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Review of the doctoral dissertation authored by M.A. Radosław Ślosarski
„Contemporary Energy Transition: Patterns and Determinants.
Evidence for OECD countries"
carried out in the field of social sciences in the discipline of economics and finance,
Faculty of Management and Economics, Gdańsk University of Technology,
PhD thesis supervisor: Prof. dr hab. Ewa Lechman

Introduction

The basis for preparing this assessment is the letter dated April 29, 2025, from the Chairman of the Scientific Council of Social Sciences of the Gdańsk University of Technology, Professor Krzysztof Leja, and the act no. RD/28/04/2025 of the Council of the Scientific Social Sciences of the Gdańsk University of Technology on appointing me as a reviewer of the doctoral dissertation of Mr. Radosław Ślosarski, MA, entitled "Contemporary Energy Transition: Patterns and Determinants. Evidence for OECD countries", which is proceeded in the field of social sciences in the discipline of economics and finance.

Formal assessment of the doctoral dissertation

The assessed doctoral thesis was written in English and is 143 typewritten pages long. Its content has been varied with eight tables and eighteen figures; an additional nine figures are in Appendix 1. The convergent numbering of figures in Appendix 1 and Chapter 3 may cause some misunderstanding and affect the readability of the main body text. The manuscript contains almost 430 references, of which nearly 200 are strategic and planning documents and databases. The structure of the PhD work consists of seven chapters, among which one can distinguish the introduction, theoretical, empirical, and summary parts, as well as

supplementary chapters (list of references and appendix). The structure of the PhD thesis is logical. Due to the work's main content focused on the technological, financial, and political premises of energy transition, the PhD dissertation's title could be more precise in this context. There are also some minor editorial errors, but they do not affect the substantive content of the assessed work.

Substantive assessment of the doctoral dissertation

The doctoral dissertation submitted for review addresses a fundamental and current research issue, namely, energy transition, focused on identifying determinants and patterns of this process. The matters discussed are part of the study on the energy sector's transition, gaining more ground in social research, because every lasting technological change requires social change. Based on economic history, the PhD student focuses primarily on the importance of technological progress in contemporary transformations and generating impulses for the development of the energy sector, also considering financial and political factors. As a result of the literature studies that were conducted, the PhD candidate rightly identified two research gaps: deficits in the scope of energy patterns transition and the lack of comprehensive energy research. This provided the basis for formulating three cognitive objectives of the dissertation. From an empirical point of view, embedding the analyses in OECD countries is undoubtedly a significant contribution to comparative studies, so crucial for strengthening social research, including economics and finance. However, considering such a broad approach to the issues related to energy transition, both in the spatial and analytical contexts, it would also be worthwhile to consider the methodological-conceptual aim and the development of a procedure model in similar studies.

This doctoral dissertation presents theoretical knowledge from the field of social sciences, referring to classical and neoclassical economic theories and ecological ideas, which is reflected primarily in the second chapter. The PhD student rightly notes that understanding energy transition requires, on the one hand, an interdisciplinary approach, and on the other, a dynamic line. Trying to meet these two premises, he characterises the theoretical context, building it based on fundamental reflections and retrospection, and referring to the current ecological, environmental, and technological research. Nevertheless, clichéd theses have not been avoided. The energy transition has a vast meaning, because it refers to systemic changes and individual attitudes and energy behaviours visible in various sectors of the economy. Given the above, the social context of implementing renewable energy sources (RES)

investments has been treated too succinctly. It does not refer only to the simple approval of new investments. Still, it means their rationalisation, balancing costs and benefits, and, as research shows, it is often based on individual experiences and a transfer of gains. Moreover, describing the case of Norway in chapter 2.3.5, as well as this country and other Nordic countries in the further main body text, as an example of a country and Nordic region that has successfully transitioned from fossil fuels to renewables based on hydropower, requires more attention and decisive contextualisation of these statements. Investing in large hydroelectric power plants is, of course, an example of management of favourable natural conditions. Nevertheless, the accessibility of natural resources, such as water resources that enable energy production on such a large scale, is not evenly distributed in the country, even worldwide. Moreover, it is worth considering the impact of large-scale hydropower investments and other large energy facilities on the inhabitants, indigenous societies – in the Nordic case, the Sammi people. Local societies experience social and environmental injustice and are burdened with the ecological, spatial, economic and other costs of energy transition and large-scale energy investments development. Meanwhile, countries, regions, and urban areas are fed by the energy produced by these large hydro plants and wind power plants located in favourable areas with access to space and other environmental resources, ensuring the functioning of large power plants.

