Received: 31st May 2017

ANALYSIS OF THE EFFECTS OF BREXIT ON THE UK'S ABILITY TO ACHIEVE THE CLIMATE CHANGE ACT'S TARGET FOR 2030

Liam Marlow
Pedro Pablo Cardoso-Castro

ABSTRACT
Purpose: This paper evaluates the UK's departure from the European Union (EU) and how this will influence the emissions output.
Methodological approach: Relationships between emissions and empirical generalizations related to the UK's departure from the EU were detected through an extensive literature review adopting an inductive approach. The Delphi methodology was used to collect the opinions of experts via semi-structured interviews from where themes were identified with the use of Nvivo. Finally, a triangulation was made by synthesizing the qualitative data with the literature to determine the impacts of the UK's departure from the EU on emissions.
Findings: The work provides evidence that the UK's decision to leave the EU will have multiple detrimental long-term consequences for the achievability of the fifth carbon budget.
Research limitation: This study considers the opinion of a limited group of experts, and consequently, more in-depth research is required to better assess the wider range of variables and perspectives affecting the current decision-making process and policy related to the UK's environmental commitments
Originality and value: Under the current eclectic dynamic surrounding Brexit, a plethora of distorted empirical studies addressing its consequences have emerged. This work provides a comprehensive overview of a largely understudied set of opinions and an analysis of possible consequences Brexit poses. The paper opens a debate and invites new perspectives to be included in an increasingly neglected contemporary issue, and it contributes as a reference for the future discussion of environmental policy in the UK.
Keywords: collaboration, legislation, emissions, investment, climate change target 2030, sustainability
Research Paper

INTRODUCTION

Since the discussions on greenhouse emissions at the Rio Earth Summit 1992 and the confirmation that the largest share of those emissions was coming from Europe and North America (Friedrich and Damassa, 2014), an energetic global reaction was spawned, leading to the birth of the Kyoto Protocol, ratified in 1997: a legally binding treaty to reduce greenhouse emissions allowing groups of countries to meet their targets jointly (e.g. the European collaborative front to lower emissions).

The protocol originated a variety of European frameworks, such as the EU emissions trading scheme, the renewable energy directive, and the 2030 climate framework. To provide viability to those initiatives, the European commission supplied climate change funding from which the UK receives £3.5 billion annually for climate change adaption and a transition to a low carbon economy (FFT, 2016).

In addition to the European regulations, the UK decided to assume the leadership by

producing the legally binding 2008 climate change act (Hester and Harrison, 2015). The act's central premise was to reduce emissions by at least 80% in 2050 of the 1990 levels through carbon budgets, which are a cap on the amount of greenhouse gases emitted in the UK over a five-year period (CCC, 2017). The fifth carbon budget the UK set, for 2030, was to reduce emissions by 57% of the 1990 levels, and with the country currently on track to outperform the second and third carbon budgets, there is reason for optimism (Edie, 2016).

The UK and European states' collaborative approach has proven effective, with record low carbon emissions (Nelsen, 2015). However, this collaboration has become extremely complex as deep anxiety has been perceived about diminished national sovereignty from Britain within Europe (Chu, 2016), which had led the UK's government to a referendum which resulted in the public voting to leave the EU by a 52% to 48% margin (Electoral Commission, 2016).

Several studies have indicated this decision will deteriorate the collaborative projects with Europe (Wishart, 2016), while others suggest that the UK would do better in the long run on its own (Rieth, 2016). In this new context, few attempts have been made to understand the effects of Brexit for the UK's emissions, with the country seemingly unsure how to proceed once Article 50 is triggered, inducing uncertainty on whether Britain can achieve its fifth carbon budget.

Within this context, this exploratory study will examine whether the achievability of the fifth carbon budget has been affected by Brexit by looking at the key drivers that have been affected, which are legislation, collaboration, and economics. This means that the research is not intended to provide conclusive evidence, but helps us to have a better understanding of the problem (Saunders et al., 2016).

Regardless of the rising public awareness on climate change due to recent volatile weather patterns (Webb, 2016), few studies have been conducted to understand the impact of Brexit on emissions (Creagh, 2016). The current priority in the Brexit context is to strengthen the UK's global trade, leaving climate change behind. (May 2017, 2017b). With increasing divided opinions between those arguing that environmental management will be superior with local governance (Patterson, 2016) and those arguing that air pollution is one area that will become worse after Brexit (Keating, 2016), this study aims to understand how leaving the EU will affect the UK's ability to meet its 2030 emissions output target.

METHODOLOGY

To answer this question, an exploratory and interpretivist research approach was used (Soiferman, 2010; Saunders et al., 2016; Dudovskiy; 2012, 2015, 2015b), based on a critical literature review and involving the use of semi-structured face-to-face interviews (RWJF, 2008) with 10 recognized experts who work in the areas of environmental journalism, research institutes, politics, action groups, and writing (See Table 1). These experts were questioned on their assessment of how Brexit will potentially affect the UK's emissions output regarding collaboration, legislation, and economics.

