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Human rights and the energy transition: challenges, prospects, and the importance of a just transition

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1. Introduction and methodology

This article aims to analyze the current state of the ongoing global energy transition and to examine the relationship between the energy transition process and the protection of human rights, with particular emphasis on the concept of a just energy transition, which places respect for human dignity as well as fair and ethical access to resources at its core. The specific objectives include: analyzing the origins and current state of the energy transition worldwide; identifying fundamental human rights connected to the energy transition; examining how the energy transition process may infringe upon or violate these rights; and formulating conclusions and recommendations to draw academic discourse's

attention to the often-overlooked problematic aspects of the energy transition. This article seeks to answer the following research questions: Which social groups are most vulnerable to human rights violations in the process of the energy transition, and why? What is the relationship between the energy transition process and the protection of human rights at both the international and national levels? What are the main challenges to the protection of human rights in the context of the energy transition process?

The preparation of this article was preceded by qualitative research conducted using methodologies appropriate to the social sciences, including legal sciences and international relations. These methodologies include dogmatic analysis, institutional-legal analysis, normative-ethical analysis, systemic analysis, and the analysis of source documents. The study also takes into account the Polish legal system.

2. The process of the global energy transition – origins, current state, and challenges

Fossil fuels are abundant in the Earth's crust. They were formed through the decomposition of dead organic matter and shaped into their present form by specific pressure and temperature conditions over millions of years. These resources have historically become a key factor enabling technological progress, industrialization, economic growth, and an unprecedented increase in the wealth of nations. For centuries, humanity relied on primitive and inefficient energy sources such as human and animal muscle power, the combustion of traditional biomass, or rudimentary methods of harnessing wind or water energy. Fossil fuels will continue to play a significant role in global energy, but will gradually lose importance at the expense of low-carbon sources.

As of 2023, approximately 76.5% of global primary energy (energy obtained directly from natural resources) derives from fossil fuels (coal, oil, and natural gas). Oil holds the largest share at 29.8%, followed by coal at 24.9% and natural gas at 21.9%.

Renewable energy sources (hydropower, wind, solar, modern biofuels, and other renewables, excluding traditional biomass) account for a total of 13.7%, traditional biomass 6.1%, and nuclear energy 3.7%. The total production of primary energy consists of electricity generation, transport, and heating – the main pillars of a state's modern energy system. In electricity generation alone (data for 2024), fossil fuels remain the dominant source, comprising 59.1% (coal 34.3%, natural gas 22%, oil 2.8%), followed by renewables including bioenergy at 31.9% (hydropower 14.3%, wind 8.1%, solar 6.9%, biofuels/biomass 2.3%, other renewables 0.3%), and nuclear energy at 9%¹.

The combustion of fossil fuels, while providing humanity with vast amounts of energy limited only by resource availability, is also one of the main contributors to environmental pollution (often irreversible) and has widespread socio-economic impacts at the stages of extraction, processing, and combustion – that is, throughout the entire “life cycle” of these resources². Fossil fuel extraction leads to landscape degradation, landslides, sinkholes, excessive erosion, destruction of habitats for flora and fauna at extraction sites, water and soil contamination, methane emissions (a potent greenhouse gas), changes in hydrological conditions, high water consumption, the occurrence of explosions and fires in mines, and excessive noise generation³. During processing, the fossil fuel industry causes air pollution through emissions of sulfur oxides and other sulfur compounds, nitrogen oxides, volatile organic compounds, water and soil contamination, oil/gas leaks from extraction or transportation infrastructure into water bodies, greenhouse gas emissions, and explosions. Combustion for final energy conversion (from chemical to thermal energy, which

¹ H. Ritchie, P. Rosado, *Electricity Mix*, Our World in Data, 2020, <https://ourworldindata.org/electricity-mix> (access: 6.07.2025).

² M. Abdel-Sharkawy, *Fossil fuel extraction and its environmental impact*, “International Journal of Geography, Geology and Environment” 2022, vol. 4, no. 1, pp. 219–222, <https://www.geojournalacceaccessed: loads/archives/6-2-8-568.pdf> (access: 11.07.2025).

³ S. Webb, *Fossil Fuels and Environmental Degradation*, EBSCO Research Starters, <https://www.ebsco.com/research-starters/science/fossil-fuels-and-environmental-degradation> (access: 20.02.2026).

may then be converted into electricity, mechanical energy, or used for heating) primarily results in carbon dioxide emissions – the principal greenhouse gas and the main driver of anthropogenic global warming. It also emits nitrogen and sulfur oxides, leading to acid rain, which damages ecosystems and organisms. Additionally, particulate matter (PM_{2.5}/PM₁₀) causes smog, and heavy metal pollution.

Fossil fuel combustion is the main source of fine particulate matter PM_{2.5}. Pioneering studies by Harvard University, Birmingham, Leicester, and College London (2021) showed that nearly 20% of global deaths (10.2 million) are caused by air pollution resulting from fossil fuel combustion⁴. These studies entirely omitted the impact of fossil fuel combustion on the climate and, consequently, the health and lives of people.

Fossil fuel combustion accounts for three-quarters of global greenhouse gas emissions⁵. According to the latest IPCC report⁶, global warming has unquestionably been caused by greenhouse gas emissions resulting from human activity. Between 2011 and 2020, the average global surface temperature rose by 1.1°C compared to the period 1850–1900. Since 1970, the rate of warming has been the highest in the past 2000 years. Since 1750, the increase in concentrations of carbon dioxide, methane, and nitrous oxide in the atmosphere has been unequivocally caused by human activity. In 2019, the CO₂ concentration reached 410 ppm – the highest level in at least 2 million years. The largest emissions come from the energy, industry, transport, and construction sectors (79%), with 22% from agriculture and land use. Significant inequalities exist in consumption-based emissions: the wealthy-

⁴ J. Lelieveld, A. Pozzer, U. Pöschl, M. Fnais, A. Haines, T. Münzel, *Global mortality from outdoor fine particle pollution generated by fossil fuel combustion: Results from GEOS-Chem*, “Environmental Research” 2021, vol. 195, art. S0013935121000487, <https://doi.org/10.1016/j.envres.2021.110754> (access: 6.07.2025).

⁵ H. Ritchie, P. Rosado, *Energy Mix*.

⁶ IPCC, *Summary for Policymakers, w: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, H. Lee, J. Romero (eds.), Geneva 2023, pp. 1–34.

est 10% of households are responsible for 34–45% of global emissions, while the poorest 50% account for only 13–15%. Climate change is widespread and rapid, affecting the atmosphere, oceans, cryosphere, and biosphere globally. Extreme weather events (heat-waves, heavy rainfall, droughts, cyclones) affect all world regions, with the most vulnerable communities being those who contributed least to anthropogenic climate change (in the most affected regions, mortality from extreme weather events is 15 times higher than in resilient regions). Approximately 3.3–3.6 billion people live in areas highly exposed to the effects of climate change. Climate change contributes to increased hunger, water shortages, weakened food security, and migration. Irreversible changes are occurring in ecosystems, such as species extinction, mass organism deaths, glacier and permafrost melting⁷.