The historical-dynamic approach to building the theoretical framework is highly valued. Nevertheless, its readability would be enhanced if visualised, e.g., on a timeline. It should certainly be further strengthened with contemporary research concepts. Extending this part with the critical concept of path dependence and carbon lock-in would be worthwhile, especially looking for energy transition determinants and patterns. Chapter 2.4.3, in which the energy transition from the environmental perspective is discussed, should refer to environmental justice and landscape changes, which are invariably linked to spatial planning. The sustainable development idea, which is exceptionally well documented in the literature, is also characterised too modestly. It is worth structuring the content of this chapter and enriching the visualisation of the relationships we read about in this chapter to expose those ideas that build the theoretical framework and clearly distinguish them from those that are important from a historical point of view.

Public support, especially in the form of political strategies and financial instruments, makes the energy transition more dynamic. Although extremely crucial, a separate issue is the time horizon of this support, roadmap and its assumptions, including maintaining the investment after the support ends, and building a self-determining mechanism of change. It is also impossible to ignore that an effective energy transition should not lead to simply replacing

one source with another, but to building a resilient, diversified energy portfolio based on the various renewables and building energy literacy of society. To sum up, the entire second chapter is exciting and rich in content. However, it would gain in quality if it were structured and extended, and if issues concerning the ideas that build the PhD work's conceptual framework were separated from the state of the art.

The development of a dissertation requires the application of a definitional regime. For example, the term energy landscape appears quite often in the PhD work, in various issue contexts. How is this concept defined for these research issues? From the point of view of landscape studies, one should consider the energy landscape as a physical space transformed by humans, with strong traces of anthropopression in the form of accumulated energy installations, regardless of whether they correspond to conventional or renewable energy.

The reviewed doctoral thesis is distinguished by its meticulousness and accuracy in description and characterisation, reflecting the diligence and reliability of the PhD student. Nevertheless, the abundance of information in some fragments may limit the substantive message. Synthesis comes to the rescue, which allows for the construction of conclusions and the universalisation of results. Such a synthetic approach is highly desirable, at least in the part of the work that contains the characteristics of the energy policy of the European Union (EU). It would undoubtedly be worth developing its connection with other EU policies, distinguishing the foundations and operational goals. The part of the work devoted to the characteristics of the energy markets of individual OECD countries is also interesting and inspiring. These analyses provide a solid basis for in-depth analyses, incorporating the concept of energy culture known in the literature. Such a view allows for a synthetic approach to research by striving to conduct a typology that considers the conditions for forming specific types of energy culture and energy mix models.

When considering the methodological aspect of this doctoral dissertation, it is worth paying attention to the diverse instruments of social analysis, from quantitative methods to qualitative tools. Quantitative methods are described quite well in the work. The methodological context of this dissertation can be found in the fourth chapter. Definitions of the terms used are included in this chapter, although they appear in the main body text much earlier. This part of the work also contains information about data sources and the research procedure used. This is an essential part of the doctoral dissertation, which is why it should be much more exposed and enriched with arguments for selecting individual analytical tools and statistical and mathematical methods. Emphasising and expanding the methodological chapter also guarantees the clarity of the results of the work and improves its readability. I would

recommend visualisation that proves the relevance of chosen methods, research concepts, and the PhD objectives, as well as structuring the methodological part of the work. It cannot be omitted here that the research methods also include analyses from the field of desk research, which belong to qualitative methods. Research on strategic and planning documents, and their results, allowed, among others, the implementation of the first PhD's objective. It would be appropriate to include information here about which documents were used to assess the policies of the EU and individual countries, because every research activity, including literature studies, requires appropriate research tools. Therefore, the entire procedure, including individual steps in implementing the doctoral dissertation, should be discussed in detail in the introduction to the typescript. The work would gain in value if these documents were analysed horizontally, if common and differentiating points were identified, basic directions of action were indicated, and the analysis method was described in the part dedicated to work methods. Apart from these deficiencies, the methodological layer of the reviewed doctoral dissertation should be assessed positively, because conducting such diverse analyses on such an extensive database requires proper planning and implementation of research. The statistical and mathematical analyses allowed for identifying initial determinants and energy transition patterns in OECD countries, thereby addressing the PhD's objectives.

