

To the Members of the Scientific Jury
Department of International Economic Relations
Faculty of Management and Marketing
Academy of Economics "D. A. Tsenov"
Svishtov

OPINION

By a member of the Scientific Jury,
Determined by Order № 184/ 16.04.2021
Of the Rector of Academy of Economics "D. A. Tsenov"
For obtaining an educational and scientific degree "Doctor"
In Academy of Economics "D. A. Tsenov" - Svishtov

The opinion is prepared by: Associated Professor Iliyan Genov Mateev, PhD,
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"World Economy and International Economic Relations".

Author of the dissertation: Ivan Vasilev Ivanov, Doctoral Program "World Economy
and International Economic Relations", № D020315129

Topic of the dissertation: IMPACT OF ENERGY EXCHANGES ON THE
FUNCTIONING OF THE ENERGY MARKET IN THE EUROPEAN UNION

I. GENERAL PRESENTATION OF THE DISSERTATION:

1. Subject

The subject of the research in the dissertation is the impact of energy exchanges on the
functioning of the electricity market as a whole in the EU.

2. Volume

The dissertation has a volume of 145 standard pages, containing: introduction,
exposition in three chapters, conclusion, and list of references - a total of 83 sources. In

support of the above, 11 tables and 18 figures are included. The appendices are 2 in number in a volume of 6 pages.

3. Structure

The structure of the dissertation is balanced and follows in a logical sequence the realization of the set goals and objectives of the research. The research thesis and the topicality of the research are precisely formulated, and some restrictive conditions for its implementation are indicated.

Chapter One: **"CONCEPTUAL CONSTRUCTION AND ESSENCE OF EUROPEAN ENERGY POLICY"** consists of four paragraphs:

Paragraph 1: "General Principles and Objectives of European Energy Policy" defines the concept of energy policy, and then addresses the main issues to be addressed related to EU energy policy.

In Paragraph 2: "Development of European Energy Policy in the period 1951 - 2019" an analysis of the evolution of European energy policy from 1951 to the present day has been made.

Paragraph 3: "Legal Framework for European Energy Policy" deals with the legal framework for European energy policy, developing and improving in line with specific changes in the market environment and current challenges in the energy industry.

Paragraph 4: "Current Challenges for European Energy Policy" analyzes the energy union strategy formed in early 2015, which is the result of the maturing of the common energy market, energy and climate policy of the EU, and is a long-term trend. In this regard, the current challenges facing European energy policy are described.

Chapter Two: **"THE EU ELECTRICITY MARKET"** consists of four paragraphs:

Paragraph 1: "Electricity Market - Nature, Characteristics and Mode of Operation" examines the life cycle of electricity, which gives us an idea of how its market functions. It is concluded that on the one hand the European energy market can be considered as a sum of the national markets of the EU member states, and on the other hand its functioning is realized under the influence of undertaken reforms led by the European Commission.

Paragraph 2: "Significance of the electricity market within the EU" concludes that electricity generation should not be seen as a stand-alone and neutral activity, but as a complex system of technologically diverse but relatively distinct activities. Then a market analysis of the energy mix in the EU was made on the basis of energy production and consumption of seven selected EU countries, including Bulgaria. Finally, the structure and

dynamics of electricity consumption in developed economies are considered. For this purpose two of the world's leading economies are taken as an example - The United States as the world's largest economy and Germany as the largest economy in the EU.

At the beginning of Paragraph 3: "Modern Reforms and Liberalization of the Electricity Sector in the EU" the current models of reforming the electricity sector is discussed, and then attention is paid to the process of liberalization of the European electricity sector.

Paragraph 4: "Investments in the Electricity Sector and the Price of Electricity for end Users" notes that the electricity industry is capital intensive and the financial resources used to develop this industry are both local and international. The main components that are included in the electricity bill are considered and the main factors that form the price of electricity are analyzed.

Chapter Three: **"ENERGY EXCHANGES AS PART OF THE EUROPEAN ENERGY MARKET"** consists of four paragraphs:

Paragraph 1: "Structure of the Wholesale Electricity Market in the EU" deals with the structure of the wholesale electricity market. In this regard, the two main types of market are defined and presented - organized (exchange) and OTC (over-the-counter) market, with their differences. The trade in electricity in terms of time ranges is analyzed and attention is paid to the energy market in Bulgaria - the model of operation and main participants.

Paragraph 2: "Energy Exchanges in Europe" presents the leading energy exchanges in Europe EPEX Spot and Nord Pool, as well as the Independent Bulgarian Energy Exchange. A comparative analysis of the advantages of stock trading is made and the role of energy exchanges in the EU is defined.