In light of the above threats and consequences of fossil fuel combustion, a global energy transition is underway towards a low-emission circular economy to mitigate the negative impacts of industrial-era human activity on natural ecosystems and public health, and to slow the pace of anthropogenic climate change – limiting the rise in average global temperatures and the rise of sea and ocean levels.

The energy transition is a progressive and long-term process of changing the structure of the energy system towards low-carbon sources and moving away from fossil fuels in many sectors of the economy, particularly in electricity, heating, industry, and transportation. Its aim is to transform the economy towards greater sustainability and energy efficiency, thereby reducing its negative impact on the environment and climate⁸. The energy transition occurs under the influence of an international climate regime operating on the basis of international climate law, which is part of international environmental law that operates on the principle of common but differentiated responsibilities and comprises a set of norms, institutions, and mechanisms in international policy.

⁷ Ibidem.

⁸ I. Terizidou, *Energy Transition and Green Skills*, IENE, <https://www.iene.eu/articlefiles/inline/presentation%2016.09.2021.pdf> (access: 19.02.2026).

The goals and values of this regime include: “climate protection for present and future generations, sustainable development, effective and adequate international counteraction, international cooperation, and international justice⁹”.

The current energy transition is not the first one experienced by the global economy. Throughout history, each transition involved changes in prevailing energy paradigms, driven either by technological developments or by the depletion and imperfections of dominant energy resources. The Industrial Revolution of the 18th and 19th centuries began in the Kingdom of England (from 1707 the Kingdom of Great Britain, and 1801 the United Kingdom of Great Britain and Ireland), which at that time was the world’s hegemon and a colonial empire with a dominant economic, technological, and political position. This revolution led to the shift from manual production to mass machine-based production. The primary fuel during this period became hard coal, whose mass extraction and use for powering the new generation of mass industry enabled England to achieve the status of the “workshop of the world¹⁰”. Until the mid-19th century, before coal took over as the dominant fuel of the economy (the main energy source), this position was held by traditional biomass, mainly wood, but also crop waste and charcoal. The displacement of wood and other types of biomass by hard coal occurred for several reasons. First, coal has 2–3 times higher calorific value per unit of mass than wood (depending on the type of wood and its moisture content)¹¹, which makes it a more efficient fuel – it burns longer and provides more heat. Second, hard coal burns at significantly higher temperatures

⁹ M. Pietraś, *Reżimy międzynarodowe: czyli wartości, normy i instytucje w jednym*, in: *Prace Towarzystwa Studiów Międzynarodowych*, vol. 4, no. 1, 2016, p. 132, <https://ptsm.edu.pl/wp-content/uploads/2016/01/ptsm-4-tom-1-pietras.pdf> (access: 11.07.2025).

¹⁰ *Rewolucja przemysłowa. Dlaczego największy przewrót technologiczny w dziejach rozpoczął się w Anglii?*, WielkaHistoria.pl, <https://wielkahistoria.pl/rewolucja-przemyslowa-dlaczego-najwiekszy-przewrot-technologiczny-w-dziejach-rozpoznal-sie-w-anglii/> (access: 6.07.2025).

¹¹ *Praktyczna tabela wartości opałowej różnych paliw z omówieniem*, kb.pl, <https://kb.pl/ogrzewanie/ogrzewanie-inne/praktyczna-tabela-wartosci-opalowej-roznych-paliw-z-omowieniem/> (access: 6.07.2025).

than wood, which is crucial for producing so-called industrial heat necessary in industries such as metallurgy. Third, the intensive deforestation of the British Isles led to actual wood shortages due to growing demand for this resource in the shipbuilding, metallurgy, and mining industries.

Over time, the Industrial Revolution evolved from the dominance of coal to that of oil and natural gas. Considering the historical changes in global energy acquisition methods, the following periods can be distinguished: the period of biomass and other primitive energy sources dominance (from prehistory to the 18th century, the onset of the Industrial Revolution); the period of coal dominance (from the 18th century to about the mid-20th century); the period of oil and natural gas dominance (from the mid-20th century to the third decade of the 21st century).

The current era in the broadly understood global energy sector is marked by the dynamic growth of the importance of low-emission energy sources and the decreasing role of fossil fuels, characterized by the development of low-emission technologies such as renewables, modern nuclear energy, electromobility, energy storage, as well as shifts in several geopolitical paradigms. In this era of energy transition, key supply chains for raw materials and low-emission technologies are transforming. "New resources" are gaining strategic importance and are the subject of rivalry among major global powers. These resources include, among others: lithium (for the production of lithium-ion batteries), copper (for power systems and renewable energy), cobalt (lithium-ion batteries), nickel (lithium-ion batteries), and rare earth elements such as neodymium, praseodymium, and dysprosium (renewables and electromobility industries).

States supplying fossil fuels are expected to gradually lose their influence in international politics as a result of the global energy transition, forfeiting a powerful tool of exerting pressure on other countries, their traditional energy customers¹². However,

¹² M. Skuza, *Transformacja energetyczna Europy Środkowo-Wschodniej – derusyfikacja i bój o konkurencyjność gospodarczą*, "Facta Simonidis" 2024, vol. 17, no. 1, p. 333, <https://doi.org/10.56583/fs.2289> (access: 13.07.2025).

for countries possessing deposits of key resources essential for low-emission technologies, this does not necessarily guarantee a bright future in the coming decades of the 21st century. Fierce competition for new competitive advantages among powers such as the USA, China, Russia, and the EU may lead to a new form of colonialism and a return to the “concert of powers”, determining the sovereignty levels of weaker, third-party states on the international stage. The extraction of key resources required for low-emission technologies still involves environmental degradation and often violates basic ethical principles, posing serious threats to human rights. The current dynamics of competition for strategic raw materials may lead to “raw material colonialism”. Seventy percent of the resources essential for renewable energy are located in the Global South, and most of the profits from this process are managed by the world’s richest countries¹³. As Ambitabh Behar states: “The richest countries and super-rich individuals are driving the climate crisis to its current tipping point, over-consuming the carbon budget through deeply unequal and extractive systems. Now they are trying to capture and control the energy transition at the expense of the poorest and most climate-vulnerable countries, driving up inequality further [...]. A truly just transition starts with an end to the patterns of injustice, misrule, and excess. [...] Addressing inequality and colonialism in the transition offers an opportunity to radically reshape the energy landscape. Indigenous People, communities, women, workers, and progressive local governments are already building new energy systems rooted in local control, progressive economics, and ecological care, and where decent work, social protections, indigenous rights, and reskilling are placed at the core”¹⁴. Depending on how it is carried out, the energy transition can, on the one hand, ensure fairer access to clean energy and

¹³ Oxfam International, *Colonialism hijacks energy transition: 70% of minerals for renewables lie in Global South*, press release, 2025, <https://www.oxfam.org/en/press-releases/colonialism-hijacks-energy-transition-70-minerals-renewables-lies-global-south> (access: 20.02.2026).

