

10th March 2011

Tees Valley Unlimited response to the Electricity Market Reform consultation

Tees Valley Unlimited (TVU) is a partnership of public, private and voluntary bodies, that coordinates activities, appropriate to a city region level, designed to improve the economic performance of the entire Tees Valley.

The Tees Valley is home to the largest integrated chemical complex in the UK, the largest hydrogen network in Europe; Teesport which is one of the largest ports in the UK, pipelines connecting the Tees Valley with the rest of the UK, and large advanced engineering companies. Approximately 12,000 people are directly employed in the process industries in the Tees Valley. These organisations operate in global markets and contribute significantly to export led growth.

There are a range of renewable energy and low carbon projects in the Tees Valley that have already gained planning consent or are in development as investment proposals. These known projects could contribute over 2,000 additional jobs, and £6 billion worth of capital investment in the low carbon sector in the medium term. Currently, there are approximately 18 installations currently covered by the European Union Emissions Trading Scheme (EU ETS) in Tees Valley, but this will increase as new sectors and processes are included in EU ETS Phase 3.

We have based our response on research we have commissioned and internal analysis, as well as the experience and views of our partners, including the North East Process Industry Cluster (NEPIC), which is a stand-alone company created and owned by its member companies that represents the companies and supply chain of the process industry in the region. We fully endorse the response provided by NEPIC, and have discussed our response with industrial stakeholders in the Tees Valley. We are extremely concerned about the Treasury consultation on the carbon price floor: and so have attached our response to the Treasury as Annex 1.

TVU is not directly involved in the UK electricity market but we want to ensure the Tees Valley economy grows, new low carbon industries are encouraged, and existing industries have the potential to decarbonise. We recognise that these goals are heavily influenced by national policy and we are pleased to have the opportunity to respond with some general concerns to this consultation and would like to work closely with Government to ensure the

Tees Valley contributes to low carbon economic growth in the UK. We have already started discussions with DECC and BIS and we would be keen to develop these discussions and ideas further. The general principles we wish to raise through our response to this consultation are the following:

1. We are aware that the carbon price will be a very important factor in informing investment decisions in the Tees Valley. It is critical that the carbon price is stabilised at a level that provides both clarity and longevity to investors, while maintaining a balance that allows industry to remain competitive and contribute to low carbon economic growth in the UK. Public policy that gives ambiguous or short term signals serves only to increase risks, regulation and costs and therefore acts as a disincentive to invest in either low carbon or conventional projects. The Government must be very wary of increasing investment risks through introducing measures that distort markets, with unintended consequences. For example offshore wind sector experts believe that the electricity market reform could delay inward investment decisions by Original Equipment Manufacturers (OEMs) for 2 years and we understand that uncertainty over the banding of ROCs for biomass plants is currently delaying other investments in the Tees Valley.
2. There is a great danger that the Carbon Price Floor and Electricity Market Reform could substantially raise energy costs in energy intensive industry, such as the chemicals sector. This would be significantly detrimental to the UK economy. The impact assessment for the Electricity Market Reform consultation has not identified or addressed the significant and disproportionate cost impacts of the reforms on energy intensive industries. For these reasons we would like to support the joint work being carried out by BIS and DECC, assessing the cumulative impact of energy and climate change policies on energy intensive industries and developing proposals for mitigating this impact. The following points need to be integrated from a policy point of view:
 - The first Committee on Climate Change report (2008) notes ***“that the auctioning/free allocation decision has no implications for competitiveness effects which operate via the electricity price rather than via the price of carbon for direct emissions”***¹. We therefore need a decarbonisation strategy that considers the decarbonisation of energy intensive sectors such as petrochemicals, intermediate chemicals and fertilisers, and does not focus solely on the decarbonisation of power. This also needs to have due regard to the waste hierarchy, and competing demands for valuable feedstock resources in the low carbon sector.
 - The Government should urgently assess and carefully monitor the impact of the electricity market reform on industries that have been assessed as vulnerable to carbon leakage under Phase 3 EU ETS, and ensure that mechanisms do not result in indirect costs being passed on several times to business customers where there is a known threat of carbon leakage. Developing this evidence base would also support the revision of sectors vulnerable to carbon leakage in 2014².
 - To the best of our knowledge, there has not been any consideration of the interaction between sector benchmarks under Phase 3 of EU ETS. This is likely to result in disproportionate direct and indirect cumulative impacts, particularly in highly integrated – and therefore energy efficient - process industries.

¹ <http://www.theccc.org.uk/pdf/7980-TSO%20Book%20Chap%2010.pdf> p376

² http://www.decc.gov.uk/assets/decc/what%20we%20do/global%20climate%20change%20and%20energy/tackling%20climate%20change/emissions%20trading/eu_ets/phase%20iii/1016-euets-preparing-phase-III.pdf

- In order to ensure energy security and facilitate investment in new generating capacity across the UK, the Government and energy regulators must ensure that the market is a level playing field. The current system of grid transmission charges may deter investment in low carbon as well as fossil fuel electricity. Combined Heat and Power (CHP) is a geographically constrained technology, that should receive preferential treatment to meet previous government targets. A failure to secure additional savings from CHP plants would require industry to seek additional savings from other, higher cost, CO₂ abatement options.
 - Reform of the electricity market, including transmission charging, should not make the UK electricity market less competitive for investment compared with markets in other EU states.
 - Together with partners, we are currently looking at clusters based on optimal energy (electricity and heat) production and consumption. We would like to work further with the government to develop a more strategic approach to decarbonising existing energy intensive industries, minimising impact on their competitiveness as well as costs to the treasury. A strategy linked to energy intensive clusters could be developed to capitalise on industrial symbiosis opportunities, for example, heat expelled by energy intensive industry could be used by bio-processing and waste treatment plants, while the waste from waste treatment plants could be used to produce power, biofuels and biochemicals. Plastics could be depolymerised to produce alternative petrochemical feedstock. The Government needs to see locations for energy intensive industries such as Tees Valley, the North West, Grangemouth and the Humber as prime locations for investments in energy and bio-based industries.
 - TVU does not believe that the reform of the electricity market by itself will attract electricity suppliers and wind farm manufacturers to the UK because our current financial offer for new investment compared with the rest of the world is poor. We consider the government should consider tax incentives such as 100% capital allowances or 50% reduction/ exemption from corporation tax over 10 years for the developments. Given that renewable energy power stations have a long life of 40 – 60 years, tax incentives would help to ensure our financial offer was competitive with the rest of Europe and other worldwide competitors. This would result in the UK being more attractive to foreign investment, help the UK to maintain competitive advantage and ensure that future tax returns come to the UK.
 - One mechanism for implementing this policy would be a zone to provide tax incentives for development. In the Tees Valley we could create a zone for the North/South Tees area, our main industrial heartland. Within this zone tax incentives should be available for new/replacement electricity power stations, renewable energy developments including wind farm fabrication, port developments and demonstration of novel technologies to decarbonise the existing petrochemical sector, building on the unique strengths that currently exist within the Tees Valley. This would earmark the area as a low carbon development cluster, in sectors for which the area is best suited.
3. Industrial CCS has been identified as a major abatement option for industry, such as is found in the Tees Valley. The reform therefore needs to consider how best to support the substantial costs associated with the development of CCS infrastructure in the UK, including

the potential for the industrial sector to be included longer term to meet carbon reduction objectives without leakage.

