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Socioeconomic and Security Challenges to Climate Change Policy in Britain

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The United Kingdom remains one of the leaders in climate change policy in Europe and globally. The green transformation reached consensus among all major political parties and enjoys broad public support. Despite these favourable conditions, the public debate related to it has been revealing strong tensions over the costs, scale, and pace. In recent months, this debate has significantly deepened in the security dimension. Russia's aggression towards Ukraine has placed the issues of control over critical infrastructure, self-sufficiency, and security of energy supplies at the centre of the British climate debate. For these reasons, the UK is an interesting case study highlighting the challenges for the climate transformation in Poland.

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Britain as a Precursor of Climate Policy in Europe

The UK has been a leader of all the energy transformations since early modernity in Europe, from the first industrial revolution (coal and steam in the 18th and 19th centuries), through the shift to oil (in the early 20th century), then in the use of nuclear energy (mid-20th century), to replacing coal with natural gas (1980s). The beginnings of the current transformation are related to the desire to protect public health. The Clean Air Act of 1956 eliminated coal stoves as a source of individual heating in cities to combat smog.¹ At the turn of the 21st century, the climate transformation entered the mainstream of British politics in the context of environmental protection and as a global challenge. Despite the traditional reliance on the support of trade unions in industry, the Labour governments of Tony Blair and Gordon Brown, who were working to create an image of the UK as a leader in globalisation, saw the potential of the green economy. A similar evolution took place in the Conservative Party under the leadership of David Cameron, which was symbolised by its adoption of a green tree logo.²

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In 2008, the UK became the first country in the world to set legally binding targets for reducing greenhouse gas (GHG) emissions, adopting them in the Climate Change Act 2008 (CCA), which in general enjoyed cross-party support³. This act embedded in law a plan to reduce CO2 emissions by at least 34% by 2020 as compared to the 1990 levels and by at least 80% by 2050.⁴ Notably, in the European Union, a comparable scheme only aimed to reduce these emissions by 20% by 2020. The consensus around the ambitious climate programme was facilitated by the British economy's domination by the service sector and its permanent deficit in the trade of goods.⁵

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After 2016, an important factor modifying the original assumptions of the CCA was the withdrawal of the UK from the European Union (Brexit)⁶, which was implemented in two stages in 2016-20. Essentially, Brexit broadened the UK's freedom to choose regulatory and economic instruments for implementing the transformation. In November 2016, the UK ratified the Paris Climate Agreement, and in December 2020 it announced its Nationally Determined Contribution in the form of reducing GHG emissions in the entire economy by at least 68% by 2030 as compared to 1990. On 1 January 2020, the UK implemented a National Emissions Trading System in place of the EU's European Trading System.⁷

¹ *Clean Air Act 1956*, The Health Foundation, <https://navigator.health.org.uk>. M. Parker, *Thatcherism and the Fall of Coal: Politics and Economics of UK Coal, 1979-2000*, Oxford Institute for Energy Studies, Oxford University Press 2000.

² D. Cameron, *For the Record*, William Collins UK, London 2019.

³ A. Gawlikowska-Fyk, "The United Kingdom: A Centrally Designed Clean Economy," *PISM Bulletin*, no. 84 (1157), 27 June 2018, www.pism.pl.

⁴ *Climate Change Act 2008*, <https://www.legislation.gov.uk/>.

⁵ In the years 2010-2020, the share of services in British GDP amounted to about 71-72%, while industry was around 17-19%. For comparison, in Germany and Poland the share of industrial production was about 27% and 27-29%, respectively. "United Kingdom: Distribution of gross domestic product (GDP) across economic sectors from 2010 to 2020," www.statista.com. Between 2008 and 2019, the UK had a steady trade deficit in goods of up to £7 billion in goods. Influenced by Brexit and the COVID-19 pandemic in 2019-21, it temporarily turned into a trade surplus of up to £8 billion. ONS, "UK trade time series (MRET)," www.ons.gov.uk.

⁶ P. Biskup, "The End of the Beginning? EU-UK Relations 100 Days after Brexit," *PISM Strategic File*, no 3 (95), 27 April 2021, www.pism.pl.

⁷ "UK Emissions Trading Scheme markets," Department for Business, Energy & Industrial Strategy, 22 October 2021, www.gov.uk; "UK ratifies the Paris Agreement, UK ratifies the Paris Agreement," Department for Business, Energy & Industrial Strategy, 18 November 2016, www.gov.uk; "The UK's Nationally Determined Contribution under the Paris Agreement," Department for Business, Energy & Industrial Strategy, 12 December 2020, www.gov.uk.

