

# Meeting the UK's carbon budgets – progress and challenges

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This article will address three issues: first, it will provide a background to the Climate Change Act 2008 (CCA).<sup>1</sup> Secondly, it will outline what difference the CCA has already made and thirdly, it will discuss the challenges that lie ahead in delivering a low carbon economy.

## Background to the CCA and the Committee on Climate Change

The CCA sets in primary legislation a long-term emissions reduction target. This target came from the Committee on Climate Change (CCC) and is to reduce emissions by 80 per cent on 1990 levels by 2050.<sup>2</sup> To deliver this target, the CCA introduces carbon budgets – five-year ceilings in the emissions of greenhouse gases.<sup>3</sup> Currently four of these budgets are in secondary legislation.<sup>4</sup> The CCA also establishes the CCC as an independent, non-departmental body.<sup>5</sup> In some ways, its status is similar to that of the energy regulator or monetary policy committee, the chief difference being that the CCC advises rather than having executive power. Nevertheless, the CCC is a body with real influence due to its creation by statute, which means it is difficult for the government to ignore its advice.

Initially, the CCC was asked to provide advice on four matters.

1. What the long-term target should be. The CCC said it should be an 80 per cent target, rather than the 60 per cent it was previously.
2. Whether the target should be just for carbon dioxide or for all greenhouse gases. The CCC said it should be for all greenhouse gases. This was also accepted.
3. What the first four carbon budgets should be, covering the first two decades. The CCC was highly influential in shaping the four budgets that are now in secondary legislation.

4. Whether the UK should focus on reducing domestic emissions or rather on achieving the targets through, for example, the purchase of offsets. The CCC successfully ensured the focus has been placed on domestic emissions reductions.<sup>6</sup>

In giving its advice, the CCC has had to identify the implications of the carbon budgets on the following:

- competitiveness
- security of supply
- energy prices/fuel poverty
- fiscal revenues
- Scotland, Wales and Northern Ireland
- ancillary environmental effects.

An important part of the CCC's role is reporting to Parliament on progress in meeting the carbon budgets. It additionally provides advice to the government on the future for aviation emissions, the future of renewable energy and the carbon reduction commitment, and advises the devolved administrations in Scotland, Wales and Northern Ireland.

## What difference does the law make?

Politicians in other countries are taking an increasing interest in the enactment of climate change legislation. This highlights an important and frequently asked question – what difference does legislation make on this issue? What happens if a government is not on track? Crucially, what are the implications if a budget is not met?

## Legal aspects of the carbon budget

The carbon budget has to be set in consideration of a set of factors, notably the scientific evidence base and economic analysis.<sup>7</sup> Once these factors have been brought into play, there is little room for manoeuvre. The summer of 2011 saw a cabinet split over whether or not to accept the CCC's advice on the fourth carbon budget. It was made very clear to the government, particularly by Friends of the Earth, that were the CCC's recommendations for the fourth carbon budget not accepted, it would be breaking the law and Friends of the Earth would seek to

\* This article is based upon the United Kingdom Environmental Law Association Garner Lecture I delivered on 1 December 2011 at the offices of Clifford Chance, London and is printed here with the kind permission of UKELA.

1 Climate Change Act 2008 (CCA) ch 27.

2 *ibid* s 1 provides: '[i]t is the duty of the Secretary of State to ensure that the net UK carbon account for the year 2050 is at least 80 per cent lower than the 1990 baseline'.

3 *ibid* s 4.

4 The carbon budgets for the first three periods – 2008–12, 2013–17 and 2018–22 – are contained in the Carbon Budgets Order 2009/1259. The fourth carbon budget, covering the period 2023–27 is contained in the Carbon Budget Order 2011/1603.

5 The Committee on Climate Change (CC) is created by s 32 of the CCA. For more information on the CCC, see [www.theccc.org.uk](http://www.theccc.org.uk).

6 CCA s 14 requires the Secretary of State to: 'have regard to the need for UK domestic action on climate change' in order to meet both the 2050 target and the carbon budgets.

7 *ibid* s 10(2) gives the list of factors to be taken into account by the government in setting the carbon budgets.

have the decision judicially reviewed.<sup>8</sup> The government realised it was likely it would lose such a judicial review and it therefore had little choice but to accept the fourth carbon budget. This shows the legislative clout of the CCA and the real difference it can make to political decisions in difficult circumstances – and this is precisely what it was designed to do.

An important question is what happens if, despite the fourth carbon budget being law, the government fails to put policies in place to deliver it. Would that still be breaking the law? There is a clear statement in the CCA that the government must implement policies to meet the ambitious targets, and the CCC has to scrutinise those policies, state whether or not they are adequate and whether something else is needed.<sup>9</sup> It is uncertain whether, should the government fail to support the budget with appropriate policies, there would be grounds for judicial review – but it is likely to be so. The hope is that this point will be an academic one, but if the government does not take the necessary policy measures, legal implications could feasibly result.

The Heathrow expansion case<sup>10</sup> serves to highlight the power of the CCA further. The basis for this judicial review challenge was that the expansion was inconsistent with the CCA and the commitments contained therein. The judgment in that case concluded that the government had not made the case for the expansion of Heathrow in the context of the CCA.

A further interesting legal question is what happens if further down the line, even with the right policies in place, the carbon budget is not met? If this happens, the government will have to come up with a plan of remedial action. Section 19 of the CCA provides that in the event of the UK's carbon account for a budget period exceeding the budget amount, the government must, as soon as possible, lay before Parliament 'a report setting out proposals and policies to compensate in future periods for the excess emissions'. A key role of the CCA, however, is to help ensure that such a scenario is averted and that the carbon budgets are not missed.

### The CCC's achievements to date, and the policies and vision needed to achieve the carbon budgets

This section focuses initially on the 2050 target, which is the anchor for everything the CCC does. It then outlines

8 *ibid* s 34(1) provides that: 'It is the duty of the Committee to advise the Secretary of State, in relation to each budgetary period, on – (a) the level of the carbon budget for the period'. Section 9(1)(a) provides that 'Before laying before Parliament a draft of a statutory instrument containing an order under section 8 (order setting carbon budget), the Secretary of State must – (a) take into account the advice of the Committee on Climate Change under section 34 (advice in connection with carbon budgets)'.

9 *ibid* s 13(1), for example, states that: 'The Secretary of State must prepare such proposals and policies as the Secretary of State considers will enable the carbon budgets that have been set under this Act to be met'.

