

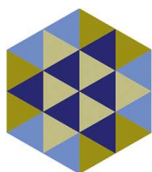


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**REPORT** MAY 2018

**THE POLITICAL ECONOMY OF CLIMATE-RELATED FINANCIAL DISCLOSURE**  
CASE STUDIES OF THE UNITED KINGDOM,  
GERMANY, THE UNITED STATES OF  
AMERICA AND BRAZIL

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## About E3G

E3G is an independent climate change think tank operating to accelerate the global transition to a low carbon economy. E3G builds cross-sectoral coalitions to achieve carefully defined outcomes, chosen for their capacity to leverage change. E3G works closely with like-minded partners in government, politics, business, civil society, science, the media, public interest foundations and elsewhere. In 2016, E3G was ranked the number one environmental think tank in the UK. [www.e3g.org](http://www.e3g.org)

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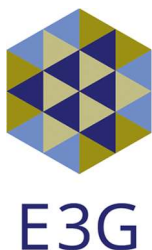
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# EXECUTIVE SUMMARY

## Purpose of this report

The Paris Agreement marked a watershed moment for tackling climate change. Post-Paris there has been a shift in focus from securing an international political agreement to implementing the low carbon transition. The political economy choices made around implementation of the transition will create clear winners and losers and represents one of the biggest challenges to achieving a well below 2°C future. While huge efforts have been invested in the technical analysis of the transition, to date very little attention has been given to political economy analysis. This report aims to address this gap with respect to implementing the recommendations from the Taskforce on Climate-Related Financial Disclosures (TCFD) by providing case studies in four key countries: The United Kingdom; Germany; The United States of America and Brazil.

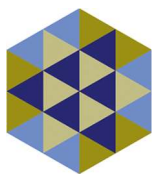
## The political economy of finance

The finance sector is deeply entangled in the politics of decarbonisation. Finance sectors tend to be a mature aspect of most countries' economies – in contrast to new and rapidly growing sectors, such as digital and renewable energy. However, the role of climate change in finance is relatively new. This creates opportunities for innovation and competitive advantage, but finance institutions are also deeply entangled with supporting high carbon sectors. In many countries, large multi-national incumbents dominate the finance sector and will need to evolve to deal with climate issues. New entrants from the Fintech sector could lead to disruptive change, although to date their impact has been relatively limited.

Given the strong integration of finance across other systems within a country, analysing the politics of the finance system in isolation misses important linkages. It is therefore crucial to embed finance analysis in a broader context of the overall politics of decarbonisation. In particular, public-private finance dynamics can play a crucial role and vary markedly across different countries. As shown in Box 1 below, E3G's Political Economy Mapping Methodology (PEMM) framework enables consistent comparison across different countries to examine the role of finance in terms of its economic significance, political weight and external projection.

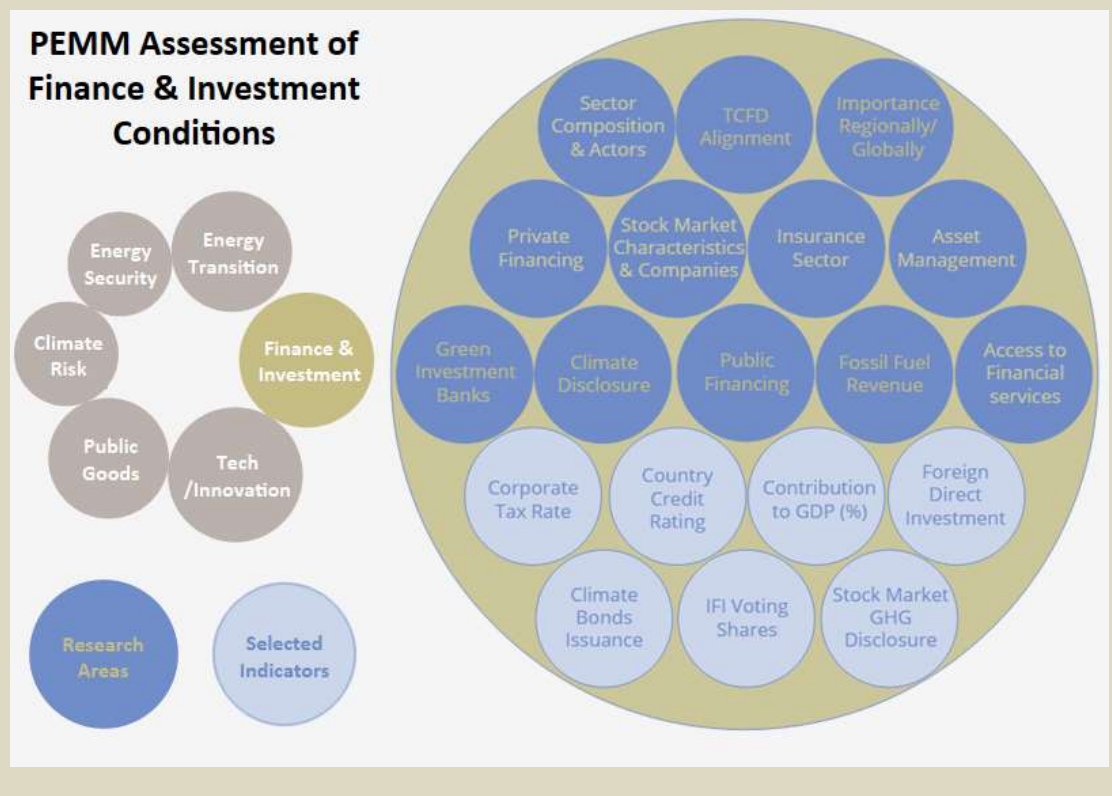
### Box 1: Mapping the political economy of finance

**Political Economy Mapping Methodology (PEMM) is an analytical tool developed by E3G to assess threats and opportunities to countries presented by the low carbon transition.** The three-dimensional assessment of national conditions, political system and external projection helps to determine what constructs a country's core national interest and identify key national and international interventions which could help to increase domestic climate ambition and enable progress on the low carbon transition. The PEMM takes an iterative approach and combines hard analytical data, intelligence gathering, in-country testing and informed judgement.



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For the purposes of this report, the PEMM has been further developed to include an assessment of a country's finance and investment landscape. The new methodology aims to understand how developed the finance system is within the economy; the key political actors involved and how the system is projected externally. As illustrated below, this is based on selected indicators, such as contribution to GDP and country credit rating, as well as broader research areas which require qualitative research and intelligence gathering, including the characteristics of public and private financing and governance mechanisms on climate-related disclosure. This information adds to the overall assessment of a country's alignment with TCFD recommendations and the level of support for a low carbon transition.

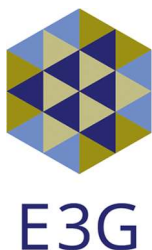


## Country case studies: Key findings

By applying E3G's Political Economy Mapping Methodology (PEMM) to these four key countries, we have identified initial conclusions and insights on taking forward climate-related financial disclosures. This analysis represents a first step in creating a broader political economy analysis for these issues. Further work will be necessary both to deepen the assessments and to broaden results to cover more countries. Nonetheless from the political economy mapping conducted in these case studies a number of key dynamics emerge as regards to furthering the implementation of climate-related financial disclosures:

### United Kingdom

Deep divisions over Brexit dominate the political economy landscape in the UK. Securing future competitive advantage is the primary concern for most sectors. To the extent that climate change is viewed as supporting this agenda the UK will remain a global champion.



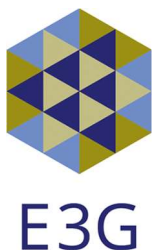
However, pressure to secure new trade agreements with countries, such as the United States, could lead to a lowering of standards and risk a race to the bottom. Thus, while the UK is currently broadly supportive of climate-related financial disclosures, it is probably best characterised as a ‘distracted friend’:

- The finance sector dominates the national conditions in the UK, contributing to 6.5% of GDP and 32% of commercial service exports;
- The UK is simultaneously a champion of green finance and a major centre for high carbon fossil fuels. This includes active pursuit of new fossil fuel listings, such as the Saudi Aramco IPO, at the same time as initiating the Green Finance Taskforce;
- Brexit and the loss of passporting rights for the finance sector into the EU has led to concerns over competitiveness and the risk of business relocating to Frankfurt, Paris, Stockholm and Dublin. London’s leadership on green finance is seen as one aspect of maintaining its competitive position;
- Brexit uncertainty and a lack of legislative time for other issues has led to a dominant ‘wait and see’ narrative emerging on future finance legislation. The immediate focus of most stakeholders is on incorporating climate into existing regulation. Implementation of the TCFD recommendations will be viewed through a lens of future competitiveness and the Global Britain agenda, which could swing either way depending on whether they are perceived to provide an advantage or a burden;
- The UK has a number of high profile public champions, such as Mark Carney, Governor of the Bank of England whose term expires in 2019. It is not clear that the views of these individuals have been mainstreamed through their institutions, potentially leaving them vulnerable to change at the top;
- As the UK navigates its new position in the world post-Brexit, there will be a critical window to influence its long-term trajectory on climate finance. This could result in a race to the top with the UK playing a strong role alongside the EU and other countries on global standards. However, it could also lead to a race to the bottom if the UK tries to position itself as a low tax, low regulation hub alongside emerging financial markets like Dubai. How the UK relates to EU standard setting during any transition and post-Brexit will have a critical impact on long term European regulation.

### Germany

Following Germany’s 2017 general elections, the country experienced six months of prolonged party negotiations and failed attempts to form a government. A grand coalition government was eventually formed in early 2018, reducing political uncertainty but also exposing new political divides and growing polarisation. Germany is a champion of action on climate change globally, though it has a very conservative finance sector. Its primary political focus in finance is on Eurozone stability and associated reforms. This can lead to Germany being less progressive on climate disclosure issues internationally than it is on many other aspects of the climate agenda. As a result, Germany could be characterised as an ‘uncertain friend’ regarding TCFD implementation:

- The finance sector in Germany is less influential politically than in either the UK or the US. Industrial sectors strongly linked to national identity, such as automobiles



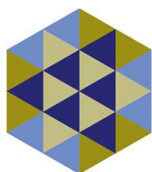
and manufacturing, have the most significant political economy weight. If TCFD was perceived to be increasing the cost of capital for these industries, it would lead to a strong political backlash;

- The heterogeneity of the German banking sector, with over 1000 credit unions providing finance domestically is an additional dynamic not seen in other financial sectors;
- Germany has been relatively slow in responding to climate disclosure issues domestically. Its finance industry and regulation is dominated by very conservative voices who are often reluctant to change. Some voices in the finance industry are actively aiming to slow down the implementation of TCFD regulations to give Germany time to catch-up;
- Frankfurt is looking to secure business switching from London post-Brexit but faces competition from other European centres such as Paris. Given the strong focus in France on implementing the TCFD recommendations, this may lead to an opportunity to create a race to the top in Germany. However, Germany also fears competition from New York and other centres who may not implement strong TCFD regulations;
- There are a large number of public banks (such as KfW) which suffered significantly from the financial crisis and are yet to fully recover. They also have significant investments in high carbon industries, especially coal;
- At the global level the German finance ministry is less ambitious than other parts of the German government. This complicates dynamics on climate disclosure at the German G20. Whether or not this will change under the new coalition government remains unclear.

### United States

The election of President Trump in the United States has led to considerable volatility and deep division within the country's national conditions, particularly on the energy transition, energy security and public goods. It has also created a more polarised political system, which is increasingly divided on the low carbon transition. The shift to an "America First" foreign policy and the decision to withdraw the US from the Paris Climate Change Agreement has also had a strongly negative impact on its external projection and positioning, despite progressive action taken by individual US states and non-state actors. The US is a leader on global finance, though considering its tendency to limit regulation it would make it difficult for the US to advocate and carry the message around TCFD implementation. As such, it would be characterised as a 'divided actor' with strong forces pushing in different directions:

- The US private finance sector is the dominant actor in global finance and it exerts significant political influence both domestically and in nations around the world. The US regulators are one of many global actors that set norms and standards, and US asset managers oversee about 60% of the global retirement market;
- US markets play a strong role both in climate finance innovation and in supporting high carbon investment, particularly oil and gas;
- The finance sector has traditionally sought to minimize regulation. Although there are important champions for climate-related disclosures, such as Mayor Bloomberg,



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the dominant position of the sector, even amongst climate progressives, is to avoid mandatory regulation;

- However, the US has a strong focus on activist investment from both public sector and private funds. These actors play a leading role in the development of new analytical tools to assess risks. Aligning climate-related disclosures with creating more efficient markets and better analytics could accelerate adoption;
- The Trump Administration is actively hostile to climate regulation and environmental and social governance issues. This is playing out both in the US' position internationally at the G20 and in domestic regulation;
- However, sub-national actors, especially state and city governments, play a strong role in climate politics. Individual states, such as California, may be able to move faster in many areas than Federal regulation. The US is a leader in green municipal bonds, with \$US 18 billion issued by sub-sovereigns since 2015.

### Brazil

Economic development and growth in Brazil has stalled alongside the nation's most severe economic recession and high political instability resulting from one of the world's largest anti-corruption investigations into political and business leaders. The focus on economic recovery has led to renewed interest and foreign investment in offshore oil and gas resources, creating national conditions and a political system that strongly oppose a low carbon transition. It has also elevated the importance of Brazil's high carbon assets in international trade, leading to greater divergence between Brazilian foreign policy and climate diplomacy. Despite the economic and political weight of Brazil's finance system, both nationally and regionally, the increasing role of public finance and Chinese foreign direct investment (FDI) into the most polluting sectors could create conditions where stronger disclosure requirements lead to the displacement of carbon-intensive financial assets out of the more transparent private sector into the less transparent public sector. In this context, Brazil would be characterised as 'a lever not worth pulling':

- Brazil's finance sector is highly entangled with the government and carbon intensive business, especially agribusiness and oil. The state is reliant on oil revenues to remain solvent and oil is key to financing national social development programmes;
- Brazil's finance landscape is dominated by public banks (55% of total loans are from state-owned banks) and Chinese FDI. China is one of the largest investors in Brazil, particularly in oil and gas extraction. There are currently limited opportunities to attract other investors into low carbon sectors in Brazil;
- Economic vulnerability owing to the recession has created an entry point for more FDI into fossil fuel development and a greater role of public finance institutions. Loans from public banks increased by 20% since the start of the economic recession and foreign firms are responsible for about 21% of domestic oil and gas production;
- The current environment makes TCFD implementation challenging. To the extent that it could be positioned to help drive greater investment in the economy there may be some appetite. However, this will need to be linked to more fundamental governance and anti-corruption reforms in order to have a sustained impact.



# Part I: The political economy of taking forward the recommendations of the Taskforce on Climate-Related Financial Disclosures (TCFD) in key countries

## Political economy of disclosure

Following the Paris Agreement there has been a growing recognition of the importance of climate-related disclosure for investors, government and citizens globally. It was to remedy a lack of clarity and transparency on what constitutes useful and comparable disclosures that the Financial Stability Board (FSB) established the Task Force on Climate-Related Financial Disclosures (TCFD).<sup>1</sup> The TCFD, made up of a range of actors in the finance sector which both issue and use information, released its final recommendations to G20 leaders in June 2017. The report structured its recommendations around four areas that represent the core elements of how organisations operate: governance, strategy, risk management and metrics and targets. It also provides guidance to support organisations to develop climate-related financial disclosures.<sup>2</sup> Investors, banks and many global companies have welcomed the recommendations. More comparable and comprehensive decision-useful disclosures will allow investors to make more informed decisions that also act to reduce systemic risks to the global financial system.<sup>3</sup>

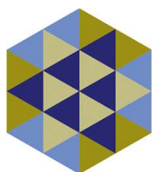
Momentum behind the TCFD recommendations is growing fast, with more than 230 companies representing a combined market capitalisation of over €5.1 trillion having voiced their support.<sup>4</sup> Despite these firms' commitment to implementing the recommendations, there are concerns about the extent of the information companies are expected to disclose which may affect competitiveness or create new liability risks. Initial expectations suggest the market will take some time to develop effective procedures to disseminate the level of information foreseen in the TCFD recommendations.

There are also concerns regarding the potentially slow and uneven rate of uptake of the TCFD recommendations to the voluntary nature reporting, an issue voiced on the part of regulators, investors and civil society. This would be damaging for sustainability and inhibitive for action on climate change. In this context, understanding the political economy of country decisions, especially the interaction between national conditions, the political system and external choices, may help unlock progress and accelerate implementation.

## Opportunities for TCFD

The UK's Green Finance Taskforce, established by the government and consisting of leading green finance experts from across the finance sector, launched the report 'Accelerating Green Finance' in March 2018. The report made several recommendations for the implementation of the TCFD recommendations, specifically identifying four areas of the financial system where these are most important.<sup>5</sup>





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### 1. Information failures:

Despite wide acceptance in business and finance of the need to reduce emissions, information failures limit common understanding of the financial risks and opportunities and hamper decision making. For example, assumptions about the severity and implications of climate risk vary among companies; there may be limited forward looking climate-related information disclosed; and disclosure may not be meaningful enough to provide insight on potential financial impacts. Unless there is a clear signal that widespread, high quality disclosure is required, the value of the reporting of a minority of companies and investors will be undermined, creating a disincentive for the market to develop.

### 2. Financial stability risks:

In the UK, the Bank of England has argued that climate change and policies to mitigate it could affect the ability of central banks and regulators to meet monetary and financial stability objectives. The speed at which re-pricing occurs due to physical and transition risks of climate change is uncertain but could be important for financial stability as well as the soundness and safety of financial firms.<sup>6,7</sup>

### 3. Trust in capital markets:

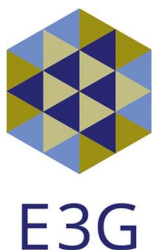
Expectations of capital markets on sustainability challenges are increasing. Disclosure and transparency helps to encourage trust in capital markets. In addition, companies (and directors) may face legal liability exposure by failing to assess and manage environmental risk in accordance with their duties or failing to report risks. Without credible comparability of climate-related disclosures for companies within the same sector, let alone between sectors, it is difficult for financial system users and beneficiaries to trust the information they receive and to make decisions based on this information.

### 4. Productivity:

Without better information, businesses face risks to future productivity and efficiency gains. The implementation of climate and sustainability practices at the organisation-level can therefore help companies become more competitive. Without a clear signal from governments and regulators that the climate transition and disclosure of relevant information is a substantial issue for all emission intensive companies, energy dependent and related industries, there is a real risk of delayed consideration of the implications by industry. These actors favour short-term gains and have a general disinterest in long-term trends, as well as disbelief in the ability to meet the goals of the Paris Agreement.

## Political economy implications for key countries

Efforts towards implementing TCFD have been made in some EU member states and at the EU-level with the publication of the EU High-Level Expert Group on Sustainable Finance's 2018 report.<sup>8</sup> France has been at the forefront due to existing legislation on non-financial disclosure. Article 173 of its Energy Transition Law requires all major institutions to evaluate, report and address their exposure to long-term climate-related financial risk. It has been designed using a 'comply or explain' approach, creating a powerful means to draw the attention of institutions to disclosure. The provisions of Article 173 are close to those of the TCFD, with climate disclosure by the non-financial sector aimed at enabling climate disclosure by the financial sector.<sup>9</sup>



There is appetite across the EU to endorse the TCFD guidelines and implement the recommendations at the EU level. Momentum has been building behind the TCFD recommendations which are now recognized internationally as the standard on climate-related disclosure. To this end, the EU is undertaking a review of its Non-Financial Reporting Directive (NFRD) to explore how the NFRD requirements could be better aligned with that of the TCFD.<sup>10</sup> It is important that the information generated by transparency processes is of sufficient quality to inform decision making. Capacity building and tools for learning and promotion of best practice will be important to achieve this.

