

# MAY ENERGY JUSTICE ENHANCE HUMAN RIGHTS PROTECTION IN THE EUROPEAN UNION?

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**Abstract:** *Energy justice, sustainable environment and human rights became the leading factors of some of the sustainable development goals set as the common goal of international community. The contemporary greening process is interconnecting with number of transformations in decision-making and policies. Greening process and its integral part, access to energy as the tool for preventing energy poverty is related with human rights. We assume, that access to energy is fundamental to meet basic human needs and existing human rights necessitates access to energy. The European Union is perceived as the key regional leader in greening process, by adoption of EU Green Deal. At the same time, the European Union has also the ambition to be human rights actor. Both these goals are led by declarations of the European Union and obligations of its Member States internationally. The paper presents outcomes of quantitative and qualitative research focused on the question, how the energy justice is conditioning the effective exercise of other rights guaranteed by international human rights treaties, within the European Union environment.*

**Key words:** *Human Rights; Human Security; Energy Justice; Sustainable Development; Human Dignity; Access to Energy; Energy Poverty*

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## 1. INTRODUCTION

International human rights law does not contain particular regulation or protection to right of access to energy (services). The access to affordable, reliable, sustainable and modern energy for all is set as the political goal in the sustainable development agenda, but in some forums such as within Human Rights Council,<sup>1</sup> UN General Assembly<sup>2</sup> or Council of Europe,<sup>3</sup> it is either recognised or discussed as the new human right. The right of access to energy accelerates in relation to ongoing processes of greening policies and the related issue of energy justice. The political and international discourse about energy justice is related to the different issues as production, distribution and consumption of energy, today and also in the future. We estimate that access to energy is fundamental to meet basic human needs and existing human rights

<sup>1</sup> UN (2021). Human Rights Council, A/HRC/RES/48/13. Available at: <https://docs.un.org/en/A/HRC/RES/48/13> (accessed on 25.06.2025).

<sup>2</sup> UN (2022). UN General Assembly, A/RES/76/300. Available at: <https://docs.un.org/en/A/RES/76/300> (accessed on 25.06.2025).

<sup>3</sup> Council of Europe (n.d.), Human rights and the environment, a priority for the Council of Europe. Available at: <https://www.coe.int/en/web/human-rights-rule-of-law/humanrights-environment> (accessed on 25.06.2025).

necessitates access to energy. This perspective frames the research focused on how the energy justice is conditioning the effective exercise of other rights guaranteed by international human rights treaties. The problem we address in this research concerns bridging the concept of energy justice with the human rights framework (Huhta, 2023; Basil and Heffron, 2025). More specifically, how is the distributional energy justice conditioning the effective exercise and enforcement of human rights. The hypothesis predicts that the lower access to energy also limits the access to effective human rights protection, such as civil and political rights, but also social, economic, cultural and environmental rights. Moreover, the lower socio-economic status correlates with the increased encounter with the energy poverty, which contributes to further deterioration of the living conditions of already vulnerable population groups. Besides marginalisation of the opportunities for improvement of the livelihood, the energy poverty also hampers the human rights. We have selected qualitative and subsequently quantitative methodological approach to confirm or refute this hypothesis, i.e. quantifying the energy justice and human rights protection, and ultimately measuring their relationship.

The gap created by the existence of the energy poverty or limited access to energy presents obstacle for governments to protect human rights and to fulfil positive obligation to protect its citizens' human rights and fundamental freedoms. The qualitative analysis of the legal regulation and politics adopted in the European Union in area of access to energy should provide the proper response for setting strategies and implementing policies to effective system of human rights protection. Identification of the key factors in transforming system of human rights in the European Union within so-called greening processes and understanding the necessity to balance it with the energy justice may decrease the risk of the vulnerability of people living in the Member states of the EU in different regions. Furthermore, the growing risks of struggling people from fundamental rights may be increased due the limited or no access to energy, especially in extra-ordinary times as in global pandemics, when the green policies or human rights may be properly limited and justified. Hence, we aim to contribute to the energy justice scholarship discourse in EU by establishing measurable link between energy justice and human rights, and provide for further research of related mechanisms and processes. The paper does not had ambition to provide overview of the intersection between energy justice and human rights (Basil and Heffron, 2025) but rather analyse the connection and conditionality of the effective protection and enforcement of human rights, by ensuring energy justice as the part of strategic priority of the EU energy policy. Additionally, the research aims to complement the concept of energy justice reiterated in the European Commission Guidelines 2024 – 2029 (European Commission, 2024), from the human rights perspective (Shortal and Mengolini, 2025).

