

## **Relation from CCS Roundtable in Warsaw**

18 June 2009

### **1. Introduction**

**Henryk Majchrzak, Director, Energy Department, Ministry of Economy**

Current Polish government strategy is very much focused on energy security. In this context transformation of coal into liquid fuels and gas is essential. The government supports clean coal technologies. We have a couple of CCS installations around the world. CCS is very future oriented and perspective. Poland would like to use this huge opportunity. Although CCS constitutes a huge chance for Polish economy, the fact that commercial scale deployment of this technology is at the beginning, we are not convince how exactly we should deal with this challenge.

**Henryk Jacek Jezierski, Undersecretary of State and Poland's Chief Geologist**

A key to assess Poland's ability to store CO<sub>2</sub> is to execute a testing bore with a possibility to press CO<sub>2</sub> into deep water-bearing stratus. PGE is going to invest in this experiment. Its results will enable us to assess possibilities, barriers and threats connected with an exploitation of geological environment as a place to store CO<sub>2</sub> and it will be a base for further organisational activities carried out by the government. Without this experiment everyone will be asking about our experience. The government actions are still based on the document accepted last year („Działania Ministerstwa Środowiska w celu rozpoznania struktur geologicznych dla podziemnego składowania dwutlenku węgla”). There is not enough knowledge about CCS, therefore we need to test the technology first, before investing in it.

*Comment by Jacek Piekacz, EU Affairs Director in Vattenfall and President of Clean Coal Technologies Platform: Minister Jezierski's position is not only against Polish interest, but also inconsistent with the EU CCS Directive, according to which Poland will need to implement EU legislation and make decisions before we get the results of this experiment.*

### **2. Presentations**

**Tom Kerr, IEA**

CCS is a real challenge. We are aware of the fact that it is very expensive. We need regulatory framework for that, as well as public acceptance. G8 asked IEA to develop a roadmap for CCS. We are trying to assume how many CO<sub>2</sub> emissions reduction will go from deployment of full scale CCS power plants. We need to stress that IEA is not a CCS promotion agency.

In a global scale, most of the emissions will come from non-OECD countries – mostly from China and India and mostly from coal – we need to address this challenge. Technology for

GHG emissions reduction is required – CCS is 1/5 of all the technologies available (IEA enumerates 17 technologies that could help us to achieve GHG emissions reduction).

CCS challenges:

- Financing large-scale, integrated demonstration project (we need to integrate CCS in emissions' allowance mechanisms and in economic stimulus packages)
- CCS is not allowed as a CDM – Clean Development Mechanism – IEA is trying to change that
- Public acceptance – there are a lot of questions
- IEA is working with GCCSI and CSLF

What is more, CO<sub>2</sub> storage site selection criteria should be developed internationally. There are a few countries around the world that set a good example:

- Australia – the most comprehensive legislation – good model for other countries
- Canada – federal/provincial legislation split
- Europe – CCS Directive contains framework for CO<sub>2</sub> storage – there is a need of more to be done on national level
- UK – banned new power plants without CCS

### **Keith Burnard, IEA**

There is a lot to be done with existing power plants. It is possible to reduce 1.35 - 1.7 billion tonnes per annum if we use in all existing power plants best practices – I know this is not realistic, but this shows possibility we have. CCS is going to provide great deal of GHG emissions reduction (1/5). Other elements will be inter alia: energy efficiency, renewables, nuclear. As for the transport, it would be perfect if CO<sub>2</sub> could be stored directly under the power plant, but it is not likely, therefore we need to think about transportation. There are numerous initiatives connected with CCS around the world:

- GCCSI - billion Australian dollars to support 5 large scale projects globally
- Netherlands – very progressive
- Norway – Sleipner, Snøhvit, Mongstad (European technology center to study capturing)
- UK – CCS competition, post-combustion, 1 of 3 projects to be selected (>300 MWe), potentially – 2 to 4 large scale demonstration projects in the UK

### **KĘDZIERZYN PROJECT**

Project of Zakłady Azotowe Kędzierzyn and Południowy Koncern Energetyczny in Katowice

#### **Janusz Tchórz, Kędzierzyn-Koźle Power Station**

Opole Province very well shows the situation in Poland – it produces 10 mln tones of coal. The problem with CCS is that if we want the project to be profitable we should increase energy process by 100%.

Pre-project documentation will amount to 4-5% of the project value - approx. 200 mln PLN (whole project 5 mld PLN). Kędzierzyn is very determined to fulfill all the requirements but it

requires government's guarantees for the project. It is promising that the Czech Republic and Slovakia declared intention to be involved in the implementation of the project. According to our estimations Kędzierzyn Project would store, in 6 months period, more CO<sub>2</sub> than the whole Norway so far. Our destination is to build in Kędzierzyn-Koźle zero-emission power plant.

#### **Eugeniusz Sutor, Zakłady Azotowe Kędzierzyn**

Our objective is to use in Kędzierzyn-Koźle not only coal, but also biomass. It is one of our goals to produce from coal a substitutes of gas products.