When assessing the research approach to the identified problem, it should be stated with complete conviction that the offered solution to the scientific problem is original and innovative. The fundamental premise supporting the originality of the presented solution is the spatial scale of the research covering OECD countries, as well as the analytical scope, including the dynamic approach, allowing for the identification of energy transition factors and patterns. The research carried out, using diverse social research methods, clearly shows the critical role of wind and solar energy in transformation processes. There is a definite shortage of arguments and explanations for the causes of the identified phenomenon and whether this trend is long-term. There is a noticeable lack of knowledge on other renewable energy sources and their role in energy sector change. There is also a lack of references to energy sources that are highly energy-efficient (definitely more efficient than wind and solar energy) and those that allow for the implementation of circular energy, e.g. biogas plants. This somewhat selective approach to the rich RES mix can already be seen in the PhD's introduction and subsequent parts. When writing about the huge role of public support, especially at the central level, in the development of the renewable energy sector, it should be borne in mind that it can also be aimed at differentiating or consolidating the RES structure. Due to political decisions, two well-known renewables, i.e. wind and solar energy, are popularised. In contrast, as I mentioned earlier, the

remaining ones will not receive similar public support, even though they are often more energy-efficient RES installations.

Adducing statements, even if they result from literature studies, and leaving them without proper explanation, can reinforce schemas or drive inevitable misunderstandings. For example, higher economic production, which usually correlates with higher energy demand, does not necessarily translate into increased renewable energy consumption. And here, the PhD candidate is, of course, right, because the transition process is not linear. However, this thought should be deepened by searching for possible causes. In times of uncertainty, fluctuations and risks, it is increasingly challenging to predict actions in this area, because it turns out that the current need to deal with accumulating problems and emerging deficits, also concerning energy resources, is more urgent. In such situations, it is easier to rely on known methods of energy production that protect against blackouts and brownouts than to initiate new energy projects.
Preparing RES development scenarios in individual regions of the world should be highly valued. However, there is still a lack of detailed indications of which RES we are talking about and what the model RES mix should look like in individual OECD countries or distinguished regions of the world. The lack of spatial analyses is also visible here, which would broaden the analytical perspective of research covering such diverse and numerous OECD countries. It would be worth developing spatial visualisations of research results synthetically and spatially, especially when development scenarios for selected regions of the world are discussed.

The structure of the last chapter of the thesis, containing conclusions, was built based on three objectives formulated in the introduction to the thesis. The PhD student addressed all research questions quite extensively. The report on the significance of technological innovations in the development of the renewable energy sector is valuable, as it, together with political and financial factors, determines the pace and scope of transformations in the energy sector in the world. Nevertheless, too much emphasis was placed on technological innovations in building the renewable energy development strategy. A long-term and effective transformation process requires the synergy of systemic and individual infrastructure factors. Social issues in the change process were treated marginally; after all, the durability and efficiency of energy transition correspond to social change. The local context, historical heritage and available natural resources are also important. It would be good if this comprehensive approach resonated more strongly in the part concluding the work. When constructing a summary chapter, one should avoid discussing the results known from the literature on the subject. It is not the most appropriate place for discussion with literature outputs. Conclusions is a chapter summarising

and emphasising the author's research results. The proposed recommendations for strengthening the dynamic and effectiveness of energy transformations should be assessed positively, which significantly builds the applicability of this dissertation. The PhD student's research maturity is also evidenced by his awareness of the need for further research, which he reports in the conclusion of his doctoral thesis.

Conclusion

The evaluated doctoral dissertation entitled "Contemporary Energy Transition: Patterns and Determinants. Evidence for OECD countries" is an original solution to a scientific problem. The Author of this dissertation demonstrates broad knowledge of theoretical issues in the field of social sciences, including economics and finance, as well as the ability to independently research, plan and implement scientific procedures and apply the appropriate methodology.

The indicated remarks and reservations do not affect the overall perception of this doctoral dissertation, which I assess positively. In the context of those mentioned above, I declare that the dissertation submitted for assessment meets the statutory requirements in art. 187 of the Act of 20 July 2018 - The Law on Higher Education and Science (Journal of Laws 2018, item 1668) and the criteria for doctoral theses in the field of social sciences in the discipline of economics and finance. In connection with the above, I request the Scientific Council of the Social Sciences of the Faculty of Management and Economics of the Gdańsk University of Technology to admit Radosław Ślosarski, M.A., to further stages of the doctoral procedure.

Signed by / Podpisano przez:

Justyna Monika Chodkowska-Miszczuk

Date / Data: 2025-06-06 12:08