## 2. THE RIGHT OF ACCESS TO ENERGY IN INTERNATIONAL HUMAN RIGHTS PROTECTION

After the reprisals of the WWII, the international community together with foundation of the United Nations, adopted the Universal Declaration of Human Rights, as the important step for protection of human rights and international peace. The Declaration adopted in 1948 became the cornerstone for the international system of human rights. It became an inspiration for the human rights treaties but also declaration of the international effort to universal implementation of human rights. As declared by the UN itself, *"it represents the universal recognition that basic rights and fundamental freedoms are inherent to all human beings, inalienable and equally applicable to everyone,*

*and that every one of us is born free and equal in dignity and rights.*"<sup>4</sup> This commitment of the international community to protect and promote human rights has been over the years incorporated in number of human rights treaties, customary international law, political declarations, action plans and regional initiatives.

The very first codified international attempt is presented in two human rights treaties – International Covenant on Civil and Political Rights and International Covenant on Economic, Social and Cultural Rights. In the text of these two conventions many of the rights from Declaration had been transformed in the form of legally binding obligation for signatory countries.

The principle of human rights protection originally worded in the Declaration have been afterwards addressed in individual human rights treaties within the UN framework, focused on fight against racial and gender discrimination, prohibition of torture, addressing rights of people with disabilities, women, children, migrants, minorities and indigenous people. All these treaties together are recognised as International Bill of Human Rights, and it simultaneously involves also positive obligation of signatory countries to action and protection of rights guaranteed.

Alongside with development of human rights treaties, also human rights policies and related goals has been set on international, follow regional and national level. The framework document reflecting the contemporary development in 21<sup>st</sup> century declared strategy to achieve Millennium Development Goals (hereinafter as "**MDGs**"), referring to combat poverty, hunger, disease, illiteracy, environmental degradation and discrimination against women.<sup>5</sup> As stated in the point IV., protection of common environment became an individual agenda of sustainable development, respecting the necessity of environmental actions and new ethic of conservation. There may be derived also implicit right of individual to live on a planet which is environmentally sustainable.

Continuous ambition of friendly environment evolved also in the next UN agenda in Sustainable Development Goals (hereinafter as "**SDGs**").<sup>6</sup> In the set vision, the UN has envisaged "a world where human habitats are safe, resilient and sustainable and where there exists an universal access to affordable, reliable and sustainable energy".<sup>7</sup> It is for the first time in the international human rights regulation, when the right of access to energy is explicitly stated. Details developed in the SDG7 focus on ensuring access to affordable, reliable, sustainable and modern energy for all. UN and its member states emphasise the commitment in this area will be conform to existing rights and obligations of states under international law and "the integrated approach should respect interconnections as well as cross-cutting elements across the new Goals and targets".<sup>8</sup>

### 3. ENERGY JUSTICE AND HUMAN RIGHTS PROTECTION IN THE EUROPEAN UNION

The protection and implementation of human rights is embedded in different structures of the international community, that have given a rise to a multi-layered system

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<sup>4</sup> The Foundation of International Human Rights Law. UN, available at: <https://www.un.org/en/about-us/udhr/foundation-of-international-human-rights-law> (accessed on 25.06.2025).

<sup>5</sup> United Nations Millennium Declaration. General Assembly Resolution, A/Res/55/2 of 18 September 2000. UN, 2000. Available at: <https://undocs.org/en/A/RES/55/2> (accessed on 25.06.2025).

<sup>6</sup> Transforming our world: the 2030 Agenda for Sustainable Development. General Assembly Resolution, A/Res/70/1 of 21 October 2015. UN, 2015. Available at: [https://www.un.org/ga/search/view\\_doc.asp?symbol=A/RES/70/1&Lang=E](https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E) (accessed on 25.06.2025).

<sup>7</sup> *Ibid.*, point 7.