#### **BEŁCHATÓW PROJECT**

Polish Energy Company (PGE) and Fortum (Tauron Group)

#### **Krzysztof Domagała, President of the Board, PGE Bełchatów Power Plant**

The European Commission gave us time to 15 July to present a plan how we are going to use the financial support from the recovery package (180 mln EUR). Our estimations show that implementation of CCS in Bełchatów will cause CO<sub>2</sub> emissions reduction by 2 ln per annum.

Storage: In the first place investors will have to check possibilities of storage and this phase of the project has been accelerated. They have identified two areas – the structure of Budziszewice and the structure of Lutomiersk. There is also reserve structure in the Łódź region.

#### **Elżbieta Wróblewska, Ministry of Economy**

To increase its energy security, Poland is planning to limit its import of gas and optimize a use of its own sources. Poland doesn't have much potential for renewable energy – not much water, unstable wind – therefore (according to the Polish Energy Strategy) the government counts on the nuclear energy as a big systemic source. As for the CCS, Polish administration faces a lot of obstacles - organizational, financial, public awareness barrier – but its minimum goal is 2 CCS demo plants. Additionally, CCS is not the only one clean coal technology – we are searching for the possibilities to use captured CO<sub>2</sub>, not only to store it.

#### **Andrzej Przybycin, Deputy Director, Department of Geology and Geological Concessions, Ministry of the Environment**

Poland has a large part of the basin with the possibility of geological storage of CO<sub>2</sub>. The most important thing at the moment is to build public awareness, because without it we will not be able to use the possibility we have. Realisation of testing bore will be crucial to show how the demo plants will function. We have a huge experience in Borzęcin, where store gas from 1997, but it is not enough. It is very likely that we will have to introduce mining fare, when implementing CCS, because 60% of this fare will go to local administration, therefore this could be that only way to interest local authorities with CCS.

### **3. Roundtable discussion – summary**

#### **Communication aspects**

To build a good PR around CCS is very complicated – both Bełchatów and Kędzierzyn agree that communication in the CCS campaign has to be very professional. PKE is preparing a special brochure on the subject and is informing public opinion in the media. Both PKE and PGE have their representative in Brussels, who monitors developments in various EU institutions. PKPP Lewiatan (association of private employers), together with the British Embassy in Warsaw, published a short and very clear brochure with an explanation what CCS is. It will be distributed to the wider public. The industry wants the government to be more clear about the CCS and support it unequivocally. Without this support, the industry will not be able to achieve the desired results.

#### **Financing**

The Polish demo plants will need to precisely plan their financing. The assumption is that the European Commission will cover 50% of the costs connected with the CCS demo installations. In this context Kędzierzyn will most probably need to separate costs associated with gasification and CCS. The other 50% is to be covered by investors – with or without government's support. What is more, each power station with CCS will have to present the financing plan for 5 years (for Recovery Plan) and for 10 years (for New Entrance Reserve).

One of the problems that will need to be addressed is an obligation for investors to monitor CO<sub>2</sub> deposits for 20 years after storage and for the government for additional 30 years (50 years in total). This will require additional resources. Experts suggest there should be a special (governmental) body, which could monitor the deposits for all Polish power plants with CCS for the whole period required.

One of the most active initiatives focused on clean coal in Poland is Clean Coal Technologies Platform, where three teams – team for legal affairs, technical team and team for external communication – work on CCS road map for Poland (especially for Polish government but also industry) – the map is to be finalized in Autumn 2009. The team for external communication is to address the issue of public acceptance. According to their previous studies, 58% of the Poles “fear effects of climate change” – this means there is space for more public understanding of all actions against this phenomenon – including clean coal technologies – but there needs to be more pressure on information sharing with the public.

#### **Private sector expectations**

Both, Kędzierzyn-Koźle and Bełchatów project expects more support from the government. Without the government engagement it will be impossible for Bełchatów to use all the money they get for the EU recovery package (they have time only to 2010). What is more, without the government support Bełchatów and Kędzierzyn-Koźle could have huge problems when negotiating with the Commission. They expect that a part of the sources from the Emissions Trading System will be spent on CCS. PGE and PKE representatives count mainly on the support of Ministry of Economy and Ministry of the Environment. The best solution

would be to establish a new governmental body, which would coordinate work on CCS technology implementation in Poland. As for now, three Ministries are responsible for coordination of the process – the Ministry of Economy, the Ministry of the Environment and partly the Office of the Committee for European Integration (Europe Ministry) – and this leads to a number of misunderstandings in the communication process.

### **International cooperation**

Jacek Skiba from Central Mining Institute (Katowice) has send a special letter to Deputy Prime Minister and Minister of Economy – Waldemar Pawlak – with a request to join the Global CCS Institute. The Central Mining Institute is engaged in HUGE and is already collaborating with National Energy Technology Laboratories (USA). Centre for Clean Coal Technologies is being created in Silesia province of Poland, Ministry of Economy is monitoring this process. PGE collaborates with Tauron Group, RWE Stoen and Alstom – they ceated a special project team which is going to focus on CCS implementation in Poland. Both ZAK and PKE underlines, that they do not exist without cooperation with international companies.

Additionally, the Polish government signed a Memorandum of Understanding with the Italian Government on energy policy (including CCS).