Table 1

List of experts, affiliation, and Brexit stance

Name	Speciality	Institute	Brexit Stance
Expert 1	Environmental Conservationist	Independent	Remain
Expert 2	Environmental Policy Analyst	Independent	Leave
Expert 3	Senior Ecologist Consultant	Independent	Leave
Expert 4	Investigative Environmental Reporter	DeSmog UK	Remain
Expert 5	Climate Change Analyst	Climate Home	Remain
Expert 6	Pro-Brexit Campaign Group Manager	GBO	Leave
Expert 7	Leading Environmental Consultant	Independent	Remain
Expert 8	Member of the European Parliament	Labour MEP	Remain
Expert 9	Sustainability Researcher	Schumacher Institute	Remain
Expert 10	Global Affairs Editor	Independent	Leave

Through the application of a grounded theory method (Johnson and John, 2000; Charmaz and Bryant, 2007; Gibbs, 2007; Walsh et al., 2015), the results were analysed adopting a thematic analysis approach to produce a thick description that acknowledges areas of conflict and contradiction. This procedure identified emerging patterns from the primary research, providing foundations for the construction of theories and explanations (Walsh et al., 2015) which were vital to interpreting the split judgment on the environmental impacts of Brexit (Temple, 2016). Nvivo software was used for coding the data collected (Charmaz, 2006) as it facilitates in-depth qualitative analysis of textual data to discover key themes. The results were subject to triangulation to increase the validity of the study by using different sources of information (e.g. papers), as suggested by Crabtree (2006) and Thurmond (2001).

FINDINGS

The legislative crisis

The review of the literature regarding the legislative crisis has identified a key theme in the research, which is how strong political views are influencing authors' interpretations. For instance, Smith (2016), Clark (2016) and Mount (2017) affirm that no one knows what the costs of leaving the EU will be as environmental research has been understudied and left behind while the Brexit rhetoric intensifies. Evidence of bias in the political arena is provided by Eustice (2016; 2016b) – with historical links with UKIP[1] documented by Bayley (2016) and Merrick (2014) – and Lucas (2017; 2017b) and Rayner (2016), who has experience in the Royal Commission on Environmental Pollution and as a senior lecturer in environmental studies at [2] . They affirmed that the UK would have more agile mechanisms to act if outside the EU and that remaining in the EU would threaten the UK's capacity to achieve its fifth carbon budget respectively.

This literature analysis found quantitative evidence revealing how EU policy has been effective for the UK – also confirmed by Evans (2017) and Scott (2014) – stressing that environmental legislation accelerated the clean-up of power stations, reducing the

[1] UKIP: abbreviation for the United Kingdom Independence Party
[2] the London School of Economics (LSE), a leading university in sustainability studies

impact of their emissions in the UK. Also, Huhne (2016) argues that with the abolishment of the Department of Energy and Climate Change and without the external legislative mechanism, the UK will continually downgrade its capability. Additionally, methodological issues have been reported that undermine the credibility of Brexit supporters in environmental matters (3S Research, 2014; Deacon et al., 2016; Boslaugh, 2017).

Burns et al. (2016), Bennett (2017) and Tindale (2014) affirmed that the EU helped to modernize the UK's environmental policies and that without being bound to EU legislation, the UK will go back to previous substandard practices. However, Jones (2016) pointed out bias in this affirmation due to the affiliation of these authors with EU green movements and anti-Brexit stances in their studies undermining their credibility. Onesass (2017) indicates that the historical data that support the research of these authors is not reliable, concluding that it would be remotely illiterate to suggest that with the information readily available to the UK now, its legislation would revert to standards similar to those 47 years ago.

Goodman (2016) and Foley (2016) affirm that the new legislation will be weaker as the government will be too focused on the legislative consequences of Brexit to match the EU concerning progressive environmental legislation. Grubb (2016) and Parr (2013) indicate that without the EU, the UK's renewable energy initiatives will lose momentum as the statistical evidence suggests that the investment in this sector will fall 95% between 2017 and 2020. This is an indication that this component of the environmental policy is currently not on track to meet the 2020 European renewables target (Moore, 2017). Based on these facts, it becomes evident that if new innovative renewable policies are not involved in a post-Brexit legislative package, the policy gap will only expand while other issues take precedent.

In conclusion, the diverse political views of the remain and leave campaigns are still distorting sensible debate around how this legislative crisis can be understood. Scepticism of whether a new legislative package can be effective is rife, as a growing number of variables will influence new legislation. However, this scepticism has not been universally accepted, which may mean Brexit has presented the UK with a new opportunity to produce an enriched legislative package capable of achieving the fifth carbon budget.

THE ECONOMIC CIRCUMSTANCES OF A POST-BREXIT UK

Brexit has created a significant amount of uncertainty around the UK economy as it is unknown if the UK's new relationship with other countries will damage confidence and investment (Giles, 2016) and preserve the UK's access to the single market as 50% of the UK's exports are to the EU (García, 2016). The contingency plan states that the Brexit priority is to make the UK a great, global trading nation (May, 2017c; Chapman, 2017) and this can be seen as the catalyst towards the development of a controversial UK-US free trade agreement. Analyses by Park (2017) and Creagh (2016b) on the new US environmental policy conclude that there is a credible base to believe that a trade deal with the US will not force the UK to protect its environment; it may well force it not to.

Another key theme in the literature reviewed is how lower investment in the UK post-Brexit will hurt climate change efforts, such as the development of wind power (Carvalho and Dussaux, 2017). The Green Alliance report (2016) on post-Brexit infrastructure claims that government's investment in renewables will fall by 95 percent

between 2017 and 2020. However, the affiliation of the source to the remain campaign casts doubt on the neutrality of the report.

Despite the possible economic complications regarding emission output, a niche theory has developed in the literature, with analysts contending that the economic environment should not affect emissions targets. The CCC (2016) research argues that Brexit is a new development, and uncertainty in macroeconomic circumstances is not, so increased uncertainty does not require any change to the carbon budgets at this time. This study condemns that view as it is fundamentally accepted that economic circumstances affect climate change, which is exemplified in Gupta and Obani (2013), who demonstrated a strong correlation between a country's level of economic growth and its CO2 emissions.