4. In a carbon constrained world, we will need to make best use of our resources. Resource based industry has a key role to play in decarbonising the UK and globally. It is therefore imperative to prioritise the most environmentally and economically efficient use of our resources through government incentives.
 - In a response to the Renewable Heat Incentive consultation, we noted that Feed-in Tariffs for Anaerobic Digestion (AD) are higher for electricity production (11.5p/kWh over 20 years and set to slightly increase³) than for heat generated (proposed 5.5p/kWh over 10 years for on-site combustion, and 4p/kWh for biomethane injection). This would militate towards biogas from AD being used to generate electricity, rather than heat production (either through local distributed heat systems or biomethane injection into grid). Using AD to generate heat is a far more efficient use than production of electricity, and AD also offers considerable potential as a transport fuel which could reduce overall emissions more than generation of power through CHP and injection of gas into the grid⁴.
 - We believe the financial incentives developed for utilisation of 'waste' as a resource should incentivise the highest/most efficient utilisation of the fuel and should be included as part of a revised national waste management strategy. This should include but not be limited to AD, green chemicals, the depolymerisation of plastics and other processes generating base chemicals, district heating schemes, and advanced thermal treatments generating synthetic gas. These offer a significantly higher value opportunity for use of renewable or waste feedstocks and policy should actively encourage their development. Contraction in the sector will not assist meeting this goal.
 - Not only should this national waste management strategy assess the best value use of waste – which may not be electricity production – it should also assess the location of waste management industries. Concentrating use of waste to produce electricity or chemicals in only a few locations allow for efficient supply chain development, creates economies of scale to justify investments, and allows these developments to feed existing industries.
5. The impact assessment for the Electricity Market Reform consultation also indicates that impacts on the most vulnerable domestic consumers are disproportionately high. The Tees Valley is home to a high proportion of vulnerable adults and the demographic projections show clear trends towards an aging population. The indirect costs passed through to consumers as a result of carbon regulation and market reform should be transparently identified, simplified and rationalised. Robust mechanisms to protect both vulnerable industries and vulnerable domestic consumers should be developed - and where appropriate strengthened - immediately.

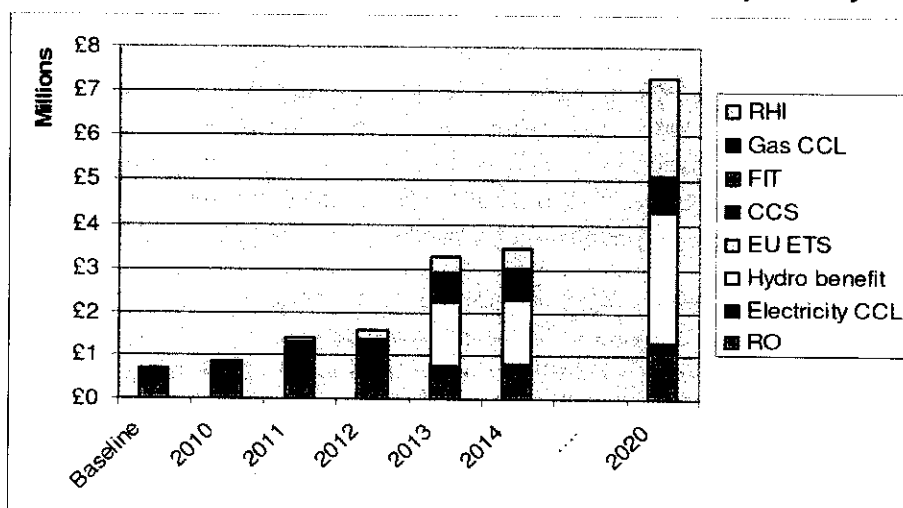
³ <http://www.ofgem.gov.uk/Sustainability/Environment/fits/Documents1/Feed-in%20Tariff%20Year%202%20tariff%20table%20adjusted%20for%20Retail%20Price%20Index.pdf>

⁴ http://www.cleanvehicle.eu/fileadmin/downloads/UK/nsca_biogas_as_a_road_transport__084926300_1011_24042007.pdf

Current Market Arrangements

Under the current market arrangements, over 400MW of biomass power has received planning permission in the Tees Valley. However, uncertainty over the banding of Renewable Obligation Certificates and grandfathering rights is currently delaying investment in biomass operations in the Tees Valley. We understand that DECC are expected to receive a consultancy report on ROCs for biomass in March 2011, will then formally consult in July and make a formal decision in November 2011. Once the ROC arrangements are enshrined in law, projects are likely to be able to proceed in the spring/early summer of 2012. If this timetable was unduly delayed, if ROCs for biomass are banded below 1.5, or if grandfathering is not secure for 20 years then this may have significant implications for these projects.

We agree that the Government's objectives should be security of supply, decarbonisation and affordability, but we are concerned the principle of coherence is too narrowly defined in relation to electricity generation, and that as a result, there will be significant competitiveness impacts on export led growth in the UK generally, and the Tees Valley specifically. The graph below was developed for the Energy Intensive Users Group in 2010, and shows the forecast cost of climate change policies for a representative heavy industry customer⁵.



Source: Waters Wye Associates, The Cumulative Impact, p. 32

We also feel that the reform of the electricity market should be coherent with the current review of transmission charging because the transmission charging system currently discriminates against power generation in the North East and we need to ensure that the UK remains competitive relative to Europe.

The costs of paying additional location-specific transmission fees for geographically constrained technologies such as combined heat and power (CHP) will increase the cost of

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<http://www.eiug.org.uk/publics/WWA%20Impact%20of%20Climate%20Change%20Policies%20EIUG%20TUC%202010723.pdf> p32

generation and may have to be compensated through mechanisms such as ROCs creating additional costs to consumers for no net benefit⁶.

Furthermore, energy intensive industries in Tees Valley have made extensive use of CHP to maximise their efficiency. The carbon floor price/electricity market reform proposals to remove the differential treatment for CHP schemes, will have the effect of making electrical import with on purpose steam generation a cheaper option, with a penalty of some 10% on actual efficiency. We would argue that CHP power should receive preferential treatment to meet previous government targets. A failure to secure new savings from CHP plant would require additional savings to be sought from other, higher cost, CO₂ abatement options - creating additional pressures on vulnerable industries in the Tees Valley.

