

Title: Implementing the Third Party Access Requirements of the CCS Directive Lead department or agency: DECC Other departments or agencies:	Impact Assessment (IA)
	IA No: DECC0024
	Date: 20/10/2010
	Stage: Development/Options
	Source of intervention: EU
	Type of measure: Secondary legislation
	Contact for enquiries: David Rutland 03000685479 David.rutland@decc.gsi.gov.uk

Summary: Intervention and Options

What is the problem under consideration? Why is government intervention necessary?

Arrangements for potential users to obtain fair, open and non-discriminatory access to carbon dioxide (CO₂) transport networks and storage sites are required because such access 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 carbon capture and storage (CCS).

The current regulations involve the establishment, as required by Article 22 of the CCS Directive, of a dispute settlement mechanism to enable expeditious settlement of disputes regarding access to CO₂ transport networks and storage sites which recognises the transport and storage capacity which is available or can reasonably be made available.

What are the policy objectives and the intended effects?

The policy objectives are to:

- Provide a third party access regime for both CO₂ transportation and storage infrastructure
- Promote co-operation between owners and potential users both on the construction and use of CO₂ infrastructure
- Ensure that smaller third parties are not disadvantaged or overcharged when seeking access to storage sites or pipelines and that infrastructure resources are brought forward in a way that reflects likely foreseeable future demand
- Implement the EU Directive on geological storage of carbon dioxide

What policy options have been considered, including any “alternatives to regulation”. Please justify the preferred option below.

Option 1: Do Nothing

Do nothing is not a practical option as it would lead to infraction proceedings for not implementing the EU Directive.

Option 2: Minimal Transposition (preferred option)

Extend existing arrangements covering pipelines to also include storage sites and new provisions on making information available. New provisions on making information available on capacity and technical specification to meet transparency requirements for both pipelines and storage sites.

Option 3: Transposition going further than the minimum requirements of the Directive

Modify arrangements for pipelines to include provisions intended to make the negotiated access process more effective. Changes considered include imposing an additional requirement for formal open season arrangements and unbundling of transport and storage. Extend those arrangements to storage.

Will the policy be reviewed? It will be reviewed	If applicable, set review date 06/2015
What is the basis for this review? duty to review	If applicable, set sunset clause date
Are there arrangements in place that will allow a systematic collection of monitoring information for future policy review?	No

SELECT SIGNATORY Sign-off For consultation stage Impact Assessments:

I have read the Impact Assessment and I am satisfied that, given the available evidence, a) it represents a reasonable view of the likely costs, benefits and impact of the leading options

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Signed by the responsible SELECT SIGNATORY:..... Date:.....

Description:

Option 2

Price Base Year 2009	PV Base Year 2009	Time Period Years	Net Benefit (Present Value (PV)) (£m) - £0.01m		
			Low:	High:	Best Estimate:

COSTS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low				
High				
Best Estimate				£10,000

Description and scale of key monetised costs by ‘main affected groups’

The cost presented here represents an estimate of the cost to one storage site operator of preparing a response to a case being brought forward by a third party trying to gain access to the site. The exact cost will also depend on the nature of the of the storage site, the access requested and the dispute.

Other key non-monetised costs by ‘main affected groups’

Owners of pipelines and storage sites will be required to provide information on capacity and technical specifications once a year. The cost of providing this information is estimated to be approximately £150 per year per owner. It is not possible to estimate the future number of CO₂ pipes and storage sites containing CO₂ to estimate the full costs to business.

BENEFITS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low				
High				
Best Estimate				

Description and scale of key monetised benefits by ‘main affected groups’

Other key non-monetised benefits by ‘main affected groups’

The principal effect of the proposed regulations (from both its use and its presence) is to allow the CCS industry without undue delays as a result of a party refusing access to a competitor. The benefits of such a CCS industry were described in the CCS Impact Assessment for ‘A framework for Development of Clean Coal’.

Key assumptions/sensitivities/risks

Discount rate (%) 3.5%

The cost is based on the assumption that a dispute involving storage is only referred to the Secretary of State once and this happens in 2020.

Direct impact on business (Equivalent Annual) £m):			In scope of OIOO?	Measure classified as
Costs:	Benefits:	Net:	NO	

Enforcement, Implementation and Wider Impacts

What is the geographic coverage of the policy/option?		United Kingdom			
From what date will the policy be implemented?		01/06/2011			
Which organisation(s) will enforce the policy?					
What is the annual change in enforcement cost (£m)?					
Does enforcement comply with Hampton principles?		Yes			
Does implementation go beyond minimum EU requirements?		No			
What is the CO ₂ equivalent change in greenhouse gas emissions? (Million tonnes CO ₂ equivalent)		Traded:		Non-traded:	
Does the proposal have an impact on competition?		No			
What proportion (%) of Total PV costs/benefits is directly attributable to primary legislation, if applicable?		Costs:		Benefits:	
Annual cost (£m) per organisation (excl. Transition) (Constant Price)	Micro	< 20	Small	Medium	Large
Are any of these organisations exempt?	No	No	No	No	No

Specific Impact Tests: Checklist

Set out in the table below where information on any SITs undertaken as part of the analysis of the policy options can be found in the evidence base. For guidance on how to complete each test, double-click on the link for the guidance provided by the relevant department.