In conclusion, the economic landscape of post-Brexit Britain will be a decisive driver in whether the UK can achieve the fifth carbon budget target. The conveyed macroeconomic priority of economic growth in the UK is rapidly becoming the conservative parties' and electorate's main mantra. The UK-US free trade negotiation can be observed as a new unknown for the future of UK climate change mitigation, especially with the transatlantic president's unquantifiable views on climate change raising concerns for emissions. These changes in the way the UK is presenting itself as a global trading nation will potentially put pressure on emission outputs, as the UK will likely have to accept the environmental terms of larger economies on trade deals – economies such as China and India, which have relatively lax pollution controls. The perceived falling confidence in the economy could hurt European and foreign direct investment in the UK in climate mitigation, which may increase the UK's dependency on high emission sources to supply energy, therefore increasing emissions output. This falling investment will enhance fears of recession in the UK economy, which historically has caused adverse externalities for climate change, as archived research shows emissions outputs have increased detrimentally during the recession.

The fragmentation of future collaboration

Europe's collaborative front has developed excellent research infrastructures with integrated and networked research teams (Fraunhofer, 2009). It is widely feared that Brexit will see the UK lose access to EU institutions and funding for research programs and vital collaborations (Parminter, 2016). Research by Cary and Matternich (2013) suggests that European individual member states are unlikely to have sufficient funds to develop decarbonisation technologies. However, their research must be interpreted with caution as being funded by mainly pro-European movements (e.g. IEEP, Friends of the Earth, Greenpeace).

Another key theme that has emerged from the literature is how Brexit will harm climate change research. Gannon (2016) and Frenk et al. (2015) expressed deep concern about how UK research and development will be funded. Also, Cressey (2017) and McMeeking (2016) suggest that this fact could also drive an academic exodus that could affect the expansion of green economies, ultimately affecting the achievement of the fifth carbon budget (Bulgarelli et al., 2009). This, worryingly, could see the UK further align itself with the US to build new collaborative projects, with possible detrimental effects given the position of the US regarding climate change (Demianyk, 2017; Broome, 2017).

A significant theme that has appeared in the literature relating to the collapse of collaboration is the risks involved with the breakdown of the European burden-sharing

agreement. This has created much uncertainty around the government's accountability for its emissions failings, as the UK will not be accountable, nor compelled to report on its annual emissions to the EU or submit plans for corrective action if it misses targets for reducing emissions (FFT, 2016; Teverson, 2017; Nelsen, 2017). This already perceived lack of accountability has empowered the current UK government to push forward a fresh row about plans for a third Heathrow runway, ignoring European official climate change advisors' warnings on the heightened pollution the expansion will cause (Clark, 2017).

The outcome of this section has shown that fragmentation of EU-UK collaboration will have devastating consequences for the future of UK emission control. Funding for technology and research will become increasingly volatile and scarce, in particular for innovations for renewables that will influence the achievability of the fifth carbon budget, as innovation is paramount to cope with climate change.

THE VOICE OF EXPERTS

The absence of European law should not affect the achievability of the fifth carbon budget

Six of the participants agreed that the loss of EU legislation should, in fact, have no negative bearing on the achievability of the fifth carbon budget. These experts stressed that Brexit would not alter the emission policy in the UK.

As one expert mentioned, it is *"theoretically possible for us now to keep the best bits of EU legislation and augment our own" (Expert 6).*

Also, four participants suggest that freeing the UK from the unambitious EU legislative system will have a positive effect on the achievability of the fifth carbon budget, explaining that the *"archaic nature of the EU is holding us back" (Expert 6)* regarding developing legislation and the *"current legislative mechanism costs a significant amount and achieves very little" (Expert 10),* while the UK has tended *"to argue within the EU for stronger emissions targets" (Expert 5)* as the UK's own domestic legislation has been *"in excess of EU targets" (Expert 2).* In this new context, Brexit could offer an *"opportunity to make some smart green infrastructure projects and subsidize our British businesses" (Expert 6),* which would benefit the achievability of the fifth carbon budget.

A breakdown of European collaboration will damage emission mitigation

It was stressed that the biggest economic effect of Brexit would be a significant fall in green investment, as it will be *"harder to attract investment in clean energy infrastructure over the next few years."* Consequently, *"private sector investment in energy efficiency, the low carbon economy, electric transport, and clean energy infrastructure will basically disappear"*, making the transition to a "*low carbon economy*" impossible, so there is "*no way we can meet the fifth carbon budget" (Expert 4).*

Concerns emerged about the development of closer links with the US as *"greater collaboration with America and less with our European counterparts in international standards like climate change" (Expert 1)* and *"collaboration with the US will grow as we align ourselves with their trade agreement" (Expert 2),* inducing negative effects on the goals of the fifth budget as the agenda will move towards a *"Trump-like word" (Expert 2),* considering that *"Trump has on several occasions threatened to pull the US out of the climate treaty" (Expert 2).*

Five of the participants agreed that the potential costs associated with getting

involved with collaborative mitigation knowledge post-Brexit would have a negative effect on emissions as *"we may need to start paying for access to information or knowledge which is currently free at point of access" (Expert 7)*. And if the *"UK government does not negotiate a payment to cover access to sustainability knowledge" (Expert 7)*, it will certainly make it more difficult for the UK to achieve the fifth carbon budget as collaboration in emission control will *"come at a cost, which the government may leave institutions to pay for. A breakdown in collaboration will result in a weaker UK framework in emissions" (Expert 7)*.

