The Future of UK-EU Energy Cooperation

Policy Exchange

Policies to strengthen UK-EU energy and climate cooperation in the Future Relationship

By Ed Birkett

Edited by Benedict McAleenan

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Contents

Glossary of terms

Term	Definition
Department for Business, Energy & Industrial Strategy (BEIS)	UK Government department responsible for business, energy and industrial strategy.
Committee on Climate Change (CCC)	Independent statutory body advising the UK and devolved governments on emissions targets and preparing progress reports to Parliament.
Carbon dioxide (CO_2)	Carbon dioxide (CO_2) is the main greenhouse gas. The vast majority of CO_2 emissions come from the burning of fossil fuels.
Carbon Emissions Tax (CET)	A tax on greenhouse gas emissions, measured in pounds per tonne of carbon dioxide equivalent (£/t CO_2).
Emissions Trading Scheme (ETS)	A scheme that sets a cap on the maximum level of emissions from particular industries in a region. Emitters must purchase 'emissions permits' equal to their emissions. Companies can trade emissions permits.
Green hydrogen	The production of hydrogen using renewable electricity sources. In the UK, the term 'green hydrogen' is typically used to describe all hydrogen produced with electricity.
Hydrogen	A clear, odourless gas which is highly flammable, the most common element in the universe which can be used as a low emission alternative fuel source.
Net Zero	Net Zero refers to greenhouse gas emissions across an economy or for a company. For example, the UK Government has committed to Net Zero emissions across the UK by 2050. The "Net" in Net Zero refers to a balance between positive emissions (e.g. from burning fossil fuels) and negative emissions (e.g. from planting trees or capturing carbon dioxide from the air).
Market coupling	A system that automatically schedules electricity flows on interconnectors, minimising the cost of meeting electricity demand across the coupled region.
Single Electricity Market (SEM)	A joint electricity market on the island of Ireland, covering the Republic of Ireland (ROI) and Northern Ireland (NI).

Executive summary

Since privatisation started in the late-1980s, UK and EU energy markets have become increasingly intertwined. Brexit poses a challenge to this cooperation and, from 2021, the integration of UK and EU energy markets will go into reverse for the first time in decades. This doesn't need to set back the development of a secure, affordable and low-carbon energy system in the UK and the EU, but new approaches will be needed.

In the short term, the UK and the EU should seek a loose 'Energy Agreement', allowing the most crucial aspects of energy cooperation to continue. This agreement should focus on maintaining electricity market coupling as far as possible. Even in the event that there is no deal on the future relationship, the Single Electricity Market on the island of Ireland will continue to operate, as per the Northern Ireland Protocol. In addition, the UK and EU should also prioritise a limited agreement on energy as part of sectoral discussions, as well as leaving the door open to an enhanced UK-EU energy relationship in the longer term.

By the end of this Parliament, the UK and EU should seek a long-term 'Energy Partnership', based on shared interests in competitive energy markets, robust carbon pricing, and the sharing of renewable energy resources across borders. The UK should see any short-term 'Energy Agreement' with the EU as a precursor to a longer-term 'Energy Partnership'.

At the end of 2020, the UK will leave both the EU Internal Energy Market (IEM) and the EU Emissions Trading Scheme (ETS). The EU is clear that, regardless of the measures that the UK agrees, Brexit means that integration between UK and EU energy markets must reduce. The UK is seeking a relatively loose 'Energy Agreement' based on shared interests and market cooperation. In any case, there will be a reduction in the cooperation between UK and EU energy markets, at least in the short term.

This report makes recommendations on the key principles and specific policies that the UK Government should apply in its negotiations with the EU over future energy cooperation. These include cooperation on carbon pricing, including the EU's proposed Carbon Border Adjustment Mechanism (CBAM). This would complement mutual interests including electricity market coupling, carbon pricing, and the development of shared low-carbon resources, particularly in the North, Irish and Celtic Seas.

By following these recommendations, the UK Government can minimise disruption from leaving the EU energy market framework at the end of this year. We have provided a roadmap for the UK and the EU to seek new ways to collaborate on energy and climate policy, including

using the market interface between Great Britain and the Single Electricity Market covering Ireland and Northern Ireland as a testing ground for a long-term UK-EU 'Energy Partnership'.

If the UK and the EU can secure a long-term Energy Partnership by the end of this Parliament, they can maximise the development of shared low-carbon resources, particularly the potential for offshore wind in the North Sea. A long-term partnership between the UK and the EU could serve as a template for UK and EU energy partnerships with their neighbours, furthering the decarbonisation of the energy system across the whole of Europe. For the UK, this could mean striking long-term energy partnerships with non-EU states such as Norway and Iceland.

Key principles

This report proposes five key principles for the future of UK-EU energy cooperation (Table 1). These principles apply both to the current negotiations and to longer-term UK-EU cooperation on energy and climate policy.

Table 1: Key principles for the future of UK-EU energy cooperation.

Recommended principles	
1.	The parties should aim for maximum 'market coupling' to reduce the cost of decarbonising the European energy system.
2.	Any agreement must respect the sovereignty of both parties, particularly for schemes that ensure domestic security of supply.
3.	The UK should respect the EU's rationale for 'protecting' the Internal Energy Market.
4.	The parties should cooperate to maximise the economic development of shared assets including the North, Irish and Celtic Seas. The parties should focus on the development of low-carbon energy projects such as offshore wind and associated grid infrastructure.
5.	The parties should cooperate on carbon pricing, including carbon border pricing, both to protect domestic heavy industry and as an enabler of liberalising global trade.

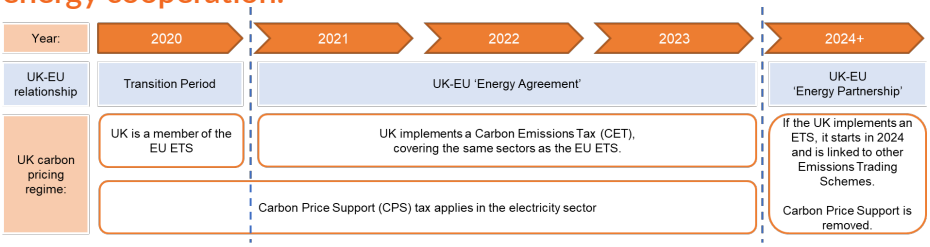
Policy recommendations

This report makes five specific policy recommendations for the UK Government as it continues to negotiate with the EU 2). We have also proposed a policy timeline (Figure 1), which includes a timeline for negotiating a long-term 'UK-EU Energy Partnership' and a recommended timeline for the future of carbon pricing in the UK.

Table 2: Specific policy recommendations for the future of UK-EU energy cooperation.

Policy recommendations	
1.	The UK is right to propose a relatively loose 'Energy Agreement', starting in 2021. This should be seen as a precursor to agreeing a long-term 'Energy Partnership' by the end of this Parliament.
2.	The UK can accommodate some limitations on State Aid in its energy sector as part of a bilateral Free Trade Agreement. However, the UK must rule out the ability of companies to use EU courts to retrospectively challenge programmes that support investment and security of supply in the UK energy sector. The UK's new domestic State Aid regime should also ensure that any legal challenges to new energy investment programmes are concluded in a timely manner.
3.	The UK should seek a continuation of electricity market coupling, particularly between Great Britain and the Single Electricity Market covering Ireland and Northern Ireland, in return for making commitments on carbon pricing and oversight of energy trading.
4.	From January 2021, the UK should implement a Carbon Emissions Tax (CET). We recommend that the Government commits to a long-term, rising Carbon Emissions Tax as its preferred post-Brexit carbon pricing regime. However, if the UK Government wants to implement an Emissions Trading Scheme (ETS) in the longer term, they should only do so if it is linked with other jurisdictions and includes a price floor.
5.	The UK should cooperate with the EU on a carbon border adjustment mechanism (CBAM).

Figure 1: Recommended policy timeline for the future of UK-EU energy cooperation.



