the thesis and the concepts used are in

accordance with the requirements for the development of a thesis in professional orientation 3.8. Economics, and in particular in the field of Finance, Currency, Credit and Insurance. In accordance with the requirements, objectively and accurately reflect the structure and content of the dissertation.

2. Assessment of the form and content of the dissertation

In the introduction to the dissertation, the object and subject of the research, the research thesis, the research goal and tasks for its implementation, the methodology on the basis of which the research is carried out are formulated.

In the first chapter of the thesis, the author explains the theoretical basis of investment and energy efficiency. Emphasis is placed on three aspects of the study of energy efficiency investments: theoretical and practical dimensions of investments, and the implementation of energy efficiency; essence and characteristics of energy efficiency and of energy efficiency in buildings; European and national instruments for the short- and long-term efficiency of buildings. It is right to mention, albeit in a theoretical-descriptive version, the possibility of creating and integrating a waste incineration plant with a combustion plant for the production of steam, with a generator for the production of electricity production of waste products. Chapter one provides an in-depth review and analysis of the European instruments and the National Recovery and Resilience Plan on Energy Efficiency. An author's definition of the energy efficiency is given.

In the second chapter, the author of the thesis focuses on the methodological framework for conducting a consumer survey based on the assessment of energy efficiency investments. For the purpose of his research, the doctoral student has prepared a questionnaire on the topic 'Investing in energy efficiency'. The structure and content of the questionnaire, with its 9 sections and 70 questions, contributes to the achievement of the objectives and tasks set for clarifying the situation and identifying the trends in the development of the F Construction sector in Bulgaria. In addition to this study, a comprehensive theoretical review of the possibilities for a financial and economic evaluation of the investments was carried out. Emphasis is placed on the possibility of implementing effective financial controls as part of the financial management system to achieve the financial sustainability of enterprises in the medium and long term in the context of the pandemic and more frequent local and global crises in the economy.

In the third chapter, the dissertation mainly presents the results of the survey, and the information obtained from the survey is applied in a practical

aspect to carry out a financial evaluation of public investments to support energy efficiency improvements in the Republic of Bulgaria. This, in our opinion, makes the dissertation a scientific research of a theoretical-applied nature. Problems related to investment attitudes in the production and consumption of energy-efficient building materials have been skillfully identified and guidelines have been sufficiently clear and precise on how they can be avoided.

Certainly the content of the dissertation submitted for an opinion is fully consistent with the chosen topic. There is a good balance between the contents of the three chapters of the development. At the end of each of the three chapters of the dissertation, in-depth conclusions and summaries are logically presented, which actually represent the author's views on the problem under consideration.

In the conclusion, the author of the dissertation presents the most significant scientific and scientific-applied results of the study. The conclusions drawn, the recommendations formulated, which in general can be regarded as useful points of the scientific research carried out, give the necessary completeness to the work.

The four publications submitted under the protection procedure - three articles in specialised academic journals and one scientific report in a collection from an international conference in Copenhagen, Denmark. The doctoral theses are directly related to the topic of the dissertation, by which the doctoral candidate fulfils the minimum requirements for obtaining the educational and scientific degree of 'Doctor'. In a separate paper, the PhD candidate presents the guidelines for future research on the topic of the dissertation, including: Analysis of the development of national goals and strategies towards sustainable building capacity and a lower-carbon construction sector and conducting a study of governmental and non-governmental actions to increase investment in energy efficiency and promote the transition to 'circular material economies' for a more ecological and carbon-neutral status of real estate in Bulgaria.

3. Scientific and applied scientific contributions to the dissertation

It is my opinion that the thesis submitted has fulfilled the research objective and corresponding tasks. The systematised research results represent new ideas of a scientific and applied scientific nature that have the necessary relevance. The doctoral student demonstrates convincingly that the proposed ideas will lead to a sustainable transition towards energy efficiency in the construction sector, which can be seen as a niche business in the construction sector.

The thesis submitted to the Standing Committee offers the scientific community and practitioners results of scientific and practical application. The following may be designated as more significant:

1. A new interpretation of the concept of 'energy efficiency' is scientifically and theoretically grounded on the basis of a thorough analysis: energy efficiency is a key instrument to guide the ambitious, cost-effective and socially equitable transition towards a climate-neutral economy, aiming at its implementation as an integral part of sustainable growth and innovation.

2. An innovative version of the construction of an integrated plant for the production of high-quality energy-efficient building materials is presented, through which access to the Bulgarian market for a similar type of building materials is achieved, as well as a high degree of sustainability and adaptability to European energy standards

3. A new vision is proposed for conducting an expert financial assessment of public investments to support energy efficiency improvements in Bulgaria.

4. Questions and recommendations on the dissertation

1. Does the doctoral candidate consider that the problems addressed in the dissertation need changes in the current legislation?

2. In view of the relevance and importance of the problem in Bulgaria, I would like the doctoral student to continue his research in this area and to publish the results achieved.

5. Summary of findings and opinion

In conclusion, I would like to note that the submitted dissertation and the author's thesis correspond to the requirements of the Law on the Development of Academic Staff in the Republic of Bulgaria and its Implementing Regulations and the Implementing Regulations of the Law on the Development of Academic Staff at the Economics Academy “D. A. Tzenov” – Svishtov.

The relevance and importance of the research carried out by the doctoral student, the analyses and summaries made, the scientific and applied scientific contributions made give me grounds to note my positive assessment of the dissertation.

Strongly suggest to the members of the esteemed Scientific Jury to vote for the award of the educational and scientific degree 'Doctor' in the professional field 3.8. Economics, major in Finance, Currency, Credit and Insurance (Finance) by Emil Hristov Alexandrov.

December 20, 2023

Burgas

Prepared the opinion:

Assoc. Prof. Gergana Nikolova-Raleva, PhD