

UK energy policy and Brexit

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Summary

Brexit has the potential to increase significantly the UK's autonomy in making energy and climate change policy. How much will largely depend on the prior question of what, if any, relationship the UK has with the EU's internal energy market. Broadly, there are three options: membership, access and exit. While access without membership looks the most plausible outcome, where the UK and EU end up will have important consequences for investment in UK energy infrastructure, how the UK meets its decarbonisation goals, and both the cost and security of its energy supplies. Ultimately, the heart of the negotiation on energy will be the extent to which the UK is willing to become a 'rule-taker' in order to maintain access to the European energy market.

Brexit has the potential to increase significantly the UK's autonomy in making energy and climate change policy. How much autonomy will depend on what kind of future relationship the UK has with the EU. One such possible implication was highlighted in a recent newspaper interview with the head of the Competition and Markets Authority (CMA) energy market inquiry, Roger Witcomb:

"Even if they had wanted to proceed with a wider price cap, he discloses, they might not have been able to, because of European Union rules. "Basically, price regulation has been outlawed under EU directives," he says. (Daily Telegraph, 23 July 2016)

Post-Brexit UK policymakers may well choose not to introduce price caps, but unlike now they are likely to have the power to choose to do so. This is just one example which highlights the bigger question: where will Brexit afford UK policymakers more autonomy on energy and climate change policy, and how will they choose to use it?

The internal energy market: membership, access or exit?

In the EU treaties, energy is an area of shared competence between member states and the European Union, and as a result has been a balancing act with areas where the European Commission has taken a lead, and areas where member states have jealously defended their prerogatives (Fig 1). For example, while the EU has set renewable energy targets for all member states, it has no powers to decide whether or not a member state has nuclear in its energy mix.

In practice much of the extensive range of policies on energy and climate change the EU has developed over the past two decades have gone with the established grain of UK policymaking. This has been the case most obviously on energy markets, where the UK's pioneering steps on privatisation, liberalisation and independent economic regulation have largely been adopted by the EU in the creation of the internal energy market (IEM).

Most of the UK's post-Brexit questions about its future energy relationship with the EU flow from the prior question of what, if any, relationship to have with the IEM. The IEM is the regulatory heart of the attempt to form a single market for energy across the EU, the core of which is the EU's three consecutive legislative energy packages, adopted between 1996 and 2009 (the third energy package consisting of Directives 2009/72/EC on electricity and 2009/73/EC on gas). These packages set common rules across member states on market access, transparency and regulation, consumer protection, promoting interconnection, and energy security.

Article 194

With energy classified as a 'shared competence', Article 194 of the Lisbon Treaty sets out at a high level the respective areas of competence for the EU and member states. The EU's Energy Union is in part an attempt to further bring these areas under Union competence as part of a wide-ranging legislative programme.

 Union policy on energy shall aimto: (a) ensure the functioning of the energy market; (b) ensure security of energy supply in the Union; (c) promote energy efficiency and energy saving and the development of new and renewable forms of energy; and 	The European Commission has executed Art.194(1)(a) through the creation of the internal energy market which provides a single set of rules for European energy markets. Art.194(1)(b) is perhaps where the EU has been most successful in its Energy Union programme, particularly on gas supply where it has been aided by a set of central and eastern European member states who see European solutions to their dependence on Russian energy. Progress on Art.194(1)(c) has been mixed, and the 2020 targets on renewables and energy efficiency will be replaced by 2030 targets which are only EUwide for renewables, and lacking in ambition for energy efficiency.
(d) promote the interconnection of energy networks.	The European Commission has set a target for each member state to have interconnector capacity equivalent to 10% of their installed power generation capacity, which it is considering raising to 15% by 2030. While cross-border electricity flows are rising, power markets remain largely delineated by national borders. Initiatives like the Pentalateral Energy Forum centred on the Benelux region are making progress on regional market-coupling, but there remains a way to go.
2Such measures shall not affect a Member State's right to determine the conditions for exploiting its energy resources, its choice between different energy sources and the general structure of its energy supply	Art.194(2) has been repeatedly used by member states to push back against where they feel the European Commission has been overly prescriptive on energy policy. The result has a patchwork approach to controversial energy sources such as fracking and nuclear power, and a significant obstacle to the completion of the single market for energy.

