

REVIEW

written by a member of a scientific jury, Prof. Emil Spasov Panusheff, Ph.D. on the dissertation "IMPACT OF ENERGY EXCHANGES ON THE FUNCTIONING OF THE ENERGY MARKET IN THE EUROPEAN UNION" by Ivan Vassilev Ivanov for obtaining an educational and scientific degree "Doctor"

in SA "D. A. Tsenov" - Svishtov

Reviewer: Professor Emil Spasov Panusheff, Ph.D.

Author of the dissertation: Ivan Vasilev Ivanov

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. The dissertation submitted for review is devoted to the influence of energy exchanges on the functioning of the electricity market in the European Union.
2. The development has a volume of 145 pages, of which 139 pages of main text and 6 pages of appendices.
3. The dissertation is organized in the following structure - introduction (introduction), three chapters, conclusion, list of references and appendices. The structure is balanced and reflects the set goals and objectives.
4. For the writing of the dissertation the doctoral student has indicated 83 sources, of which 20 in Bulgarian and 63 in English. The used literature shows that the doctoral student refers to separate researches and publications in Bulgaria on the considered problems. The foreign sources used are mainly official publications of the European Union.
5. Two appendices are presented to the dissertation - 1-Nominated Operator of the Electricity Markets (NOPE) and 2-Values of the ELIX index in 2019. The appendices are part of the scientific-applied research of the doctoral student.

II. Assessment of the form and content of the dissertation.

1. The topicality of the scientific problem developed in the dissertation stems from the changes in the functioning of energy markets and the EU's dependence on energy imports and its impact on price stability and the possibilities for applying market mechanisms in electricity trade. The specifics of these processes in the conditions of economic integration are a prerequisite for analyzes of the impact on the national economies of the introduction of organized trade. The dissertation examines the impact of this market model on the organizational structure and behavior of participants in these markets.

The dissertation clearly defines the goals and objectives of the research, raising the thesis about the possibilities of the wholesale electricity markets to expand the access of

other participants. In this way, stock trading will create preconditions for ensuring transparency in setting prices and will expand competition and security of supply.

The importance of the study is highlighted in the formulation of views on the impact of the new EU policy, defined for the programming period 2021-2027, called the "green pact", which raises to a new level the importance of the environmental approach to the EU's place in the world economy. . The use of an algorithm for measuring the impact of energy exchanges on electricity trading has enabled the doctoral student to increase the argumentation of the presented views and assessments.

2. The studied problems are a challenge for a number of researchers in the country and abroad, given the complex nature of the energy sector and electricity trade with a high degree of monopolization in the industry. Historically, a number of changes in the models of organizing the energy market and a variety of concepts for the introduction of market mechanisms can be seen. For this reason, the vast majority of researchers are looking for solutions in the liberalization of the electricity market. The PhD student took a stand on these studies, pointing out the advantages of applied privatization practices, as well as the disadvantages of applying market approaches in this specific sector. On this basis, the dissertation defends the thesis of the contribution of electricity exchanges to trade liberalization and achieving optimal price levels.

3. The volume of the dissertation is modest and relatively acceptable, and corresponds to the author's views on the analyzes included in the text.

4. The dissertation includes 11 tables and 17 figures. Through them the doctoral student has systematized his generalizations. Some indicators are not clear enough (taxes and levies), the sources could be approached in a more systematic way - some figures are for selected countries, and once conclusions about the EU are drawn, it should be for all countries. Longer statistical rows could also be used for certain economic measurements.

5. Stylistically, the dissertation is well written. The author has used the scientific apparatus correctly and soundly.

6. The doctoral student has used information from specialized sources and specific research and official documents. More detailed data on the flows and volumes of traded electricity could be offered in order to derive the role of stock exchanges for its dynamics.

7. In writing the dissertation Ivan Vasilev Ivanov observed the rules of scientific ethics, the reference to the author's theses and positions of international experts is correct.

8. The abstract has a volume of 36 pages. It gives a summary of the main goals, objectives and methods of research. The results and the main conclusions of the analysis are presented and illustrated in detail. A reference to the scientific contributions and the list of publications on the dissertation is included. The articles and scientific reports are in collections of doctoral students of DA Tsenov Academy of Sciences and present essential parts of the dissertation. In addition, the doctoral student has submitted a declaration of originality and authenticity, which is consistent with academic practice.

