COMMISSION OF THE EUROPEAN COMMUNITIES

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2008/0015 (COD)

Proposal for a

DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

on the geological storage of carbon dioxide and amending Council Directives 85/337/EEC, 96/61/EC, Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC and Regulation (EC) No 1013/2006

(presented by the Commission)

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{SEC(2008) 55}

EXPLANATORY MEMORANDUM

1. CONTEXT OF THE PROPOSAL

Grounds for and objectives of the proposal

Energy efficiency and renewables are in the long term the most sustainable solutions both for security of supply and climate. However, we cannot reduce EU or world CO2 emissions by 50% in 2050 if we do not also use the possibility to capture CO2 from industrial installations and store it in geological formations (carbon dioxide capture and storage, or CCS). Around a third of existing coal fired power capacity in Europe will be replaced in the next 10 years. Internationally, China, India, Brazil, South Africa and Mexico's energy consumption will lead a major global demand increase, which is likely to be met in large part from fossil fuels. This legal framework is designed to ensure that CO2 capture and storage is an available mitigation option, and that it is done safely and responsibly.

General context

The Commission Communication on meeting the Community's objective of limiting climate change to 2° C clarifies that in the context of the global reduction of CO2 emissions of 50% by 2050, a reduction in emissions of 30% in the developed world by 2020 is required, rising to 60-80% by 2050, that this reduction is technically feasible and the benefits far outweigh the costs, but that, to achieve it, all mitigation options must be harnessed, among them carbon dioxide capture and storage.

The Second European Climate Change Programme (ECCP II) set up a Working Group on Carbon Capture and Geological Storage. The Working Group stressed the need for the development of both policy and regulatory frameworks for CCS. The Communication on Sustainable Power Generation from Fossil Fuels of January 2007 set out an action plan for the Commission during 2007, which required the development of a sound management framework for CCS.

Following this, the Brussels European Council of March 2007 also urged the Member States and the Commission develop the necessary technical, economic and regulatory framework to bring environmentally safe CCS to deployment.

Existing provisions in the area of the proposal

Where possible, existing provisions have been used to manage the risks of CCS. Directive 96/61/EC concerning Integrated Pollution Prevention and Control (IPPC) is used for regulating the risks of CO2 capture. Directive 85/337/EEC on the assessment of the environmental impact of certain projects (EIA) is used for assessing environmental impact of capture, pipeline transport and storage. Directive 2004/35/EC on Environmental Liability is used for regulating the liability for local environmental damage from CCS. Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading is used for regulating the liability for climate damage by requiring surrender of allowances

for leakage.

Consistency with the other policies and objectives of the Union

The proposal is consistent with the Sustainable Development Strategy, because it reconciles security of supply with climate change objectives. It is consistent with the Strategy for Growth and Jobs because enabling CCS will promote innovation and potentially position the EU in a new technology market.

2. CONSULTATION OF INTERESTED PARTIES AND IMPACT ASSESSMENT

Consultation of interested parties

Consultation methods, main sectors targeted and general profile of respondents

Consultation was conducted mainly via meetings with stakeholders. The European Climate Change Programme Working Group III on CCS met four times during the first half of 2006. An internet consultation "Capturing and storing CO2 underground - should we be concerned?" was conducted which received 787 responses. A large-scale stakeholder meeting was held on 8 May 2007 where the Commission presented an outline of its intended regulatory framework and gave the opportunity to comment. Further ad-hoc meetings with smaller groups were held on particular aspects of the proposal.

Summary of responses and how they have been taken into account

The internet consultation showed strong support for the main objectives set out in the Communication on sustainable power generation from fossil fuels COM(2006) 843. Stakeholders were most concerned about the potential diversion of effort away from energy efficiency and renewables, and about ensuring that stored CO2 remains underground. The targets for a 20% improvement in energy efficiency by 2020 and for a 20% share of renewables in final energy demand will ensure that those initiatives remain at the centre of climate and energy policy. The focus of the enabling legal framework is on the security of storage, which is the major stakeholder safety concern.

The Commission's outline of its proposed legal framework was broadly welcomed. There was however concern, on subsidiarity and proportionality grounds, regarding proposed powers for the Commission to accept or reject draft permitting decisions made by national competent authorities. This has been addressed by instituting a review at EU level but ensuring that the national competent authority retains the final say.

A requirement for mandatory CCS from a specific date was welcomed by some respondents (principally NGOs) and questioned by others. Those who questioned it did so on the basis that the technology was insufficiently mature to be mandated, and that the implications for the energy mix were unpredictable. The Commission addressed the economic, social and environmental implications of mandatory CCS in the impact assessment and concluded that at this time a mandatory requirement should not be imposed.

An open consultation was conducted over the internet from 19.2.2007 to 30.4.2007. The Commission received 787 response(s). The results are available on http://ec.europa.eu/environment/climat/ccs/index_en.htm.

Collection and use of expertise

Scientific/expertise domains concerned

The main areas where scientific expertise were required were: energy modelling to predict the outcome of various options for promoting CCS deployment; assessment of availability and likely use of storage capacity across Europe based on those scenarios; assessment of the environmental impacts of the deployment in question; and development of a risk management framework to minimise those impacts.

Methodology used

Energy modelling of scenarios was done using the PRIMES model of the National Technical University of Athens (NTUA). The results were then used to develop model capture, transport and storage networks in the EU using the source-sink matching tool developed under the CASTOR FP6 project, and the storage capacity database of the GEOCAPACITY FP6 project. The environmental impacts of these scenarios were assessed using the POLES model of IIASA for air quality, and using a methodology developed by ERM for all other environmental impacts. Technical input on appropriate risk management strategies was derived from approaches developed by ERM and ECN; from the OSPAR Commission deliberations and the resulting Framework for Risk Management (FRAM) adopted at the 2007 OSPAR Commission meeting; and from the FP6 project CO2ReMoVe.

Main organisations/experts consulted

The National Technical University of Athens, for energy modelling; TNO, the British Geological Survey, GEUS and SINTEF and the CASTOR and GEOCAPACITY FP6 projects; the CO2ReMoVe FP6 project; ECN, ERM and IIASA for environmental risk assessment and risk management. Discussion with the European Technology Platform for Zero Emission Fossil Fuel Power Plant (ETP-ZEP) a stakeholder initiative supported by the Commission, was particularly useful. Other significant inputs were papers from the Intergovernmental Panel on Climate Change (IPCC) and the International Energy Agency, in particular its Greenhouse Gas R&D programme.

Summary of advice received and used

The existence of potentially serious risks with irreversible consequences has been mentioned. There is no consensus on the existence of such risks.

This does not mean that there are no risks associated with CCS. However, the particular concerns raised in this case (by the University of Science and Technology of Krakow, in a letter to the Commission) are not widely shared. In fact there a broad scientific consensus, best expressed in the IPCC Special Report

on CCS, that for properly selected, managed and decommissioned sites, the risk of leakage, and a fortiori of irreversible consequences, is in fact low. It is the task of this proposal to ensure that such procedures are in place.

Means used to make the expert advice publicly available

The documents used from the IEA and the IPCC are public already. For the impact assessment work, the PRIMES scenarios will be made available on the internet, as will reports of the IIASA, TNO and ECN/ERM projects.

Impact assessment

The impact assessment considered the best way to regulate capture, transport and storage; and the appropriate option for incentivisation of CCS. The next two paragraphs deal with regulation; the remainder, with incentivisation.

For regulation of capture and transport, a conservative approach was taken. On the basis that there is no risk difference justifying a different approach for CO2 capture and transport than for similar activities already regulated (e.g. natural gas pipelines), existing regulatory frameworks will be used for these components.

For storage, the options to regulate risks were (i) the Emissions Trading Directive; (ii) to use IPPC; (iii) to use waste legislation; and (iv) to develop a new framework. The ETS is not designed for complete regulation of the environmental risks of CCS, and IPPC and the waste acquis are not well adapted to the specific requirements of regulating CO2 storage, and could be made so only by extensive amendment. It was thus decided to develop a new framework.

For incentivisation, the options were (i) to enable CCS under the Emissions Trading Scheme, and allow the carbon market to determine deployment; and (ii) in addition to (i), to make CCS deployment mandatory (and retrofit also mandatory) after a specific date. Mandatory CCS stimulates earlier deployment but at substantial additional cost; under the carbon market, CCS will be deployed if and when it is cost-effective. It was decided not to make CCS mandatory at this stage.

The Commission carried out an impact assessment listed in the Work Programme, whose report is accessible on
http://ec.europa.eu/environment/climat/ccs/index_en.htm.

3. LEGAL ELEMENTS OF THE PROPOSAL

Summary of the proposed action

The proposal ensures that CO2 capture is regulated under Directive 96/61/EC and that both CO2 capture and pipeline transport are regulated under Directive 85/337/EEC. But its main scope is the regulation of CO2 storage and the removal of barriers in existing legislation to CO2 storage.

Legal basis

Article 175(1)

Subsidiarity principle

The subsidiarity principle applies insofar as the proposal does not fall under the exclusive competence of the Community.

The objectives of the proposal cannot be sufficiently achieved by the Member States for the following reason(s).

Action by Member States alone would not be sufficient to ensure a comparably high overall level of environmental integrity of CO2 storage across Europe. Action at Member State level would not be capable of covering the permitting of transboundary storage sites, or of ensuring equal access to the transport and storage network across Europe. The setting of permit conditions and conditions for transfer of responsibility for the storage site to the state at Member State level could also lead to distortion of competition.

CO2 captured and stored will be credited as not emitted under the Emissions Trading Scheme. If comparable security of storage is not achieved across Europe, there would be distortion of the carbon market and failure to effectively achieve the Member States' climate objectives.

Community action will better achieve the objectives of the proposal for the following reason(s).