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Climate Transformation as Key to Industrial Policy

The transformation was favoured by the industrial strategy adopted in 2017 by Theresa May's government.⁸ Despite important differences in the programmes of May and her successor Boris Johnson, especially on the central issue of Brexit, her climate strategy was maintained in 2019. However, it has been undergoing comprehensive revision in the context of the post-COVID 19-

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pandemic economic recovery needs. The strategy interpreted the transformation as an opportunity to strengthen industry and gain an advantage in foreign markets. The UK government predicted that low-carbon sectors in 2015-2030 could grow by 11% per year⁹, four times faster than the rest of the economy. Re-industrialisation based on emerging technologies was also important from the point of view of the hard-to-sustain sectoral structure (dominance of

services, especially financial, at the expense of industrial production) and geographical context (dominance of South-East of England) in the British economy, which were key socioeconomic causes of Brexit.¹⁰

The strategy was based on support from the British government for branches of the economy that would allow them to produce high added-value while reducing emissions, as well as having high export potential. In 2017, it was assumed that UK export revenues could increase by £60-170 billion by 2030¹¹, creating an opportunity to eliminate the trade deficit and even create a trade surplus. It was assumed this goal would be achieved by, among others, the use of the excellent British scientific and research base. The following sectors were identified as future-oriented sectors: medical, pharmaceutical, genetic engineering, agrotechnology, energy (including the development of hydrogen as a zero-emission fuel), digital, and transport.¹² In the field of climate transformation, limiting the risk of excessive intervention and picking winners was achieved by setting the overarching goal of UK climate policy (i.e., reducing GHG emissions) whilst leaving the largest possible area of influence to market mechanisms.

The central role in British economic growth ascribed to clean technologies justified the government's involvement not only in creating regulations stimulating their development but also in partial financing. Visible successes were achieved in the field of offshore wind energy generation, where in 2009-2020 the amount of produced energy increased seven times, and some 10,000 jobs were created. This gave Britain the position of a world leader in terms of production volume.¹³ Another area of implementing the strategy in the field of energy policy was the creation of a public-private

⁸ "Industrial Strategy: Building a Britain Fit for the Future," Department for Business, Energy & Industrial Strategy, 27 November 2017 (last updated: 28 June 2018), www.gov.uk.

⁹ A. Gawlikowska-Fyk, "The United Kingdom...," *op. cit.*

¹⁰ Electoral preferences in 2016, 2019, and 2021 strongly corresponded with the availability of attractive jobs in the service sector in the south of England and in other metropolitan centres (especially financial) vs. a lack of jobs for skilled workers in post-industrial centres in central and northern England and south Wales. P. Biskup, "British Party System and the Brexit Negotiations," *PISM Bulletin*, no 114 (1054) 22 November 2017, www.pism.pl. P. Biskup, "Decisive Victory for the Conservatives in the 2019 UK General Election," *PISM Spotlight*, no 69/2019, www.pism.pl. P. Biskup, "Labour's Electoral Underperformance Opens the Way for a New Scottish Independence Campaign," *PISM Spotlight*, no 41/2021, www.pism.pl.

¹¹ A. Gawlikowska-Fyk, "The United Kingdom...," *op. cit.*

¹² G. Freeman, "The industrial strategy reforms I led helped to deliver Britain's vaccine success. Now for the next phase," *The Conservative Home*, 1 February 2022, www.conservativehome.com.

¹³ G.N. Thomas, "Wind energy in the UK: June 2021," 14 June 2021, www.ons.gov.uk; D. Broom, "These 3 countries are global offshore wind powerhouses," World Economic Forum, 24 Apr 2019, www.weforum.org.

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industrial partnership coordinated by Rolls-Royce for the design and construction of small modular nuclear reactors (SMRs).¹⁴

In the power sector, the most advanced in decarbonisation, the implementation of the strategy has resulted in a faster increase than assumed in the share of renewable energy and imported energy (especially from nuclear power plants in France), at the cost of lower consumption of natural gas than projected.¹⁵ Despite the decline in domestic production of gas, the changes in the energy mix have allowed the UK to maintain self-sufficiency in supply at around 50% between 2016 and 2021.¹⁶

The 2017 strategy document devoted a lot of space to electromobility. At that time, there were just over 100,000 electric vehicles on British roads. However, with the introduction of a ban on the sale of new vehicles powered solely by internal combustion engines from 2040,¹⁷ the number of electric and hybrid vehicles on British roads increased to 175,000 in 2020, while monthly sales of electric and plug-in hybrid vehicles reached 33,000 in 2021.¹⁸ As a result of these changes, the UK has become the third-largest market in Europe for electric and hybrid vehicles. Nevertheless, the further development of electromobility faces a barrier in the form of infrastructure (lack of charging stations and transmission networks).

The EU-UK Trade and Cooperation Agreement (TCA), ratified in 2021, generally made the climate transformation in the UK independent of the regulations and decisions of EU bodies (e.g., the Court of Justice of the EU)¹⁹, including on energy taxation and the EU energy taxonomy²⁰. On the other hand, the TCA consolidated many links and areas of coordination of the British transformation with EU policies, such as state-aid rules. During the negotiations, the British side paid great attention to the issue of rules of origin for batteries and other key components of electric vehicles to secure the export of such cars to the EU market in the future. The TCA also exempted trade in gas, electricity, and equipment for the vehicles' production from customs duties and quantitative restrictions.²¹ Moreover, the agreement was supplemented by another one between the UK and the European Atomic Energy Community on the peaceful use of nuclear energy.²²

The EU-UK Trade and Cooperation Agreement (TCA), ratified in 2021, generally made the climate transformation in the UK independent of the regulations and decisions of EU bodies.

