DEEP DECARBONIZATION PATHWAYS

CLIMATE AMBITION BEYOND EMISSION NUMBERS

Taking stock of progress by looking inside countries and sectors

UNITED KINGDOM

Jim Watson and Steve Pye

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Contact

Henri Waisman, henri.waisman@iddri.org

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Disclaimer

The results presented in this report are outputs of the academic research conducted under the DDP BIICS project as per the contractual agreement. The academic work does not in any way represent our considered opinion for climate negotiations and also does not reflect the official policy or position of the Government of the United Kingdom.

How is this document relevant to the Global Stocktake?

This document is part of a collective report that assesses the evolution of climate ambition in 26 countries and 3 hard-to-abate sectors through a granular and context-specific analysis of trends and progress of national and sectoral transformations.[1] This approach allows identifying what hinders and spurs action in countries and sectors, and understanding the conditions that can support enhanced ambition, which could be political, social, economic, governance.

These insights are directly relevant to four overarching functions of the Global Stocktake in support of its desired outcome, i.e. "to inform Parties in updating and enhancing, in a nationally determined manner, their actions and support in accordance with the provisions of the Paris Agreement, as well as enhancing international cooperation for climate action" (Article 14.3 of the Paris Agreement):

- Create the conditions for an open and constructive conversation on global cooperation (on e.g., technology, trade, finance, etc.), based on an in-depth understanding of the international enablers of enhanced country ambition.
- Organize a process for knowledge sharing and collective learning, based on concrete examples of actions already in place or being discussed, including best practices.
- Create space for open dialogues across different stakeholders to support better coordination of actions, based on a detailed understanding of the levers to be activated to enhance ambition in national and sectoral transitions
- Facilitate ownership by decision-makers of the climate challenge and the risks and opportunities of the low-emission and resilient transition, based on context-specific and granular analysis of barriers and enablers.

More specifically, the collective report in general – and this document in particular – can contribute to address some of the key guiding questions for the Global Stocktake[2], notably:

- What actions have been taken to increase the ability to adapt to the adverse impacts of climate change and foster the climate resilience of people, livelihoods, and ecosystem? To what extent have national adaptation plans and related efforts contributed to these actions (Decision 19/CMA.1, paragraph 36(c))?
- How adequate and effective are current adaptation efforts and support provided for adaptation (Article 7.14 (c) Paris Agreement)?

1 The full report « Climate ambition beyond emission numbers - Taking stock of progress by looking inside countries and sectors" can be found at: https://www.iddri.org/en/publications-and-events/report/climate-ambition-beyond-emission-numbers-taking-stock-progress

2 Draft Guiding Questions for the Technical Assessment of GST1 (version 20th October 2021), available at: https://unfccc.int/sites/default/files/resource/Draft%20GST1_TA%20Guiding%20Questions.pdf

- What are the barriers and challenges, including finance, technology development and transfer and capacity-building gaps, faced by developing countries?
- What is the collective progress made towards achieving the long-term vision on the importance of fully realizing technology development and transfer in order to improve resilience to climate change and to reduce greenhouse gas emissions referred in Article 10.1 of the Paris Agreement? What is the state of cooperative action on technology development and transfer?
- What progress been made on enhancing the capacity of developing country Parties to implement the Paris Agreement (Article 11.3 Paris Agreement)?
- To achieve the purpose and long-term goals of the Paris Agreement (mitigation, adaptation, and finance flows and means of implementation, as well as loss and damage, response measures), in the light of equity and the best available science, taking into account the contextual matters in the preambular paragraphs of the Paris Agreement:
  - What are the good practices, barriers and challenges for enhanced action?
  - What is needed to make finance flows consistent with a pathway towards low GHG emissions and climate-resilient development?
  - What are the needs of developing countries related to the ambitious implementation of the Paris Agreement?
- What is needed to enhance national level action and support, as well as to enhance international cooperation for climate action, including in the short term?
- What is the collective progress made by non-Party stakeholders, including indigenous peoples and local communities, to achieve the purpose and long-term goals of the Paris Agreement, and what are the impacts, good practices, potential opportunities, barriers and challenges (Decision 19/CMA.1, paras 36(g) and 37(i))?

