Briefing: Emissions Reduction Plan (ERP) and low carbon investment

November 2016

KEY ASKS

The ERP is an opportunity to close the gap to deliver the fourth and fifth carbon budgets and guide private capital into low carbon energy, transport and energy efficiency projects at an affordable cost. To achieve this, the ERP should:

- **Provide comprehensive policy detail**, setting out a framework with clear commitments in key sectors including power, transport and buildings (energy efficiency and heat), so that private investors understand the commercial and regulatory conditions under which they can make investments in particular infrastructure sectors.
- **Take a whole system approach with cross-departmental buy in.** An effective ERP must have cross-government support and coherent planning, particularly given that developments in different infrastructure sectors are increasingly interdependent (e.g. transport and power). The ERP must also complement other policies, such as the forthcoming industrial strategy.
- **Be supported by a green finance strategy** to help better connect investors with low carbon projects and help increase financial flows towards low carbon projects.

BACKGROUND

UK legislative context

The UK's Climate Change Act (2008) sets a target of reducing greenhouse gas emissions by at least 80% below 1990 levels by 2050. Under the Act, the government is required to set five yearly carbon budgets, which establish the pathway to achieve the required reduction at least cost.

On 20th July 2016, the government approved the fifth carbon budget, which requires UK emissions to fall 57% below 1990 levels by 2032. While the UK is on course to meet its first three carbon budgets, the government must close the gap between the UK's projected emissions and the level set by the fourth and fifth budgets.[1]

To deliver these budgets, the government must publish an emissions reduction plan (ERP), sometimes known as the Carbon Plan, to set out the policy drivers that can attract the increasing amounts of affordable private sector investment that are required in low carbon and energy efficiency infrastructure. Coherent planning is needed to ensure new infrastructure is fit for a carbon constrained world. The ERP is expected around February 2017.[2]

Attracting investment

There have been several changes to UK low carbon policy in the last 18 months which, coupled with the uncertainty created by the UK's vote to leave the EU, are creating a challenging landscape for investors. By setting out clear policies to guide investment

[1] Committee on Climate Change (June 2016) *Meeting Carbon Budgets – 2016 Progress Report to Parliament*

in low carbon and energy efficiency infrastructure, the ERP can play an important role in improving the UK's attractiveness for foreign direct investment.

"The [emissions reduction] plan will provide an important signal to the markets, businesses and investors, and help the private sector plan for the transition to a low carbon future." [3]

Nick Hurd, Minister of State for Climate Change and Industry

From 2010 to 2014, global investors provided circa £15 billion for UK energy and infrastructure sectors and in 2014-2015 increased investment in high tech R&D intensive industries, such as the automotive sector, by 12%.[4] However, recent figures warn that the UK risks losing its lead, with UK attractiveness for renewable energy investment far behind competitors such as Germany, France and Japan.[5]

The global context

The Paris Agreement came into effect on 4th November 2016. This set an imperative for international action on climate change, with 195 countries committing to keeping the global average temperature increase well below 2°C on pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C.

The Paris Agreement was the second fastest-ever international agreement to enter force, demonstrating that the global political momentum to tackle climate change has significantly increased.

The Agreement will drive further growth in the global low carbon market that is worth over $5.5tn[6]. The UK is already engaged: our low carbon sector directly generates £46.2bn in turnover, supports nearly a quarter of a million jobs[7] and as the Chancellor has noted, has shown faster growth than the economy as a whole.[8]

"A wise political leader should take policy stances that conform with global trends."

Xie Zhenhua, China's special representative for climate change[9]

The global shift towards a low carbon economy will affect every sector and will require policy change to support low carbon

[2] BEIS Permanent Secretary, Alex Chisholm giving evidence to the BEIS Parliamentary Committee (14th October 2016) on industrial strategy and BEIS issues during Brexit negotiations

[3] Government response to the Committee on Climate Change: Progress on meeting carbon budgets (October 2016)

[4] UK Trade & Investment (June 2015) *UKTI Inward Investment Report 2014 to 2015*

[5] EY (October 2016) *Renewable energy country attractiveness index. Green bonds: power surge.*

[6] New Climate Economy (2015) *Seizing the Global Opportunity*

[7] ONS (18th May 2016) "UK environmental accounts: Low carbon and renewable energy economy, final estimates: 2014". Figures refer to 'direct' low carbon sector only. A secondary report on the impact of the indirect low carbon sector is expected to be released by the ONS later in 2016.