10 *R (on the application of London Borough of Hillingdon & Others) v Secretary of State for Transport & Another* [2010] EWHC 626 (Admin).

what needs to be done over the next two decades, and examines what the legislation actually contains. There is a particular focus on budget costs, and crucially on how to drive down emissions to meet the targets.

All of the CCC's advice is underpinned by robust science. In contrast to what some parts of the media might suggest, climate science is not on the verge of collapse. The CCC contains eminent scientists who ensure an appropriate position is taken on all scientific matters. As part of this, a review of the science over the last 200 years was conducted which incorporated a number of peer-reviewed articles.<sup>11</sup> The conclusion of the review was that we can have a very high degree of confidence that climate change is happening. Equally, we can be confident that much of what can be measured is attributable to human activity, even though we cannot ascertain exactly how much of what has already taken place is down to human activity as opposed to other factors such as solar radiation. A degree of uncertainty remains, but there is a significant risk that if we take no action, we will be exposed to dangerous climate change. The good news is that we still have the opportunity to do something about it, ie to reduce the risks by bringing down emissions.

The science equally underpins what we should be trying to do as a global community. A typical argument is that the UK only accounts for 2 per cent of global emissions, hence any contribution the UK can make to the overall picture is negligible. However, the CCC's view is twofold; first, it is important that we make our contribution along with other countries, and secondly, it is equally important that we prepare ourselves to live in a carbon-constrained world. The approach is thus: 1) what should the global community as a whole be trying to do, and 2) what is appropriate for us to do in the UK? The science indicates that we should broadly be trying to keep central estimates of climate change to 2° Celsius – in order to do that, we need a global emissions cut of approximately 50 per cent over the next four decades. In terms of an appropriate UK contribution to that, it is hard to imagine a world where we in the UK are emitting more per person than anyone else. In order to emit the same as the rest of the world, we need an 80 per cent emissions cut, hence the target.

### The scale of the challenge

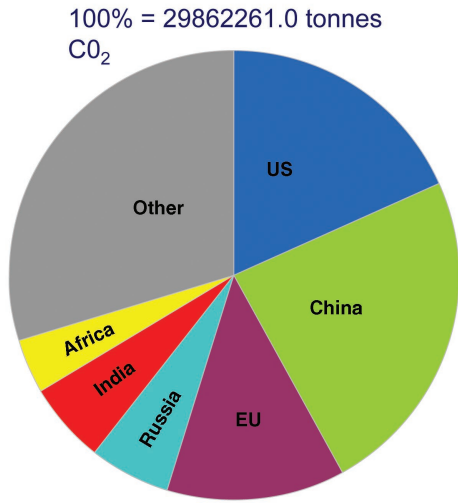
The 80 per cent emissions reduction target requires us to reduce our emissions to about two tonnes per capita. As *Graph 1 opposite* shows, this reduction from about 10 tonnes per capita to about two tonnes per capita needs to take place in the UK for decades. China's emissions continue to increase, and if it does not start to take action, its emissions will overtake the UK on a tonnes per capita basis over the next decade or so. This highlights the urgent need for China to join in international emissions reduction efforts, to embark on a downward path and

11 Committee on Climate Change 'The Fourth Carbon Budget: reducing emissions through the 2020s' (December 2010) ch 1, [www.theccc.org.uk/reports/fourth-carbon-budget](http://www.theccc.org.uk/reports/fourth-carbon-budget).

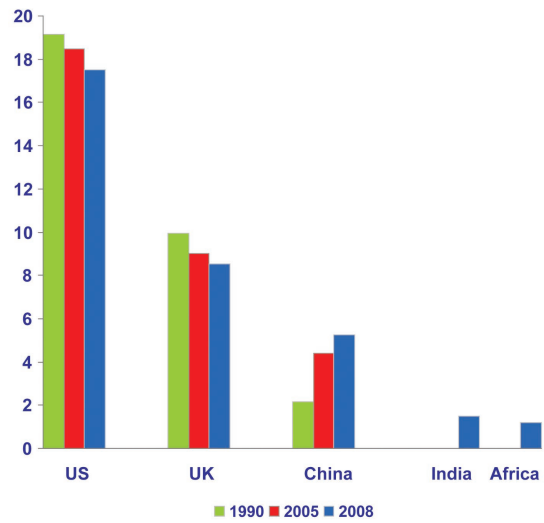
## Emissions by country



Total emissions 2008



Metric tonnes CO<sub>2</sub> per person



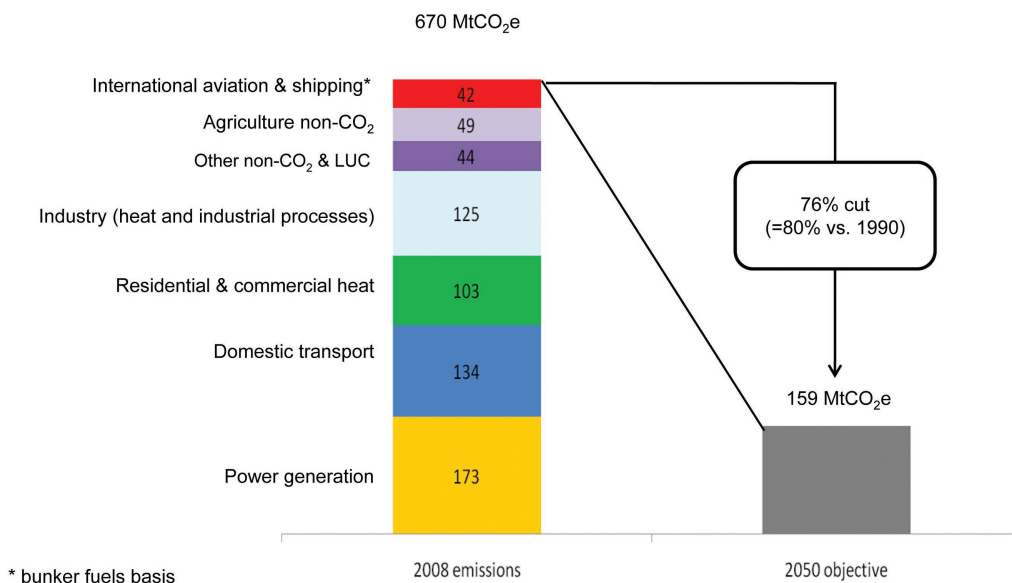
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commit to absolute cuts, certainly in the early 2020s. The US position appears even more frightening as it needs to decline from 20 tonnes to two tonnes by 2050 – a seemingly impossible feat. However, if the US was to start taking the measures that we in the UK should and

are aiming to take, it would be en route to much lower emissions consistent with the global climate objective.