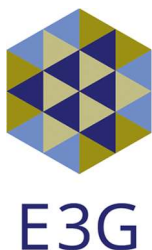
The High-Level Expert Group on Sustainable Finance identified several actions to enable implementation of the TCFD recommendations. Its priority is for the EU's voluntary experimentation with TCFD disclosure to be fast moving and to learn from best practice throughout the process. This will help companies, investors and regulators to learn and adopt quickly. It also recommends open dialogue and meetings between leaders on TCFD implementation to troubleshoot problems and aid implementation. The Expert Group has also advocated lesson learning from other policy areas, including the review of the NFRD to assess how best a 'comply or explain' approach can help with the adoption of disclosure.

### United Kingdom

Uncertainty following the decision to leave the EU is the dominant feature of the UK political landscape. Brexit may have a major impact on the City of London and other EU financial centres, especially Frankfurt and Paris which are trying to attract business away from the UK. For example, tax exemptions for foreigners and cuts in property taxes have been used to attract talent from London to Paris.<sup>11</sup> The full extent of impacts on the UK remains unclear owing to a lack of clarity over the future relationship status and the possibility for a transition deal extending to 2020. Managing Brexit is taking up the majority of capacity within the UK political system, meaning there is relatively little focus on other issues. Despite this, the UK has so far remained a champion of climate change at the international level, including the launch of the Powering Past Coal Alliance in 2017. However, if there is a major negative economic shock as a result of Brexit this could lead to climate change being deprioritised in the future.

A requirement to report material risks, which may include climate-related risks, permeates the existing reporting framework. For example, companies' annual reports must comply with the reporting requirements from a variety of sources including the *Companies Act 2006*, Listing Rules and The Corporate Governance Code. The strategic report, which forms part of the annual report, for quoted companies must include information on principal risks and uncertainties, and environmental and social impacts. The EU Directive on Non-Financial Reporting has been implemented as an amendment to the *Companies Act 2006* and sets out further requirements in relation to relevant companies' disclosure of social and environmental performance, including the disclosure of Greenhouse Gas (GHG) emissions.<sup>12</sup>

Trust-based, contract-based and public-sector pension funds must comply with disclosure obligations under various legislation and rules including the Occupational and Personal Pension Scheme (Disclosure of Information) Regulations 2013, the FCA Handbook and the Local Government Pension Scheme Regulation 2013. These require trust-based pension funds to prepare an annual report and Statements of Investment Principles (which are



disclosed to members on request), and for the pension provider's Independent Governance Committee (in relation to contract-based pension funds) and the relevant authority (in relation to the LGPS) to disclose an annual report, among other documents.

The UK has been seen as a leader on the implementation of recommendations provided by the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD) and can play an enabling role in the future. The UK Government has officially endorsed TCFD recommendations and encourages all listed companies to implement the voluntary framework to align climate-related risk management and financial governance.<sup>13</sup> Key actors helping to accelerate mandatory climate reporting in the UK include ClientEarth, the Climate Disclosure Standards Board (CDSB) and CDP. These actors are well positioned to engage the Financial Reporting Council's (FRC) 'IASB Disclosure Initiative' and 'Clear & Concise' project.<sup>14</sup>

The UK Government also established the Green Finance Taskforce in 2017 with a mandate to provide recommendations on green finance. Its report was published in March 2018, featuring extensive recommendations on implementing TCFD.<sup>15</sup> If these measures are implemented, the UK would become the first jurisdiction globally to fully implement the TCFD. Existing UK legislation provides the foundation for implementing the TCFD. Yet, it also includes several gaps such as the absence of forward looking analysis; inadequate consideration of transition risks;<sup>16</sup> and only partial enforcement of existing requirements.<sup>17</sup>

Realising the opportunities that global market leadership on green finance provides will require a response to these gaps. The Green Finance Taskforce argued that organisational level improvements in performance and resilience due to the adoption of sustainability practices by corporates will have macro-economic benefits, including helping to improve the productivity of the UK economy as whole. Demonstrating the benefits to the UK in the post-Brexit environment will be key to making progress.

The increased uncertainty following the referendum has created a bias against taking any additional actions that may compound risks until the final outcome on Brexit becomes clearer. However, to the extent that initiatives can be aligned with enhancing future competitiveness of the UK economy post-Brexit then this is likely to garner much broader support. The synergy between the focus on low carbon competitiveness in the UK's industrial strategy and TCFD implementation is one obvious route to pursue. Messaging on enhancing UK competitiveness is also likely to play well in the UK's current media environment.

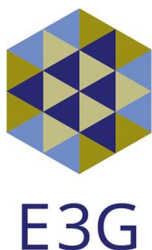
Given the intense competition between Paris and the City of London, the French leadership on non-financial disclosure legislation could be used as a catalyst for UK action. There is also potentially strong alignment with continued international leadership on climate finance and the focus on strengthening diplomatic relationships with Commonwealth countries.

## Germany

Following months of party negotiations and political uncertainty, Germany formed a grand coalition government in early 2018. However, the country remains divided on many issues

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<sup>1</sup> ClientEarth has reported several UK quoted companies to the Financial Reporting Council that are not meeting the disclosure requirements set out under the 2006 Companies Act.

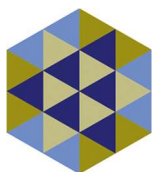


including the low carbon transition and there is uncertainty on several key aspects of future policy. Following Brexit there has been a renewed focus on the Franco-German engine at the centre of Europe and interest for Germany to follow in the footsteps of France on sustainable finance, though it will likely wait for further guidance from the European Commission given the recent release of their action plan on sustainable financing. Germany's FDP opposition party, however, has been critical of the action plan.<sup>18</sup> The pace of the energy transition in Germany has recently slowed and domestic coal production remains vital for ensuring a stable grid and energy system. Coal is also a political issue owing to the concentration of coal activities in key communities. Regional identity is strong and closely linked to industry, such as coal and steel, and it is the interests of these local business actors which create division on the low carbon transition.

As seen in the UK, the EU Directive on Non-Financial Reporting has also been implemented in Germany to ensure that large companies which are capital-market orientated publish a non-financial disclosure statement.<sup>19</sup> Within the Commercial Code, which dictates what is included in a company's annual statement, a recent transposition of EU Directive 2014/95/EU has been created which requires disclosure of environmental information that is relevant to the company's performance and impact of its activity.<sup>20</sup> Companies within the emissions trading system are required to disclose annual emissions as set by EU Directives.<sup>21</sup> As for pension funds, there are limited requirements. In some cases, they are required to detail how they take ecological factors into investments, but this does not appear to be specific to climate-related risk.<sup>22</sup>

Initiatives on sustainable finance have been in development in Germany since 2017. The German Stock Exchange Group Deutsche Börse AG's Accelerating Sustainable Finance initiative, which published the Frankfurt Declaration and the state of Hesse's Green Finance Cluster, recently merged into the Sustainable Finance Cluster.<sup>23</sup> Principles for Responsible Investment (PRI) published a Roadmap for Germany, focusing on fiduciary duty and ESG in German legislation.<sup>24</sup> The German Council for Sustainable Development and Deutsche Börse set up the Hub for Sustainable Finance Germany (H4SF), with PRI and the German member of the High Level Expert Group of the European Commission, which produced ten recommendations on sustainable finance for the new German government.<sup>25</sup> H4SF is strongly supported by the German Ministry of Finance and in April 2018 the Hub organised a Parliamentary evening event on sustainable finance. In addition, the German Environment Ministry (BMU) intends to conduct a feasibility study on the integration of legislation similar to that seen in France on climate-related disclosure.<sup>26</sup>

Despite this progress, there is a sense in Germany that they have been slightly left behind by France and the UK on some aspects of the TCFD debate. This can potentially be a catalyst for action, especially given the important relationship between Chancellor Merkel and President Macron, for Germany to 'catch-up'. The competition for financial services with the UK post-Brexit may also be a potential driver. The interaction between TCFD implementation and decisions on the coal and automotive sector may be important as well. Considerations around future coal phase out and the transition away from diesel and towards electric vehicles will be core battlegrounds for future domestic ambition in Germany. Providing a better understanding on how climate disclosure can enhance action in those sectors could support TCFD implementation going forward.



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## United States of America

The election of President Trump in the US has led to considerable volatility and deep division within the national conditions, particularly on the energy transition, energy security and public goods. It has also intensified division within the political system between powerful business actors and various levels of government. The shift to an “America First” foreign policy and the decision to withdraw the US from the Paris Climate Change Agreement has had a strongly negative impact on its external projection, despite action by individual US states and non-state actors.

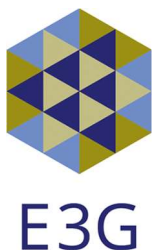
US national conditions are divided on the low carbon transition. While the country is a world leader in the deployment of renewable energy, renewed investment and development of domestic oil and shale gas is slowing the low carbon energy transition and driving a new political agenda of energy dominance. High capacity for innovation, particularly in digital and clean energy technologies, and growing awareness of climate risk through direct experience and early analysis by the US military, present key opportunities to support the transition.

Under President Trump, the US political system has become more polarised, particularly on the low carbon transition. Greater influence of the fossil fuel industry on white house policy is strongly hindering a transition at the federal level, while progressive sub-nationals, such as the state of California, are fighting to keep the transition alive. The US business community is very powerful and largely supportive of a transition, particularly high tech and digital companies, but are divided on how to respond. Public discourse is dominated by the lack of trust in the US government and is highly partisan, leading to deep divisions in the way information and facts on the low carbon transition are presented and the potential for strong echo chamber effects.

The US has the world’s most prominent financial market and key US actors, such as Michael Bloomberg, have played a central role in convening the TCFD and is committed to strengthening its implementation. The search for profit is the core driver of US finance. The sector is simultaneously one of the largest enablers of low carbon technology and infrastructure and one of the largest investors in high carbon fossil fuel investments. However, economic and social governance issues are becoming more prominent and may impact future decisions.

Mandatory climate disclosure regulations do exist in the United States, though they differ at federal, state and city levels. At the federal level, the *Securities Act 1933* and the *Securities Exchange Act 1934* are the key pieces of legislation, requiring publicly traded companies to file periodic reports, including disclosure of certain kinds of climate change-related risks.<sup>27</sup> The Securities and Exchange Commission acknowledges climate-related risks and has provided guidance on how it could impact US businesses.<sup>28</sup> However, these regulations are not necessarily successful in disclosing climate change risk to investors.<sup>29</sup> Mandatory reporting requirements are more robust at the state and city level. California’s Department of Insurance leads a multi-state initiative on mandatory climate-related disclosure surveys and New York General Attorneys have used federal securities regulations to investigate the financial records of carbon-intensive power companies, such as Peabody Energy.<sup>30 31</sup>

Acknowledgment of TCFD recommendations is strong amongst US business actors. Companies such as CitiGroup, JetBlue, and PepsiCo, and major institutional investors such as



Blackrock and CalSTRS, openly support the TCFD recommendations.<sup>32</sup> Google, Microsoft, Coca-Cola and Walmart have also expressed support through the 'We Mean Business' coalition.<sup>33</sup> Opportunities to work on TCFD implementation are greatest at the state level, for example building on California's mandatory climate reporting surveys.<sup>34</sup> The State of California is an economic powerhouse that has demonstrated continued commitment to the Paris Agreement and has considerable influence over other key states.

## Brazil

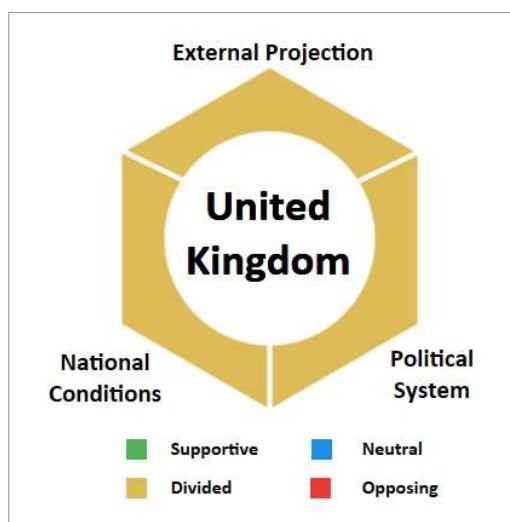
Economic development and growth in Brazil has suffered alongside the nation's most severe economic recession, as well as high political instability resulting from a nation-wide anti-corruption investigation into political and business leaders. Renewed interest and investment in the development of deep-water oil and gas reserves has led to national conditions and a political system that strongly oppose a low carbon transition. The urgent need to recover the economy has also elevated the importance of high carbon trade, which significantly diverges from its traditional leadership in climate diplomacy.

There is no requirement for mandatory climate disclosure for companies in Brazil, though there are two notable exceptions; publicly-owned utility companies and the Brazilian stock exchange. Under Order No. 3034/ 2006, the Agência Nacional de Energia Elétrica (ANEEL) requires public utilities to produce a 'Social and Environmental Responsibility Report' containing environmental performance indicators.<sup>35</sup> However, there is no specific measurement criteria and it is up to the companies themselves to select indicators.<sup>36</sup> The Brazilian Securities Exchange Commission (CVM) sets out the rules for disclosure and use of material information and requires Category A (share-issuing securities issuer) companies listed on the Brazilian stock exchange to disclose information related to environmental policy and environmental costs.<sup>37</sup> This became a mandatory requirement in 2009, following the replacement of voluntary listing requirements established by the BM&F BOVESPA.<sup>38</sup>

Alignment between these two regulations and TCFD recommendations are limited. The 'Social and Environmental Responsibility Report' remains a standalone document, while the CVM requirements do not make explicit links between financial and non-financial disclosure.<sup>39</sup> A review of TCFD in Brazil by law firm Baker McKenzie finds that there is scope for Brazil to work towards a stronger disclosure, which would help companies to better understand the implications of climate-related risks in terms of their business models, strategies and cash flows.<sup>40</sup> Opportunities for TCFD implementation in Brazil lie with the public utility regulator ANEEL, for example updating its guidance manual to be in line with TCFD Recommendations and making stronger reference to best practice frameworks, such as the *Climate Disclosure Standards Board* (CDSB) Framework.<sup>41</sup> Engagement with the private sector, particularly the CODIM coalition of financial communities, could also help to shape best practices.<sup>42</sup>

## PART II: POLITICAL ECONOMY MAPPING

### PEMM HIGH LEVEL ASSESSMENT: UNITED KINGDOM

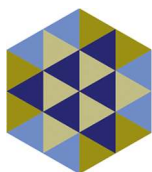


The United Kingdom is a deeply divided country following the June 2016 Brexit referendum result and the decision to leave the European Union. This event has created deep uncertainty and the potential for substantial political volatility going forward. To date, the UK has maintained a leadership position on climate change issues; however the uncertainty presented by Brexit and the potential for significant economic dislocation in the event of a crash Brexit (no deal under Article 50) may hinder future action on climate change and the transition to a low carbon economy.

The UK's national conditions are divided on the low carbon transition. While the country has made progress in decarbonising its energy system and service-based economy, there are significant barriers to making the structural changes in the coming years to support deep decarbonisation, particularly in the power and transport sectors. Despite this, there are opportunities to deepen the transition, such as leveraging climate risks related to flooding; the public value placed on health and air quality; high technology and innovation capabilities and leadership on green finance.

The UK was the first country to officially endorse the TCFD recommendations and established the Green Finance Taskforce (GFT) in 2017 to develop new regulatory proposals for green finance in the UK. The Bank of England and its Governor, Mark Carney, have consistently shown leadership in understanding the risks that climate change poses to the financial sector. However, there are several challenges in moving to mandatory implementation of the TCFD recommendations. While uncertainty remains over the outcome and impact of Brexit, there is a reluctance to push forward with new mandatory regulations which could impact competitiveness, particularly in the City of London. Creating a competitive advantage in low carbon sectors remains a core part of the UK industrial strategy and demonstrating the positive economic benefits of leading in the implementation of TCFD, as well as synergies with broader productivity and growth agendas, could lead to stronger action in the future.

The UK's political system and external projection are also divided on the transition. Business and media are powerful, but the opposing views of important business actors, and influential media outlets which channel a strong populist voice, has led to greater division on the transition. The central government remains a strong advocate of a low carbon transition; however the Brexit decision is distracting from implementing the reforms needed to deepen the transition. The UK's decision to leave the EU has also led to a renewed focus on global trade relations, and while it maintains strong leadership on climate diplomacy, (e.g. recently initiating the Powering Past Coal Alliance) this leadership could quickly change post-Brexit.

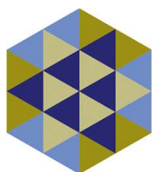


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In regard to the implementation of TCFD recommendations, the UK is characterised as a 'distracted friend':

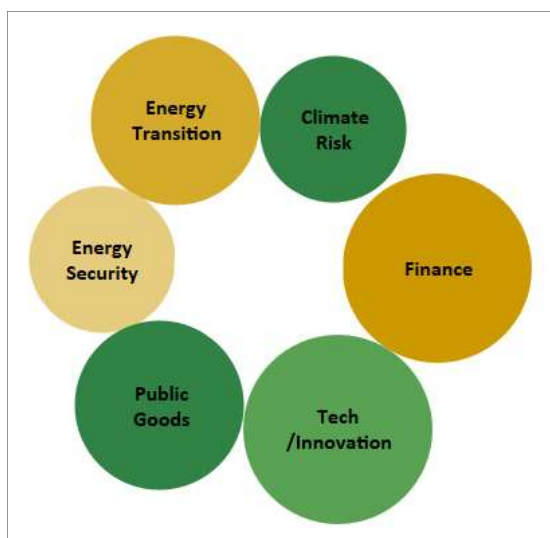
- The finance sector dominates the national conditions in the UK, contributing to 6.5% of GDP and 32% of commercial service exports;
- The UK is simultaneously a champion of green finance and a major centre for high carbon fossil fuels. This includes active pursuit of new fossil fuel listings, such as the Saudi Aramco IPO, at the same time as initiating the Green Finance Taskforce;
- Brexit and the loss of passporting rights for the finance sector into the EU has led to concerns over competitiveness and the risk of business relocating to Frankfurt, Paris, Stockholm and Dublin. London's leadership on green finance is seen as one aspect of maintaining its competitive position;
- Brexit uncertainty and a lack of legislative time for other issues has led to a dominant 'wait and see' narrative emerging on future finance legislation. The immediate focus of most stakeholders is on incorporating climate into existing regulation. Implementation of the TCFD recommendations will be viewed through a lens of future competitiveness and the Global Britain agenda; which could swing either way depending on whether they are perceived to provide an advantage or a burden;
- The UK has a number of high profile public champions, such as Mark Carney, Governor of the Bank of England, whose term expires in 2019. It is not clear that the views of these individuals have been mainstreamed through their institutions, potentially leaving them vulnerable to change at the top;
- As the UK navigates its new position in the world post-Brexit, there will be a critical window to influence its long-term trajectory on climate finance. This could result in a race to the top with the UK playing a strong role alongside the EU and other countries on global standards. However, it could also lead to a race to the bottom if the UK tries to position itself as a low tax, low regulation hub alongside emerging financial markets like Dubai. How the UK relates to EU standard setting during any transition and post-Brexit will have a critical impact on long term European regulation.