EU action can ensure that the above issues are addressed consistently, by establishing common permit conditions, a common condition on transfer of responsibility to the state, provisions on equal access to transport and storage, and provisions for permitting of transboundary sites. A consistently high level of protection of the environment and human health across Europe can be ensured, and distortion of the carbon market avoided.

The approach is consistent with precedent in other areas, since activities of comparable environmental risk and competition implications (for instance landfills) are regulated at EU level for similar reasons.

The requirements on permitting, operation and monitoring, and closure are restricted to those needed to ensure a comparable level of environmental protection across the EU. Other measures are limited to areas where action by Member States alone may induce distortion of competition: transfer of responsibility to the state, financial provision for liabilities, and access to the transport and storage network.

The proposal therefore complies with the subsidiarity principle.

Proportionality principle

The proposal complies with the proportionality principle for the following reason(s).

The chosen legal instrument is a Directive, as it establishes objectives and general requirements for CO2 storage whilst leaving the details of the implementation to the Member States.

The requirements for permitting of storage sites, and the requirements for characterisation, monitoring and closure, are essential provisions for ensuring environmental integrity and to avoid risks of distortions of competition. In particular the requirements on site selection and monitoring must be appropriately detailed to ensure the highest level of environmental protection and public confidence from the start. The review of permits by the Commission is justified by the additional confidence it will provide on the safety of the first generation of storage sites, and by the experience it will provide on site characterisation and monitoring. This experience will enable the Commission to establish further implementation rules or guidelines in due course. The Commission will by 2015 assess the continued need for permit review and may propose appropriate measures.

Choice of instruments

Proposed instruments: directive.

Other means would not be adequate for the following reason(s).

The permitting regime must be legally binding to ensure the required level of environmental protection. A regulation is not appropriate because the requirements are specified in a way that leaves the discretion on implementation to the Member States.

4. BUDGETARY IMPLICATION

Commission review of permitting decisions will entail budgetary implications of around €0.76 million per year.

5. ADDITIONAL INFORMATION

Simplification

The proposal provides for simplification of legislation, simplification of administrative procedures for public authorities (EU or national).

If no action were taken, many pieces of existing legislation on waste, water and industrial emissions could apply to CCS and the situation would be legally uncertain. This proposal establishes clearly what provisions of existing legislation should apply to which aspects of carbon dioxide capture and storage.

Rather than having to adapt transposing legislation for water, waste and industrial emissions to regulate CO2 storage, one single framework will be sufficient.

The proposal is included in the Commission's Work and Legislative Programme under the reference 2007/ENV/004.

Correlation table

The Member States are required to communicate to the Commission the text of national provisions transposing the Directive as well as a correlation table between those provisions and this Directive.

European Economic Area

The proposed act concerns an EEA matter and should therefore extend to the European Economic Area.

Detailed explanation of the proposal

Chapter 1 covers subject matter, scope and definitions. In particular, these articles specify that the objective of geological storage is permanent containment, and that storage in the water column is prohibited.

Chapter 2 covers site selection and exploration permits, clarifying that Member States determine the areas to be made available for storage, the condition for site use, and including provisions governing exploration.

Chapter 3 covers storage permits. Article 10 provides for review of draft permit decisions by the Commission. The Commission may provide an opinion which the competent authority would take into account in making its permitting decision. A further provision relevant in this context is the conferring of the Environmental Impact Assessment Directive (85/337/EEC as amended by 97/11/EC) on CO2 storage sites in Article 29 paragraph 1 point b, thus ensuring impact assessment and public consultation.

Chapter 4 covers operation, closure and post-closure obligations, including CO2 acceptance criteria, monitoring and reporting obligations, inspections, measures in case of irregularities and/or leakage, closure and post-closure obligations and provision of a financial security.

Chapter 5 sets out provisions on access to transport and storage. Chapter 6 covers general provisions on the competent authority, transboundary co-operation, penalties, reporting, amendments and the relevant comitology procedures. Chapter 7 collects the required amendments to other legislation, including the necessary adaptations to the water and waste legislation, and Chapter 8 collects the standard final provisions.

Annex I specifies detailed criteria for the requirements on site characterisation and risk assessment of Article 4. Annex II specifies detailed criteria for the requirements on monitoring of Article 13.

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(Text with EEA relevance)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 175(1) thereof,

Having regard to the proposal from the Commission[1],

Having regard to the opinion of the European Economic and Social Committee[2],

Having regard to the opinion of the Committee of the Regions[3],

Acting in accordance with the procedure laid down in Article 251 of the Treaty[4],

Whereas:

(1) The ultimate objective of the United Nations Framework Convention on Climate Change, which was approved by Council Decision 94/69/EC of 15 December 1993 concerning the conclusion of the United Nations Framework Convention on Climate Change[5], is to achieve stabilisation of greenhouse gas concentrations in the atmosphere at a level which prevents dangerous anthropogenic interference with the climate system.

(2) The Sixth Community Environment Action Programme established by Decision No 1600/2002/EC of 22 July 2002 laying down the Sixth Community Environment Action Programme[6] identifies climate change as a priority for action. That Programme recognises that the Community is committed to achieving an 8% reduction in

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1 OJ C , , p. .
2 OJ C , , p. .
3 OJ C , , p. .
4 OJ C , , p. .
5 OJ L 33, 7.2.1994, p. 11.
6 OJ L 242, 10.9.2002, p. 1.

emissions of greenhouse gases by 2008 to 2012 compared to 1990 levels, and that, in the longer term, global emissions of greenhouse gases will need to be reduced by approximately 70% compared to 1990 levels.

(3) Commission Communication of 10 January 2007 "Limiting global climate change to two degrees Celsius – The way ahead for 2020 and beyond"[7] clarifies that in the context of the envisaged global reduction of greenhouse gas emissions of 50% by 2050, a reduction in greenhouse gas emissions of 30% in the developed world by 2020 is required, rising to 60-80% by 2050, that this reduction is technically feasible and the benefits far outweigh the costs, but that, to achieve it, all mitigation options must be harnessed.

(4) Carbon dioxide capture and geological storage (CCS) is a means of mitigating climate change. It consists of the capture of carbon dioxide (CO_2) from industrial installations, its transport to a storage site and its injection into a suitable geological formation for the purposes of permanent storage.

(5) The Second European Climate Change Programme (ECCP II), which was established by Commission Communication "Winning the Battle Against Global Climate Change" of 9 February 2005[8] to prepare and examine future climate policy in the Community set up a Working Group on Carbon Capture and Geological Storage. The Working Group's mandate was to explore CCS as a means of reducing climate change. The Working Group published a detailed report on the topic of regulation, which was adopted in June 2006. It stressed the need for the development of both policy and regulatory frameworks for CCS and urged the Commission to undertake further research into the subject.

(6) Commission Communication "Sustainable power generation from fossil fuels: aiming for near-zero emissions from coal after 2020" of 10 January 2007[9] reiterated the need for a regulatory framework based on an integrated risk assessment for CO_2 leakage, including site selection requirements designed to minimise the risk of leakage, monitoring and reporting regimes to verify storage and adequate remediation of any damage that may occur. The Communication set out an action plan for the Commission in this area during 2007, which required the development of a sound management framework for CCS, including the work on the regulatory framework, incentive framework, and support programmes, as well as external elements (technology co-operation with key countries on CCS).

(7) The European Council of 8 and 9 March 2007 also urged the Member States and the Commission to work towards strengthening research and development and developing the necessary technical, economic and regulatory framework in order to remove existing legal barriers and to bring environmentally safe CCS to deployment with new fossil power plants, if possible by 2020[10].

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7 COM(2007) 2.
8 COM(2005) 35.
9 COM(2006) 843.
10 Council Document 7224/07.

(8) At the international level, legal barriers to the geological storage of CO_2 in sub-seabed geological formations have been removed through the adoption of related risk management frameworks both under the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (1972 London Convention) and under the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention).

(9) The Contracting Parties to the 1996 London Protocol to the 1972 London Convention in 2006 adopted amendments to the Protocol. These amendments allow and regulate the storage of CO_2 streams from CO_2 capture processes in sub-seabed geological formations.

(10) The Contracting Parties to the OSPAR Convention in 2007 adopted amendments to the Annexes of the Convention to allow the storage of CO_2 in geological formations under the seabed, a Decision to ensure environmentally safe storage of carbon dioxide streams in geological formations, and OSPAR Guidelines for Risk Assessment and Management of that activity. They also adopted a Decision to prohibit placement of CO_2 into the water-column of the sea and on the seabed, because of the potential negative effects.

(11) At Community level, a number of legislative instruments are already in place to manage some of the environmental risks of CCS, in particular regarding capture and transport of CO_2, and should be used where possible.

(12) Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control[11] for certain industrial activities is suitable for regulating the risks of CO_2 capture and as a result, should be applied to the capture of CO_2 streams for the purposes of geological storage from installations covered by that Directive.

(13) Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment[12] should be applied to the capture and transport of CO_2 streams for the purposes of geological storage. It should also apply to storage sites pursuant to this Directive.

(14) This Directive should apply to the geological storage of CO_2 within the territory of the Member States, their exclusive economic zones and on their continental shelves. The Directive should not apply to research projects. It should, however, apply to demonstration projects with a total intended storage of 100 kilo tonnes or more. This threshold would also seem appropriate for the purposes of other relevant Community legislation. The storage of CO_2 in geological formations extending beyond the territorial scope of this Directive and the storage of CO_2 in the water column should not be permitted.

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[11] OJ L 257, 10.10.1996, p. 26. Directive as last amended by Regulation (EC) No 166/2006 of the European Parliament and of the Council (OJ L 33, 4.2.2006, p. 1).

[12] OJ L 175, 5.7.1985, p. 40. Directive as last amended by Directive 2003/35/EC of the European Parliament and of the Council (OJ L 156, 25.6.2003, p. 17).