In addition to the Government's electricity market reform proposals and Ofgem's review of transmission charging (Project TransmiT), we understand that the Distribution Network Operators are working to achieve commonality on their extra high voltage (EHV) charging methodologies and tariff structures⁷ which will create additional burdens on energy intensive industry in the Tees Valley.

Feed in Tariffs

We would welcome industry engagement when it comes to negotiating the level and detail of FITs in the future. In a carbon constrained world, we will need to make best use of our resources, therefore resource based industry has a key role to play in decarbonising the UK and globally. It is imperative that the most environmentally and economically efficient use of our resources is prioritised through government incentives, including through Feed in Tariffs.

An independent Carbon Trust report that was recently commissioned by Sabic demonstrates significant financial and carbon benefits to depolymerising plastic as opposed to utilising it as a fuel for energy from waste. We are therefore concerned that the government appears to be focussing solely on the decarbonisation of the electricity sector in a manner that does not adequately address the competitiveness and decarbonisation needs of the energy intensive industries and the wider economy.

Carbon Price Support

In addition to including our response to the Treasury consultation as an Annex 1, we also note that the 4th Report of the Committee on Climate Change (2010) highlighted that in the absence of an EU carbon price support mechanism, a UK price support should be introduced subject to addressing competitiveness concerns in the energy-intensive sectors and affordability/fuel poverty concerns in the residential sector.

Emissions Performance Standards

If an EPS is introduced it should deliver a clear, consistent and long term message with progressively tightened standards that will help industry to make appropriate investments

⁶ http://www.ofgem.gov.uk/Networks/Trans/PT/Documents1/Combined_Heat_and_Power_Association.pdf

⁷ <http://2010.energynetworks.org/structure-of-charges-edcm/>

into low carbon energy over the next 40 years. The Government should also take into account the carbon benefits of distributed heat when establishing an EPS.

Industrial CCS has been identified as a major abatement option for industry⁸⁹ in the Tees Valley¹⁰. The reform therefore needs to consider how best to support the substantial costs associated with the development of a CCS infrastructure in the UK including the potential for the industrial sector to be included longer term to meet carbon reduction objectives without leakage.

Analysis of Packages

In addition to the severe impacts the electricity market reform may have upon the Tees Valley economy, we are also extremely concerned about the impact that rising energy prices will have on a large proportion of residents in our area. Despite ongoing work to reduce fuel poverty, a high proportion of housing in the Tees Valley remains energy inefficient. Figures show that 42,400 households across the Tees Valley were in fuel poverty in 2006, 15.5% of all households¹¹. Figure C9 in the Impact Assessment shows that the highest cost impacts of the Electricity Market Reform will be felt by the most vulnerable groups in society (p93). A derived forecasts summary report¹² shows the following household composition trends in the Tees Valley:

Household category	Proportion of Tees Valley Households		
	2010	2020	2030
Single parents	8%	9%	11%
Pensioner households	27%	30%	34%

We are also aware that more restrictive income based criteria will be applied when assessing eligibility for the Warm Front grant scheme with the result that many low income households previously able to receive support and who qualified as vulnerable and at severe risk of being in or already in fuel poverty will now be excluded. Given that approximately 80% of housing is under private tenure in the Tees Valley¹³ and the significant proportion of vulnerable residents in our area, we urge the Government to ensure that rising energy costs do not adversely affect our most vulnerable residents and impose further burdens on the NHS.

Finally, TVU would be more than happy to elaborate on all of the points raised in our consultation response, and are keen to work with Government and other partners to resolve these issues.

⁸ http://downloads.theccc.org.uk/s3.amazonaws.com/4th%20Budget/CCC-4th-Budget-Book_with-hypers.pdf

⁹ [http://www.unido.org/fileadmin/user_media/Services/Energy and Climate Change/Energy Efficiency/CCS %20industry %20synthesis final.pdf](http://www.unido.org/fileadmin/user_media/Services/Energy_and_Climate_Change/Energy_Efficiency/CCS_%20industry_%20synthesis_final.pdf) p5

¹⁰ Amec. 2010. Engineering Design and Capture Technologies for Carbon Capture and Storage in the Tees Valley; Element Energy. 2010. Developing a CCS network in the Tees Valley Region: Final report

¹¹ http://www.teesvalleyunlimited.gov.uk/information-forecasting/documents/economic_assessment/economic%20assessment.pdf p71

¹² Available upon request

¹³ http://www.teesvalleyunlimited.gov.uk/information-forecasting/documents/economic_assessment/economic%20assessment.pdf p68

ANNEX 1: Tees Valley Unlimited response to the consultation on the carbon price floor: support and certainty for low-carbon investment

Tees Valley Unlimited is a partnership of public, private and voluntary bodies, that coordinates activities, appropriate to a city region level, designed to improve the economic performance of the entire Tees Valley. We are pleased to have the opportunity to respond to this consultation, and will work closely with Government to ensure the Tees Valley contributes to low carbon economic growth in the UK.

The Tees Valley is home to the largest integrated chemical complex in the UK, the largest hydrogen network in Europe; Teesport which is one of the largest ports in the UK, pipelines connecting the Tees Valley with the rest of the UK, and large advanced engineering companies. Approximately 12,000 people are directly employed in the process industries in the Tees Valley. These organisations operate in global markets and contribute significantly to export led growth.

There are a range of renewable energy and low carbon projects that have already gained planning consent or are in development as investment proposals. These known projects could contribute over 2,000 additional jobs, and £6 billion worth of capital investment in the low carbon sector in the medium term. Currently, there are approximately 18 installations currently covered by the European Union Emissions Trading Scheme (EU ETS) in Tees Valley, but this will increase as new sectors and processes are included in EU ETS Phase 3.

We have based our response on research we have commissioned and internal analysis, as well as the experience and views of our partners, including the North East Process Industry Cluster (NEPIC), which is a stand-alone company created and owned by its member companies that represents the companies and supply chain of the process industry in the region. We fully endorse the response provided by NEPIC and have used it to inform our own.