Fig 1: Unpacking Treaty of Lisbon Article 194

The IEM's primary impact has been to harmonise the rules in the EU's individual national markets rather than realise extensive cross-border integration of national markets. Nevertheless, the UK is a significant net importer from the EU and physical cross-border flows are growing and regularly provide over 8% of the UK's power supply.

Three options for the IEM

So what are the options for the UK for future engagement with the IEM? The UK could continue to be a 'member' of the IEM if it chose to become a member of the European Economic Area (EEA), an outcome which would look much like the status quo. However, in energy as in other areas, the economic attraction of such an arrangement in which the UK would be subject to, but have no voice in, the formulation of new EU rules and regulations - is highly questionable. In any case, EEA membership would be a difficult sell politically, not least because it would require continued 'free movement' and a UK financial contribution to the EU's coffers. While membership of the Energy Community - an institution which promotes the extension of the internal energy market to the EU's neighbours - would also offer policy continuity, it too would leave the UK without a voice in policy formulation. The UK would also be a very odd fit within a group of much smaller countries on the path towards EU accession such as Albania, Moldova and Ukraine.

The second option is to retain 'access' to the IEM without membership. This would mean on-going operation of interconnectors which would have to be agreed in the form of a bilateral agreement, or agreements, on energy between the UK and EU. Other obvious areas for inclusion would include the status and form of continuing UK participation in the EU-ETS, engagement with Europe's Agency for the Cooperation of Energy Regulators (ACER) and membership of the European Network Transmission Systems Operators bodies for both electricity



Fig 2: UK electricity trade (GWh) Source: ENTSO-E

	IEM membership	IEM access	IEM exit
Model	EEA membership	Bilateral agreement(s) between UK and EU on energy policy	No agreement
EU regulation	Full application of EU energy and climate change regulation	Selective application of EU energy and climate regulation	Full autonomy
UK regulatory influence	Very limited, consultative	Exerted through negotiation of bilateral agreement	Full autonomy
Physical energy flows	Yes	Yes, possible impact on future interconnector projects	None
Agency membership	ACER ENTSO-E/G	ENTSO-E/G	None
State aid restrictions	Status quo, under EU rules	Determined by terms of negotiated energy agreement	Full autonomy
EU-ETS	Continued participation	Possible linkage to EU-ETS for UK-only carbon market	Possible linkage to EU-ETS for UK-only carbon market
Disruption	Least disruption	Disruption level dependent on terms of energy agreement	Maximum disruption

Fig 3: Post-Brexit options for the internal energy market: membership, access or exit

and gas (ENTSO-E/G). Beyond this the UK would most likely want to avoid wider obligations to accept EU regulation. However, exemptions for the UK from EU rules would be strongly resisted by both European generators and energy-intensive industries concerned to avoid any competitive advantage for the UK.

The third option would be to leave the IEM completely, with the UK becoming an 'energy island'. This appears unlikely. The benefits of interconnection to date for both energy cost and security are widely recognised and implicit in current plans to triple the UK's interconnector capacity. While it cannot be ruled out, it is for now hard to envision this scenario outside an accidental 'falling out' or as contagion from a dispute over the wider terms of the new UK-EU relationship. Ultimately, the heart of the negotiation on energy and the IEM question will be the extent to which the UK is willing to become a 'rule-taker' in order to maintain access to the European energy market. Most interconnectors are constructed and operated by TSOs like National Grid and regulated by national regulators. However, the European Commission must approve any exemptions from EU rules granted for non-TSO 'merchant projects' and will step in where it spots a breach of IEM rules. As such, UK interconnectors would effectively remain subject to EU regulation to the extent that their EU counterpart could only agree to a regulatory framework which was compliant with EU regulation. And while early industry statements

have emphasised the importance of maintaining access to the IEM, it is worth reflecting that there are strong incentives for UK power generators - who have to compete against power from Europe that is both lower cost and exempt from the UK's carbon price floor - to push for less interconnection, not more.