¹⁴ A. Tovey, "Small nuclear reactors may become Rolls-Royce's biggest business," 5 August 2021, www.telegraph.co.uk. The most publicised success of the 2017 strategy to date has been to lay the industrial and research foundations for the successful implementation of an independent national COVID-19 vaccine programme. P. Biskup, "Labour's Electoral Underperformance Opens the Way for a New Scottish Independence Campaign," *PISM Policy Paper*, no 12 (198), June 2021, www.pism.pl.

¹⁵ In the British electricity sector in 2013-18, the share of renewable energy sources increased from 11% to 28% and the share of coal decreased from 40% to 7%.

¹⁶ S. Trotman, A. Mettrick, "Diversity and security of gas supply in Europe, 2020," Department for Business, Energy & Industrial Strategy, *Energy Trends* (series), 23 December 2021, <https://assets.publishing.service.gov.uk/>.

¹⁷ In 2021, it was accelerated to 2030 by the Johnson government. "UK bans sale of pure combustion engines from 2030," 18 November 2020, www.electrive.com.

¹⁸ Statista, "Sales volume of plug-in electric vehicles in selected European countries in 2020," and "Sales volume of plug-in electric vehicles in selected European countries in 2020," February 2021, www.statista.com.

¹⁹ P. Biskup, "The End of the Beginning?..." *op. cit.*

²⁰ Z. Nowak, "The EU's Plans to Reduce Methane Emissions in the Energy Sector," *PISM Bulletin*, no. 177 (1873), 11 October 2021, www.pism.pl.

²¹ S. Goldberg, C. Davis, "Key TCA issues for the energy sector," Herbert Smith Freehills, 19 January 2021, <https://hsfnotes.com>.

²² *Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the European Atomic Energy Community for Cooperation on the Safe and Peaceful Uses of Nuclear Energy*, 24 December 2021, www.gov.uk.

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The Challenge of Mitigating the Economic and Social Costs of Climate Change

Despite the consensus among the political parties, the debate about the costs of the green transformation have led to growing politicisation of the issue. The formation of the climate change consensus within the British political elite resulted in significant support for this process on the part

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of citizens, which in turn resulted in majority support for the withdrawal of fossil fuels from the energy mix, investment in the development of the necessary infrastructure, and the general development of electromobility.²³ However, the 2019 general election, while confirming the overall direction of the climate transformation, also revealed a tendency to politicise the issue over the pace, model, and tools of its implementation.

The attitude of society to the green transformation is shaped by a series of socioeconomic variables that could divide the UK on this issue into two relatively coherent electoral blocs with opposing interests. Support for the most ambitious transformation goals is highest among people under 30 who live in large urban centres and have middle or higher incomes. In turn, the lowest support for the transformation is seen among the population in medium-sized cities and many rural areas, people over age 50, and among those with lower incomes.²⁴

The most comprehensive research so far on the attitude of British society to climate policy, entitled “Climate Consensus”, published before last year’s COP 26 summit in Glasgow, complete this picture by highlighting the importance of reasonable economic costs in keeping high support for the green transformation. For example, limited restrictions on the rules of car use (including lower speed limits) were supported by 80% of the respondents, while more serious ones (e.g., fees for driving within city congestion areas) were accepted by only 40% of the public. Support for the construction of a national electric car charging network by 2028 was 91%, while an accelerated version of this project, at the expense of higher fees, by 2026 was accepted by only 35% of respondents.²⁵ It is also worth paying attention to a similar phenomenon concerning issues strongly related to the lifestyles and values of citizens. For example, support for the promotion of voluntarily limiting the consumption of red meat and dairy by citizens was 93%, but the introduction of a 25% tax for this purpose was backed by only 25% of respondents. Likewise, the introduction of additional frequent-flyer charges was supported by 89% of respondents, while additional charges for all passengers were supported by only 41% of those polled. These issues have been steadily gaining importance since the beginning of 2022, due at first to inflation driven by the pandemic-period aid programmes, and then from February to the effects of the sanctions against Russia triggered by its attack on Ukraine. Importantly, in May the costs of living in the UK hit a record high after World War II and have continued to rise.²⁶

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²³ YouGov, “Renewable UK Survey Results,” 7 June 2018, and “YouGov / NEA Survey Results,” 30 November 2021, www.yougov.com.

²⁴ YouGov, “COP26 Main Release,” 30 September 2021, www.yougov.com.

²⁵ “The Climate Consensus: The Public’s Views on How to Cut Emissions: Results from the Climate Calculator,” Demos, September 2021, p. 14-17, <https://demos.co.uk/>.

²⁶ J. Cable, “UK cost of living crisis to peak later this year, BoE to press on with rate rises,” 18 May 2022, www.reuters.com.