<sup>8</sup> *Ibid.*, point 17.

of human rights. Nowadays, governance implies *"the interaction of various layers, which together form what has been described as multi-layered constitutions"* (Randall, 2012, p. 191). Many global issues are dealt with under the five layers of governance: global, regional, national, sub-national and municipal. The global layer is argued to have three functions: *"to overcome the incapacity of nation states, to address issues that transcend country borders, and to act as checks on the state's failure to address key issues."* (Randall, 2012, p. 191). Randall argues, *"the 'checks' element has been the strong impulse behind the creation of international human rights instruments."* (2012, p. 192).

Although global or international layer of human rights has been founded in agreement of sovereign states together with foundation of United Nations, increased number of Member States and rather political character than legal obligation to enforce human rights protection led to number of regional human rights initiatives or organisations focused on human rights protection. Jane Williams in relation to regional layer of human rights protection argues, that *"The effect might be to further the regional policy and to exert pressure on the State Party to fulfil its obligations in areas where responsibility is retained at national level."* (Williams, 2011, p. 241). Therefore, the holistic approach to the effective implementation of human rights' protection requires adoption and implementation of the human rights catalogue and related policies corresponding to internationally set obligation but at the same time applicable to material conditions of the region and sovereign states.

The European Union is a good example of how human rights protection is implemented in a multi-layered environment. Although *"initially deemed irrelevant to European integration, fundamental rights have become increasing central to the EU legal order. Originally incorporated as negative obligations, the EU has slowly gained competences positively to develop relevant human rights standards and has established mechanisms for their enforcement."* (Greer, Gerars and Slowe, 2018, p. 238). Today the European Union has its own human rights catalogue, the EU Charter of Fundamental Rights, which follows the general principles of human rights protection and policies of implementation, and it is thereby a key stakeholder of human rights in Europe (Mokrá, 2021). Its role is not limited to within the borders of the European Union. In pursuing its role as an international actor, the European Union not only has to set out human rights in principle and ensure that the law is adhered to in practice, but it is also leader of promoting and implementing new generation of human rights, including environmental rights as the positive obligation set within SDG framework. We agree with de Búrca, who underlined, that *"The assessment of the role of human rights in the EU must address its complexity which follows from the character of the different rights protected, actual contexts in which human rights are invoked and their different features, and the actual place and impact of the human rights invoked in that particular environment."* (Búrca, 1995, p. 53).

Therefore, we understood as one of the key issues in effective protection of human rights its complexity, interdependence and interrelation with other rights. The hypothesis of our research states, that the level of energy justice impacts effective implementation of civil, political and economic rights.

In this sense we understand human rights in its original structure as mentioned in the Universal Declaration of Human Rights adopted within UN, divided to fundamental rights, civil and political rights, social, economic and cultural rights. The European Union in evaluation of human rights implementation use the existing system of human rights protection adopted by the Council of Europe (and its annual evaluation throughout the reached number of judgements, based on the text of Article 6, para 3 of the Treaty on European Union) as well as work on the own system referring to the adopted EU Charter

of Fundamental Rights (Article 6, para 1 of the Treaty on European Union). Solely for the purpose of this research, applying the time process in development of the correlation between effective human rights protection and energy justice, we use the European Convention on Human Rights and Fundamental Freedoms' structure. As such, civil rights are covering right to liberty and security (Article 2) and right for fair trial (Article 6). Political rights include right to free elections (Article 3 of Protocol 1), right to assembly and association (Protocol 11) and freedom of expression (Article 10). Category social, economic and cultural rights include right for private and family life (Article 8), right to marry, freedom of thought, conscience and religion (Article 9), and protection of property (Article 1 of Protocol 1). Research on effectiveness of the human rights protection as guaranteed by the Convention as well as by Charter is increasing rapidly (Brosig, 2006; Maduro, 2004; Mazák and Jánošíková, 2016; Peers, Hervey, Kenner and Ward, 2014; Pernice, 2008; Boyle, 2007), but preferably in parallel dimension, focused on either human rights or focused on energy justice, but not interlinking them. Nevertheless, the conjunction of the human rights protection and energy justice can be arguably perceived in three different dimensions: a) the access to energy as possible fundamental right; b) protection of human rights in energy-related activities (e.g., exploration and exploitation of the resources); and c) access to energy as co-determinant of the enjoyment of the human rights (which is case of our research). Although there may be foreseen relation or even interdependence of the human rights protection in different manners with the access to energy (as the part of energy justice), we consider our research as important part of the human right research puzzle.