Foreword

Henri Waisman, Marta Torres Gunfaus, Anna Perez Catala, IDDRI.

Country commitments as reflected in enhanced Nationally Determined Contributions submitted to the UNFCCC are insufficient to put the world on track to achieve the collective objective of the Paris Agreement to hold temperature increase below 2 °C or 1.5 °C above pre-industrial levels. Furthermore, concrete policies and actions adopted by countries on the ground are often not sufficient to achieve these NDC targets. These conclusions highlight the need to increase ambition and to provide convincing evidence to accelerate action in the immediate and short term to give effect to this ambition. Yet these assessments are not sufficient to effectively guide the progressive increase of ambition, as organized by the cyclical process of the Paris Agreement.

APPROACH

With this imperative in mind, this report adopts a different, complementary, perspective on climate ambition. It seeks to open the box of emission pathways, by considering multiple dimensions of the conditions that will make these pathways possible. These are technical, economic, political, social and governance considerations in need of attention to enable the required far-reaching and systemic transformation towards the long-term goal. On the one hand, the revision of emission targets needs to be directed by an assessment of how drivers of emissions should change to trigger transformation. On the other hand, converting emissions' targets into pertinent concrete implementation requires well-designed policy packages and investment plans that are also informed by a clear and detailed understanding of the starting point, priorities and interplays between the available levers of transformation.

This bottom-up assessment aims at contributing to the process of collective learning in support of the progressive increase of collective ambition, as inserted at the core of the Paris Agreement paradigm. Approaching climate ambition through the lens of underlying transformations calls for reflecting the heterogeneous nature and the multi-faceted aspects of transitions in different sectors and countries. This forces a move away from a purely global perspective and adopts a more granular approach based on country and individual sector perspectives. Thus, the report explores trends and progress on these transformations, as locally observed over the past years, notably since the Paris Agreement. This 'backwards looking' approach can help identify where developments are going in the right direction, where they should be accelerated and where major tensions remain that should be addressed as a priority to avoid undermining the transition. The picture of the state of the ambition discussion, firmly embedded in the country and sectoral realities, can provide means for reflection and action within the international climate community, particularly to inform focus areas for advancing the collective ambition agenda.

STRUCTURE OF THE REPORT

This country report describes the recent evolutions of domestic discourses on climate ambition, national climate policy, national governance and concrete policies and actions with a significant effect on GHG emissions. The chapter highlights a selection of striking and structurally important elements to advance the transformation towards carbon neutrality from an in-country perspective.

This report is part of a full series of 26 country chapters and three sectoral chapters. The full report includes a "summary for decision-makers" to present 10 cross-cutting messages emerging from the country and sector analysis, as a guide to the selection of priorities for collective action in the post-COP26 period.

You will find the full report at: https://www.iddri.org/sites/default/files/PDF/Publications/Catalogue%20Iddri/Rapport/DDP_beyond%20emissions%20report.pdf

UK

NARRATIVE OF CLIMATE AMBITION

This chapter has been written thanks to the support of the International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU).

Prior to the Paris Agreement, the UK had established strong domestic climate legislation, and was making progress on decarbonization, largely through a shift away from coal in the power sector. This brief discusses how the UK's ambition has evolved since 2015. It focuses on domestic discourses about climate change, changes in governance to strengthen ambition and institutional capacity, and action on the ground to implement the necessary policies to meet emissions targets.

DOMESTIC DISCOURSE

Strong civil society movements, the continued cross-party support for action and the hosting of COP26 later this year have ensured climate change has remained a prominent issue on the political agenda.

Despite the public discourse being dominated by the referendum decision to leave the European Union and the Covid-19 pandemic, climate change has become much more prominent in the past five years. This is shown by increasing levels of public concern about climate change. According to a government tracker survey, the number of people 'very concerned' about climate change has risen from 19% in 2012 to 37% in 2020; and the number 'concerned' from 65% to 81%.[1]

During the same period of time, media coverage of climate change has increased – particularly around the time of the Paris Agreement in 2015 and more recently, due to the adoption of more stringent climate targets (see below)[1]. Coverage

1 BEIS Public Attitudes Tracker, https://www.gov.uk/government/collections/public-attitudes-tracking-survey

has also broadened, with more popular tabloid newspapers joining in with campaigns for climate change action.[2] However, it is important to be cautious. There are still sections of the media where scepticism about climate science – or of climate policies - is common. For example, plans to switch home heating away from natural gas (which is used to heat the majority of UK homes) continues to be controversial.

