



PRACTICAL VISIONARIES

A LEADERSHIP ROUNDTABLE ON DELIVERING A LOW CARBON FUTURE

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by

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To achieve a low carbon world, there is widespread acceptance of the need to act – and to act quickly. In the UK, energy goals are widely understood and a target framework has already been established which follows The European Union’s executive Commission’s plans for how member states should share an overall objective to get one fifth of all energy demand from renewable sources by 2020. Delivering this low carbon future will see a massive scale up in renewable energy, energy conservation, improved transport efficiency and industry general waste management. However, the current ‘market’ does not naturally drive low carbon projects, or displace traditional ones. This implies a huge commercial challenge. Regulatory frameworks and practices are not in place to govern and permit many low carbon initiatives either in the UK or elsewhere. While technology per se is not a constraint, deployment and operation of energy sources such as nuclear and offshore wind present huge challenges.

“The clock is ticking for many public and private players to implement their low carbon blueprint. Refinement of design is unlikely to have a big impact—practical experience gained from project and program execution will.”

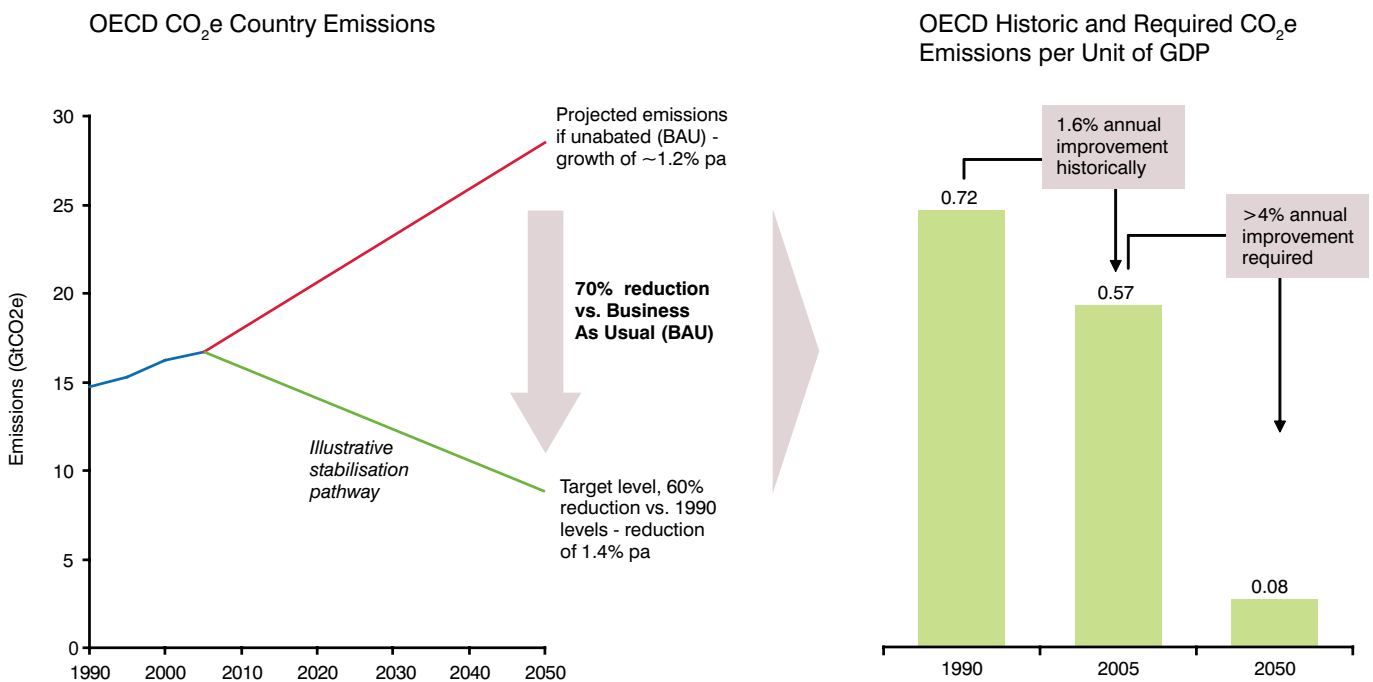
Peter Parry, Vice President, Booz & Company

The first of Booz & Company’s roundtable discussions on the low carbon business climate explored what works, how barriers can be overcome and where the roles of government, commercial companies, finance agents and supporting organisations can make a difference. Contributions provided the elements of what might become a low carbon project execution blueprint for public and private ‘Practical Visionaries’.