We have responded to the appropriate questions individually below, but the key points we wish to emphasise through our response to this consultation are the following:

1. We do not have any specific expectations regarding the level of the carbon price. However, we are aware that it will be a very important factor in informing investment decisions in the Tees Valley. It is critical that the carbon price is stabilised at a level that provides both clarity and longevity to investors, while maintaining a balance that allows industry to remain competitive and contribute to low carbon economic growth in the UK. Public policy that gives ambiguous or only short term signals serves only to increase risks, regulation and costs and therefore acts as a disincentive to invest in either low carbon or conventional projects. The Government must be very careful to avoid increasing investment risks through introducing measures that distort markets, with unintended consequences.
2. The Government should urgently assess and carefully monitor the impact of the carbon floor price on industries that have been assessed as vulnerable to carbon leakage under Phase 3 EU ETS, and create a mechanism that prevents the full costs of the carbon floor price being passed on to business customers, specifically where there is a known threat of carbon leakage. Developing this evidence base would also

support the revision of sectors vulnerable to carbon leakage in 2014¹⁴. TVU is willing to assist in any way it can towards the joint project between BIS and DECC that will look at the cumulative impacts on energy intensive industries in the UK. We need a decarbonisation strategy that considers the decarbonisation of energy intensive sectors such as petrochemicals, intermediate chemicals and fertilisers, rather than the current focus solely on the decarbonisation of power.

3. The Government should assess and carefully monitor the impact of EU wide benchmarking under Phase 3 EU ETS on UK industries vulnerable to carbon leakage, and provide resources to support these industries to invest in carbon reductions in the UK. The proceeds of up to 300 million allowances will be invested across Europe to help stimulate Carbon Capture and Storage, and innovative renewable technologies. The Government must ensure that UK industries are supported to access investment to reduce carbon emissions in the UK to allow them to contribute to legally binding carbon budgets while maintaining low carbon economic growth.
4. In order to ensure energy security and facilitate investment in new energy supply across the UK, the Government and energy regulators should provide a level playing field as the current system of grid transmission charges may deter investment in low carbon as well as fossil fuel electricity.
5. TVU does not believe that the reform of the electricity market by itself will attract electricity suppliers and wind farm manufacturers to the UK because our current financial offer for new investment compared with the rest of the world is poor. We consider the government should consider tax incentives such as 100% capital allowances or 50% reduction/ exemption from corporation tax over 10 years for the developments. Given that renewable energy power stations have a long life of 40 – 60 years, tax incentives would help to ensure our financial offer was competitive with the rest of Europe and other worldwide competitors, result in the UK being more attractive to foreign investment giving us a competitive advantage over our competitors but ensuring that future tax returns would come to the UK.
6. One mechanism for implementing this policy would be an enterprise zone. In the Tees Valley we could create one enterprise zone for the North/South Tees area, our main industrial heartland. Within this zone tax incentives would only be available for new/replacement electricity power stations, renewable energy developments including wind farm fabrication, port developments and demonstration of novel technologies to decarbonise the existing petrochemical sector, building on the unique strengths that currently exist within the Tees Valley. This would earmark the area as a low carbon development cluster, in sectors for which the area is best suited.

3.A1: What are your expectations about the carbon price in 2020 and 2030? And how important a factor will it be when considering investment in low-carbon generation?

We do not have any specific expectations regarding the carbon price in 2020 and 2030. However, it will be a very important factor in informing investment decisions in the Tees Valley. Our evidence demonstrates that it is critical to stabilise the carbon price at a level

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that provides both clarity and longevity to investors, while maintaining a balance that allows industry to remain competitive and contribute to low carbon economic growth in the UK

The Tees Valley Economic and Regeneration Statement of Ambition sets out clearly the ambition to drive the transition to a low carbon economy and to support existing and future industries as they seek to reduce carbon emissions.

Through the Tees Valley Industrial Programme (TVIP), a number of studies have been funded examining the feasibility of a carbon capture and storage (CCS) network for the Tees Valley, as part of a North East network, which could be a major component of the drive to reduce carbon emissions in the area.

In recognition of the need to look at reducing carbon emissions, industrial partners, led by the North East Process Industry Cluster (NEPIC), have formed a collaborative forum called PICCSI – the Process Industries Carbon Capture and Storage Initiative, to provide a strong business-led voice in the debate on how best to achieve carbon reductions without affecting the viability of existing and future industries.

At a meeting of the PICCSI consortium on 29 November 2010, industrial partners were presented with the findings of the most recent TVIP-funded report from Element Energy that considers the economic case for a CCS network in the Tees Valley¹⁵. This report incorporates a number of the outputs from a parallel study by Amec into the engineering feasibility of developing an onshore CCS network in the Tees Valley¹⁶.

The Element Energy report concludes that a CCS network is technically feasible and could deliver up to 8% of the UK's required CO₂ reduction for 2030. The report also concludes that a CCS network offers the opportunity to transform the Tees Valley from an area threatened by tightening carbon regulation to a preferred location for industry with high emission rates.

The Element Energy report also identifies that for a scenario based on a medium sized network in the Tees Valley, connecting 8 point sources, the average cost of abatement could be £48/tonne CO₂. This needs to be viewed against the anticipated charge for carbon emissions through the ETS to determine whether the network will be an attractive investment for industrial partners. Current forecasts in the early years of the ETS suggest a carbon price in the range €30-50/tonne of CO₂. In other words, a medium sized network does not become economically viable for wholly private sector delivery within the likely ETS price range.

The PICCSI members considered that the uncertainty over the ETS pricing regime would be likely to prevent private sector investment in a CCS network being committed in the short term. The view was also expressed that, if the carbon price were set at a level some way above the £48/tonne tipping point, then industrial partners would be likely to consider relocating outside the EU as opposed to taking mitigating action with the associated financial risk.

It is clear from the Amec and Element Energy reports that around 80% of the cost of a CCS network lies on the offshore transport and storage facilities. As the North East identified some time ago, it is this part of the network that is likely to require public subsidy. The change in emphasis of both UK and EU demonstration projects, combined with the current

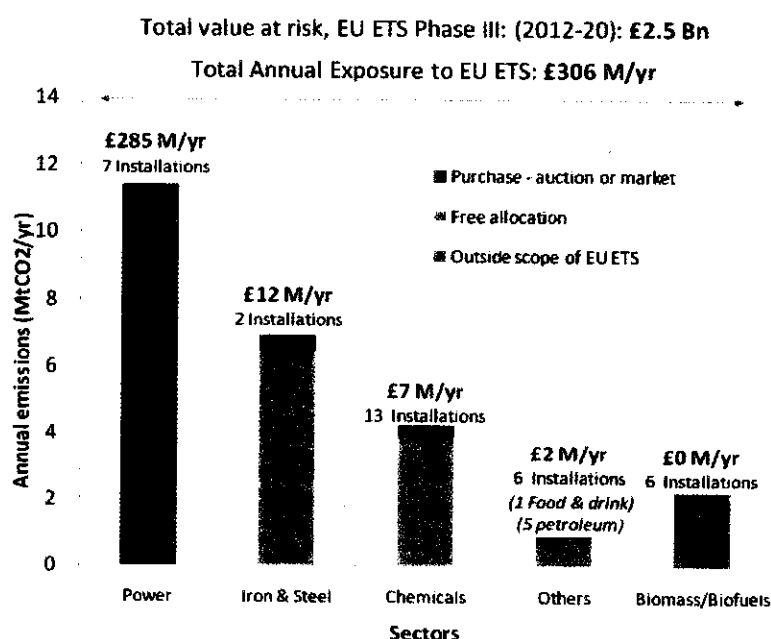
¹⁵ Element Energy. 2010. Developing a CCS network in the Tees Valley Region: Final report

¹⁶ Amec. 2010. Engineering Design and Capture Technologies for Carbon Capture and Storage in the Tees Valley

lack of an anchor power station tenant for a CCS system, suggest that it will be difficult to secure an offshore network in the North East in the short to medium term without public subsidy.

