Analysis of the effects of Brexit on the UK's ability to achieve the climate change acts target 2030

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 opinion 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 decisions to leave the EU will have multiple detrimental long-term consequences to 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 with the UK's environmental commitments

Originality and value: Under the actual eclectic dynamic surrounding the 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 analysis of possible consequences Brexit poses. This paper opens a debate and invites new perspectives to be included to an increasingly neglected contemporary issue, and contributes as a reference for the future discussion of environmental policy in the UK.

Key Words: Collaboration, Legislation, Emissions, Investment, Climate change target 2030, sustainability

Research Paper

1. Introduction

Since the discussions on greenhouse gas emissions in the Rio earth summit 1992, and the confirmation that the largest share of those emissions were coming from Europe and northern America (Friedrich and Damassa, 2014); an energetic global reaction spawned conducting 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. European collaborative front to lower emissions).

The protocol originated the emergence of a variety of European frameworks such as the EU emissions trading scheme, 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 main premise was to reduce emissions by at least 80% in 2050 from 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% on 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 gotten 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 indicate 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 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 the Brexit by looking at the key drivers that have been effected which are legislation, collaboration, and economics. This means 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 the rising public awareness on climate change due to recent volatile weather patterns (Webb, 2016), few and studies have been made to understand the impact of Brexit on emissions (Creagh, 2016). The current priority under Brexit context is to strengthen the UK's global trade, leaving the climate change behind. (May,2017, 2017b). With increasing divided opinions between the ones arguing that environmental management will be superior with local governance (Patterson, 2016); whilst others dispute that air pollution is one area that will become worse after Brexit (Keating, 2016); these study aims to understand how leaving the EU will affect the UK's ability to meet its 2030 emissions output target.

2. Methodology

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

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 European Parliament	Labour MEP	Remain
Expert 9	Sustainability Researcher	Schumacher Institute	Remain
Expert 10	Global Affairs Editor	Independent	Leave

Table 1. List of experts, affiliation and Brexit stance.

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 analyzed 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 interpret the split judgement 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).

3. Findings

3.1. 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 author's interpretations. For instance, Smith (2016), Clark (2016) and Mount (2017) affirm that nobody knows what will be the costs of leaving the EU as environmental studies have been understudied and left behind whilst the Brexit rhetoric intensifies. Evidence of bias in the political arena is Eustice (2016; 2016b) - with historical links with UKIP[1] documented by Bayley, (2016) and Merrick, (2014) - and Lucas (2017; 2017b) and Reynar (2016) with experience in Royal Commission on Environmental Pollution and as a senior lecturer in environmental studies at LSE[2] . They affirmed that UK will have more agile mechanisms to act if outside the EU; and that remaining in the EU will threaten the UK's capacity to achieve its fifth carbon budget

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

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) confirming that environmental legislation accelerated the clean-up of power stations reducing the impact of their emissions in the UK. In addition, Huhne (2016), argues that with the abolishment of the Department for Energy and Climate Change and without the external legislative mechanism, the UK will continually downgrade its capability. In addition, methodological issues have been reported that undermine the credibility of Brexit supporters in environmental issues (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 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 these 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 would support the affirmation that its legislation would revert to standards similar of those 47 years ago.

Goodman (2016) and Foley (2016) affirm that the new legislation will be weaker as the government will focused on the legislative consequences of BREXIT to match the EU in terms of progressive environmental legislation. Grubb (2016) and Parr (2013) indicate that without EU the UK renewable energy initiatives will lose momentum as the statistic evidence suggest that the investment in this sector will fall 95% between 2017 and 2020; indication that this component of the environmental policy is currently not on track to meet it 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 whilst 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. An increasing scepticism of whether a new legislative package can be effective is rife, as an increasing number of variables will influence new legislation. However, these scepticisms have 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.

3.2. The economic circumstances of a post-BREXITUK

BREXIT has created a significant amount of uncertainty around the UK economy as is unknown if the UK's new relationship with other countries will damage confidence and investment (Giles, 2016) and preserve the UK access to the single market as 50% of the UK 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. Park (2017) and Creagh (2016b) analyses on the new US environmental policy concludes 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 into 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 governments investment in renewables will fall by 95 per cent in 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 on emission output a niche theory has developed in the literature, with analysts contesting 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 electorates 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 global trading nation will potentially put pressures on emission outputs, as the UK will likely have to accept the environmental terms of larger economies on trade deals such as China and India who have relatively lax pollution controls. The perceived falling confidence in the economy could hurt European and foreign direct investment into UK in climate mitigation, which may increase UK dependency on high emission sources to supply energy therefore increasing emissions output. This falling investment will further harbour fears of recession for the UK economy, which historically has caused adverse externalities for the climate change, as archived research shows emissions outputs have increased detrimentally during recession.