¹⁴ Ibidem.

a clean environment, and mitigate climate change, but on the other hand, it can exacerbate inequalities and contribute to the exploitation of disadvantaged social groups.

The pace of decarbonization varies depending on a country's level of economic development, the structure of its economy, geographic conditions favorable to renewable energy development, political stability, access to technologies and key resources, social acceptance or resistance, the influence of fossil fuel lobbying, and other factors. Over the past 15 years, wind and solar energy have grown from virtually zero to 15% of the global electricity generation mix, and the prices of solar panels have fallen by as much as 90%. Nevertheless, in 2024, record levels of energy derived from oil and coal were reached¹⁵. The prospect of achieving genuine climate neutrality in any urbanized area of the world currently appears unfeasible. Despite the rapid annual growth in installed renewable energy capacity, the overall energy demand continues to rise, including in rapidly developing countries of the Global South. As a result, additional gigawatts of energy continue to be sourced from fossil fuels, and global emissions are rising accordingly.

The energy transition presents an opportunity to reduce GHG emissions and thereby limit ongoing climate change, improve air quality, and decrease states' dependency on fossil fuel imports, which translates into enhanced energy security. However, the energy transition also entails numerous challenges, such as the need to bear significant investment costs, which are sometimes unacceptable for less developed and developing countries. In many Global South countries that have yet to achieve a sufficient level of prosperity, access to energy itself, or even to clean thermal energy sources for cooking (clean cooking), remains a fundamental issue necessary to meet basic living needs. In these countries, the requirement to decarbonize their economies using modern low-emission technologies is often perceived as an unrealistic fantasy.

¹⁵ D. Yergin, P. Orszag, A. Arya, *The Troubled Energy Transition*, "Foreign Affairs", 25 February 2025). <https://www.foreignaffairs.com/united-states/troubled-energy-transition-yergin-orszag-arya> (access: 12.07.2025).

3. The relationship between the energy transition process and the protection of human rights at the international and national levels

The ideological foundation of the energy transition process is aimed at limiting the devastation of the environment and climate caused by human activity, which until now has been closely correlated with the economic development of states. Since the Industrial and Technological Revolutions, the dynamic technological and economic growth of states has been linked to the exploitation of the environment. The use of fossil fuels to enhance the efficiency of economies has led to repeated waves of economic growth and prosperity in both developed and developing countries. The level of individual GHG emissions related to people's lifestyles is closely correlated with income levels. The wealthiest 10% are responsible for 49% of all consumption-based emissions¹⁶. Many countries of the Global South have not achieved a high level of development as a consequence of the industrial era. For much of that period, they served as sources of wealth for Western European colonial empires, including the United Kingdom, France, Belgium, Spain, Portugal, Italy, and Germany. These territories functioned as spaces of exploitation and sources of mineral and energy resources (gold, silver, diamonds, copper, tin, iron, manganese, coal, oil, uranium, etc.), plant and agricultural resources (cotton, rubber, sugarcane, coffee, tea, tobacco, cocoa, palm oil, spices, wood, wool, etc.), or other products such as leather, furs, pearls, and ivory. "The climate and environmental crisis are a crisis of inequality and social injustice. Those most affected have contributed the least to the problem. For this reason, the current crisis also has an ethical dimension¹⁷". Climate change should be classified as a global problem, which forces states to adapt and take action to mitigate its consequences. Reflecting on the energy transition in the context of human rights is of particular

¹⁶ G. Thunberg, *The Climate Book*, Warsaw 2023, p. 23.

¹⁷ Ibidem, p. 561.

importance, as this process should be firmly linked to the priority of observing the principle of justice, ensuring the inviolability of citizens' rights. This chapter presents the relationship between the energy transition process and the protection of fundamental human rights at both the international and national levels.

3.1. The right to a clean natural environment

Although for citizens of developed countries such as Poland the lack of access to electricity may seem abstract and remote, for millions of people around the world it is an everyday reality. In many countries of the Global South, which play a significant role as exporters of energy resources to wealthier states, basic energy needs remain unmet. This disparity in access to energy leads to the recognition of the right to electricity – especially clean energy – as a fundamental human right. For this reason, the following part of the analysis will be devoted to issues related to international legal regulations and the provisions of the Constitution as the highest-ranking legal act within the domestic system of sources of law. The adoption of such a structure is methodologically justified, as it enables the presentation of universal standards shaping the content of the right to a clean natural environment.

In international practice at the universal level, no binding treaty provisions have been adopted that would explicitly establish the right to the environment as an independent, individual right. It should be emphasized, however, that the interaction between international human rights law and international environmental law fosters the development of a trend toward recognizing the right to the environment as a distinct and autonomous human right¹⁸. Not directly, but in connection with the right to health protection, environmental issues are addressed by: (1) the International Covenant on Economic, Social and Cultural Rights, which draws atten-

¹⁸ Z. Galicki, *Prawa człowieka i ochrona środowiska*, in: *Międzynarodowe prawo ochrony środowiska XXI wieku*, Z. Galicki (ed.), A. Gubrynowicz, Warszawa 2013, p. 29.

tion to the need for the “improvement of environmental hygiene” as one of the conditions necessary for the full realization of this right; (2) the Convention on the Rights of the Child, which states that “States Parties shall pursue full implementation of this right and, in particular, shall take appropriate measures to combat disease and malnutrition, including within the framework of primary health care, through, inter alia, the application of readily available technology and through the provision of adequate nutritious foods and clean drinking water, taking into consideration the dangers and risks of environmental pollution”.

Also at the regional level, within the European system of human rights protection, there is no explicit provision referring to the right to the environment¹⁹. Only Article 37 of the Charter of Fundamental Rights²⁰ indicates that a high level of environmental protection and the improvement of its quality must be integrated into Union policies and ensured in accordance with the principle of sustainable development²¹. It should be emphasized that in other regions of the world, the protection of the right to the environment has been expressly provided for in treaty instruments, for example, in the African Charter on Human²² and Peoples’ Rights and in the American Convention on Human Rights²³.

Although the European Convention on Human Rights does not explicitly regulate the right to a healthy environment, elements of

¹⁹ D. Kuźniar, *Prawo do zdrowego środowiska jako konstytucyjnie gwarantowane prawo podmiotowe*, “Przegląd Prawa Konstytucyjnego” 2021, no. 3 (61), p. 212.

²⁰ *Charter of Fundamental Rights of the European Union* (Official Journal of the EU, C, 2007, No. 303, p. 1 as amended), hereinafter: CFR.

²¹ It should be noted that the literature raises reservations regarding both the scope of protection and the normative character of Article 37 of the Charter, cf. A. Krzywoń, *Konstytucja RP a środowisko*, “Państwo i Prawo” 2012, z. 8, p. 5; I.C. Kamiński, *Karta Praw Podstawowych jako połączenie praw i zasad – strukturalna wada czy szansa?* in: *Karta Praw Podstawowych w europejskim i krajowym porządku prawnym*, A. Wróbel (ed.), Warszawa 2009, p. 41–42; L. Garlicki, M. Derlatka in: *Konstytucja Rzeczypospolitej Polskiej. Komentarz. Tom II*, M. Zubik (ed.), Warszawa 2016, art. 74.

