

Warsaw, May 10th, 2013

Response of the Polish Electricity Association to the EC Communication – on the Future of Carbon Capture and Storage in Europe

With regard to the recently published EC Communication – *on the Future of Carbon Capture and Storage in Europe* – the Polish Electricity Association (PKEE) would like to underline the following:

General comments:

PKEE welcomes the initiative of the Commission to adequately analyze the current status of the CCS demonstration program and the reasons for its delay. At the same time, PKEE agrees with key barriers to widespread development of CCS in the European Union identified in the document, though we do not share the same opinion with regard to some of the remedies. Proposed solutions should be in principle proportionate to the level of CCS advancement particularly in terms of safety, costs, public acceptance and should not be more costly than potential benefits resulting from development of this technology. We believe that the future development of CCS in Europe should be driven by the following five principles:

1. **First bet on small projects in all needed technologies and sectors.** At this level of development of Carbon Capture and Storage, we need more smaller scale full chain pilot projects to test the efficiency and safety of different capture technologies as well as storage methods. Once the technology is proven safe and effective on smaller scale projects, we should continue with commercial scale installations while looking for ways to bring costs and efficiency losses down. It is important to remember that in the context of decarbonisation ambitions, the problem of emissions is far more broader than coal-fired power plants. The EU will also have to figure out a way to make gas-fired generation and industrial installations carbon-neutral as well. In this respect, we need more gas-fired and industrial pilot projects to be pursued, though today they are much more expensive than CCS installed in coal-fired power plants.
2. **Funding needs to come primarily from the EU budget.** Pilot projects should be funded primarily through EU funds, particularly in these times of economic austerity at national levels. The development of CCS is crucial for reaching the EU's 2050 emissions reductions targets cost-effectively. The success or failure of this technology will to a large extent determine the ability of Europe to reach its long-term climate targets. Therefore actions in this regard need to be pan-European, e.g. through the Strategic Energy Technology Plan and more initiatives like the EEPR and NER 300. The recent EC Communication on Energy Technologies and Innovation is a good step forward. The European Commission should focus more on providing

sufficient co-financing for pilot projects as well as support for public informational campaigns. This would help to gain public support for CCS at the time of its noticeable shortage throughout Europe.

3. **Don't force CCS – the technology is not ready.** Some regulatory solutions being currently considered by the Commission are not in line with the current stage of CCS development. Particularly, **proposals to introduce Emissions Performance Standards (EPS) and/or CCS certificate schemes suggest that this technology is commercialized and the investor has a real choice of implementing it or not, while it is clearly not the case.** In reality there is no choice and the EPS concept seems in fact to aim at **eliminating the possibility of building new coal-fired power units in the European Union, or forcing the operator of an existing plant where modernization is considered to close down earlier instead.** Being frequently indicated, the US regulations' example sets a benchmark of 500g CO₂/kWh, which is unattainable even for state-of-the-art coal-fired units. This notion clearly goes against the right of Member States to choose their own fuel mix stated in the Lisbon Treaty, as well as the principle to use all power generation technologies in the EU.

In the case of CCS certificates, it could be argued that this proposal introduces a double penalty for fossil-fired plants, as they already face carbon costs.

4. **Bring the CCS costs down, not carbon prices up.** RD&D efforts should be aimed at bringing the costs of CCS down, prior to engaging in large scale projects. We estimate that it would cost ca. EUR60-75 to avoid emitting a ton of CO₂ using a post-combustion CCS installation on a new coal-fired power unit. This is assuming that the unit can work as base load capacity which is not at all ensured nowadays considering ongoing development of RES. For gas-fired CCS plants, these costs increase up to EUR100/ton of CO₂ avoided according to the Zero Emissions Platform. Naturally, with decreased load factors of conventional units, it becomes more expensive to run a CCS plant. In industrial installations the cost-efficiency picture is even more troublesome. A recent McKinsey study, which estimates CO₂ abatement potential for Poland, indicates costs over EUR180/ton of CO₂ avoided for the steel industry. It would not be advisable to try to commercialize CCS with these costs.

We believe that CCS costs underlined in the EC paper are underestimated. This is also confirmed by the experience of some Polish utilities, which conducted preparatory phases for two large scale demonstration projects. Therefore, the true cost of CCS should be recognized, as compared to other means of emissions reductions on the marginal abatement cost curve.

5. **Don't bet everything on CCS, look for other clean technologies e.g. CCU.** Demonstration efforts should not be confined to CCS alone, let's not pick winners before we start. The technological solution would be more reasonable and acceptable to the public if the captured CO₂ was further utilized for other e.g. industrial production processes instead of being stored underground. This concept of Carbon Capture and Utilization (CCU) needs to be further explored.

EU considers itself at the forefront of global CCS development, while at the same time among all 8 functioning CCS demonstration projects not even one had been built here. This undermines the assumption that EU's industry leadership in the worldwide employment of CCS technology secures a competitive edge for the EU as a whole, if CCS is adequately supported. This is more so, considering lack of global commitments to clean coal

technologies and no real market for them outside of the EU – this notion is correctly pointed out in the Communication.

The conclusion that the main reason behind the unsatisfactory deployment of CCS technology in the EU is the “ill-functioning ETS”, is not justified. Firstly, the ETS should not be a remedy to the problem of commercialization of uncompetitive technologies – it should be a technologically neutral market-based mechanism picking the cheapest reduction methods.

There are a number of other important barriers including the question of safety, public acceptance, efficiency losses and higher fuel needs in case of power plants fitted with CCS installations. These are variables which need to be taken into account by every potential investor. That is why among 20 CCS demonstration projects currently in operation only one (Plant Barry CCS Demo/USA) is related to pure electricity generation, while many others gain from Enhanced Oil or Gas Recovery benefits.