Lord Andrew Turnbull Senior Advisor, Booz & Company

Exhibit 1 Achieving targeted emissions reductions needs immediate action and a three-fold increase in carbon productivity



Source IPCC, IEA, EIA, Booz & Company analysis



Practical Visionaries Discussing the Carbon Challenge

The Carbon Challenge

The challenge of delivering a low carbon future is both important and difficult. Although there is a good deal of consensus about what needs to be done, the risks and responses to climate change are not accepted universally. What has been agreed may not in the long term be right, but it is the basis of policy in the UK and much of Europe and as such has to be responded to. Achieving an economy by 2050 that uses only 10 percent of CO₂ per unit of GDP (compared to today's scenario - see Exhibit 1) will not be done by reliance on a small number of measures, e.g. wind and nuclear power. A very wide range of responses will be needed, from smart grids and zero-carbon electricity to decarbonised fuels and methane management. But many of these responses are coming under scrutiny at present and difficulties are emerging. First generation biofuels are no longer seen as viable, Carbon Capture and Storage (CCS) is struggling to make a business case despite many and some prolonged initiatives, and there are some doubts about the introduction in the UK of smart grids/meters. The message from this is that we cannot rely simply on a higher carbon price to prompt the take-up of existing measures to help us break (CO₂) even. We also need large scale demonstration projects to make practical progress, innovation to extend our technological possibilities and visionary leadership that can overcome traditional barriers to change.

Booz & Company Case Study: CCS Business Strategy

Situation

- Multinational petrochemical corporation needed commercialisation assessment on carbon-free hydrogen and electricity

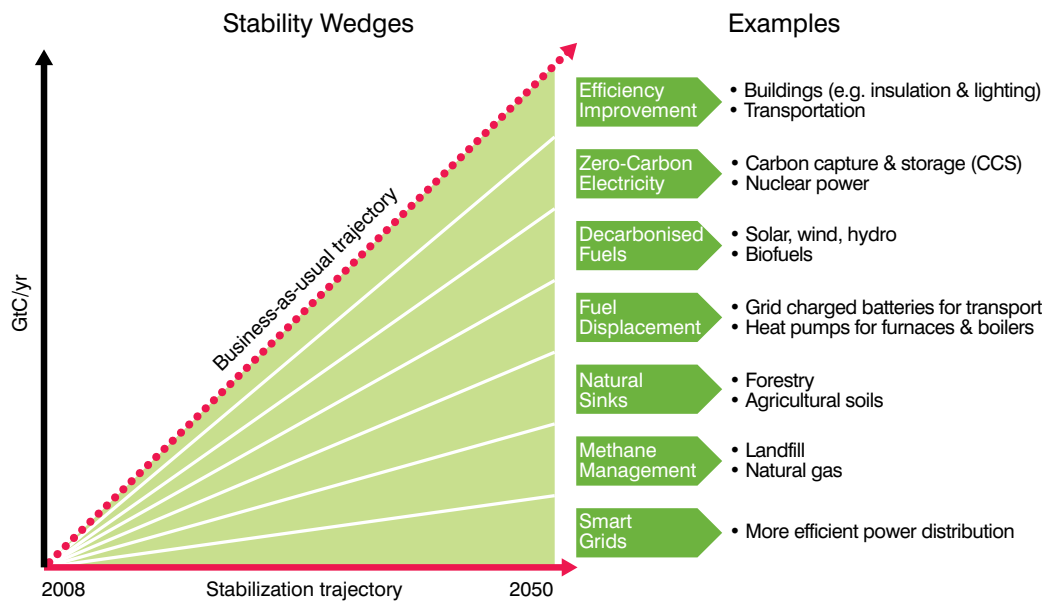
Action

- Conducted assessment of technologies to generate hydrogen, create electricity and capture carbon dioxide by-product
- Developed model to assess financial viability of individual projects and impact of process efficiencies on project economics
- Analysed world-wide existing "green" power requirements and policies
- Developed policy proposal for decarbonised electricity
- Assessed carbon credit trading and technology and policy needs for geological sequestration of CO₂ in oil and gas fields and other geological formations
- Developed transition mechanism to wean decarbonised electricity off subsidies

