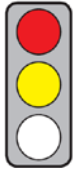


## KEY ISSUES

**Objective of the Communication:** The Commission wants to give vigorous support to techniques for capturing and storing CO<sub>2</sub> (CCS) and puts various options up for discussion.

**Parties affected:** Energy companies and energy-intensive industries.



**Pro:** The provision of information about CCS may give the public a better knowledge base with which to evaluate these technologies.

**Contra:** (1) Targeted support for CCS will distort competition for the most efficient abatement technologies in the European Emission Trading System (EU ETS).

(2) The proportion of efficient abatement options identified by the EU ETS falls further with each additional accompanying support measure thus increasing the cost of achieving the overall CO<sub>2</sub> target.

(3) Emission standards cannot guarantee that the political aim of using CCS will be achieved.

## CONTENT

### Title

Communication COM(2013) 180 of 27 March 2013 on the Future of **Carbon Capture and Storage** in Europe

### Brief Summary

In the absence of any indication to the contrary, references relate to the Communication COM(2013) 180.

#### ► Context and objectives

- In order to combat climate change, the EU wants to reduce the emission into the atmosphere of greenhouse gases, particularly CO<sub>2</sub>, by 80–95% by 2050, as compared with 1990 levels ["Decarbonisation", cf. Energy Roadmap 2050 COM(2011) 885, see [cepPolicyBrief](#); Roadmap for a low-carbon economy by 2050 COM(2011) 112, see [cepPolicyBrief](#); Transport White Paper COM(2011) 144, see [cepPolicyBrief](#)].
- The Commission believes that Carbon Capture and Storage (CCS) is essential to combat climate change.
  - CCS is necessary worldwide in order to limit the rise in global average temperatures to a maximum of 2°C as compared with pre-industrial levels ("2°C goal").
  - In the EU, CCS may serve as a "transition technology" (page 14) in the changeover to a "low carbon economy".
- Despite funding measures – e.g. from the "New Entrants' Reserve" (NER300) and the "European Energy Programme for Recovery" (EEPR) – there are as yet no full size CCS demonstration projects covering carbon capture, transport and storage (page 16, Annex I).
- The Commission continues to be "committed to supporting CCS both financially and with regulatory steps" (page 3). With this Communication it
  - provides information on the status of development and deployment of CCS and
  - presents its ideas for additional measures to facilitate demonstration projects and the commercial deployment of CCS in the EU as soon as possible.

#### ► Areas of deployment of CCS

- CCS can be deployed
  - in electricity generation,
  - for process-related CO<sub>2</sub> emissions in industry, e.g. in steel production, and
  - in biomass combustion.
- The captured CO<sub>2</sub> can be used for industrial purposes
  - in the manufacture of alternative fuels,
  - in the manufacture of chemical products such as cooling agents, or
  - to enhance oil and gas recovery by pumping it into storage sites in order to bring the oil or gas under pressure to the surface.

- The EU is endeavouring to achieve decarbonisation of 83%–87% in industry and 93%–99% in electricity production by 2050 [Roadmap for a low-carbon economy COM(2011) 112, page 6].
  - The commercial application of CCS ("large scale deployment", page 3) could make an important contribution to this – e.g. up to 32% CO<sub>2</sub> reduction in electricity generation.
  - Until now, however, there have been no CCS demonstration projects in the EU and this is a prerequisite for the commercial application of CCS.
- The costs per captured and stored tonne of CO<sub>2</sub> vary between € 30 and € 100 depending on the fossil fuel – e.g. coal or gas – and the CO<sub>2</sub> storage. In addition, extra investment costs accrue. CCS could nevertheless be profitable in the field of oil and gas recovery.
- The Commission emphasises that CCS must be demonstrated as soon as possible because every delay to commercial application increases the costs of achieving extensive decarbonisation by 2050.