The academic interest in the concept of the energy justice has been rapidly emerging especially in the last decade (McHarg, 2020). The inherently interdisciplinary nature (Heffron and McCauley, 2017) together with the human-centred or anthropocentric perspective (Sovacool et al., 2017) deems energy justice a viable conceptual framework for the objective of this research – evaluation of the relationship between the fundamental human rights and (lack of) access to energy.

The energy justice *per se* denotes the equal distribution of the costs and benefits within the global energy system. Moreover, it "involves burdens, or how the hazards, costs and externalities of the energy system are disseminated throughout society; benefits, or how access to modern energy systems and services is distributed throughout society; procedures or ensuring that energy decision-making respects due process and representation; and recognition, that the marginalized or vulnerable have special consideration" (Sovacool et al., 2017, p. 677). Throughout the energy 'lifecycle' (production, distribution, transportation and consumption) various asymmetries in these costs and benefits are generated that undermine the ideal energy justice equilibrium. In spite of the multifaceted nature of the energy justice, we particularly focus on the *distributional justice*, which is one of the three 'tenets' of the energy justice, along the *procedural* and *recognition* justice (McCauley, Heffron, Stephan and Jenkins, 2013). The distributional justice concerns with the question where energy injustices emerge and recognises the unequal allocation of burdens in access to energy (Jenkins et al., 2016). It corresponds with the *affordability* as one of the "distinct principles" of the energy justice, that encompasses "stable prices (minimal volatility) as well as equitable prices that do not require lower-income households to expend disproportionately larger shares of their income on essential services" (Sovacool, 2013, p. 220). Therefore, it is imperative to include the issue of energy/fuel poverty in the context of the energy (in)justice, which is defined as "inability to attain a socially and materially necessitated level of domestic energy services" (Bouzarovski and Petrova, 2015, p. 31); i.e. the lack of access to energy infrastructure and/or services.

In the framework of energy justice, the ramifications of the energy poverty extend beyond the scope of energy-related issues. As Heffron and McCauley argue, “the energy sector impinges upon the day-to-day lives of all populations ... and energy injustices more than often result in the abuse of human rights at some level” (Heffron and McCauley, 2017, p. 663). Moreover, the structure of the energy systems has provided unequal allocation of “unprecedented benefits for some and taking from others the possibility of living a life of basic human dignity” (Sovacool, 2014, p. 15). Hence, the energy poverty as the aspect of energy injustice may potentially contribute to impediment of the enjoyment of the human rights and fundamental freedoms. As the example may serve the case *Nencheva and Others v. Bulgaria*, where inadequate conditions (housing, food, heating) at a state institution for mentally disabled children resulted in the death of seven children during winter 1996-1997.<sup>9</sup> Consequently, the court found that the state failed to fulfil its positive obligation to protect the right to life of its citizens as provided for in Article 2 of the European Convention on Human Rights and Fundamental Freedoms.

The existence of the energy poverty in the ‘developed’ countries has been primarily attributed to the “contingencies such as low incomes, energy-inefficient homes and high energy prices” (Bouzarovski, 2018, p. 2). Thus, the aforementioned *affordability* principle of the energy justice shall be considered as major factor hindering the access to energy, unlike in case of ‘developing countries’, where the lack of (access to) infrastructure plays major role (Bouzarovski and Petrova, 2015). In the European Union, lives of almost 50 million citizens are affected by the energy poverty (Thomson and Bouzarovski, 2019). Nevertheless, the integration of the concept of energy poverty into EU energy policymaking has occurred after the ratification of the *Lisbon Treaty*, which recognised the energy as the shared competence between the Member states and EU. In other words, for the first time, “energy policy formally become a subject of community activities” (Tews, 2015, p. 268), resulting in more assertive and ambitious energy-related legislation by the European Commission. In 2009, so-called ‘Third Energy Package’ was introduced, consisting of two directives revising the rules for the internal market in electricity<sup>10</sup> and gas.<sup>11</sup> Among other energy market related premises, these directives explicitly acknowledge that “[e]nergy poverty is a growing problem in the Community” and call for Member states to “develop national action plans or other appropriate frameworks to tackle energy poverty” (European Parliament and Council of the European Union, 2009a). Moreover, the Member states shall “define the concept of vulnerable customers which may refer to energy poverty and, inter alia, to the prohibition of disconnection of electricity [and gas] to such customers in critical times” (European Parliament and Council of the European Union, 2009a; European Parliament and Council of the European Union, 2009b), which is situated in the broader context of the (energy) consumer protection in the EU. Despite the fact that definition of the energy poverty or energy poor/vulnerable households is prerequisite for the implementation of the energy poverty mitigation policies (Thomson and Bouzarovski, 2019), a common and harmonised ‘European’ definition of energy poverty does not exist. In fact, majority of the Member states do not have an official definition of energy poverty. Only Cyprus, Ireland, France and Slovak republic have official national definitions of energy poverty (Thomson and Bouzarovski, 2019), whilst other Member states principally address the energy poverty through broader social policies (European Commission, 2020).