[8] Speech by the then Foreign Secretary, The Rt Hon Philip Hammond MP (10th November 2015) "A conservative response to climate change"

[9] Speaking on 1st November 2016 and covered widely, eg http://www.reuters.com/article/us-climatechange-china-idUSKBN12W349?il=0

and energy efficiency investment in areas such as buildings, power, information technology, heat and transport.

Supporting the ERP

The ERP must be supported by departmental buy-in across government, reflecting the interdependence of economic sectors that will be affected by the transition to a low carbon economy.

For example, transport can be decarbonised through production of ultra low emission vehicles (ULEVs) that will be increasingly powered by electricity, but the contribution by ULEVs towards meeting the UK's carbon budgets is dependent upon the continued decarbonisation of the UK electricity grid. This interdependence should be reflected by engagement on the ERP between key government departments, including BEIS, HM Treasury, Cabinet Office, Department for Transport and Defra.

The ERP must work in tandem with other policies, such as the forthcoming industrial strategy. Policies to attract investment in low carbon technologies often overlap with those needed to grow supply chains in areas where the UK has a competitive advantage, which the industrial strategy could prioritise. For example, a clear pipeline of offshore wind projects can not only accelerate cost reductions but also grow the supply chain. Similarly, clarity of energy efficiency goals will generate additional jobs in the sector and visibility of growing demand for ULEVs will build confidence that could help support a growing supply chain.

Low carbon opportunities should be an area of focus in the industrial strategy and further detail can be found in the Aldersgate Group briefing, "Industrial Strategy should have a strong low carbon element"[10].

The ERP must also be supported by a green finance strategy that targets harder-to-finance green infrastructure and low carbon technology projects.

With public finances constrained, funds must "crowd in" private capital, support innovation, accelerate cost reductions and deliver supply chain benefits to the UK. Since 2012, the Green Investment Bank has been effective in this role and with its upcoming sale, a new strategy must be drawn up in tandem with the ERP to ensure that complex projects continue to receive the support they need. Meanwhile the privatisation of the Green Investment Bank must be agreed in a way that will allow this institution to maintain its role in tackling market failures and focusing its funding strategy on novel green infrastructure projects.

"The current uncertainty is not conducive to attracting manufacturing investment to the UK."

Mike Hawes, Chief Executive, Society of Motor Manufacturers and Traders[11]

PRIORITIES FOR THE ERP

The ERP must set out a coherent low carbon policy framework with commitments that are detailed and deliverable, to help guide private capital into low carbon energy, transport and buildings (energy efficiency and heat projects) at an affordable cost. It must be detailed, as opposed to the illustrative scenarios of the 2011 Carbon Plan. The Aldersgate Group advocates the areas below.

Power

As the Committee on Climate Change has

[10] http://www.aldersgategroup.org.uk/asset/download/542/1610%20IS%20briefing%20FINAL.pdf

[11] Quoted in the Guardian (28th October 2016) "To stay or quit: Brexit means carmakers in UK face tough choices"

recently reported, there has been considerable progress in reducing carbon emissions from UK electricity generation.[12] Decarbonising electricity generation is important in its own right, but also because the ability of other sectors to cut emissions (such as in transport and heat) will to an extent be dependent upon it.

To build on progress to date, the ERP must clarify the minimum future volume and budget available for low carbon power generation, and the circumstances in which the levels of support will reduce in future, to ensure that finance is provided at the lowest cost of capital. The Crown Estate has noted that, "Given the capital intensity of offshore wind farms, the cost of capital is a key driver of LCOE (levelised cost of energy). A drop of one percentage point in the Weighted Average Cost of Capital (WACC) is equivalent to a reduction in LCOE of around 6%."[13]