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per year in the period 2009-2019²⁷) has led to the exhaustion of relatively easy fields of transformation (“low-hanging fruit”), where significant effects could be obtained at a relatively low social cost.²⁸ Currently, actions under the CCA and the 2017 industrial strategy are focused on sectors such as construction and agriculture, which directly affect the interests of many citizens and where it is more difficult and more expensive to reduce emissions.²⁹

This mechanism is illustrated by the energy transformation in housing. For historical reasons, a significant proportion of Britain’s housing stock is not energy efficient.³⁰ Achieving the overall goals of the energy transition requires a reduction of emissions generated by households in the UK of at least 25%. Consequently, in 2019 major³¹ investments were still required in at least 20% of the 29 million households, while more limited investments were necessary in around 80% of them, and only 1% of them met the energy target.³² Moreover, while the regulations introduced in 2003 increased threefold on average the energy efficiency of new buildings compared to older ones, in 2019 these standards were found to be too low to meet the goal of climate neutrality and are being revised.³³

Consequently, massive investment in insulation, heating, and heat-recovery systems for residential buildings will be required in the UK soon. They can be co-financed under the Green Deal Programme from public funds and by the owners (with up to 75% co-financing).³⁴ Nevertheless, the transformation in housing will burden the family budgets of most Britons to the tune of several hundred to many thousands of pounds a year. The issue of energy poverty —affecting more than 3 million households in England alone—has meant that high energy prices have been a politically inflammatory component of household budgets for several years now.³⁵ Initially, the rises resulted from subsidies for renewable energy production, but now they mainly stem from the costs of maintaining reserve electricity generation capacity based on coal and gas when renewable energy is lacking and to compensate for the instability in gas prices.³⁶ In response to these rising costs, the UK government introduced on 1 April a 5-year period of zero-percent VAT on renewable energy and energy producing-equipment, such as heat pumps (in the EU, the corresponding minimum rate is 5%).³⁷

²⁷ BP, “Statistical Review of World Energy 2021,” www.bp.com.

²⁸ In 2005-2019, CO₂ emissions for the UK decreased by 36% compared to the 20% assumed in the CCA, while for the Northeast England region, by as much as 56%. “UK local authority and regional carbon dioxide emissions national statistics: 2005 to 2019,” Department for Business, Energy & Industrial Strategy, 24 June 2021 (last updated 5 August 2021), www.gov.uk.

²⁹ YouGov, “COP26 Main Release,” *op. cit.*

³⁰ Among others, due to the very high percentage of historic buildings and those that are more than a hundred years old or have traditional designs including straight chimneys that allow the rapid escape of heated air. Single-pane glazing is also common.

³¹ That is, over €10,000 per household.

³² “UK housing: Fit for the future?,” Committee on Climate Change, February 2019, www.theccc.org.uk.

³³ B. Horton, “Sustainable homes—the financial and environmental benefits,” Environment Agency Science Report SC040050/SR, June 2005, <https://assets.publishing.service.gov.uk/>.

³⁴ “The ten-point plan for a green industrial revolution,” Department for Business, Energy & Industrial Strategy, 18 November 2020, www.gov.uk.

³⁵ N. Newson, R. Taylor, “Rising energy costs: the impact on households, pensioners and those on low incomes,” House of Lords, 31 December 2021, <https://lordslibrary.parliament.uk/>.

³⁶ It is worth noting the increase in electricity tariffs by the Ofgem regulator. Consumer accounts have been expected to increase from the beginning of the new billing period in April this year by some 50% on average, depending on the region. In view of the unstable energy-commodity prices, British network operators have been promoting the introduction of radio meters that allow real-time billing. C. Taylor, “UK energy bills to rise by over 50% in April as regulator announces hike,” CNBC, 4 February 2022, www.cnn.com. W. Kirkman, “Energy price cap to hit £2,800 in October—what it means for you in 2022,” *The Telegraph*, 29 May 2022, www.telegraph.co.uk.

³⁷ “Zero VAT on renewables announced in Spring Statement today,” 23 March 2022, www.mcscertified.com. *The Value Added Tax (Installation of Energy-Saving Materials) Order 2022*, HM Revenue and Customs, 23 March 2022, www.gov.uk.

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Similarly, the issue of the transformation in transport has been politically heated. In metropolitan areas, transport has been largely electrified for decades (e.g., railways, the Underground, and trams) and the population density has been favourable to the development of electromobility too (short trips, easy access to charging stations). However, outside these centres, the reduced availability of public transport and the resulting dependence on private vehicles has been bringing to the fore the issues of access to the electromobility infrastructure and the costs of its daily operation.

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The surge in public debt to GBP 2.4 trillion, the highest inflation and taxation levels in the last 30 years, and the rising costs of living and doing business are reinforcing in the public debate voices opposing the government's ambitious climate-policy goals.³⁸ Importantly, the critics are strong in Johnson's political base.³⁹ On the other hand, left-

wing environmental groups are calling for more ambitious targets in terms of the pace of achieving emission reductions.⁴⁰ Until the outbreak of the pandemic, Conservatives promoted transformation based on market regulation and selective public investment, including public-private partnerships, with a general desire to minimise public spending. The left-wing opposition, in turn, supported the intervention model, combining extensive market regulation with an extensive programme of public investment, especially in transport and energy infrastructure.