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<sup>9</sup> ECtHR, *Nencheva and Others v. Bulgaria*, app. no. 48609/06, 18 June 2013.

<sup>10</sup> Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity.

<sup>11</sup> Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas.

#### 4. (COR)RELATION OF HUMAN RIGHTS AND ENERGY JUSTICE IN THE EUROPEAN UNION?

Although the historical development both on international and European level confirms ambition to guarantee sustainable energy as human right, which should be conform and not competitive to other existing human rights and freedoms, the interaction between human rights implementation and energy justice is still under the question there – does universal access to energy guarantee effective implementation of human rights protection or vice versa, does the effective implementation of human rights constitute the development of new human right to energy? The human rights' international requirements in area of civil and political rights, social, economic and cultural rights "provide a strong normative basis for the call for universal access to energy: unlike a framing in terms of 'human needs', which implies relationships of beneficiaries and benefactors, human rights claims entail 'an active, insistent and justified demand' premised on rights, obligations and remedies" (Solis, 1980, p. 14). Therefore, the elimination of energy poverty and access to energy is *sine qua none* of the effective exercise of other human rights, which should be guaranteed in the current multi-layered human rights environment. The research of relation between of human rights and energy poverty faces several challenges, including measuring human rights, effectiveness of existing system(s) of protection or measuring energy poverty.

The lack of consensus on the definition and conceptualisation, alongside with the limited availability of data and indicators makes measuring energy poverty rather challenging task (Thomson, Bouzarovski and Snell, 2017). Although the energy poverty is a key concept in the Clean Energy for All Europeans package,<sup>12</sup> designed to facilitate a just energy transition, the energy poverty definition was adopted as part of the 2023 Social Climate Fund Regulation as "a situation in which households are unable to access essential energy services that underpin a decent standard of living and health, such as adequate warmth through heating, cooling, as temperatures rise, lighting, and energy to power appliances".<sup>13</sup> The regulation is efficient only since 30 June 2024. Additionally, revised Energy Efficiency Directive,<sup>14</sup> defines energy poverty more precisely as "a household's lack of access to essential energy services that provide basic levels and decent standards of living and health, including adequate heating, hot water, cooling, lighting, and energy to power appliances, in the relevant national context, existing social policy and other relevant policies, caused by a combination of factors, including but not limited to non-affordability, insufficient disposable income, high energy expenditure and poor energy efficiency of homes".<sup>15</sup> Beyond the definition, most importantly, the directive also proposes four indicators to be considered by the Member states when assessing energy poverty: inability to keep home adequately warm; arrears on utility bills; population

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<sup>12</sup> European Commission. (2019). Clean Energy for All Europeans. Luxembourg: Publications Office of the European Union.

<sup>13</sup> Regulation (EU) 2023/955 of the European Parliament and of the Council of 10 May 2023 establishing a Social Climate Fund and amending Regulation (EU) 2021/1060, OJ L 130, 16.5.2023, pp. 1–51, ELI: <http://data.europa.eu/eli/reg/2023/955/oj> (accessed on 25.06.2025).

<sup>14</sup> Directive (EU) 2023/1791 of the European Parliament and of the Council of 13 September 2023 on energy efficiency and amending Regulation (EU) 2023/955 (recast), OJ L 231, 20.9.2023, pp. 1–111, ELI: <http://data.europa.eu/eli/dir/2023/1791/oj> (accessed on 25.06.2025).