Answers to questions:

Should Member States that currently have a high share of coal and gas in their energy mix as well as in industrial processes, and that have not yet done so, be required to:

- a. develop a clear roadmap on how to restructure their electricity generation sector towards non-carbon emitting fuels (nuclear or renewables) by 2050,*
- b. develop a national strategy to prepare for the deployment of CCS technology.*

Option a) is definitely not the way to proceed. We need to keep all technology options open. Decarbonisation targets should be conditional not only based on actions by other global partners (this is obvious from the agreed text by the European Council with regard to 2050 targets) but also on **availability of key technologies which will allow for the transformation cost-effectively and without infringing on national competencies of Member States in terms of creating their energy mix**. So, if we are technologically and economically unable to reach the targets without infringing on Member States' fundamental rights in terms of determining their energy mix, we should modify the targets and not the other way around.

Let us not forget that choices in terms of fuel structure are made by respective Member States which in the end take the responsibility for ensuring their own energy security. **Requiring such “restructuring” of their electricity generation, would go against the provisions of Article 194 (2) of the Lisbon Treaty, which clearly states that measures of EU institutions in the field of energy policy “shall not affect a Member State's right to determine the conditions for exploiting its energy resources, its choice between different energy sources and the general structure of its energy supply”.**

With regard to option b), the issue of mitigating emissions from fossil-fuels, including CCS, should be addressed in national energy policies of Member States concerned. These Member States should be obliged to communicate their national energy policies to the Commission for non-binding opinion in terms of its impact on the internal market and climate policy.

How should the ETS be re-structured, so that it could also provide meaningful incentives for CCS deployment? Should this be complemented by using instruments based on auctioning revenues, similar to NER300?

The ETS should not be modified with an aim of commercializing CCS. The ETS was never meant to promote certain emerging technologies – **it is a market-based mechanism designed to find cheapest ways to meet the emissions reduction targets, not to make**

cheap technologies expensive and vice versa. This idea is contrary to market principles, though it is supposed to be in the interest of the internal market. If the ETS were to be modified in such a way e.g. by cutting supply, increasing targets etc. in order to primarily commercialize uncompetitive technologies, it would be no different than a CO₂ tax, which the majority of Member States opposes.

We should keep promoting further research on CCS and possibly other clean fossil fuel technologies which may emerge – such as utilization of CO₂ instead of underground storage which could be more socially acceptable – through additional EU funding. After all, emissions from fossil fuels is an EU-wide problem and it is better served through EU support mechanisms, such as the NER 300 initiative.

This research could further bring costs of clean coal technologies down, so not as much of public support would be needed.

Should the Commission propose other means of support or consider other policy measures to pave the road towards early deployment, by:

- a. support through auctioning recycling or other funding approaches*
- b. an Emission Performance Standard*
- c. a CCS certificate system*
- d. another type of policy measure*

Support of CCS through the New Entrants Reserve is a possibility for the future post-2020 framework. Clean coal technologies research should be funded primarily through the EU budget. National governments should also have the liberty to use auctioning revenues for this purpose.

The main focus should be on bringing the costs of these technologies down through R&D activities, not look for artificial instruments which would fill the gap to make them profitable.

With regard to proposed regulatory mechanisms, a feed-in tariff / contract for difference type of support would be the only solution actually aimed at supporting CCS and not driving coal out of the EU by making it uncompetitive prior to commercialization of this technology.

Should energy utilities henceforth be required to install CCS-ready equipment for all new investments (coal and potentially also gas) in order to facilitate the necessary CCS retrofit?

Current obligations under the CCS Directive in terms of “capture ready” provisions are enough in this respect.

Should fossil fuel providers contribute to CCS demonstration and deployment through specific measures that ensure additional financing?

Economics of projects should decide the level of financial involvement on part of fossil fuel providers or utilities. Business entities, particularly ones which are privatized, should not be forced to invest in projects which are unprofitable. For this reason the EU and national funding should take center stage.

Currently, mainly the oil and gas industries are active world-wide in CCS demonstration and deployment due to cases, in which injection of CO₂ is combined with enhanced oil or gas recovery. This is natural since EOR and EGR improve, sometimes vastly, the economics of these projects.

Meanwhile, fossil fuel providers should considering engaging in further research with regard to clean coal technologies to ensure continuous EU fossil-fuel demand up to 2050 and beyond.

What are the main obstacles to ensuring sufficient demonstration of CCS in the EU?

1. High cost of CCS compared to other means of emission reductions.
2. Shortage of public funding – considering lack of a business case for CCS, we need more public funding both at EU and national level. But given the EU-wide interest in mitigating CO₂ emissions, it seems that the EU funding should play a bigger role. We cannot rely on investor funding considering the poor economics of CCS projects and national funding is scarce in these economically difficult times.
3. Lack of social acceptance – growing protests by environmental NGOs and different local communities directly involved in the storage debate.
4. Lack of CO₂ infrastructure – and legal problems concerning its development (associated with point 3).
5. Questions regarding safety of storage and certain capture technologies (also associated with point 3).
6. Lack of implementation of the CCS Directive in some Member States and the resulting potential of high costs of financial insurance regarding storage sites.

How can public acceptance for CCS be increased?

More projects are needed demonstrating the full CCS chain (including storage) and using different capture technologies to check which ones are safest and most competitive.

Information campaigns particularly focusing on the safety of storage and the need to mitigate emissions from fossil-fired plants while underlining their indispensability in the system to back-up intermittent energy sources.