The impact of the pandemic⁴¹, which is still difficult to fully estimate, has been that the Johnson government borrowed many instruments from the interventionist model, despite the scepticism in his own parliamentary backing. This resulted from the necessity for the Treasury to meet far-reaching financial obligations to provide public aid to many sectors of the economy (e.g., aviation) and, when needed, effective nationalisation (e.g., railways). This has fundamentally lowered the psychological barriers to the use of similar instruments for the purpose of the green transformation. The pandemic has also exposed problems with access to housing in metropolitan centres, especially in London, increasing the pressure to create new jobs and investment in the Midlands, Northern England, South Wales, and Scotland's Central Belt.

In response to these pressures, revision of the 2017 industrial strategy was launched last year. It was intended to achieve several, parallel goals. First, it was to strengthen the chances of a successful COP26 summit in Glasgow in November 2021 hosted by the UK⁴². In this respect, it was complemented by the British government's adoption of goals going beyond the commitments in the CCA, in particular the achievement of climate neutrality by the UK by 2050. Second, they wanted to promote the transformation through post-pandemic economic reconstruction ("build back better"). The UK government intended that such an approach would serve the interests of Conservative Party voters recruited in 2019 at the expense of the Labour Party. Third, the revision was to harmonise the green transformation with the new global strategy announced in March 2021⁴³. The Integrated Review identified climate change as one of the key threats to UK security. At the same time, it

³⁸ G. Wearden, "UK inflation hits 30-year high; house prices at record," *The Guardian*, 16 February 2022, www.theguardian.com; T. Pettinger, "UK National Debt," 26 March 2022, www.economicshelp.org.

³⁹ C. Gill, "How likely is a referendum on Net Zero?," *The Conservative Home*, 29 October 2021, www.conservativehome.com; H. Phibbs, "What the Conservative Home panel of party members thinks about Net Zero and climate change," *The Conservative Home*, 1 November 2021, www.conservativehome.com.

⁴⁰ P. Inman, "What could be fairer than a tax on oil and gas's North Sea winnings?" *The Guardian*, 12 February 2022, www.theguardian.com.

⁴¹ P. Biskup, "COP26 - A Steep Climb but Forward," *PISM Spotlight*, no 87/2021, 18 November 2021, www.pism.pl.

⁴² Z. Nowak, "The EU's Plans to Reduce Methane Emissions in the Energy Sector," *PISM Bulletin*, no. 177 (1873), 11 October 2021, www.pism.pl.

⁴³ P. Biskup, "Pivot from Europe to the Indo-Pacific in the New British Global Strategy," *PISM Spotlight*, no 24/2021, 18 March 2021, www.pism.pl.

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described the climate transformation as an opportunity in terms of R&D on new technologies, their export, and in international development policy. Consequently, the green transition was characterised as an instrument for the pursuit of the UK's foreign interests.⁴⁴

Security First!

Until recently, the British climate debate had devoted relatively little attention to security issues, but in the last few months there has been a profound change in this regard. First, as a consequence of challenges in foreign policy, especially the revaluation of China's role in the international system in 2020-21, Brexit, the pandemic, and Russia's aggressive policy on the gas market at the end of last year, followed by its invasion of Ukraine on 24 February. These issues not only increased the importance of military security in UK foreign policy but also made British politicians and society aware of the importance of internal resilience to crises arising abroad, including those affecting the supply of energy resources and electricity. Although in the British debate competing approaches to the securitisation of the climate transformation have been presented, without doubt security issues gained prominence.⁴⁵

Until recently, the British climate debate had devoted relatively little attention to security issues, but in the last few months there has been a profound change in this regard.

The implementation of the climate transformation has become more complicated in the last two years. In July 2020, the UK authorities excluded Chinese entities from investing in nuclear and 5G infrastructure as a result of a conflict concerning changes in the status of Hong Kong⁴⁶ and the situation in Xinjiang⁴⁷, as well as the U.S.-China rivalry⁴⁸. At the same time, relations with France deteriorated. Notably, France repeatedly threatened to cut off electricity supplies to the Channel Islands and the UK during disputes over access of its ships to British fishing grounds after Brexit.⁴⁹ In the last weeks of 2021 there was also speculation in natural gas prices on the European market⁵⁰, actively reinforced by Russian Gazprom, which threatened the stability of the British energy market and called into question the role of this fuel in it.⁵¹

The result of these experiences was the emergence of revised aims in the energy strategy. These included, first, the stabilisation of energy prices (and their future reduction) to maintain public support for the transformation, second, limiting investment in the energy (and other critical) infrastructure of countries with conflicting interests to those of Britain, and, third, increasing the

⁴⁴ "Global Britain in a Competitive Age: The Integrated Review of Security, Defence, Development and Foreign Policy," Cabinet Office, 16 March 2021 (last updated 2 July 2021), www.gov.uk.