An Irish question

The UK's decision on the IEM will have significant ramifications in Ireland, where both Northern Ireland and the Republic of Ireland have shared an all-island Single Electricity Market since 2007. This may pose particular problems for Irish TSO EirGrid which both owns and operates the grid across the island. If the UK leaves the IEM and its regulatory framework diverges significantly from EU rules post-Brexit, the continuation of the unified electricity market may require the negotiation of some kind of carve-out from UK regulation for Northern Ireland. One other area of potential difficulty will be security of supply for gas. Ireland is classified with the UK - on which it currently relies for over 95% of its gas supply - as the 'northwest' region for the planning and response to gas supply disruptions by the European Commission. Unless it remains within the EEA, it seems unlikely that the UK will continue to be part of the EU's gas security of supply frameworks post-Brexit, leaving Ireland without connection to another EU member state. This may however, be mitigated by two developments. First, the

beginning of production at Ireland's Corrib gas field at the end of 2015 which it is estimated could ultimately provide up to 75% of Ireland's gas demand. Second, the gas interconnectors for both Northern Ireland and the Republic of Ireland make land in Scotland which could ultimately end up remaining within the EU - either as part of the UK, or independently.

What is at stake?

The outcome of the decision on the IEM could be very material. In a report commissioned by National Grid, Vivid Economics estimated that leaving the internal energy market could result in losses to the UK of up to £500 million a year, largely as the result of sub-optimal use of interconnectors. This figure takes into account the failure to complete market coupling - where cross-border transmission capacity is implicitly included in power exchanges on either side of the border rather than having to be separately auctioned - which reduces inefficient flows of power against the price differential, and a reduction in the use of cross-border balancing services - whereby TSOs procure energy cross-border to maintain the required system frequency on the electricity network.

Investing in the post-Brexit energy sector

The award of Contracts for Difference (CfDs) and capacity mechanism payments are currently the major drivers of investment in UK power generation. The CfDs are in part driven by the need to meet the UK's EU-mandated 2020 renewable energy target. With the UK probably not leaving the EU until 2018 or 2019, it is unlikely the UK will abandon its 2020 target, and beyond 2020 the EU has a renewables target for the EU as a whole, but not for member states. Outside of the EU may well prefer to focus on decarbonisation targets set out in its own carbon budgets. As such, the 'impact' comes not from Brexit but from changes in the domestic policy landscape under the new government.

More generally, the task of attracting investment into UK infrastructure has probably become more difficult. Currency devaluation will raise import costs for necessary goods and inputs and could diminish the attractiveness of the UK as an investment destination over concerns about earnings generated in volatile and weak sterling. Macroeconomic and political uncertainty is likely to push up borrowing costs for infrastructure projects with providers of finance seeking greater risk premiums. With almost all new UK generation being incentivised by some government-backed support scheme, this risk premium is likely to feed through into capacity mechanisms and contracts for difference, and ultimately to consumer bills.

One positive area for policymakers may be increased freedom and greater responsiveness for use of state aid in incentivising new generation capacity. EU rules restrict the use of state aids and the process of investigation into compliance with the EU regime adds to the time involved, as the UK found most recently with the lengthy investigation of its proposed support for new nuclear build. Outside of the EEA post-Brexit, the UK could choose to use state aids more extensively and move more quickly. The decision to merge energy and climate change policy into the combined Department for Business, Energy and Industrial Strategy suggests that the new May government may be more inclined to use that discretion than previous administrations.

Meeting the UK's decarbonisation commitment outside the EU

The EU has taken a leading role in decarbonisation with its '20-20-20' by 2020 targets. Within this framework, the UK has been one of the strongest advocates for ambitious decarbonisation targets, but sceptical of prescription about how to meet them: a position which heavily influenced the EU's adoption of 2030 emissions reductions targets for individual member states, but a renewables target which is EU-wide only. The UK has been a strong advocate of the EU-ETS and highly active in pushing for effective market reform. The UK delegation also formed part of the core of the EU delegation that played a major role in international climate change negotiations, providing much of the diplomatic infrastructure and energy necessary to reach a deal in Paris at the end of 2015.