²² Art. 24, African Charter on Human and Peoples’ Rights of 27 June 1981.

²³ Art. 11(1), Additional Protocol to the American Convention on Human Rights of 17 November 1988.

this right can be found in the jurisprudence of the European Court of Human Rights (hereinafter: ECtHR), which has derived it from Article 8 of the ECHR²⁴. In its judgment of 2 November 2006²⁵, the ECtHR indicated that “Article 8 of the ECHR may apply to cases concerning the protection of the natural environment where the pollution is directly caused by the State or where State responsibility arises from a failure to properly regulate private sector activities”. An analysis of ECtHR jurisprudence shows that states’ positive obligations necessary to effectively protect private and family life include the introduction of minimum standards relating to polluted environments and ensuring their actual enforcement²⁶. Serious environmental pollution may negatively affect the enjoyment of one’s home and family life, even if it does not directly threaten health²⁷. It is also necessary to refer to the Grand Chamber judgment of 9 April 2024 in *Verein KlimaSeniorinnen Schweiz and Others v. Switzerland*, in which the Court carried out a significant reinterpretation of the scope of Convention protection in the context of climate change, holding that the right to effective protection against its adverse effects falls within the sphere of the right to respect for private and family life guaranteed under Article 8 of the ECHR. The Court indicated that insufficient state action to counter climate change may lead to a real risk to the life, health, and well-being of individuals and thus trigger positive obligations on public authorities to adopt and implement adequate legal regulations, administrative measures, and monitoring

²⁴ L. Garlicki, in: *Konwencja o Ochronie Praw Człowieka i Podstawowych Wolności*, vol. 1, L. Garlicki (ed.), Warszawa 2010, p. 516; H. Machińska, *Prawo jednostki do środowiska. Rola Rady Europy w kształtowaniu nowych standardów prawnych*, in: *Instytucje prawa konstytucyjnego w dobie integracji europejskiej*, J. Wawrzyniak, M. Laskowska (ed.), Warszawa 2009, pp. 632–633.

²⁵ Judgment of the European Court of Human Rights of 2.11.2006, 59909/00, *Giacomelli v. Italy*, LEX no. 199089.

²⁶ T. Jasudowicz, *Prawa człowieka a ochrona środowiska w ujęciu Europejskiego Komitetu Praw Socjalnych. Prawa człowieka a ochrona środowiska. Wspólne wartości i wyzwania*, in: B. Gronowska, B. Rakoczy, J. Kapelańska-Pręgowska, K. Karpus, P. Sadowski (eds.), Toruń: Katedra Praw Człowieka Wydział Prawa i Administracji Uniwersytet Mikołaja Kopernika.

²⁷ Judgment of the European Court of Human Rights of 9.12.1994, 16798/90, *López Ostra v. Spain*, para. 51.

mechanisms aimed at reducing greenhouse gas emissions. This judgment is of considerable importance because the Court explicitly linked climate protection with the catalogue of human rights, thereby strengthening the normative foundations of the concept of the right to a clean environment as a right subject to protection within the European system of human rights protection.

In the subsequent part of the analysis, particular attention should be devoted to two adopted resolutions concerning the right to a clean, healthy, and sustainable environment²⁸. In 2021, the UN Human Rights Council adopted a resolution recognizing access to a clean, healthy, and sustainable environment as a human right²⁹. This document emphasized the key importance of environmental protection for the enjoyment of other human rights, such as the rights to life, health, water, food, and an adequate standard of living. Although for citizens of developed countries like Poland the lack of access to electricity may seem abstract and remote, for millions of people worldwide, it is an everyday reality. In many countries of the Global South, which play a significant role as exporters of raw materials to wealthier nations, basic energy needs remain unmet. This disproportion in energy access supports the recognition of the right to electricity (especially clean energy) as a fundamental human right. Subsequently, the United Nations General Assembly, in its 2022 resolution, also recognized the right to a clean, healthy, and sustainable environment as a human right and emphasized the interconnection of this right with other rights and with existing international law³⁰.

²⁸ Among the resolutions of the w Rights Council concerning the relationship between human rights and the environment, one may also indicate, *inter alia*, Resolutions 44/7 of 16 July 2020, 45/17 of 6 October 2020, 45/30 of 7 October 2020, and 46/7 of 23 March 2021.

²⁹ UN Human Rights Council Resolution no. 48/13 of 8.10.2021, <https://documents-dds-ny.un.org/doc/UNDOC/GEN/G21/289/50/PDF/G2128950.pdf?OpenElement> (access: 03.07.2025).

³⁰ United Nations General Assembly Resolution 76/300 of 28 July 2022 on the human right to a clean, healthy, and sustainable environment, UN Doc. A/RES/76/300.

On 23 July 2025, the International Court of Justice issued an advisory opinion concerning states' climate obligations³¹. This opinion is of key significance because it provides a comprehensive and groundbreaking interpretation of norms of international law relating to climate³². In the opinion, the Court unanimously held that all states, regardless of the commitments they have undertaken in this field, should protect the climate on the basis of customary norms of environmental law. The Court also emphasized that "the human right to a clean, healthy and sustainable environment is essential for the enjoyment of other human rights³³", and that states are obliged to prevent significant environmental harm and must cooperate with one another in this regard. In the event of violations, injured states may seek cessation of the wrongful conduct and reparation of damage, and may also pursue climate reparations. The proceedings lasted two and a half years and were the longest in the Court's history. One hundred states and twelve international organizations submitted their positions in this case. Although the opinion is not formally binding, it constitutes a key interpretation of international law in this field and, in practice, should serve as a point of reference for state authorities and other international judicial institutions³⁴.

In its ruling of 25 July 2006, the Constitutional Tribunal³⁵ noted that the energy sector operates within a regulated market. Access to energy resources is crucial for social life, for individuals, and for the sovereignty and independence of the state, and therefore

³¹ International Court of Justice, *Advisory Opinion of 23 July 2025 on the Obligations of States in respect of Climate Change*, General List No. 187, ICJ Reports 2025, <https://www.icj-cij.org/sites/default/files/case-related/187/187-20250723-adv-01-00-en.pdf> (access: 20.02.2026).

³² P. Buras, *Przełomowa opinia MTS w sprawie obowiązków państw związanych ze zmianą klimatu*, Polski Instytut Spraw Międzynarodowych, 2026, <https://www.pism.pl/publikacje/przelomowa-opinia-mts-w-sprawie-obowiazkow-panstw-zwiazanych-ze-zmiana-klimatu> (access: 20.02.2026).

³³ International Court of Justice, *Advisory Opinion of 23 July 2025 on the Obligations of States in respect of Climate Change*, General List No. 187, ICJ Reports 2025, op.cit., p. 113.

³⁴ Ibidem.