Graph 2 below is a different way of looking at the UK's target. We need to go from emitting 670 million tonnes of CO<sub>2</sub> per year in 2008 to 160 million tonnes over the next

## The UK's 2050 target

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four decades. Our annual emissions have reduced slightly because of the recession, but they are still in excess of 600 million tonnes. The first question is whether we should plan to achieve this reduction through buying credits from other countries. The answer to this is no, as when other major emitters such as the US and China have reduced their emissions in line with ours, they will not have the credits to sell. Consequently, we have to plan to make these cuts domestically. Secondly, we cannot plan to reduce emissions in all sectors – it is impossible to envisage cutting aviation emissions by 80 per cent for example. Steeper reductions must therefore be made in the sectors where we have the capacity to do so; power, surface transport and buildings.

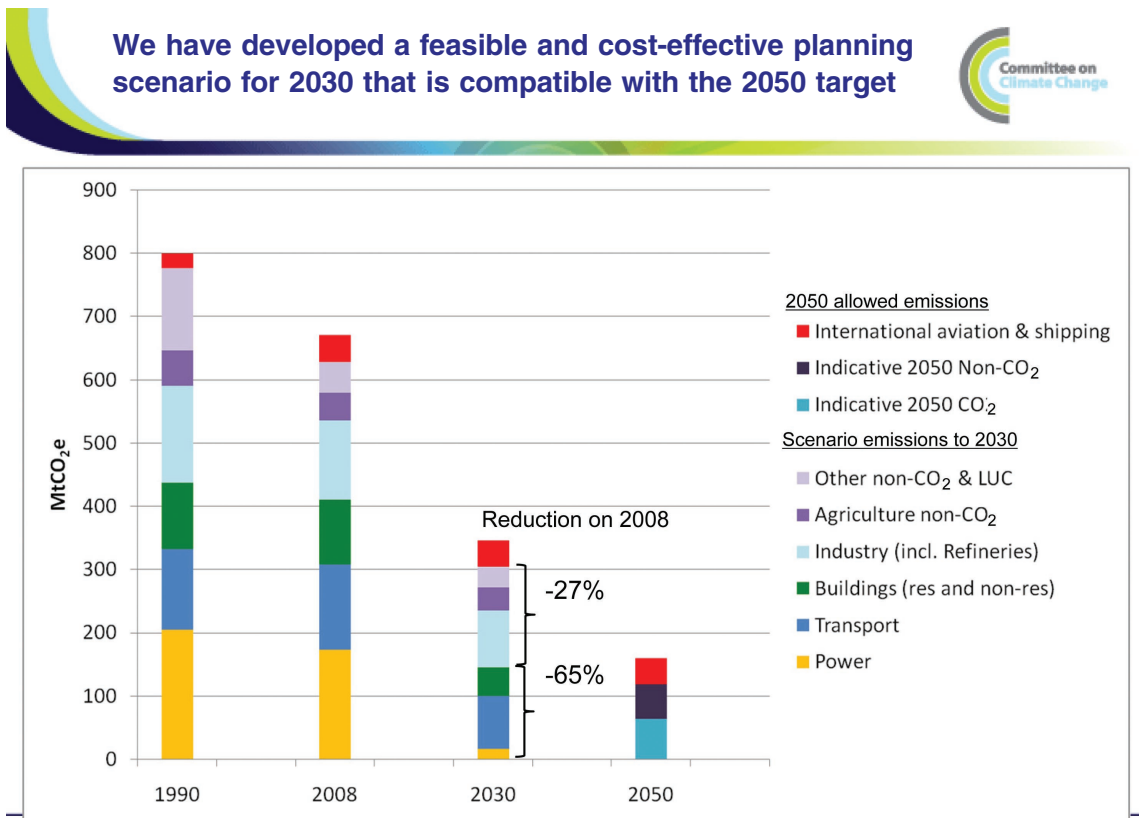
The challenge with the 2050 target is that its timeframe is beyond the scope of current contemplation in terms of policies and investments. Yet it remains vital as a guide for our actions over the coming decades and is the anchor for all of the CCC's advice to government. Crucially, in order to cut emissions by 80 per cent by 2050, the economy will have to be transformed radically, and this can only be achieved by starting on the path to that target early. It is simply impossible to embark on meeting such a target in the 2030s or 2040s, entailing as it does a radical transformation of the economy, in the hope that the target will be achieved by 2050. Even if it was possible, it would be enormously expensive due to the need to dispose of all the country's high-carbon assets in such a very narrow timeframe. Therefore, it is imperative to be on the downward path early in order to make the long-term target both feasible and cost-effective. Being on the low carbon path makes economic sense.

### The 2030 interim target

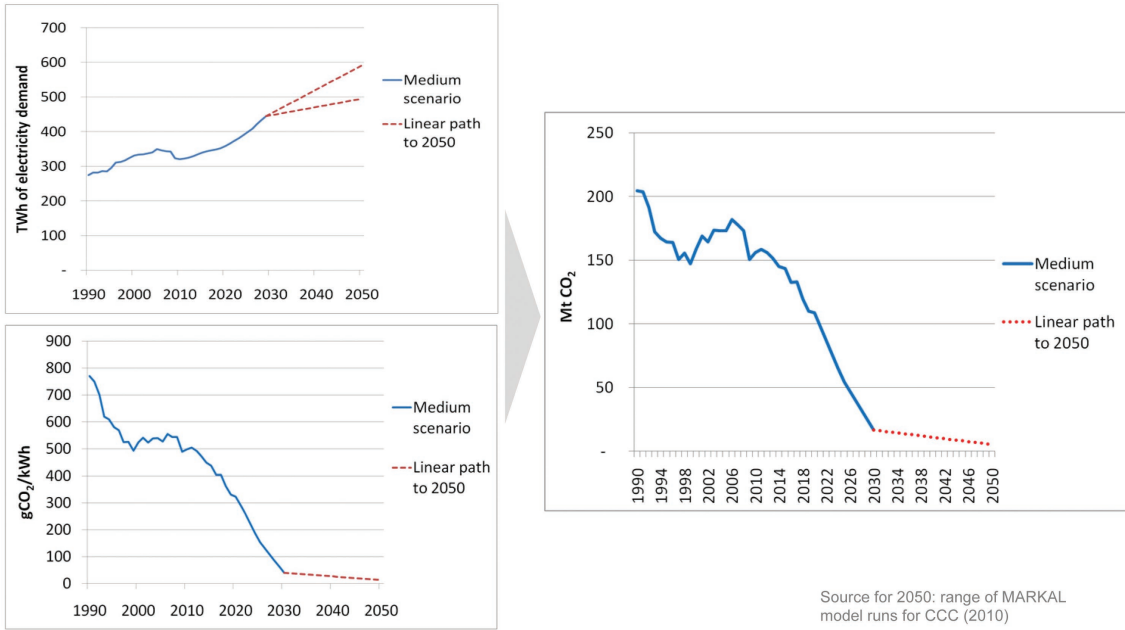
By way of interim target, the CCC has advised the government to aim for a 60 per cent emissions cut by 2030 over 1990 levels (see *Graph 3 below*). It might be said that such an ambition to cut emissions by nearly 60 per cent in two decades is a fairytale. It is not, and the next section will show how this can be achieved through a combination of technologies that we either have, or will expect to have, in the next 5–10 years.

