

**Launch of the Global CCS Institute**  
**15 April 2009, Canberra**  
**by**  
**Ambassador Richard Jones**  
**Deputy Executive Director, International Energy Agency**

**Slide 1**

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**Slide 2**

The presentation is in five parts – followed by some conclusions

1. The first part describes the role of the IEA. This will be familiar to most of you present, but perhaps not all.
2. Then it looks at what we have done on carbon dioxide capture and storage in recent years. It covers CCS-related activities and analysis we have undertaken at the IEA.
3. Thirdly, it describes the mandate we have from the G8 to develop recommendations, including proposals to progress CCS. I will draw your attention to collaboration we have had with the CSLF.
4. Then it will describe some of the IEA's present work on CCS, areas where we are or anticipate collaborating with both the CSLF and the GCCSI.
5. Finally, it pulls some of these messages together and illustrates just how important it will be for the development of CCS and its future widespread deployment that the major international organisations all pull in the same direction.

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The International Energy Agency acts as energy policy advisor to 28 member countries. Founded during the oil crisis of 1973-74, the IEA's initial role was to co-ordinate measures in times of oil supply emergencies. As energy markets have changed, so has the IEA.

Current work focuses on climate change policies, market reform, energy technology collaboration and outreach to the rest of the world, especially major consumers and producers of energy like China, India, Russia and the OPEC countries.

#### **Slide 4**

Two flagship publications of the IEA are its *World Energy Outlook* and *Energy Technology Perspectives*. In recent editions, both these have included CCS in their analysis. Results from both illustrate just how important CCS is if we have ambitions to mitigate CO<sub>2</sub> emissions sufficiently to avoid the increases in temperature that would lead to irreversible change to the natural environment.

Under our ‘business as usual’ scenario, we estimate that, by 2050, CO<sub>2</sub> emissions would rise by 130%. This is unsustainable, which is why, in ETP2008, we state that renewable energy, nuclear power **and CCS** must be deployed on a massive scale.

#### **Slide 5**

Without additional policies, the IEA projects that CO<sub>2</sub> emissions will more than double from their current levels of around 28 Gigatonnes to reach 62 Gigatonnes in 2050. As I have just said, this is unsustainable, not only from a climate change perspective, but also from a security of supply perspective – oil demand would increase dramatically - 25% increase by 2030 in latest WEO.

However, this undesirable future is far from inevitable. In our recent *Energy Technology Perspectives* publication we have looked at how we could **halve** global emissions of CO<sub>2</sub> from energy use **over the next four decades**. It is a picture of an energy revolution, a more rapid change in the world’s energy system than has ever been seen.

This revolution will require a host of new technologies, but they can be grouped into four main categories.

***Improved energy efficiency*** – the biggest share of emissions reduction comes from an increase in energy efficiency.

***Increased deployment of renewable energy*** - the second biggest share is a massive further increase of renewable energy, which leads to 21 % of the overall reduction.

***Widespread introduction of CCS.*** –the third largest share of emissions reductions comes from the rapid and widespread introduction of CCS, both in power generation and industry. Together this will lead to another 19 % share in the reduction, **almost one-fifth**. Due in part to the long life of boilers and power generating equipment it will not be practicable to completely phase out fossil fuel use for power generation and heavy industry over the next 50 years. Therefore, CCS (**both retrofitted to existing facilities and incorporated as part of new plants**) will be vitally important to reduce CO<sub>2</sub> emissions. The IEA is calling for twenty large-scale demonstration plants to be operational by 2020.

The fourth contribution would come from ***continued fuel switching*** - An increase in the share of nuclear, but also extensive fuel switching in industry from coal to low carbon fuels, such as natural gas.

Just because the energy system has never changed so fast before doesn't mean it's impossible. Far from it. We know that breakthrough technologies are needed, **and CCS is just such a breakthrough technology**. But it won't happen without a great deal of effort.

### **Slide 6**

Here is the roadmap for CCS that we published in Energy Technology Perspectives 2008. Of course, the CCS Roadmap we are developing now, the one we were requested to prepare by the G8 Leaders, will be much more detailed.

However, let's look at this ETP2008 roadmap. Some of the detail might be hard to read, but the pie charts show the CO<sub>2</sub> savings in 2050 broken down by region for two different scenarios. The table below shows RDD&D and commercialisation costs. We then have some of the key technology targets that will need to be met. Moving to the left hand side, the colourful chart shows an overview of the timeline for technology demonstration, deployment and commercialisation and below this are listed the key actions that could bring this about and the areas that are particularly important in terms of international cooperation.

### **Slide 7**

Here are some of the Agency's publications on CCS. Our most recent book, published late last year, is entitled '*CO<sub>2</sub> Capture and Storage: A Key Carbon Abatement Option*'. Many of you present will be familiar with it. Indeed, it has become one of our best-selling publications.

### **Slide 8**

In 2005, G8 leaders invited the IEA to their Summit in Gleneagles, Scotland. In their resulting Plan of Action, the G8 asked the Agency to develop concrete recommendations to achieve a "clean, clever and competitive energy future".

Since then, the IEA has participated in the annual G8 meetings, submitting reports and findings from its three years of work for the G8. The IEA G8 programme has identified new strategies for greater energy security and climate protection. The Agency points to policies for speeding development and deployment of cleaner, more efficient energy technologies.