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## NATIONAL CONDITIONS: UNITED KINGDOM



The analysis of national conditions is guided by three questions:

1. How important is the area in the real economy of the country?
2. Is the area accelerating or inhibiting a low carbon transition?
3. How mature is the debate within this area with regards to a low carbon transition?

### Climate Risk

#### Assessment:

Significance to the national interest: **Medium**

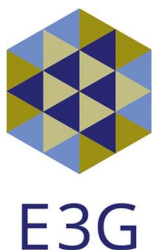
Alignment with low carbon transition: **Supportive**

Maturity of the debate: **High**

**Summary:** The UK is vulnerable to climate-induced floods and food security issues, but this is not yet a dominant theme within the national conditions. The UK has strong climate governance frameworks, but significant action is still necessary to deepen its understanding of climate risk.

Floods are the most frequently occurring and economically damaging natural disasters in the UK. Economic losses due to floods are estimated at one £1 billion annually; flooding events in 2016 affected 800,000 homes and led to £340 million in damages.<sup>43</sup> Climate change impacts including increased storm surges, rainfall and sea-level rise are exacerbating the UK's flood risk, particularly in the north of England and Scotland.<sup>44</sup> Floods also represent the highest risk of GDP loss in major UK cities, including London, Manchester and Glasgow.<sup>45</sup> The country's total economic losses due to extreme weather and climate events between 1980 and 2016 amounted to £53 billion, of which 70 percent of losses were insured.<sup>46</sup> The indirect effects of climate change on UK trade, such as food supply, is projected to be larger than domestic risks.

Disaster prevention and response is decentralised and take a multi-agency approach, involving various government agencies and local districts, councils and emergency services. In England, the Department for Environment, Food and Rural Affairs (DEFRA) takes the lead on flood response, while the Ministry of Housing, Communities and Local Government (DCLG) leads on post flood recovery. However, these agencies do not specifically respond to climate risk. As mandated under the UK *Climate Change Act 2008*, the UK Committee on Climate Change is responsible for publishing national



Climate Change Risk Assessments every five years, in which climate risk information is also made publicly available through the National Risk Register. While this helps to provide a preliminary understanding of the UK's climate risk and direct threats, stronger policies are required to understand and respond to indirect threats, such as water vulnerability and food security issues.

## Energy Transition

### Assessment:

Significance to the national interest: **High**

Alignment with low carbon transition: **Divided**

Maturity of the debate: **High**

**Summary: National energy and climate laws support a low carbon transition, but a slowdown in the growth of renewables and reliance on gas and highly expensive nuclear power may impede the structural change necessary to support deep decarbonisation.**

The UK has made large advancements on the low carbon transition thanks to a focus on energy efficiency measures and the deployment of renewable energy systems. Energy demand has gradually decreased, and the share of renewables has increased to over 9% in the energy mix (25% in power production).<sup>47</sup> The UK holds the sixth largest solar PV and wind capacities in the world (11.7 GW and 14.5 GW; respectively), and has the largest offshore wind capacity in Europe.<sup>48</sup> However, growth in solar PV has slowed due to a recent reduction in feed-in-tariff rates by 65%.<sup>49</sup>

Fossil fuels continue to dominate the UK energy mix, accounting for 80% of final energy consumption (mostly oil and gas) and making a large contribution to total GHG emissions.<sup>50</sup> Fossil fuel consumption is slowly decreasing, and the UK government has committed to phasing out coal by 2025, though support for centralised energy systems, both through massive subsidies for new nuclear power and ongoing commitment to gas, is at odds with investing in smart, distributed flexible renewable systems. The UK's Hinkley Point C station is one of the most expensive nuclear plants in the world, with a total cost of £20 billion.<sup>51</sup> The 35-year Contract for Difference (CFD) for this plant is £92.50 (fixed in 2012 prices), already more expensive than CFDs for renewables.<sup>52</sup>

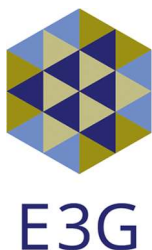
## Energy Security

### Assessment:

Significance to the national interest: **Medium**

Alignment with low carbon transition: **Divided**

Maturity of the debate: **Low**



**Summary: Dwindling domestic oil and gas production in the North Sea over the last few decades has increased the UK's dependence on energy imports, particularly fossil fuel imports.**

The UK is a net energy importer and has reached import dependency levels not seen since the mid-1970s, currently accounting for 38% of total energy supply.<sup>53</sup> Import dependency has increased significantly in parallel with reduced oil and gas production in the North Sea, though increases in production from 2013 onwards has led to a slight decrease in oil and gas imports. Fossil fuels account for 99% of total energy imports, in which oil accounts for the highest proportion.<sup>54</sup> Imported oil mainly comes from Norway, Nigeria and Algeria, while gas imports mainly originate from Norway and Qatar. Russia plays a leading role in supplying the UK with coal imports. High energy bills are a domestic concern, with an estimated 3.8 million households affected by fuel poverty.<sup>55</sup>

Wood pellet imports from the United States and Canada are also significant. An estimated 6.8 million tonnes of pellets were imported in 2016,<sup>56</sup> most of which was used in the Drax power station.<sup>57</sup> This makes the UK one of the world's largest importers of solid biomass. While only one percent of total electricity supply is imported from neighbouring countries (mostly France and the Netherlands), the UK has significant interconnection capacity of over 4000 MW, worth a total of £8 billion.<sup>58</sup> Brexit, however, has increased uncertainty over the potential for large scale system balancing through interconnection to the continent. If the UK comes to view itself as an energy 'island' this could lead to a prioritisation of gas and nuclear power over renewables in the future.

## Technology and Innovation

### Assessment:

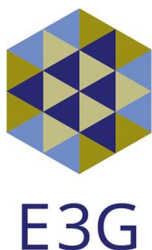
Significance to the national interest: **High**

Alignment with low carbon transition: **Supportive**

Maturity of the debate: **Medium**

**Summary: The UK has strong technology and innovation capabilities due to efficient regulatory frameworks and innovative research institutions, though there remains high R&D on fossil fuels. There are also long-standing weaknesses in translating its strong academic base into large scale industries.**

The UK has a high performing service-based economy, with services representing over 80% of both GDP and total workforce. While productivity has dropped below 2007 levels, its world leading finance and insurance sector plays an important role in boosting the economy. The UK has a high capacity for innovation, ranking fifth on the Global Innovation Index.<sup>59</sup> The UK is a leader in the development of low carbon technologies, particularly offshore wind and electric vehicles; has strong collaboration between university and industry and is home to some of the world's top universities. It also has a well-developed intellectual property regime and the second highest number of patent applications in the EU.<sup>60</sup> Innovation is also high in terms of governance frameworks; the UK was the first country in the world to implement a climate change act with binding targets set through carbon budgets. Its thought leadership on national climate



governance is a model for other countries. Energy and industry have also been integrated under one government department (BEIS) and the UK industrial strategy has a strong focus on securing competitive advantage in clean technology. However, more public support is needed on renewables and energy efficiency. Investment in research and development in fossil fuels and nuclear power are nearly equivalent to investment in renewables and energy efficiency.<sup>61</sup> R&D investment in renewables has fallen by 30% since 2013, while in the same period it has almost doubled for nuclear power.<sup>62</sup>

## Finance and Investment

### Assessment:

Significance to the national interest: **High**

Alignment with low carbon transition: **Divided**

Maturity of the debate: **High**

**Summary: The UK has one of the largest financial sectors in the world and is a leader on green finance regulation, though fossil fuel revenues remain high on the London Stock Exchange.**

The finance and insurance sector makes an important contribution to the UK economy, contributing 6.5% of GDP<sup>63</sup> and 32% of commercial service exports.<sup>64</sup> The London Stock Exchange (LSE) had a market capitalisation of \$US 3.61 trillion in 2017, making it the fifth largest stock exchange in the world.<sup>65</sup> About 91% of the LSE's 247 large listings disclosed their GHG emissions in 2015, making it a global leader on non-financial disclosure.<sup>66</sup> However, the stock exchange also hosts some of the most carbon-intensive companies in the world, such as Royal Dutch Shell, Bhp Billiton, BP and Rio Tinto, and in the same year 36% of total revenue on the LSE came from fossil fuel 'brown' revenues, while only 1.1% was from green revenues.<sup>67</sup> Progress is being made on green finance regulation. The UK was the first country to officially endorse the voluntary recommendations of the TCFD and developed the Green Finance Initiative, which advocates for specific regulatory proposals to enhance the green finance sector. The Bank of England and its Governor, Mark Carney, have also consistently shown leadership in the understanding of climate change risks for the financial sector. Brexit, however, has created considerable uncertainty for the City of London and may lead to a drop in its competitive advantage in some areas over other continental sectors. Moody's credit rating for the UK already dropped from Aaa to Aa2 between 2012 and 2017.<sup>68</sup>

## Public Goods

### Assessment:

Significance to the national interest: **High**

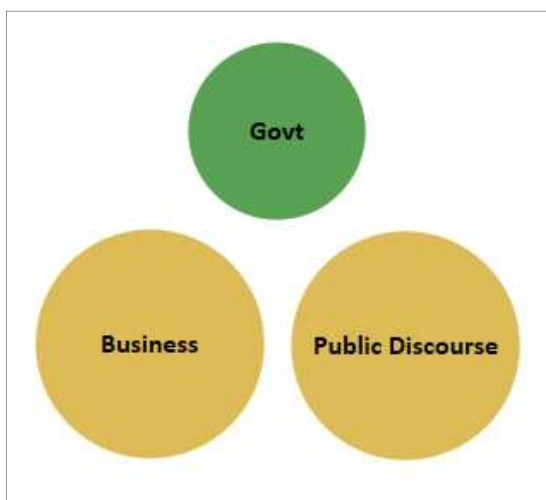
Alignment with low carbon transition: **Supportive**

Maturity of the debate: **High**

**Summary:** The UK has a long history of investment in public goods and services, though recent austerity measures have reduced budgets. Air pollution and flood risk are key environmental concerns which could be leveraged for the transition.

Government spending on public services in the UK has been falling; public spending on health decreased by one percent<sup>69</sup> and for social benefits by eight percent since 2008.<sup>70</sup> Widespread shortages of doctors, nurses and health care facilities is reducing the quality of health services care services in the UK and leading to large public concerns over national health care reforms. Air pollution is another key concern, particularly in cities such as London. An estimated 90% of the UK population is exposed to PM2.5 levels which exceed World Health Organization (WHO) guidelines,<sup>71</sup> and air pollutants were found to cause about 40,000 premature deaths per year in the UK.<sup>72</sup> State and non-state actors, such as environmental NGOs, UK100 cities network and the Mayor of London are strongly campaigning to reduce air pollution, including the recent toxicity charge (T-Charge) to deter the use of polluting vehicles in central London. On the issue of climate change, the UK public is moderately concerned, though increased climate action is possible through deeper understanding of climate risks. While less than half of the population identifies climate change as a serious problem, higher awareness of climate change tends to coincide with flooding events.<sup>73</sup> A more recent survey found that climate change was perceived as a top security threat, second only to terrorism.<sup>74</sup>

## POLITICAL SYSTEM: UNITED KINGDOM



The analysis of the political system is guided by two questions:

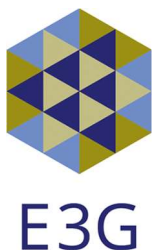
1. Which actors in the political system are more powerful?
2. Are they supportive or hindering a low carbon transition?

### Government and Civil Service

**Assessment:**

Level of power and influence: **Medium**

Alignment with low carbon transition: **Supportive**



**Summary: The UK government and civil service is consumed by the Brexit decision, resulting in low capacity to undertake the reforms needed to deliver a real step change on the low carbon transition.**

Following the 2017 UK general election, the Conservative Party lost its overall majority and Prime Minister May was forced to form a coalition government with the Northern Ireland Democratic Unionist Party. This severely weakened Theresa May's authority and ability to lead her party. The strong performance by Jeremy Corbyn and the Labour Party, which secured over 40% of the vote in 2017, means that they are now perceived as a genuine threat to the Conservatives if there were to be further elections in the immediate future. The Conservative Party remains deeply divided on Brexit, with a 'hard Brexit' faction led by Boris Johnson, Michael Gove and Jacob-Rees Mogg and a 'soft Brexit' faction led by Philip Hammond and Ruth Davidson.

Brexit issues dominate the government's focus and legislative agenda, with no meaningful collective decision making on other areas, giving leeway to individual Cabinet Ministers to implement policies using existing budgets and powers, but preventing action beyond this. A fragile consensus exists in the government that continued climate leadership will provide opportunities for UK business to export low carbon goods and services, reflected in the prioritisation of low carbon sectors in the Department for Business, Energy and Industrial Strategy (BEIS) and the Clean Growth Strategy which were published in 2017. However, the Clean Growth Strategy does not yet meet the fifth carbon budget and there is a risk that an economic crisis following a hard Brexit could undermine future support for climate action.

The UK *Climate Change Act 2008* is not directly affected by Brexit and provides a legislative backstop on ambition. However, post-Brexit there are likely to be few impediments to a simple majority in Parliament being required to amend or withdraw the Climate Change Act. Access to justice and enforcement of environment and climate targets may also be severely limited post-Brexit and the government's poor track record on air pollution shows how important this will be going forward.

## **Business**

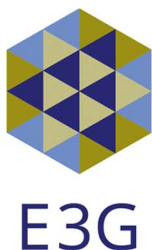
### **Assessment:**

Level of power and influence: **High**

Alignment with low carbon transition: **Divided**

**Summary: UK business is divided on the low carbon transition and distracted by Brexit, which further undermines investment in climate action and the transition.**

The UK business landscape is dominated by its small and medium-sized enterprises, though they have relatively little influence compared to larger companies in key sectors. While the UK's renewable energy sector has been growing, large and influential oil and gas companies are increasingly concerned about global decarbonisation, which given elite entanglement influences the UK's position. The City of London remains a major listing centre for fossil fuel companies and the UK is actively seeking to be the



international listing home for the privatisation of Saudi Aramco. The political headwinds of nostalgia are opening up opportunities for some fossil and energy intensive business, such as steel. The government, for example, has pursued controversial fracking projects which both speaks to this political sentiment and seeks to shore up the dwindling tax base formerly provided by North Sea Oil. There is a growing business awareness of the need to ensure workers in high carbon industries are supported through the transition to a low carbon economy. Awareness of energy intensive industry decarbonisation has been politicised recently with Tata Steel highlighting the cost of low carbon policies as a factor in making its UK steel works uneconomic. The Brexit decision has also increased uncertainty for businesses, in which the full effects will only be felt over a number of years depending on the type of exit and transition arrangements.

## Public Discourse

### Assessment:

Level of power and influence: **High**

Alignment with low carbon transition: **Divided**

**Summary: UK media is powerful and channels a strong populist voice which has politicised climate change. As seen in the Brexit vote, inter-generational splits now drive public discourse.**

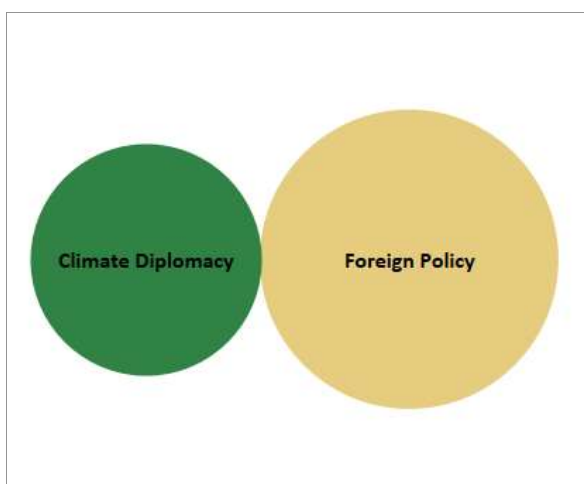
Traditional print media in the UK is dominated by right wing newspapers and remains extremely powerful with the older generation and political elites. The Sun, Daily Mail, Telegraph and Express are major campaigners for a hard Brexit and have sought to significantly undermine public trust in the judiciary, House of Lords and civil service in pursuit of their aims. The right-wing print media is also a major source of climate scepticism in the UK. Public discourse is increasingly split on inter-generational lines with deep divisions between the older, retired baby boomer generation and the younger millennial generation. This was a major driver of outcomes for the Brexit referendum and the 2017 general election but is also seen in wider social attitudes (e.g. on gay and transgender rights). These divisions cut across traditional political party lines.

A vibrant new-media culture is the major source of information for millennials. Social media is widely used, and twitter is increasingly a platform for shaping political debate. This provides independent sources outside the traditional print media. However, there are risks both through the potential for outside interference (investigations are ongoing on Russian interference in the Brexit referendum) and the creation of echo chamber effects. The emergence of Momentum (which grew out of Jeremy Corbyn's Labour Party leadership campaign) as a major independent political force in the UK has demonstrated the power of utilising social media platforms to organise public support. The UK has a strong and well established civil society covering a spectrum of public concerns. The government does consult with NGOs, though the culture is much diminished under a conservative administration and less supportive of social movements.

Union membership represents a quarter of the UK workforce and is overwhelmingly concentrated in older industries. Membership in new emerging sectors, such as

renewable energy, is low. In general, unions continue to hold much sway over the Labour party. Although unions provide top-level support of climate action, in practice they defend the interests of their members which include the North Sea oil and gas industry, steel industry and nuclear power. There is broad social acceptance of the need to act on climate change. Climate and Environment NGOs largely engage in fact-based campaigning. A change in approach will be required to intersect with identity politics and debunk narratives that could stymie transition such as the assumption that environment policy is driving deindustrialisation. This support, however, is potentially quite shallow and public concerns over energy costs could quickly lead to it evaporating. Support is also much stronger amongst younger cohorts within the population.

## EXTERNAL PROJECTION AND CHOICE: UNITED KINGDOM



The analysis of external projection and choice is guided by three questions:

1. How engaged is a country in foreign policy and climate diplomacy?
2. Is this engagement supporting or hindering a low carbon transition?
3. How mature is the debate on the low carbon transition?

### Foreign Policy

#### Assessment:

Level of engagement: **High**

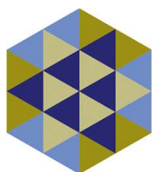
Alignment with low carbon transition: **Divided**

Maturity of the debate: **Low**

**Summary:** The recent decision to leave the EU has weakened the UK's influence in the world and its foreign policy has taken an opportunistic approach, prioritising trade deals wherever it can.

EU membership was a considerable source of the UK's international power and influence as it was a key player in shaping EU attitudes on climate, environment and energy issues and hence was able to leverage its influence at the top table with the US and China. Outside of the EU, the UK wields considerably less influence and is likely to rank with other second tier countries. Managing Brexit and securing future trade deals are now the top priority for UK foreign policy; all other objectives take a secondary role to the emerging 'Global Britain' strategy.