<sup>15</sup> The SCF regulation was adopted in May 2023. Initially, the legislative proposal for SCF referred to a new definition put forward in the proposed Energy Efficiency Directive recast. However, the SCF regulation was adopted first and thus became the first piece of EU legislation enshrining the energy poverty definition. The compromise agreement on the EED was reached in March 2023 and then formally accepted by the Parliament and the Council. See: Widuto (2023).

living in a dwelling with a leaking roof, damp walls, floors or foundation, or rot in window frames or floor; and the at-risk-of poverty rate. These indicators are compliant to previous Commission's Recommendation on energy poverty, which provided indicative guidance on appropriate indicators for measuring energy poverty and defining a 'significant number of households in energy poverty'.<sup>16</sup>

Nonetheless, we proceed with the operationalisation of energy poverty as *inability to keep homes adequately warm*, which follows the approach adopted by the European Commission and is applicable to the whole research period and data. The *inability to keep homes adequately warm* "refers to the percentage of persons in the total population who are in the state of enforced inability to keep home adequately warm" (Eurostat, 2021). It is monitored by EU statistics on income and living conditions (EU-SILC) and as primary metric is recommended energy poverty indicator (Rademakers et al., 2016). Statistical indicators of energy poverty, such as the one in our case, are considered "important and necessary part of the research and policy landscape" (Thomson, Bouzarovski and Snell, 2017, p. 879). Furthermore, within the framework of the energy justice, Sovacool (2014) promotes a move towards human-centred methods of data collection and research. Even though, we are working with the quantitative indicator, it "encompasses the prevailing qualitative definition of energy poverty and captures self-reported thermal discomfort issues" (Thomson and Bouzarovski, 2019, p. 19).

In case of human rights index, we use as relevant figures human rights violations based on the judgements in merit. The human rights' violations have been divided into two instances – *civil and political rights* and *social, economic and cultural rights* due to its division based on European Convention on Human Rights and Fundamental Freedoms, as referring in the Treaty on European Union, Article 6 para 3. Although the European Union has its own human rights catalogue, due to a very low accessibility of individual complaints to the Court of Justice of the European Union (active legitimacy), the dataset of individual violations would need to be based on outcomes of preliminary proceeding on national level. Our research intention is focused on European level and for that purpose we correlate human rights violations on individual complaints basis in the European Union Member states as decided by the European Court of Human Rights, which main human rights treaty contribute to constitution of human rights as general principle of the Union's law. Despite the jurisdiction of the European Court of Human Rights extends beyond the European Union Member states, the focus of the research is on the human rights dynamics within the EU, especially in relation to the concept of energy justice mainstreaming in the EU energy policy.

Regarding the data analysis, we have aimed at the measuring of the relationship (and its strength) between the energy poverty<sup>17</sup> and human rights' violations<sup>18</sup> in the Member states of European Union. The sample of the research consists of the 27 Member states and corresponding data for the 2015-2023 timeframe, thus creating a sample N = 243.<sup>19</sup> Firstly, we have opted for the simple regression analysis, in particular, utilising the LOWESS smoothing. The LOWESS stands for Locally Weighted Scatterplot Smoothing and basically form of non-parametric regression analysis, fitting a smooth

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<sup>16</sup> Commission Recommendation (EU) 2020/1563 of 14 October 2020 on energy poverty (OJ L 357, 27.10.2020, p. 35).

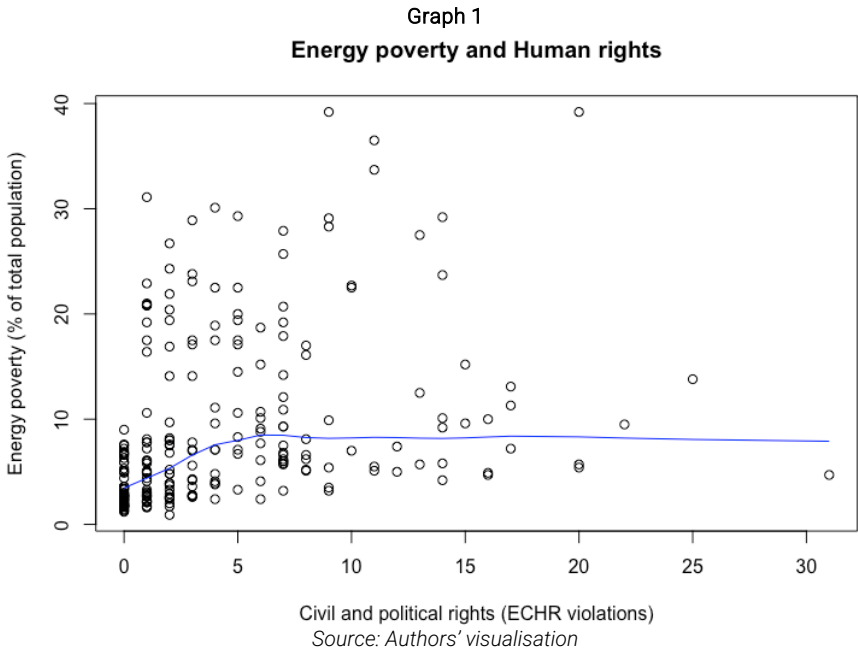
<sup>17</sup> Using EU-SILC [ilc\_mdcs01] dataset.

