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Introduction to session and welcome to speakers and delegates.

Global electricity consumption is forecast to double by 2030 and treble by 2050. In 2050 the IEA is forecasting that 70% of all electricity generation will be from fossil fuels, with the majority of generation (50% out of the 70%) coming from coal and gas fired plants.

The investment requirement up to 2030 will total some Euro12trillion, as 5,000GWe of new generation capacity is required to satisfy demand, a large proportion of which will come from China and India. Presently the USA is the largest user of fossil fuels for electricity generation. In terms of coal-fired generation the US is also the largest coal consumer, although China is the largest overall consumer of coal worldwide if other industrial sectors are taken into account.

Coal is the fuel source with the most significant overall potential for reducing emissions, due to its widespread availability and usage for electricity generation.

According to World Coal Institution 2007 Stats, coal provides 25% of global primary energy needs and generates 40% of the world's electricity. Coal reserves are available in almost every country worldwide, with recoverable reserves in around 70 countries (the biggest reserves are in the USA, Russia, China and India). At current production levels, proven coal reserves are estimated to last almost 150 years. (NB: proven reserves mean the reserves that are not only considered to be recoverable but can also be recovered economically). In contrast, at current production levels proven oil reserves are equivalent to around 36-44 years, and gas reserves to 66 years, and over 68% of oil and 67% of gas reserves are concentrated in the Middle East and Russia.

A key factor is coal's relative affordability and lack of price volatility. Coal has consistently outperformed oil and gas on an equivalent-energy basis, and coal is likely to remain the most affordable fuel for power generation in many developing and industrialised countries for several decades. In recent weeks, oil prices have risen to

above US\$ 90/bbl and gas prices are spiking to new highs, whereas coal prices have remained stable.

On a global basis, 1400GWe of new coal-based power capacity is projected up to 2030 according to IEA Clean Coal Centre. Emissions from coal-based electricity generation are likely to account for >50% of the 17.7Gt CO₂ emitted from the power sector in 2030 – an amount equivalent to the total world CO₂ emissions from all coal usage today.

Therefore, we have the need for, and likely potential to achieve, GHG reductions by means of an accelerated transition to the deployment of CCTs. However, public awareness and support of CCTs is limited in many parts of the world, and this acts as one of several barriers to the implementation and deployment of CCTs.

The outcomes (in terms of efficiency impact) and costs associated with full-scale CO₂ abatement, capture and storage on IGCCs and ultra supercritical coal plants remain uncertain, though are clearly significant (for example adding CCS to a new build IGCC project is estimated to increase the capital cost by circa 45%).

The technologies that are being developed are highly complex and likely to require a period of 15-20 years to roll out fully, but in order for this to happen there has to be the right incentives in place for investment in this type of technology. There are many tried and tested methods of promoting and incentivising investment, from accelerated depreciation allowances and tax credits, to soft loans, subsidies and grants. The investment requirements, as I have alluded to, are enormous and the payback periods are long (25 years plus). Volatility and uncertainty of support mechanisms available at present, such as carbon trading, are insufficient for industry to have the confidence to invest in these technologies.

Before we move to the presentations from our speakers today I should like to read a quote to you from the conclusions of an article in Energy Policy magazine (written by two economists) examining the incentives for clean coal technology deployment:

“...analysis suggests that widespread deployment of clean coal technologies is not likely to be forthcoming over the next two decades....Numerous bureaucratic hurdles and commercialisation viability questions, as well as uncertainties over specific implementation of the new environmental regulations, will slow the adoption of CCTs. Moreover, electric utility industry attitudes towards risk and the utility regulation environment are problematic in the link between demonstration and deployment. Economic incentives are one way of overcoming these problems...(but one needs to note that a) ...position against market interference has resulted in ...putting all of their eggs in the R&D and demonstration strategy baskets. If policies to actually level the playing field are not enacted, or if it is determined that this is an unattainable goal, deployment subsidies should be examined as a realistic alternative.”

Many of you in the room, including myself, I am sure can identify with the sentiment expressed in this quote, and the obstacles that we all face in promoting cleaner electricity production from fossil fuels such as coal. What may surprise you, however, is that this article was written nearly 15 years ago in 1993. There have been enormous changes since then in the relative costs of thermal generation fuels, demand characteristics, and global recognition of the environmental impact of emissions. Yet what the authors were forecasting then could well apply to the next 2 decades if drastic action is not taken to support and facilitate investments – it is all very well to “let the market decide”, but long term investments need stability and predictability and if the market doesn’t deliver this, then changes will not occur.