However, due to a lack of certainty regarding the impact of implementing Phase 3 of the European Union Emissions Trading Scheme, we do not have a precise carbon price range that we are confident accurately represents the level at which industry in the Tees Valley would balance a decision on significant low carbon investment or relocation. Due to significant integration of the supply chain in the Tees Valley, the decision to relocate or cease operation could damage key supply chains for Tees Valley industries which could undermine the UK economy without resulting in emissions reductions at a global level.

It is also vital for areas such as the Tees Valley that if a carbon floor price is introduced, it occurs in a way that does not create disproportionate impacts on industries regulated by the EU ETS. Figure 1 shows the risk to Tees Valley industries from the total annual exposure to EU ETS Phase 3¹⁷.



Further analysis by TVU, based on actual 2008 emissions data, shows that a carbon price over €20 per tonne of CO₂e would have severe consequences for industry in the Tees Valley. Even if 85% of emissions were covered by free allowances, the annual cost of allowances at €50 per tonne could be €123,440,000). Table 1 shows significant costs for the Tees Valley associated with implementation of Phase 3 EU ETS across a range of potential carbon prices.

¹⁷ Ibid. These figures assume a carbon price of €20 per tonne of CO₂e and that 30% of allowances are issued for free.

Table 1: Potential annual impact of EU ETS Phase 3 on Tees Valley industry

Million tonnes CO ₂ regulated under EU ETS	Proportion allowances allocated free	Annual cost of purchasing allowances (thousand €)				
		€30	€40	€50	€60	€70
17.04	85%	74,064	98,752	123,440	148,128	172,816
17.04	40%	350,661	467,548	584,435	701,322	818,209
17.04	30%	409,105	545,473	681,841	818,209	954,577

Under the revised 2008 EU ETS Directive, certain energy-intensive industries vulnerable to carbon leakage, including steel and chemicals, may be issued with up to 100% free allowances during phase 3. However, free allocation will be based upon sector benchmarks for 53 industry product groups covering 75% of industrial emissions under the EU ETS. Only the top 10% most carbon-efficient firms in a sector or subsector are likely to receive the full amount of free allowances to cover their emissions. Additionally, the benchmarks could be tightened in the event of a global climate deal if the EU moves from a 20% to a 30% emissions reduction by 2020.

The Ends Report states *"In practice, it is unlikely that even the most efficient plants under any benchmark will get 100% free allowances. Allocations eventually decided by member states will be subject to a downward cross-sectoral correction factor by the commission, to ensure fairness in distribution of allowances between sectors and consistency with the overall EU ETS cap. They will also be affected by the 1.74% annual reduction in the overall EU ETS cap through phase III¹⁸."*

The methodologies used to determine the sector benchmarks¹⁹ may result in Tees Valley industries known to be highly vulnerable to carbon leakage being unable to receive sufficient free allowances to allow them to invest in achieving carbon reductions. Businesses are already subject to the Climate Change Levy, indirect costs associated with FITs and ROCs, and Phase 3 EU ETS will create significant direct and indirect²⁰ cost burdens on industries in the Tees Valley that are known to be at significant risk of carbon leakage^{21,22}. Paragraph 2.13 of the consultation document states that:

¹⁸ ENDS Report 432, January 2011, pp. 48-49

¹⁹ http://ec.europa.eu/clima/documentation/ets/docs/decision_benchmarking_15_dec_en.pdf

²⁰ Indirect costs are the carbon costs of electricity generation that are passed on to industry. See COMMISSION OF THE EUROPEAN COMMUNITIES. 2009. DRAFT COMMISSION STAFF WORKING DOCUMENT. Document accompanying the Commission Decision determining a list of sectors and subsectors which are deemed to be exposed to a significant risk of carbon leakage pursuant to Article 10a (13) of Directive 2003/87/EC. Impact assessment. [no url is available but source document can be provided upon request]

²¹ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:001:0010:0018:EN:PDF>

"The levy applies to taxable commodities when they are supplied to a business or public sector consumer. The supplier is required to register with, and pay the levy to HMRC, generally quarterly. The suppliers usually pass on the cost of the levy to their customers, although this is not mandatory".

A House of Lords report on the EU ETS noted evidence that windfall profits were generated by some industries from phase 1 of the EU ETS²³. This occurred for example when power generators that received free allowances during phase 1 nevertheless put up the price of their products or services to reflect the market price of those allowances²⁴. It is clear that if market costs are passed on even when free allowances were received, it is extremely unlikely that electricity producers will absorb the costs of a carbon floor price. The Government must therefore ensure that the development of the carbon floor price in the UK does not indirectly (i.e. through passing on increased energy costs to business and commercial customers) create additional threats to vulnerable industries in the Tees Valley that are strategically important for the UK economy.

The recent economic assessment for the Tees Valley shows that the area contributes £10 billion to the national economy and has a population of 662,600 people. The Tees Valley economy is dominated by energy intensive industries which together with the public sector contribute half of our GVA and our employment²⁵. There is a risk that the short and medium term additional indirect costs of the carbon floor price will damage nationally important industries already faced with direct and indirect costs associated with EU ETS and other regulation.

The North South Tees Industrial Framework²⁶ developed a considerable evidence base in relation to the assets contained within the heavily industrialised North and South Tees Area. The energy workstream report includes data on energy production and use. Based on conservative data that underestimates the total electricity imported from the grid by Tees Valley industry, the following table shows that 'passing on costs' could indirectly cost an additional £2.5 million per year which equals some £20 million over the duration of EU ETS Phase 3. This is in addition to the indirect impact EU ETS will have on increasing electricity prices.