If the UK Government follows the recommendations in this report, and subject to the agreement of the EU, the future of UK-EU energy cooperation would be as summarised in Table 3.

Table 3: Summary of key terms in a UK-EU Energy Agreement and long-term Energy Partnership

Key terms	UK-EU Energy Agreement	Long-term UK-EU Energy Partnership
Time period	2021 to 2024.	2024 onwards.
Market coupling	Existing market coupling maintained as far as possible, particularly between Great Britain and Ireland/Northern Ireland.	Electricity market coupling extended to include new arrangements for shared offshore energy projects.
Carbon pricing	UK implements a Carbon Emissions Tax.	We recommend that the UK CET continues for the long term. However, if the UK Government implements a UK ETS, it is linked to the EU ETS and includes a floor price.
State Aid	UK and EU agree the minimal provisions possible to allow market coupling to continue.	Detailed negotiations required over what limitations the UK can accommodate.
Carbon border adjustment mechanism (CBAM)	Negotiations ongoing, but no CBAM in force.	UK and EU implement a common approach to carbon border adjustments.

1. Introduction: History of UK and EU energy markets

Over the last 30 years, the UK and EU Member States have liberalised their respective energy markets. Liberalising measures include privatising state-owned energy companies, creating independent energy regulators, establishing competitive gas and electricity markets, and developing a common rule book through the EU Internal Energy Market (IEM). This section describes the liberalisation process at a UK and EU level.

Electricity and gas market liberalisation

UK electricity market liberalisation

Electricity generation, transmission and supply in England and Wales was under public ownership until 1990, when the Central Electricity Generating Board (CEGB) was privatised. The CEGB owned and operated all electricity generation and transmission assets.[1] Post-privatisation, electricity generation (power stations) has operated as a competitive market, whereas electricity networks are regulated as regional monopolies. By 2000, the supply of electricity to customers was fully liberalised, allowing customers to choose their electricity supplier.

Electricity market privatisation was accompanied by the establishment of independent regulators for electricity and gas (Ofgas and OFFER respectively). In 2000, these regulators were merged to form the Office for Gas and Electric Markets (Ofgem), which regulates both gas and electricity markets in Great Britain.[2,3]

Following privatisation in 1990, a competitive electricity market for generators was introduced in England and Wales, known as the 'Electricity Pool'. Electricity generators bid into the Pool, determining the electricity price in each trading period. In 2001, the Pool was replaced by the New Electricity Trading Arrangements (NETA), in which both generators and suppliers could either trade bilaterally or submit bids on power exchanges to buy and sell wholesale electricity.[4] In 2005, the NETA arrangements were extended to Scotland and renamed the British Electricity Trading and Transmission Arrangements (BETTA). BETTA governs electricity trading arrangements across the whole of Great Britain, creating the 'GB electricity market'.

The BETTA arrangements continue to govern the GB electricity market, although the Energy Act 2013 made significant changes through the programme of Electricity Market Reform (EMR). EMR introduced two

1. Newbery, D. and Pollitt, M. (September 1997). Public policy for the private sector (Note 124). *The restructuring and privatization of the UK electricity supply – was it worth it?*
2. UK Government (Legislation). *Utilities Act 2000. Chapter 27.* Link
3. Ofgem (undated). *Who we are.* Link
4. Cui, C. (2010). Doctoral Thesis, University of Sterling. *The UK Electricity Markets: Its Evolution, Wholesale Prices and Challenge of Wind Energy.* Link (Chapter 2).

major changes: The Capacity Market (CM) to promote security of supply, and the Contracts for Difference (CfD) support scheme for renewable energy generators such as wind and solar.[5]

Northern Ireland has separate electricity trading arrangements as part of the 'Single Electricity Market' on the island of Ireland, comprising both the Republic of Ireland and Northern Ireland.[6] These arrangements will endure beyond the end of the Transition Period, as described later in this report.

UK gas market liberalisation

The UK gas market was privatised in 1986, through the privatisation of British Gas as a vertically integrated monopoly for gas transmission, distribution and supply.[7] British Gas subsequently split into two companies in 1997, one for gas supply (Centrica) and one for gas pipelines (Transco). In 1998, the supply of gas to domestic properties was fully opened to competition. The ownership of the UK gas value chain therefore mirrors the ownership structure for electricity.

EU gas and electricity market liberalisation

The UK has been a pioneer of liberalising energy markets since the late-1980s. In many areas, the EU's programme of electricity and gas market liberalisation has been inspired by the UK's successful reforms. EU market liberalisation has been achieved through a number of 'Energy Packages'; sets of policy reforms which together form the rules governing the EU's Internal Energy Market.[8] The Internal Energy Market is part of the EU's Internal Market, which is underpinned by the 'four freedoms': free movement of goods, capital, services and people. Each package comprises a number of directives and/or regulations that must be adopted by national governments and national energy regulators (Table 4).

5. Ofgem (undated). *Electricity Market Reform (EMR)*. Link
6. SEM Committee (undated). *SEM*. Link
7. Pearson, P. and Watson, J. IET and The Parliamentary Group for Energy Studies (2012). *UK Energy Policy, 1980-2010*. Link. Page 9.
8. European Parliament (updated February 2020). *Fact Sheet: Internal Energy Market*. Link

Table 4: Major EU energy legislative packages.[9]

Package name	Date adopted	Details
First Energy Package	1996 (electricity) 1998 (gas)	Started the process of separating the ownership of energy networks from generation and supply, and set guidelines for cross-border energy networks.
Second Energy Package	2003	Strengthened the unbundling provisions from the First Energy Package and added conditions for fair access to networks for cross-border electricity trade.
Third Energy Package	2009	Established full legal separation of generation and transmission assets. Created ACER, a forum for cooperation between national energy regulators.
Fourth Energy Package.[10]	2019	Focuses on climate change priorities, including support for renewable energy technologies. Prevents the most carbon-intensive power stations from participating in capacity mechanisms. Promotes market reform to increase cross-border trade in electricity.

These Energy Packages have driven substantial liberalisation and harmonisation of EU gas and electricity markets. This has enhanced competition, lowering prices for consumers, and has allowed efficient trading of electricity and gas resources across the EU.

The GB electricity market has generally been liberalised faster than required by the EU Energy Packages, particularly around separating the ownership of electricity generation, transmission and supply, a process known as 'unbundling'. The UK's Government and energy industry have generally supported the aims of the EU Energy Packages.

The EU has also taken steps to support the liberalisation of energy markets in neighbouring countries through the 'European Energy Community' (EEC). Members of the EEC are typically countries that are seeking accession to the EU, including North Macedonia, Albania, Montenegro, and Bosnia and Herzegovina. Members of the EEC commit to transcribing the rules of the EU Internal Energy Market into domestic legislation.[11]

Electricity interconnectors

Electricity interconnectors are electricity cables that connect neighbouring electricity markets. Interconnectors connect the GB electricity market to France, Ireland, Northern Ireland, the Netherlands and Belgium (Table 5).

Interconnectors transmit electricity between markets, with electricity flowing from lower-priced markets to higher-priced markets. In a world of increasing wind and solar generation, interconnectors allow countries

9. CMS (2015). *CMS expert guide to electricity*. Link
10. Also known as the 'Clean Energy Package for all Europeans'.
11. Energy Community (undated). *Who we are*. Link

to export electricity when they have a surplus, and to import electricity when they have a deficit, which supports the business case for renewables and security of supply. A detailed explanation of the role of interconnectors can be found in Policy Exchange's 2014 report, *Getting Interconnected*, which argued that interconnectors should be allowed to compete freely with other methods of suppling electricity and system balancing services. [12]

Table 5: Operational electricity interconnectors between Great Britain and neighbouring markets.

Project Name	Market	Capacity (MW)	Commissioning Date
IFA	France	2,000	1986
Moyle	Northern Ireland	500	2002
BritNed	Netherlands	1,000	2011
East-West Interconnector (EWIC)	Ireland	500	2012
Nemo Link	Belgium	1,000	2019

Source: Ofgem.[13]

There is significant further interconnection planned between Great Britain and neighbouring markets. The following interconnectors are under construction: North Sea Link (to Norway), Eleclink (to France) and Viking Link (to Denmark). Planned interconnectors include Aquind (to France), FAB Link (to France), Greenlink (to Ireland), Gridlink (to France), IFA2 (to France), NeuConnect (to Germany) and NorthConnect (to Norway).