The next ten-year period will pose enormous challenges for UK emission reduction

Nine of the participants overall agreed that the Brexit process has had a negative effect on emission mitigation and therefore the achievability of the fifth carbon budget as the political arrangement of the post-Brexit government will see emission mitigation become a low priority objective. *"Tackling climate change will not be viewed as a priority and so less will be done on it" (Expert 4)* as other governmental objectives would take precedent and *"political pressure to cut energy bills or save steel jobs will slow emission mitigation down" (Expert 5)*, creating a situation in which the UK will go – in environmental issues – through a *"re-adjustment period where things might have to get worse before they get better" (Expert 9)*.

Two of the participants agreed that emissions mitigation would be weakened in the next ten years due to the imminent legislative downgrade that will take place. "The UK has one of the worst EU records for air quality, and could, in theory, stop even trying to enforce legislation after Brexit" *(Expert 2)*, which ultimately will damage the achievability of the fifth carbon budget. Consequently, fiscal uncertainty can be foreseen in the next 10 years, making the *"UK take a more conservative budget stance that in turn would limit its ability to be generous in climate finance and development assistance" (Expert 2)*.

Brexit overall has caused more harm than good for UK emission mitigation

Seven of the participants agreed overall that Brexit had had a negative effect on the achievability of the fifth carbon budget. Four participants agreed that the biggest driver for falling emission mitigation performance would be the loss of the European legislative mechanism in the UK, as the current government does not have the *"appetite for sustainable development and without an external watchdog we may see this government have a bonfire with environmental legislation" (Expert 10)*. This would see the policy gap increase and possible regression on pollution control, as shown in past environmental failings in legislation: *"when environmental decisions are left to their own devices in the United Kingdom, generally, the choices made are not beneficial for nature" (Expert 9)*.

However, deviating opinions also emerged affirming that *"emission mitigation works best at a local level, not a multinational level" (Expert 3)* and Europe has made a *"power grab on international treaties and tried to fit them into a one-size-fits-all system across a diverse continent, which has shackled us significantly" (Expert 3)*. Therefore, *"EU membership should not make any difference to UK climate policy, because the UK Climate Change Act sets emission-reduction targets well in excess of those required under EU law" (Expert 2)*. So Brexit should have no bearing on the achievability of the fifth carbon budget.

CONCLUSION

The investigation into the legislative crisis, the economic future of the UK, and the fragmentation of collaboration has created a solid forecast for the direction the country is heading. The results of this investigation show that in the legal area Brexit has potential to have a positive effect on the achievability of the fifth carbon budget. The semi-structured interviews show that the participants believe augmenting legislation to national demand will improve emission mitigation. There is a deep discomfort with the EU's legislation mechanism – which coincides with the studies and critical literature review, in which arguments were found indicating that environmentalism works best at a local level, not a continental level. Hence, it would be inaccurate to suggest that Britain, a country that has pioneered environmental measures for centuries, would destroy its commitment to the environment because of Brexit. The conclusion that has been drawn is that Brexit has presented the UK with a new opportunity to produce an enriched legislative package, one that is more ambitious and moulded and capable of achieving the fifth carbon budget

Regarding the view of how post-Brexit economic circumstances in trade and investment would influence emissions output, the results show that this should have a negative effect on the achievability of the fifth carbon budget. The emergence of a conclusive pattern from the participants' responses indicates that trade deals will have priority and the UK may sink to the lowest common upper bound on regulations, with special emphasis placed on a potential US trade agreement. There is a deep discomfort in the literature and findings with regard to the current UK alignment with the US in investment and trade. Given that the UK is the smaller economy, it will have to align its regulations with Trump's climate policy to meet trade requirements which are extremely dangerous. The conclusion that has been drawn in this section is that making the UK financially secure will take extreme precedent over emission mitigation; it will be the in the country's best interests to relax its standards to secure economic prosperity in a dangerous macroeconomic environment, implying that the fifth carbon budget's achievability is harmed.

On the possible implications of how a collaborative breakdown with Europe would affect pollution in the UK, a conclusive pattern, which emerged from the participants' responses, was the fears of the potential costs associated with getting involved with collaborative mitigation knowledge, as the UK could be phased out. These conclusions coincide with the previous literature review, where some authors affirm that the UK will lose access to EU institutions and funding for research programs and vital collaborations, starting with the £3.5 billion funding from the main EU budget for climate change adaption and a transition to a low carbon economy. However, it was not just a loss of funding which concerned the study, as worries about a breakdown in European climate change mitigation could again see the UK further align itself with its ever-closer partner the USA. The conclusion that has been drawn in this section is that Brexit has seriously affected UK collaborative efforts in climate mitigation, as the loss of European funding and further alignment with the US, a country which is wavering in its emission alleviation, can only have detrimental effects on the achievability of the fifth carbon budget.

The general conclusion is that Britain's departure from the EU will have a negative influence on the country's ability to achieve its fifth emissions budget. The exogenous shocks to the UK's economic and collaborative systems will prove to be unrepairable in

the short term, even if richer legislation is brought into practice. The country's economic prosperity will take precedent over the carbon budgets, as it will guarantee the re-election of the current conservative government and will provide a safer economic future for an uncertain macroeconomic Brexit environment.