Outcome Achieved

- Successfully delivered results - business launched to coincide with G8 Summit

Exhibit 2 Carbon productivity improvement requires a portfolio of measures



Source Stern Review on Economics and Climate Change

Energy Economics

The low carbon debate is often posed as a question of enlightenment versus economics. One barrier to change is that immediate cost effectiveness may be the strongest driver for both consumer and corporate activity. But energy expenditure needs to be calibrated over the longer term. Sir Nicholas Stern's 2006 Review on Climate Change put the case succinctly: in responding to global climate change, the eventual cost of inaction is higher than that of action. Finding viable business models can be a struggle, especially in areas such as CCS. 'But there will be business opportunities', said Vivienne Cox, Chief Executive of BP Alternative Energy, especially in areas such as greener energy. Companies from British Gas New Energy to Royal Mail and DHL have met with success in building cost-effective wind farms, introducing green products and low carbon vehicles, testing low carbon potential and reducing their carbon footprint.

Secondary markets are also emerging, according to Henry Derwent of the International Emissions Trading Association (IETA). The financial sector is increasingly interested in revenue generated through off-sets and trading schemes (such as The European Union's carbon market as well as the smaller examples of those in Japan, New South Wales in Australia, and Chicago for the U.S.). Affordable energy remains the key, with fuel poverty a growing factor in the cost implications of a low carbon energy culture. Innovation is attractive, but the risks for investors are high. As Tom Delay CEO of the Carbon Trust noted: 'Most low carbon technologies are expensive, so the question becomes: how can we get prices down?' The role of government in supporting research and development will be crucial, especially in areas where private investors remain risk-averse and understandably cautious.

Booz & Company Case Study: Development of Climate Strategy & Emissions Reduction Program

Situation

- Global Post and Express company wanted CO₂ transparency, to reduce CO₂ emissions, and develop a comprehensive carbon footprint and reduction plan

Action

- Established CO₂ outlook by calculating footprint and projecting CO₂ growth, evaluating reduction initiatives and establishing targets
- Assessed cost and carbon impact of improvement measures, and prioritised and commenced implementation of measures
- Supported official launch of environmental campaign
- Assessed the client's competitive environmental position, developed new products, designed an offsetting strategy and laid out a carbon management approach
- Supported external reporting by evaluating reporting alternatives, and by supporting auditing process of subcontractor emissions figures

Outcome Achieved

- Environmental campaign launched and well received
- CO₂ footprint transparency
- Reduction plan supported by established measures
- Emissions reported externally

Race for Innovation

New technologies are a growth area of the low carbon debate. Innovative responses are rapidly emerging to minimise or reverse the effects of carbon emissions, as well as provide alternative low or no carbon energy resources. BP and many other companies now invest in technology start-ups as a way forward in meeting everyone's right to affordable energy in the future. Technologies are only as progressive as the corporate operations that support them. Karl Feilder (DHL Neutral Services) and others point to the need inside big corporations to engage and persuade colleagues across the organisation of the viability of low carbon programmes, however competitive the strategic business case. The Chief Executive of Solarcentury, Jeremy Leggett, agrees, and identifies belief as the 'major barrier' to both consumer and business understanding of the importance of renewable power.

For employees, it can be an exciting area, and companies are seeing new personnel coming into their organisations. Deutsche Bank's Sabine Miltner has seen 'tremendous eagerness in staff to get involved in discussions'. Their commitment lends credibility to DB's client package and communicates itself to the broader political community. Gearóid Lane of British Gas New Energy is enthusiastic: 'The scale of ideas is unbelievable: we have some crazy people knocking on our doors - of course some ideas are not viable but I feel we are on the cusp of a real drive of innovation.'