### The power sector

Decarbonising the power sector is integral to economy decarbonisation, as the power sector is one of the most significant emitters. We have a set of technologies that give us the opportunity to do this; nuclear, wind – whether onshore or offshore – other forms of renewables, and hopefully carbon capture and storage applied to coal, gas and biomass in the future. If the power sector can be successfully decarbonised, low carbon power can be extended to other sectors, namely surface transport and heating buildings. The top left image in *Graph 4 opposite* shows an increased demand for electricity is envisaged over the next two decades, largely due to the development of new markets, for example for electric vehicles. At the same time, the bottom left image shows there is scope for driving down the carbon intensity of power generation through investment in low carbon technologies. The combination of these trends is that the opportunity exists to drive carbon emissions right down over the next two decades.



**Power sector: Emissions intensity will have to decrease, whilst demand is likely to increase ...**



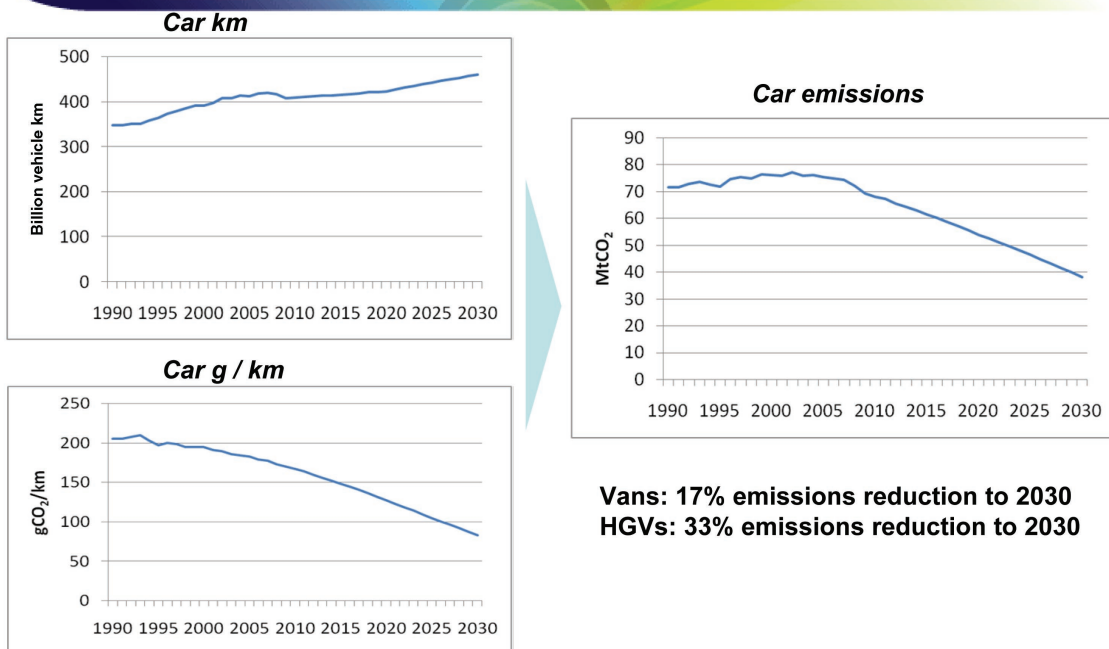
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**Surface transport**

The same is true for surface transport. Cars dominate in terms of emissions, and the CCC is focusing its attention there as a result. It is accepted that people are not going to stop being mobile – rather, the assumption is that people will want to travel more over time. Nevertheless, there are opportunities to drive down the carbon inten-

sity of car travel through having more fuel-efficient vehicles over the next decade, with electric cars increasingly coming into the mix in the 2020s. If this can be achieved, the effect of rising demand but lowering carbon intensity will be significant emissions reductions over the next two decades (see Graph 5 below). This graph shows what car purchase behaviour, and the car

**Transport: Emissions reduction will come from reducing g/km, while km likely to increase**



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fleet, would look like. Most people in 2030 will need to be buying some kind of electric car, and should that not be the case, it becomes very difficult to see how the target can be met. Even in such a scenario, around 40 per cent of people are expected to be purchasing a conventional vehicle, while most of the car stock, and 70 per cent of total mileage would still be from conventional vehicles. However, this kind of purchase behaviour and stock flow relationship would allow us to have a fully decarbonised car stock by the 2040s. This is exactly what is needed.

