19th International Conference on Environmental Science and Technology

Kos, Greece, 3 to 6 September 2025

Whether the electricity consumption and related behaviour influence the choice of green electricity considering the context of military conflict in Ukraine and environmental concern

Liobikienė, G. [1]

[1] Department of Environmental Sciences, Vytautas Magnus University, Studentu Str. 11, Akademija, LT-55261, Kaunas Dist., Litkuania

*corresponding author: Liobikienė G.
e-mail: genovaite.liobikiene@vdu.lt

Abstract The electricity market liberalization enables citizens to choose green electricity and to enhance this electricity consumption. In this paper the main factors of choice of green electricity were analysed considering to environmental aspects, circumstances of military conflict in Ukraine and behaviour related to energy consumption. In this analysis the survey data carried out in Lithuania, in 2023 was referred. In the survey participated 769 respondents and only 35 % of them stated that they have chosen green electricity. By applying the binary logistic regression, the results showed that regarding the consequences of military conflict in Ukraine, the concern about this war only together with contribution to changes in environmental concern positively and statistically significant influence this behaviour. Meanwhile the concern about military conflict together with attitudes towards energy crisis negatively determined the choice of green electricity. In the model including behaviour related to energy, only purchase of energy efficiency appliances was significantly related to the choice of green electricity, while energy saving behaviour, and the level of electricity consumption insignificantly affected this behaviour. Thus, this study showed that the factors and motives of choice of green electricity differed comparing with energy consumption and the consequences of military conflict could cause different outcomes for green electricity consumption.

Keywords: Renewable electricity; environmental attitudes; energy saving; green purchase; climate change.

1. Introduction

Promotion of renewable energy usually is a big matter for policymakers (Degirmenci and Yavuz, 2024) and the role of society is big as well, particularly in those countries where the citizens are able to select their source of energy. In the European Union due to the liberalization of the electricity market, people have the ability to choose green electricity. Taking into consideration that the household sector is responsible for one third of energy consumption (Jakučionytė-Skodienė and Liobikienė, 2023) and has huge potential to mitigate climate change (CC) (Gordic et al., 2023), thus, the encouragement of green electricity selection is vital. The search for the main motives of this option remains one of the main tasks.

In recent literature authors vastly analysed the determinants which can influence the choice or switch to green electricity behaviour (Hussain et al. 2023). However, touching on issue such as energy consumption or choice of green energy source, the military conflict in Ukraine plays a central role in European countries and particularly in Baltic States. The most important consequence was energy crisis caused by sanctions to Rusia, when the big growth of energy prices and supply insecurity occurred (Sturm, 2022; Żuk et al., 2023; Wang et al. 2023). Furthermore, it is necessary to focus on how simultaneously this military conflict contributed to the changes in environmental concern and influenced the performance of this behaviour. Moreover, in this paper we analysed whether the level of energy consumption, energy saving behaviour and purchase of energy efficiency appliances are associated with the choice of green electricity.

2. Methodology:

The analysis was carried out using the survey data conducted in one of the Baltic State in Lithuania. In this country the process of electricity supplier liberalisation was accelerated only from 2022 and all citizens had to choose the electricity supplier. The survey was conducted in April 2023, and this analysis focused on long-term circumstance of war in Ukraine. Regarding the data used, 769 respondents participated in this survey. Using the statistical software SPSS 26, the factor analysis was applied to separate the factors used. Calculating the reliability of the constructed factors, the coefficients of Cronbach's alpha were assessed. The values 0.62-0.97 revealed that factors are middle and highly reliable (Hair et al., 2010). The binary logistic regression was applied to analyse the main determinants of choice of green electricity.

3. Results

Referring to the survey data the results showed that 35 % of individuals marked that they have chosen green electricity. Thus, more than one third of respondents

consumed green electricity in their households. However, the share of renewable energy consumers should be larger, and in this paper, we analysed the main motives as: environmental aspects, circumstances of military conflict in Ukraine and behaviour related to energy consumption to the choice of green electricity.