⁴⁵ See: C. Moffatt, "The Net Zero target may not be possible, and gas should bridge the generation gap," *The Conservative Home*, 29 September 2021; H. Smith, "Net zero efforts can protect the UK against Putin's greatest weapon," *The Conservative Home*, 28 January 2022; P. Franklin, "An energy crisis is no excuse to go slow on Net Zero," *The Conservative Home*, 14 February 2022, www.conservativehome.com.

⁴⁶ M. Przychodniak, "Consequences of Hong Kong's National Security Law," *PISM Bulletin*, no 165 (1595), 7 August 2020, www.pism.pl.

⁴⁷ M. Przychodniak, "The Impact of the Repression in Xinjiang on China's Relations with Other Countries," *PISM Bulletin*, no 85 (1781), 22 April 2021, www.pism.pl.

⁴⁸ Among others, Chinese investors were excluded from the expansion of the Sizewell nuclear power plant after the controversial extension of the role of the China General Nuclear Power Group from investor to co-contractor of the power plant built by the Électricité de France consortium at Hinkley Point. P. Biskup, "Polityka brytyjska w 2020 r.—główne wyzwania i trendy," in: *Polityka w cieniu COVID-19. Raporty polityczne ze świata. 2020*, K.W. Olszowska (ed.), Centre for Political Thought (Ośrodek Myśli Politycznej), Kraków 2020.

⁴⁹ "France threatens to cut off UK's energy again in new fishing row," *Sky News*, 6 October 2021, <https://news.sky.com>.

⁵⁰ M. Zaniewicz, Z. Nowak, "Russia's Role in the European Gas Crisis," *PISM Bulletin*, no 186 (1882), 5 November 2021, www.pism.pl.

⁵¹ A. Evans-Pritchard, "Europe's energy crisis is fast turning into a political and strategic disaster," *The Telegraph*, 21 December 2021, www.telegraph.co.uk.

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degree of self-sufficiency and diversification in the supply of energy resources and electricity. The point of reference for the last of these three challenges was the fact that since the adoption of the CCA, the share of imported energy resources in British consumption has increased from 26% to 35% (topping out at about 48% in 2013) while electricity imports have tripled (mainly from France, from 7 GWh to about 23 GWh).⁵²

In light of the public debate at the turn of 2021-22, it seemed that the future British energy mix would be based on offshore wind farms and nuclear energy, and in the short term on domestic production of hydrocarbons as transition fuels.⁵³ This was indicated by the announcements from February this year concerning the licensing of six new North Sea oil and gas fields and opening a debate on ending the 2019 moratorium on shale gas production in Lancashire.⁵⁴ Moreover, even before Russia's invasion of Ukraine, the UK adopted a course of giving up Russian energy supplies, which after the outbreak of fighting was confirmed by sanctions excluding the import of Russian oil.⁵⁵ Crises in the last year also highlighted the need to reverse the negative effects of the Cameron government's privatisation of the gas storage system, which led to limiting its capacity to 2% of annual consumption (while the European average exceeds 20%).⁵⁶

The nuclear sector model based on large investments, burdened by politics, delays, and uncontrolled increases in costs, was also subject to revaluation.⁵⁷ British SMRs⁵⁸ were considered as a new element of the mix and the development of which was contracted by the British government to a consortium led by Rolls-Royce in June last year.⁵⁹ These changes were to make it possible to limit electricity imports, both in response to the problems of the French electricity sector⁶⁰ and in pursuit of energy independence. An important component of the calculation was the Franco-British (and, consequently, EU-British) dispute over the interpretation of the TCA. Although currently the UK is a net importer of energy from the EU, thanks to the expansion of British offshore wind farms it should ultimately become a net exporter to the EU.⁶¹ However, the necessary interconnection of national energy networks came to be seen in the UK as a risk factor due to the disputes with France. A manifestation of such calculations may be the January decision of the UK government to reject the application for the construction of a new electricity bridge with France.⁶²

⁵² Statista: "Electricity imports in the United Kingdom (UK) from 2000 to 2020," July 2021, and "Dependency rate on energy imports in the United Kingdom (UK) from 2008 to 2018," April 2020, www.statista.com.

⁵³ "2020 UK oil and gas reserves and resources report," North Sea Transition Authority, 22 September 2021, www.nstauthority.co.uk.

⁵⁴ N. Badshah, "Drive for more oil and gas drilling in the North Sea," *The Times*, 8 February 2022, www.thetimes.co.uk; H. Hill, "Fracking may not be popular, but a proper debate about our energy sector is worth having," *The Conservative Home*, 15 February 2022, www.conservativehome.com; H. Phibbs, "Fracking? Let the Lancastrians decide," *The Conservative Home*, 4 January 2022, www.conservativehome.com.

⁵⁵ A. Bartkiewicz, "Johnson wzywa kraje Europy, by 'usunęły Nord Stream z krwioobiegu'," *Rzeczpospolita*, 14 February 2022, www.rp.pl.