**Buildings**

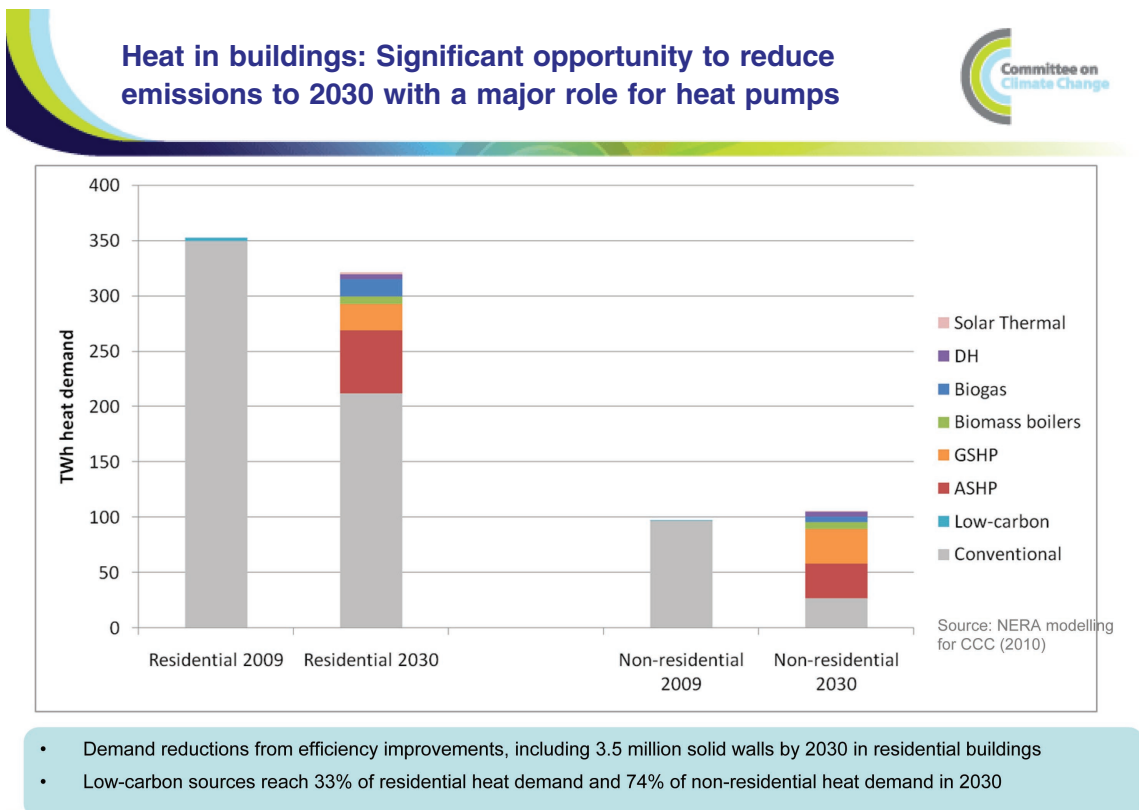
The residential property sector offers huge potential for increases in energy efficiency, and a major opportunity for this sector's emissions to fall in the next two decades. There is, however, a limit to what can be done to reduce demand; people will continue to want to warm their homes. The next option is technological solutions – renewable forms of heat – and for buildings, the most promising forms of renewable heat are modern electric forms of heating; air source and ground source heat patterns. Scope for these is envisaged as shown in Graph 6 below in the red and orange parts on the grey bars, both in the residential and non-residential sectors. We want to make real progress in terms of renewable heat if we are going to be on a trajectory which is consistent with the 2050 target.

**The fourth carbon budget**

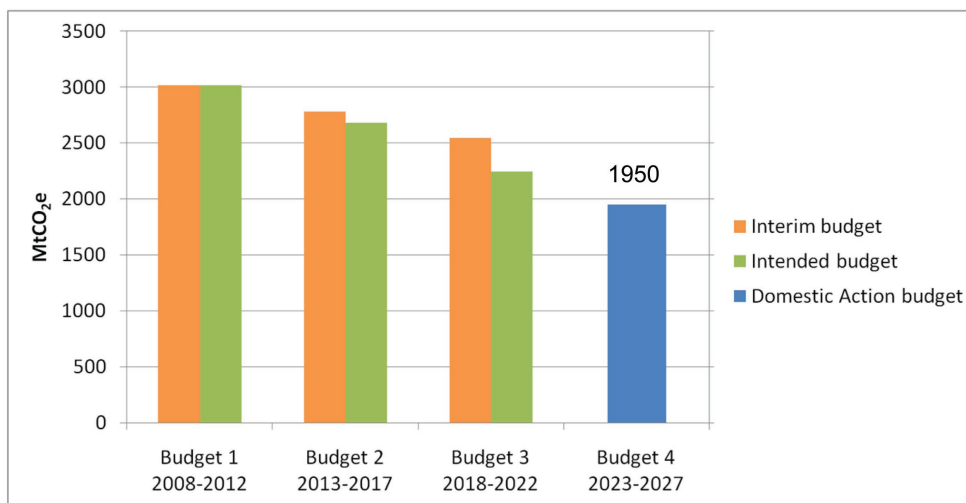
Returning to the economy-wide picture, the government did not ask us to advise on a 2030 target, as that is not

what goes into the legislation. Rather, it was the fourth carbon budget that the CCC advised on and which entered into force in June 2011. The figure in that legislation is 1950 million tonnes which is the limit on the amount of carbon emissions for the period 2023–27 (see Graph 7 opposite). It is reflected in the orange set of carbon budgets below, which is what we currently have in secondary legislation up to 2022; the green set is what we would move to if there is success in getting an international agreement. The fourth carbon budget is very ambitious to facilitate the UK being firmly on a downward path in the 2020s. This is necessary to provide the lead-in time to develop new policies, for example for new investments like nuclear which take seven years. The best opportunity for the UK to get on the downward path is for account to be taken of this lead-in time and for policy shifts to be implemented now. That is why this high level of ambition was put into the legislation.

The fourth carbon budget was consequently very controversial, and caused a considerable amount of debate over the current economic circumstances, the recession and the costs associated with committing to these budgets. There was also concern over two sets of implications; the first for households in terms of energy bills, and the second for our energy-intensive industries, in particular iron and steel, with the fear they would be driven abroad. The government finally agreed with the CCC's advice and legislated on the fourth carbon budget, but largely because it would otherwise have faced an undesirable judicial review. Knowing it would be very difficult to win such a judicial review led the government to recognise that it would have to accept the carbon budget in any event.