(15) Member States should retain the right to determine the areas within their territory from which storage sites may be selected. The selection of the appropriate storage site is crucial to ensure that the stored CO_2 will be completely contained for the indefinite future. A site should therefore only be selected as a storage site, if there is no significant risk of leakage, and if in any case no significant environmental or health impacts are likely to occur. This should be determined through a characterisation and assessment of a potential storage complex pursuant to specific requirements.

(16) Member States should determine in which cases exploration is required to generate the information necessary for the site selection. Such exploration should be made subject to a permit requirement. Member States should ensure that the procedures for the granting of exploration permits are open to all entities possessing the necessary capacities and that the permits are granted on the basis of objective, published criteria. In order to protect and encourage exploration investments, exploration permits should be granted for a limited volume area and for a limited time, during which time the holder of the permit should have the sole right to explore the potential CO_2 storage complex. Member States should ensure that no conflicting uses of the complex are permitted during this time.

(17) Storage sites should not be operated without a storage permit. The storage permit should be the core instrument to ensure that the substantial requirements of the Directive are met and that geological storage hence takes place in an environmentally safe way.

(18) All draft storage permits should be submitted to the Commission in order for it to be able to issue an opinion on the draft permits within six months of their submission. The national authorities should take this opinion into consideration when taking a decision on the permit and should justify any departure from the Commission's opinion. The review at Community level should help to ensure consistency in implementation of the requirements of the Directive across the Community and also enhance public confidence in CCS, especially in the early phase of the implementation of the Directive.

(19) The competent authority should review and where necessary update or withdraw the storage permit *inter alia* if it has been notified of significant irregularities or leakages, if the reports submitted by the operators or the inspections carried out show non-compliance with permit conditions or if it is made aware of any other failure by the operator to meet the permit conditions. After the withdrawal of a permit, the competent authority should either issue a new permit or close the storage site. In the meantime, the competent authority should take over the responsibility for the storage site including all ensuing legal obligations. To the extent possible, costs incurred should be recovered from the former operator.

(20) It is necessary to impose constraints on the composition of the CO_2 stream that are consistent with the primary purpose of geological storage, which is to isolate CO_2 emissions from the atmosphere, and that are based on the risks that contamination may pose to the safety and security of the transport and storage network. To this end, the composition of the CO_2 stream should be verified prior to injecting and storing it.

(21) Monitoring is essential to assess whether injected CO_2 is behaving as expected, whether any migration or leakage occurs, and whether any identified leakage is damaging the environment or human health. To that end, Member States should ensure that during the operational phase, the operator monitors the storage complex and the injection facilities on the basis of a monitoring plan designed pursuant to specific monitoring requirements. The plan should be submitted to and approved by the competent authority.

(22) The operator should report *inter alia* the results of the monitoring to the competent authority at least once a year. In addition, Member States should establish a system of inspections to ensure that the storage site is operated in compliance with the requirements of this Directive.

(23) Provisions are required covering liability for damage to the local environment and climate damage, resulting from any failure of permanent containment. Liability for environmental damage (damage to protected species and natural habitats, water and land) is regulated by Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage[13], which should be applied to the operation of storage sites pursuant to the present Directive. Liability for climate damage as a result of leakages is covered by the inclusion of storage sites in Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC[14], which requires surrender of emissions trading allowances for any leaked emissions. In addition, this Directive should establish the obligation on the operator to take corrective measures in case of significant irregularities or leakages on the basis of a corrective measures plan submitted to and approved by the competent national authority. Where the operator fails to take the necessary corrective measures, these measures should be taken by the competent authority, which should recover the costs from the operator.

(24) A storage site should be closed if the relevant conditions stated in the permit have been met, upon request from the operator after authorisation of the competent authority, or if the competent authority decides so after the withdrawal of a storage permit.

(25) After a storage site has been closed, the operator should remain responsible for maintenance, monitoring and control, reporting, and corrective measures pursuant to the requirements of this Directive on the basis of a post-closure plan submitted to and approved by the competent authority as well as for all ensuing obligations under other relevant Community legislation until the responsibility for the storage site is transferred to the competent authority.

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13 OJ L 143, 30.4.2004, p. 56.

14 OJ L 275, 25.10.2003, p. 32. Directive as amended by Directive 2004/101/EC of the European Parliament and of the Council (OJ L 338, 13.11.2004, p. 18).

(26) The responsibility for the storage site, including all ensuing legal obligations, should be transferred to the competent authority, if and when all available evidence indicates that the stored CO_2 will be completely contained for the indefinite future. To this end, the operator should prepare a report documenting that the criterion has been fulfilled and submit it to the competent authority for approval of the transfer. All draft approval decisions should be submitted to the Commission in order for it to be able to issue an opinion on the draft approval decisions within six months of their submission. The national authorities should take this opinion into consideration when taking a decision on the approval and should justify any departure from the Commission's opinion. As the review of draft storage permits at Community level, the review of draft approval decisions should help to ensure consistency in implementation of the requirements of the Directive across the Community and also enhance public confidence in CCS, especially in the early phase of the implementation of the Directive.

(27) After the transfer of responsibility, monitoring should be allowed to cease, but should be re-activated, if leakages or significant irregularities are identified. There should be no recovery of costs incurred by the competent authority from the former operator after the transfer of responsibility.

(28) Financial provision should be made provided in order to raise confidence that closure and post-closure obligations, obligations arising from inclusion under Directive 2003/87/EC, and obligations under this Directive to take corrective measures in case of significant irregularities or leakages, can be met. Member States should ensure that financial provisions, by way of financial security or any other equivalent, are made by the applicant prior to the submission of the permit application.

(29) Access to CO_2 transport networks and storage sites could become a condition for entry into or competitive operation within the internal electricity and heat market, depending on the relative prices of carbon and CCS. It is therefore appropriate to make arrangements for potential users to obtain such access. This should be done in a manner to be determined by each Member State, applying the objectives of fair and open access and taking into account *inter alia* the transport and storage capacity which is available or can reasonably be made available as well as the proportion of its CO_2 reduction obligations pursuant to international legal instruments and to Community legislation intended to meet through CO_2 capture and geological storage. Member States should also establish dispute settlement mechanisms to enable expeditious settlement of disputes regarding access to CO_2 transport networks and storage sites.

(30) Provisions are required to ensure that in cases of transboundary CO_2 transport, transboundary storage sites or transboundary storage complexes, the competent authorities of the Member States concerned shall meet the requirements of this Directive and of all other Community legislation jointly.

(31) The competent authority should establish and maintain a register of all closed storage sites and surrounding storage complexes, including maps of their spatial extent to be taken into consideration by the competent national authorities in relevant planning and permitting procedures. The register should also be reported to the Commission.

(32) Member States should submit reports on the implementation of this Directive on the basis of questionnaires drawn up by the Commission pursuant to Council Directive 91/692/EEC of 23 December 1991 standardizing and rationalizing reports on the implementation of certain Directives relating to the environment[15].

(33) Member States should lay down rules on penalties applicable to infringements of the national provisions adopted pursuant to this Directive. Those penalties should be effective, proportionate and dissuasive.

(34) The Community measures necessary for the implementation of this Directive should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission[16].

(35) Directive 85/337/EEC should be amended to cover capture and transport of CO_2 streams for the purposes of geological storage as well as storage sites pursuant to this Directive. Directive 96/61/EC should be amended to cover capture of CO_2 streams for the purposes of geological storage from installations covered by that Directive. Directive 2004/35/EC should be amended to cover the operation of storage sites pursuant to this Directive.

(36) The adoption of this Directive should ensure a high level of protection of the environment and human health from the risks posed by the geological storage of CO_2. For this reason, Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 on waste[17] and Regulation of the European Parliament and of the Council of 14 June 2006 (EC) No 1013/2006 on shipments of waste[18] should be amended so as to exclude CO_2 captured and transported for the purposes of geological storage from the scope of application of those instruments. Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy[19] should also be amended to allow for injection of CO_2 in saline aquifers for the purposes of geological storage.

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15 OJ L 377, 31.12.1991, p. 48. Directive as amended by Regulation (EC) No 1882/2003 of the European Parliament and of the Council (OJ L 284, 31.10.2003, p. 1).

16 OJ L 184, 17.7.1999, p. 23. Decision as amended by Decision 2006/512/EC (OJ L 200, 22.7.2006, p. 11).

17 OJ L 114, 27.4.2006, p. 9.

18 OJ L 190, 12.7.2006, p. 1. Regulation as amended by Commission Regulation (EC) No 1379/2007 (OJ L 309, 27.11.2007, p. 7).

19 OJ L 327, 22.12.2000, p. 1. Directive as amended by Decision No 2455/2001/EC (OJ L 331, 15.12.2001, p. 1).

(37) The transition to low-carbon power generation requires that new investments in fossil fuel power generation are made in such a way as to facilitate substantial reductions in emissions. To this end, Directive 2001/80/EC of the European Parliament and of the Council of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants[20] should be amended to require that all combustion plants, for which the original construction license or the original operating licence is granted after the entry into force of this Directive, have suitable space on the installation site for the equipment necessary to capture and compress CO_2 and that the availability of suitable storage sites and transport networks, as well as the technical feasibility of retrofitting for CO_2 capture, have been assessed.

(38) Since the objective of the proposed action, the establishment of a legal framework in order to regulate the environmental risks of CCS, cannot be sufficiently achieved by the Member States acting individually, and can therefore, by reason of the scale and effects of the present action, be better achieved at Community level, the Community may adopt measures in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty. In accordance with the principle of proportionality, as set out in that Article, this Directive does not go beyond what is necessary in order to achieve those objectives.

