



## CHEMICAL INDUSTRIES ASSOCIATION

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Review Team

Stern Review on the Economics of Climate  
Change

### **SUBMISSION FROM CHEMICAL INDUSTRIES ASSOCIATION**

The Chemical Industries Association is the leading representative and employers' body for the UK chemical industry, with 150 members at over 200 manufacturing sites. Some sites produce bulk chemicals by continuous processes on dedicated plants; others make smaller volumes of speciality chemicals using shared equipment. Almost all depend upon energy inputs at some stage of their operations; bulk chemical manufacture is frequently energy intensive. The industry's total turnover is almost £50 billion<sup>1</sup> and it accounts for 1.5% of UK GDP<sup>1</sup>. It represents 11% of manufacturing's gross value added<sup>1</sup>, employs some 200,000 highly skilled people directly<sup>1</sup> and is the only major industrial sector with a trade surplus. It accounts for almost 20% of UK industrial energy use<sup>2</sup>. The chemical industry is global both in terms of markets and ownership, with over 65% of CIA's membership being foreign "headquartered".

We should like to make the following points in connection with the areas covered by the Review:

***1 Re: "The costs and benefits of actions to reduce the net global balance of greenhouse gas emissions from energy use and other sources, including the role of land-use changes and forestry, taking into account the potential impact of technological advances on future costs"***

The chemical industry uses mineral hydrocarbons not only as an energy source, but also as feedstocks to make petrochemicals and fertilisers. Excluding pharmaceuticals, petrochemicals<sup>3</sup> is the largest individual subsector by sales value within the chemical industry. In tonnage terms it is the largest bar none, and it provides the building blocks for most of the rest – plastics, fibres, paints, detergents, dyes, adhesives, fragrances and indeed pharmaceuticals. As the availability of oil and gas declines, the chemical industry will need to find not only alternative energy sources but also sustainable sources of raw materials. Coal could be an interim solution, but renewables such as cereals (for starches), vegetable oils, and other crops will play increasingly important roles. Timber also yields important chemical raw materials, for example crude tall oil as part of the pulping process. We would therefore

<sup>1</sup> Source: ONS

<sup>2</sup> Source: DTI – Digest of UK Energy Statistics, Table 1.1

<sup>3</sup> Known also as "Basic organic chemicals", SIC code 2414



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suggest that biomass should be seen primarily as a valuable renewable resource for product manufacture rather than simply being squandered as a fuel for static electricity generation. It would be doubly wrong deliberately to subsidise such fuel use.

***2 Re: “The impact and effectiveness of national and international policies and arrangements in reducing net emissions in a cost-effective way and promoting a dynamic, equitable and sustainable global economy, including distributional effects and impacts on incentives for investment in cleaner technologies”***

Moves to combat climate change will be of little value unless they are coordinated globally. Putting the UK in the vanguard of climate change abatement measures will have a heavy cost in terms of the loss of industrial competitiveness. An onerous regime will only drive investment and production overseas, resulting in a loss of economic output at home, and no environmental benefit, indeed probably greater overall damage, for the world as a whole.

### **2.1 The revised UK climate change programme should seek a balanced approach with increased focus on developing and innovating step change carbon reduction technologies to tackle long term goals.**

There may be a limit to which market based instruments can drive the innovations that are needed. There should be increased emphasis on initiating joint strategies between government and industry to support specific technologies. As a supplier of materials, components and key process enablers to other manufacturers the chemical sector has a key role to play in partnering end-use industries in developing these solutions. Examples include catalysts and specialty chemicals for use in carbon capture techniques, fuel cell developments, weight saving materials and tread compounds for low rolling resistance tyres, to name but a few. Chemical technologies and materials are at the heart of many rapidly developing sectors and the UK chemical industry is well placed to exploit commercial opportunities. We see climate change as part of a larger Sustainability agenda for the industry.

### **2.2 There should be increased coordination of international climate change commitments to limit competitive and distributional impacts**

Climate change is a global issue which can only be addressed effectively through a more inclusive international commitment than the one currently offered by the Kyoto Protocol. It is worth noting in this connection that China’s energy consumption in 2004 reached 60% of that of the US, and its coal usage was 70% higher than the US<sup>4</sup>. Implementation of policy measures designed to help meet Kyoto commitments such as the UK’s Climate Change Levy (CCL) and associated Climate Change Agreements (CCAs) and the EU’s Emissions Trading Scheme (EU ETS) have respectively been on a unilateral UK or EU basis. While their design seeks to minimise competitive impacts, there is no doubt that manufacturing industry has been disadvantaged in global markets and these instruments have produced distributional impacts. There is a need to make progress in securing inclusive, longer term, international climate change commitments to create a certain and sustainable environment for UK business to invest resource into practical long-term carbon reduction solutions.

The CCL was designed to give fiscal neutrality across the economy by a commensurate reduction in employers’ NICs but this tended to favour the more labour intensive, non-traded

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<sup>4</sup> BP Statistical Review of World Energy, 2005

service sectors while penalising more energy intensive manufacturing operations exposed to international competition. While the CCAs qualify energy intensive sectors for 80% relief from CCL, and full exemptions were given to hydrocarbon feedstocks for non-fuel uses and to CHP generators, unrelieved costs have still impacted some energy intensive activities. This is because the CCA eligibility criteria were originally based on the Integrated Pollution Prevention and Control regulations. Although announced in the 2004 Budget, extension of these criteria to include other intensive activities is still not in place. In the chemical sector £20m of the £100m total CCL bill therefore remains unrelieved.