Paragraph 3: "Analysis of the Factors Influencing Energy Exchanges on the Functioning of the Electricity Market" examines the impact factor related to cross-border energy trade in the context of the single energy market in Europe and the topic of market mergers, as well as the related factor with economically measurable impacts. Finally, additional impact factors are considered, which include the environmental impact, the innovation impact and the service quality impact.

In Paragraph 4: "EXIEM - Index of Impact of Energy Exchanges on the Functioning of the Energy Market in the European Union" is performed one of the main tasks in the dissertation - to propose an index based on the impact factors analyzed in the previous Paragraph 3: cross-border electricity trading and market combinations, economically

measurable impacts and additional impact factors, including service quality, environment and innovation.

At the end of his dissertation, the PhD Candidate made summaries, which I share.

4. Literature

The PhD Candidate used 83 sources of information related to the topic of the dissertation.

The literature used is listed from 133 to 138 pages, inclusive.

The sources of information are used correctly and precisely.

5. Addendum.

The dissertation includes 2 appendices, from 139 to 144 pages, inclusive.

II. ASSESSMENT OF THE FORM AND CONTENT OF THE DISSERTATION

1. Assessment of the relevance and development of the researched scientific problem in the dissertation.

The study examines the construction of European energy policy as one of the most important modern EU policies. A chronological review, analysis of the legal framework has been made and the challenges facing this policy have been defined. After the liberalization of the energy market in the 90s of the XX century, there have been significant changes in the energy mix, corporate governance, legislative and regulatory framework of the energy industry. Having well-functioning, liquid and transparent energy markets is crucial to meeting and tackling the challenges of climate change and the need to remain competitive.

Exchanges are intermediaries in this complex environment by organizing liquid and efficient wholesale markets. Through the received price signals, they, as an organized market, react faster and more reliably. The price signals that the exchanges send to the business are an effective means for managing the investment decisions and for ensuring the rational use of the resources.

With this in mind, the content of the development is particularly relevant, while meeting the requirements for research work and contains the necessary details. It covers both theoretical and practical aspects, characterized by competent summaries and analyzes by the PhD Candidate.

2. Opinion about the language, volume and tools of the dissertation.

The language and style used in the development show that the PhD Candidate has good research skills and professional qualifications. The dissertation is characterized by an accurate, consistent and understandable scientific style, and the volume of scientific research is well balanced. The tools used are based on both classical and modern scientific methods: observation, induction and deduction; descriptive method; analysis and synthesis; modelling and graphical presentation of the considered phenomena and processes.

3. Opinion on the extent to which the abstract reflects accurately and fully the work.

The abstract is prepared in good faith, in a sufficient volume (36 pages), presenting the structure and content of the dissertation.

III. SCIENTIFIC AND SCIENTIFIC-APPLIED CONTRIBUTIONS OF THE DISSERTATION

The report on the main contributing moments in the dissertation correctly presents the achievements of the PhD Candidate. It can be argued that they enrich theoretical and practical research in the field of EU energy.

IV. QUESTIONS ON THE DISSERTATION

The dissertation meets my expectations and I have no critical remarks. I have the following question:

1. What are the main goals of the INTERRFACE, FARCROSS and TRINITY projects, financed under the Horizon 2020 program of the European Commission, under which the Independent Bulgarian Energy Exchange (IBEX) is a partner?

V. SUMMARIZED EVALUATION OF THE DISSERTATION AND CONCLUSION

The presented dissertation on the topic: **"Impact of Energy Exchanges on the Functioning of the Energy Market in the European Union"** is an in-depth study of a

current problem, contains original author's theses, analyzes and summaries. It fully meets the requirements of the Law for the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for Application of the Law for the Development of the Academic Staff, as well as the Regulations for the Application of the Law for the Development of the Academic Staff in the Academy of Economics "D. A. Tsenov".

The dissertation is a proof of the high theoretical preparation and the possibilities of the PhD Candidate to carry out research independently.

ON THIS BASIS, I GIVE A FULLY POSITIVE EVALUATION AND PROPOSE TO THE DEAR MEMBERS OF THE SCIENTIFIC JURY TO AWARD THE EDUCATIONAL AND SCIENTIFIC DEGREE "DOCTOR" OF IVAN VASILEV IVANOV, BY SCIENTIFIC SPECIALTY "WORLD ECONOMY AND INTERNATIONAL ECONOMIC RELATIONS".

Date: 10 May 2021

Veliko Tarnovo

Prepared by:

(Assoc. Prof. Iliyan Mateev, PhD)