► **Challenges**

- Whilst offshore storage does have public acceptance, CO<sub>2</sub> storage on land has met with "strong public opposition" (page 18). Information and engagement campaigns aim to help overcome the acceptance problem.
- "Some" Member States have restricted or prohibited CO<sub>2</sub> storage.
- The Commission believes that where the emission allowance price is "well below € 40" per tonne of CO<sub>2</sub>, there is no economic incentive to invest in CCS demonstration projects (page 16). Even the current funding programmes, e.g. "NER300", do not offer sufficient additional incentive.
- CO<sub>2</sub> emitters should be linked in a cost-effective way with CO<sub>2</sub> storage facilities. Since this, to some extent, requires a cross-border CO<sub>2</sub> transport infrastructure, the Commission has provided for funding for cross-border CO<sub>2</sub> transport in its proposal for a Regulation on the trans-European energy infrastructure (TEN-E) [COM(2011) 658, see [cepPolicyBrief](#)].

► **Funding options for CCS**

The Commission calls for additional measures to facilitate CCS as soon as possible and puts the following options up for discussion:

– **CCS certificate system**

- A mandatory CCS certificate system could require companies to hold CCS certificates for a certain amount of their overall CO<sub>2</sub> emissions. Alternatively, suppliers of fossil fuels could be obliged to hold CCS certificates for the CO<sub>2</sub> content of the fossil fuels.
- In order to achieve these CCS targets, companies could either invest in CCS themselves or buy CCS certificates from a supplier that is able to achieve the CCS targets more cheaply than they can themselves.
- The CCS certificate system could be linked to the European Emission Trading System (EU ETS; see [cepDossier Climate Policy in the European Union](#), page 11 et seq.). In that case, however, the number of EU ETS certificates would have to be reduced by the number of CCS certificates. This is because CCS reduces CO<sub>2</sub> emissions, which is actually the task of the EU ETS. So reducing the number of EU ETS certificates would prevent a drop in the price of ETS certificates resulting from the required emission reduction by way of CCS.

– **CO<sub>2</sub> emissions standards**

- Existing and/or new power stations and industrial plants ("carbon emitters", p. 21) could be limited to a maximum permitted amount of CO<sub>2</sub> emissions per unit of production ("emission performance standards").
- Thus, in California, new electricity generating plants have been limited to producing no more than 500g CO<sub>2</sub>/ per kilowatt-hour.
- The Commission points out two problems with this mechanism (p. 21):
  - CO<sub>2</sub> emission performance standards cannot guarantee that there will be investment in CCS because, in order to meet the requirements, investments could be shifted to other technologies for reducing CO<sub>2</sub> emissions.
  - Emission performance standards would undermine the price signal from the EU ETS as companies would no longer base their investment decision on the emission allowance price but on the prescribed standard.

– **Subsidies**

- Investors could be guaranteed a minimum return by way of subsidisation of CCS. According to the Commission, this funding would have to be designed so that
- "windfall profits" (p. 22) are avoided,
  - it only applies to CCS demonstration projects and
  - it does not have any negative impact on the EU ETS or the internal market.

## Statement on Subsidiarity by the Commission

The Commission does not consider the question of subsidiarity.

## Policy Context

In 2007, the European Council expressed its support for "12 large-scale demonstration projects by 2015" for CCS (p. 3). Since then, the EU has undertaken several initiatives to support CCS. The CCS Directive (2009/31/EC), which lays down the safety requirements for the capture, transport and, in particular, storage of CO<sub>2</sub>, had to be transposed into national law by the Member States by June 2011. In addition, funding programmes - NER300 and EEPR - have been launched specifically to support CCS demonstration projects.

## Options for Influencing the Political Process

Directorates General:	DG Energy (leading)
Committees of the European Parliament:	Industry, Research and Energy (leading)
Federal Ministries:	TBA
Committees of the German Bundestag:	Environment, Conservation and Reactor Safety (leading); Economy and Technology

# ASSESSMENT

## Economic Impact Assessment

### Ordoliberal Assessment

With the European Emission Trading System (EU ETS) the EU has already created an instrument which is not only able to achieve the CO<sub>2</sub> reduction target but also provides price signals to create an incentive for using cost efficient technologies to achieve the target. Nevertheless, and despite existing funding – inter alia by way of NER300 – the Commission is convinced that CCS should receive specific support. **Specific support for CCS, which goes beyond demonstration projects, will, however, distort competition for the most efficient abatement technologies in the EU ETS** because it is then the government that decides whether this technology should be deployed rather than the market. The government should not set any technology-specific requirements. Instead it should ensure a stable, long-term framework for the EU ETS. A long-term, policy-based path to emissions reduction by 2050, with realistic interim targets for 2030 and 2040, could give companies enough incentive to invest in CCS along with other abatement technologies; as emission rights become scarce, the prices in the EU ETS will - barring "ground breaking innovations" – show an upward trend thus offsetting the current cost disadvantages. The plan to specifically support CCS with the aim of balancing out the cost disadvantages with a low price, at this early stage, should not therefore be pursued further.