Key requirements include:
- Confirmation of the timing of the remaining Contracts for Difference (CfD) auction(s) for offshore wind during this Parliament. Originally planned as three auctions (for funding worth £730m), the announcement that the first auction will take place in April 2017 was delayed by six months following the change of government post-referendum. In order to avoid further gaps in the pipeline of projects, we recommend the remainder of the funding be offered in one or two further auctions ensuring sufficient time for the auction(s) to take place well before the next General Election.
- Clarity on the levels of funding under the Levy Control Framework post-2021 to support a clear pipeline of low carbon power projects and help business to continue to drive down costs.
- A route to market for mature renewables (onshore wind, solar) – for instance, through the introduction of 'subsidy free' or 'market stabilising' CfDs. Onshore wind is already cheaper than new build gas and, along with solar, enjoys substantial public support.[14] But both lack a route to market and the cost of not allowing these mature technologies to compete in the market is passed on to consumers.
- Greater support for demand side response and interconnection and clarity on the regulation of storage solutions. This will help these solutions play a greater role, in tandem with some efficient gas plants, in supporting the integration of an increasing amount of renewables on the grid in a way that is cost-effective and secure.
- A new Carbon Capture and Storage strategy, focused on industrial clusters where the technology can be demonstrated on a range of heavy industry and power plant facilities. This must build on lessons learnt from previous schemes.

"Without confidence in energy policy over the investment timeframe of a typical manufacturing facility (10–30 years), industry actors would be unable to build a case for investment."[15]
Jade Lewis, Director of Advocacy, Saint-Gobain UK & Ireland

[12] Committee on Climate Change (June 2016) *Meeting Carbon Budgets – 2016 Progress Report to Parliament*
[13] Crown Estate (May 2012) *Offshore Wind Cost Reduction. Pathways study.*
[14] ComRes polling of 2,037 British adults on behalf of 10:10 found 73% in favour of onshore wind and 83% supportive of solar power. www.1010uk.org
[15] Aldersgate Group (July 2015) *A Brighter, More Secure Future: Low carbon priorities for the new government*

- The planned deployment in the 2020s of around 1GW a year of offshore wind is welcome, but is less than annual deployment in recent years and widely recognised as less than optimal for supply chain continuity and investment in further cost reduction. A minimum ambition of **around 1.5GW of offshore wind deployed a year**, which is well within the industry's capability, would better support cost reductions and growth of local content. The good track record of the industry in reducing cost and delivering on time should support higher ambition for the rate of deployment.

Transport

Domestic transport emissions make up about a quarter of the UK's GHG emissions.[16] Stronger policy signals are needed to meet the Committee on Climate Change's recommendation that 60% of new car and van sales be electric or hybrid vehicles by 2030.

Ultra-low emissions vehicles (ULEVs) offer real opportunity for emission reductions and have the potential to save drivers money, as models on the market today are already cost comparable with traditional combustion engine vehicles on a lifecycle basis.[17] The market is growing strongly with good export potential, with one in every five electric vehicles sold in the EU in 2015, manufactured in the UK.[18]

Specific measures should include:

- Continued support for the uptake of electric vehicles: the government's current commitment to spend £600m on the uptake of ULEVs up to 2020/21 is essential if take-up is to spread beyond early adopters.

- The continued roll out of a national network of rapid charging points.

- Continued innovation funding for research and development (R&D) in low emission technologies.

- Forward visibility of the future emission reduction requirements for new vehicles. The EU is working on vehicle emissions standards post-2020 and if sufficiently ambitious, these could help drive continued innovation in low emission vehicle technology and play a significant role in cutting emissions. The UK needs to consider how its policies will relate to future EU vehicle emission standards.

Buildings - Energy efficiency

Tackling energy efficiency in buildings in the near term is vital if the UK is to meet its carbon budgets, whilst reducing energy use and saving households money.

With buildings responsible for nearly 37% of all emissions, investment in energy efficiency could save 23.6MtCO_2 per year by 2030, roughly equivalent to cutting the CO_2 emissions of the UK transport fleet by one third.[19]

Between 2012 and 2013 the UK's building insulation market contracted by 22% due to a fall in cavity wall, loft and solid wall insulation,[20] largely in response to changes in the UK's energy efficiency policy landscape at that time. Short notice policy changes have a damaging effect on job creation and supply chain growth.

This is why the ERP must provide continuity, consistency and longevity to help drive market demand, accelerate progress on energy efficiency and support the growth of the supply chain.