## Interim, intended and domestic action budgets



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The success in legislating for the fourth carbon budget does not mean the controversy has dissipated, however. In his speech at the Conservative Party conference,<sup>12</sup> George Osborne said that the government will come back and review the fourth carbon budget, intimating that maybe we had gone too far and that we should not be so ambitious. Reducing the level of ambition, however, would be very difficult under the Climate Change Act. It is true the government can ask the CCC to do a review, but the process is set out very clearly in the CCA and offers no straightforward route. First, the government has to go to the CCC and ask if there has been a significant change in the circumstances upon which this budget was legislated. If the CCC says there has not, the government would not have a case to change the budget, and legally, it would be very difficult for it to move to a lower level of ambition.<sup>13</sup> The review, which is scheduled for 2014, thus raises an interesting legal question. The CCC will provide advice as part of the review and the government will make the final decision; but the government does not have a blank sheet of paper to select a much less ambitious target than the current one. The standard of proof to change the budget and reject the CCC's advice is very high; indeed, it is a higher standard under the CCA to change the budget than it is to reject the CCC's advice when the budget is first set.<sup>14</sup>

<sup>12</sup> George Osborne, speech to Conservative Party conference (Manchester 3 October 2011).

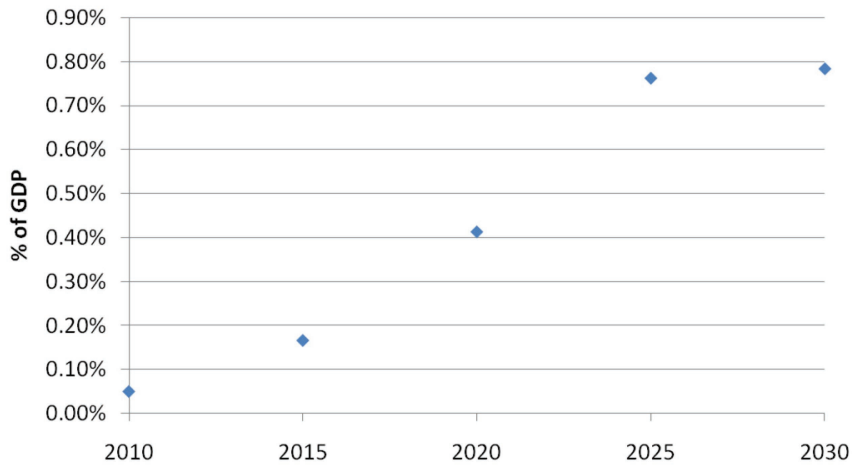
<sup>13</sup> CCA s 21(2) provides that: 'An order setting the carbon budget for a period may be amended after the date by which a budget for the period was required to be set only if it appears to the Secretary of State that, since the budget was originally set (or previously altered), there have been significant changes affecting the basis on which the previous decision was made'.

<sup>14</sup> *ibid.*

### The costs of decarbonisation

Given the current dominant macro-economic focus, one of the factors that plays strongly in political discussions is how much it will cost to decarbonise. Wildly exaggerated claims are common, for example that to take a low carbon path will require us to shut down the UK economy and business will all move abroad. *Graph 8 (next page)* is the result of very detailed analysis and shows exactly what the costs are. Over the next five years, the costs are actually very low, rising to about 0.2 per cent of GDP in 2015. In 2020, they rise to about 0.4 per cent of GDP, and it is only as you get further into the 2020s that they start to rise to about 1 per cent of GDP. The result is that if we follow this path, by 2030 GDP will be 1 per cent lower than it would otherwise be. A debate can be had on whether the UK as a country wants to pay 1 per cent of GDP to avoid the risk of dangerous climate change. From the CCC's perspective, there is no doubt, because the costs and risks associated with dangerous climate change are far higher than 1 per cent of GDP. But whatever the perspective taken, what matters most is that the debate takes place around the right number – 1 per cent of GDP in two decades' time, not 5 or 10 per cent of GDP as is sometimes claimed. In other words, there would be a slightly lower growth rate over the next two decades. Talk of a slightly slower growth rate was far more palatable before the recession of course; now, when growth is expected to be limited in the next five years, such talk is difficult, although not prohibitively so. The UK can expect, in 2030, to be in a better economic situation than at present if we continue with business as usual. The cost of following the decarbonisation path is that our position will be slightly less positive, but we will have gained in terms of mitigating the dangerous climate change risks.

## Cost of meeting carbon budgets

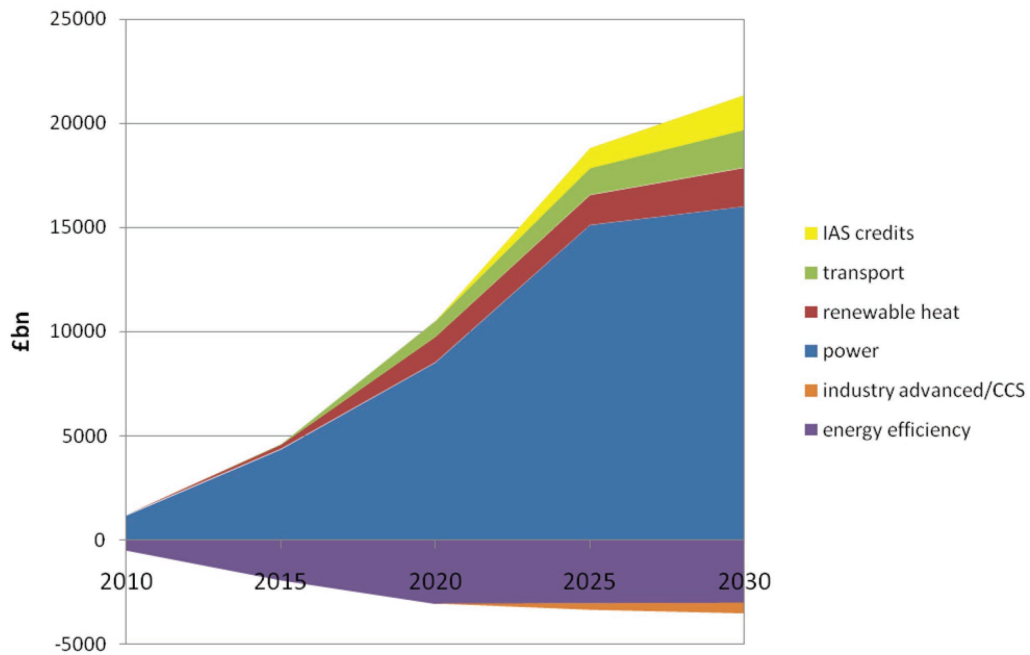
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### Implications for consumers

Talking about GDP percentages is very abstract and it is difficult for this to resonate with people. In practical terms, decarbonisation has implications for different sectors which will be felt mainly in terms of energy bills,

with most of the costs falling on the power sector. The purple section of *Graph 9 below* is a negative cost; it shows there is an opportunity to save money through energy efficiency improvements. In terms of what this means for consumers, surveys show energy bills are currently the most important issue for many people in