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Central to this strategy for the hard Brexiteers in the Conservative Party is the possibility of securing a new trade deal with the US Trump administration, lowering tariffs and standards to create a 'Singapore in the North Sea', but the perceived importance of the US deal has limited the UK's ability to publicly criticise the Administration over its climate change policy. Whether the UK continues to align with the EU, or switches to US standards for trade and environmental protections, is now one of the central questions within the Brexit debate and has the potential to significantly undermine the UK's position on climate and environment.

The UK is increasingly focused on Commonwealth countries as an alternative source of influence to the EU and the Commonwealth Heads of Government Meeting (CHOGM), which is being held in the UK in 2018, is receiving strong political support. The UK is also a permanent member of the UN Security Council and NATO. The UK's maintenance of Trident (nuclear weapons) has also become more significant. Appetite for military intervention is low and holds very little public support. Overall, the UK retains strong soft-power assets through its media, arts, academic, cities and civil society institutions.

## Climate Diplomacy

### Assessment:

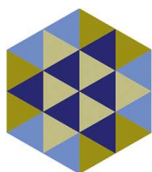
Level of engagement: **Medium**

Alignment with low carbon transition: **Supportive**

Maturity of the debate: **High**

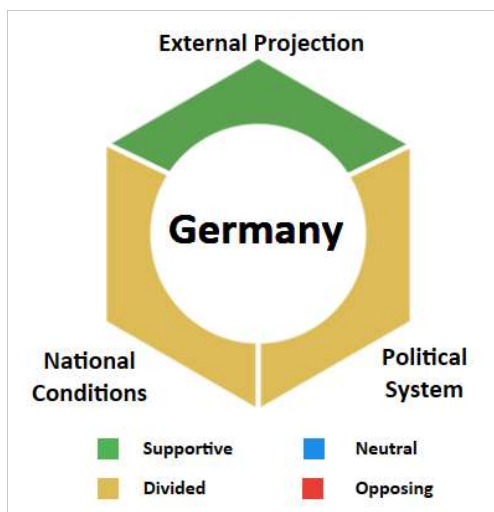
**Summary: The UK has a long history of aligning climate diplomacy with foreign policy and is a leader in international climate negotiations. However, a new foreign policy focus on global trade is leading to a divestment of its climate diplomacy assets.**

The UK continues to maintain leadership on global climate action, for example leading work on climate risk insurance and co-leading the formation of the Powering Past Coal Alliance (PPCA). It also contributes a significant amount of international climate finance through its International Climate Fund (ICF), providing £5.8 billion between 2016 and 2021.<sup>75</sup> However, following budget cutbacks, the UK is reducing the number of climate diplomats in the international Foreign Office network, which were deeply involved in the Paris Agreement and were instrumental in the development of the Cartagena Dialogue and the High Ambition Coalition. These cutbacks are likely to reduce the UK's influence. Leadership by other institutions, such as Mark Carney and the Bank of England on climate finance risk, has enabled the UK to project leadership outside central government processes. To the extent that exports of low carbon goods and services can support the 'Global Britain' agenda, the UK will likely continue supporting climate action. However, if climate was seen to be in conflict with trade promotion then it could quickly be deprioritised.



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## PEMM HIGH LEVEL SUMMARY: GERMANY

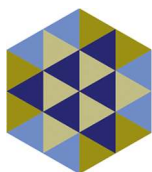


Following Germany's 2017 general elections, the country experienced six months of prolonged party negotiations and several failed attempts to form a government. A grand coalition was formed in early 2018, reducing political uncertainty but also exposing new political divides and growing polarisation. The national conditions and political system are closely linked and divided on the low carbon transition. In contrast, its external projection remains supportive, but an emerging disconnect between its climate leadership abroad and slower progress on the transition at home is a major reputational risk.

Germany's national conditions are divided on the low carbon transition, particularly on the energy transition, technology and innovation and public goods. Renewable energy deployment has slowed, and domestic coal production remains key to maintaining a stable energy system and economy, slowing the pace of the transition. Continued reliance on imported oil and gas to meet the energy demand in the transport sector, and to fill a gap on the grid alongside nuclear phase out, opposes the transition. In addition, the economic and cultural importance of local industry, such as coal and steel, make technology and innovation and public goods divided on the transition. More awareness of climate-induced flood risks and the growth of a neutral finance sector, present key opportunities to leverage the transition.

Germany's financial sector is expected to take an increasingly important role in Europe post-Brexit and demonstrates an appetite for action on sustainable finance, including climate reporting. Germany has already implemented the EU Directive on Non-Financial Reporting and recently created a Green Finance Cluster to oversee the implementation of new structures on sustainable finance. Chancellor Merkel has also developed a strong relationship with French president Macron on sustainable finance and the German Environment Ministry (BMU) plans to assess the feasibility of introducing a similar climate disclosure law as France's Article 173. However, Germany's political system has grown increasingly tense and polarised, particularly around the topic of climate action and the low carbon transition.

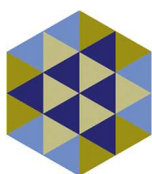
Consensus building is at the heart of German governance and this gives government, business and public discourse influential roles within the political system. However, they are all divided on the transition. The government has traditionally been a strong advocate of a transition, but climate change has become politically divisive. There is also division from the competing interests of large business actors, predominantly in manufacturing and heavy industry. Strong regional ties to high carbon business and the range of political positions held by civil society also creates division within public discourse. Germany's external position on climate change remains strong and aligned with foreign policy, making it supportive of a low carbon transition. However, the inability to meet climate targets poses a large risk to its leadership.



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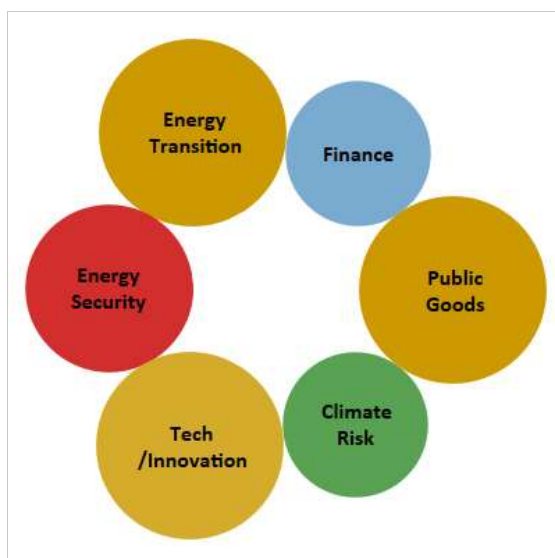
In regard to the implementation of TCFD recommendations, Germany is characterised as an ‘uncertain friend’:

- The finance sector in Germany is less influential politically than in either the UK or the US. Industrial sectors strongly linked to national identity, such as automobiles, chemicals and manufacturing have the most significant political economy weight. If TCFD was perceived to be increasing the cost of capital for these industries, it would lead to a strong political backlash;
- The heterogeneity of the German banking sector, with over 1000 credit unions providing finance domestically is an additional dynamic not seen in other financial sectors;
- Germany has been relatively slow in responding to climate disclosure issues domestically. Its finance industry and regulation is dominated by very conservative voices who are often reluctant to change. Some voices in the finance industry are actively aiming to slow down the implementation of TCFD regulations to give Germany time to catch-up;
- Frankfurt is looking to secure business switching from London post-Brexit but faces competition from other European centres, such as Paris. Given the strong focus in France on implementing the TCFD recommendations, this may lead to an opportunity to create a race to the top in Germany. However, Germany also fears competition from New York and other centres who may not implement strong TCFD regulations;
- There are a large number of public banks (such as KfW) which suffered significantly from the financial crisis and are yet to fully recover. They also have significant investments in high carbon industries, especially coal;
- At the global level the German finance ministry is less ambitious than other parts of the German government. This complicates dynamics on climate disclosure at the German G20. Whether or not this will change under the new coalition government remains unclear.



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## NATIONAL CONDITIONS: GERMANY



The analysis of national conditions is guided by three questions:

1. How important is the area in the real economy of the country?
2. Is the area accelerating or inhibiting a low carbon transition?
3. How mature is the debate within this area with regards to a low carbon transition?

### Climate Risk

#### Assessment:

Significance to the national interest: **Medium**

Alignment with low carbon transition: **Supportive**

Maturity of the debate: **Medium**

**Summary:** Germany has a relatively low exposure to climate change impacts, though increased floods and heatwaves pose significant threats to human health and the economy. National and regional adaptation plans are in place, though further implementation is needed.

Germany has a relatively low risk of natural disasters, ranking 146<sup>th</sup> on the World Risk Index.<sup>76</sup> However, severe flooding in 2002 and 2013 caused large economic damages in the amount of €10bn each.<sup>77</sup> The latter flood forced a federal bond issue to contribute to a €8 billion relief package; a model previously avoided due to states assuming liability.<sup>78</sup> Climate change is exacerbating flood risk along the country's large river basins, as well as increasing temperatures across the country and reducing summer rainfall leading to water vulnerability issues; a severe heatwave in 2003 caused 7000 deaths.<sup>79</sup> Rising temperatures are expected to have a negative impact on winter ski tourism and a positive impact on summer tourism, while heavy storms and changes in precipitation are expected to damage energy infrastructure, including wind turbines. Germany has taken concrete steps to increase its adaptive capacity, including the implementation of a national Adaptation Action Plan in 2011<sup>80</sup> and a flood control programme developed after the 2013 flood event, but there is need for greater implementation. Germany is concerned about the impacts of climate change on migration and as communicated in the grand coalition treaty, it seeks to better understand the linkages.

## Energy Transition

### Assessment:

Significance to the national interest: **High**

Alignment with low carbon transition: **Divided**

Maturity of the debate: **High**

**Summary: Germany is a world leader in the deployment of renewable energy and the low carbon transition, but a recent slowdown in the growth of renewables and continued reliance on fossil fuels (particularly coal) has slowed the transition.**

Germany was a first mover on the energy transition and under their energy transformation plan ('Energiewende'), the country has gradually phased out nuclear power and increased the share of renewables to about 15%.<sup>81</sup> It is a world leader on renewable energy deployment, particularly wind and solar PV. In 2016, Germany had the third largest wind and solar PV capacities in the world and the highest number of renewable energy sector jobs in Europe.<sup>82</sup> However, growth in renewables is slowing down due to recent policy changes. Germany has made large investments into renewable energy systems; in 2016 it spent €25 billion on renewables, most of which was raised through surcharges on electricity bills.<sup>83</sup> Recent energy law reform aims to reduce costs by limiting subsidies to renewables energy.<sup>84</sup> Renewable energy subsidies are also being rolled back to alleviate grid congestion issues.<sup>85</sup>

Germany is likely to meet its 2020 EU renewable energy target of 18%, though not its national or EU climate targets, largely due to continued reliance on fossil fuels and increased demand for oil in the transport sector, which has also led to a slight increase in total energy demand. GHG emissions are 27% lower than 1990 levels, though it is not enough to meet the national target of 40% reduction by 2020. Fossil fuels continue to dominate Germany's energy system, accounting for 80% of the energy mix and over half of power production.<sup>86</sup> All fossil fuels are declining on the grid except for gas, which is increasingly filling a gap on the grid due to nuclear phase out.<sup>87</sup> Coal production (hard coal and lignite) has decreased in the last decade, though in absolute terms the country still produces more coal than oil, gas and nuclear combined, and is larger than the amount of renewables on the grid (40% coal vs 32% RE in 2016).<sup>88</sup> The German government aims to halve coal-fired power production by 2030.<sup>89</sup>

## Energy Security

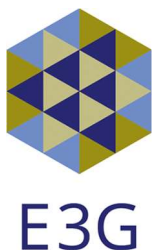
### Assessment:

Significance to the national interest: **High**

Alignment with low carbon transition: **Opposing**

Maturity of the debate: **High**

**Summary: Nuclear phase out and the deployment of renewable energy are key energy security priorities; however both are reducing grid reliability. Domestic coal production and imported fossil fuels are key to securing Germany's energy supply.**



The phase out of nuclear power has been an important energy security priority in the eyes of the German public; however reduced nuclear power coupled with poor north-south distribution of renewable energy has led to major grid reliability issues. Dependence on energy imports is high and increasing.<sup>90</sup> Energy imports accounted for 64% of total energy consumption in 2016, most of which were fossil fuels.<sup>91</sup> Domestic oil and gas reserves are limited and as such Germany imports significant amounts to meet the energy demand. Oil imports account for about 96% of total oil consumption and 89% of natural gas imports account for total gas consumption.<sup>92</sup> Coal imports are significantly lower (50% of total coal consumption) as it has large domestic coal reserves in the Ruhr Basin and Rhineland region, making it the world's largest lignite producer.<sup>93</sup> However, coal imports are increasing slightly due to demand in the steel industry.<sup>94</sup>

Russia and Norway play an important role in supplying oil and gas, and despite the EU's strategy to reduce dependence on Russian gas, Germany is importing increasing amounts due to its low price. Germany is also a European gas hub and plays an important role in the redistribution of gas to neighbouring countries. As such, it has large gas storage capacity, albeit declining due to recent facility closures.<sup>95</sup> Electricity exports are rapidly growing, though this is causing issues with neighbouring countries.<sup>96</sup> In particular, the low price of wholesale German electricity is perceived as undermining the growth of renewables in other EU member states, such as Austria.

## Technology and Innovation

### Assessment:

Significance to the national interest: **High**

Alignment with low carbon transition: **Divided**

Maturity of the debate: **High**

**Summary: Germany has high technology and innovation capacity, particularly in renewable energy and car manufacturing. However, it is also a leader in heavy industry, including coal (lignite) and steel production.**

Germany's economy is mostly service-based, though it also has a large and sophisticated industry sector, including car manufacturing in the south and heavy industry (coal and steel) in the North Rhine-Westphalia region. Manufacturing exports play a key role in driving economic growth; manufacturing accounts for over 80% of exported goods.<sup>97</sup> Innovation capacity is high, ranking ninth on the Global Innovation Index,<sup>98</sup> and has strong vocational and on-the-job training programmes which drive a highly efficient labour market. Germany has the highest number of patent applications in the EU,<sup>99</sup> mostly in the automotive sector and holds 52% of global patents for self-driving cars.<sup>100</sup> Expenditure on research and development is high (just above the US at 2.9% of GDP),<sup>101</sup> particularly on renewable energy and battery storage (\$US 231 million and \$US 138 million in 2016; respectively).<sup>102</sup> Industrial and energy policies are closely linked, and a large focus on renewables has benefited German industry. The digital economy is a new area of focus with opportunities to leverage the low carbon transition.

## Finance and Investment

### Assessment:

Significance to the national interest: **Medium**

Alignment with low carbon transition: **Neutral**

Maturity of the debate: **Low**

**Summary: Within the European context, Germany has one of the strongest financial sectors. However, it is currently lagging behind Brussels and other EU member states in the adoption of green finance initiatives.**

Germany has a strong financial sector, contributing to about 4% of GDP,<sup>103</sup> and a regionally relevant financial centre. Frankfurt ranks 11<sup>th</sup> as a global financial centre<sup>104</sup> and its stock exchange is the world's tenth largest by market capitalisation.<sup>105</sup> It also has the third largest asset management industry in Europe,<sup>106</sup> and Deutsche Bank and Allianz are significant global financial institutions. Its sovereign bond market is viewed as a safe haven, providing a benchmark for fixed income instruments globally and demonstrated by its Aaa credit rating. It also has significant shareholdings in European Development Banks, the World Bank and the AIIB, as well as a full stake in the influential German Development Bank (KfW). While Germany has a significant amount of climate-aligned bonds and implemented the EU Directive on Non-Financial Disclosure, there is a disconnect between the rate of change in Germany and Brussels on green finance initiatives. German accounting standards do not offer guidance on climate-related disclosures and the latest coalition treaty made no reference to sustainable finance, though the recently established Green Finance Cluster could help to accelerate change.

## Public Goods

### Assessment:

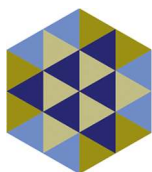
Significance to the national interest: **High**

Alignment with low carbon transition: **Divided**

Maturity of the debate: **High**

**Summary: Migration, education and healthcare are key public concerns; however it is the high value placed on regional governance and identity that creates division on climate action and the low carbon transition.**

Public spending on social services and programmes is high compared to other OECD countries, but the high inflow of migrants has intensified concerns over the quality of health care and education.<sup>107</sup> Education is highly valued; student protests and political pressure led to the removal of university fees in 2014. Localism and decentralisation are core to German society. 'Made in Germany' is synonymous for quality and acts as a national identifier. The VW diesel emissions scandal was perceived as a national scandal and fed growing concerns over air pollution. While most Germans recognise that climate change is a serious problem<sup>108</sup> and over two-thirds are in favour of coal phase out,<sup>109</sup> climate action is not seen as a top priority within the protection of public goods.



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## POLITICAL SYSTEM: GERMANY



The analysis of the political system is guided by two questions:

1. Which actors in the political system are more powerful?
2. Are they supportive or hindering a low carbon transition?

### Government and Civil Service

#### Assessment:

Significance to the national interest: **High**

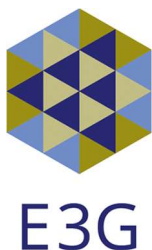
Alignment with low carbon transition: **Divided**

**Summary:** Germany's government and civil service are undergoing major changes as a result of the new 'grand coalition'. Climate action remains a low priority on the domestic policy agenda and is becoming more politically divisive.

Following six months of negotiations since the 2017 general elections, a second consecutive 'grand coalition' was formed between Merkel's Christian Democratic Union (CDU/CSU) and the Social Democrats (SPD). A major reshuffling of senior officials is taking place with a focus on introducing more women and youth in leadership; the median age of the Cabinet has dropped from 54 to 49.<sup>110</sup> However, political fragmentation exists across and within parties. The grand coalition itself is highly polarised, with much discussion on the future of the CDU/SPD parties and heated debates on specific topics, such as abortion. It is Merkel's fourth term as Chancellor, though support for her leadership is falling within her own party and the coalition.

Top policy priorities include European integration, immigration, as well as healthcare, pension and labour reforms; climate remains low on the domestic policy agenda. The coalition treaty sets out to develop a legally binding Climate Act by 2019, but climate skepticism is increasing as evidenced by the significant gains made by right wing, anti-climate parties, such as the AfD. Several climate-related ministries have changed leadership. The new environment minister (BMU), Svenja Schulze from North-Rhine Westphalia, favours an accelerated coal phase out, though the BMU has lost much of its power. The Ministry of Finance (BMF) is more powerful, having full oversight on European matters and the Minister acting as Vice Chancellor, though it takes a more conservative stance on climate change.





The German civil service is formal, hierarchical and highly effective. Incumbents are highly educated, and the system performs well on technical skills and integrity. Policy making takes a multi-stakeholder approach, with government regularly consulting with businesses, civil society groups and trade unions. Numerous multi-stakeholder commissions have been set up to tackle key issues, such as the low carbon transition. The energy and coal transition will be addressed through the 'Growth, Structural Change and Employment Commission', though it is unclear which regulatory authority will lead.