So what, if anything, will change? The UK's ongoing commitment to decarbonisation appears solid for now, and was highlighted by its swift



Fig 4: UK net imports as a % of total supply, 2015 Source: DECC

move to set the target of the UK's fifth carbon budget (2028 - 2032) shortly after the EU referendum vote. However, following Brexit, the UK may have to rethink its participation in the EU-ETS. On-going participation is likely to be available only if the UK chooses to become a member of the EEA similar to Norway, Iceland and Liechtenstein. Under a bilateral agreement on energy, the UK could, however, participate by linking a UK-only carbon market to the EU-ETS under the provisions of Article 25 of Directive 2003/87/EC. Withdrawal would not be straightforward - particularly if it came in the middle of either the EU-ETS's Phase III (2013 - 2020) or IV (2021 - 2028) - and would have implications for the UK's own carbon budgets that are currently accounted for using EU-ETS industry emissions caps rather than actual emissions. Although unlikely, given the EU-ETS's failures, it is possible that the UK might abandon carbon markets and solely rely on a carbon tax of the sort it effectively already has in place in the form of the carbon price floor.

Internationally, Brexit will diminish the voice of both the UK and the EU on climate issues. The UK will now have to formulate its own Nationally Determined Contribution as part of signing and ratifying the Paris Agreement and is likely to do so based on the UK's own carbon budgets. The issue is arguably more difficult for the EU27, where the UK's above average contribution to emissions reductions will now have to be made up for by the remaining 27 member states if the EU is to retain the same target. For the UK there is also now a question whether it will continue to stick closely to the EU in future negotiations, or seek to play a more differentiated role.

Will Brexit push energy costs up, or drive them down?

Assessing the impact of the EU on energy costs is difficult given that many of the policy costs (for example carbon pricing) would in any case be levied by the UK outside the EU. Conversely, savings in areas like improved efficiency in European gas markets are hard to estimate. At the margins, the EU has directly impacted on energy prices through the requirement for "approximation of tax and pricing policy" which has in particular placed minimum limits on the reduction of VAT on fuel at 5%. And while the reduction of VAT on fuel was one of the few energy issues raised in the course of the Brexit debate, there is no guarantee that this will be enacted given the fiscal restraints on the UK government. On energy prices, it is also worth noting that Brexit could give the UK government more freedom to pursue

price regulation if it should so choose - at least if the UK is no longer a member of the IEM - although this was rejected in the recommendations of the recent Competition and Markets Authority (CMA) investigation into energy markets.

In the short-term, there is already evidence that the devaluation of sterling has pushed up the price of energy imports. The resultant rise in the price of imported gas appears to have already fed through into higher electricity prices with wholesale prices in gas and electricity up by 29% and 25% respectively in Q2 2016. If sterling stays lower for longer this may have significant impacts on energy prices as the UK becomes increasingly reliant on energy imports in oil (around 30% consumption imported), gas (around 40% imported), and coal (around 60% imported). Elsewhere, power prices could also rise if there is disruption to current or future use of interconnectors, including if flows are subject to changes in regulation of their use which are disadvantageous to the UK.

Delivering energy security

The EU is in the process of upgrading its role in European energy security, notably through the revision of the regulation on security of gas supply (Regulation (EU) 994/2010), a new LNG and gas storage strategy (COM(2016) 49) and a review of the information exchange protocols on intergovernmental agreements (COM(2016) 53). The rolling out of Projects of Common Interest (PCIs) has also contributed to the expansion of gas infrastructure across Europe which, in combination with the requirement that all gas pipelines are now bidirectional, has led to a significant upgrade in European resilience against disruption of gas supply. The impact for the UK has, however, been less pronounced, not least as the UK has among the most diverse sources of gas supply in Europe. Most directly, if the UK is outside of the EEA, it will almost certainly be unable to participate in the new solidarity mechanisms outlined in the regulation on security of gas supply. Given the UK's high levels of interconnection and diversified sources of supply, the risks posed should not however be overestimated.

Indirectly Brexit may also raise costs for financing gas and electricity supply infrastructure. The EU finances PCIs in third countries considered to benefit the EU, however post-Brexit the UK is likely to find itself less of a priority than today. Perhaps more significantly, there are also question marks over whether the UK will be able to access finance from the European Fund for Strategic Investments (EFSI) and the European Investment Bank (EIB) which has to date been the largest financer of low carbon power in the country.

Finally, there are questions whether the UK's gas hub National Balancing Point (NBP) will be affected in its position as a premier European gas hub. Either as the result of concerns over UK interconnection with Europe, or a greater EU focus on gas supply infrastructure on mainland Europe, the UK's NBP could suffer from a relative loss of liquidity with the potential for greater volatility in pricing and lower security of supply.

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