## Sectoral breakdown of costs

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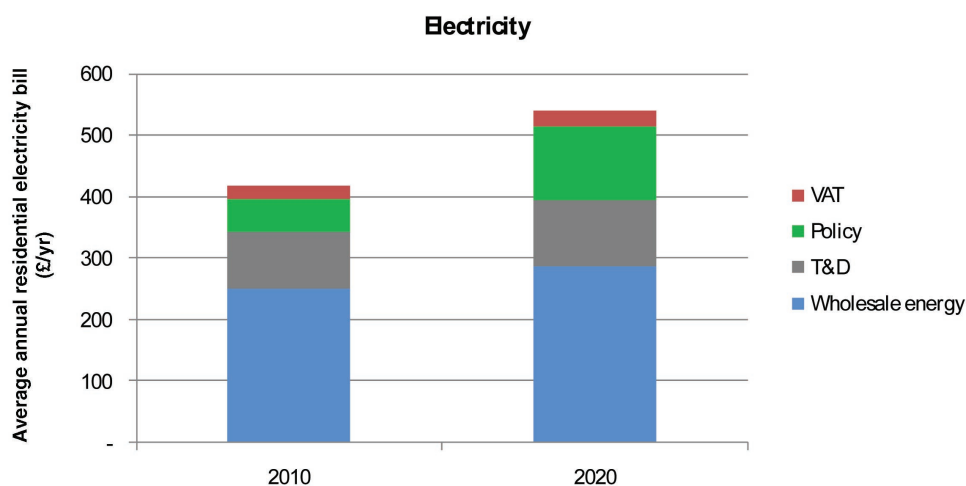


the country. Scare stories abound about the relationship between low carbon on the one hand, and energy bill impacts on the other. Energy bills are currently high, having increased by hundreds of pounds in the last four to five years. The vast majority of that, however, is attributable to changes in the gas price in the international market that are fed through into domestic electricity bills. It is not because of low carbon that bills have become higher over the last four years – the component of current bills which relates to low carbon is very small. Looking forward to 2020, another common scare story is that too much investment is being made in offshore wind which costs many times as much as gas-fired generation, and preference should be given to investing in the proclaimed magic silver bullet of shale gas instead. In terms of the evidence, considerable investment is indeed being made in offshore wind, which makes sense because it is a promising technology. At present, it is more expensive than the alternatives because it is a new technology, but the right hand bar of *Graph 10 below* shows what will happen to electricity prices if the UK follows the low carbon path and invests in offshore wind and other low carbon technologies in the next decade – bills will increase by around £100 per household. It is open for discussion whether £100 is too much to pay, but it is important to be clear that the amount in question is £100, not the thousands of pounds some people claim.

A further issue is that the energy bill for most households is dominated not by electricity but by gas – the average annual household bill is now around £1200, of which around £700 is gas. That increase is not because of low carbon – the low carbon component of the average gas bill at the moment is very small, and it will remain so in the future. Depending on what happens with the gas price in the future, heating bills may well increase further, but this will not be because of low carbon. There is a tendency to conflate the two issues by talking about rising energy bills and rising heating bills and attribute this to the low carbon agenda. This is misleading as the gas price is the dominant factor in terms of heating bills.

As stated above, energy bills are likely to be higher by about £100 because of the low carbon path, but the right-hand bar on *Graph 11 (next page)* shows there is an opportunity to reduce those bills from around the current average of £1200 if everybody were to take basic energy efficiency measures, such as installing an efficient boiler when the existing one needs to be replaced, insulating the loft cavity wall, choosing efficient models of electrical appliance, and so on. Behaviour change, however, represents a major challenge across the country – it is notoriously difficult to secure energy efficiency improvements. Nevertheless, the opportunity exists and if it can be unlocked with new policies, there will be a very positive story to tell the public about energy bills.

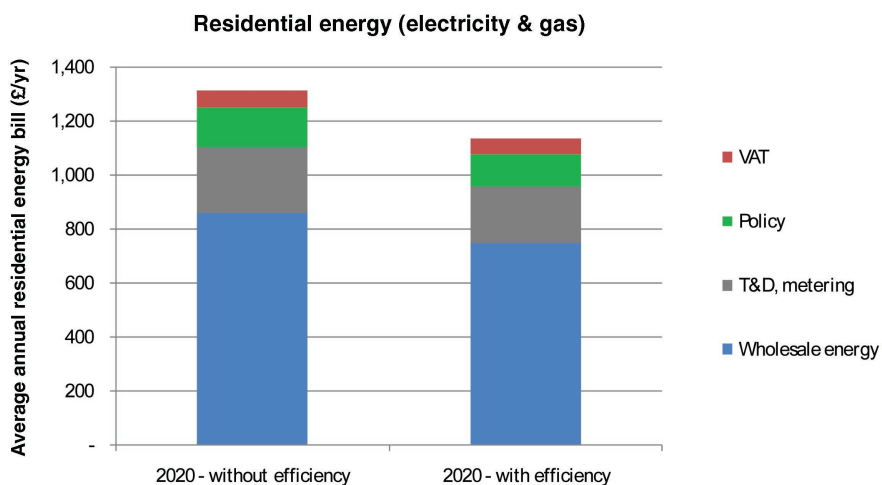
## Residential electricity bill today and impact of price changes (2020)



**Notes:** Assumes average annual consumption of 3,300 kWh p.a.



## Residential energy – price impacts including energy efficiency opportunity



**Notes:** assumes average electricity demand falls by 17%, gas 11% (overall 12% energy saving)

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### Implications for industry

The other chief implication concerns industry; the fear is that, at a time when we need our industries as much as ever, they could relocate if domestic energy prices rise significantly. The truth is first that not all industries will suffer major hardship if the energy price rises. Small non-energy intensive industries are not going to relocate due to higher energy prices, as energy costs are not important enough to drive them elsewhere. It is only the small number of energy-intensive companies that cause concern. These currently account for about 1 per cent of GDP, 1 per cent of employment and about 15 per cent of emissions, and are thus a relatively small but important sector of the economy. Furthermore, most of these industries are very well protected in terms of their direct carbon emissions through the design of the EU ETS, leaving them effectively without a carbon constraint. The only ones in respect of which there is genuine concern are the electricity-intensive industries – iron and steel, aluminium, pulp and paper and parts of the chemicals industry. These industries can make the case, for example, that they are having to pay a higher electricity price in the UK than they are in Russia, Ukraine and Brazil and that action is needed to address that. Some such action was announced in the Chancellor's autumn statement of 2011,<sup>15</sup> so in terms of competitiveness, claims that the economy will shut down because of a low carbon path are simply untrue. Those industries are

protected, and if companies in those sectors close down or relocate, it will be because of other, more fundamental, structural factors.