(39) The application of this Directive is without prejudice to Articles 87 and 88 EC

HAVE ADOPTED THIS DIRECTIVE:

CHAPTER 1
Subject-matter, scope and definitions

Article 1
Subject matter and purpose

1. This Directive establishes a legal framework for the geological storage of carbon dioxide (hereinafter "CO_2").

2. The purpose of geological storage is permanent containment of CO_2 in such a way as to prevent or reduce as far as possible negative effects on the environment and any resulting risk to human health.

Article 2
Scope and prohibition

1. This Directive shall apply to the geological storage of CO_2 on the territory of the Member States, their exclusive economic zones and on their continental shelves within the meaning of the United Nations Convention on the Law of the Seas (UNCLOS).

[20] OJ L 309, 27.11.2001, p. 1. Directive as last amended by Council Directive 2006/105/EC (OJ L 363, 20.12.2006, p. 368).

2. This Directive shall not apply to geological storage of CO_2 undertaken for research, development or testing of new products and processes.

3. The storage of CO_2 in geological formations extending beyond the area referred to in paragraph 1 shall not be permitted.

4. The storage of CO_2 in the water column shall not be permitted.

Article 3
Definitions

For the purposes of this Directive the following definitions apply:

(1) 'geological storage of CO_2' means injection into and storage of CO_2 streams in underground geological formations;

(2) 'water column' means the vertically continuous mass of water from the surface to the bottom sediments of a water body;

(3) 'storage site' means a specific geological formation used for the geological storage of CO_2;

(4) 'geological formation' means a lithostratigraphical subdivision within which distinct rock layers can be found and mapped;

(5) 'leakage' means any release of CO_2 from the storage complex;

(6) 'storage complex' means the storage site and surrounding geological domains which can have an effect on overall storage integrity and security (*i.e.*, secondary containment formations);

(7) 'exploration' means assessing potential storage complexes by means of a specific procedure including activities such as carrying out geological surveys by physical or chemical means and drilling to obtain geological information about strata in the potential storage complex;

(8) 'exploration permit' means a written and reasoned decision authorising exploration issued by the competent authority pursuant to the requirements of this Directive;

(9) 'operator' means any natural or legal, private or public person who operates or controls the storage site or to whom decisive economic power over the technical functioning of the storage site has been delegated according to national legislation; This person may change from the storage preparations to the post-closure phase;

(10) 'storage permit' means a written and reasoned decision authorising the geological storage of CO_2 in a storage site, issued by the competent authority pursuant to the requirements of this Directive;

(11) 'substantial change' means a change which may have significant effects on the environment;

(12) 'CO_2 stream' means a flow of substances that results from carbon dioxide capture processes;

(13) 'waste' means the substances defined as waste in point (a) of Article 1(1) of Directive 2006/12/EC;

(14) 'CO_2 plume' means the dispersing volume of CO_2 in the geological formation;

(15) 'migration' means the movement of CO_2 within the storage complex;

(16) 'significant irregularity' means any irregularity in the injection or storage operations or in the condition of the site itself, which implies the risk of a leakage;

(17) 'corrective measures' means any measures taken to correct significant irregularities or to close leakages in order to prevent or minimise the release of CO_2 from the storage complex;

(18) 'closure' of a CO_2 storage site means the definite cessation of CO_2 injection into that storage site;

(19) 'post-closure' means the period after the closure of a storage site, including the period after the transfer of responsibility to the competent authority;

(20) 'transport network' means the network of pipelines, including associated booster stations, for the transport of CO_2 to the storage site.

CHAPTER 2
Site selection and exploration permits

Article 4
Selection of storage sites

1. Member States retain the right to determine the areas from which storage sites may be selected pursuant to the requirements of this Directive.

2. A geological formation shall only be selected as a storage site, if under the proposed conditions of use there is no significant risk of leakage, and if no significant negative environmental or health impacts are likely to occur.

3. The suitability of a geological formation for use as a storage site shall be determined through a characterisation and assessment of the potential storage complex and surrounding area pursuant to the criteria specified in Annex I.

Article 5
Exploration permits

1. Where Member States determine that exploration is required to generate the information necessary for the site selection pursuant to Article 4, they shall ensure that no such exploration takes place without an exploration permit.

2. Member States shall ensure that the procedures for the granting of exploration permits are open to all entities possessing the necessary capacities and that the permits are granted on the basis of objective, published criteria.

3. Exploration permits shall be granted for a limited volume area and for a maximum of two years, renewable once for a maximum of two years.

4. The holder of an exploration permit shall have the sole right to explore the potential CO_2 storage complex. Member States shall ensure that no conflicting uses of the complex are permitted during the period of validity of the permit.

CHAPTER 3
Storage permits

Article 6
Storage permits

1. Member States shall ensure that no storage site is operated without a storage permit.

2. Member States shall ensure that the procedures for the granting of storage permits are open to all entities possessing the necessary capacities and that the permits are granted on the basis of objective, published criteria.

Article 7
Applications for storage permits

Applications to the competent authority for storage permits shall include the following information:

(1) name and address of the applicant and, if different, of the potential operator;

(2) proof of the technical competence of the applicant or the potential operator;

(3) the characterisation of the storage site and complex and an assessment of the expected security of the storage pursuant to Article 4(2) and (3);

(4) the total quantity of CO_2 to be injected and stored as well as the prospective sources, composition of CO_2 streams and injection rates;

(5) a proposed monitoring plan pursuant to Article 13(2);

(6) a proposed corrective measures plan pursuant to Article 16(2);

(7) a proposed provisional post-closure plan pursuant to Article 17(3);

(8) the information provided pursuant to Article 5 of Directive 85/337/EEC;

(9) proof of the financial security or other equivalent provision as required under Article 19.

Article 8
Conditions for storage permits

The competent authority shall only issue a storage permit if the following conditions are met:

(1) the competent authority is satisfied that:

(a) all relevant requirements of this Directive are met;

(b) the management of the storage site will be in the hands of a natural person who is technically competent and reliable to manage the site; professional and technical development and training of this person and all staff are provided;

(2) the Commission has issued its opinion on the draft permit pursuant to Article 10(1);

(3) the competent authority has considered this opinion pursuant to Article 10(2).

Article 9
Contents of storage permits

The permit shall contain the following:

(1) name and address of the operator;

(2) precise location and delimitation of the storage site and storage complex;

(3) the total quantity of CO_2 authorised to be geologically stored and maximum injection rates;

(4) requirements for the composition of the CO_2 stream and the CO_2 acceptance procedure pursuant to Article 12, and, if necessary, further requirements for injection and storage;

(5) the approved monitoring plan, the obligation to implement the plan and requirements for updating it pursuant to Article 13 as well as reporting requirements pursuant to Article 14;

(6) the requirement to notify the competent authority in case of significant irregularities or leakages, the approved corrective measures plan and the obligation to implement the corrective measures plan in case of significant irregularities or leakages pursuant to Article 16;

(7) conditions for closure and the approved provisional post-closure plan pursuant to Article 17;

(8) provisions on changes, review, updating and withdrawal of the storage permit pursuant to Article 11;

(9) the requirement to maintain the financial security or any other equivalent pursuant to Article 19.

Article 10
Commission review of draft storage permits

1. Member States shall inform the Commission of all draft storage permits, the permit applications and any other material taken into consideration by the competent authority when adopting its draft decision. Within six months of their submission to the Commission, the Commission may issue an opinion on the draft permits.

2. The competent authority shall notify the final decision to the Commission, stating the reasons if it deviates from the Commission opinion.

Article 11
Changes, review, update and withdrawal of storage permits

1. The operator shall inform the competent authority of any changes planned in the operation of the storage site. Where appropriate, the competent authority shall update the storage permit or the permit conditions.

2. Member States shall ensure that no substantial change is implemented without a new storage permit issued in accordance with this Directive.

3. The competent authority shall review and where necessary update or withdraw the storage permit:

(a) if it has been notified of significant irregularities or leakages pursuant to Article 16(1);

(b) if the reports submitted pursuant to Article 14 or the environmental inspections carried out pursuant to Article 15 show non-compliance with permit conditions or risks of significant irregularities or leakages;

(c) if it is aware of any other failure by the operator to meet the permit conditions;

(d) without prejudice to points (a) to (c), every five years.

4. After a permit has been withdrawn pursuant to paragraph 3, the competent authority shall either issue a new storage permit or close the storage site pursuant to point (c) of Article 17(1). Until a new storage permit has been issued, the competent authority shall take over the responsibility for the storage site, including all ensuing legal obligations. To the extent possible, the competent authority shall recover any costs incurred from the former operator.

CHAPTER 4
Operation, closure and post-closure obligations

Article 12
CO_2 stream acceptance criteria and procedure

1. A CO_2 stream shall consist overwhelmingly of carbon dioxide. To this end, no waste and other matter may be added for the purpose of disposing of that waste or other matter. However, a CO_2 stream may contain incidental associated substances from the source, capture or injection process. Concentrations of those substances shall be below levels that would adversely affect the integrity of the storage site and relevant transport infrastructure and pose a significant risk to the environment or breach the requirements of applicable Community legislation.

2. Member States shall ensure that when injecting and storing a CO_2 stream:

(a) before or at the time of delivery, or of the first in a series of deliveries, the operator can show, by means of the appropriate documentation, that the CO_2 stream in question can be accepted at the site according to the conditions laid out in the permit, and that it fulfils the composition criteria set out in paragraph 1;

(b) the operator keeps a register of the quantities and characteristics of the CO_2 streams delivered, indicating origin, composition and the identity of the producers and transporters of the CO_2 streams.

Article 13
Monitoring

1. Member States shall ensure that the operator carries out monitoring of the injection facilities, the storage complex (including where possible the CO_2 plume), and where appropriate the surrounding environment for the purpose of:

(a) comparison between the actual and modelled behaviour of CO_2 in the storage site;

(b) detecting migration of CO_2;

(c) detecting leakage of CO_2;

(d) detecting significant adverse effects for the surrounding environment, human populations, or users of the surrounding biosphere;

(e) assessing the effectiveness of any corrective measures taken pursuant to Article 16;

(f) assessing whether the stored CO_2 will be completely contained for the indefinite future.