Table 2: Initial indication of the costs that could be passed on to industry vulnerable to carbon leakage in Tees Valley

²³ Para 17 of House of Lords European Union Committee 33rd Report of Session 2007–08. "The Revision of the EU's Emissions Trading System: Report with Evidence":
<http://www.publications.parliament.uk/pa/ld200708/ldselect/deucom/197/197.pdf>

²⁴ http://assets.panda.org/downloads/point_carbon_wwf_windfall_profits_mar08_final_report.pdf

²⁵ http://www.teesvalleyunlimited.gov.uk/information-forecasting/documents/economic_assessment/eaexecutive%20summary.pdf

²⁶ <http://www.teesvalleyunlimited.gov.uk/economyplanningenvironment/documents/north%20and%20south%20tees%20industrial%20development%20framework.pdf>

MW average electricity imported by industry in the North South Tees area	GWh assuming 8000 hours of operation per year	Assuming electricity is generated from gas, the additional cost of removing the CCL exemption (pence per kWh)	Assuming electricity is generated from gas, the additional cost of removing the CCL exemption (£ per MWh)	Assuming full costs are passed from electricity producer to industrial consumer, the annual costs to industry in North South Tees Area
209	1672	0.164	1.64	£2,742,080

The Government should therefore urgently assess and carefully monitor the impact of the carbon floor price on industries that have been identified as vulnerable to carbon leakage under Phase 3 EU ETS, and create a mechanism that prevents the full costs of the carbon floor price being passed on to business customers, specifically where there is a known threat of carbon leakage. In addition, the Government should assess and carefully monitor the impact of EU wide benchmarking under Phase 3 EU ETS on UK industries vulnerable to carbon leakage, and provide resources to support these industries to invest in carbon reductions in the UK.

We urgently need a decarbonisation strategy that considers the decarbonisation of industry and manufacturing, rather than the current focus solely on the decarbonisation of power.

3.A2: If investors have greater certainty in the long-term price of carbon, would this increase investment in low-carbon electricity generation in the UK? If so, please explain why.

Yes, greater certainty in the long term price of carbon would contribute to increasing investment in low-carbon electricity and the wider low carbon economy. As noted in our response to question 3A1, we are aware that it will be a very important factor in investment decisions in the Tees Valley. It is critical to stabilise the carbon price at a level that provides both clarity and longevity to investors. However, increasing reliance on public policy increases risks, regulation and costs and therefore acts as a disincentive to invest in either low carbon or conventional projects.

There are a number of significant barriers that need to be simultaneously tackled, including supply chain and skills constraints, access to finance, energy storage constraints, and public acceptance and perception of the risks associated with renewable and low carbon technologies as well as changing consumption patterns.

In the Tees Valley, a number of projects have already gained planning consent or are in development as investment proposals. These known projects could contribute over 2,000 jobs, and £6 billion worth of capital investment in the low carbon sector in the medium term.

Examples of these projects include:

- £300 million Northern Gateway Container Terminal, with deep water jetties and import centres, will result in a net saving of up to 38.5 million tonnes of CO₂ through reduction in road traffic from Southern ports to the North of England. It will also allow low carbon industries to access European and worldwide markets;
- Collective investment of £1 billion on two combined heat and power (CHP) plants (Thor and Conoco Philips);

- A £120 million expansion of the Energy from Waste plant, including a CHP;
- Three new biomass power plants, one of which will be the UK's second largest – collectively they could employ 250 people, invest over £904 million and supply low carbon electricity to over 760,000 homes (MGT, Gaia, BEI);
- A £50 million autoclave facility generating high quality recyclate (Graphite Resources);
- A £80 million plant to recycle tyres, which came to the Tees Valley because of its *"workforce's experience in the petro-chemical industry, excellent infrastructure and the support, encouragement and hard work of Renew Tees Valley and One NorthEast"*, would be the UK's first full scale commercial used tyre plant of its kind (PYReco);
- Ineos Bio are constructing Europe's first waste to bioethanol plant at Seal Sands, helping to create 350 construction jobs and over 40 permanent skilled roles; and
- The Anaerobic Digestion Development Centre at the Centre for Process Innovation, and the spin off company Anaerobic Energy Ltd that offers clients in the agricultural and food manufacturing sectors a groundbreaking turnkey service of planning, developing and installing Anaerobic Digestion (AD) plants.

Low carbon projects in the Tees Valley alone could add £3.5 billion GVA to the UK economy over the next ten years, supply over 2200 MW of secure low carbon electricity to the national grid, almost doubling the amount of electricity currently installed in the North East, and create value from waste. While it is not clear what impact the carbon floor price will have on these projects, it is essential that the carbon floor price does not have unintended policy consequences for low carbon operations.

Energy from waste plants can make a significant contribution to renewable electricity where they generate heat as well as electrical power (e.g. CHP). They are currently exempt from the EU ETS and should also be exempt from paying the carbon price support levy where heat is used for district heating powered by energy from waste.

Generating plants using biomass fuel are also currently exempt from the EU ETS, including those that use fossil fuel for start up and shut down purposes. It would be an unintended policy consequence if biomass generation plants were not exempt from paying the levy on the renewable fraction of their fuel where sustainable sourcing and significant net greenhouse gas savings can be demonstrated using agreed industry protocols.

Biomethane produced by anaerobic digestion or gasification is a renewable fuel that can be used to achieve significant measurable emissions reductions. It is recognised as contributing to a low carbon and sustainable energy sector and Government is proposing to support it under the Renewable Heat Incentive (RHI). It is also classified as a non-fossil fuel source in Climate Change Levy (CCL) legislation so it is imperative that biogas - whether consumed on site, injected into the grid, or used for transport fuel - be exempted from the carbon floor price to avoid unintended consequences that are in direct conflict with achieving the UK's carbon reduction targets.

3.A4: In addition to carbon price support, is further reform of the electricity market necessary to decarbonise the power sector in the UK?

A lower carbon electricity supply will not reduce the indirect cost burden on energy intensive sectors who already operate to high efficiency standards. In the Tees Valley and nationally, the issue is not solely the need to decarbonise the power sector, and a decarbonisation strategy that considers different energy intensive industry sectors as well as the power sector is urgently required.

Companies may have the opportunity to develop private wire networks to stabilise the indirect costs associated with decarbonising electricity but this creates different costs and risks which could stifle economic growth.

In addition to responding separately to the consultation on electricity market reform, we would also request a reform of the market rules that disadvantage power generation in the North East. Paragraph 4.35 of the consultation document states that *"By 2012, interconnection capacity for the UK electricity market is expected to increase by around 1500MW, with new links to the Netherlands and Ireland. By 2020 it could increase by a further 4000MW. At the margin, carbon price support might increase incentives for imported electricity but they will remain relatively small compared with overall UK generation. Any potential future impact would need to be assessed within the wider context of differences in the electricity market across the EU."*

However, significantly higher transmission costs are borne by electricity producers in the North East due to transmission losses. Power stations in the North East have to compete against low cost European electricity supplied to the UK market as a result of low European demand, and cheap electricity produced at marginal cost from UK coal fired stations due for closure in 2013 because they cannot meet the CO₂ emission standards of the Large Combustion Plants Directive. These factors all discourage investment in electricity production in the North East. In 2009, areas such as Tees Valley had to pay an average national grid transmission charge of £9.85 per kw while plants located in Kent had to pay 25p per kw, this would mean that a 1000MW electricity plant would have to pay around £10 million per year to connect to the grid in Tees Valley, compared with nearly nothing in Kent²⁷. These discriminatory charging mechanisms may deter investment in renewable as well as fossil fuel based electricity in the future.