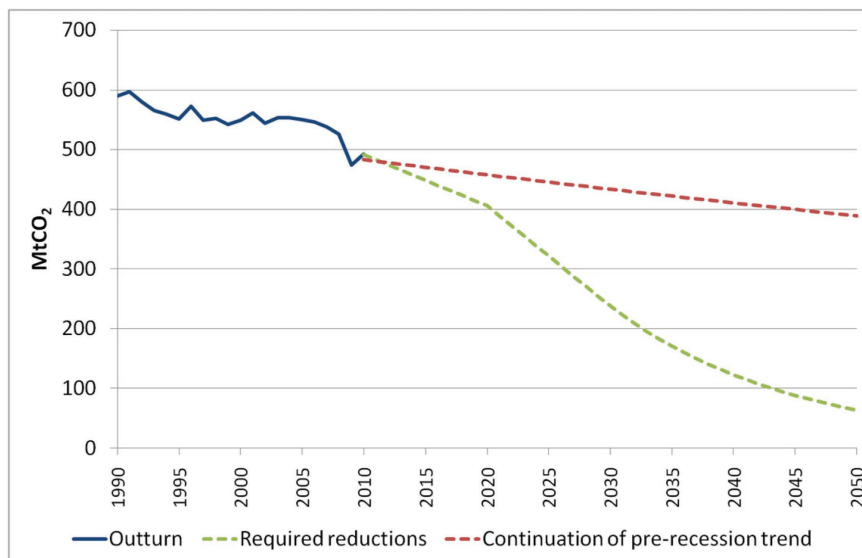
### Ambition – from targets to action

The case for ambitious targets has been made above, and the costs of those – the energy bill implications for the residential and industrial sectors – have been shown to be manageable. But having targets is only part of the story – if emissions are not actually driven down, we will be guilty of grandstanding and the whole climate change framework risks falling apart. It is vital that the positive narrative about the low carbon pathway is matched with action to embark upon the downward emissions path. As *Graph 12 opposite* shows, emissions were on a broadly flat, slightly declining path before the recession. During the recession, emissions decreased due to the decline in economic activity, particularly in 2009. This was followed by a slight increase in 2010 due to cold spells both at the start and end of the year, which forced a rise in energy consumption. The underlying trend, if the effects of the recession and the cold winter are stripped out, is that if we carried on from where we were before the recession, we would be on the red dotted line. We need to be on the green dotted line, and at present, we remain a long way from that.

As a consequence, the CCC has stated in its first, second and third reports to Parliament that a step-change is needed in the pace of emissions reductions to jump between those two paths. We are rapidly approaching the point at which we need to make the

<sup>15</sup> HM Treasury 'Autumn Statement 2011' (Cm 8231 Nov 2011) para I.105 [http://cdn.hm-treasury.gov.uk/autumn\\_statement.pdf](http://cdn.hm-treasury.gov.uk/autumn_statement.pdf).

## CO<sub>2</sub> emissions – historic and future required



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step-change, otherwise it will become less and less credible that we are going to meet our legislative carbon budgets. This brings to the fore again the question of how this transition can be made, and what happens if we do not manage it. The 'how' is all about policies. The government has moved forward with key policies; it is reforming the electricity market and the approach to energy efficiency improvement in the residential and non-residential sectors. It is too early to assess whether these policies will deliver as the detail is not yet forthcoming. What is clear from a legal perspective is that the current level of focus on this issue is attributable to the CCA. Remarkably, there has been a relatively seamless transition between governments on climate change actions, with the approaches, objectives and high-level policy developments staying the same through what could have potentially been a very difficult political cycle. This is what the then Secretary of State, Ed Miliband, had in mind when putting in place the process to develop this legislation – he wanted something that would cut through the political cycle and short-term considerations, and that is what the CCA so far has achieved. Whether it is robust enough to continue doing so during this very difficult and challenging political and economic cycle will become clear with time. However, even in the current challenging circumstances, there is room for confidence that the CCA will remain intact for the next few years because the changes that certain members of the government would like to make require fundamental alterations to the legislation. The primary legislation almost certainly will not be changed in this Parliament, and it is too speculative to say what might happen thereafter.

### Conclusion

This article concludes with a summary of the recommendations the CCC has made to the government. The 80 per cent target is in place on the face of the CCA. It remains an appropriate target; nothing has happened since 2008, scientifically or politically, to suggest it should be more or less ambitious. This target remains the anchor for our actions over the next two decades, while the 2030 emissions target we have suggested is a 60 per cent cut relative to 1990 levels. If we can achieve the 2030 target, we will be on track for the 2050 target. The 2030 target is represented in the fourth carbon budget which is now in secondary legislation, because the government had no viable option but for it to be so. Ministers have raised the possibility of revisiting the fourth carbon budget, but it would be very difficult legally for them to change it. Furthermore, if consideration is given to the reasons for wanting to change the budget, those reasons are not supported by the evidence. Rather, the evidence shows the energy bill impacts are manageable, with concerns of a mass relocation of British industry wildly overstated. There are in addition a lot of benefits to being on a low carbon path, not least that it will steer us in the direction of creating the sustainable, resilient economy essential to living in a carbon-constrained world. It is thus of benefit to the UK to set out early on the low carbon path. Delaying our start will only mean the costs and competitiveness impacts will be higher.

The Climate Change Act is about so much more than the setting of ambitious targets. It calls for policies to be

put in place, investments to be made and behaviour change to be secured. In these respects, we face a significant challenge. It is a challenge the government seems to be addressing, but how well it will be addressed can only be assessed once the policy details are forthcoming. Whatever the government does or does not do, the CCC will continue to interpret its mandate under the CCA as being to push forward the

climate change agenda and to ensure that policies are delivered to drive the emissions reductions needed to meet the carbon budgets. Frustrations may abound about the slow pace of our low carbon transformation, but transforming we are. The legislative clout of the CCA is fundamental to the progress made to date, and the further advancements that, hopefully, we will continue to see in coming years.