³⁵ Judgment of the Constitutional Tribunal of 25.07.2006, P 24/05, OTK-A 2006, no. 7, item 87.

for freedoms and human rights. Control over and access to energy resources create conditions for realizing the common good, as defined in Article 1 of the Constitution. The energy sector constitutes a sphere where various constitutional values and principles interact, including: the freedom of economic activity (Article 22 of the Constitution), the security of citizens and the principle of sustainable national development (Article 5 of the Constitution), as well as the principle of environmental protection (Article 74, paragraphs 1 and 2 of the Constitution).

Under Polish law, reference should be made to the Constitution as the legal act of the highest rank. Turning to the analysis of the right to a clean natural environment under the Constitution, it should be noted that it refers to this issue in Articles 5, 31, 68, 74, and 86. According to Article 74 of the Constitution³⁶, public authorities are obliged to pursue policies ensuring ecological security for both current and future generations, and everyone has the right to information on the state and protection of the environment. Environmental protection is not reserved solely for state authorities, as Article 86 of the Constitution³⁷ establishes that this duty also applies to individuals. Article 74 of the Constitution outlines the following obligations for public authorities: environmental protection, the pursuit of policies ensuring ecological security for present and future generations, and the support of citizens' actions aimed at protecting and improving the state of the environment³⁸. This provision should be interpreted in conjunction with Article 5 of the Constitution, which states that the Republic of Poland shall safeguard its independence and territorial integrity, ensure the freedoms and rights of people and citizens, and the security of its citizens, protect the national heritage, and ensure environmental protection, guided by the principle of

³⁶ *Constitution of the Republic of Poland of 2 April 1997* (Journal of Laws No. 78, item 483 as amended), hereinafter: Constitution.

³⁷ "Everyone is obliged to care for the state of the environment and bears responsibility for its deterioration caused by themselves. The principles of this responsibility are specified by statute".

³⁸ M. Florczak-Wątor, in: *Konstytucja Rzeczypospolitej Polskiej. Komentarz*, 2nd ed., P. Tuleja (ed.), Warszawa 2023, art. 74.

sustainable development. The issue of ecological security was also addressed by the Constitutional Tribunal in its ruling of 6 June 2006³⁹, in which it recognized that this concept should be understood as “achieving a state of the environment that allows safe habitation and enables its use in a manner that ensures human development”. The Tribunal further concluded that environmental protection is one of the components of ecological security.

Subsequently, it should be noted that provisions concerning environmental protection are also included in Articles 31(3) and 68 of the Constitution. Pursuant to Article 31(3), limitations upon the exercise of constitutional freedoms and rights may be imposed only by statute and only, when necessary, in a democratic state for its security or public order, or for the protection of the environment, public health, public morality, or the freedoms and rights of others. Such limitations may not violate the essence of freedoms and rights. As Piotr Tuleja observes, “the environment referred to in Article 31(3) of the Constitution should be understood broadly, as the natural environment of human beings. It constitutes one of the fundamental constitutional values”⁴⁰. In turn, Article 68(4) of the Constitution establishes the obligation of public authorities to combat epidemic diseases and to prevent negative health consequences resulting from environmental degradation.

3.2. Access to clean energy as a human right

Under international law, there is no instrument of fundamental importance explicitly establishes a universal right to energy. Article 22 of the Universal Declaration of Human Rights provides that everyone, as a member of society, has the right to social security and is entitled to the realization – through national effort and international cooperation and in accordance with the organization

³⁹ Judgment of the Constitutional Tribunal of 6.06.2006, K 23/05, OTK-A 2006, no. 6, item 62.

⁴⁰ P. Tuleja in: P. Czarny, M. Florczak-Wątor, B. Naleziński, P. Radziejewicz, P. Tuleja, *Konstytucja Rzeczypospolitej Polskiej. Komentarz*, 2nd ed., Warszawa 2023, art. 31.

and resources of each State – of the economic, social, and cultural rights indispensable for his or her dignity and the free development of personality. Moreover, Article 25 of the aforementioned instrument recognizes the right of everyone to a standard of living adequate for the health and well-being of themselves and their family.

With regard to EU law, it should be noted that Article 36 of the Charter of Fundamental Rights states that access to services of general economic interest supports the social and territorial cohesion of the Union. Such services also include energy⁴¹. In turn, Article 170 of the Treaty on the Functioning of the European Union provides that the Union shall contribute to the establishment and development of trans-European networks in the energy sector in order to help achieve its objectives and enable Union citizens, economic operators, and regional and local communities to fully benefit from the establishment of an area without internal frontiers.

Under the Constitution, the right to energy has likewise not been expressly recognized. However, reference should again be made to Articles 5 and 74 of the Constitution, which impose an obligation to pursue overarching tasks consisting in shaping and organizing the energy sector in such a way as to ensure broadly understood security (also from the perspective of future generations) in accordance with the principle of sustainable development⁴².

In attempting to define the right to energy, it may be indicated that it is an entitlement to uninterrupted access to energy in a quantity sufficient to meet basic needs, meeting specified quality standards and at an affordable price⁴³. The right to energy has been the subject of discussion in some countries⁴⁴. For some

⁴¹ Directive 2014/25/EU of the European Parliament and of the Council of 26 February 2014 on procurement by entities operating in the water, energy, transport and postal services sectors, repealing Directive 2004/17/EC (OJ EU L 243, 2014, p. 94).

⁴² K. Mucha, *Konstytucyjne podstawy pojęcia bezpieczeństwa energetycznego*, "Zeszyty naukowe instytutu administracji AJD w Częstochowie" 2015, no. 11, pp. 99–112.

⁴³ M. Marszałek, *Prawo do energii*, "Państwo i Prawo" 2017, no. 11, pp. 70–84.

⁴⁴ https://www.iit.comillas.edu/documentacion/informetecnico/IIT-21-2371/Moving_forward_on_the_right_to_energy_in_the_EU_Engagement_toolkit.pdf?utm_source (access: 20.02.2026).

advocates, the right to energy serves as a foundation for making political demands on governments and their regulatory activities. An example is the campaign launched in the United Kingdom for an *Energy Bill of Rights*⁴⁵. In part of international legal scholarship, as well as in the positions of non-governmental organizations⁴⁶ and expert studies, there are calls to recognize the right to energy as a component of the international human rights protection system, similarly to other socio-economic rights such as the right to water or food⁴⁷. As one cited statement notes: “Energy is essential for life. [...] It is also indispensable for the protection of a wide range of fundamental human rights. The right of access to energy is, in fact, implicitly embedded in many international treaties and conventions, but the time has come to explicitly articulate and formally declare – with the full support and authority of the UN – that access to modern energy is and shall henceforth be recognized as a fundamental human right⁴⁸”.

The lack of direct regulations, as well as divergent views on protecting those at risk of energy poverty, lead to discussions about the need to create binding legal provisions in an act of law with autonomous normative significance⁴⁹. This view aims to elevate the protection of individuals affected by energy poverty to the level of human rights, which should be legally safeguarded.