In order to ensure energy security and facilitate investment in new energy supply across the UK, the Government and energy regulators should provide a level playing field as the current system of grid transmission charges may deter investment in low carbon as well as fossil fuel electricity.

There is recognition within Government that the UK is competing with the rest of the world for investment by global companies in new electricity capacity and the development of the low carbon economy. The recent consultation paper on electricity market reform recognises that there is a major issue of security of supply for electricity generation unless the UK can attract foreign investment. Work on the potential of the offshore wind fabrication and construction industry shows that the Tees Valley is an excellent location for the industry. The problem is that high levels of capital expenditure are needed in the infrastructure to manufacture and construct wind farms and associated turbines. UK companies are therefore reluctant to invest without the surety of an order. However buyers are unwilling to commit themselves to orders in the UK without the necessary infrastructure in place to allow delivery of the project. Consequently the UK supply chain is underdeveloped and wind farm buyers go to German and Danish suppliers.

²⁷ Figures taken from Scottish Parliament Written Answers, 6 October 2009, Question S3W-27749

TVU does not believe that the reform of the electricity market by itself will attract electricity suppliers and wind farm manufacturers to the UK because our current financial offer for new investment compared with the rest of the world is poor. We consider the government should consider tax incentives such as 100% capital allowances or 50% reduction/exemption from corporation tax over 10 years for the developments. Given that renewable energy power stations have a long life of 40 – 60 years, tax incentives would help to ensure our financial offer was competitive with the rest of Europe and other worldwide competitors, result in the UK being more attractive to foreign investment, and give us a competitive advantage over our competitors while ensuring future tax returns would come to the UK.

One mechanism for implementing this policy would be an enterprise zone. In the Tees Valley we could create one enterprise zone for the North/South Tees area, our main industrial heartland. Within this zone tax incentives would only be available for new/replacement electricity power stations, renewable energy developments including wind farm fabrication, port developments and demonstration of novel technologies to decarbonise the existing petrochemical sector, building on the unique strengths that currently exist within the Tees Valley. This would earmark the area as a low carbon development cluster, in sectors for which the area is best suited.

4.C1: Do you agree that all types of electricity generators should be treated equally under the proposed changes? If not, please explain why.

With reference to our previous answer, we would welcome a more equal distribution of transmission charges to be applied throughout the UK to prevent discrimination against electricity production in the North East.

4.C2: Is there a case for providing additional or more preferential treatment for CHP? If so, what is the best way of achieving this?

Additional incentives, perhaps through the Renewable Heat Incentive are needed to discourage CHP plants from maximising electricity production to the detriment of efficient use of heat. In addition, where CHP plants provide heat e.g. through district heating systems, the proportion of fuel used to provide heat to consumers should not be liable for CCL duty to support a carbon floor price.

The energy intensive industries in Tees Valley have made extensive use of CHP to maximise their energy efficiency. However the proposal to remove the differential treatment for CHP schemes will have the effect of making electrical import with on purpose steam generation a cheaper option, with a penalty of some 10% on actual efficiency. CHP power should receive preferential treatment to meet previous government targets. A failure to secure additional savings from CHP plant will require additional savings to be sought from other, higher cost, CO₂ abatement options which will create additional pressures on vulnerable industries in the Tees Valley and risk carbon leakage.

4.C3: Do you agree that tax relief should be considered for power stations with CCS? If so, what are the practical issues in designing a relief; what operational standards should a CCS plant meet in order to be eligible; and how might these issues differ for demonstration projects?

Tax relief should be considered as CCS is commercially untested so tax incentives may de-risk private sector investment in CCS generally once it has been proven at demonstration stages. The demonstration projects need special consideration or exemption from the

carbon floor price due to the high risk associated with these investments and the need to demonstrate this technology so that it can contribute to decarbonising energy supply in the UK and globally.

However, there are wider issues associated with the decarbonisation of industry and the cost and risk associated with this. CCS in Tees Valley is not only seen as a method to deliver low carbon power, it is important to decarbonise our energy intensive industries, and subsequently the products we all use every day. The Government must develop a wider strategy to decarbonise industry, of which CCS should be a component.

4.E1: How should the carbon price support rates be set in order to increase certainty for investors, in particular over the medium and long term?

Given the investment lead times in the energy intensive sector the greatest possible certainty in forward prices would be desirable. The possibility that future changes to the mechanism can be made significantly increases investment risks and creates uncertainty. Of the options quoted as examples the annual adjustment options are likely to be less conducive to investment although all suffer from the uncertainty of the EU allowances value and hence the actual level of tax.

Tees Valley support the objective of moving to a low carbon baseload generation mix, but too complex a set of measures is being proposed. There is an urgent need for DECC and BIS to analyse the impact of these measures specifically on the energy costs of the UK's profitable and export orientated energy intensive industries. Globally, the EU already has the highest energy costs and these proposals would push the UK's even higher which is not a sustainable environment for energy intensive industries

4.E2: Which mechanism (outlined above), or alternative approach, would you most support and why?

The main concern is the complexity of measures being proposed. Increasing reliance on future Government interventions, especially where these are complex, increases risks, regulation and costs and therefore acts as a disincentive to invest in either low carbon or conventional projects.

4.F1: Should the Government target a certain carbon price a) for 2020 and b) for 2030? If so, at what level?

See response to 3A1 and 3A4.

4.F2: What is the most appropriate carbon price for the UK to meet its emissions reduction targets in the power generation sector? How would this be affected by changes in the structure of the electricity market?

See response to 3A1 and 3A4.

4.F3: When would be the most appropriate time for introducing a carbon price support mechanism and what would be the most appropriate level?

See response to 3A1 and 3A4.

5.C2: What would be the implications of supporting the carbon price for existing electricity generators and how should the Government take this into account?

See response to 3A1 and 3A4.

5.D6: Do you have any comments on the assessment of equality and other impacts in the evidence base of the Impact Assessment, included at Annex D?

Table 7 in the impact assessment shows the regional impacts of increasing electricity prices on households, but there is no regional assessment of indirect business impacts (as a result of passing on the costs of the carbon floor price).

Table 3: Data taken from the Location Metrics to Assess Applications for the Regional Growth Fund

Local Authority Area	Proportion of resident population aged 16-64 claiming out of work benefits April-June 2010	Public sector employee job share 2008	Private sector employee job growth 2003-2008
Darlington	15.0	22.8	4.3
Hartlepool	21.4	27.9	-13.2
Middlesbrough	20.9	32.7	1.5
Redcar and Cleveland	17.7	20.9	-10.5
Stockton-on-Tees	14.7	21.0	-2.0

Given the dependence of the Tees Valley economy on a few large industrial employers and the public sector, we would request the government urgently assess and develop mechanisms to minimise disproportionate sub-national impacts associated with regulation

such as the carbon floor price and EU ETS Phase 3 on the Tees Valley economy²⁸ and thus allow the Tees Valley to contribute to low carbon economic growth.