In Germany's federal system, states hold extensive legislative powers including oversight of environmental policies. The wealthy and densely populated states of Bavaria and Baden-Württemberg are amongst the most powerful. State government interacts very closely with local business, and their interests have a direct influence on policy making. Bavaria is a political heavy weight; it is the only state with its own political party (CSU), which is relatively conservative. Large economic divides exist between states in the East and West. Bavaria, Baden-Württemberg and Hesse contributed over €11 billion to bail out other states in 2017, of which 70% went to five states in the East.<sup>111</sup> Bavaria and Hessen will hold state elections in October 2018.

## Business

### Assessment:

Significance to the national interest: **High**

Alignment with low carbon transition: **Divided**

**Summary: Germany's business community is powerful and has a high level of influence on the direction of government policies, particularly the automotive sector and heavy industry.**

Germany's medium-sized family-owned businesses, known as 'Mittelstand', dominate the business landscape and are the engine of the German economy. They also have a high level of influence on policy making, though they tend to follow the direction of larger companies. Business associations, such as BITKOM, VDMA & ZVEI, also play an important role, for example they were directly involved in the development of the 'Platform Industrie 4.0'.<sup>112</sup> Their primary objective is secure and develop Germany's international position in industrial manufacturing. German companies are required to join a Chamber of Commerce and Industry, which is regularly consulted by government. However, the lobbying system is very opaque and there is no register for disclosure.

Germany's world leading automotive companies, such as Volkswagen (VW) and Daimler, are key actors within the business community. They have traditionally been strong on innovation, however capitalising on the transition to electric vehicles is by no means guaranteed. Utility companies are also powerful and are undergoing significant restructuring. RWE and E.ON have recently reached a deal where E.ON will focus on distribution grids and RWE on both conventional and renewable energy generation.<sup>113</sup> The majority of the largest thirty German companies support a carbon price and E.ON is a strong proponent. However, Bayer (Chemicals and Pharma), Heidelberg Cement and RWE are against a carbon price. The matter has also been dropped from the coalition

treaty. Renewable energy companies are supportive of a low carbon transition, though they work in siloes through individual associations. Other businesses tend to see climate regulation, such as energy efficiency, as ‘red tape’.

## Public Discourse

### Assessment:

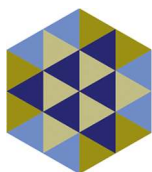
Significance to the national interest: **High**

Alignment with low carbon transition: **Divided**

**Summary: Germany has high levels of freedom across the political sphere. Government consultation with civil society is common and plays a significant role in the policy making process.**

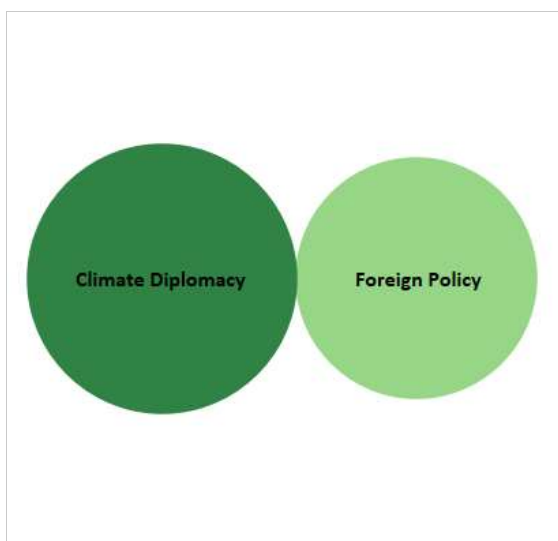
Germany is one of the highest ranked countries in terms of freedom of press and autonomy of organisations.<sup>114</sup> Media in Germany is very localised; each region regulates their own private and public broadcasting and there are over 1,500 newspapers, most of which are local.<sup>115</sup> The numerous regional and national public broadcasters are often aligned with federal political structures. The influence of trade unions has decreased, though a fifth of the population is still associated with a union. Some unions have considerable influence, for example IG Metall recently secured 28-hour work weeks for two years for 900,000 workers.<sup>116</sup>

German civil society is highly active and regularly consulted by government, though these groups are not necessarily pro-climate as they cover a wide range of political positions. Traditionally, social services and health organisations account for the highest proportion of NGOs; environmental organisations are relatively few.<sup>117</sup> More recently, litigation has been deployed as an awareness raising tool for climate change. For example, cities have been granted the ability to ban diesel cars from their centres<sup>118</sup> and German courts agreed to hear a groundbreaking climate lawsuit brought by a Peruvian farmer against RWE for climate damages incurred in the Andes.<sup>119</sup>



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## EXTERNAL PROJECTION AND CHOICE: GERMANY



The analysis of external projection and choice is guided by three questions:

1. How engaged is a country in foreign policy and climate diplomacy?
2. Is this engagement supporting or hindering a low carbon transition?
3. How mature is the debate on the low carbon transition?

### Foreign Policy

#### Assessment:

Significance to the national interest: **High**

Alignment with low carbon transition: **Supportive**

Maturity of the debate: **Low**

**Summary: Germany is an important regional and international actor with foreign policy priorities that are increasingly supportive of a low carbon transition. Relations with Russia are tense but maintained for energy security purposes.**

Germany has large diplomatic assets, with over 200 diplomatic missions across the world and ranking eight on the Global Diplomacy Index.<sup>120</sup> It is a strong supporter of the multilateral approach and a prominent member of the G7, G20, OECD and NATO. European integration is a key foreign policy priority. Germany was a founding member of the European Union and seeks to maintain peaceful relations with its neighbours. It makes the largest net contributions to the EU budget (€13 billion net expenditure in 2016) and aims to increase spending post-Brexit.<sup>121</sup> Germany is also active on the issue of migration and climate change and in 2016 assumed chairmanship of the Platform on Disaster Displacement; the Foreign Office explicitly used this position to raise the issue of climate change within the forum.<sup>122</sup> Concerns over migration has also led Germany to seek closer ties with African countries. During the 2017 German G20 presidency, the 'G20 Compact with Africa' was launched.<sup>123</sup>

Germany's diplomatic relations with Russia are tense and have worsened under Merkel's chancellorship due to Russia's recent military interventions in Crimea and Syria. The former Chancellor of Germany, Gerhard Schroeder, is a strong supporter of Putin and currently sits on the board of a Russian energy company.<sup>124</sup> More recently, Merkel has expelled four Russian diplomats over the attempted murder of a former

Russian intelligence officer in the UK.<sup>125</sup> However, maintaining diplomatic relations with Russia is vital for securing energy supply and ensuring European security more broadly.

## Climate Diplomacy

### Assessment:

Significance to the national interest: **High**

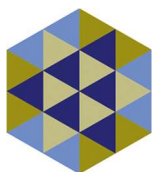
Alignment with low carbon transition: **Supportive**

Maturity of the debate: **High**

**Summary: Germany is leader on climate diplomacy and a key actor in raising climate ambition, though the inability to meet its international climate commitments is a major risk to its reputation.**

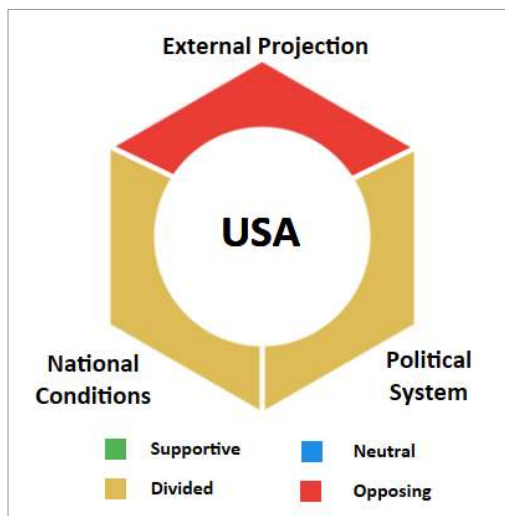
Germany has strong external position on climate change and is a leader within the EU delegation. It often sends the largest number of European negotiators to international climate negotiations.<sup>126</sup> It has also played a key role in driving the Cartagena Dialogue and High Ambition Coalition (HAC), and continues to convene the annual Petersberg Climate Dialogue, providing an informal space for countries to discuss climate action. Chancellor Merkel has raised the issue of climate change at other key international events, such as the World Economic Forum and G7, and aims to make climate risk a priority on the UN Security Council.<sup>127</sup>

Germany also provides some of the largest international climate finance in the world. It is the fourth largest contributor to the Green Climate Fund (GCF),<sup>128</sup> and its International Climate Initiative (managed by the BMU) has supported over 500 climate-related projects in developing countries; estimated at about €2.3 billion.<sup>129</sup> The German Development Bank (KfW) also provides large amounts of climate finance; in 2017 it announced that it would contribute €1 billion per year to support sustainable transport in emerging and developing countries.<sup>130</sup> Despite this strong support, Germany is unlikely to achieve its 2020 climate commitments. Its international commitments are captured under the EU's Nationally Determined Contribution (NDC) which sets a 14% target compared to 2005 levels. However, GHG emissions have only fallen by 8.4% since 2005.<sup>131</sup> This represents a significant threat to its climate leadership.



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## PEMM HIGH LEVEL SUMMARY: UNITED STATES OF AMERICA

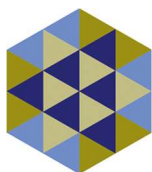


The election of President Trump in the United States has led to considerable volatility and deep division within the country's national conditions, particularly on the energy transition, energy security and public goods. It has also created a more polarised political system, which is increasingly divided on the low carbon transition. The shift to an "America First" foreign policy and the decision to withdraw the US from the Paris Climate Change Agreement has also had a strongly negative impact on its external projection and positioning, despite progressive action taken by individual US states and non-state actors.

US national conditions are deeply divided on the low carbon transition. While the country is one of the largest investors in renewable energy and a leader in the deployment of renewables, renewed interest in the development of domestic oil and shale gas is slowing the transition and driving a new political agenda for 'energy dominance'. However, high capacity for innovation in clean energy technologies and analysis of climate risk by the US military, present key opportunities to support the low carbon transition. An influential yet neutral finance sector could also be leveraged to increase the pace and scale of the transition.

The US has the world's most important financial market and key US actors like Michael Bloomberg have played a central role in convening the TCFD and is committed to strengthening its implementation. The search for profit is the core driver of US finance, making it one of the largest enablers of low carbon technology and one of the largest investors in high carbon fossil fuels. However, economic and social governance issues are becoming more prominent and may impact future decisions. US-based BlackRock, the largest asset management firm in the world, has urged the companies it invests in to align with climate risk reporting recommendations as set out by the TCFD.<sup>132</sup> As seen in the energy transition, progressive action tends to come from individual US states, such as California.

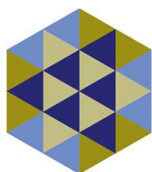
Under Trump, the US political system has become more polarised and divided on the transition. Greater influence of the fossil fuel industry on white house policy is strongly hindering a transition at the federal level, while progressive sub-nationals are fighting to keep a transition alive. The US business community is very powerful and largely supportive of a transition, particularly high tech and digital companies, but are divided on how to respond. Public discourse is dominated by a lack of trust in the US government and is highly partisan, leading to deep divisions in the way information and facts on the low carbon transition are presented and the potential for strong echo chamber effects. These conditions have shifted its external positioning with Trump launching an offensive against multilateral processes. This shift, coupled with Trump's climate scepticism and closer ties to the fossil fuel industry, is significantly deteriorating US climate diplomacy and threatens the climate regime.



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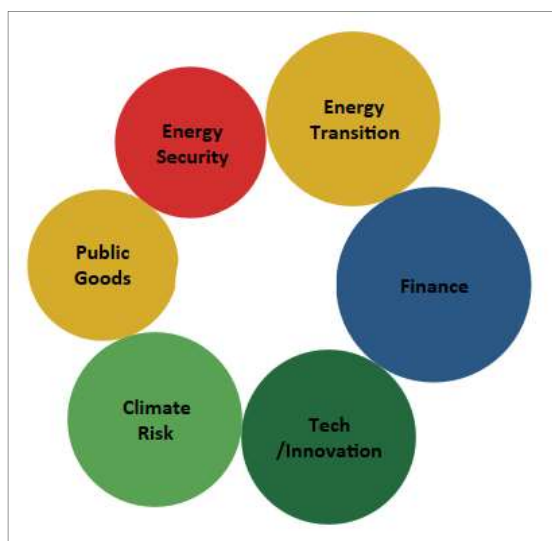
In regard to the implementation of TCFD recommendations, the US is characterised as a 'divided actor' with strong forces pushing in different directions:

- The US private finance sector is the dominant actor in global finance and it exerts significant political influence both domestically and in nations around the world. US regulators are one of many global actors that set norms and standards, and US asset managers oversee about 60% of the global retirement market;
- The US markets play a strong role both in climate finance innovation and in supporting high carbon investment, particularly oil and gas;
- The finance sector has traditionally sought to minimize regulation. Although there are important champions for climate-related disclosures, such as Mayor Bloomberg, the dominant position of the sector, even amongst climate progressives, is to avoid mandatory regulation;
- However, the US has a strong focus on activist investment from both public sector and private funds. These actors play a leading role in the development of new analytical tools to assess risks. Aligning climate-related disclosures with creating more efficient markets and better analytics could accelerate adoption;
- The Trump Administration is actively hostile to climate regulation and environmental and social governance issues. This is playing out both in the US' position internationally at the G20 and in domestic regulation;
- However, sub-national actors, especially state and city governments, play a strong role in climate politics. Individual states such as California may be able to move faster in many areas than Federal regulation. The US is a leader in green municipal bonds, with \$US 18 billion issued by sub-sovereigns since 2015.



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## NATIONAL CONDITIONS: UNITED STATES OF AMERICA



The analysis of national conditions is guided by three questions:

1. How important is the area in the real economy of the country?
2. Is the area accelerating or inhibiting a low carbon transition?
3. How mature is the debate within this area with regards to a low carbon transition?

### Climate Risk

#### Assessment:

Significance to the national interest: **High**

Alignment with low carbon transition: **Supportive**

Maturity of the debate: **Medium**

**Summary:** US coastal populations and key sectors, such as agriculture, are highly vulnerable to climate change impacts. Adaptive capacity is limited at the federal level, though US cities are leading on climate resilience programmes.

The diverse geography of the United States makes it highly vulnerable to climate change impacts, including more intense drought, storm surges, sea-level rise and higher temperatures. Since 1980, there have been 219 climate disasters in the US exceeding \$US 1 billion in losses and totalling \$US 1.5 trillion overall.<sup>133</sup> Half of the US population lives in coastal areas at risk from sea level rise and up to \$US 106 billion worth of coastal property could be below sea level by 2050.<sup>134</sup> Economic damages to the agriculture sector are also high; states in the Midwest are at risk of 50% to 70% loss in annual crop harvests due to higher temperatures.<sup>135</sup> Hurricane Katrina and the trio of destructive hurricanes in 2017 (totalling \$US 200 billion in losses)<sup>136</sup> have raised local awareness of climate risks, though climate change is not always accepted as a driver.

The US has limited adaptive capacity on climate risk. It has no national climate adaptation plan, though under Obama the Interagency Climate Change Adaptation Task Force and Council on Climate Preparedness and Resilience were set up and federal agencies were directed to build capabilities for long-term drought resilience. US national defence has been a first mover on dealing with climate risk. A coalition of US military and national security experts have warned that climate change poses a significant risk to US national security.<sup>137</sup> The *National Defence Authorization Act*

requires a broad review of the vulnerability of military bases and facilities to climate change. Integrating climate resilience into governance frameworks has stalled under the Trump administration; Trump's recently released infrastructure plan makes no mention of climate risk. However, coastal cities such as Miami and New Orleans are driving policy on climate resilience. Miami also recently issued a \$US 400 million resilience bond<sup>138</sup> and twenty-three US cities have joined the 100 Resilient Cities Programme.<sup>139</sup>

## Energy Transition

### Assessment:

Significance to the national interest: **High**

Alignment with low carbon transition: **Divided**

Maturity of the debate: **High**

**Summary: Despite a high dependence on fossil fuels, the US is a world leader in the deployment of renewable energy, with US cities and states largely leading the low carbon transition.**

Fossil fuels play a dominant role in the US energy system, accounting for more than 80% of total energy consumption and 67% of total electricity generation, of which oil and gas represent nearly all fossil fuel consumption.<sup>140</sup> While coal represents a relatively small share in the overall energy mix, it represents a significant source of energy in terms of power production (30% in 2017).<sup>141</sup> However, all fossil fuels are decreasing on the grid except for gas.<sup>142</sup> Additionally, in the last decade there has been a slight decrease in energy demand and the share of renewables in the energy mix grew from 6% to 10%.<sup>143</sup> In 2016, the US had the world's second largest addition of wind and solar PV capacity,<sup>144</sup> fourth largest workforce in renewables (~ 800,000 jobs)<sup>145</sup> and second largest stock of electric vehicles (though market share is only one percent).<sup>146</sup> The US clean energy sector is valued at about \$US 200 billion<sup>147</sup> and in 2017 it was the second largest investor in renewables after China.<sup>148</sup>

Under the Trump administration, energy tax incentives for nuclear, CCS, gas and renewables have been extended,<sup>149</sup> though the recent 30% import tariff on solar PV may lead to a slowdown in the growth of renewables. US states and cities are leading the low carbon transition with ambitious climate and energy targets. Burlington, VT has already achieved a 100% renewable energy system and several other cities aim to achieve this in the next decade. California has targeted a 40% cut in GHG emissions by 2030 and has the fourth largest cap and trade programme in the world, also linked with the Canadian provinces of Québec and Ontario.

## Energy Security

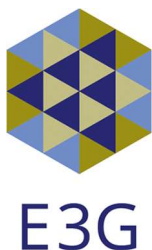
### Assessment:

Significance to the national interest: **Medium**

Alignment with low carbon transition: **Opposing**

Maturity of the debate: **High**





**Summary: The development of domestic oil and gas reserves in the US has shifted energy security concerns from reducing dependence on foreign fossil fuels to pursuing export opportunities for US oil and gas.**

US energy security concerns have long been dominated by the need to reduce the dependence on imported oil and gas, particularly from the Middle East. While the US remains a net energy importer, the share of energy imports in total energy consumption fell by about 23% between 2005 and 2015, albeit 98% are still fossil fuel imports.<sup>150</sup> In the next decade, the US is expected to be a net energy exporter. Reduced fossil fuel imports have been driven by innovation in fracking technology which led to significant growth in tight oil and shale gas production. The US currently holds the fourth largest gas reserves<sup>151</sup> and tenth largest crude oil reserves in the world.<sup>152</sup> It became the largest producer of gas in 2009 and the top producer of oil in 2013.<sup>153</sup> The lifting of a ban on US crude oil exports in 2015 helped to increase US oil exports and trade opportunities in energy. Canada remains a key trading partner in fossil fuels and the US is increasingly exporting gas to Mexico. The US has the world's largest coal reserves (more than US oil and gas reserves) and continues to export significant amounts to the Netherlands, Brazil, India, Canada and Japan.