Furthermore, it is necessary to address the issue of the right to clean cooking. In low- and middle-income countries, approxi-

⁴⁵ *Fuel Poverty Action, Energy Bill of Rights*, 2015, <http://www.fuelpovertyaction.org.uk/home-alternative/energy-bill-of-rights-2/> (access: 6.07.2025).

⁴⁶ Natural Justice, *The Right to Sustainable Energy*, Natural Justice, <https://naturaljustice.org/the-right-to-sustainable-energy/> (access: 20.02.2026).

⁴⁷ J. Bradbrook, J. Gardam, *Placing Access to Energy Services within a Human Rights Framework*, “Human Rights Quarterly” 2006, vol. 28, no. 2, pp. 389–415, <https://www.semanticscholar.org/paper/Placing-Access-to-Energy-Services-within-a-Human-Bradbrook-Gardam/dbd215ff0ee0a6021b7feb3dc68542181a12f59> (access: 20.02.2026).

⁴⁸ B. Freling, *Energy is a human right*, 2012, <https://www.bobfreling.com/index.php/2012/01/17/energy-is-a-human-right/> (access: 6.07.2025).

⁴⁹ M. Hesselman, A. Varo, S. Laakso, *The Right to Energy in the European Union* (Policy Brief No. 2, June 2019), ENGAGER Energy Poverty Action, <https://helda.helsinki.fi/server/api/core/bitstreams/09d9e859-13eb-4c32-9629-1007319bdd17/content> (access: 6.07.2025).

mately 3.1 billion people rely on solid fuels – such as wood, charcoal, or agricultural and animal waste – for cooking and heating their homes⁵⁰. Clean cooking aims to promote the use of clean fuels and technologies for meal preparation that are safe for people and less harmful to the environment. Clean cooking is a key target within the framework of sustainable development⁵¹. It should be noted that there are still significant gaps in universal access to clean fuels and technologies for cooking⁵² as in 2022 approximately 2.1 billion people lacked access to safe and clean cooking methods⁵³. Energy poverty, manifested among other things in the inability to cook, leads to severe health and social consequences. A key issue in this regard is household air pollution resulting from open stoves fueled by biomass, including wood and agricultural or animal waste. According to statistics, this phenomenon is responsible for approximately 3.2 million deaths per year⁵⁴.

3.3. Ethical and humane extraction of natural resources

The energy transition has a significant impact on the labor market. It leads to job losses in sectors such as coal mining. However, these effects are not distributed evenly across countries and depend largely on the structure of local labor markets.

⁵⁰ R. Priddle, *World Energy Outlook – Special Report Energy and Air Pollution*, World Energy Outlook – Spec. Rep., 2016.

⁵¹ *Combating energy poverty and ensuring access to modern energy has been included in the United Nations Sustainable Development Goals*, <https://sdgs.un.org/2030agenda> (access: 6.07.2025), Goal 7 aims to “ensure access to affordable, reliable, sustainable and modern energy for all”.

⁵² United Nations, *In Transforming Our World: The 2030 Agenda for Sustainable Development*, 19/35; United Nations General Assembly: New York, NY, USA, 2015; Res. 70/1 of 25 September 2015.

⁵³ IEA, IRENA, UNSD, World Bank, WHO, *Tracking SDG 7: The Energy Progress Report*, World Bank: Washington, DC, USA, 2024.

⁵⁴ E. Puzzolo, N. Fleeman, F. Lorenzetti, F. Rubinstein, Y. Li, R. Xing, G. Shen, E. Nix, M. Maden, R. Bresnahan et al., *Estimated health effects from domestic use of gaseous fuels for cooking and heating in high-income, middle-income, and low-income countries: A systematic review and meta-analyses*, “Lancet Respiratory Medicine” 2024, vol. 12, pp. 281–293.

What seems crucial in the context of these considerations are the challenges and human rights violations connected to the extraction of raw materials necessary for the development of low-emission technologies. Respect for human rights should be an indispensable part of the extraction of these resources⁵⁵. As research shows, the protection of human rights fosters the inflow of foreign investment because it contributes to increasing efficiency and effective management⁵⁶. Therefore, it is essential to prioritize addressing the deeply rooted human rights violations in Africa's mining sector, as the scale of these violations cannot be marginalized as a mere side effect of the energy transition.

The literature highlights that land acquisition for resource extraction results in the loss of property and livelihoods and triggers violence⁵⁷. Examples from South Africa, Zimbabwe, and Ghana show that mining activities often lead to forced displacements⁵⁸. The livelihood of local communities typically depends on subsistence farming and fishing. The expansion of the mining industry pushes out these traditional sources of income⁵⁹.

One of the key arguments against the unreflective exploitation of resources in Africa is the loss of human life associated with the

⁵⁵ K. McPhail, C.A. Adams, *Corporate respect for human rights: meaning, scope, and the shifting order of discourse*, in: K. McPhail, J. Ferguson (eds.), "Accounting, Auditing & Accountability Journal" 2016, vol. 29, no. 4, pp. 650–678.

⁵⁶ S.L. Blanton, R.G. Blanton, *Human rights and foreign direct investment: a two-stage analysis*, "Business & Society" 2016, vol. 45, no. 4, pp. 464–485.

⁵⁷ A.A. Debrah, H. Mtegha, F. Cawood, *Social licence to operate and the granting of mineral rights in sub-Saharan Africa: exploring tensions between communities, governments and multinational mining companies*, "Resources Policy" 2018, vol. 56, pp. 95–103.

⁵⁸ S. Bhatasara, *Black granite mining and the implications for the development of sustainability in Zimbabwe: the case of Mutoko communities*, "Environment, Development and Sustainability" 2013, vol. 15, no. 6, p. 1527–1541; E.T. Lawson, G. Bentil, *Shifting sands: changes in community perceptions of mining in Ghana*, "Environment, Development and Sustainability" 2014, vol. 16, no. 1, pp. 217–238.

⁵⁹ T. Madimu, E. Msindo, P. Swart, *Farmer-miner contestations and the British South Africa company in colonial Zimbabwe*, "Journal of Southern African Studies" 2018, vol. 44, no. 5, pp. 793–814.

extraction of raw materials necessary for the energy transition⁶⁰. In some countries, such as the Democratic Republic of the Congo (DRC), children work from an early age in unprotected cobalt mines. In many cases, these mines do not meet any safety standards. Local populations have been inhaling heavy metal-laden dust for years, leading to respiratory diseases. Pollution contaminates rivers, soil, and air, causing the poisoning of food and drinking water.