Henry Derwent President & CEO, IETA

Booz Allen Hamilton Case Study: Industrial Technologies Program

Situation

- Department of Energy's ITP (Industrial Technologies Program) wanted to develop a strategy to foster enhanced industry adoption of advanced technologies and processes

Action

- Crafted a new strategy to address the urgent national need created by natural gas price volatility while maintaining its core program in energy efficient technology. Strategy added fuel and feedstock flexibility elements to current technology portfolio
- Partnered with ITP to facilitate re-evaluation of program objectives, strategy and execution to ensure that existing program activities and this new element align with current industrial challenges and are consistent with current Departmental priorities and legislation

Outcome Achieved

- Created new program element for ITP as well as materials/supporting documents necessary for ITP to articulate this strategy to its management, Congress and industry



Vivienne Cox Chief Executive, BP Alternative Energy

Co-Operative Solutions

Mad inventors are one thing – and it may only take one to solve all our problems. But in the meantime, as BP’s Vivienne Cox points out, it will require eclectic, non-traditional leaders – practical visionaries such as those she saw participating in the Booz & Company roundtable – to solve the problem of making reduced carbon projects work.

Renewable energy and low carbon strategies represent a new frontier, and so the boundaries of engagement require alternative thinking and co-operation not just nationally, but with partners across the globe. Deutsche Bank is already looking for wider agreements on long-term pricing and developing a global carbon market.

Global interest in renewable resources has taken BP Alternative Energy into new and mutually beneficial relationships with companies such as Tata, GE and Rio Tinto – not BP’s traditional venture partners. The politics of emissions trading brings the new environmental imperatives of companies such as Virgin or the Civil Aviation Authority into dialogue over deforestation in Brazil or Papua New Guinea. The problems are complex. Simon Thomas of Trucost flags up the difficulties of effecting low carbon changes through the supply chain when it is outside your immediate control. More support is needed from government and media to foster more positive attitudes and create an environment favourable to low carbon initiatives.

Booz & Company Case Study: Support for Global Climate Change and Energy Conservation Analysis

Situation

- Office of the Secretary of Defense, Deputy under Secretary of Defense (Installations and Environment) required support on global climate change and energy conservation issues

Action

Provided analysis and recommendations on policy, technology, management, and finance including:

- Development of a Department of Defense (DoD) strategy for greenhouse gas issues
- Support for the DoD Climate Change Integrated Product Team
- Development of greenhouse gas inventory methodologies for calculating emissions from military operations, logistics and training
- Analysis of the impact of the use of bunker fuels and potential alternatives on carbon emissions

Outcome Achieved

- The client adopted recommended strategy for meeting mandated greenhouse gas inventories and mitigation within the context of maintaining mission capability
- The DoD adopted inventory methodologies and used to conduct the mandated annual inventory of DoD emissions for U.S. Environmental Protection Agency



Tom Delay Chief Executive, Carbon Trust

New Directions

Climate change requires a collective effort, and the debate is now at a turning point. Carbon reduction is receiving an encouraging and dynamic response from business leaders and the public. The solutions are not likely to be conventional ones. The politics of CO₂ are difficult, not least in world terms in relation to a very different understanding of the issues in India and China. In economic terms, there are cases where there is benefit for society as a whole, but no one player can capture enough of the benefit to justify going ahead unilaterally. The market therefore needs to be modified to achieve the collective benefit.

Co-operation and partnership will be required from both public and private sectors, including visionary leadership on the part of government going beyond short-term benefits. Despite the barriers, there is a vibrancy and optimism in the debate around reducing carbon emissions. New technological possibilities are developing, as are the proposals to manage change by people committed to low carbon issues.

The practical question is whether we can organise ourselves to exploit them.

Practical Visionaries – Low Carbon Project Blueprint

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1. Seek out unconventional public and private partnerships
 2. Foster technical innovation
 3. Leverage government and media to create the best project start up environment
 4. Work with the supply chain to build capacity and signal demand
 5. Make the case for projects inside the organisation a stern but practical test
 6. Engage the workforce as strong advocates
 7. Link thinking to emerging carbon markets and be ready to use them

Participants

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Harry Bush, CAA
Jenni Chew, Booz & Company
Vivienne Cox, BP Alternative Energy
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