EU legislation governs the operation of interconnectors, including the trading rules that are used to allocate capacity. In North-Western Europe, interconnector flows are set one day ahead of delivery using the EUPHEMIA market coupling algorithm.[14] These flows can be changed closer to real-time if market conditions change.

The EU promotes interconnectors as a way to increase cross-border trading of electricity, whilst reducing costs and lowering carbon emissions. In 2002, the European Commission adopted a target for Member States to have interconnector capacity equal to at least 10% of installed generating capacity by the year 2020. The European Commission has set up an expert group to provide technical advice on extending this target to 2030.[15] In 2017, the expert group proposed new metrics for calculating the minimum interconnector capacity of each Member State, however each interconnector project will still be subject to a case-by-case cost-benefit analysis.

The EU also supports interconnectors financially through the Projects of Common Interest (PCI) regime. For example, the €1bn (£920m) Celtic Interconnector between Ireland and France has secured €530m (£490m)

12. Moore, S. Policy Exchange (2014). *Getting Interconnected: How can interconnectors compete to help lower bills and cut carbon?*
13. Ofgem (undated). *Electricity interconnectors.* Link
14. Epex Spot (undated). *NWE Day-Ahead Price Coupling: Questions and Answers.* Link
15. European Commission: News (November 2017). *Final report by Commission Expert Group on 2030 electricity interconnection targets.* Link

of EU funding.[16]

In Great Britain, interconnector projects have been supported by Ofgem's 'cap-and-floor' regime, which provides a minimum rate of return for investors in interconnector projects. Ofgem only supports projects that are expected to lower overall costs for British electricity consumers. Both the UK and EU approaches to interconnectors rely on case-by-case analysis, although the EU also advocates top-down targets for minimum levels of interconnection.

Carbon pricing

Since 2005, the EU Emissions Trading Scheme (EU ETS) has capped the total carbon emissions from some sectors of the EU economy. Carbon emitters trade permits between each other, hence the EU ETS is often described as 'cap-and-trade'. The EU ETS primarily covers the electricity sector, energy-intensive industry, and intra-EU aviation.[17] In theory, cap-and-trade promotes emissions reductions at least cost, because trading encourages emissions reductions by the companies that can do so cheaply.

Until recently, the major drawback of the EU ETS was the low price of emissions permits, which for many years traded at around 5 €/tonne. This suggests that, for many years, the EU ETS was not making a major contribution to reducing emissions. During the 2008 recession, EU economic activity and carbon emissions both fell sharply. This led to a fall in the demand for emissions permits, and therefore lower prices. These issues were discussed in Policy Exchange's 2013 report, *If the Cap Fits: Reform of European climate policy and the EU ETS*, which recommended adjustments to the emissions cap if macro-economic conditions changed significantly.[18] The EU ETS was subsequently reformed by reducing the number of permits issued and by creating a 'Market Stability Reserve' that is used to absorb any oversupply of emissions permits.[19] Following these reforms, EU ETS prices increased to 20-30 €/tonne in 2018 and then remained in this range.[20]

The UK Government is a strong advocate for carbon pricing as an efficient driver of decarbonisation. An upwards trajectory of the total carbon price is widely considered to be necessary in order to meet targets such as Net Zero greenhouse gas emissions by 2050. Due to the disappointingly low prices of the EU ETS in the early years of the scheme, the UK Government decided to introduce a UK-specific 'Carbon Price Floor' in the electricity sector. In April 2013, the UK Government introduced a fixed 'Carbon Price Support' (CPS) tax as a top-up to the price of permits in the EU ETS market. The CPS tax is currently £18 per tonne of CO_2, although its long-term trajectory is uncertain.[21] Policy Exchange's 2016 Research Note, *Next Steps for the Carbon Price Floor*, argued that the Government should provide clarity about the future of the Carbon Price Support tax.[22] The CPS tax is credited with contributing to reducing carbon emissions from coal power stations in the UK by over 80% between 2012 and 2016.[23]

16. Department of Communications, Climate Action & Environment (DCCAE) (December 2019). *Celtic Interconnector to proceed with €530m grant secured and signed.* Link
17. European Commission (undated). *EU Emissions Trading Scheme (EU ETS).* Link
18. Moore, S. Policy Exchange (2013). *If the Cap Fits: Reform of European climate policy and the EU ETS.* Link
19. European Commission (undated). *Market Stability Reserve.* Link
20. Ember Climate (undated). *Carbon Price Viewer: EUA Price.* Link
21. Hirst, D. House of Common Library (January 2018). *Briefing Paper: Carbon Price Floor (CPF) and the price support mechanism.* Link
22. Howard, R. Policy Exchange (November 2016). *Next steps for the Carbon Price Floor.* Link
23. Sandbag (November 2016). *Why does the UK Carbon Price Support matter?* Link

2. Likely impacts of Brexit on UK-EU energy cooperation

As with many policy areas, Brexit will lead to significant changes in the UK-EU energy relationship. At the end of the Transition Period (end of 2020), the UK will leave the EU Internal Energy Market (EU IEM), the EU Emissions Trading Scheme (EU ETS) and the European Atomic Energy Community (Euratom). The ongoing negotiations over the future relationship between the UK and the EU will determine which, if any, of the current rights and obligations of the EU energy policy are retained in the UK post-2020. Special continuity provisions for electricity trading apply in Northern Ireland (Box 1).

Box 1: Provisions in the Withdrawal Agreement for electricity trading in Northern Ireland

Since 2007, Northern Ireland has been part of the 'All-Island Single Electricity Market' (SEM), which comprises the Republic of Ireland (ROI) and Northern Ireland (NI). The Single Electricity Market aims to reduce the costs of electricity supply across the island of Ireland, using resources in both ROI and NI. The SEM is jointly administered by regulators in each jurisdiction.

As part of the Withdrawal Agreement, Northern Ireland will continue to participate in the SEM and relevant EU Directives and Regulations will continue to apply.[24]

As described in previous sections, the EU IEM promotes the efficient trade of electricity and gas across borders, and the EU ETS sets a common price for carbon emissions from certain sectors of EU economies. In theory, there are no technical or legal barriers to the UK and EU replicating the current arrangements, however this may not suit the political or institutional interests of one or both parties.

Impact of the UK leaving the Internal Energy Market (EU IEM)

The main impact of the UK leaving the EU IEM will be on cross-border trading of electricity between Great Britain, Northern Ireland and the EU. The UK Government has published guidance for industry, including for

24. HM Government (October 2019). *Agreement on the withdrawal of the [UK] from the [EU] and [Euratom]*. Link (Annex 4)

interconnector owners, code administrators and electricity traders.[25] If there is no Energy Agreement, the GB electricity market will no longer be 'coupled' with EU electricity markets, including the all-island Single Electricity Market covering ROI and NI (Box 2). This will reduce the efficiency of electricity trading and will require traders to register with an EU authority for the purposes of market oversight.[26] Research by Imperial College London estimates that uncoupling British-EU electricity trade could increase costs by as much as €700m (£625m) per year, with costs rising in both GB and the EU.[27] Any cost increases would impact on customer bills.

The Single Electricity Market (SEM) on the island of Ireland is relatively small and isolated compared to the markets in Great Britain (GB) and continental Europe. This smaller size makes the SEM more vulnerable to price rises in the event of supply or demand shocks. If the SEM is no longer coupled with Great Britain, then electricity costs are likely to rise in Ireland and Northern Ireland more than in the larger GB market. This is one reason why a group of EU and UK trade bodies specifically mention Ireland and Northern Ireland in their call for an efficient future UK-EU energy relationship.[28]

Box 2: What is electricity market coupling?