Civil society movements have also had a significant influence on public discourse, and arguably on moves to strengthen climate change targets. This includes direct action by Extinction Rebellion and the school strikes of the Fridays for the Future campaign. One of Extinction Rebellion's demands has been for a citizens assembly on climate change. Whilst it was not set up as a direct response, six cross-party committees in the UK Parliament commissioned a national citizens assembly (Climate Assembly UK) in 2019. The assembly comprised a representative sample of 108 people, and reported in September 2020[2]. Their recommendations focus on how the UK should meet net-zero in 2050, including specific policy proposals on reducing emissions from homes, transport and food. During the same period, a number of local authorities have run their own citizens assemblies on climate change.

Partly due to the shift in social attitudes, all of the main political parties support legislated climate change targets, and policies to meet those targets. This reflects the influence this issue now has on voting intentions, at least according to a poll conducted before the last General Election.[3] There is significant variation between political parties when it comes to specific policy priorities, including the extent to which climate action is high on their political agenda. As with media coverage, this does not mean that there is an unbreakable consensus on some of the actions required. There is a significant risk that climate change policy will be affected by wider political divisions that are reflected in the narrow majority in favour of leaving the EU.

The UK's joint leadership of the next UNFCCC climate change conference (COP26) has reinforced the government's high-level commitment to climate action in 2020 and 2021. These high-level commitments include explicit links to economic development – and the aim of 'levelling up' to ensure that poorer regions of the UK benefit from the transition to net-zero. It remains to be seen what this aim will mean in practice, and whether it will have a significant impact on regional disparities in wealth. There have already been several controversies because of inconsistencies in government policies at a national and local level. For example, a plan for a new coal mine in northern England has not been immediately ruled out by the government even though it is very unlikely to be compatible with climate targets. Similarly, there have been plans for significant spending on new roads, expansion of regional airports and for maximising oil and gas extraction in the North Sea.

NATIONAL GOVERNANCE

Since 2015, the UK has further strengthened its climate legislation by adopting a net-zero target for 2050. UK regions and local authorities have also become more active in pursuing similar climate targets.

The UK was one of the first countries to legislate for a long-term economy-wide GHG emissions reduction target. Under the 2008 Climate Change Act (CCA) [3], it established a target of an 80% reduction by 2050, relative to 1990. It also set up a framework for putting interim targets in place (using five-year carbon budgets) to ensure that a necessary rate of reduction was achieved to deliver the longer-term goal. Finally, it established an advisory committee, the Climate Change Committee (CCC),[4] to advise on strengthening the 2050 target, setting carbon budget levels, and monitoring progress towards climate goals.

Seven years later, the Paris Agreement was signed, and indicated the need for increased climate ambition. While the CCC initially advised against strengthening the 2050 goal[4], the publication of the IPCC special report on 1.5°C changed thinking on this[5]. The then Minister for Energy and Clean Growth, Claire Perry, asked for this to be looked at again, with the CCC advising that the UK Government should adopt a

2 Tobitt, C. (2021). How UK press moved from denial to acceptance and now action on climate change. https://pressgazette.co.uk/uk-media-climate-change/

3 Carrington, D. (2019). Climate crisis affects how majority will vote in UK election – poll. https://www.theguardian.com/environment/2019/oct/30/climate-crisis-affects-how-majority-will-vote-in-uk-election-poll

4 Prior to 2020, the CCC was known as the Committee on Climate Change.

net-zero GHG target for 2050[6]; this was then legislated in 2019.

Distinctive amongst other countries who have adopted similar legislation, the UK net-zero target in 2050 includes international aviation and shipping. This makes the target even more challenging, with these sectors accounting for 40 $MtCO_2$, and set to continue to grow. However, despite the CCC's advice that all mitigation should be undertaken domestically, the UK government has retained the option to partially meet its net-zero target with international carbon credits.