In analysing the conclusions of the study, limitations have been identified concerning the small size of the sample, as it might not be fully representative of the field of research. This limitation has affected the results of the study, as a broader purposeful sample could have brought further expertise into the study. Additionally, another credibility issue that arose in the study was about the inductive reasoning approach for the study, as it assumes the uniformity of nature throughout the universe. When analysing contemporary issues, this is perhaps disadvantageous as Brexit's volatile nature cannot guarantee uniformity. This circumstance has influenced our interpretation as these findings are based on probabilities, an indication that the results presented cannot be truly conclusive, but are a guide to the direction the UK is heading.

This study has contributed to knowledge in the field through its ability to address a new trending issue in society which has not been studied before. The study can be used to justify further studies as well as a way of adding to existing knowledge. Through asking the right questions in a purposeful sampling methodology and doing a thorough thematic data analysis, this study has contributed to the knowledge on the current contemporary issue of emissions within the context of Brexit. An additional contribution to knowledge was made in that the study took a virgin approach in investigating Brexit; this different approach to solving the identified problem was unique and result-oriented, which has added to existing knowledge on the subject matter.

This study also identified the need for further analysis of the externalities of a UK-US free trade agreement on emissions control. It seems the pollution rhetoric has been left behind as economic prosperity intensifies. A study providing strong statistical evidence for possible emission increases could be used to challenge the government and possibly reform this dangerous deal. It is recommended that further research should be undertaken in analysing how UK policy should be directed now that it is not bound by European legislation. This research could advise future legislation in emission mitigation, which is vital, as there is a scarce amount available – as this study has discovered. Further research into this could provide a sound basis for challenging future policy decisions.

REFERENCES

1. 3S Research. (2014). Tim Rayner. [Online]. Science, Society and Sustainability (3S). Available at: https://3sresearch.org/2014/11/25/tim-rayner/ [accessed on 23/01/2017].
2. Bayley, J. (2016). Eustice defends cull. [Online]. Plymouth Herald. Available at: http://www.plymouthherald.co.uk/farming-minister-george-eustice-defends-badger-culling-insisting-the-science-is-clear/story-29696999-detail/story.html?00 [accessed on 20/12/2017].
3. Bennett, C. (2017). Environmentalists for Europe. [Online]. Outside the EU, the UK could again be the 'dirty man of Europe.' Available at: http://www.environmentalistsforeurope.org/outside-the-eu-the-uk-could-again-be-the-dirty-man-of-europe/ [accessed on 14/03/2017].
4. Boslaugh, S. (2017). An Introduction to Secondary Data Analysis. [Online]. Cambridge University Press. Available at:

http://assets.cambridge.org/97805218/70016/excerpt/9780521870016_excerpt.pdf [accessed on 15/03/2017].

5. Broome, J. (2017). Trump and Climate Change. [Online]. The Philosophers' Journal. Available at: https://www.pdcnet.org/pdc/bvdb.nsf/purchase?openformandfp=tpmandid=tpm_2017_0076_0022_0022 [accessed on 23/03/2017].

6. Bulgarelli, A., Lettmayr, C. and Kreiml, P. (2009). Future skill needs for the green economy. [Online]. European Centre for the Development of Vocational Training. Available at: www.cedefop.europa.eu/files/5501_en.pdf [accessed on 12/01/2017].

7. Burns, C., A. Jordan., V. Gravey., N. Berny., S. Bulmer., N. Carter., R. Cowell., J. Dutton., B. Moore., S. Oberthür., S. Owens., T. Rayner., J. Scott and B. Stewart (2016) The EU Referendum and the UK Environment: An Expert Review. How has EU membership affected the UK and what might change in the event of a vote to Remain or Leave? Executive Summary [Online]. Available at: http://environmentEUref.blogspot.co.uk/ [accessed on 30/03/2017].

8. Carvalho, M. and Dussaux, D. (2017). UK needs free trade with the European Union in low-carbon technologies. [Online]. Grantham Research Institute. Available at: http://www.lse.ac.uk/GranthamInstitute/news/uk-needs-free-trade-with-the-european-union-in-low-carbon-technologies/ [accessed on 26/02/2017].

9. Cary, R. and Matternich, F. (2013). What has EU climate and energy policy done for the UK, pg 12. London: Green Alliance.

10. CCC. (2016). Meeting Carbon Budgets - Implications of Brexit for UK climate policy (Page 2). London: October.

11. CCC. (2017). Climate Change Legislation in the EU. [online]. Retrieved from Committee on Climate Change. Available at: https://www.theccc.org.uk/tackling-climate-change/the-legal-landscape/european-union-legislation/ [accessed on 20/02/2017].

12. Chapman, B. (2017). Brexit: UK faces up to 100,00 job losses under new proposal to strip UK of euro business. [Online]. The Independent. Available at: http://www.independent.co.uk/news/business/news/brexit-uk-10000-job-losses-eu-proposal-strip-uk-of-euro-clearing-business-manfred-weber-angela-a7666816.html [accessed on 25/03/2017].

13. Charmaz and Bryant. (2007). The SAGE Handbook of Grounded Theory. London: Sage.

14. Charmaz, K. (2006). Constructing Grounded Theory. London: [Online]. Available at: http://www.sxf.uevora.pt/wp-content/uploads/2013/03/Charmaz_2006.pdf. [accessed on 15/01/2017].