Electricity market coupling describes a system that automatically schedules flows on electricity interconnectors. Under market coupling, electricity flows from a region with a lower price to a region with a higher price.[29] For example, when there is high wind generation in the UK, electricity often flows from Great Britain to continental Europe across interconnectors. When UK wind generation is low, these flows are often reversed.

Market coupling reduces the overall cost of meeting electricity demand across the coupled region. Without market coupling, there is a risk that electricity will not always flow from lower-priced markets to higher-priced markets. This is because energy traders would need to reserve capacity on interconnectors further ahead of delivery, when they have less certainty over the balance of supply and demand in each region.

Regardless of whether UK and the EU electricity markets continue to be coupled, energy trade between the two jurisdictions is likely to increase in the coming decades as more electricity is produced by intermittent wind and solar generators. Market coupling increases the efficiency of cross-border electricity trading, lowering costs for customers in coupled markets.

The UK's departure from the IEM also creates uncertainty for the development of new electricity interconnectors. This is because, in general, a new interconnector will only proceed if energy regulators in both jurisdictions judge that the project will be beneficial to customers. In

25. BEIS (Updated 10 July 2020). *Guidance: Trading electricity from 1 January 2021.* Link
26. Ofgem (September 2019). *No-deal EU exit REMIT contingency arrangements – September update.* Link
27. Geske, J. Green, R. Staffell, I. Imperial College London (November 2019). *Elecxit: the cost of bilaterally uncoupling British-EU electricity trade.*
28. Energy UK (June 2020). *EU and UK trade bodies call for an efficient future energy EU-UK relationship.* Link
29. Ondřich, J. Energy Transition (July 2014). *Will market coupling lead to one European power market?* Link

2017, the French energy regulator, CRE, stated that it is not in a position *"to decide whether any new interconnector project between France and the United Kingdom is beneficial to the European community"* until the future UK-EU energy relationship is clarified.[30] This position is likely to delay interconnector projects between Great Britain and France, potentially raising costs for customers on both sides of the Channel.

Impact of the UK leaving the EU Emissions Trading Scheme (EU ETS)

The UK will leave the EU ETS on 31 December 2020. The UK Government has committed to replacing the EU ETS in the UK, either with a UK ETS or with a Carbon Emissions Tax (CET). In June 2020, the UK Government and Devolved Administrations announced that their preferred post-Brexit carbon pricing model would be based on a UK Emissions Trading Scheme. The UK ETS would operate either as a standalone system, or linked to the EU ETS, matching the approach of Switzerland.[31] Switzerland's model shows that it is possible to link to the EU ETS, although the linking process has proven time-consuming and complicated. Also, Switzerland has signed a number of bilateral agreements with the EU that replicate many provisions of EU Membership. Switzerland therefore has a closer relationship with the EU than the UK is likely to have in future. If the UK and EU could make a linked ETS work, then this could pave the way for further international linkages of the EU ETS, for example to California or Québec.

Separately, HM Treasury is consulting on a UK Carbon Emissions Tax (CET) as an alternative to a UK ETS.[32] A fixed tax on carbon emissions would give businesses better visibility over their emissions costs, providing that the level is set through an institutional mechanism enshrined in primary legislation, rather than being subject to year-to-year uncertainty through the annual Budget process. However, a CET would make it more difficult to link to the EU ETS in future.

Great Britain has had a higher carbon price than the EU in the electricity sector since 2013, when the UK Government introduced the Carbon Price Support tax. The higher carbon price in GB encourages electricity suppliers to import more electricity from the EU, even if lower-carbon supplies are available domestically. This distortion is a feature of neighbouring jurisdictions that have different carbon pricing regimes, in the absence of a 'carbon border adjustment mechanism'.[33]

It is also arguable that the long periods of low prices in the EU ETS, and the failure to introduce a price floor, mean that the scheme has not always been an effective driver of decarbonisation in the EU, and has necessitated the introduction of the Carbon Price Support tax in the UK. However, as described earlier, issues with low prices in the EU ETS have largely been resolved through the introduction of a Market Stability Reserve.

30. Commission de Régulation de l'Énergie (November 2017). *Deliberation [CRE]… …on establishing guidelines for new interconnector projects within the United Kingdom…* Link
31. UK Government and Devolved Administrations (June 2020). *The future of UK carbon pricing.* Link
32. HT Treasury and HM Revenue and Customs (July 2020). *Carbon Emissions Tax.* Link
33. European Commission (undated). *EU Green Deal (Carbon border adjustment mechanism).* Link

3. Current state of Brexit negotiations

There have been eight rounds of negotiations on the UK-EU future relationship, with the most recent round held in London in September 2020.[34] The agenda differs for each round; however, energy is often discussed. Other negotiating areas will also impact on the energy sector, including negotiations over State Aid, otherwise known as the 'Level Playing Field'. This section summarises the most recent publicly available UK and EU proposals on the future of UK-EU energy cooperation.

UK proposals

On 19 May 2020, the UK Government published its draft 'UK-EU Comprehensive Free Trade Agreement' (CFTA), accompanied by a series of draft agreements including a 'Draft Energy Agreement' and 'Draft Civil Nuclear Agreement'.[35] In a letter accompanying the draft texts, the UK Government's EU Adviser, David Frost, emphasised that the UK was *"looking for a suite of agreements with a Free Trade Agreement at the core"*. He also stated that the EU's approach to negotiations thus far had been to seek provisions that were not required in free trade agreements that the EU had previously agreed.

For energy, the UK is proposing a standalone 'Energy Agreement' that would replicate some provisions of the Internal Energy Market but not others. Either party would be able to leave the agreement for any reason by giving two years' notice. This provides a level of protection to either party if, for example, one party decided to lower its climate ambition or to unfairly subsidise its domestic energy industry. However, the UK's draft Energy Agreement is much less onerous than the legal obligations and enforcement powers of the Internal Energy Market, reflecting a desire for more control over UK energy policy. The EU negotiating mandate makes clear that the EU is opposed to standalone or sector-specific agreements, and wants energy included in the comprehensive Free Trade Agreement.

For electricity trading, the UK is not seeking to replicate the full scope of market coupling that currently exists in the Internal Energy Market. However, the UK is proposing that:

- Single day-ahead market coupling should continue unchanged post-2020.
- Single intra-day market coupling should be re-established by the end of 2022.

34. Cabinet Office (September 2020). *Eighth round UK-EU future relationship negotiations: 8-10 September 2020.* Link

35. UK Government (Updated 19 May 2020). *Our approach to the Future Relationship with the EU.* Link

The proposal would preserve the majority of the benefits of electricity market coupling, limiting cost rises on both sides. However, as wind and solar power increase, trading closer to real-time is likely to become more important due to the variability of such energy sources. This suggests that a lack of continuous market coupling will increasingly lead to higher costs. The UK proposals include UK participation in EU electricity balancing market initiatives such as TERRE (Trans-European Replacement Reserve Exchange).[36]

The UK is proposing that its regulators and system operators are able to participate as observers in European-level collaboration mechanisms such as ACER, ENTSO-E and ENTSO-G. The proposals also include an 'Energy Cooperation Group', chaired by UK and EU politicians.

The UK is proposing the joint development of offshore wind and electricity interconnector projects, with specific reference to the development of the North Sea, although no specific mechanisms are proposed. The UK's draft Energy Agreement contains a placeholder on carbon pricing. This placeholder notes that the UK would be open to considering a link between any future UK ETS and the EU ETS, *"if it suited both sides' interests"*.

Media reports suggest that, in early-August 2020, UK negotiators submitted a 'consolidated text', based on *"where they believe there is common ground with the EU"*.[37] This text has not been made public, so we do not know whether there have been changes to the UK's proposed 'Energy Agreement'.