2. The monitoring shall be based on a monitoring plan designed by the operator pursuant to the requirements laid out in Annex II, submitted to and approved by the competent authority pursuant to Articles 7(5) and 9(5). The plan shall be updated pursuant to the requirements laid down in Annex II and in any case every five years to take account of technical developments. Updated plans shall be re-submitted for approval to the competent authority.

Article 14
Reporting

At a frequency to be determined by the competent authority, and in any event at least once a year, the operator shall submit to the competent authority:

(1) all results of the monitoring pursuant to Article 13 in the reporting period;

(2) the quantities and characteristics of the CO_2 streams delivered in the reporting period, indicating origin, composition and the identity of the producers and transporters of the CO_2 streams registered pursuant to point (b) of Article 12(2);

(3) proof of the maintenance of the financial security pursuant to Articles 19 and 9(9);

(4) any other information the competent authority considers relevant for the purposes of assessing compliance with permit conditions and increasing the knowledge of CO_2 behaviour in the storage site.

Article 15
Inspections

1. Member States shall ensure that the competent authorities organise a system of routine and non-routine inspections of all storage sites within the scope of this Directive for the purposes of checking and promoting compliance with the requirements of the Directive and of monitoring the effects on the environment.

2. Inspections may include activities such as visits of the storage complex, including the injection facilities, assessing the injection and monitoring operations carried out by the operator, and checking all relevant records of the storage site kept by the operator.

3. Routine inspections shall be carried out at least every year. They shall examine the relevant injection and monitoring facilities as well as the full range of relevant environmental effects from the storage complex.

4. Non-routine inspections shall be carried out:

(a) if the competent authority has been notified of leakages or significant irregularities pursuant to Article 16(1);

(b) if the reports pursuant to Article 14 have shown insufficient compliance with the permit conditions;

(c) to investigate serious environmental complaints;

(d) in other situations where the competent authority considers this appropriate.

5. Following each inspection, the competent authority shall prepare a report on the results of the inspection. The report shall evaluate compliance with the requirements of the Directive and indicate whether or not further action is necessary. The report shall be communicated to the operator concerned and shall be publicly available within two months of the inspection.

Article 16
Measures in case of significant irregularities or leakages

1. Member States shall ensure that in case of significant irregularities or leakages, the operator immediately notifies the competent authority and takes the necessary corrective measures.

2. The corrective measures referred to in paragraph 1 shall be taken on the basis of a corrective measures plan submitted to and approved by the competent authority pursuant to Articles 7(6) and 9(6);

3. The competent authority may at any time request the operator to take additional or different corrective measures than those laid out in the corrective measures plan. It may also at any time take corrective measures itself and shall then recover the costs from the operator.

4. If the operator fails to take the necessary corrective measures, the competent authority shall take the necessary corrective measures itself and recover the costs from the operator.

Article 17
Closure and post-closure obligations

1. A storage site or part of it shall be closed:

(a) if the relevant conditions stated in the permit have been met;

(b) at the request of the operator, after authorisation of the competent authority;

(c) if the competent authority so decides after the withdrawal of a storage permit pursuant to Article 11(3).

2. After a storage site has been closed pursuant to paragraph 1 points (a) or (b), the operator remains responsible for maintenance, monitoring, control, reporting, and corrective measures pursuant to the requirements laid down in this Directive, as well as for all ensuing obligations under other relevant provisions of Community legislation, until the responsibility for the storage site is transferred to the competent authority pursuant to Article 18(1) to (4). The operator shall also be responsible for sealing the storage site and removing the injection facilities.

3. The obligations referred to in paragraph 2 shall be fulfilled on the basis of a post-closure plan designed by the operator based on best practice and in accordance with the requirements laid down in Annex II 2. A provisional post-closure plan shall be submitted to and approved by the competent authority pursuant to Articles 7(7) and 9(7). Prior to the closure of a storage site pursuant to points (a) or (b) of paragraph 1, the provisional post-closure plan shall be:

(a) updated as necessary, in particular in view of best practice;

(b) submitted to the competent authority; and

(c) approved by the competent authority as the definite post-closure plan.

4. After a storage site has been closed pursuant to paragraph 1 point (c), the competent authority shall remain responsible for maintenance, monitoring, control, and corrective measures pursuant to the requirements laid down in this Directive as well as for all ensuing obligations under other relevant provisions of Community legislation. The post-closure requirements pursuant to this Directive shall be fulfilled on the basis of the provisional post-closure plan submitted to and approved by the competent authority pursuant to Articles 7(7) and 9(7), which shall be updated as necessary.

Article 18
Transfer of responsibility

1. Where a storage site has been closed pursuant to points (a) or (b) of Article 17(1), the responsibility for the closed site, including all ensuing legal obligations, shall be transferred to the competent authority on its own initiative or upon request from the operator, if and when all available evidence indicates that the stored CO_2 will be completely contained for the indefinite future. To this end, the operator shall prepare a report documenting that this criterion has been met and submit it to the competent authority for the latter to approve the transfer of responsibility.

2. Member States shall inform the Commission of all draft decisions of approval prepared by the competent authority pursuant to paragraph 1, including the reports submitted by the operator and any other material taken into consideration by the competent authority when arriving at its conclusion. Within six months of their submission to the Commission, the Commission may issue an opinion on the draft decisions of approval.

3. The competent authority shall notify the final decision to the Commission, stating the reasons if it deviates from the Commission opinion.

4. Together with the decision of approval referred to in paragraph 3, the competent authority may communicate updated requirements for the sealing of the storage site and the removal of the injection facilities pursuant to Article 17(2) and (3) to the operator. The transfer of responsibility shall take place after the site has been sealed and the injection facilities have been removed.

5. After the transfer of responsibility pursuant to paragraphs 1 to 4, monitoring may cease. However, if any leakages or significant irregularities are identified, monitoring shall be

reactivated as required to assess the scale of the problem and the effectiveness of corrective measures.

6. There shall be no recovery of costs incurred from the former operator after the transfer of responsibility to the competent authority pursuant to paragraphs 1 to 4.

7. Where a storage site has been closed pursuant to point (c) of Article 17(1), transfer of responsibility shall be deemed to take place if and when all available evidence indicates that the stored CO_2 will be completely contained for the indefinite future, and after the site has been sealed and the injection facilities have been removed.

Article 19
Financial security

1. Member States shall ensure that adequate provisions, by way of financial security or any other equivalent, on the basis of modalities to be decided by the Member States, are made by the applicant prior to the submission of the application for a storage permit to ensure that all obligations arising under the permit issued pursuant to this Directive, including closure procedures and post-closure provisions, as well as any obligations arising from inclusion under Directive 2003/87/EC can be met.

2. The financial security or any other equivalent referred to in paragraph 1 shall be kept:

(a) after a storage site has been closed pursuant to Article 17 paragraph 1 points (a) or (b), until the responsibility for the storage site is transferred to the competent authority pursuant to Article 18(1) to (4);

(b) after the withdrawal of a storage permit pursuant to Article 11(3):

(i) until a new storage permit has been issued;

(ii) where the site is closed pursuant to Article 17 paragraph 1 point (c), until the transfer of responsibility is deemed to take place pursuant to Article 18(7).

CHAPTER 5
Third-party access

Article 20
Access to transport network and storage sites

1. Member States shall take the necessary measures to ensure that potential users are able to obtain access to CO_2 transport networks and to storage sites for the purposes of geological storage of the produced and captured CO_2, in accordance with paragraphs 2 to 4.

2. The access referred to in paragraph 1 shall be provided in a manner determined by the Member State. The Member State shall apply the objectives of fair and open access, taking into account:

(a) the storage capacity which is or can reasonably be made available within the areas determined under Article 4, and the transport capacity which is or can reasonably be made available;

(b) the proportion of its CO_2 reduction obligations pursuant to international legal instruments and to Community legislation that it intends to meet through CO_2 capture and geological storage,

(c) the need to refuse access where there is an incompatibility of technical specifications which cannot be reasonably overcome;

(d) the need to respect the duly substantiated reasonable needs of the owner or operator of the storage site or of the CO_2 transport network and the interests of all other users of the storage or the network or relevant processing or handling facilities who may be affected; and;

(e) the need to apply the relevant national laws and administrative procedures, in conformity with Community law, for the grant of authorisation for production or upstream development.

3. CO_2 transport network operators and operators of storage sites may refuse access on the basis of lack of capacity. Duly substantiated reasons shall be given for any refusal.

4. Member States shall take the measures necessary to ensure that the undertaking refusing access on the basis of lack of capacity or a lack of connection makes the necessary enhancements as far as it is economic to do so or when a potential customer is willing to pay for them, provided this would not negatively impact on the environmental security of CO_2 transport and geological storage.

Article 21
Dispute settlement

1. Member States shall ensure that they have in place dispute settlement arrangements, including an authority independent of the parties with access to all relevant information, to enable disputes relating to access to CO_2 transport networks and to storage sites to be settled expeditiously, taking into account the criteria referred to in Article 20(2) and the number of parties which may be involved in negotiating such access.

2. In the event of cross border disputes, the dispute settlement arrangements of the Member State having jurisdiction over the CO_2 transport network or the storage site to which access has been refused shall be applied. Where, in cross border disputes, more than one Member State covers the CO_2 transport network or storage site concerned, the Member States concerned shall consult with a view to ensuring that the provisions of this Directive are applied consistently.

CHAPTER 6
General provisions

Article 22
Competent authority

Member States shall establish or designate the competent authority or authorities responsible for fulfilling the duties established under this Directive. Where more than one competent authority is designated, the work of these authorities undertaken pursuant to this Directive shall be co-ordinated.