15. Chu, B. (2016). Why did people really vote for Brexit? If we don't face the psychological reasons, we'll never bring Britain together. [Online]. The Independent. Available at: http://www.independent.co.uk/voices/brexit-eu-referendum-why-did-people-vote-leave-immigration-nhs-a7104071.html [accessed on 20/03/2017].

16. Clark, P. (2016). Environmental issues left behind as Brexit rhetoric intensifies. [Online]. Financial Times. Available at: https://www.ft.com/content/080b8528-2442-11e6-aa98-db1e01fabc0c [accessed on 15/12/2016].

17. Clark, P. (2017). Fresh row about pollution from Heathrow expansion. [Online]. Financial Times. Available at: https://www.ft.com/content/f14aef54-e4a8-11e6-9645-c9357a75844a

[accessed on 25/03/2017].

18. Crabtree. (2006). Triangulation. [Online]. RWJF. Available at: http://www.qualres.org/HomeTria-3692.html [accessed on 06/01/2017].

19. Creagh, M. (2016). Leaving EU Would Put 40 Years of Environmental Progress at Risk. [Online]. Huffington Post. Available at: http://www.huffingtonpost.co.uk/mary-creagh/brexit-environment-air-pollution_b_9723244.html [accessed on 25/03/2017].

20. Creagh, M. (2016b). Trump trade deal must not be used to sell off NHS, MPs and union tell May. [Online]. Labour.org Journal article. Available at: http://labourlist.org/2017/01/trump-trade-deal-must-not-be-used-to-sell-off-nhs-mps-and-union-tell-may/ [accessed on 20/03/2017].

21. Cressey, D. (2017). Break from EU drives U.K. academics to think about leaving. [Online]. Scientific American. Available at: https://www.scientificamerican.com/article/brexit-may-spark-british-brain-drain/ [accessed on 09/01/2017].

22. Deacon, D., Wring, D., Harmer, E., Stayner, J. and Downey, J. (2016). Hard Evidence: analysis shows extent of press bias towards Brexit. [Online] The Conversation. Available at: http://theconversation.com/hard-evidence-analysis-shows-extent-of-press-bias-towards-brexit-61106 [accessed on 23/01/2017].

23. Demianyk, G. (2017). How Donald Trump Will Influence Britain Now He's Actually President. [Online]. Huffington Post. Available at: http://www.huffingtonpost.co.uk/entry/how-donald-trump-will-influence-britain-now-hes-actually-president_uk_587d03b7e4b04a8bfe6b2b48 [accessed on 24/03/2017].

24. Dudovskiy, J. (2012). Purposive sampling. Retrieved from Research Methodology. [Online]. Available at: http://research-methodology.net/sampling-in-primary-data-collection/purposive-sampling/#_ftnref2 [accessed on 09/01/2017].

25. Dudovskiy, J. (2015). Interpretivism (interpretivist) Research Philosophy. [Online]. Research Methodology. Available at: http://research-methodology.net/research-philosophy/interpretivism/ [accessed on 07/01/2017].

26. Dudovskiy, J. (2015b). Positivism Research Philosophy. [Online]. Research Methodology. Available at: http://research-methodology.net/research-philosophy/positivism/ [accessed on 09/01/2017].

27. Edie. (2016). Fifth Carbon Budget: UK Government sends positive message with ambitious emissions reduction plan. [online]. Edie.Net. Available at: http://www.edie.net/news/11/UK-fifth-carbon-budget-Government-sets-ambitious-energy-reductions-for-2032/ [accessed on 14/02/2017].

28. Electoral Commission. (2016). EU referendum results. [Online]. The Electoral Commission. Available at: http://www.electoralcommission.org.uk/find-information-by-subject/elections-and-referendums/past-elections-and-referendums/eu-referendum/electorate-and-count-information [accessed on 13/02/2017].

29. Eustice, G. (2016). A vision for a new UK policy. [Online]. GE.org. Available at: https://www.georgeeustice.org.uk/news/vision-new-uk-agriculture-policy [accessed on 10/01/2017].

30. Eustice, G. (2016b). Policing pollution. [Online]. Quote accessed through journal article within the Institution of Mechanical Engineers. Available at: https://www.imeche.org/news/news-article/policing-pollution [accessed on 20/03/2017].

31. FFT. (2016). What does leaving the EU mean for energy and climate change? [Online]. Full Fact Think Tank. Available at: https://fullfact.org/europe/what-does-leaving-eu-mean-energy-climate/ [accessed on 14/03/2017].

32. Foley, K. (2016). Brexit means Britain will no longer be bound by the EU's environmental protection laws. [Online]. Quartz. Available at: https://qz.com/716085/brexit-means-britain-will-no-longer-be-bound-by-the-eus-environmental-protection-laws/ [accessed on 21/03/2017].

33. Fraunhofer. (2009). The Impact of Collaboration on Europe's Scientific and Technological Performance. [Online]. Institute Systems and Innovation Research. Available at: http://ec.europa.eu/invest-in-research/pdf/download_en/final_report_spa2.pdf [accessed on 26/01/2017].

34. Frenk, C., Hunt, T., Patridge, L., Thorton, J. and Wyatt, T. (2015). UK research and the European Union: the role of EU in funding UK research. [online].Royal Society. Available at: https://royalsociety.org/~/media/policy/projects/eu-uk-funding/uk-membership-of-eu.pdf [accessed on 12/01/2017].

35. Friedrich, J. and Damassa, T. (2014). The History of Carbon Dioxide Emissions. [Online] Available at: http://www.wri.org/blog/2014/05/history-carbon-dioxide-emissions [accessed on 20/02/2017].