EU proposals

On 18 March 2020, the European Commission published its negotiating text, *Draft text of the Agreement on the New Partnership with the United Kingdom*.[38] The EU's draft text is a single document covering all areas of the economy and includes a section on electricity and gas.[39]

The EU's draft negotiating text replicates some but not all of the rights and obligations that come with membership of the EU Internal Energy Market (IEM) or Energy Community, including:

- Freedom for customers to choose their electricity and gas supplier;
- Capacity markets do not go beyond what is necessary to address the identified adequacy concern;
- Unbundling (separation) of the ownership of transmission and distribution companies from the ownership of generators and suppliers;
- Publication of preventative action plans and emergency plans to address risks to security of supply;
- Preparation of ten-year network development plans for electricity and gas; and
- Market-based allocation of electricity interconnector capacity.

However, the EU draft text specifically excludes the UK from participating

36. Elexon (undated). *Trans European Replacement Reserve Exchange (TERRE).*
37. Wilshart, I. Bloomberg (August 2020). *Pessimism Returns to Brexit Talks as Hopes for Deal Slip Away.* Link
38. European Commission (March 2020). *Draft text of the Agreement on the New Partnership with the United Kingdom.* Link
39. Title XIII, Section 3

in existing EU electricity market coupling platforms, including coupling of day-ahead and intra-day markets, and real-time balancing platforms.[40]

The EU draft text also includes an obligation on the UK to implement a system of carbon pricing of at least the same scope and effectiveness as that provided by the EU ETS. The EU notes that it is open to the linking of a UK ETS to the EU ETS, provided it does not risk undermining the integrity of the EU ETS.

The EU's text also includes a section on 'Level Playing Field and Sustainability', which includes a section on State Aid control. Level Playing Field and State Aid commitments are currently one of the most contentious parts of the EU-UK negotiations, although not necessarily related to the energy sector.

On 2nd September 2020, Michel Barnier, the EU's Head of the UK Task Force, stated that the "*the UK is asking to facilitate electricity trade without committing its producers to equivalent carbon pricing and state aid controls*".[41] He added that "*In this area, as in others: without a common framework on state aid, the UK government would be free to hand out subsidies at will. Not just to support the green economy, but also polluting industries*". This suggests that carbon pricing and State Aid are still active areas of negotiation for future UK-EU energy cooperation.

40. Ibid (EU draft negotiating text). Page 207, footnote 27.
41. European Commission (September 2020). *Keynote Address by Michel Barnier at the Institute of International and European Affairs*. Link

4. Active areas of negotiation

This section explains three areas of active negotiation that affect the energy sector: electricity market coupling, State Aid and carbon pricing.

Electricity market coupling

Electricity market coupling promotes the efficient use of electricity resources across borders and is increasingly important as the share of renewable electricity resources increases. The UK's proposals call for the GB electricity market to remain coupled with EU electricity markets, including the Single Electricity Market covering Ireland and Northern Ireland. By contrast, the EU's proposals specifically exclude such market coupling.

The UK's proposals imply that electricity market coupling is in the interest of both parties and should endure even with the potential for regulatory divergence between Great Britain and the EU IEM. Under the UK's proposals, the EU would have recourse to challenge UK energy policies through an Energy Cooperation Group, and through the right to terminate the Energy Agreement for any reason and at any time by giving two years' notice.

The EU's proposals imply that electricity market coupling is a central purpose of the EU Internal Energy Market, and therefore the UK cannot participate in this process. The implication is that, outside of the IEM, the UK Government and energy regulators may implement policies that would undermine the proper functioning of the IEM, and therefore market coupling must be removed. Assuming that the UK maintains a strong carbon pricing regime, this risk is unlikely.

The loss of electricity market coupling is expected to raise costs for consumers both in the EU and the UK, and may be especially challenging for the market in Ireland and Northern Ireland, given its small size, lack of interconnection (except to Great Britain), and high share of wind power. Brexit has accelerated plans for a new electricity interconnector between Ireland and France, which is expected to be operational by 2026.[42]

Carbon pricing

As discussed in previous sections, both the EU and the UK see carbon pricing as a major policy instrument to drive decarbonisation of their respective economies. The section of the UK's 'Draft Energy Agreement' that deals with carbon pricing is light on detail but notes that *"additional legal provisions on carbon pricing may be inserted following further discussion"*.[43] The draft agreement notes that the UK's preferred approach is to establish a UK ETS,

42. Eirgrid Group (undated). *Celtic Interconnector.* Link

43. Ibid (Draft UK Negotiating Document: Draft Energy Agreement)

which could be linked to the EU ETS in future. Linking a future UK ETS to the EU ETS would increase the liquidity of emissions permits, which is likely to reduce the volatility of permit prices.[44] However, the Treasury is now consulting on implementing a Carbon Emissions Tax (CET) in the UK from the start of 2021 as an alternative to a stand-alone UK ETS.[45] The EU proposals would require the UK to establish an ETS that is of at least the same scope and effectiveness as the EU ETS as part of its proposals for a Level Playing Field.

Any decisions on carbon pricing will likely have implications for electricity trading. If the UK adopts a carbon pricing mechanism that significantly weaker than the EU ETS, then it is likely that the EU will not be open to close electricity market coupling between GB and the EU Internal Energy Market. This is because weaker carbon pricing in GB would encourage exports of electricity from GB to the EU Internal Energy Market, thus undercutting EU producers.

However, as noted in previous sections, the UK has had a higher carbon price than the EU in the electricity sector since April 2013, when the UK introduced that Carbon Price Support tax (CPS). This differential in carbon prices was not seen as a barrier to UK-EU electricity market coupling, likely because it encouraged increased electricity imports to Great Britain from the EU, thus benefitting EU electricity generators. It is therefore possible that the EU and the UK could reach an agreement on market coupling subject to a tolerable difference in carbon prices, rather than requiring an identical price.

State Aid

EU 'State Aid' rules make it unlawful for EU countries to give direct financial support to domestic industries if that aid would distort fair competition between companies in the EU Single Market.[46] In the industrial sector, EU State Aid law may restrict the ability of national governments to bail-out failing industries, which can be controversial if the recipient companies are seen as nationally important, either economically or politically.

In the electricity sector, State Aid rules apply to support schemes for renewable energy generators and to capacity mechanisms. Before Member States can implement these schemes, they must obtain approval from the European Commission. In 2018, in response to a legal challenge by a UK-based company, the General Court of the EU annulled the Commission's State Aid approval for the UK's Capacity Market, suspending the Government's main mechanism for keeping the lights on (Box 3).

44. Ember (formerly Sandbag). (July 2019). *The Future of UK Carbon Pricing*. Link
45. HM Treasury (July 2020). *Carbon Emissions Tax*. Link
46. Pinsent Masons (August 2014). *Introduction to state aid*. Link

Box 3: Annulment of the UK Capacity Market scheme.

The UK's Capacity Market (CM) scheme provides financial support to electricity generators, including energy storage, if they can guarantee that they will be available to produce electricity at peak times. This helps to ensure the UK's security of supply, commonly referred to as 'keeping the lights on'. CM contracts are awarded annually through competitive and technology-neutral auctions.

Under EU rules, the UK Capacity Market is classified as 'State Aid' to electricity generators, which would only be permissible under limited circumstances. As such, the UK Government had to seek State Aid approval from the European Commission prior to introducing the scheme. Approval was granted in July 2014, with the first auction following in December 2014.[47]

In December 2014, Tempus Energy, a UK-based provider of demand-side response (DSR) services, appealed against the Commission's decision to approve the Capacity Market on the grounds that it privileged electricity generators over providers of DSR. The appeal was eventually decided in November 2018, when the General Court of the European Union ruled that the Commission's State Aid approval was invalid and that the UK Capacity Market should be suspended.[48,49]

The European Commission reassessed and then reapproved the UK Capacity Market in October 2019, with minimal changes required to the scheme.[50] Despite the eventual reapproval of the UK Capacity Market scheme, this incident could have caused significant harm to both UK security of supply and to the attractiveness of investment in the UK energy sector. For some electricity generators, the Capacity Market formed an important portion of their annual revenue. There is a risk that without this support, some electricity generators would close, and that new generators would not be built.