Based on our initial assessment that assumes electricity is generated from gas, and full costs are passed on, the carbon floor price will cost energy intensive industries in the Tees Valley at least £2.7 million annually, in addition to the increasing costs they face as a result of the EU ETS.

Paragraph 82 of the impact assessment mentions a joint project between BIS and DECC looking at the cumulative impact of energy and climate change policies on energy intensive industries in the UK. The research will be used to advise Ministers on how to decarbonise the economy while maintaining the competitiveness of these industries. This must be completed urgently in consultation with companies vulnerable to carbon leakage, and TVU is willing to assist this in any way it can.

²⁸ <http://www.info4local.gov.uk/documents/publications/1812897>

Formal Response by The EIC

to the

**Department of Energy and Climate Change
(DECC)**

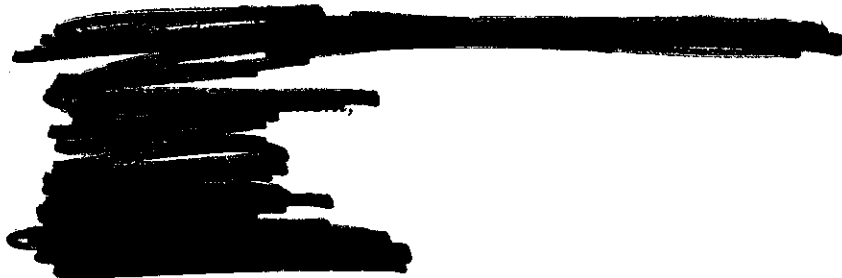
Proposals for Electricity Market Reform



March 2011

The EIC is the leading trade association for UK companies supplying goods and services to the energy industries worldwide. Established in 1943, the EIC has over 600 Member companies and provides them with the capability to understand, identify and pursue global business opportunities. The EIC membership comprises contractors and suppliers from all areas of the energy sector who make a significant contribution to the UK economy, employing in aggregate around one million personnel and generating £100 billion in revenues from their UK operations. The EIC's head office is in London with regional offices in Billingham and Aberdeen, and overseas offices in Rio de Janeiro, Houston, Singapore, Dubai and Beijing.

This is a formal response to the DECC proposals for Electricity Market Reform in the UK. The views and opinions have been collated through various meetings, forums and other avenues hosted by The EIC during 2011.



Response to DECC Electricity Market Reform (EMR)

1. The UK supply chain has mixed opinions on many aspects of Electricity Market Reform. The supply chain must establish a credible track record in the home market and then build on this success to deliver contract revenues in the export market. A successful low carbon framework should undoubtedly provide massive potential opportunities for the UK economy, however moving towards this objective whilst maintaining the fullest potential for the supply chain needs considerably more planning and attention to detail.
2. Government has made numerous references to the UK economy benefitting in jobs and supply chain revenue through the decarbonisation of the wider energy sector. Supply chain and workforce skills requirements are not mentioned in the EMR proposal document.
3. The UK supply chain is concerned that the timetable for implementing codes and license arrangements through secondary legislation may not be fully effective until 2014. This only accentuates uncertainty for investment and delays the supply chain in gearing towards opportunities. It is critical that solid foundations are put in place in the Spring White Paper 2011 that inspires confidence to the UK power industry investment houses.

4. The EMR considers four main proposals. It is uncertain how interactions between these instruments and existing mechanisms will manifest. The complexity of the electricity market is already burdensome and further difficulties would not invigorate investment. A smooth transition towards EMR is critical.
5. The introduction of a carbon floor price through the Climate Change Levy (CCL) will provide a higher more sustainable price for carbon although the uncertainty of future carbon pricing through EU ETS remains an issue for securing long term investment. Fast response balancing plant will become much more important as the renewables installed capacity increases. An Emissions Performance Standard (EPS) applied to gas fired combined cycle plants could reduce investor attractiveness in building the preferred choice for such flexible plant.
6. There is a perceived risk in the UK supply chain that political interference from successive governments may damage the continuation towards a low (and ultimately a zero) carbon power generation sector. The Contracts for Differences (CfD) approach certainly strengthens investment decisions. However carbon pricing and other support measures, including taxation have greater subjectivity to change from different governments. It is hoped and strongly encouraged that government will engage all political parties, stakeholders and allied organisations for ongoing opinion to reach a balanced consensus. This will ensure that the national interest is upheld and that political risk is minimized.
7. It is essential that UK government supports and encourages younger people to consider the energy and low carbon sectors as a secure and rewarding profession. Ensuring due recognition of “Engineering” as a profession still receives lip service in too many circles. Geographically the UK is well positioned to take maximum advantages in carbon storage. Low carbon technologies can make an enormous benefit to the UK economy and position the UK as a leading proponent in the designs of sustainable solutions. Building and stimulating a skilled workforce to deliver these ambitions must not be given scant consideration.
8. There remains a growing concern in the light of recent offshore wind projects that the UK is not able to provide a credible level of manpower or realize high proportions of capital project expenditure, even within its homeland territory. Although the supply chain is encouraged by the prospects of massive inward investment into the low carbon sector in the UK, this is not necessarily seen as a robust long term market opportunity for home based talents. A strategy to benefit from the UK project experience and grow real UK skills off the back of major overseas OEM suppliers and EPC contractors is essential in promoting UK expertise in the global market.
9. The supply chain for new build nuclear projects in the UK is positioning itself competitively and undergoing prequalification exercises with relevant developers and contractors. Ironically, the EMR proposals will support more favourably, existing nuclear plants through the carbon floor pricing but do not necessarily strengthen the argument for investment in new build projects. Supply chain expectations are very high

and government must recognize the emphasis that many lower tier specialist and niche companies are placing in this opportunity.

10. The UK supply chain has judged the DECC led CCS Demonstration programme harshly. The competition was considered to be poorly conceived, not fully comprehend the technology market and not include a well-planned implementation or market export strategy. Although the scheme has been somewhat rescued over the last twelve months the supply chain remains broadly sceptical that it [the scheme] will launch the UK to global success in this sector.
11. Many UK SME companies in the wider energy sector rely heavily on the home market. Ownership of the UK power generation industry is largely in foreign control and new build UK projects have to compete with projects overseas for investment funding. The UK supply chain is concerned that if such operators and developers consider the EMR proposals to reduce the attractiveness of investment or create an onerous business environment then UK based projects may be delayed, or not proceed.