Article 23
Transboundary co-operation

In cases of transboundary transport of CO_2, transboundary storage sites or transboundary storage complexes, the competent authorities of the Member States concerned shall meet the requirements of this Directive and of other relevant Community legislation jointly.

Article 24
Register of closed storage sites

1. The competent authority shall establish and maintain a register of all closed storage sites and surrounding storage complexes, including maps of their spatial extent.

2. The register shall be taken into consideration by the competent national authorities in relevant planning procedures and when permitting any activity that could affect or be affected by the geological storage of CO_2 in the closed storage sites.

3. The register shall be reported to the Commission after it has been established and whenever it is updated.

Article 25
Reporting by Member States

1. Every three years the Member States shall submit to the Commission a report on the application of this Directive. The first report shall be sent to the Commission by 30 June 2011. The report shall be drawn up on the basis of a questionnaire or outline drafted by the Commission in accordance with the procedure laid down in Article 6 of Directive 91/692/EEC. The questionnaire or outline shall be sent to Member States at least six months before the deadline for the submission of the report.

2. On the basis of the reports referred to in paragraph 1, the Commission shall publish a report on the application of this Directive.

3. The Commission shall organise an exchange of information between the competent authorities of the Member States concerning the application of this Directive.

Article 26
Penalties

The Member States shall lay down the rules on penalties applicable to infringements of the national provisions adopted pursuant to this Directive and shall take all measures necessary to ensure that they are implemented. The penalties provided for must be effective, proportionate and dissuasive. The Member States shall notify those provisions to the Commission by the date specified in Article 36 at the latest and shall notify it without delay of any subsequent amendment affecting them.

Article 27
Amendments of Annexes

The Commission may amend the annexes. Those measures, designed to amend non-essential elements of this Directive, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 28(2).

Article 28
Committee

1. The Commission shall be assisted by the Climate Change Committee.

2. Where reference is made to this paragraph, Article 5a(1) to (4) and Article 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.

CHAPTER 7
Amendments

Article 29
Amendment of Directive 85/337/EEC

Directive 85/337/EEC is amended as follows:

(1) Annex I is amended as follows:

(a) Point 16 is replaced by the following:

"16. Pipelines for the transport of gas, oil, chemicals and pipelines for the transport of carbon dioxide streams for the purposes of geological storage with a diameter of more than 800 mm and a length of more than 40 km, including associated booster stations."

(b) The following points 23 and 24 are added:

"23. Storage sites pursuant to Directive XX/XX/EC of the European Parliament and of the Council.(*)

24. Installations for the capture of CO_2 streams for the purposes of geological storage pursuant to Directive XX/XX/EC of the European Parliament and of the Council(*) from installations covered by this Annex, or where the total yearly capture of CO_2 is 1.5 mega tonnes and more.

_____

(*) OJ L…, …, p. .."

(2) In Annex II, the following point (j) is added to point 3:

"(j) Installations for the capture of CO_2 streams for the purposes of geological storage pursuant to Directive XX/XX/EC of the European Parliament and of the Council(*) from installations not covered by Annex I of this Directive.

_____

(*) OJ L…, …, p. .."

Article 30
Amendment of Directive 96/61/EC

In Annex I to Directive 96/61/EC, the following point 6.9 is added:

"6.9 Capture of CO_2 streams from installations covered by this Directive for the purposes of geological storage pursuant to Directive XX/XX/EC of the European Parliament and of the Council.(*)

_____

(*) OJ L…, …, p. .."

Article 31
Amendment of Directive 2000/60/EC

In point (j) of Article 11(3) of Directive 2000/60/EC, the following indent is inserted after the third indent:

"- injection of carbon dioxide streams for storage purposes into geological formations which for natural reasons are permanently unsuitable for other purposes, provided that such injection is authorised under Directive XX/XX/EC of the European Parliament and of the Council.(*);

_____

(*) OJ L…, …, p. .."

Article 32
Amendment of Directive 2001/80/EC

In Directive 2001/80/EC, the following Article 9a is inserted:

"Article 9a

Member States shall ensure that all combustion plants with a capacity of 300 megawatts or more for which the original construction license or, in the absence of such a procedure, the original operating licence is granted after the entry into force of Directive XX/XX/EC of the European Parliament and of the Council.(*), have suitable space on the installation site for the equipment necessary to capture and compress CO_2 and that the availability of suitable storage sites and suitable transport facilities, and the technical feasibility of retrofitting for CO_2 capture have been assessed.

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(*) OJ L…, …, p. .."

Article 33
Amendment of Directive 2004/35/EC

In Annex III to Directive 2004/35/EC, the following paragraph 14 is added:

"14. The operation of storage sites pursuant to Directive XX/XX/EC of the European Parliament and of the Council.(*);

_____

(*) OJ L…, …, p. .."

Article 34
Amendment of Directive 2006/12/EC

Point (a) of Article 2(1) of Directive 2006/12/EC is replaced by the following:

"(a) gaseous effluents emitted into the atmosphere and carbon dioxide captured and transported for the purposes of geological storage and geologically stored in accordance with the provisions of Directive XX/XX/EC of the European Parliament and of the Council(*);

_____

(*) OJ L…, …, p. .."

Article 35
Amendment of Regulation (EC) No 1013/2006

In Article 1(3) of Regulation (EC) No 1013/2006, the following point (h) is added:

"(h) shipments of CO_2 for the purposes of geological storage in accordance with the provisions of Directive XX/XX/EC of the European Parliament and of the Council.(*);

_____

(*) OJ L…, …, p. .."

CHAPTER 8
Final provisions

Article 36
Transposition

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by [1 year after publication] at the latest. They shall forthwith communicate to the Commission the text of those provisions and a correlation table between those provisions and this Directive.

When Member States adopt those provisions, they shall contain a reference to this Directive or be accompanied by such a reference on the occasion of their official publication. Member States shall determine how such reference is to be made.

2. Member States shall communicate to the Commission the text of the main provisions of national law which they adopt in the field covered by this Directive.

Article 37
Entry into force

This Directive shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union.*

Article 38
Addressees

The Directive is addressed to the Member States.

Done at Brussels,

For the European Parliament	*For the Council*
The President	*The President*

ANNEX I

CRITERIA FOR THE CHARACTERISATION AND ASSESSMENT OF STORAGE SITES REFERRED TO IN ARTICLE 4

The characterisation and assessment of storage sites referred to in Article 4 shall be carried out in four steps according to the following criteria. Derogations from one or more of these criteria are permitted so long as the capacity of the characterisation and assessment to enable the determinations pursuant to Article 4 is not affected.

Step 1: Data collection

Sufficient data shall be accumulated to construct a *volumetric and dynamic three-dimensional (3-D)-earth model f*or the storage site and storage complex including the caprock, and the surrounding area including the hydraulically connected areas. This data shall cover at least the following intrinsic complex characteristics:

(a) Reservoir geology and geophysics;

(b) Hydrogeology (in particular existence of potable ground water);

(c) Reservoir engineering (including volumetric calculations of pore volume for CO_2 injection and ultimate storage capacity, pressure and temperature conditions, pressure volume behaviour as a function of formation injectivity, cumulative injection rate and time);

(d) Geochemistry (dissolution rates, mineralisation rates);

(e) Geomechanics (permeability, fracture pressure);

(f) Seismicity (assessment of potential for induced earthquakes);

(g) Presence and condition of natural and man-made pathways which could provide leakage pathways;

The following characteristics of the complex vicinity shall be documented:

(h) Domains surrounding the storage complex that may be affected by the storage of CO_2 in the storage site;

(i) Population distribution in the region overlying the storage site;

(j) Proximity to valuable natural resources (including in particular Natura 2000 areas pursuant to Directives 79/409/EEC and 92/43/EEC, potable groundwater and hydrocarbons);

(k) Possible interactions with other activities (e.g. exploration, production and storage of hydrocarbons, geothermal use of aquifers);

(l) Proximity to the potential CO_2 source(s) (including estimates of the total potential mass of CO_2 economically available for storage).

Step 2: Computerised simulation of the storage complex

Using the data collected in Step 1, a *three-dimensional static geological earth model*, or a set of such models, of the candidate storage complex including the caprock and the hydraulically connected areas shall be built using computer reservoir simulators. The static geological earth model(s) shall characterise the complex in terms of:

(a) Geological structure of the physical trap;

(b) Geomechanical and geochemical properties of the reservoir;

(c) Presence of any faults or fractures and fault/fracture sealing;

(d) Overburden (caprock, seals, porous and permeable horizons);

(e) Areal and vertical extent of the storage formation;

(f) Pore space volume (including porosity distribution);

(g) Any other relevant characteristics.

The uncertainty associated with each of the parameters used to build the model shall be assessed by developing a range of scenarios for each parameter and calculating the appropriate confidence limits. Any uncertainty associated with the model itself shall also be assessed.

Step 3: Security, sensitivity and hazard characterisation

Step 3.1 Security characterisation

Security characterisation shall be based on dynamic modelling, comprising a variety of time-step simulations of CO_2 injection into the storage site using the three-dimensional static geological earth model(s) in the computerised storage complex simulator constructed under Step 2. The following factors shall be considered:

(a) Possible injection rates and CO_2 properties;

(b) The efficacy of coupled process modelling (*i.e.* the way various single effects in the simulator(s) interact);

(c) Reactive processes (*i.e.* the way reactions of the injected CO_2 with *in situ* minerals feedback in the model);

(d) The reservoir simulator used (multiple simulators may be required in order to validate certain findings);

(e) Short and long-term simulations (to establish CO_2 fate and behaviour over decades and millennia including the solution velocity of CO_2 in water).