Fundamentally, the suspension of the UK Capacity Market should serve as a warning to national Governments of EU Member States that, under current EU rules, State Aid approval for national schemes can be challenged in EU Courts, which can lead to retrospective suspension of their primary scheme to ensure security of supply many years later.

The UK and EU negotiating teams are currently at odds over State Aid and Level Playing Field commitments. Whilst this disagreement is likely to be wider than just State Aid in the energy sector, the 2018 ruling on the Capacity Market is an example of how EU State Aid rules can pose a risk to the UK's energy interests. When the UK Government designs it new domestic State Aid regime, it should incorporate the lessons learnt from the annulment of the UK Capacity Market under EU State Aid law. In particular, the Government should ensure that any legal challenges are concluded in a timely manner.

47. European Commission (July 2014). *State aid: Commission authorises UK Capacity Market electricity generating scheme.* Link
48. Evans, S. (November 2018). *Q&A: What next for UK capacity market after surprise EU ruling?* Link
49. InfoCuria Case-law (November 2018). *Judgement of the General Court. Case T-793/14.* Link
50. European Commission (October 2019). *State aid: Commission approves the British Capacity Market scheme.* Link

5. Issues not covered in the negotiations

The UK-EU negotiations are mainly focussed on existing markets and regulations, including energy trading, State Aid and carbon pricing. The EU's proposals for a carbon border adjustment mechanism are not included in the current negotiations over carbon pricing, but could have a significant impact on the future of UK-EU energy cooperation.

Carbon border adjustment mechanism

A carbon border adjustment mechanism (CBAM) aims to ensure that all goods consumed in a particular region face the same carbon price, regardless of where they are produced. Without a CBAM, countries and regions with high carbon prices (for example the EU and the UK) risk driving production of carbon-intensive goods offshore, undermining attempts to reduce global greenhouse gas emissions. Policy Exchange advocated for a carbon tax with border adjustments in a 2018 paper, *The Future of Carbon Pricing*.[51]

The European Commission has sought feedback on introducing a CBAM in the European Union, which would put a carbon price on imports of certain high-carbon goods from outside the EU.[52] The President of the European Commission, Ursula von der Leyen, included a CBAM in her manifesto for the Presidency.[53] The EU currently issues free ETS allowances to industries at a high risk of carbon leakage. If the EU does implement a CBAM, which is by no means certain, these free allowances would be reduced or removed.[54]

Globally, countries and regions have been reticent to introduce carbon border adjustments due to concerns over the impact on global trading relations, including the risk that CBAMs would be challenged at the World Trade Organisation. The US state of California's cap-and-trade system includes a carbon border tax on electricity imports from neighbouring states, however it has had mixed results.[55]

The UK and the EU are both strong supporters of carbon pricing. However, the UK Government has made few public statements on carbon border pricing and the EU's proposals for a CBAM are not explicitly mentioned in either negotiating mandate. If the EU proceeds a CBAM in 2021 or 2022, then further changes to EU-UK trade are likely. If the UK has a higher carbon price than the EU, as it has in the electricity sector since 2013, then it is possible that UK-based producers would receive a CBAM rebate from the UK Government when exporting to the EU. Of course, this works both ways, depending on which jurisdiction has a higher carbon price.

51. Policy Exchange (2018). *The Future of Carbon Pricing: Implementing an independent carbon tax with dividends in the UK.* Link
52. European Commission (undated). *EU Green Deal (carbon border adjustment mechanism).* Link
53. Ursula von der Leyen (2018). *A Union that strives for more. My agenda for Europe.* Link (page 2).
54. European Commission (2020). *Inception Impact Assessment: Carbon border adjustment mechanism.* Link
55. Pauer, S. (December 2018). *Including electricity imports in California's cap-and-trade program: A case study of a border carbon adjustment in practice.* Link

6. Principles and Policy Recommendations

This paper has focussed on the future energy relationship between the UK and the EU, spanning both the current negotiations and the potential for enhanced cooperation in the longer term. We have found five key principles to guide the UK's approach to energy relations with the EU, accompanied by five specific policy recommendations.

Key principles

Principle 1: The parties should aim for maximum 'market coupling' to reduce the cost of decarbonising the European energy system.

Electricity market coupling promotes the efficient use of energy resources to the benefit of consumers in both the UK and the EU, which is increasingly important in a world of increasing renewable energy resources. The UK and the EU should seek the deepest achievable market coupling between their electricity markets, subject to safeguards over carbon leakage and adequate regulation to prevent insider or fraudulent energy trading. The degree of market coupling will of course depend on both parties' desire for sovereignty over their respective energy affairs (see principle #2 and principle #3).

Principle 2: Any agreement must respect the sovereignty of both parties, particularly for schemes that ensure domestic security of supply.

The UK and the EU are no longer part of the same economic and political project, in large part due to the desire of the UK public to regain sovereignty over key economic and political choices. In the energy sector, this means that the UK Government should limit the ability of companies to use EU courts to challenge the mechanisms that it uses to ensure security of supply. This is particularly relevant given the UK's negative experience with the annulment of the Capacity Market under EU State Aid rules. This incident not only posed a risk to UK security of supply, but also risked undermining investor confidence in the UK energy sector. The EU should also recognise the UK's long-term record on market liberalisation, which is in sympathy with, and has often provided the model for, the principles of the IEM. Whilst it is reasonable for the EU to prioritise the integrity of the IEM (see principle #3), it is not realistic to inflate the risks to the IEM

by comparing the UK with far less advanced energy markets on the EU's periphery.

Principle 3: The UK should respect the EU's rationale for 'protecting' the Internal Energy Market.

The EU's Internal Energy Market is a key tool that the European Commission uses to promote secure, affordable, and low-carbon energy supplies in the EU. For example, the IEM has put limits on the ability of the Polish Government to subsidise polluting coal power plants, and the EU Emissions Trading Scheme has belatedly contributed to steep reductions in German coal consumption. IEM rules have also driven reform of the Single Electricity Market covering Ireland and Northern Ireland, with the latest reforms implemented in October 2018.[56] The IEM is also promoting the liberalisation and decarbonisation of non-EU energy markets through the European Energy Community, which operates in the West Balkans and in Ukraine.

UK proposals for an energy agreement should explicitly recognise the positive role of the EU's Internal Energy Market. In fact, much of the IEM is based on previous UK initiatives to liberalise its own energy markets.

Principle 4: The parties should cooperate to maximise the development of shared assets, including in the North, Irish and Celtic Seas. The parties should focus on the development of low-carbon energy projects such as offshore wind and associated grid infrastructure.

European energy markets are deeply intertwined, whether through the transfer of Norwegian and British oil and natural gas to continental Europe or through exports of French nuclear power to the UK and other neighbouring countries. These energy transfers are expected to increase in future, especially as more electricity interconnectors and renewable energy resources are developed in the North Sea. Both the EU and UK negotiating texts reference the importance of coordination on offshore energy projects, a principle that should be included in any agreement.

Principle 5: The parties should cooperate on carbon pricing, including carbon border pricing, both to protect domestic heavy industry and as an enabler of liberalising global trade.

The UK and the EU are both strong advocates for carbon pricing as a means to decarbonise their respective economies. To reduce the risk of carbon leakage, both jurisdictions should look to a carbon border adjustment mechanism (CBAM). This would protect domestic heavy industry from high-carbon competition and would reduce the carbon consumption of the UK and the EU. Carbon border pricing levels the playing field between producers in countries with different levels of climate ambition and different carbon prices. If the UK were to introduce a carbon border

56. SEM Committee (October 2018). *New all-island wholesale market goes live.* Link

price, this could reduce the need for other tariffs and non-tariff barriers. Carbon pricing can therefore be an enabler of the UK Government's aim to liberalise global trade

Policy recommendations

Recommendation 1: The UK is right to propose a relatively loose 'Energy Agreement', starting in 2021. This should be seen as a precursor to agreeing a long-term 'Energy Partnership' by the end of this Parliament.