Table 1. Title of the table

Factors/determinants			
	Beta coefficient	Std. error	Sig.
Energy saving behaviour	-0.012	0.132	0.929
Purchase of energy efficient appliances	0.398	0.125	0.001
Level of energy consumption	0.00	0.000	0.192
CC concern * attitudes towards usage of energy	0.034	0.011	0.002
Concern over the military conflict in Ukraine * attitudes towards energy crisis	-0.018	0.009	0.05
Concern over the military conflict in Ukraine * contribution to changes in environmental concern	0.028	0.011	0.009
	R^2=0.15; omnibus test's p-value<0.001 overall percentage=67.6		

Analysing the behaviours related to energy impact on choice of green electricity, the results showed that only purchase of energy efficiency appliances significantly and positively influenced the selection of renewable electricity. The same result was confirmed by Jakucionyte-Skodiene and Liobikiene (2021). However, we found that the energy saving behaviour and energy consumption insignificantly determined the choice of green electricity. The main reason of these results is that in Lithuania people perform energy saving behaviour and selection of renewable electricity due to different motives. They can choose green electricity primarily due to environmental reasons, meanwhile they save energy due to gain reason, in other words, they want to save their money spent on energy. Thus, respondents who consume more energy is not motivated to transit to renewable energy, which could guarantee the energy supply even in the insecurity of war.

Considering the interaction effects, the same results are with energy consumption and behaviour related to energy. Furthermore, we have confirmed the expected results that attitudes towards usage of energy together with CC concern also significantly influenced the choice of green electricity and we confirmed other authors findings (Liobikienė et al., 2021; Wei et al., 2021). Therefore, both CC concern and attitudes towards usage of energy are important factors and people who very concern about climate change and have positive attitudes towards energy usage also are more linked to choose green electricity. Meanwhile, analysing the interaction of concern of military conflict in Ukraine and changes in environmental concern the results showed the positive and significant effect. Thus, this evaluation reveals that people who worry about war in Ukraine and declares that this war enhances their concern level about environmental problems they also are more linked to select renewable electricity. Therefore, the concern of military conflict even can cause a positive tendency, and it is important to emphasis the ecocide problem which can trigger citizens to select green electricity. Meanwhile the concern of military conflict together with attitudes toward energy crisis negatively and statistically significantly influenced this behaviour. Thus, people who are concerned about military conflict and agreed that the war caused the energy crisis, they are not linked to choose green electricity. These results could be related to the fact that instability and unpredictable future stimulated people to survive currently, whereas the selection of green electricity could increase the expenditure on electricity and people want to avoid the additional cost of electricity.

References

Degirmenci, T., & Yavuz, H. (2024). Environmental taxes, R&D expenditures and renewable energy consumption in EU countries: Are fiscal instruments effective in the expansion of clean energy?. *Energy*, ***299***, 131466.

Gordic, D., Nikolic, J., Vukasinovic, V., Josijevic, M., & Aleksic, A. D. (2023). Offsetting carbon emissions from household electricity consumption in Europe. *Renewable and Sustainable Energy Reviews*, *175*, 113154.

Hair, J.F., Black, B., Babin, B., Anderson, R.E., Tatham, R.L. 2010. Multivariate Data Analysis: a Global Perspective. Pearson Education Inc, New Jersey.

Hussain, S. A., Razi, F., Hewage, K., & Sadiq, R. (2023). The perspective of energy poverty and 1st energy crisis of green transition. *Energy*, *275*, 127487.

Jakučionytė-Skodienė, M., & Liobikienė, G. (2021). Climate change concern, personal responsibility and actions related to climate change mitigation in EU countries: Cross-cultural analysis. *Journal of cleaner production*, *281*, 125189.

Jakučionytė-Skodienė, M., & Liobikienė, G. (2023). Changes in energy consumption and CO2 emissions in the Lithuanian household sector caused by environmental awareness and climate change policy. *Energy policy*, *180*, 113687.

Liobikienė, G., & Dagiliūtė, R. (2021). Do positive aspects of renewable energy contribute to the willingness to pay more for green energy?. *Energy*, *231*, 120817.

Sturm, C. (2022). Between a rock and a hard place: European energy policy and complexity in the wake of the Ukraine war. *Journal of Industrial and Business Economics*, *49*(4), 835-878.

Wang, S., Xu, L., Yu, S., & Wang, S. (2023). Russia-Ukraine war perspective of natural resources extraction: A conflict with impact on sustainable development. *Resources Policy*, *85*, 103689.

Wei, J., Zhao, X., & Yang, X. (2021). Measuring purchase intention towards green power certificate in a developing nation: Applying and extending the theory of planned behavior. *Resources, Conservation and Recycling*, *168*, 105363.

Żuk, P., Buzogány, A., Mišík, M., Osička, J., & Szulecki, K. (2023). Semi-peripheries in the world-system? The Visegrad group countries in the geopolitical order of energy and raw materials after the war in Ukraine. *Resources Policy*, *85*, 104046.