The dynamic modelling shall provide insight to:

(f) Pressure volume behaviour vs. time of the storage formation;

(g) Areal and vertical extent of CO_2 vs. time;

(h) The nature of CO_2 flow in the reservoir including phase behaviour;

(i) CO_2 trapping mechanisms and rates (including spill points and lateral and vertical seals);

(j) Secondary containment systems in the overall storage complex;

(k) Storage capacity and pressure gradients in the storage site;

(l) The risk of fracturing the storage formation(s) and caprock;

(m) The risk of CO_2 entry into the caprock (*e.g.*, due to exceedance of capillary entry pressure of the caprock or due to caprock degradation);

(n) The risk of leakage through abandoned or inadequately sealed wells;

(o) The rate of migration (in open-ended reservoirs);

(p) Fracture sealing rates;

(q) Changes in formation(s) fluid chemistry and subsequent reactions (*e.g.* pH change, mineral formation) and inclusion of reactive modelling to assess affects;

(r) Displacement of formation fluids.

Step 3.2 Sensitivity characterisation

Multiple simulations shall be undertaken to identify the sensitivity of the assessment to assumptions made about particular parameters. The simulations shall be based on altering parameters in the static geological earth model(s), and changing rate functions and assumptions in the dynamic modelling exercise. Any significant sensitivity shall be taken into account in the risk assessment.

Step 3.3 Hazard characterisation

Hazard characterisation shall be undertaken by characterising the potential for leakage from the storage complex, as established through dynamic modelling and security characterisation described above. This shall include consideration of *inter alia*:

(a) Potential leakage pathways;

(b) Potential magnitude of leakage events for identified leakage pathways (flux rates);

(c) Critical parameters affecting potential leakage (*e.g.* maximum reservoir pressure, maximum injection rate, sensitivity to various assumptions in the static geological Earth model(s) etc.);

(d) Secondary effects of storage of CO_2 including displaced formation fluids and new substances created by the storing of CO_2;

(e) Any other factors which could pose a hazard to human health or the environment (*e.g*. physical structures associated with the project);

The hazard characterisation shall cover a range of potential scenarios including scenarios that test the security of the storage complex to the extreme.

Step 4: Risk assessment

The risk assessment shall cover the range of scenarios developed under the hazard characterisation of Step 3 and shall comprise the following:

(a) *Exposure assessment* – based on the characteristics of the environment and distribution of human population above the storage complex, and the potential behaviour and fate of leaking CO_2 from potential pathways identified under Step 3;

(b) *Effects assessment* – based on the sensitivity of particular species, communities or habitats linked to potential leakage events identified under Step 3. Where relevant it shall include effects of exposure to elevated CO_2 concentrations in the biosphere (including soils, marine sediments and benthic waters (asphyxiation; hypercapnia) and reduced pH in those environments as a consequence of leaking CO_2). It shall also include an assessment of the effects of other substances that may be present in leaking CO_2 streams (either impurities present in the injection stream or new substances formed through storage of CO_2). These effects shall be considered at a range of temporal and spatial scales, and linked to a range of different magnitudes of leakage events.

(c) *Risk characterisation* – This shall comprise an assessment of the safety and integrity of the site in the short and long term, including an assessment of the risk of leakage under the proposed conditions of use, and of the worst-case environment and health impacts. The risk characterisation shall be conducted based on the hazard, exposure and effects assessment. It shall include an assessment of the sources of uncertainty.

ANNEX II

CRITERIA FOR ESTABLISHING AND UPDATING THE MONITORING PLAN REFERRED TO IN ARTICLE 13(2) AND FOR POST-CLOSURE MONITORING

1. Establishing and updating the monitoring plan

The monitoring plan referred to in Article 13(2) shall be established and updated with the purpose of meeting the monitoring requirements laid out in Article 13(1) according to the following criteria:

1.1 Establishing the plan

The monitoring plan shall provide details of the monitoring to be deployed at the main stages of the project, including baseline, operational and post-closure monitoring. The following shall be specified for each phase:

(a) Parameters monitored;

(b) Monitoring technology employed and justification for technology choice;

(c) Monitoring locations and spatial sampling rationale;

(d) Frequency of application and temporal sampling rationale.

The parameters to be monitored are identified so as to fulfil the purposes of monitoring. However, the plan shall in any case include continuous or intermittent monitoring of the following items:

(e) Fugitive emissions of CO_2 at the injection facility;

(f) CO_2 volumetric flow at injection wellheads;

(g) CO_2 pressure and temperature at injection wellheads (to determine mass flow);

(h) Chemical analysis of the injected material;

(i) Reservoir temperature and pressure (to determine CO_2 phase behaviour and state).

The choice of monitoring technology shall be based on best practice available at the time of design. The following options shall be considered and used as appropriate:

(j) technologies that can detect the presence, location and migration paths of CO2 in the subsurface;

(k) technologies that provide information about pressure volume behaviour and areal/vertical saturation distribution of CO_2-plume by applying numerical 3-D-simulation to the 3-D-geological models of the storage formation established pursuant to Article 4 and Annex I;

(l) technologies that can provide a wide areal spread in order to capture information on any previously undetected potential leakage pathways across the areal dimensions of the complete storage complex and beyond, in the event of significant irregularities or migration of CO_2 out of the storage complex.

1.2 Updating the plan

The data collected from the monitoring shall be collated. The observed results shall be compared with the behaviour predicted in dynamic simulation of the 3-D-pressure-volume and saturation behaviour undertaken in the context of the security characterisation pursuant to Article 4 and Annex I Step 3.

Where there is a significant deviation between the observed and the predicted behaviour, the 3-D-model shall be recalibrated to reflect the observed behaviour. The recalibration shall be based on the data observations from the monitoring plan, and where necessary to provide confidence in the recalibration assumptions, additional data shall be obtained.

Steps 2 and 3 of Annex I shall be repeated using the recalibrated 3-D model(s) so as to generate new hazard scenarios and flux rates. The new scenarios shall be used to revise and update the risk assessment prepared under Annex I Step 4.

Where new CO_2 sources, pathways and flux rates are identified as a result of history matching and model recalibration, the monitoring plan shall be updated accordingly.

2. Post-closure monitoring

Post-closure monitoring shall be based on the information collected and modelled during the implementation of the monitoring plan referred to in Article 13(2) and above under 1.2. It shall serve in particular to provide information required for the determination of Article 18 (1).

LEGISLATIVE FINANCIAL STATEMENT

1. NAME OF THE PROPOSAL:

Proposal for a Directive of the European Parliament and the Council on the geological storage of carbon dioxide and amending Council Directives 85/337/EEC, 96/61/EC, Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC and Regulation (EC) No 1013/2006

2. ABM / ABB FRAMEWORK

Environment (ABB Code 0703: Implementation of Community Environmental Policy and legislation).

3. BUDGET LINES

3.1. Budget lines (operational lines and related technical and administrative assistance lines (ex- B..A lines)) including headings:

Financial instrument for the Environment (LIFE+ for the 2007-2013 period) (07.03.07)

3.2. Duration of the action and of the financial impact:

The activity of Commission review of draft permit decisions for CO2 storage sites is not time limited. The duration of the funding provisions for payment of indemnities to experts is determined by the duration of the Financial Instrument for the Environment (LIFE+) Environment Policy and Governance: 1.1.2007 to 31.12.2013.

3.3. Budgetary characteristics:

Budget line	Type of expenditure		New	EFTA contribution	Contributions from applicant countries	Heading in financial perspective
070307	Non-comp	Diff	YES	NO	NO	No 2

4. SUMMARY OF RESOURCES

4.1. Financial Resources

4.1.1. Summary of commitment appropriations (CA) and payment appropriations (PA)

EUR million (to 3 decimal places)

Expenditure type	Section no.		2008	2009	2010	2011	2012	2013 and later	Total
Operational expenditure[21]									
Commitment Appropriations (CA)	8.1.	a	0	0	0	0.6068	0.6068	0.6068	3.6228
Payment Appropriations (PA)		b	0	0	0	0.6068	0.6068	0.6068	3.6228
Administrative expenditure within reference amount[22]									
Technical & administrative assistance (NDA)	8.2.4.	c	0	0	0	0	0	0	0
TOTAL REFERENCE AMOUNT									
Commitment Appropriations		a+c	**0**	**0**	**0**	**0.6068**	**0.6068**	**0.6068**	**3.6228**
Payment Appropriations		b+c	**0**	**0**	**0**	**0.6068**	**0.6068**	**0.6068**	**3.6228**
Administrative expenditure <u>not</u> included in reference amount[23]									
Human resources and associated expenditure (NDA)	8.2.5.	d	0	0	0	0.0648	0.0648	0.0648	0.1944
Administrative costs, other than human resources and associated costs, not included in reference amount (NDA)	8.2.6.	e	0	0	0.027	0.096	0.046	0.096	0.265
Total indicative financial cost of intervention									
TOTAL CA including cost of Human Resources		a+c+d+e	0	0	0.027	0.7676	0.7176	0.7676	2.2798

21 Expenditure that does not fall under Chapter xx 01 of the Title xx concerned.

22 Expenditure within article xx 01 04 of Title xx.

23 Expenditure within chapter xx 01 other than articles xx 01 04 or xx 01 05.

TOTAL PA including cost of Human Resources		b +c + d +e	0	0	0.027	0.7676	0.7176	0.7676	2.2798

Co-financing details

If the proposal involves co-financing by Member States, or other bodies (please specify which), an estimate of the level of this co-financing should be indicated in the table below (additional lines may be added if different bodies are foreseen for the provision of the co-financing):

EUR million (to 3 decimal places)

Co-financing body		2008	2009	2010	2011	2012	2013 and later	Total
……	f	0	0	0	0	0	0	0
TOTAL CA including co-financing	a+c+d +e+f	0	0	0.027	0.7676	0.7176	0.7676	2.2798

4.1.2. Compatibility with Financial Programming

X Proposal is compatible with existing financial programming.