The UK is seeking a relatively loose 'Energy Agreement' with the EU, which would not replicate the same level of energy market cooperation between the two jurisdictions. Whilst this will raise costs for both parties, gas and electricity markets will continue to function, even with less tightly coupled markets. Given the limited time remaining, a relatively loose Energy Agreement with the EU is a pragmatic approach to the negotiations over the Future Relationship. Importantly, both parties are committed to retaining the Single Electricity Market on the island of Ireland in all scenarios.

Under the UK's proposed Energy Agreement, either side can terminate for any reason with two years' notice. It remains to be seen whether this approach would provide the long-term stability needed to support the development of cross-border energy projects, which have long investment horizons and therefore require long-term certainty over institutional arrangements. This particularly applies to the development of energy projects in the North Sea. During the 2020s, the North Sea will see the development of significant new offshore wind capacity, possibly supported by an offshore North Sea electricity grid and complemented by hydrogen production infrastructure. This will require new approaches to cross-border energy cooperation, regardless of Brexit. The UK Government should therefore see an Energy Agreement as a step towards an enduring 'Energy Partnership', which should be in place by the end of this Parliament (Figure 2).

This Energy Partnership should include more rights and responsibilities, particularly around electricity market coupling and the development of cross-border energy projects. The new trading arrangements for cross-border energy projects will be complicated, as evidenced by recent work by the UK Government and Ofgem on offshore transmission networks and multi-purpose interconnectors (MPIs).[57] In return for a long-term Energy Partnership, the EU may want the UK to participate in other EU energy initiatives, including the Renewable Energy Directive (RED) and the Energy Efficiency Directive (EED). This would increase the scope and complexity of any partnership. 2024 is therefore a realistic timeline to negotiate a comprehensive UK-EU Energy Partnership, which will underpin investment in cross-border energy projects connecting from the late-2020s onwards.

57. Ofgem (August 2020). *Open letter: Notification to interested stakeholders of our interconnector policy review.* Link

Figure 2: Recommended timeline for UK-EU 'Energy Agreement' and long-term 'Energy Partnership'

Recommendation 2: The UK can accommodate some limitations on State Aid in its energy sector as part of a bilateral Free Trade Agreement. However, the UK must rule out the ability of companies to use EU courts to retrospectively challenge programmes that support investment and security of supply in the UK energy sector.

The UK and the EU are generally aligned in their aim to promote secure, affordable and low-carbon energy markets. The parties also generally agree that these aims should be achieved through competitive markets and private ownership. This means that the UK can accept some limitations on State Aid in the energy sector without significantly constraining the UK's energy interests. However, the 2018 annulment of the UK Capacity Market demonstrated how EU State Aid rules can work against reasonable and fundamental UK energy interests.

The UK Government must therefore not agree to mechanisms that allow companies to use EU courts to retrospectively challenge UK energy investment programmes. The UK and the EU could agree to a legal mechanism to assess energy investment programmes in either jurisdiction, but this must work both ways, it must happen *before* the investment scheme goes live, and must not be subject to legal challenges that produce decisions many years later.

Recommendation 3: The UK should seek a continuation of electricity market coupling, particularly between Great Britain and the Single Electricity Market covering Ireland and Northern Ireland, in return for making commitments on carbon pricing and oversight of energy trading.

Electricity market coupling is in the interests of both parties, subject to appropriate safeguards on carbon pricing and oversight of energy trading. From 2021, market coupling between GB and EU electricity markets will become looser or cease altogether. In the long-term 'Energy Partnership' (2024 onwards), the UK should seek full electricity market coupling, extended to include new arrangements for cross-border projects, for example offshore wind farms in the North Sea. It may be possible for the UK and the EU to agree new market coupling arrangements more quickly, within one to two years. This would benefit customers in both jurisdictions.

In the shorter term, the UK Government should propose using the market interface between Great Britain (GB) and the Single Electricity Market (SEM) covering Ireland and Northern Ireland as a testing ground for a new electricity trading relationship. This would recognise the particular needs of the SEM, which is small, is only interconnected to Great Britain, and has a high market share of wind power. Market coupling between GB

and SEM would only have a minor impact on the wider EU Internal Energy Market, because the SEM is not interconnected to continental Europe and will not be until 2026, when the Celtic interconnector is expected to become operational.[58] Continued market coupling between GB and the SEM would be in the interests of consumers in Great Britain, Northern Ireland and Ireland. In return for continued GB-SEM market coupling, the UK Draft Energy Agreement should be expanded to include an appropriate carbon pricing mechanism, as this section currently contains placeholder text.

Recommendation 4: From January 2021, the UK should implement a Carbon Emissions Tax (CET). We recommend that the Government should commit to a long-term, rising Carbon Emissions Tax as its preferred post-Brexit carbon pricing regime. However, if the UK Government wants to implement an Emissions Trading Scheme (ETS) in the longer term, they should only do so if it is linked with other jurisdictions and includes a price floor.

The UK Government's preferred long-term carbon pricing mechanism is a UK Emissions Trading Scheme (UK ETS), possibly linked to the EU ETS. If a UK ETS cannot be established by the end of 2020, the Government will establish a UK Carbon Emissions Tax (UK CET). The Government is currently consulting on the details of a UK CET, which the Government proposes setting each year at a level similar to the prevailing EU ETS price. The UK Government and Devolved Administrations have stated that their preferred long-term position is to establish a UK ETS. A UK CET is therefore only required to ensure that "*a carbon price remains in place in all scenarios*", including if there is no agreement on the future relationship between the UK and the EU.[59]

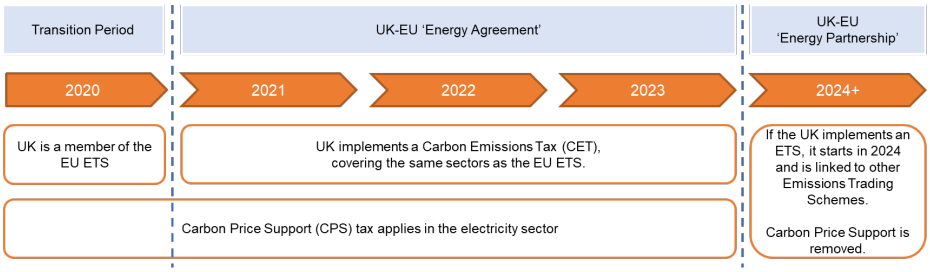
The limited time before the end of the transition period means that it will be difficult for the UK to establish a UK ETS linked to the EU ETS before the end of 2020. The Government should also reject a standalone UK ETS, because the smaller size of the UK market means that a UK ETS could be volatile.[60] The UK should therefore implement a UK Carbon Emissions Tax, covering the same sectors as the EU ETS. The level of the tax should be set at around the current level of the EU ETS (30 €/tonne or 27 £/tonne). The Government should set a clear and ambitious trajectory for the UK CET consistent with achieving Net Zero emissions by 2050. Research from the Grantham Research Institute suggests that carbon prices may need to rise to £160/tonne by 2050 to achieve Net Zero, although this figure could be lower if the Government introduces tailored support to bring down the cost of negative emissions technologies.[61] The Government should also set a trajectory for the Carbon Price Support tax that operates in the electricity sector.

Cooperation on carbon pricing is likely to form a key component of a long-term UK-EU energy partnership. This does not mean that the UK and the EU need to adopt identical carbon pricing mechanisms. We recommend that the UK Government should commit to a Carbon Emissions Tax as its long-term post-Brexit carbon pricing mechanism. If the Government

58. Eirgrid Group (undated). *Celtic Interconnector.* Link
59. Ibid (UK Governemnt and Devolved Administrations. *The future of UK carbon pricing*).
60. Ember (formerly Sandbag). (July 2019). *The Future of UK Carbon Pricing.* Link
61. Burke, J. Byrnes, R. and Fankhauser, S. Grantham Research Institute (May 2019). *How to price carbon to reach net-zero emissions in the UK.* Link

does want to establish a UK ETS, it would make sense for it to start at the same time as a long-term UK-EU Energy Partnership (Figure 3). The UK ETS could then be linked to the EU ETS as well as potentially to others including the Swiss ETS and the schemes that operate in California and Québec.[62] By 2024 there may be more clarity on moves towards a global system of carbon pricing or linked regional systems.