36. Gannon, F. (2016). Brexit and Research: Goodbye EU Money and Colleagues. [online] Embo Reports. Available at: http://www.embo.org/documents/news/encounters/EMBO_encounters_issue33.pdf [accessed on 12/01/2017].

37. García, L. (2016). Corrected oral evidence: Brexit: future trade between the UK and the EU. [Online]. The Select Committee on the European Union. Available at: http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/eu-external-affairs-subcommittee/brexit-future-trade-between-the-uk-and-the-eu/oral/37865.html [accessed on 20/01/2017].

38. Gibbs, G. (2007). 4 Thematic coding and categorizing. Analyzing Qualitative Data. London. Sage Publications: London.

39. Giles, C. (2016). What are the economic consequences of Brexit? [Online]. Financial Times. Available at: https://www.ft.com/content/70d0bfd8-d1b3-11e5-831d-09f7778e7377 [accessed on 21/03/2017].

40. Goodman, A. (2016). The Implications of Leaving the European Union for Environmental Law and Planning. [Online]. Landmark Chambers. Available at: http://www.landmarkchambers.co.uk/userfiles/documents/resources/AG%20Brexit%20Paper%20RTPI%20Oct16.pdf [accessed on 21/03/2017].

41. Grubb, M. (2016). Brexit and Energy: Cost, security and climate policy implications. [Online]. UCL European Institute. Available at: https://britaineurope.files.wordpress.com/2016/05/einote_3.pdf [accessed on 23/03/2017].

42. Gupta and Obani. (2013). Climate Change and Recession. [Online]. Earth System Governance. Available at: http://tokyo2013.earthsystemgovernance.org/wp-content/uploads/2013/01/0177-OBANI_GUPTA.pdf [accessed on 15/01/2017].

43. Hester, R. and Harrison, R. (2015). Still Only One Earth. In: Hester, R. and Harrison, R. Still Only One Earth (p. 43). Cambridge: Royal Society of Chemistry.

44. Walsh, I., Holton, J., Bailyn, L., Fernandez, W., Levina, N., and Glaser, B. (2015). What

Grounded Theory Is… A Critically Reflective Conversation Among Scholars. [Online].Sage: Organisational Research Methods. Available at: http://journals.sagepub.com/doi/abs/10.1177/1094428114565028. [accessed on 20/02/2017].

45. Huhne, C. (2016). Department of Energy and Climate Change Presentation. [Online]. DECC: Available at: http://www.inquisitr.com/3315922/united-kingdoms-climate-change-department-closed-by-prime-minister-theresa-may/ [accessed on 12/01/2017].

46. Johnson, P. and John, W. (2000). The pros and cons of data analysis software for qualitative research. [Online]. Available at: NCBI: https://www.ncbi.nlm.nih.gov/pubmed/11140204 [accessed on 02/02/2017].

47. Jones, J. (2016). The EU is an outsized behemoth beyond reform – the Green case for Brexit. [Online]. The Telegraph. Available at: https://www.theguardian.com/commentisfree/2016/jun/08/eu-reform-green-brexit [accessed on 23/032017].

48. Keating, D. (2016). Would Brexit damage the environment? [Online]. DW. Available at: http://www.dw.com/en/would-brexit-damage-the-environment/a-19131877 [Accessed on 23/03/2017].

49. Lucas, C. (2017). Not the Environment. [Online]. Green Party. Available at: https://www.carolinelucas.com/sites/carolinelucas.com/files/Safe%20Guarding%20Environment%20after%20Brexit.pdf [accessed on 23/03/2017].

50. Lucas, C. (2017b). UK Environment faces a 'cocktail of threats' from Brexit. [Online]. Caroline Lucas. Available at: https://www.carolinelucas.com/latest/uk-environment-faces-a-%E2%80%98cocktail-of-threats%E2%80%99-from-brexit [accessed on 23/03/2017].

51. May, T. (2017). The government's negotiating objectives for exiting the EU: PM speech. [Online]. Gov.uk. Available at: https://www.gov.uk/government/speeches/the-governments-negotiating-objectives-for-exiting-the-eu-pm-speech [accessed on 16/03/2017].

52. May, T. (2017b). Theresa May's Brexit speech. [Online]. The Telegraph. Available at: http://www.telegraph.co.uk/news/2017/01/17/theresa-mays-brexit-speech-full/ [accessed on 18/02/2017].

53. May, T. (2017c). UK to leave single market. [Online]. BBC transcript. Available at: http://www.bbc.co.uk/news/uk-politics-38641208 [accessed on 19/02/2017].

54. McMeeking, K. (2016). Brexit: why uncertainty is bad for economies. [Online]. University of Exeter. Available at: https://ore.exeter.ac.uk/repository/handle/10871/25436 [accessed on 12/01/2017].

55. Merrick, J. (2014). Tory MP plays up his Ukip past to woo voters. [Online]. The Independent. Available at: http://www.independent.co.uk/news/uk/politics/tory-mp-plays-up-his-ukip-past-to-woo-voters-9877875.html [accessed on 20/02/2017].

56. Moore, D. (2017). Britain Falling Behind On 2020 Renewables Target. [Online]. CIWM Journal. Available at: http://ciwm-journal.co.uk/britain-falling-behind-2020-renewables-target/ [accessed on 23/03/2017].

57. Mount, A. (2017). Why is the environment missing from the Brexit plan? [Online]. Green Alliance Journal. Available at: https://greenallianceblog.org.uk/2017/01/19/why-is-the-environment-missing-from-the-brexit-plan/ [accessed on 20/01/2017].