For the EU ETS, which is based on cap and trade, the original concept was to make a 100% free allocation of allowances to participants to limit competitive impact. However, electricity generators are included in the scheme (accounting for up to 70% of emissions). Because generators operate in a localised market with limited competition they are able to incorporate both the incurred and opportunity cost of CO<sub>2</sub> emissions allowances in their pricing structure. These costs are passed through to manufacturing industries who are unable to pass them on, generating windfall profits for the suppliers. We estimate the total pass-through to be equivalent to up to £6/MWh or 12.5% of current electricity prices. A realistic estimate of the indirect cost of the EU ETS to the chemicals sector from this pass through is £100m/yr, more than the cost of the Climate Change Levy before any relief. The Government's vision for future phases of the EU ETS (post-2012) is that all emissions allowances should be auctioned rather than allocated on a free basis. Assuming the whole of the chemical sector were covered by this stage auctioning would precipitate a three-fold increase in the direct and indirect CO<sub>2</sub> costs born by the chemical sector to £300m and should only be contemplated if there is tight coordination of international climate change commitments.

### **2.3 The government should not overlay its “leadership” role by tightening existing domestic policy instruments to the competitive disadvantage of UK industry.**

In developing its future programme government should not place undue reliance on tightening existing policy instruments such as the CCL/CCAs and EU ETS which are weighted towards energy intensive industries with a good record for improving their use of energy. While some reduction potential remains in these energy intensive industries and should be addressed, there remain areas within the industrial, commercial and public sectors, such as non-intensive manufacturing and energy use in buildings, which now offer relatively greater scope for cost effective emissions reduction. This is quite apart from the potential that exists within the transport and domestic sectors, whose share of emissions has risen. A more even targeting of reductions across sectors will also contribute to a sustainable environment for energy intensive industry to invest in carbon reduction solutions. The UK policy mix should be extended to achieve a more even targeting of cost effective carbon reductions across sectors of the economy.

### **2.4 Existing UK policy measures should be simplified, and overlap and conflicts between instruments eliminated**

The many instruments currently in use are becoming increasingly complex and administratively expensive, while being of only indirect and modest benefit in achieving the technological solutions needed to combat climate change. Some chemical companies are covered by both the EU and UK emissions trading schemes, the Climate Change Levy (CCL) and associated Climate Change Agreements, and the Integrated Pollution Prevention and Control regulations – and these often conflict with other legislation like the Large

Combustion Plant Directive, or rules on waste treatment which inhibit incineration for energy recovery. It is vital that the UK's revised Climate Change Programme reduces overlap and conflicts between these instruments.

Coverage of manufacturing by two economic instruments (the EU ETS and CCL/CCAs) is counter-productive because this creates double the administrative burden, detracting from businesses spending time planning energy improvements, and can send conflicting signals: the EU ETS targets the absolute level of direct CO<sub>2</sub> emissions and the CCAs target energy efficiency with coverage of direct and indirect emissions.

Because the EU ETS is a mandatory scheme, avoiding overlap after the end of Phase 1 (2005-2007) will require changes on the UK side. The "carve-out" of an EU ETS installation from a CCA facility is conceptually difficult and could create perverse incentives. Elimination of overlap can only therefore be fully achieved by the complete abolition of the CCL to remove the need for sites to be in the CCAs. A lesser option would be to abolish CCL on electricity, which now reflects the cost of carbon in the EU ETS, and extend exemption on CCL to EU ETS participants – but, owing to partial coverage of activities by the EU ETS, this would only remove the need for CCA participation on some sites.

### ***3 If starting with a clean slate we believe economic measures used to limit carbon emissions should be carefully chosen so as to:***

- minimise administrative overheads and complexity;
- share the burden of compliance equitably across all sections of the economy;
- maximise the certainty of the regime well into the future so as to encourage the development of alternative zero or low carbon technologies;
- be capable of robust replication across the world.

The current EU emissions trading system falls some way short of meeting these requirements. It is administratively extremely complex, necessarily applies only to intensive energy users (since measuring and recording emissions for the economy at large is hardly feasible), provides no certainty on the cost of allowances in the future – any market in perpetual shortage will be subject to speculation and volatility, as the UK wholesale gas market vividly demonstrates – and it would be difficult to ensure honestly verified compliance across all countries. We recognise the benefit of its targeting marginal energy use, the bulk currently being covered by "free" allowances, but fear that even this advantage will be lost as the cap is tightened and especially if auctioning of allowances replaces free allocation. It might be worth considering the relative merits of other economic instruments, for example a simple carbon tax (as opposed to an energy tax like the CCL, which also covers nuclear power) applied at a known increasing rate. Although this would not directly guarantee a particular level of emissions, its inherent simplicity, robustness, breadth of application across the whole economy and certainty of future level of incentive for new technologies, might still offer practical advantages relative to the theoretically certain emissions outcome, but unknown cost, of a trading regime.

### ***4 Energy security***

**Last, and most certainly not least, the issue of the UK's energy security must not be subordinated as it was in the 2003 Energy White Paper.**

Fortunately measures to combat climate change and to improve energy security are not incompatible. Indeed, we believe that both issues can be addressed by common means – increasing the diversity of energy sources and reducing dependence on mineral hydrocarbons. We therefore hope that your Review Team will coordinate its deliberations with those of the recently announced Energy Review.

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*9 December 2005*