⁵⁶ P. Bindman, "How the UK's low gas storage capacity leaves it vulnerable," *New Statesman*, 27 September 2021 (updated 4 April 2022), www.newstatesman.com; O. Gill, "Britain to import 70pc of gas as North Sea reserves run dry," *The Telegraph*, 10 February 2022, www.telegraph.co.uk.

⁵⁷ A. Evans-Pritchard for *The Telegraph*: "Britain should go hell-bent for North Sea gas and wind," 13 January 2022, and "France's nuclear meltdown has big implications for Britain," 18 January 2022, www.telegraph.co.uk.

⁵⁸ B. Bielszczuk, Z. Nowak, "Prospects for the Global Development of Small Modular Reactors," *PISM Bulletin*, no 110 (1806), 7 June 2021, www.pism.pl.

⁵⁹ A. Tovey, "Small nuclear reactors may become Rolls-Royce's biggest business," 5 August 2021, www.telegraph.co.uk.

⁶⁰ Ł. Maślanka, "The Energy Crisis in France," *PISM Bulletin*, no 32 (1949), 18 February 2022, www.pism.pl.

⁶¹ J. Ambrose, "Cross-channel power link for 1m British homes opens," 22 January 2022, *The Guardian*, www.theguardian.com.

⁶² P. Biskup, "Polityka brytyjska w 2020 r.," *op. cit.*; G. Greenwood, S. Swinford, "Connecting Britain and France's power grids a risk to energy security," *The Times*, 18 January 2022, www.thetimes.co.uk; C. Kennedy, "Planning permission refused for £1.2bn UK-France interconnector," *New Civil Engineer*, 20 January 2022, www.newcivilengineer.com.

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The discussed assumptions were operationalised in the new energy security strategy⁶³ announced on 7 April. The British government declared the expansion of electricity production in eight large nuclear power plants and a network of SMRs up to 24 GW by 2050. As old-generation reactors are systematically decommissioned and only one of them will remain operational until 2035, it will be necessary to accelerate the pace and scale of new investment in this field. The document also provides for an increase in offshore wind energy production to 50 GW by 2035. Notably, this value exceeds the current average electricity consumption in the UK. The strategy also promises to search for oil and gas deposits in the North Sea and to strive to increase the number of solar farms.

Assumptions were operationalised in the new energy security strategy announced on 7 April.

While this strategy relatively clearly defines methods of strengthening the broadly understood energy security, it leaves the problem of reducing the costs of the green transformation for citizens in the short to medium term unanswered. In this respect, the document seems to reflect the divergent interests and visions within the ruling Conservative Party and a lowest-common-denominator compromise.

In the strategy announced on 7 April, there are no declarations on co-financing the modernisation and insulation of buildings as the fastest way to reduce energy demand and at the same time an important socioeconomic issue. Due to the high budget deficit, the Treasury opposed a £200 million programme to help low-income families to insulate their homes. The strategy also ignores the issue of building wind turbines and extracting gas from onshore deposits due to the controversial nature of building necessary installations in rural areas represented by Conservative MPs.⁶⁴ In this regard, the document did not consider the change in preferences of British public opinion after the Russian invasion of Ukraine, in which they seem to support the lifting of the moratorium on the exploitation of shale deposits and on onshore wind turbines.⁶⁵

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The Role of the Green Transformation in Devolved Politics

The implementation of the green transformation in Britain may be hampered by the different priorities of the autonomous authorities of Scotland, Wales, and Northern Ireland. The constituent parts of the UK, which undergo systematically developing decentralisation (devolution)⁶⁶, see the green transformation as one of the keys to their economic future. The rivalry between the political parties forming the central and devolved authorities concerns in particular planning powers in the field of the development of renewable energy installations, the future of the nuclear industry, as well as the distribution of subsidies and revenues from carbon taxes and other public levies.⁶⁷

⁶³ *British energy security strategy*, Department for Business, Energy & Industrial Strategy, 7 April 2022, www.gov.uk.

⁶⁴ W. Atkinson, "The best energy strategy possible—in the absence of fracking and onshore wind," *The Conservative Home*, 8 April 2022, www.conservativehome.com.

⁶⁵ "Brits support an end to fracking ban," Net Zero Watch, 6 April 2022, www.netzerowatch.com; N. Earl, "Government slammed for failing to back onshore wind," *City AM*, 7 April 2022, www.cityam.com.

⁶⁶ P. Biskup, "Devolution in the UK and the Combined Challenges of Pandemic and Brexit," *PISM Bulletin*, no 15 (1711), 28 January 2021, www.pism.pl.

⁶⁷ V. Crosbie, "Nuclear is key to securing the UK's energy future," *The Conservative Home*, 10 February 2022, www.conservativehome.com.