58. Nelsen, A. (2015). Europe's greenhouse gas emissions fall to record low. [online]. The

Telegraph. Available at: https://www.theguardian.com/environment/2015/oct/20/europes-greenhouse-gas-emissions-fall-to-record-low [accessed on 06/02/2017].

59. Nelsen, A. (2017). Europe escalates action against UK for breaching air pollution limits. [online]. The Telegraph. Available at: https://www.theguardian.com/environment/2017/feb/06/european-commission-escalates-action-uk-breaching-air-pollution-limits [accessed on 15/03/2017].

60. Onesass. (2017). Limitations of historical data. [Online]. Available at: https://support.onesaas.com/hc/en-us/articles/204756914-Limitations-of-historical-data [accessed on 21/03/2017].

61. Park, Y. (2017). Rational Climate Skeptics: On the Strategic Communication of Scientific Data. [Online]. Appalachian State University. Available at: https://poseidon01.ssrn.com/delivery.php?ID=230074113006024016080068074091112026039073086004051025077096125072123095122069108093043031001119031112002027090067030006069119021091012079014091098006111094101005011093018003013066113006097064016087087100023018 0 [accessed on 26/03/2017].

62. Parminter, B. (2016). Brexit: Environmental and Climate Change Policy. [Online]. House of Lords Hansard. Available at: https://hansard.parliament.uk/lords/2016-10-20/debates/6E3813B7-9EEB-4EA0-86D3-3020CCEE52EB/BrexitEnvironmentalAndClimateChangePolicy [accessed on 22/03/2017].

63. Parr, D. (2013). What has the EU energy policy done for the UK. Green Alliance.

64. Patterson, O. (2016). Why the UK environment would be improved by leaving the EU and restoring management at National and Local level. [Online]. UK 2020. Available at: http://www.uk2020.org.uk/wp-content/uploads/2014/10/20160608-A-Greener-Future-Outside-the-EU-FINAL.pdf [accessed on 20/02/2017].

65. Rayner, T. (2016). Cut out: Brexit would put the EU's efforts to reduce carbon emissions at risk. [Online]. LSE. Available at: http://blogs.lse.ac.uk/brexit/2016/04/20/cut-out-brexit-would-put-the-eus-efforts-to-cut-carbon-emissions-at-risk/ [accessed on 09/02/2017].

66. Rieth, P. (2016). Britain will be better off going it alone after Brexit. [Online]. SMH. Available at: http://www.smh.com.au/comment/britain-will-be-better-off-going-it-alone-after-brexit-20160718-gq85dq.html [accessed on 30/03/2017].

67. RWJF. (2008). Semi-structured Interviews. [Online]. Robert Wood Johnson Foundation. Available at: http://www.qualres.org/HomeSemi-3629.html [accessed on 05/02/2017].

68. Saunders, M., Thornhill, A. and Lewis, P. (2016). In P. L. Mark Saunders et al., Research Methods for Business Students (p. 175). Harlow: Pearson.

69. Scott, F. (2014). How the UK benefits from EU action on climate change. [Online]. Green Alliance. Available at: http://www.green-alliance.org.uk/resources/08.05.14%20How%20the%20UK%20benefits%20from%20EU%20action.pdf [accessed on 23/01/2017].

70. Smith, N. (2016, June 2). A Brexit vote does mean changes to government policy. [Online]. John Redwood Journal. Available at: http://johnredwoodsdiary.com/2016/06/02/yes-norman-smith-a-brexit-vote-does-mean-changes-to-government-policy/ [accessed on 13/01/2017].

71. Soiferman, K. (2010). Compare and Contrast Inductive and Deductive Reasoning Approaches.

[Online]. University of Manitoba. Available at: http://files.eric.ed.gov/fulltext/ED542066.pdf [accessed on 01/04/2017].

72. Temple. (2016). Qualitative Research: Grounded Theory: Advantages and Disadvantages. [Online]. Temple University. Available at: http://guides.temple.edu/c.php?g=77914andp=505635 [accessed on 16/01/2017].

73. Teverson, L. (2017). Lords report highlights impact of Brexit on environment and climate change policy. [Online]. Parliamentary Business. Available at: http://www.parliament.uk/business/lords/media-centre/house-of-lords-media-notices/house-of-lords-media-notices-2017/february-2017/lords-report-highlights-impact-of-brexit-on-environment-and-climate-change-policy/ [accessed on 23/03/2017].

74. Thurmond, V. (2001). The Point of Triangulation. JNS Journal, 526.

75. Tindale, S. (2014). The green benefits of Britain's EU membership. [Online]. Centre for European Reform. Available at: https://www.cer.org.uk/sites/default/files/publications/attachments/pdf/2014/green_benefits_policy_brief_final-8767.pdf [accessed on 23/03/2017]

76. Webb, D. (2016). Climate change in the UK: a growing public concern. [Online]. The Prince of Wales's Corporate Leaders Group. Available at: http://www.corporateleadersgroup.com/resources/news-items/blog-climate-change-in-the-uk-a-growing-public-concern [accessed on 10/01/2017].

77. Wishart, I. (2016). Brexit would bring chaos, fear and emergency measures in its first 100 days, experts predict. [Online]. The Independent. Available at: http://www.independent.co.uk/news/business/news/brexit-would-bring-chaos-fear-and-emergency-measures-in-its-first-100-days-experts-predict-a7080966.html [accessed on 25/03/2017].