III. Scientific and scientific-applied contributions of the dissertation.

1. The presented dissertation systematizes existing approaches in the EU energy policy and the important place of electricity trade for the economies of the Union

countries. A new moment in this direction of research is the assessments of the impact of the EU's ecological approach to this important sector of European integration.

An important direction in the study is the functioning of the electricity market and its importance for the integration process. Changes in the production of the energy sector and the dynamics of electricity consumption in the Union economies have been monitored. From these positions in the dissertation the modern approaches in the liberalization of the EU energy sector are systematized and the author offers comparisons with other developed economies in the world.

Assessments of the processes of liberalization of the energy sector in the segment of electricity trade are formulated from the standpoint of changes in views on the role of the EU in environmental protection and assistance for sustainability in social development. In the dissertation the evaluations of the models applied by different countries are made and the positive aspects of the introduction of market mechanisms in a highly monopolized sector of the economy with strong foreign economic impact are derived.

The main place in the research is the elaboration of the questions for the functioning of the structures of the electricity exchange trade. Given the specifics of this market and the many factors that determine its functioning. The dissertation formulates conclusions about the applied models of organization and functioning of energy exchanges in Europe, and their impact on the electricity market. Estimates of cross-border trade and the role of energy exchanges in electricity trade are presented.

The dissertation proposes an algorithm for assessing the impact of energy exchanges on electricity trading in the EU. The data on the index of the impact of energy exchanges on the functioning of the energy market in the EU have given grounds for the author to show trends in price levels in electricity trading.

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In general, the dissertation further develops approaches to assessing the impact of modern concepts of integration processes in the EU. The PhD student offers views and assessments of the changes that would occur from the proposed mechanisms for limiting the impact on climate and the EU's contribution to finding optimal solutions in this direction.

2. Given the current nature of research related to the functioning of the EU energy system in the transition to a decarbonised economy and the realization of the ambitions of the "green deal", the doctoral student's assessments join the discussion on the future effectiveness of integration processes. It could be assumed that further presentation of these views in scientific forums will allow the author to further test his theses

IV. Critical notes, questions and recommendations on the dissertation.

Critical remarks could be made to the dissertation, which would rather help the author in his future work.

First of all, along with monitoring the development of the EU energy policy, its goals, defined in Art. 194 of the TFEU. In addition, all three stages could be shown - energy packages, which are part of the legislation in Bulgaria. It also regulates trade between large producers and consumers of electricity.

Secondly, it could be presented and analyzed more comprehensively the electricity market in the EU - Electricity price statistics, where in comparative terms can be seen the place of Bulgaria and the Union countries in it (production and consumption of Bulgaria, Germany and France are incomparable in magnitude Fig. 4). Regarding the decline in prices that the author expects - the data show that wholesale prices for certain periods there is a certain decline, but reductions in retail prices are not observed either in households or in enterprises.

Thirdly, cross-border trade in electricity - exports and imports, which in practice determines the internal market, is not presented. Trans-European energy networks (Article 170 TFEU) play an important role in this, providing an increase in the capacity for transmission and exchange of electricity and the use of generation capacity. In this context, the claim on page 112 has not been substantiated "... The Nordic countries have connected to the Western European electricity market by submarine cable: electricity has been flowing between Germany and Denmark since 2007 and between the Netherlands and Norway since 2011. This is currently a temporary solution as the system is not very efficient and initially is designed as a temporary solution. Austria also joined in 2013."

The mentioned critical remarks and recommendations do not affect the quantity and quality of the already defined results and contribution moments.

V. Summarized conclusion and opinion.

The presented dissertation examines important aspects of the functioning of the integration mechanism of the European Union - electricity trade in organized markets. The creation of these platforms contributes to the liberalization of trade and the achievement of optimal price ratios between producers and consumers. The development of an algorithm for assessing the impact of energy exchanges on the functioning of the EU energy market is a significant achievement of the doctoral student.

The dissertation of Ivan Vasilev Ivanov „IMPACT OF ENERGY EXCHANGES ON THE FUNCTIONING OF THE ENERGY MARKET IN THE EUROPEAN UNION" contains scientific and scientific-applied contributions. The dissertation meets the requirements of the Law for development of the academic staff in the Republic of Bulgaria, therefore I propose to the Honored Scientific Jury to award Ivan Vasilev Ivanov educational and scientific degree "Doctor", professional field 3.8 Economics, doctoral program World Economy and International Economic Relations.

12.05.2021
Sofia

Reviewer: ..
/Prof. Emil Panusheff, Ph.D./