More specifically, the IEA has identified CCS as a technology that warrants particular attention, a technology that can make a major contribution to CO<sub>2</sub> emissions. Even though, as yet, it is unproven at commercial scale. The G8 have bought into this.

### **Slide 9**

These were the reports the Agency submitted to the G8 Summit in Hokkaido, Japan, in 2008. We reported that reducing CO<sub>2</sub> from power generation was critical. We stated that the deployment of CCS was vital - and not least because coal is the least costly and most accessible fuel for some of the most dynamic developing countries.

We recommended that at least 20 fully integrated industrial-scale demonstration projects be committed by 2010, with the goal of broad deployment by 2020. And we suggested that any developer of a new coal power plant should consider now what might be required to retrofit CCS.

### **Slide 10**

In the run-up to the Summit in Hokkaido, between August 2006 and November 2007, the IEA and the CSLF held three workshops. The first was held in San Francisco, the second in Oslo and the final workshop in Calgary in November 2007.

With the objective of identifying near-term opportunities for CCS, **27 detailed recommendations resulted**

Subsequently endorsed by the G8 in Hokkaido, these recommendations are being followed up by IEA and CSLF. And the Global Institute has now joined us in this pursuit.

The Agency is mandated to report back on progress in Italy later this year, and finally to the G8 in Canada in 2010.

### **Slide 11**

In fact, here is the text of the joint statement by the G8 Ministers. They clearly recognised the critical role that CCS must play. That large-scale demonstration is essential for the technology to progress at the rate needed to achieve the CO<sub>2</sub> emissions reduction goals we require.

The G8 Leaders proposed that the IEA and the CSLF work together to discharge some of their recommendations ..... and that is just what we are doing.

### **Slide 12**

Before I conclude, I must draw your attention to some of our ongoing CCS activities.

First and foremost, we ensure that we communicate clearly and regularly both within the IEA and outside. Within the IEA, we have a number of committees and working groups.

The Working Party on Fossil Fuels is a policy -focused forum that looks at barriers to deployment of cleaner fossil fuels and actions that can be taken to overcome these barriers. It coordinated the work jointly conducted by the IEA and CSLF on recommendations on CCS for the G8 Summit in Hokkaido, and it initiated the Agency's work on regulatory issues.

The Working Party's work is overseen by the Committee on Energy Research and Technology - CERT, which liaises regularly with the Agency's Standing Group on Long-Term Co-operation, the SLT.

Then there are the various Implementing Agreements that undertake a range of excellent work on removing barriers to the use of fossil fuels. Foremost among these are the two cost-shared implementing agreements, the Clean Coal Centre and the Greenhouse Gas Programme.

Together with the CSLF, we are addressing the 20 large-scale demonstration projects, developing the criteria for eligibility for qualification. In fact, we are organising an event in Bergen on the 27<sup>th</sup> May. In Bergen, the CSLF, the GCCSI and the IEA – via our Working Group on Fossil Fuels – will undertake a peer review of the qualification criteria. [Note that this review will be a side-event to the High-Level Conference on CCS that is taking place in Bergen on 27 and 28 May.]

Many of you will already be aware of our work to develop a CCS Roadmap as no doubt we will have co-opted your help in one way or another. Likewise, I would be surprised if many of you or your colleagues have not taken part in one or more of our “Regulators” ‘webinars’.

I have already spoken a little about the analytical work we undertake.

And our work on international collaboration and outreach is an area that we take very seriously. If we are to achieve this energy revolution, meet the challenging goals we set ourselves, successful and constructive outreach to our non-Member countries – countries such as China, India, Russia, and others - is absolutely essential.

### **Slide 13**

And in the future, we plan to put even greater emphasis on CCS. We **will** be rising to the challenges that remain.

There are a number of areas where we believe that the special set of skills and abilities that we have at the IEA can make a difference. Some of them are listed here.

- Developing a CO<sub>2</sub> storage atlas ..... lots of good work done but much more to be done.
- Capture readiness? Simple in concept, but what does it really mean for stakeholders? Together with the CSLF and the GCCSI, we hope to provide some answers.

- We plan to draw upon a myriad of existing experiences in a number of countries to develop a model legal framework. Making this model framework widely available would be a boon to many.
- We are actively engaging with developing countries. In fact, only last week, we held a CCS round table in Beijing. Representatives from India, South Africa and now China are attending meetings of the Agency's Working Party on Fossil Fuels.
- We are also looking very closely at the potential for creating a CCS Centre of Excellence in a developing country – and China to us seems probably the right place to start.

But we are big enough to admit, we can't do all of these things alone. We are realists, and we know that for CCS to be deployed at the scale required – it will take the combined efforts of the IEA, the CSLF, the Global Institute and many, many others. But there is a lot the three organisations represented on this podium can do.

#### **Slide 14**

Now I would like to close with a few observations.

- The development and implementation of CCS is widely recognised as essential. That is certainly our view and, clearly, a view shared by you as well.
- Next, CCS is unproven. No integrated CCS plant exists at commercial scale using coal anywhere in the world.
- We know there are a number of challenges ahead. We must pool our resources and rise to these.
- That means we need international co-operation and collaboration. Large-scale implementation is not going to happen otherwise. That is the reality.
- There is a high degree of interest. We have support at the very highest levels of government. We have a mandate from the G8 to progress our work on CCS. We need to make this work for us.
- And finally, I can say most emphatically that the IEA very interested in continuing to work with the CSLF and looks forward to working with the GCCSI.

#### **Slide 15**

Thank you for your attention.