## Technology and Innovation

### Assessment:

Significance to the national interest: **Medium**

Alignment with low carbon transition: **Supportive**

Maturity of the debate: **High**

**Summary: The US continues to boast real economy advantages in high technology and has a high capacity for innovation, though it excels in both clean energy and fossil fuel extraction technologies.**

The US has the largest economy in the world and a strong tradition of innovation. It ranks fourth on the Global Innovation Index, with world leading universities and a high output of creative goods and services. It also has the highest number of trademark applications and second highest number of patent applications; US companies hold some of the highest number of patents in clean energy, particularly General Motors.<sup>154</sup> While the US has no federal-level industrial strategy, economic policies have been used to direct funds to priority areas. The Obama administration used its fiscal stimulus to direct funds to transportation, renewable energy and manufacturing, but economic policy under the new administration is strongly diverging as Trump focuses on infrastructure investment in the fossil fuel industry. While the US is a leader in many forms of low carbon innovation it is also a major contributor to fossil fuel technology innovation as well. The US was central to the development of fracking technology for the extraction of unconventional oil and gas.

## Finance and Investment

### Assessment:

Significance to the national interest: **High**

Alignment with low carbon transition: **Neutral**

Maturity of the debate: **High**

**Summary: The US has a strong financial sector and world leading stock exchanges, though they are falling behind on GHG emissions disclosure. US states and cities, however, are more progressive on climate reporting.**

The US is the pre-eminent global financial centre. Generally, US investors pursue profits wherever they can be found regardless of climate impacts, neither actively pushing for or against a low carbon transition. However, this has led to the US simultaneously being one of the largest financers for low carbon technology, as well as major high carbon fossil fuel projects. The US holds the two largest stock exchanges in the world, the New York Stock Exchange (NYSE) and Nasdaq, though these host some of the largest oil companies, such as ExxonMobil, Royal Dutch Shell and Chevron, and have relatively low disclosure on GHG emissions (35% and 25%; respectively).<sup>155</sup> Mandatory climate reporting requirements are greater at state and city levels. California leads a multi-state initiative on mandatory climate-related disclosure,<sup>156</sup> and New York has adopted federal securities regulations, which it has used to investigate the financial records of carbon-intensive companies.<sup>157</sup> The US is second only to China in the amount of climate aligned bonds and a leader in municipal green bonds. New York is one of the largest issuers of sub-sovereign green bonds, with over \$US 10 billion issued since 2012.<sup>158</sup> New York City has also set a goal of divesting fossil fuels from \$US 189 billion worth of pension funds.<sup>159</sup>

## Public Goods

### Assessment:

Significance to the national interest: **Medium**

Alignment with low carbon transition: **Divided**

Maturity of the debate: **High**

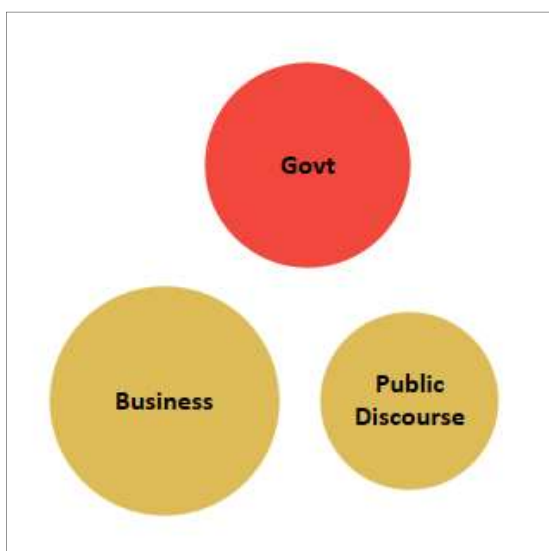
**Summary: Polarisation of American society has intensified under President Trump. Environmental protection is only a minor worry compared to economic issues and the role of the US government.**

The US has a very high standard of living but lower government expenditure on social benefits compared to other OECD countries.<sup>160</sup> Public infrastructure investment is half of that in European countries, though Americans believe the government is doing too much. About 81% of Republicans believe that 'big government' is the largest threat to their country, whereas 51% of Democrats agree.<sup>161</sup> Polling in 2017 found that dissatisfaction with government, economic issues and immigration were perceived as key problems facing the country.<sup>162</sup> Environment was perceived as a minor concern, even though over thirty environmental rules have been overturned under Trump, including offshore drilling bans in the Arctic and changes to fracking and coal regulations

on public lands.<sup>163</sup> Dependence on tax revenue from fossil fuel varies by state, but in some it is a significant source of revenue; Alaska stands at 10.5%.<sup>164</sup>

Less than half of the US population believes that climate change is a serious problem, with large divides seen amongst political parties.<sup>165</sup> About 31% of Republicans believe that global warming is caused by humans and 36% believe it will harm the US population, compared to 65% and 72% respectively for Democrats.<sup>166</sup> Growing income gaps and social inequality are undermining faith in government and public goods. Younger generations are seeing a reduction in home ownership, a central pillar of the 'American dream'. Social and racial tensions are also major issues. Social movements under Trump are numerous<sup>167</sup> and climate change, along with abortion and gun control, are increasingly seen as social identifiers.

### POLITICAL SYSTEM: UNITED STATES OF AMERICA



The analysis of the political system is guided by two questions:

1. Which actors in the political system are more powerful?
2. Are they supportive or hindering a low carbon transition?

### Government and Civil Service

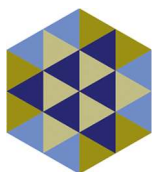
#### Assessment:

Level of power and influence: **High**

Alignment with low carbon transition: **Opposing**

**Summary: The Trump Administration strongly opposes the low carbon transition and actively promotes the fossil fuel industry, though cities and states are using their legislative powers to drive the transition forward.**

President Trump was elected based on promises of tax cuts, deregulation, immigration reform and fiscal stimulus and pushes a populist agenda that seeks to dismantle government architecture, particularly programmes established under former President Obama, such as the Affordable Care Act. Climate change is not a government priority, despite a highly effective civil service that excels at policy making. Trump is highly sceptical of both climate action and renewable energy and proposed significant budget



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cuts in 2019 to the Environmental Protection Agency and the Office of Energy Efficiency and Renewable Energy. However, these were not approved by Congress.

Climate change is politically divisive in the US, with major splits between Democrats and Republicans. Republicans are far more climate skeptic, and as the party also controls Congress, there is weak support overall for climate action from the US federal government. The number of Republicans who accept climate and favour policy measures is slowly growing, but the extreme polarisation is paralyzing the legislative process. President Trump and EPA Administrator Pruitt strongly support fossil fuel and other high carbon industries, for example lifting restrictions on fossil fuel extraction; reviving the coal industry and promoting 'clean' fossil fuel technologies. Pruitt also leads the repeal of Obama's Clean Power Plan (CPP). The Department of Defense, however, continues to work on climate adaptation and alternative energy. Secretary of Defense Mattis has stated that climate is a national security threat that must be managed.<sup>168</sup> This could have a more progressive influence on Trump, though it will depend on other geopolitical developments and military commitments.

US states and cities have a great deal of authority and are taking a leadership role on climate change. Many conservative states have made significant investments in renewable energy including Texas, Oklahoma and South Carolina. Some states, such as California, have entered into climate agreements with other provinces or countries abroad. There are 39 gubernatorial elections in 2018, and with more Republican incumbents up for election, there is an opportunity for Democrats to pick up state-level seats. The 2018 Mid-term elections will be an indication of support for Trump and the Republican agenda. The overall number of contested seats is favourable for Republicans in the Senate and Democrats in the House. The likelihood of a shift in control in either chamber of Congress is low.

## Business

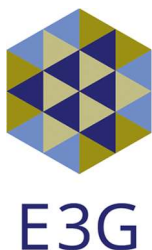
### Assessment:

Level of power and influence: **High**

Alignment with low carbon transition: **Divided**

**Summary: The US has a diverse and influential business community, and while business actors are broadly supportive of the Paris Agreement, they remain divided on the low carbon transition.**

Small and medium-sized enterprises dominate the US business landscape; however it is the large corporations that wield more power in the US political system, particularly those in the manufacturing (automotive), Information Technology, finance and energy sectors. Fossil fuel and heavy industries have significant influence on political decisions. The US is home to several of the world's largest energy companies, including ExxonMobil, Chevron, Marathon Oil, ConocoPhillips and Valero Energy Corporation. These firms have extensive ties to politicians and devote significant resources to lobbying against a low carbon sustainability agenda; the Koch brothers are believed to have spent over \$US 100 million on anti-climate efforts since 1997.<sup>169</sup> Information Technology is a key sector that embraces a low carbon agenda, with many tech firms



adopting goals on renewables and emissions. Start-ups like as Tesla which has become the most valuable car company in the country, could disrupt the automotive industry and oil markets.

The US business community is broadly supportive of climate action. Following the Paris Agreement, over 1,700 businesses signed the 'We are Still In' declaration and non-state actors committed to climate action through the America's Pledge Initiative. Over 1,300 businesses, representing \$US 25 trillion and accounting for 0.9 Gt CO<sub>2</sub>e of GHG emissions per year, have voluntarily adopted GHG targets.<sup>170</sup> Many oil and gas majors have supported the Paris Agreement as well and argued for a carbon price to replace regulations. However, lobbying from heavy industry such as Koch industries has focused on rolling back EPA regulations, and as such carbon pricing enjoys very little support amongst Republicans in Congress. Private capital plays a very influential role in US politics, especially following the Citizens United decision in the Supreme Court, which prohibited the government from restricting independent political expenditures by corporations and unions.

## Public Discourse

### Assessment:

Level of power and influence: **Medium**

Alignment with low carbon transition: **Divided**

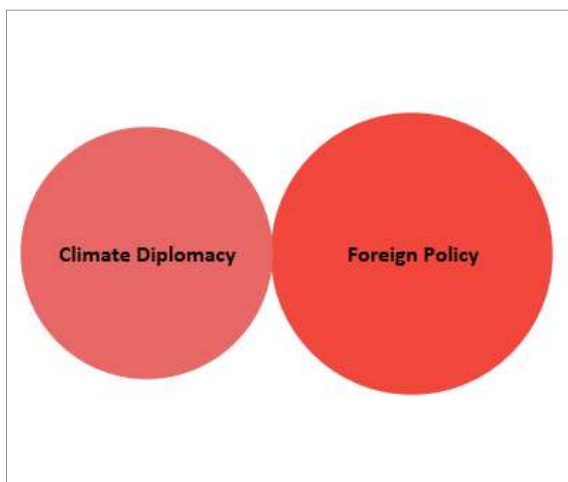
**Summary: Media is powerful and highly influenced by US partisan politics, which is fiercely divided amongst party lines and on the topic of climate change. While civil society is more supportive, it has reduced influence under the Trump Administration.**

US media, particularly TV, is highly influential both within the country and abroad. While media is open and independent, it strongly reflects US partisan politics. Several influential conservative media outlets question climate science and favour the fossil fuel industry. The use of social media is widespread but highly susceptible to fake news; about 62% of Americans consumed news through social media in 2017, though 42% of fake news originated from social media.<sup>171</sup> Climate litigation is another tool that has been used to raise awareness of climate change (85 cases since 2015),<sup>172</sup> though it has been used both for and against climate action.

The US has a very active civil society and a long history of building grassroots movements, but their influence is limited under the Trump Administration. There is no single movement for sustainability but the growth of the climate movement, evident from the 'People's Climate March' and 'occupy' movement, shows a move toward movements campaigning for systemic change. Labour unions are largely supportive of climate action, but their influence has been declining. The Labor Network for Sustainability, Blue Green Alliance and the Apollo Alliance, have dedicated significant resources to fighting for green jobs and environmental protection. Philanthropy has a significant impact on public discourse and policy in US (charitable giving totalled \$US 390 billion in 2016).<sup>173</sup> Only two percent of philanthropic dollars go towards climate

change, though it represents a significant soft power asset as much of it supports climate action overseas.<sup>174</sup>

## EXTERNAL PROJECTION AND CHOICE: UNITED STATES OF AMERICA



The analysis of external projection and choice is guided by three questions:

1. How engaged is a country in foreign policy and climate diplomacy?
2. Is this engagement supporting or hindering a low carbon transition?
3. How mature is the debate on the low carbon transition?

### Foreign Policy

#### Assessment:

Level of engagement: **High**

Alignment with low carbon transition: **Opposing**

Maturity of the debate: **Medium**

**Summary:** Under President Trump, the US is taking a major step back from multilateralism and focusing on an 'America first' agenda. US diplomacy is weakening and fossil fuel diplomacy is strengthening.

The US has some of the most extensive diplomatic networks in the world and influences key international institutions, such as the World Bank. However, US diplomacy is weakening under an 'America First' agenda, with the US retreating from its historical role in promoting multilateralism and international trade. Trump is highly critical of multilateralism and actively seeks to undermine efforts - he recently pulled out of the Trans-Pacific Partnership (TPP); initiated the renegotiation of the North American Free Trade Agreement (NAFTA) and has threatened to withdraw US support for NATO and the United Nations. Trump has also introduced restrictions to trade, such as import tariffs on steel, aluminum, appliances and solar panels, as well as controversial country-specific travel bans.

Security concerns are also weakening traditional alliances and exacerbating tensions with others. Trump's plan to build a US-Mexico wall has weakened relations with one of its most important trading partners, and tensions have grown with North Korea and Iran over nuclear weapons and with Russia over the Syrian crisis and interference in US presidential elections. There has also been a shift in US-Saudi relations, with Trump

seeking to re-establish relations as demonstrated by his visiting Saudi Arabia on his first foreign trip.

Despite Trump's proposed budget cuts to the State Department and reduced US diplomatic assets, diplomacy is strengthening around fossil fuels. Trump's former Secretary of State, Rex Tillerson, was the former CEO of Exxon Mobil and his connections to the oil and gas industry was helpful in promoting US fossil fuel assets abroad in pursuit of Trump's energy dominance agenda. The new Secretary of State, Mike Pompeo, also has strong ties to the fossil fuel lobby, particularly the Koch brothers.<sup>175</sup> Unlike Tillerson, however, Pompeo has a history of climate denial.<sup>176</sup>

## Climate Diplomacy

### Assessment:

Level of engagement: **High**

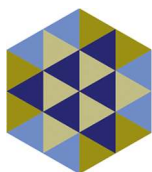
Alignment with low carbon transition: **Opposing**

Maturity of the debate: **Low**

**Summary: US leadership on climate diplomacy has severely deteriorated under President Trump, though US subnational and non-state actors are voicing strong support for global climate action.**

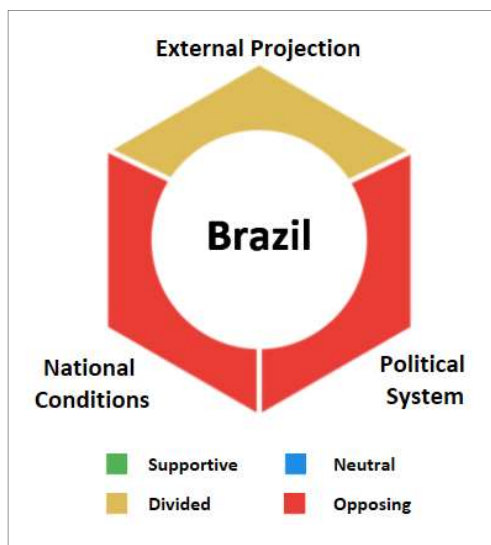
Under President Trump, the US has become a major risk to the Paris Agreement and threatens to destabilise the international climate regime. US leadership under former President Obama was key to reaching a global agreement on climate action, but under Trump the US has threatened to renegotiate or withdraw from the Agreement. No official request for withdrawal can be made until 2019; however the US could still influence other low ambition countries like Japan, Australia, Russia and Saudi Arabia, and act as a blocker in broader economic fora. During the Italian G7 in 2017, there was a major split between the US and G6 countries on climate action and leaders were unable to release a consensus statement.<sup>177</sup>

Budget cuts to the US State Department, renewed influence of the fossil fuel industry on White House policy and the resignation of several pro-climate government officials are eroding US climate diplomacy. To the extent that the US continues to engage on climate in multilateral venues, its priorities will focus on winning concessions for coal and gas and hollowing out its commitments to international climate finance. The US has been hosting 'clean fossil' events and has not replenished their contribution to the UNFCCC Green Climate Fund. However, US subnational and non-state actors are strong advocates of global climate action. At the 23<sup>rd</sup> Conference of the Parties (COP23), an abandoned US pavilion was taken over by US civil society groups. Following Trump's announcement to withdraw, US cities, states and businesses pledged support for the Paris Agreement through coalitions like 'We Are Still In' and 'America's Pledge'.



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## PEMM HIGH LEVEL SUMMARY: BRAZIL



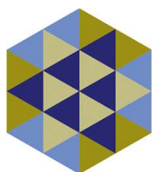
Economic development and growth in Brazil has stalled alongside the nation's most severe economic recession to date and high political instability resulting from one of the world's largest anti-corruption investigations into political and business leaders. The focus on economic recovery has led to renewed interest and foreign investment in the development of the Brazil's offshore oil and gas resources, creating national conditions and a political system that strongly oppose a low carbon transition. It has also elevated the importance of Brazil's high carbon assets in international trade, leading to greater divergence between Brazilian foreign policy and climate diplomacy.

High carbon development touches many aspects of the national conditions from the energy transition to the way that public goods are perceived, thus creating conditions which oppose a low carbon transition. Domestic oil and gas production plays a key role in meeting the energy demand of an expanding middle class; reducing the dependence on energy imports; financing social development programmes and raising business prospects. Growing awareness of climate risk, however, does present an opportunity to leverage the transition, particularly those which exacerbate social inequalities or damage key sectors, such as agribusiness. Its finance sector also has the potential to deepen progress on sustainable finance, though high foreign direct investment in fossil fuels remains a major obstacle.

While climate reporting is not mandatory in Brazil, there are two notable exceptions: publicly-owned utility companies and companies listed on the São Paulo stock exchange. Alignment with the TCFD recommendations remains limited, but there are opportunities to engage with the public utility regulator ANEEL and Brazil's finance community on TCFD implementation. The country, however, remains in a very fragile state following the economic recession. A series of corruption scandals involving major political and business leaders has also led to highly volatile political conditions and exposed the deep entanglement between the Brazilian government and high carbon business, such as Petrobras and JBS. The interests of these large and influential business actors dominate the political system and oppose the transition.

Economic vulnerability and high turnover in political leadership, for example from Lula da Silva to Rousseff and Temer, has also led to greater divergence between Brazil's foreign policy priorities and leadership on climate diplomacy. Brazil plays an important role in international climate negotiations and is seen as a climate champion within the climate regime. However, the need to recover the economy through the development and trade of high carbon goods, such as oil, gas and food products, poses a large threat to its image as a climate leader and its international reputation. As such, they risk merely projecting a legacy of climate action.