**The provision of information about CCS may give the public a better knowledge base with which to evaluate these technologies.**

### Impact on Efficiency and Individual Freedom of Choice

The Commission should make a clear distinction between short-term support for demonstration projects and long-term support for CCS. If the Commission is only concerned with ensuring prompt support for demonstration projects, it should – if at all, because this is not basic research – opt for short-term measures and not for support measures with a long term effect on the market. These will weaken the incentivising effect of the EU ETS by working in parallel to abate emissions which actually fall within the scope of the EU ETS. Instead of cost-efficient abatement in the EU ETS, the expensive abatement option of CCS will be used.

As the Commission rightly points out, there will also be an excess of EU ETS certificates, and thus interference with the price signal, if the parallel emission abatement option of CCS is not, or not sufficiently, taken into account in the numerical data used by the EU ETS. This negative impact on the incentivising effect already arises from the promotion of renewables and the requirements for increasing efficiency – e.g. the energy efficiency obligations for companies. This route should not be pursued further.

The question also arises as to how far companies are still free, under the auspices of the EU ETS, to choose the most cost-efficient abatement option if the type of abatement is specified for them by way of accompanying support measures specifically targeting one technology. **The proportion of efficient abatement options identified by the EU ETS falls further with each additional accompanying support measure thereby increasing the cost of achieving the overall CO<sub>2</sub> target.**

If additional measures to support CCS are to be taken for political reasons, the question arises as to which of the options mentioned by the Commission are the least damaging. Project-related "financial support" is only justified if it is restricted to demonstration projects. As the Commission itself points out, emission performance standards cannot guarantee the desired political outcome, i.e. the use of CCS, and should therefore be rejected. A CCS certificate system is better than emission performance standards in this regard because the desired political outcome will be achieved with both certainty and efficiency: CCS can be used, irrespective of location, wherever it is most cost-efficient. Companies can decide whether they want to use CCS themselves or whether to buy the required amount of CCS certificates from another supplier. However, the effect on achieving the overall CO<sub>2</sub> target must also be taken into account in this regard. Companies will be given mandatory instructions on how to abate a certain proportion of their emissions which may result in a failure to take up more cost-effective abatement options thus the cost of achieving the overall target will be higher than necessary.

#### Impact on Growth and Employment

On the one hand, the captured CO<sub>2</sub> can be used to a limited extent in industrial processes or in the extraction of oil and gas and thus generate added value. On the other hand, CCS gives rise to higher costs for electricity generation and industry. This is, firstly, because there has to be investment in the additional capture technology. Secondly, the efficiency of power stations deteriorates as a result of the use of CCS because the capture and compression of CO<sub>2</sub> for transport require additional energy. More fossil fuel is therefore used to generate the same production quantity than without CCS. Overall, the use of CCS therefore tends to have a negative effect on growth and employment.

#### Impact on Europe as a Business Location

CCS increases the cost of production both directly and indirectly as a result of higher electricity prices and is thus detrimental to Europe as a business location.

### Legal Assessment

#### Legislative competence

The EU is empowered to issue environmental measures for the protection of the climate (Art. 192 TFEU).

#### Subsidiarity

Unproblematic.

#### Proportionality

Unproblematic.

#### Other compatibility with EU law

Unproblematic.

#### Impact on German law

Currently no indication of any impact on German law.

### Conclusion

The provision of information about CCS may give the public a better knowledge base with which to evaluate these technologies. Targeted support for CCS will distort competition for the most efficient abatement technologies in the European Emission Trading System (EU ETS). The proportion of efficient abatement options identified by the EU ETS falls further with each additional accompanying support measure thus increasing the cost of achieving the overall CO<sub>2</sub> target. Emission performance standards cannot guarantee that the desired political outcome of CCS use will be achieved and should therefore be rejected.