☐ Proposal will entail reprogramming of the relevant heading in the financial perspective.

☐ Proposal may require application of the provisions of the Interinstitutional Agreement[24] (i.e. flexibility instrument or revision of the financial perspective).

4.1.3. Financial impact on Revenue

X Proposal has no financial implications on revenue

☐ Proposal has financial impact – the effect on revenue is as follows:

[24] See points 19 and 24 of the Interinstitutional agreement.

EUR million (to one decimal place)

		Prior to action	Situation following action					
Budget line	Revenue	[Year n-1]	[Year n]	[n+1]	[n+2]	[n+3]	[n+4]	[n+5] [25]
	a) Revenue in absolute terms							
	b) Change in revenue	Δ						

4.2. Human Resources FTE (including officials, temporary and external staff) – see detail under point 8.2.1.

Annual requirements	2008	2009	2010	2011	2012	2013 and later
Total number of human resources	0	0	0	0.6	0.6	0.6

5. CHARACTERISTICS AND OBJECTIVES

5.1. Need to be met in the short or long term

Geological storage of CO2 is a novel technology and the proposal sets out requirements for permitting of storage sites. Permitting a site is the crucial decision, since if the site is chosen correctly the risk of future leakage and associated adverse consequences will be minimised. In the early phase of implementation, measures to ensure a consistent approach to permitting across the EU are highly desirable.

5.2. Value-added of Community involvement and coherence of the proposal with other financial instruments and possible synergy

The proposed mechanism for ensuring consistent permitting is review of draft permits at Community level, resulting in a Commission opinion. The review will (i) check the application of the directive's requirements for the particular site in questions (ii) take a view on whether the degree of analysis is sufficient to allow the relevant determinations of the directive to be made, in particular those relating to potential leakage and environmental and health impact, (iii) assess the reliability of the data and tools/methodology used in the analysis, and (iv) take a view on whether the determinations of the draft permit are justified by the evidence.

[25] Additional columns should be added if necessary i.e. if the duration of the action exceeds 6 years.

5.3. Objectives, expected results and related indicators of the proposal in the context of the ABM framework

The objective of the review of permitting decisions is to ensure comparable implementation of the proposal's rules designed to ensure the safe deployment of CO2 storage. The reviews and experience gained will also provide the basis for establishing general guidelines for implementation of the rules.

5.4. Method of Implementation (indicative)

X Centralised Management

X Directly by the Commission

☐ indirectly by delegation to:

- ☐ executive Agencies
- ☐ bodies set up by the Communities as referred to in art. 185 of the Financial Regulation
- ☐ national public-sector bodies/bodies with public-service mission

☐ ***Shared or decentralised management***

- ☐ with Member states
- ☐ with Third countries

☐ ***Joint management with international organisations (please specify)***

Relevant comments:

6. MONITORING AND EVALUATION

6.1. Monitoring system

The Commission will organise an exchange of information between the competent authorities of the Member States concerning the application of the proposed Directive, including reports on the review of draft permit decisions.

Contracts signed by the Commission for the purpose of the implementation of the Directive shall provide for supervision and financial control by the Commission (or any representative authorized by it) and audits by the Court of Auditors, if necessary on-the-spot.

6.2. Evaluation

6.2.1. Ex-ante evaluation

The Impact Assessment for the proposal carried out an analysis of the options for ensuring the consistent application of the Directive in the initial phase and concluded that Commission review was the most appropriate.

6.2.2. Measures taken following an intermediate/ex-post evaluation (lessons learned from similar experiences in the past)

NA

6.2.3. Terms and frequency of future evaluation

As part of its report on the operation of the Directive every three years, the Commission will report on the review of draft permit decisions including progress towards consistency of application across the EU and an assessment of the resulting learning.

7. ANTI-FRAUD MEASURES

Full application of internal control standards No 14, 15, 16, 18, 19, 20, 21, as well as of the principles of the Council Regulation (EC, Euratom) No 1605/2002 on the Financial Regulation applicable to the general budget of the European Communities.

The Commission shall ensure that, when actions financed under the present programme are implemented, the financial interests of the Community are protected by the application of preventive measures against fraud, corruption and any other illegal activities, by effective checks and by the recovery of the amounts unduly paid and, if irregularities are detected, by effective, proportional and dissuasive penalties, in accordance with Council Regulations (EC, Euratom) No 2988/95 and (Euratom, EC) No 2185/96, and with Regulation (EC) No 1073/1999 of the European Parliament and of the Council.

8. DETAILS OF RESOURCES

8.1. Objectives of the proposal in terms of their financial cost

Commitment appropriations in EUR million (to 3 decimal places)

(Headings of Objectives, actions and outputs should be provided)	Type of output	Av. cost	2008		2009		2010		2011		2012		2013 and later		TOTAL	
			No. outputs	Total cost	No. outputs	Total cost	No. outputs	Total cost	No. outputs	Total cost	No. outputs	Total cost	No. outputs	Total cost	No. outputs	Total cost
OPERATIONAL OBJECTIVE No.1 Review of draft permits by scientific panel																
Action 1: Meetings indemnities		0.003	0	0.000	0	0.000	0	0.000	2	0.006	2	0.006	2	0.006	6	0.018
Action 2: Assessments		0.0004	0	0.000	0	0.000	0	0.000	2	0.0008	2	0.0008	2	0.0008	6	0.0048
Action 3: Studies		0.3	0	0.000	0	0.000	0	0.000	2	0.6	2	0.6	2	0.6	6	3.6
Sub-total Objective 1				0.000		0.000		0.000		0.6068		0.6068		0.6068		3.6228
TOTAL COST				0.000		0.000		0.000		0.6068		0.6068		0.6068		3.6228

8.2. Administrative Expenditure

8.2.1. Number and type of human resources

Types of post		Staff to be assigned to management of the action using existing and/or additional resources (**number of posts/FTEs**)					
		2008	2009	2010	2011	2012	2013
Officials or temporary staff[26] (XX 01 01)	A*/AD	0	0	0	0.4	0.4	0.4
	B*, C*/AST	0	0	0	0.2	0.2	0.2
Staff financed[27] by art. XX 01 02							
Other staff[28] financed by art. XX 01 04/05							
TOTAL		0	0	0	0.6	0.6	0.6

8.2.2. Description of tasks deriving from the action

A*/AD official will provide the secretariat of the Scientific Panel, be responsible for procuring administrative support, and be responsible for following the internal procedures pursuant to adoption of a Commission opinion following the Panel's assessment. The AST official will provide administrative support.

8.2.3. Sources of human resources (statutory)

☐ Posts currently allocated to the management of the programme to be replaced or extended

☐ Posts pre-allocated within the APS/PDB exercise for year n

☐ Posts to be requested in the next APS/PDB procedure

X Posts to be redeployed using existing resources within the managing service (internal redeployment)

☐ Posts required for year n although not foreseen in the APS/PDB exercise of the year in question

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[26] Cost of which is NOT covered by the reference amount.
[27] Cost of which is NOT covered by the reference amount.
[28] Cost of which is included within the reference amount.

8.2.4. Other Administrative expenditure included in reference amount (XX 01 04/05 – Expenditure on administrative management)

EUR million (to 3 decimal places)

Budget line (number and heading)	2008	2009	2010	2011	2012	2013 and later	TOTAL
1 Technical and administrative assistance (including related staff costs)							
Executive agencies[29]							
Other technical and administrative assistance							
- *intra muros*							
- *extra muros*							
Total Technical and administrative assistance	0.000	0.000	0.000	0.000	0.000	0.000	0.000

8.2.5. Financial cost of human resources and associated costs <u>not</u> included in the reference amount

EUR million (to 3 decimal places)

Type of human resources	2008	2009	2010	2011	2012	2013 and later
Officials and temporary staff (XX 01 01)	0	0	0	0.0648	0.0648	0.0648
Staff financed by Art XX 01 02 (auxiliary, END, contract staff, etc.) (specify budget line)						
Total cost of Human Resources and associated costs (NOT in reference amount)	**0**	**0**	**0**	**0.0648**	**0.0648**	**0.0648**

Calculation– ***Officials and Temporary agents***

[29] Reference should be made to the specific legislative financial statement for the Executive Agency(ies) concerned.

The standard salary for 1A* /AD as foreseen in Point 8.2.1 is 0.108 M€.

Calculation– ***Staff financed under art. XX 01 02***

8.2.6. Other administrative expenditure not included in reference amount

EUR million (to 3 decimal places)

	2008	2009	2010	2011	2012	2013 and after	TOTAL
XX 01 02 11 01 – Missions	0	0	0	0.019	0.019	0.019	0.057
XX 01 02 11 02 – Meetings & Conferences	0	0	0	0.05	0	0.05	0.1
XX 01 02 11 03 – Committees[30]	0	0	0.027	0.027	0.027	0.027	0.108
XX 01 02 11 04 – Studies & consultations							
XX 01 02 11 05 - Information systems							
2 Total Other Management Expenditure (XX 01 02 11)							
3 Other expenditure of an administrative nature (specify including reference to budget line)							
Total Administrative expenditure, other than human resources and associated costs (NOT included in reference amount)			0.027	0.096	0.046	0.096	0.266

Calculation - ***Other administrative expenditure not included in reference amount***

10 missions for each meeting of the scientific panel (2 per year) at €950 each= €0.019 million

Biennial conference at €0.05 million from 2011 onwards

Meetings of the Committee (unit cost: 27 000€) are foreseen every year as from 2010, in order to allow information exchange, in view of adoption of appropriate guidelines and recommendations to strive for more harmonisation between Member States.

The needs for human and administrative resources shall be covered within the allocation granted to the managing DG in the framework of the annual allocation procedure.

[30] Specify the type of committee and the group to which it belongs.