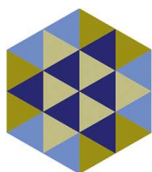




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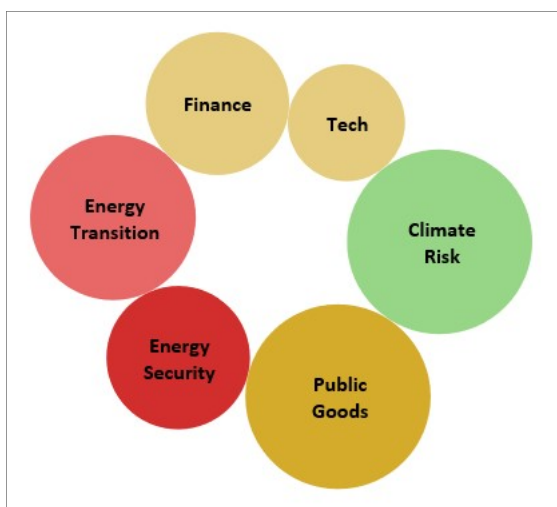
In regard to the implementation of TCFD recommendations, Brazil is characterised as ‘a lever not worth pulling’:

- Brazil’s finance sector is highly entangled with the government and carbon intensive business, especially agribusiness and oil. The state is reliant on oil revenues to remain solvent and oil is key to financing national social development programmes;
- Brazil’s finance landscape is dominated by public banks (55% of total loans are from state-owned banks) and Chinese FDI. China is one of the largest investors in Brazil, particularly in oil and gas extraction. There are currently limited opportunities to attract other investors into low carbon sectors in Brazil;
- Economic vulnerability owing to the recession has created an entry point for more FDI into fossil fuel development and a greater role of public finance institutions. Loans from public banks increased by 20% since the start of the economic recession and foreign firms are responsible for about 21% of domestic oil and gas production;
- The current environment makes TCFD implementation challenging. To the extent that it could be positioned to help drive greater investment in the economy there may be some appetite. However, this will need to be linked to more fundamental governance and anti-corruption reforms in order to have a sustained impact.



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## NATIONAL CONDITIONS: BRAZIL



The analysis of national conditions is guided by three questions:

1. How important is the area in the real economy of the country?
2. Is the area accelerating or inhibiting a low carbon transition?
3. How mature is the debate within this area with regards to a low carbon transition?

### Climate Risk

#### Assessment:

Significance to the national interest: **High**

Alignment with low carbon transition: **Supportive**

Maturity of the debate: **Low**

**Summary:** Brazil is highly vulnerable to climate change and has limited adaptive capacity, though relevant governance frameworks are being introduced and some cities are starting to integrate climate risk into local planning.

Brazil is prone to a range of natural disasters, of which floods are the most frequently occurring and drought the most economically damaging<sup>178</sup> Climate change is exacerbating these risks, leading to more frequent and severe drought in the northeast, higher rainfall and flood risk in the south, and stronger storm surges and flooding along the sea coast.<sup>179</sup> In 2016, total economic losses due to climate events in Brazil totalled \$US 1.3 billion.<sup>180</sup> Climate-induced water vulnerability is a significant threat to urban communities, hydro power infrastructure and the agriculture sector. About a quarter of Brazil's population is vulnerable to sea level rise<sup>181</sup> and almost half of Brazilians living in low-lying coastal areas live below the poverty line.<sup>182</sup> Climate impacts are also exacerbating Brazil's housing crisis, where six million people are said to be homeless or living in precarious housing.<sup>183</sup> Under Brazil's Civil Defence Law and City Statute, municipal governments are required to integrate Disaster Risk Reduction measures in local development planning.<sup>184, 185</sup> Brazil recently launched a National Adaptation Plan, mandating states and regions to develop climate adaptation plans and integrate climate risk into local planning.<sup>186</sup> Some densely populated coastal cities at risk of sea-level rise and flash floods are starting to develop municipal climate adaptation plans, including Rio de Janeiro, Salvador and Fortaleza.<sup>187</sup>

## Energy Transition

### Assessment:

Significance to the national interest: **High**

Alignment with low carbon transition: **Opposing**

Maturity of the debate: **Low**

**Summary: Limited expansion of large hydro power and a renewed focus on the development of domestic fossil fuel reserves is shifting Brazil from a traditionally low carbon to a high carbon energy system.**

Brazil has one of the least carbon intensive energy systems in the world, with hydro power accounting for 40% of the energy mix and 84% of electricity generation.<sup>188, 189</sup> However, the share of renewables has been steadily decreasing. Water shortages and limited expansion into the Amazon Basin is driving higher growth in non-hydro renewables, particularly wind energy. Wind is the fastest growing renewable energy in terms of total capacity and employment.<sup>190</sup> Brazil also has large biofuel production, which is increasing to meet the growing demand for energy in transport and industry, though it presents issues in terms of food security and the protection of forest stocks.<sup>191</sup> However, carbon intensity is increasing and fossil fuels still dominate the energy mix at 60% (mostly oil).<sup>192</sup> Oil consumption is expected to increase alongside Brazil's expanding middle class and all fossil fuels are increasing on the grid, creating a more carbon intensive energy system.<sup>193</sup>

## Energy Security

### Assessment:

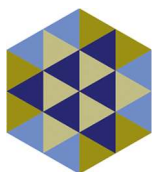
Significance to the national interest: **Medium**

Alignment with low carbon transition: **Opposing**

Maturity of the debate: **High**

**Summary: Self-sufficiency has long been an energy security priority for Brazil and the pursuit of energy independence through the development of domestic oil and gas is driving a more carbon intensive energy system.**

Brazil is a net energy importer, though imports have declined in parallel with increased development of domestic fossil fuel reserves.<sup>194</sup> Brazil has large offshore deep-water crude oil and gas reserves (12.7 billion barrels and 372 billion m<sup>3</sup>; respectively)<sup>195</sup> and the government hopes to raise one billion reais (\$US 309 million) this year through the sale of five million barrels of oil and gas.<sup>196</sup> Despite extensive gas reserves, the high cost of extraction and transportation means that Brazil continues to import most of its gas supply from Bolivia via a 2000 km land-based pipeline.<sup>197</sup> Domestic coal reserves are low quality and coal imports have been increasing to meet the demand for iron and steel production.<sup>198</sup> China plays a key role in Brazilian fossil fuel development and is one of the largest investors in offshore oil and gas exploration; the Chinese Development Bank signed a \$US 5 billion investment contract with Brazil's national oil company in 2015.<sup>199</sup>



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## Technology and Innovation

### Assessment:

Significance to the national interest: **Low**

Alignment with low carbon transition: **Divided**

Maturity of the debate: **Low**

**Summary: Brazil is a leader in both low carbon (renewable energy) and high carbon (deep-water oil and gas extraction) technologies. The recent economic recession, however, has significantly reduced technology and innovation capabilities.**

Brazil is emerging from its most severe economic recession, with positive GDP growth of one percent observed in 2017.<sup>200</sup> It has a service-based economy and rapidly shrinking industrial output, off-setting GDP growth and weakening prospects for key sectors, such as the automotive industry.<sup>201</sup> Agribusiness is key to Brazil's economic outlook and is becoming increasingly important for trade with China and the balance of payment recovery. New economic leaders include the states of Matogrosso and Ceára, with well-developed agriculture and tourism sectors. Brazil is known for its world leading agribusiness sector, and large hydro, biofuel and deep-water fossil fuel extraction technologies. However, its technology and innovation capabilities have been hard hit by the economic recession. Brazil's position on the Global Innovation Index<sup>202</sup> and Ease of Doing Business Index<sup>203</sup> have fallen over the past five years, as well as its labour market efficiency and global competitiveness.<sup>204</sup>

## Finance and Investment

### Assessment:

Significance to the national interest: **Medium**

Alignment with low carbon transition: **Divided**

Maturity of the debate: **Low**

**Summary: Brazil has a large and sophisticated financial sector with existing mechanisms on non-financial disclosure and emerging green finance initiatives, but high foreign direct investment in fossil fuels and limited access to financial services remain major obstacles for the transition.**

Brazil's finance sector makes a large contribution to the economy contributing 16% of GDP,<sup>205</sup> as well as the economies of São Paulo and Rio de Janeiro, where it accounts for about 40% of GDP.<sup>206</sup> Public financial institutions are key actors in the sector, especially following the economic recession. The largest banks in terms of assets are state-owned; public banks provide over half of all loans to the private sector.<sup>207</sup> The Brazilian Development Bank (BNDES) also has large assets and plays a key role in providing long-term credit; the bank has recently decided to move away from financing coal power and instead is focusing on solar and wind energy.<sup>208</sup> Brazil's stock exchange B3, formerly known as BM&F-Bovespa and based in São Paulo, is one of the largest in the Americas and the 17<sup>th</sup> largest in the world in terms of market capitalisation.<sup>209</sup> Under regulations set out by the Brazilian Securities Exchange Commission (CVM), companies listed on the

São Paulo stock exchange are required to disclose information related to environmental performance.<sup>210</sup>

Brazil's economic recession has had an adverse impact on the financial sector, particularly on public finance. The government plans to cut public spending by up to \$US 2.5 billion in 2018<sup>211</sup> and BNDES' lending has reached a twenty-year low.<sup>212</sup> Some progress has been made on green finance, including a recent UK-Brazil Green Finance Partnership,<sup>213</sup> but there remains high foreign direct investment in Brazil's oil and gas assets. Foreign firms are responsible for 21% of Brazilian oil and gas production.<sup>214</sup> Meanwhile, Brazil's small and medium-sized enterprises struggle with structural issues in the finance system, such as limited access to credit and high interest rates.<sup>215</sup>

## Public Goods

### Assessment:

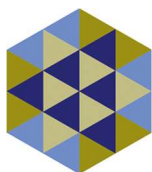
Significance to the national interest: **High**

Alignment with low carbon transition: **Divided**

Maturity of the debate: **High**

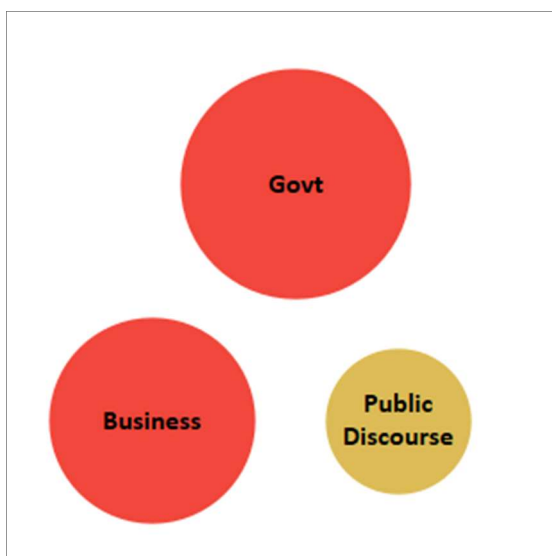
**Summary: Social and economic inequalities are key issues in Brazil and the public is deeply concerned about the maintenance of social development programmes, which are largely financed through oil royalties. Environmental concerns mostly focus on protecting forests and indigenous land rights in the Amazon.**

Brazil's population faces high levels of inequality; the richest five percent of the population makes the same as 95%<sup>216</sup> and three percent own over two-thirds of all arable land.<sup>217</sup> Thanks to innovative social development programmes and poverty alleviation efforts, Brazil has lifted 28 million people out of poverty since the early 2000s.<sup>218</sup> However, the recent cap on government spending threatens these programmes and has spurred wide spread public protests.<sup>219</sup> The financing of national education and health programmes through oil royalties also makes it difficult for the population to challenge high carbon development. In the public consciousness, increased oil production has led to greater social development and attempts to reduce it could intensify social unrest. Awareness of climate change is growing through direct experience of water shortages, drought and flooding, though environmental concerns remain focused on deforestation and land right issues in the Amazon. Brazil is currently considered the most dangerous country for environmental activism.<sup>220</sup>



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## POLITICAL SYSTEM: BRAZIL



The analysis of the political system is guided by two questions:

1. Which actors in the political system are more powerful?
2. Are they supportive or hindering a low carbon transition?

### Government and Civil Service

#### Assessment:

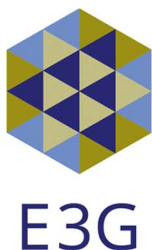
Level of power and influence: **High**

Alignment with low carbon transition: **Opposing**

**Summary:** The Brazilian government has recurring problems of corruption and stagnant bureaucracy across all levels of government, causing high political instability and exacerbating the country's economic vulnerability. Under the Temer government, environmental protections are being rolled back.

Ongoing anti-corruption investigations into Brazil's political and business leaders has led to over one hundred criminal convictions and the impeachment of former President Rousseff over the mismanagement of public funds and links to the Petrobras scandal. Under her watch as Petrobras' chairwoman of the board, a scheme to defraud the national oil company was uncovered. President Temer replaced Rousseff after the scandal but faces major issues of legitimacy; over 70% of Brazilians believe he is a bad president and recent allegations of corruption have spurred further distrust in government.<sup>221</sup>

Economic recovery is the top priority of the Temer government, for example through the privatisation of assets and fiscal reforms, including tax and pension reform. Climate change is a cross party issue but remains low on the domestic policy agenda. Under the Temer government, environmental protections are being rolled back in pursuit of economic recovery, which is said to be responsible for the recent increase in Brazil's deforestation rates.<sup>222</sup> The Brazilian Senate is currently considering lifting a ban on the sugar cane ethanol production in the Amazon.<sup>223</sup> The country's economic vulnerability is also an opportunity for China, whose influence is growing and presence is welcomed by President Temer. Chinese acquisitions in Brazil exceeded \$US 11 billion in 2017, mostly consisting of large hydro power and oil assets.<sup>224</sup>



In Brazil's federal system, states have an opportunity to challenge the federal government, though heavy fiscal dependence significantly reduces their bargaining power. Wealthy Industrialised regions in the south, such as São Paulo, have more bargaining power but tend to block climate policy, while emerging leaders in the north east are more supportive of climate action. The city of Rio de Janeiro continues to lead the debate on climate change, albeit more for historical reasons as they hosted the 1992 Earth Summit and Rio+20 events. To date, four Brazilian cities have signed the C40 Compact of Mayors in support of climate action: São Paulo, Rio de Janeiro, Salvador and Curitiba. The Mayor of São Paulo, João Doria, is a potential candidate for the upcoming presidential elections in October 2018, though most support is behind former President Lula. However, Lula faces a nine-year prison sentence for corruption and as such may not be allowed to run for office. Uncertainty and fragility dominates the current state of the Brazilian government and civil service.

## Business

### Assessment:

Level of power and influence: **High**

Alignment with low carbon transition: **Opposing**

**Summary:** Brazil's high carbon businesses are highly influential and deeply entangled with federal and state governments and lead a powerful anti-environment lobby which overshadows the more progressive business voice.

Large private and state-owned companies dominate Brazil's business landscape, and their interests actively drive the direction of domestic policies. A dozen corporations generate about half of the country's wealth, most of which are high carbon businesses from the food processing, iron and steel, oil and gas and construction sectors.<sup>225</sup> The high carbon agribusiness sector is key to Brazil's economic outlook and is deeply entangled with government and Congress. For example, Blairo Maggi is both owner of Brazil's largest soy production and agribusiness company, and Brazil's Minister of Agriculture. Maggi leads the highly influential and anti-environment agribusiness lobby group 'Bancada Ruralista'.<sup>226</sup> The biofuel industry also has a high degree of influence and is more supportive of climate action, mostly promoted by the Sugar Cane Industry Union (UNICA) and the automobile industry. In this high carbon nexus, Brazil's more progressive business voice has difficulty organising themselves and confronting the dominant development model. Businesses exposed to international markets are more willing and readily able to make their operations lower carbon, though many still block progress, including Maggi and JBS.

## Public Discourse

### Assessment:

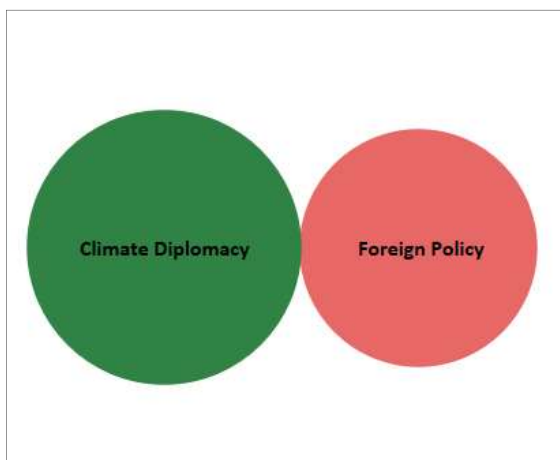
Level of power and influence: **Low**

Alignment with low carbon transition: **Divided**

**Summary:** Political scandals and socio-economic inequalities dominate media coverage and social movements in Brazil. While there are high levels of environmental activism related to the Amazon rainforest, discourse on the topic remains localised.

Public discourse in Brazil has a large focus on political corruption, distrust in government and socio-economic inequalities. Civil society groups and trade unions are strong advocates of human and workers’ rights, but have little influence under the Temer government, spurring further civil unrest and distrust in public officials and institutions. Campaigns on the protection of the Amazon forest are numerous but awareness tends to be localised and has relatively little influence on policy making. Social movements are broadly in favour of climate action, and high carbon development is generally challenged with two notable exceptions; agribusiness and oil production which are key to boosting the economy and financing social development programmes. Media is large and relatively open, with TV being the most influential medium. However, coverage of climate change remains limited and overshadowed by the latest political scandals involving business and political leaders. Brazilians are very active on social media, however, presenting opportunities to raise the domestic debate on climate change through new forms of media.

#### EXTERNAL PROJECTION AND CHOICE: BRAZIL



The analysis of external projection and choice is guided by three questions:

1. How engaged is a country in foreign policy and climate diplomacy?
2. Is this engagement supporting or hindering a low carbon transition?
3. How mature is the debate on the low carbon transition?

#### Foreign Policy

**Assessment:**

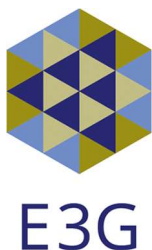
Level of engagement: **Medium**

Alignment with low carbon transition: **Opposing**

Maturity of the debate: **Low**

**Summary:** Brazil is a strong advocate of the multilateral approach and has significant diplomatic assets. However, economic instability has shifted foreign policy priorities, placing more emphasis on high carbon trade.





Brazil is strongly committed to the rules-based, multilateral approach and has a long history of shaping diplomatic efforts. Its diplomatic assets are some of the largest in the world, ranking 9<sup>th</sup> on the Global Diplomacy Index.<sup>227</sup> It also has a powerful Ministry of Foreign Affairs with tight control over foreign policy. Recognition and prestige are important drivers of Brazilian foreign policy and the Ministry of Foreign Affairs seeks to maintain its soft power and diplomatic projection, for example by hosting international summits and seeking a seat on the UN Security Council. The change in leadership from Rousseff to Temer, however, has shifted Brazil's foreign policy priorities. Trade has long been a priority but even more so under President Temer who intends to accelerate the country's economic recovery through international trade, particularly through oil, gas and food exports to China. Some focus remains on trade negotiations with members of Mercosur (Argentina, Paraguay, and Uruguay), but bilateral investment agreements with China are taking centre stage. Traditional alliances are also shifting. Under Temer, Brazil is actively taking a step back from Africa and Latin America and seeking closer ties to developed countries, particularly Europe. In 2017, Brazil applied for OECD membership.<sup>228</sup>

## Climate Diplomacy

### Assessment:

Level of engagement: **High**

Alignment with low carbon transition: **Supportive**

Maturity of the debate: **High**

**Summary: While Brazil's role in international climate negotiations has weakened over the last decade alongside the emergence of new leaders, it remains an important actor in the climate regime. However, the growing disconnect between its external position and domestic climate action, is a risk to its image as a climate leader.**

Brazil's strong external positioning on climate change is shaped by the Brazilian Ministry of Foreign Affairs and broader foreign policy objectives, particularly the protection of multilateralism. Its position is also driven by domestic issues and interests, reinforcing its focus on climate change adaptation, agriculture and land use. In the run up to the Paris climate negotiations, Brazil's role in securing a global agreement was diminished by US and Chinese leadership, though it does maintain significant agency within the UNFCCC where it works behind the scenes to reach positive alliances and outcomes. Brazil has cultivated key relationships within the climate regime through alliances, such as BASIC, BRICS and Forest Nations, and its development bank (BNDES) is one of the world's largest providers of international climate finance; BNDES' Amazon Fund supported 86 projects totalling \$US 617 million in 2016.<sup>229</sup> With one of the world's least carbon-intensive energy systems, Brazil views itself as performing well on climate mitigation and believes it has space to pollute, though its active pursuit of high carbon development and inability to detach itself from fossil fuels could significantly diminish its leadership on climate diplomacy.