<sup>18</sup> Using the annual reports of the European Court of Human Rights and statistics on violations by article and by state.

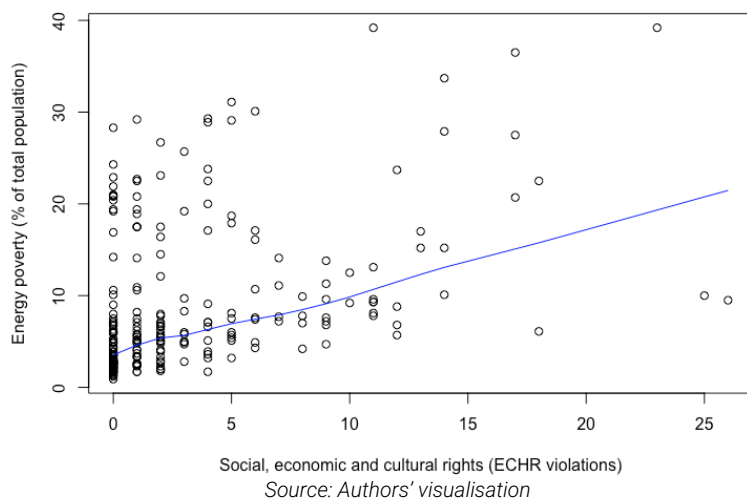
<sup>19</sup> Dataset of indicator of inability to keep home adequately warm for 2024 was not available by the date of paper submission, source: [ilc\_mdcs01] Inability to keep home adequately warm (accessed on 25.06.2025).



curve to data points. The non-parametric attribute of LOWESS adjusts the curve's best fit without *a priori* assumptions of the distribution of data or variables. As in our case, LOWESS illustrates the relationship between the variables and provides for understanding of the trend of variables. Thus, the distribution of the variables in both our examined cases, as well as cumulative human rights' violations is visualised in form of scatterplots (see *Graph 1*, *Graph 2* and *Graph 3*) complemented with the LOWESS line.



**Graph 2**  
**Energy poverty and Human rights**



**Graph 3**  
**Energy poverty and Human rights**



All three figures suggest a linear relationship between the variables, however, as mentioned previously the objective has not been to create predictive model but rather

estimate the existing relationship(s) between the variables. Although relation(ship) may be subject of analysis from different point of view, usually, the Pearson and Spearman correlation coefficients are used to measure the strength of the relationship between two variables in the quantitative research. Generally, both of these models provide three pieces of information: 1) covariance of the variables, i.e. whether one variable changes when the other does; 2) the direction of association in covariation, which can be positive (when one variable increases the other increases) or negative (when one variable increases the other decreases); 3) the strength, i.e. "how closely do the two variables change together," and significance of the relationship/association (McHugh, 2018, p. 1555). Nevertheless, the difference between them is that while the Pearson correlation coefficient measures the linear relationship between the values of the variables, the Spearman rank correlation coefficient measures the ranked values of each variable (which works well also with our sample – Member states). Thus, the Pearson correlation is more sensitive to the skewed distribution of variables and outliers (Courtney, 2018). We have performed a Shapiro-Wilk normality test, which suggests that our data deviate from normal distribution ( $p\text{-value} \leq 0.05$ ), therefore we propose the Spearman correlation coefficient, which better accommodates this occurrence.