Since strengthening its long-term goal in 2019, the UK also legislated for its 6th carbon budget for the period 2033-2037[5], based on CCC advice[7]. This means a 78% GHG emissions reduction by 2035, including international aviation and shipping. This is almost equivalent to the original 2050 goal of -80% but brought forward by 15 years. Since leaving the EU, the UK has also announced a Nationally Determined Contribution (NDC) target of a 68% reduction in emissions by 2030. This is in line with 5th carbon budget, which covers the period from 2028-2032[8].

As discussed earlier, the cross-party consensus on climate change has meant that the legislation has survived the political cycles since 2008. Advice on targets from the CCC has largely been accepted. It is likely that the CCC will now take a much more proactive view on issues of implementation in the future, and the necessary policies to effect change. While target setting has been important, there is growing concern that the UK is considerably off track in climate action across most sectors (as discussed in the next section).

The constituent countries of the UK also have their own climate governance in place, which is important as they have devolved powers to affect emission reductions in some sectors. It is estimated that they will account for almost a quarter of the UK's required reductions. Since 2015, the Scottish government has legislated for a net-zero target for 2045 and legally binding targets between 2020 and 2045. The Welsh Government have committed to setting a 95% reduction target in 2050, with an ambition to set a net-zero target if possible[7].

At a subnational level, there has been a marked shift in the debate since 2018, with almost 75% of (or 300) local authorities (LAs) having declared climate emergencies. Many of these designate net-zero years, in most cases in 2030 or 2035. A third have some sort of planning or strategy document as to how to achieve this target[9]. This is not a coordinated effort by central government to deliver action locally but rather a response by LAs to community concerns and the broader climate agenda. LAs do have some powers to help deliver the transition to net-zero such as through planning and waste management functions. However, the lack of coordination with central government policies, limits on funding, and limited power in key areas of policy raises questions about whether LAs can implement the systemic changes required to achieve net-zero emission communities.

ACTIONS AND POLICIES

Progress on decarbonization of the power sector has masked limited gains across other sectors, and a widening policy gap, particularly in the transport and building sectors.

While it is positive that the legislative framework is firmly established and has been strengthened in recent years to be more aligned to the goals of the Paris Agreement, the UK has yet to develop a comprehensive policy package that can be implemented now to deliver against this ambition.

Some important progress has been made, notably in the power sector. Historical shifts in industrial structure, improvements in energy efficiency and a move from coal to gas and renewable generation means that the UK is 50% below 1990 GHG emission levels.[6] Recent gains have predominantly been in the power sector, as remaining coal plants shut down. There has also been a temporary reduction due to the effects of the Covid-19 pandemic, with an estimated 11% annual decline in 2020. As coal has declined, renewables such as offshore wind have boomed, persistently supported by policy and now cost competitive will fossil generators. Wind power currently provides 20% of UK electricity, up from

5 UK Government (2021). UK enshrines new target in law to slash emissions by 78% by 2035. https://www.gov.uk/government/news/uk-enshrines-new-target-in-law-to-slash-emissions-by-78-by-2035

6 Evans, S. (2021). Analysis: UK is now halfway to meeting its 'net-zero emissions' target. Carbon Brief. https://www.carbonbrief.org/analysis-uk-is-now-halfway-to-meeting-its-net-zero-emissions-target

less than 3% in 2010. In 2019, for almost 40% of the year, the UK was powered more by renewables than fossil fuels.[7]

The historical emission reductions and the ongoing power system decarbonization provide a good platform for further decarbonization of industry, buildings, and transport. However, the policy package is woefully thin across these sectors, bearing in mind that the Climate Change Act was passed some 13 years ago. The CCC, who mark the government's record on climate action each year, highlighted that 'progress is generally off-track in most sectors, with only four out of 21 of the indicators on track in 2019'[10]. A considerable policy gap remains, and needs to be closed if the UK is to stay on track.

In November 2020, the Prime Minister announced his 10 Point Plan 'to lay the foundations for a Green Industrial Revolution'[11]. These focus on some key technology areas but remain limited in policy detail, much of which it said to be released in the months leading up to COP26. One sector that has had recent strategy announcement is industry, where the UK government has committed to setting up low carbon industrial clusters, focusing on decarbonization of fuels and CCUS[12]. However, the document remains light on policy detail.