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# ANNEX I

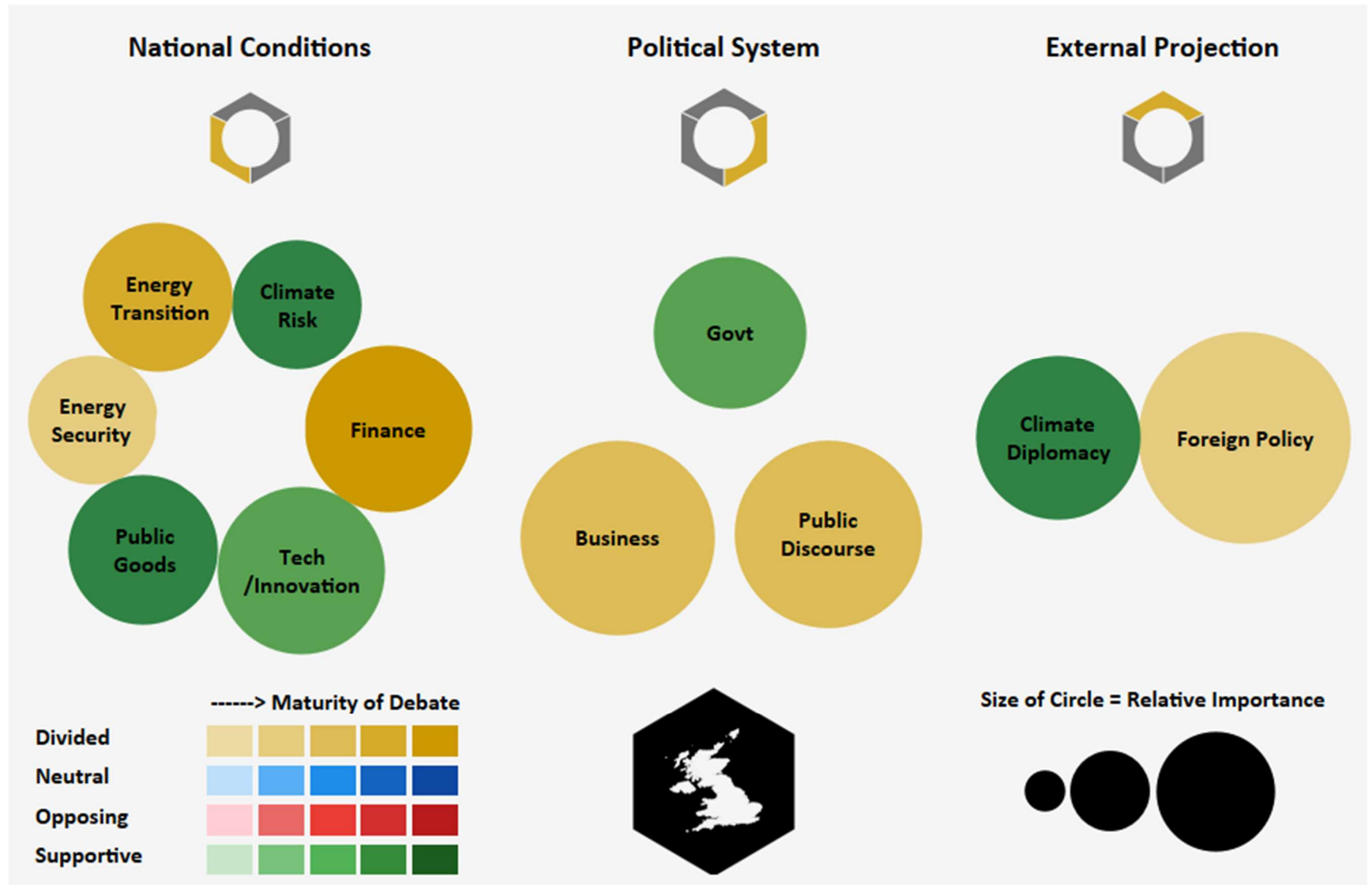
PEMM VISUALISATIONS FOR SELECTED COUNTRIES:

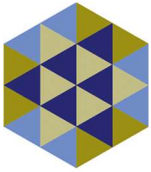
UNITED KINGDOM, GERMANY,  
UNITED STATES OF AMERICA AND BRAZIL



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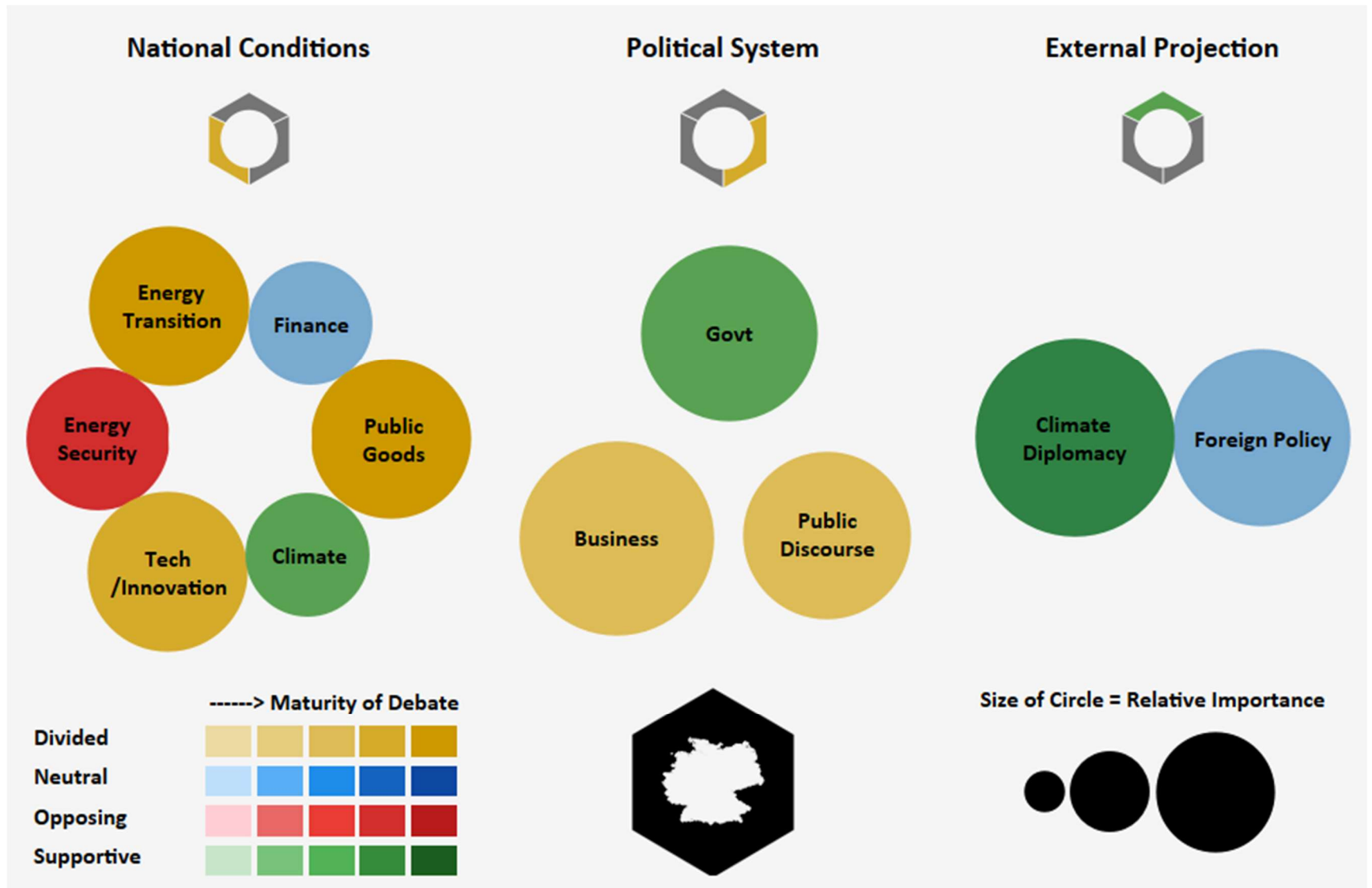
## UK PEMM: THREE-DIMENSIONAL ASSESSMENT





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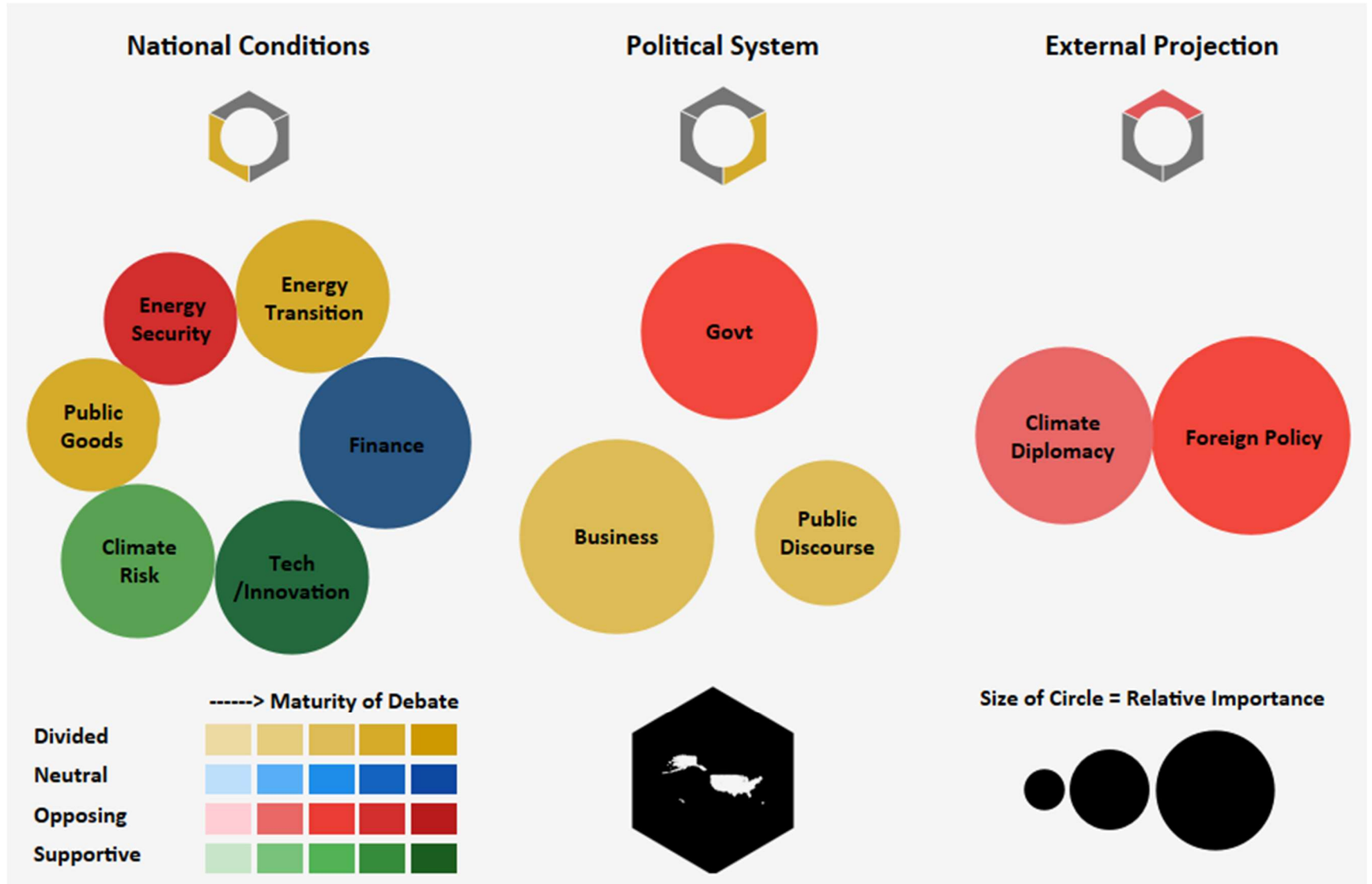
# GERMANY PEMM: THREE-DIMENSIONAL ASSESSMENT

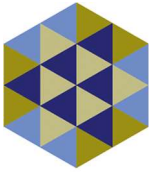




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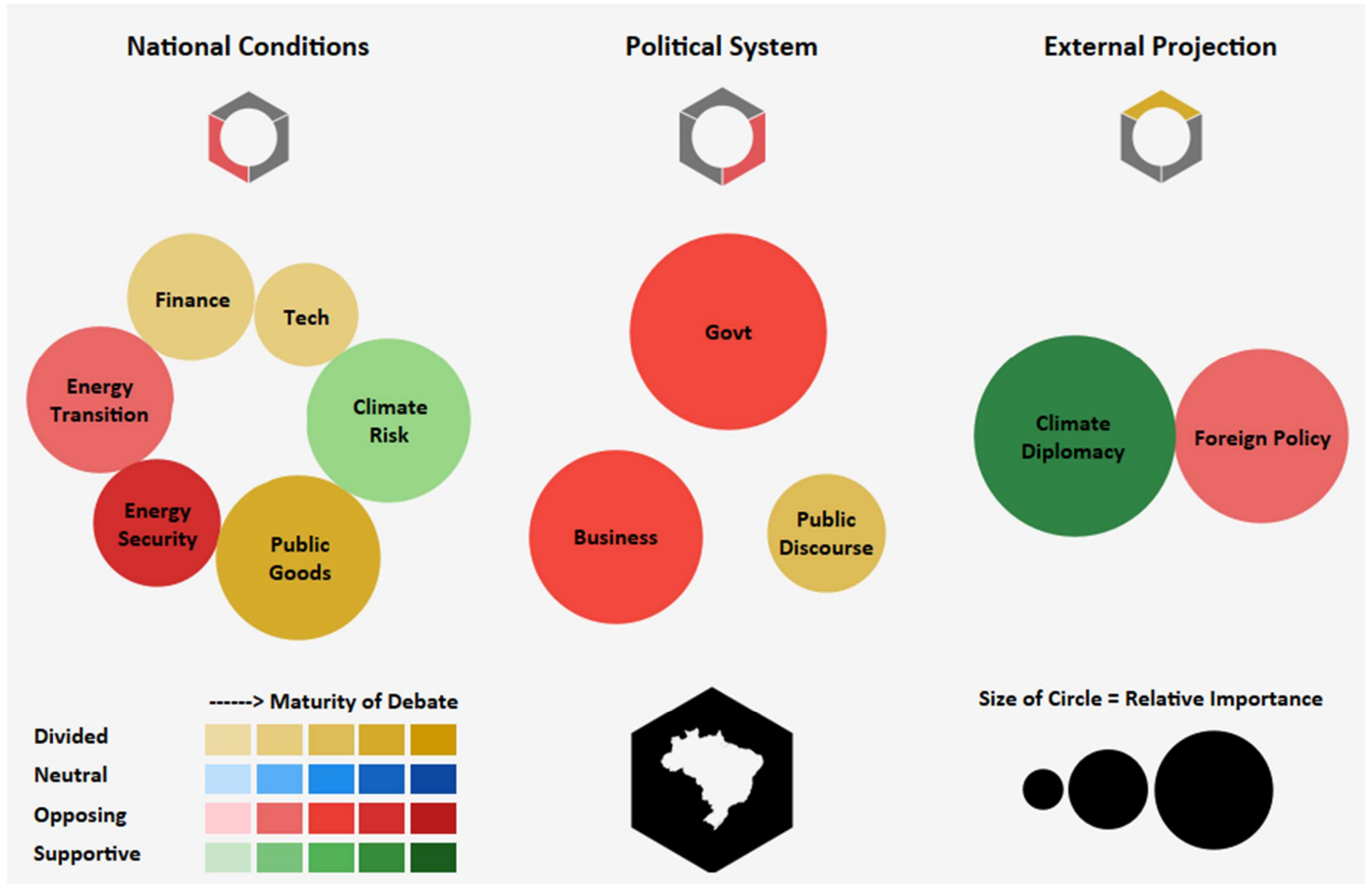
# USA PEMM: THREE-DIMENSIONAL ASSESSMENT

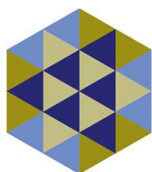




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# BRAZIL PEMM: THREE-DIMENSIONAL ASSESSMENT



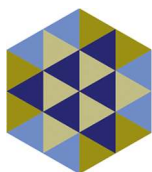


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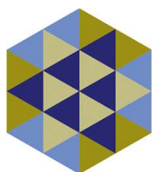
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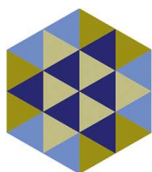
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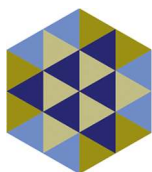
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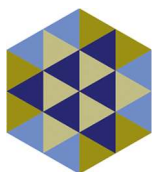
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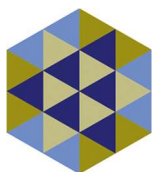
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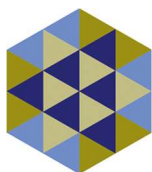
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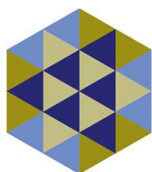
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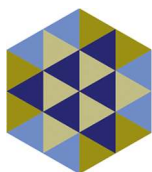
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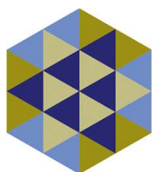
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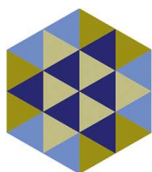
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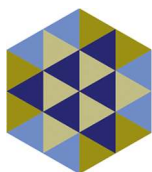
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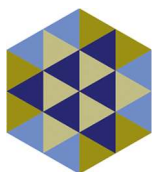
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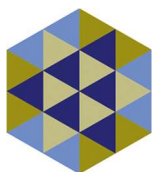
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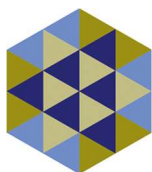
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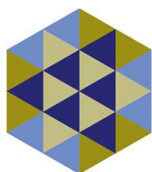
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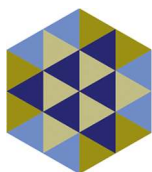
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