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[16] Committee on Climate Change website: UK Emissions by Sector

[17] Go Ultra Low website: https://www.goultralow.com/how-much-could-you-save/its-all-about-the-total/

[18] Department for Transport (October 2016) *Consultation on proposed ultra low emission vehicles measures for inclusion in the Modern Transport Bill*

[19] Cambridge Econometrics and Verco (2015) *Building the Future*

[20] Cambridge Econometrics and Verco (2015) *Building the Future*

Greater energy efficiency can deliver economic benefits, reduce energy bills, tackle fuel poverty and improve quality of life. Analysis by Verco and Cambridge Econometrics has found that an energy efficiency programme bringing all low income homes to an EPC Band C by 2025 and all other homes to the same standard by 2035 would deliver £3.20 in increased GDP per £1 of public investment. It would create 108,000 net new jobs across the country between 2020 and 2030 and deliver net annual benefit of £4.95bn from the total energy bill savings across the building stock.[21]

Specifically, the ERP should provide:
- Meaningful ambition for reductions in energy consumption and emissions from existing homes, with delivery dates and a new scheme for "able to pay" households. The Energy Saving Trust estimates there are 2.3m cavity wall insulations that could be tackled at low cost. Meanwhile, the 59% of UK households that are owner-occupied and "able to pay" should be targeted with energy efficiency incentivisation policies.[25]
- New standards for new homes and buildings. This is particularly important in the absence of the Zero Carbon Standards policy for new homes and the unlikelihood that the EU Directive on nearly zero energy buildings will apply in the UK after it has left the EU.
- Fiscal incentives targeted at key moments in a building's life. Hard incentives such as stamp duty relief for energy efficient properties to support retrofit at the point of purchase are likely to be effective in driving up demand.[26]
- Focus on addressing more complex properties that have received few improvements so far, such as private blocks of flats, the private rented sector and properties off the gas grid.

Buildings - Heat
Heating and hot water for buildings are responsible for 40% of energy use and 20% of greenhouse gas emissions in the UK.[22] The ERP must accelerate the development of low carbon heat infrastructure by providing a clear action plan to inspire confidence from the private sector, which will need to invest an estimated £1.5-2.5bn a year to meet energy efficiency and low carbon heat requirements through the 2020s.[23]

There are three main technologies available to tackle heat decarbonisation: electrification (for example with heat pumps), greening the gas networks (using biomethane or hydrogen), and heat networks (distributed heat from a central location to residential and commercial properties). None is a silver bullet and each requires further development.

The ERP should include measures that:
- Improve the energy efficiency standards of the UK's current and future building stock. This should be the first step to reduce demand and limit the added pressure that electrification of heat may place on the grid.
- Promote more efficient use of gas heating through boiler efficiency standards. There are still up to 11.5 million non-condensing boilers used in the UK, of which about 5m are believed to be highly inefficient.[24]

[21] Cambridge Econometrics and Verco (2015) *Building the Future*
[22] Committee on Climate Change (October 2016) *The future of heating UK buildings*
[23] Committee on Climate Change (October 2016) *The future of heating UK buildings*
[24] DECC (2014) *Estimated impacts of energy and climate change policies on energy prices and bills*
[25] Committee on Climate Change (October 2016) *The future of heating UK builings*
[26] Policy Exchange (March 2016) *Efficient Energy Policy. How to encourage improvements in domestic energy efficiency.*

- **Develop low regrets options** such as requiring compatibility in new builds with low carbon heat systems, rolling out heat pumps in properties off the gas grid and increasing the use of biomethane in the gas network.
- **Setting up large scale pilot schemes** and developing feasibility assessments for each of the main technologies, including the production of hydrogen for heat through carbon capture and storage technology and establishing heat networks in the UK's largest cities.

- **Industry best practice and experience in delivering systems should inform future investment strategy** in low carbon heat networks, so that networks are based on actual (rather than modelled) efficiency levels to deliver real carbon savings.[27]

The Aldersgate Group's full recommendations on heat will be set out in our forthcoming briefing, available on our website.

[27] CBxchange (November 2016) *Low Carbon Heat Networks: How to Optimise an Existing System for Improving Performance*