States bear the primary responsibility for the protection of human rights; however, very few African countries have developed national action plans to implement UN guidelines in the area of business and human rights (in particular the UN Guiding Principles on Business and Human Rights and the related UN guidance on national action plans)⁶¹. Only Kenya, Uganda, Nigeria, Liberia, and Ghana have developed national action plans in the area of business and human rights among African states⁶². The reasons for permitting human rights violations in Africa's mining industry lie in weak institutions and widespread corruption. Corruption has led to the interests of political elites prevailing over the interests of individuals. Major technology corporations often either lack knowledge of or deliberately ignore the conditions under which resources are extracted. For many people in mining regions, working in extremely dangerous conditions is the only means of survival. The failure of states to fulfill their basic duties in educa-

⁶⁰ <https://www.businesstechnicafrica.co.za/mining/2023/02/01/mining-sector-registers-49-fatalities-in-2022-mantashe-calls-it-a-milestone/> (access: 2.02.2026); <https://www.reuters.com/markets/commodities/fatal-cost-rio-tintos-flagship-iron-ore-project-2025-03-12> (access: 2.02.2026). It should be noted that, due to state policies and limitations in transparency, obtaining reliable statistics that accurately reflect the real scale of the problem remains extremely difficult. In many cases, official data are incomplete, selectively reported, or subject to political filtering, which means that the available figures may significantly underestimate the actual situation.

⁶¹ Office of the United Nations High Commissioner for Human Rights (OHCHR), *National Action Plans on Business and Human Rights*, <https://www.ohchr.org/en/special-procedures/wg-business/national-action-plans-business-and-human-rights> (access: 20.02.2026).

⁶² Institute for Human Rights and Development in Africa (IHRDA), *Press Release 5*, November 2025, <https://www.ihrda.org/2025/11/press-release-5/> (access: 20.02.2026).

tion, healthcare, or decent working conditions results in the mass exploitation of people in the mining sector.

In the Nobel laureates Daron Acemoglu and James Robinson's book *Why Nations Fail: The Origins of Power, Prosperity, and Poverty*⁶³, the authors argue that persistent poverty, inequality, and institutional weakness in many countries stem primarily from extractive political and economic institutions, those serving narrow elites at the expense of the broader society. According to their thesis, rights to freedom, education, and decent working conditions are effectively protected when the state system is based on institutions that guarantee access to power and participation in decision-making processes. In many African countries, however, these institutions were shaped during the colonial period to serve exploitation. Political elites, taking advantage of the underdevelopment of democratic structures, disregard human rights. The protection of human rights in the mining sector would only be possible if there were genuine legal accountability for guaranteed working conditions throughout the entire supply chain.

China bears considerable responsibility for the entire global energy transition process, as it is the undisputed leader in controlling critical resources and technologies at every stage of the supply chains⁶⁴, establishing new levels of resource and technological dependency on third countries⁶⁵. In China's Xinjiang region, 45% of the world's polysilicon – key for solar panel production – is manufactured through forced labor⁶⁶ in so-called “vocational

⁶³ D. Acemoglu, J.A. Robinson, *Why Nations Fail: The Origins of Power, Prosperity and Poverty*, Warszawa 2013.

⁶⁴ IEA, *The Role of Critical Minerals in Clean Energy Transitions*, Paris 2021, <https://iea.blob.core.windows.net/assets/ad9457cc-f83c-4704-ae78-e993233d481f/TheRoleofCriticalMineralsinCleanEnergyTransitions.pdf> (access: 20.02.2026).

⁶⁵ M. Skuza, *Transformacja energetyczna Europy Środkowo-Wschodniej – derusyfikacja i bój o konkurencyjność gospodarczą*, p. 326–327.

⁶⁶ Business & Human Rights Resource Centre, *Report from Sheffield Hallam University reveals significant risks of forced labor in solar supply chains*, <https://www.business-humanrights.org/en/latest-news/report-from-sheffield-hallam-university-reveals-significant-risks-of-forced-labor-in-solar-supply-chains/> (access: 20.02.2026).

education camps” for the Uyghur Muslim minority⁶⁷. Uyghurs are similarly exploited in the extraction of China’s lithium, nickel, and copper deposits⁶⁸. According to a report by *Infyos*, 75% of lithium-ion battery suppliers include companies in their supply chains that have been accused of serious human rights violations, most of them based in China⁶⁹. Moreover, China controls 70% of the mining sector in the DRC, with 79% of Congolese cobalt mines owned by Chinese companies⁷⁰. China’s mining activities, linked to low-emission technologies (e.g., rare earth metals, 90% of whose global resources are controlled by China⁷¹), lead to extensive environmental degradation⁷². Serious controversies also arise concerning Chinese end-products in the low-emission energy sector. According to *Financial Times*, British intelligence MI6 suspects and is investigating potential far-reaching surveillance via Chinese renewable energy infrastructure⁷³.

⁶⁷ *China’s rare earth dominance sparks supply chain fears*, BBC News, <https://www.bbc.com/news/world-asia-china-57124636> (access: 13.07.2025).

⁶⁸ *Signs of forced labor found in China’s EV battery supply chain: report*, CNBC, <https://www.cnbc.com/2022/06/22/signs-of-forced-labor-found-in-chinas-ev-battery-supply-chain-report.html> (access: 13.07.2025).

⁶⁹ *Forced and Child Labor Abuses Found in 75% of Lithium-Battery Supply Chains*, WardsAuto, <https://www.wardsauto.com/suppliers/forced-and-child-labor-abuses-found-in-75-of-lithium-battery-supply-chains> (access: 13.07.2025).

⁷⁰ *Child Labor and Forced Labor in the Mining Sector of the Democratic Republic of the Congo: The Cobalt Supply Chain*, U.S. Department of Labor, <https://www.dol.gov/sites/dolgov/files/ILAB/DRC-FL-Cobalt-Report-508.pdf> (access: 13.07.2025).

⁷¹ *Chiny nacjonalizują metale rzadkie. Pekin wyciąga rękę po 90% światowej podaży*, Energetyka24, <https://energetyka24.com/oze/wiadomosci/chiny-nacjonalizuja-metale-rzadkie-pekini-wyciaga-reke-po-90-swiatowej-podazy> (access: 13.07.2025).

⁷² *China’s Rare Earth Industry Faces Environmental Scrutiny*, The New York Times, <https://www.nytimes.com/2025/07/05/business/china-rare-earth-environment.html> (access: 13.07.2025).

⁷³ *China moves to tighten grip on critical mineral supplies*, *Financial Times*, <https://www.ft.com/content/534eef36-d9ad-4a03-afa1-f87ab03a9b18> (access: 13.07.2025).

4. Summary. Perspectives and recommendations

The process of the energy transition, from the perspective of liberal theory, aims at fostering international cooperation within the framework of international institutions and the norms of international law, ensuring that the parties involved achieve shared economic and environmental benefits while acting for the global common good in the face of increasing interdependence among actors in international relations – both state and non-state actors. The energy transition implies a range of challenges for the protection of human rights. The protection of human rights plays a fundamental role in liberal theory and constitutes the core of every liberal concept. “Rooted in ontological, epistemological, and moral individualism, as well as in the conviction of the primacy and inalienable value of individual freedom, the concept of universal and inalienable rights belonging to every human being remains, from a genetic, doctrinal, and axiological point of view, strictly linked to the political philosophy of liberalism⁷⁴”.