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In the context of the nuclear sector, this rivalry also has a specific impact on security issues. From the point of view of not only the Tories but also Labour and the Liberal Democrats, this sector is

The nuclear issue, however, co-defines the dispute between parties supporting the British union and those backing Scottish independence.

necessary from the point of view of the UK's energy independence, as well as the needs of military programmes, which are key to maintaining the UK's global position. The civilian infrastructure provides co-financing of necessary training facilities and production of fissile materials for military applications. The nuclear issue, however, co-defines the dispute between parties supporting the British

union and those backing Scottish independence. The Scottish nationalists have traditionally advocated the denuclearisation of Scotland, and in particular the elimination of British military nuclear infrastructure located there⁶⁸. However, outside of Scotland there are no real alternative locations for it in the UK that would be able to provide uninterrupted operation of military nuclear infrastructure. This is particularly true in the case of nuclear submarines and installations for servicing their power plants and storing nuclear weapons.

The competition between the pro-independence coalition of the Scottish National Party (SNP) and the Scottish Greens and the unionist parties resulted in the SNP's shift from a position in favour of the extraction of oil and gas from deposits in the Scottish waters of the North Sea to its exclusion. The coalition's plan is to replace hydrocarbons with wind and tidal power plants.⁶⁹ Consequently, unionist parties—especially the Conservatives ruling in London—were relegated to positions of greater support for the British oil and gas industry concentrated in Scotland. Hence, the Scottish Tories found themselves at risk of adopting a position opposing the position of their government in London (i.e., planning to achieve climate neutrality by 2050). The last position was additionally undermined by the need to strengthen UK energy self-sufficiency after the Russian invasion of Ukraine.

Conclusions

The British model of climate transformation, especially considering the latest UK energy strategy and the country's interests with respect to Russia's aggression towards Ukraine, reveals many structural similarities to the Polish model. It is necessary to point out the central role of the nuclear sector assumed in both countries in the context of stabilisation of power obtained from renewable energy sources and ultimately the production of green hydrogen. The British experience and the new energy strategy show a need for the parallel development of a network of large nuclear units and SMRs. The former is supported by proven technology and ultimately low unit costs of electricity production, while the latter by the expected relatively low costs, speed, and flexibility of their construction. On the other hand, the weaknesses of the former are the delays and rising costs of large-scale investments, while for the latter it is the costs of technology development (hence the UK's quest for foreign investors).

The British model of climate transformation, especially considering the latest UK energy strategy and the country's interests with respect to Russia's aggression towards Ukraine, reveals many structural similarities to the Polish model.

⁶⁸ P. Biskup, "The Upcoming Scottish Parliamentary Elections and the Challenges of Brexit and the Pandemic," *PISM Bulletin*, no 253 (1683), 9 December 2020, www.pism.pl.

⁶⁹ H. Hill, "Energy policy is reserved for a reason, and the SNP should not be able to block new nuclear power plants," *The Conservative Home*, 17 February 2022, www.conservativehome.com.

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Although the nuclear technologies used in Poland and the UK will come from different sources, it is worth paying attention to the post-Brexit British solutions for the certification of these installations

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as well in the field of cybersecurity of smart energy networks and market regulation. For example, the mechanism described in Art. 29a of the ETS Directive and intended to protect the EU emissions-rights market from excessive fluctuations was based on the pre-Brexit UK proposals.

The UK also provides valuable insights into the social legitimacy of the climate transition. Since the early 2000s, the UK has developed and consolidated

a cross-party consensus to decarbonise the British economy, and individual governments have systematically adopted increasingly ambitious targets and deadlines, including the definition of an ambitious green transition in 2019 as one of Brexit's operational goals. Although such a high degree of consolidation of the British establishment around the climate transformation is a stark contrast to Poland, it does not prevent the build-up in the UK of socio-political tensions in terms of costs and the pace of change.

The new energy geography of the country (and as a result, revised economic landscape) and the impact of the transformation on the lifestyle of the British seem to be of key importance. Polling in the UK shows simultaneously high general support for the transformation's goals and a reluctance to bear the costs of it in one's personal life. In particular, there is no willingness to accept increased prices for energy, fuel, and transport (including air travel). In practice, this means the need to develop new critical infrastructure (e.g., charging stations for electric vehicles and additional transmission networks), as well as to create investment incentives in neglected post-industrial parts of the UK. From the point of view of the liberal and conservative sides of the political spectrum, a key limitation in this respect is also the ideological reluctance to large-scale public investments necessary to implement this programme within the assumed timeframe. The Tories are also faced with the problem of a proportionately higher cost of the green transformation on the lower-middle-class voters who are an important part of their present-day electorate and who are the least supportive of the transformation for ideological reasons.

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In British conditions, political and economic disputes over the transformation may take the place of the earlier debate on the attitude towards the European Union. The social groups involved in both disputes are similar. The COVID-19 pandemic has resulted in a high level of support for the "build back better" vision but is yet to be transformed into a mature strategy.⁷⁰ If this goal is not achieved in the coming years through next-generation industrialisation projects, then it is likely that the transformation will become a source of strong political polarisation, fundamentally undermining the possibility of achieving ambitious climate goals with high public support. In practice, this would mean a shift from the current political consensus and broad, but often shallow, social support for the green transformation towards the rise of two camps competing on the issues of support for and resisting climate change policy .

⁷⁰ "Levelling Up the United Kingdom," Department for Levelling Up, Housing and Communities, 2 February 2022, www.gov.uk.