3.3. The fragmentation of future collaboration

Europe's collaborative front has developed excellent research infrastructures, 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 programmes and vital collaborations (Parminter, 2016). Cary and Matternich, (2013) research suggest 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 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. In addition,

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 through 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 actual UK government to push forward a fresh row about plans for a third Heathrow runway, ignoring European official climate change advisors risks 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 particularly innovations for renewables that will influence the achievability of the fifth carbon budget, as innovation is paramount to cope with climate change.

3.4. The voice of experts

3.4.1. 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 participants stressed that Brexit would not alter the emission policy in the UK.

"theoretically possible for us now to keep the best bits of EU legislation and augment

our own" (Expert 6).

In addition, 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)* in terms of developing legislation. As 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 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 subsidise our British businesses" (expert 6)* which would benefit the achievability of the fifth Carbon Budget.

3.4.2. A breakdown of European collaboration will damage emission mitigation

It was stressed that the economical biggest effect of the post-Brexit would be 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 into, energy efficiency, 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 to get 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)* .

3.4.3. The next 10 year period will pose huge 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. Whenever that *"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).* Generating situation in which the UK will go - in environmental issues - through *"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 10 years due to the imminent legislative downgrade that will take place; suggesting that emission mitigation in the next 10 year period "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. As fiscal uncertainty can be foreseen in the next 10-years making the "UK taking a more conservative budget stance that in turn would limit its ability to be generous in climate finance and development assistance"(expert 2).

3.4.4. Brexit overall has caused more harm than good to UK emission mitigation

Seven of the participants agreed overall Brexit has had a negative effect on the achievability of the fifth carbon budget. Four participants agreed 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) which would see the policy gap increase and possible regression on pollution control; as the past environmental failings in legislation and action has shown that "when environmental decisions are left to their own devices in the United Kingdom that 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 multinational level" (expert 3)* as 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*)* and the *"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.

4. Conclusion

The investigation into 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 fifth carbon budget. The semi-structured interviews shown that the participants believe augmenting legislation to national demand will improve emission mitigation. There is a deep discomfort with the EU legislation mechanism which synthesises with studies critical literature review in which arguments were found indicating that environmentalism works best at local level not continental level, so it would be illiterate to suggest that Britain a country that's 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 being capable of achieving the fifth carbon budget

From the view of how post-Brexit economic circumstances in relation to trade and investment would influence emissions output. The results show that this should have

a negative effect on the achievability of fifth carbon budget. The emergence of a conclusive pattern from the participant's 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 relating to the current UK alignment with the US in investment and trade. Being the UK is the smaller economy, it will have to align its regulations with Trump's climate policy to meet trade requirements which is 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 countries best interests to lax it standards in order to secure economic prosperity in a dangerous macroeconomic environment implying that the fifth carbon budgets achievability is harmed.

On the possible implications of a collaborative breakdown with Europe would affect pollution in the UK, a conclusive pattern, which emerged from the participant's responses, was the fears of the potential costs associated to get involved with collaborative mitigation knowledge as the UK could be phased out. These conclusion coincide with the previous literature review where some authors affirm that the UK will lose access to EU institutions and funding for research programmes 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 worried about a breakdown in European climate change mitigation could again see the UK further align itself with its ever-closing growing partner the USA. The conclusion that has been drawn from 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 US, a country which is wavering its emission alleviation can only have detrimental effects on the achievability of the fifth carbon budget.

The general conclusion 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 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 reelection of this current conservative government, and will provide a safer economic future for an uncertain macroeconomic Brexit environment.

Whilst analysing the conclusions of the study limitations have been identified in relation to the small sample size of the study, 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 issues that arose in the study was in relation to 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 has influenced our interpretation as these findings are based on probabilities, indication that the results presented cannot be truly conclusive, but are guide to the direction the UK is heading.

This study has contributed to knowledge in the field through its ability to solve a new trending issues in society which has not been studied before. This 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 of emissions within the context of Brexit. Hence it is a major contribution to knowledge. Additionally, a meaningful contribution to knowledge was created as this study took a virgin approach in investigating Brexit, this different approach to solving the identified problem was unique and result oriented which has definitely added to existing knowledge on the subject matter.

This study also identified the need for further analysis on the externalities of a UK-US free trade agreement on emissions control. It seems the pollution rhetoric has left behind as economic prosperity intensifies. By producing a study which would provide strong statistical evidence on the possible emission increases, this could then be used to challenge the government, and possibly reform this dangerous deal. It is recommended that further research be undertaken in analysing how UK policy should be directed now it is not bound by European legislation. This research could

possibly 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.

5. Literature

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