Accordingly, a just energy transition – which is not merely a technological change but a profound socio-economic transformation – should adopt as its overriding goal the minimization of negative impacts on underprivileged and particularly vulnerable social groups. This particularly concerns those who have thus far been excluded from the benefits of the fossil fuel-driven era.

In the age of the energy transition, which is a response to climate change and environmental degradation, one of the greatest challenges is the threat to fundamental human rights: the right to life, security, housing, food, health, water, and a dignified existence. The effects of global warming, including the increased occurrence of extreme weather events, deepen inequalities and most severely affect underdeveloped countries inhabited by societies that have historically been systemically marginalized. On the other hand, the very process of decarbonizing economies also entails numer-

⁷⁴ Ł. Machaj, *Liberalizm a prawa człowieka*, “Przegląd Sejmowy” 2003, no. 6(59), pp. 27–28, <https://www.bibliotekacyfrowa.pl/Content/37370/PDF/002.pdf> (access: 13.07.2025).

ous human rights risks on a global scale. The gradual shift away from economies driven by fossil fuels necessitates the phasing out of certain sectors that are economically significant in many parts of the world, such as mining regions. This process threatens workers' rights and necessitates workforce retraining. Increasing the share of low-emission energy sources requires substantial investments, thus exacerbating the phenomenon of energy poverty – a situation where households are economically unable to meet their basic energy needs, which undermines the right to a dignified life for poorer communities and deepens existing inequalities. Equal access to electricity or heat is not universally recognized as a human right and, therefore, is not obligatorily guaranteed by states for their citizens.

The supply chains of resources necessary for the energy transition require vast quantities of materials such as cobalt, nickel, lithium, copper, etc. Given the dynamic development of low-emission technologies, fierce competition persists over competitive advantages at every stage of these supply chains, raising the risk of exploitation of poorer countries by major powers in a manner reminiscent of colonial exploitation. This also poses a high risk of human rights violations in the resource extraction process itself – forced displacements, forced labor, environmental degradation, child labor, and the failure to ensure safe working conditions. An energy transition carried out without properly designed and effectively enforceable legal regulations may lead to the deepening of social inequalities.

The energy transition offers an opportunity to reduce environmental degradation caused by human activity since the Industrial Revolution. It is crucial that this process does not create new inequalities or violations of human rights; therefore, it must be grounded in a coherent normative and institutional framework that consistently links climate policy mechanisms with the respect for and protection of human rights. Such guarantees should not remain merely declaratory but must be effectively implemented and enforced, with states holding themselves and one another accountable through mutual oversight and transparency in the

transformation process. This would compel entities active in the transition process – corporations, energy companies, extractive industries, local communities, and businesses – to respect human rights and care for the environment. A just transition requires a holistic approach, taking into account the respective contributions of individual countries to the current state of the environment and climate, for the benefit of present and future generations. “The Global North – comprising countries that have been at the top of the hierarchy created in previous centuries – takes the lion’s share of wealth, political power, research capabilities, and many other societal advantages. The Global South, home to vastly larger populations historically subjected to colonization and various forms of exploitation, is left with the lion’s share of poverty and pollution⁷⁵”.

The findings of this paper demonstrate three key conclusions regarding the relationship between the energy transition and human rights:

- 1) The social groups most vulnerable to human rights violations in the process of the energy transition are workers in fossil-fuel-related and other high-emission sectors whose previous material well-being depended on the extraction and exploitation of fossil fuels; local communities inhabiting areas of extraction of strategic raw materials essential to the energy transition (mainly in the Global South), who are affected by mining and processing activities and may become subject to a new form of “resource colonialism” and exploitation by wealthier actors; as well as lower-income groups, people affected by energy poverty, and communities in developing countries impacted by rising energy costs. The vulnerability of these groups results from global inequalities, historical marginalization, dependence on a single economic sector, and pressures stemming from geo-economic competition.

⁷⁵ G. Thunberg, *The Climate Book*, p. 537.

- 2) As regards the relationship between the energy transition and human rights, it is complex and multi-level in nature. On the one hand, the energy transition is a necessity for the protection of human rights and for addressing or mitigating problems related to climate change, access to energy, and clean air and environmental conditions. On the other hand, it may itself generate risks, such as the potential increase in energy poverty, exploitation, and environmental degradation. At the international level, human rights function as a normative reference point for the formulation of climate policies. However, states remain the primary actors responsible for balancing climate objectives, security considerations, and the protection of human rights.
- 3) The key challenges to the protection of human rights in the era of the energy transition still include the inadequacy of legal frameworks to address new types of risks associated with the transition, developmental and resource disparities between states and regions, the lack of coherence in international climate policy, and intensifying geopolitical competition, which hinders international cooperation in the fields of climate action and just transition and increases the risk of the emergence of “spheres of influence” and, consequently, the resource exploitation of poorer states.

SUMMARY

Human rights and the energy transition: challenges, prospects, and the importance of a just transition

The energy transition is a dynamic socio-economic process leading to far-reaching changes towards a circular economy, aimed at slowing down anthropogenic climate change and environmental degradation resulting from the industrial history of humanity. Despite its liberal character,

with the overarching goal of improving the living conditions of people and future generations in accordance with the principles of sustainable development, the energy transition also entails a number of challenges for the protection of human rights. The growing industry related to low-emission technologies, particularly in the countries of the Global South, is already contributing to gross violations of fundamental human rights, exacerbating existing inequalities. The purpose of this article is to examine the relationship between the energy transition process and the protection of human rights, taking into account the concept of a just energy transition, which focuses on respect for human dignity and on fair and ethical access to resources.

Keywords: energy transition; global warming; energy and climate policy; human rights; just energy transition

STRESZCZENIE

Prawa człowieka a transformacja energetyczna: wyzwania, perspektywy i znaczenie sprawiedliwej transformacji

Transformacja energetyczna jest dynamicznym procesem społeczno-gospodarczym, prowadzącym do daleko idących zmian w kierunku gospodarki obiegu zamkniętego, którego celem jest spowolnienie antropogenicznych zmian klimatycznych oraz degradacji środowiska, będących efektem industrialnych dziejów ludzkości. Transformacja energetyczna, pomimo swojego liberalnego charakteru, mającego za nadrzędny cel poprawę warunków życia ludzi i przyszłych pokoleń w zgodzie z zasadami zrównoważonego rozwoju, implikuje również szereg wyzwań dla ochrony praw człowieka. Rosnący przemysł związany z technologiami niskoemisyjnymi, szczególnie w państwach Globalnego Południa, już dziś przyczynia się do rażącego łamania podstawowych praw człowieka i pogłębiania dotychczasowych nierówności. Celem artykułu jest zbadanie relacji pomiędzy procesem transformacji energetycznej a ochroną praw człowieka, z uwzględnieniem koncepcji sprawiedliwej transformacji energetycznej, która w centrum uwagi stawia poszanowanie godności ludzkiej oraz sprawiedliwy i etyczny dostęp do surowców.

Słowa kluczowe: transformacja energetyczna; globalne ocieplenie; polityka energetyczno-klimatyczna; prawa człowieka; sprawiedliwa transformacja energetyczna

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