



Parsons Brinckerhoff

PRESS RELEASE

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Independent report highlights critical steps to meet UK 2050 carbon reduction targets

London, United Kingdom (23 November 2009) - *Powering the Future*, a comprehensive report published today by international engineering consultancy Parsons Brinckerhoff concludes that achieving an 80 per cent reduction in CO₂ emissions by 2050 is feasible but extraordinarily challenging.

The report shows that in five out of the 12 scenarios it modelled, the UK could meet its 2050 targets. But to achieve this will require urgent and large-scale effort across every sector of the economy and a delay in any one sector will jeopardise meeting the commitment.

Key findings include:

- strong government leadership is essential - a 'piecemeal' approach will lead to failure
- widespread adoption of wind power to meet the 2020 EU Renewables Directive will undermine UK's ability to meet critical 2050 targets
- a large-scale and rapid switch to electric vehicles and development of a nationwide vehicle charging infrastructure is essential
- insulation levels for existing domestic and commercial buildings needs to radically improve
- UK industry requires unprecedented investment in carbon efficiency measures - and carbon capture technology for energy intensive processes
- the UK faces a critical need to have new electricity generating plant available from 2020 onwards

The report is the product of over two years of independent study by a multi-disciplinary team of senior engineers. It highlights the critical steps that must be taken across the UK economy and explores what actions will have the maximum effect.

Powering the Future - mapping our low-carbon path to 2050, available for free download at www.pbpoweringthefuture.com, is one of the first comprehensive independent studies to examine the full implications - across the transport, industry, residential, commercial and power sectors - of meeting the government's 2050 commitments. It also identifies critical areas for further in-depth work at a strategic and sector level.

“We set out to establish the effectiveness of a range of possible measures and consider what choices they would offer to meet the UK’s 2050 commitments,” explains Parsons Brinckerhoff director David Rutherford. “But, far from having the luxury of considering ‘choices’ our findings suggest that we have ‘few choices’ - all measures must be fully applied if we are to meet the 2050 targets.”

“Market mechanisms alone will never deliver the scale and rate of change required - we need sustained and strong leadership from government. It is also critical that the UK takes an integrated view across the economy; our report shows that actions taken in any one sector can create synergy or conflict with decisions in other sectors - either supporting or undermining the overall position.”

The report uses a comprehensive set of analysis models to evaluate the overall impact of various measures, allowing alternative strategies to be compared and critical measures to be identified.

“While the potential cost of this is clearly important, we have used effectiveness rather than cost as our primary driver,” explains Paul Willson, lead author of the report and deputy director of generation at Parsons Brinckerhoff. “From the outset, we adopted an inherently cautious approach using ‘conservative’ assumptions over the technology, timing and scale of implementations. All the options we consider use technologies that are either currently established or close to large-scale application.”

“Interestingly, out of the 12 scenarios we modelled using this robust approach - each introducing a different group of demanding measures across every sector - we found five would allow the UK to meet its 2050 targets, which was a very positive outcome.”

Key findings by sector:

Transport - changes in travel habits and freight movements to cut road use combined with a large-scale and rapid switch to electric vehicles is critical - eighty per cent of road fuel consumption must be displaced by electric cars and vans by 2050. This will require an extensive new nationwide vehicle - charging infrastructure that will use half of all electricity produced by 2050.

Large-scale development in public transport is essential and will make an important contribution to reduced road vehicle use. Heavy goods vehicles are responsible for five per cent of UK CO₂ emissions and no alternative to fossil fuel appears to be a good match to the power and range they require. Therefore urgent work is required to develop an alternative means of delivering low-carbon energy to these vehicles.

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Domestic - essential to radically reduce heat losses from existing housing through greatly improved insulation. Heat recovery from ventilation will offer valuable reductions in carbon emissions.

Renewable heat applications using biomass and solar energy will substantially reduce emissions as will the use of more-efficient lighting and appliances. Biomass fuelled community heating and CHP schemes for existing and new higher-density housing offers significant CO₂ reductions.

Industry - requires unprecedented investment in carbon efficiency measures to cut carbon emissions by a further 50 per cent by 2050 - generic solutions for industry offer limited opportunities. It will also be essential to apply carbon capture technology to energy-intensive industries and major sites with high CO₂ emissions.

Funding the requirements for these measures without undermining the competitiveness of UK industry is a fundamental challenge. There is a very real risk that the high costs on industry could drive vulnerable production overseas causing substantially increased overall emissions. UK and EU government intervention will be essential to maintain industrial competitiveness.

In addition, our study found that in the future there will be a strong link between GDP growth and CO₂ emissions. Long-term economic management must recognise that small annual increases in GDP above long-term annual projections have the capability to generate considerable additional CO₂ emissions and make hitting targets increasingly difficult.

Commercial - greatly improved insulation of commercial buildings is essential along with more efficient lighting and hot water systems. Embedded (on site) renewable energy systems such as wind and solar will also provide significant long-term benefits.

Electricity - UK electricity generating capacity is forecast to fall to half its current value by 2023. In order to maintain adequate capacity from 2020 onwards, new plant would have to be built at a rate that is at least equal to the highest historical rate achieved by the UK; this at a time when the capacity of the indigenous UK power plant industry is greatly reduced.

There is also a risk that decisions and actions taken now to meet the EU 2020 renewable targets will have undesired and adverse impacts on the UK's ability to meet 2050 carbon targets. For example the early and widespread adoption of wind power would severely undermine the viability of other low-carbon technologies, making it more difficult to meet carbon targets and longer-term commitments.

Development of the transmission and distribution network system will make a critical contribution to the implementation of changes identified in the report. The UK needs a holistic approach to production, transmission, distribution and the control of electricity production and demand if the transition away from intensive fossil fuel use is to be made successfully.

Notes to editors:

Parsons Brinckerhoff (PB) is a global leader in developing and operating infrastructure around the world, with around 13,000 employees dedicated to meeting the needs of clients and communities across Europe, Africa, the Americas, the Middle East, Asia and the Australia-Pacific region. Clients come to PB for a wide range of advice, skills and resources in strategic consulting, programme management, planning, engineering, construction management and operations. For over a century PB has earned a distinguished reputation for delivering world-class infrastructure and its technical expertise in transportation, power, community development, water and the environment.

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