Table 1

Between 0 and 0.19	No or a very weak correlation
0.20 to 0.29	Weak correlation
0.30 to 0.49	Moderate correlation
0.50 to 0.69	Strong correlation
0.70 to 1.0	Very strong correlation

Source: McHugh, 2018

We have proceeded with the Spearman ranked correlation test, juxtaposing the access to energy with the first- and subsequently second-generation human rights. In case of the *energy poverty/civil and political rights violations* relationship (Graph 1), the calculated correlation coefficient (Spearman's rho)  $\rho = 0.52$  with the  $p\text{-value} < 0.001$ .<sup>20</sup> Although the illustration of the data and regression may not seem convincing, the fact that we have processed ranking (of the Member states) rather than values of the variables outline the meaningful relation. Furthermore, the correlation coefficient for the relationship (Graph 2) between *energy poverty* and *social, economic and cultural rights violations* the  $\rho = 0.50$  with the  $p\text{-value} < 0.001$ . Despite the better (visual) linear distribution of the variables than the previous case, the strength of the association is paradoxically lower. Nonetheless, in both cases the link should be considered strong and significant. For the *cumulative* correlation coefficient of both categories of human rights' violations vis-à-vis *energy poverty* (Graph 3)  $\rho = 0.56$  with the  $p\text{-value} < 0.001$ . This suggests that marginalising outliers that may occur in each category of human rights' violations results in stronger relationship between the variables.

Therefore, in all three cases the data suggest a strong positive correlation (see Table 1) between the energy poverty and (two sub-categories of) the human rights violations, with strong statistical significance ( $p\text{-value}$ ). Meaning that possibility of the human rights violation increases with the energy poverty exposure, based on the Member states' ranking. Even though, the outcome of the data analysis has not intended to assess the causal relationship between the energy (access) deprivation and human rights

<sup>20</sup> Threshold for statistical significance is set at  $p \leq 0.05$ .

protection, the analysis has confirmed that the occurrence of the phenomenon of the energy poverty is associated with the human rights violations in the EU Member states.

## 5. CONCLUSIONS AND RECOMMENDATIONS

In recent years we had reminded two important occasions related to our research topic, in 2019 there had been the 10<sup>th</sup> anniversary of Lisbon Treaty ratification, including legal efficiency of EU Charter of Fundamental Rights. In the same year, 2019, the European Commission introduced latest energy strategy *Clean energy for all Europeans*, underlining the clean energy transition as crucial component of the ambition to achieve carbon neutrality in EU by 2050. The *Clean energy for all Europeans* consists of the 8 new laws concerning the energy performance in buildings, targets for renewable energy and energy efficiency, and governance system of the energy union. Overall, the topic of energy poverty resonates in the provisions of these legislative acts, putting the (vulnerable) consumers to the heart of the energy transition (European Commission, 2019), particularly, the energy efficiency stipulations as the energy inefficiency has been identified as one of the primary drivers of the energy poverty (Thomson and Bouzarovski, 2019). Moreover, the energy justice and the concept of the just transition are also reflected in the *European Green Deal* initiative.

In the light of the results of our data analysis, suggesting the co-occurrence of the energy poverty and the human rights violations, we outline the potential contribution of the energy transition to the human rights protection. We recommend to precisely follow the principle establishing an individually justiciable right to environmental protection as stated in article 37 of the EU Charter of Fundamental Rights, “*a high level of environmental protection and the improvement of the quality of the environment must be integrated into the policies of the Union and ensured in accordance with the principle of sustainable development*” as the key factor impacting access to and effectiveness of civil and political and social, economic and cultural rights. The extensive interpretation of the sustainable environment as stated in international layer of human rights protection includes according to our opinion also right to access to energy and related prevention of energy poverty. The outcome in the form of energy justice is then pre-condition of the effective exercise of other generations of human rights.

European Union's legislation as well as policies should reflect the correlation between human rights and energy justice. As the first initiative we can see the policy of European Investment Bank in the Climate Bank Roadmap, declaring that from the end of 2021 the EIB will no longer contribute to the development of fossil fuel project, but on the other hand allocate financial resources for social and economic transformation, including human rights.<sup>21</sup> Another decisions and actions will confirm European Union's ambition to be both human rights actor and climate change leader, able to contribute to transformation of understanding human rights in the European Union within so-called greening processes.

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