The transport sector constitutes the single largest source of emissions (34% including international transport), a level that has not changed since 2000. The headline policy measure in place is the ban of the sales of cars running on oil by 2030, and plug-in hybrids by 2035. This is much more ambitious than the previous sales ban year of 2040. Policies in other areas such as freight transport are not yet in place, and other areas seems misaligned with net zero goals, such as plans for future airport expansion and a large £27 billion road building programme.

The building sector, which accounts for ~22% of current UK emissions, has made limited progress in decarbonization. The high dependency on gas for heating homes, coupled with a building stock that is has poor energy efficiency, means that solutions for heat decarbonization have been slow to implement. The two leading options, electrification and hydrogen, are still under debate with no clear policy direction on either. Given the need to deal with 29 million homes in the next 29 years to meet net-zero, this is 1 million per year that will need upgrade and / or low carbon heating systems installed. Given that the majority of new build homes are gas-connected, gas-based heating continues to grow at a faster rate than low carbon options[13]. Recent efforts to improve build energy efficiency and introduce low carbon heating under the £1.5 billion green homes grant have been abandoned after 6 months. This follows earlier attempts to tackle poor building efficiency through the Green Deal policy, which also failed due to poor design and implementation. These recent failures followed more successful energy efficiency policies that were in place until the early 2010s.

The UK is also developing research efforts to explore greenhouse gas removal (GGR) opportunities, and has developed a programme of research over the last few years focused on that. A research hub has recently been launched to set up a range of demonstrator projects across a range of GGR options, from enhanced weathering, tree planting, and peatland management.[8] Government are also funding a competition to develop direct air capture and GGR technologies, with initial projects selected.[9] These efforts reflect a concern around residual emissions in the longer term, and the need to offset these with GGR options.

Without strong efforts to address the policy gap, particularly in buildings and transport, the UK is not going to be able to maintain the levels of reduction observed in recent years, and is likely to miss its carbon budget targets post-2025. This is an important year for the UK to get its policies in place, as it emerges from the Covid pandemic and into a post-Brexit era. There is an opportunity for radical policies and programmes of investment in the low carbon economy, to help kickstart regional economies, particularly in areas that are a focus of the Government's levelling up agenda and ensure that the country is on track to net-zero GHG emissions.

7 Evans, S. (2020). Analysis: UK low-carbon electricity generation stalls in 2019. Carbon Brief. https://www.carbonbrief.org/analysis-uk-low-carbon-electricity-generation-stalls-in-2019

8 UKRI (2021). UK invests over £30m in large-scale greenhouse gas removal. UK Research and Innovation. https://www.ukri.org/news/uk-invests-over-30m-in-large-scale-greenhouse-gas-removal/

9 BEIS (2021). Direct Air Capture and other Greenhouse Gas Removal technologies competition. https://www.gov.uk/government/publications/direct-air-capture-and-other-greenhouse-gas-removal-technologies-competition

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The DDP is an initiative of the Institute for Sustainable Development and International Relations (IDDRI). It aims to demonstrate how countries can transform their economies by 2050 to achieve global net zero emissions and national development priorities, consistently with the Paris Agreement.. The DDP initiative is a collaboration of leading research teams currently covering 36 countries. It originated as the Deep Decarbonization Pathways Project (DDPP), which analysed the deep decarbonization of energy systems in 16 countries prior to COP21 (deepdecarbonization.org). Analyses are carried out at the national scale, by national research teams. These analyses adopt a long-term time horizon to 2050 to reveal the necessary short-term conditions and actions to reach carbon neutrality in national contexts. They help governments and non-state actors make choices and contribute to in-country expertise and international scientific knowledge. The aim is to help governments and non-state actors make choices that put economies and societies on track to reach a carbon neutral world by the second half of the century. Finally, national research teams openly share their methods, modelling tools, data and the results of their analyses to share knowledge between partners in a very collaborative manner and to facilitate engagement with sectoral experts and decision-makers.
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