Figure 3: Recommended timeline for UK carbon pricing



Any UK ETS should include a floor or reserve price, to counter risk of low permit prices. The EU ETS suffered from low permit prices in its early years, a key reason for the UK introducing the Carbon Price Support tax in the electricity sector. The Government's proposals for a standalone UK ETS include an 'Auction Reserve Price' of £15 per tonne, which would act as a floor price in the early years of a UK ETS.[63]

The UK's CPS tax in the electricity sector was largely introduced to reduce emissions from coal-fired power stations. In 2019, coal power stations generated just 2% of UK electricity, compared to 39% in 2012, the year before the CPS tax was introduced.[64] The UK Government plans to phase out coal entirely from the UK electricity sector by October 2024.[65] Once coal power stations no longer operate in the UK, there is less rationale for the CPS tax, which should then be removed, as argued for in Policy Exchange's 2016 Research Note, *Next steps for the Carbon Price Floor*.[66] Removing the CPS tax from 2024 would align carbon prices in all sectors covered by a future UK ETS, whilst a price floor would mimic the original thinking behind the CPS tax.[67]

Recommendation 5: The UK should cooperate with the EU on a carbon border adjustment mechanism (CBAM).

Ideally, a common price on carbon would be agreed globally, negating the need for border adjustments. However, as the Paris Agreement shows, countries have different incentives, means, and levels of enthusiasm to act on climate change.

Carbon leakage is a major concern for heavy industry across Europe, especially as the emissions cap in the EU ETS tightens and as free allowances for trade-exposed sectors are likely to be reduced over time. The EU's proposal for a Carbon Border Adjustment Mechanism (CBAM) aims to address the risk of carbon leakage.

Policy Exchange previously argued for a UK carbon tax with border adjustments in a 2018 paper, *The Future of Carbon Pricing*.[68] The UK should

62. California Air Resources Board (CARB) (undated). *Program linkage.* Link
63. Ibid (UK Government: The future of UK carbon pricing)
64. BEIS (2020). *Dukes 2020. Table 5.6. Electricity fuel use, generation and supply time series.* Link
65. BEIS (February 2020). *End of coal power to be brought forward in drive towards net zero.* Link
66. Ibid (Policy Exchange). *Next Steps for the Carbon Price Floor.*
67. Hirst, D. House of Commons Library (January 2018). *Carbon Price Floor (CPF) and the price support mechanism.* Link
68. Policy Exchange (2018). *The Future of Carbon Pricing.*

therefore cooperate with the EU's proposals for a CBAM as a way to both reduce carbon leakage and to encourage more countries to implement carbon pricing. A CBAM would help to protect domestic heavy industry from high-carbon imports and would spur R&D in low-carbon manufacturing. It can also allow simplification of environmental regulations by applying a single tax rather than multiple, complex interventions. A CBAM between the UK and the EU would also allow the parties to pursue different approaches to carbon pricing without undercutting each other's heavy industry. For example, the UK could implement a Carbon Emissions Tax, whilst the EU continues to use an ETS. Carbon border adjustments would be applied to either UK or EU producers, depending on which carbon price was higher at the time.

However, there are major challenges to implementing a CBAM, including:

- **Impact on UK trade deals with non-EU countries:** Countries or regions implementing taxes on foreign goods or companies can harm diplomatic relations and can make it more difficult to agree a trade deal. The UK's newly implemented 'Digital Services Tax' has drawn the ire of US Senators, including two who have claimed that the tax *"unnecessarily complicates the path forward for a US-UK trade deal"*.[69] Separately, the Trump Administration has threatened to retaliate against an EU carbon border adjustment *"if it is in its essence protectionist, like the digital taxes"*.[70] A potential Biden Administration may take a more favourable view of carbon pricing including a CBAM. Even if a carbon border adjustment is designed fairly, i.e. applies an equal carbon price to domestic and foreign producers, it is likely that countries will raise objections if it harms their domestic carbon-intensive industry. Any UK proposal to introduce a CBAM will therefore need to be considered in light of the Government's desire to secure new trade deals, particularly with non-EU countries.
- **Compatibility with World Trade Organisation (WTO) rules:** Under a CBAM, countries with a high carbon price would apply a carbon tax to imports of certain products from countries with a lower carbon price. Because this involves a tax at the border, some claim that this involves unfair discrimination against foreign producers, violating WTO rules, and specifically violating the General Agreement on Tariffs and Trade (GATT). However, provided a CBAM is applied fairly to all producers, and provided that imports face the same carbon price as domestic producers, it should be WTO-compliant. Jennifer Hillman, a former member of the WTO Appellate Body, has written a detailed paper on how to design a CBAM in accordance with WTO rules.[71] A more recent report makes detailed recommendations for a WTO-compatible EU CBAM, including possible changes needed to the EU ETS.[72] These recommendations would also apply to the design of any new UK ETS.

72. Krenek, A. ÖGfE (January 2020). *How to implement a WTO-compliant full BCA as an important part of the European Green Deal.* Link

69. Williams, A. Financial Times (July 2020). *US Senators warn UK digital services tax could derail trade talks.* Link

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- **Preventing countries from using carbon border adjustments as covert protectionism:** The UK is a champion of global free trade and will want to ensure that CBAMs are not used by the EU or others as a covert protectionist measure. The WTO GATT provides significant comfort that any WTO-compliant carbon border adjustment will not be a covert protectionist measure.
- **Fairness and acceptability to the developing countries:** Developing countries are less responsible for climate change and are less able to deal with their own emissions. The Paris Agreement explicitly recognises "*common but differentiated responsibilities and respective capabilities, in the light of different national circumstances*".[73] In order for a CBAM to comply with WTO rules, it must apply equally to producers in all countries. However, this does not prevent developed countries from providing financial assistance to developing countries to help them to decarbonise their economies, as the UK already does through the International Climate Finance initiative.[74]

The UK Government accepts the need to tackle environmental damage caused by domestic consumption, regardless of where products are produced, as evidenced by a recent consultation on reducing deforestation in international supply chains.[75] Applying a CBAM to carbon-intensive imports would extend this logic to the UK's consumption of greenhouse gases embedded in imported goods.

In a recent Policy Exchange webinar, Malcolm Turnbull, the former Prime Minister of Australia, stated that he thinks "*that carbon border adjustments are inevitable*".[76] The challenge for the UK is to influence global standards for carbon border adjustments, based on the UK's desire for free and open trade, whilst moving toward Net Zero greenhouse gas emissions globally.

The future of UK-EU energy cooperation

If the UK Government follows the recommendations in this report, and subject to the agreement of the EU, the future of UK-EU energy cooperation would be as summarised in Table 6.

73. UNFCCC (undated). *The Paris Agreement.* Link
74. DfiD, DEFRA, BEIS (June 2018). *Guidance: International Climate Finance.* Link
75. DEFRA (August 2020). *Forests: reducing deforestation in UK supply chains.* Link
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Table 6: Summary of key terms in a UK-EU Energy Agreement and long-term Energy Partnership

Key terms	UK-EU Energy Agreement	Long-term UK-EU Energy Partnership
Time period	2021 to 2024.	2024 onwards.
Market coupling	Existing market coupling maintained as far as possible, particularly between Great Britain and Ireland/Northern Ireland.	Electricity market coupling extended to include new arrangements for shared offshore energy projects.
Carbon pricing	UK implements a Carbon Emissions Tax.	We recommend that the UK CET continues for the long term. However, if the UK Government implements a UK ETS, it is linked to the EU ETS and includes a floor price.
State Aid	UK and EU agree the minimal provisions possible to allow market coupling to continue.	Detailed negotiations required over what limitations the UK can accommodate.
Carbon border adjustment mechanism (CBAM)	Negotiations ongoing, but no CBAM in force.	UK and EU implement a common approach to carbon border adjustments.

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