Please note this checklist is not intended to list each and every statutory consideration that departments should take into account when deciding which policy option to follow. It is the responsibility of departments to make sure that their duties are complied with.

Does your policy option/proposal have an impact on...?	Impact	Page ref within IA
Statutory equality duties ¹ Statutory Equality Duties Impact Test guidance	No	
Economic impacts		
Competition Competition Assessment Impact Test guidance	No	
Small firms Small Firms Impact Test guidance	No	
Environmental impacts		
Greenhouse gas assessment Greenhouse Gas Assessment Impact Test guidance	No	
Wider environmental issues Wider Environmental Issues Impact Test guidance	No	
Social impacts		
Health and well-being Health and Well-being Impact Test guidance	No	
Human rights Human Rights Impact Test guidance	No	
Justice system Justice Impact Test guidance	No	
Rural proofing Rural Proofing Impact Test guidance	No	
Sustainable development Sustainable Development Impact Test guidance	No	

¹ Race, disability and gender Impact assessments are statutory requirements for relevant policies. Equality statutory requirements will be expanded 2011, once the Equality Bill comes into force. Statutory equality duties part of the Equality Bill apply to GB only. The Toolkit provides advice on statutory equality duties for public authorities with a remit in Northern Ireland.

Evidence Base (for summary sheets) – Notes

Use this space to set out the relevant references, evidence, analysis and detailed narrative from which you have generated your policy options or proposal. Please fill in **References** section.

References

Include the links to relevant legislation and publications, such as public impact assessments of earlier stages (e.g. Consultation, Final, Enactment) and those of the matching IN or OUTs measures.

No.	Legislation or publication
1	Third Party Access to Pipelines and Storage for Carbon Dioxide Consultation Document
2	EU Directive Geological Storage of Carbon Dioxide http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0114:0135:EN:PDF
3	The Petroleum Act (1998) http://www.legislation.gov.uk/ukpga/1998/17/contents
4	The Pipe-lines Act (1962) http://www.legislation.gov.uk/ukpga/1962/58/pdfs/ukpga_19620058_en.pdf

+ Add another row

Evidence Base

Ensure that the information in this section provides clear evidence of the information provided in the summary pages of this form (recommended maximum of 30 pages). Complete the **Annual profile of monetised costs and benefits** (transition and recurring) below over the life of the preferred policy (use the spreadsheet attached if the period is longer than 10 years).

The spreadsheet also contains an emission changes table that you will need to fill in if your measure has an impact on greenhouse gas emissions.

Annual profile of monetised costs and benefits* - (£m) constant prices

	Y ₀	Y ₁	Y ₂	Y ₃	Y ₄	Y ₅	Y ₆	Y ₇	Y ₈	Y ₉
Transition costs										
Annual recurring cost										
Total annual costs										
Transition benefits										
Annual recurring benefits										
Total annual benefits										

* For non-monetised benefits please see summary pages and main evidence base section

Evidence Base (for summary sheets)

Problem under Consideration

Overview

The UK has committed to a reduction in GHG emissions of 80% by 2050 – to achieve this we must decarbonise electricity supplies. Carbon capture and storage (CCS) technology has the potential to reduce carbon dioxide emissions from fossil fuel power stations by as much as 90%. The IEA suggests that CCS technology could contribute up to 28% of global carbon dioxide mitigation by 2050.

Demonstration of the full chain of CCS – capture, transport and storage – at commercial scale is the vital next step, the various technological stages of the CCS chain have been shown to work but have not yet been demonstrated end-to-end at large scale on a power station. CCS is not currently commercial without subsidy. The Government recently confirmed that it would provide up to £1bn to support what is expected to be one of the world's first demonstration projects, and committed to a further 3 projects. Creating an effective fit for purpose regulatory regime is also crucial to the demonstration of CCS. National and EU legislation has been agreed to address this. An EU CCS Directive contains requirements to ensure that third parties are able to access CO₂ transportation and storage sites in a transparent and non-discriminatory manner. Some scenarios for third party access are:

- New capture plant linking in with a nearby pipeline which passes their facility
- Extension of existing pipeline to reach new plant
- Increasing the capacity of a pipeline prior to construction to accommodate another project in the same area
- Access to a storage site – separate pipeline to injection point or via trunk pipeline to the storage site

Existing legislation already covers third party access to pipelines (including CO₂ pipelines). Under that legislation, developers and applicants negotiate access and modifications on a voluntary basis, with the ability to appeal to the consenting authority (usually a Minister) where it is not possible to secure a voluntary agreement. Whilst these arrangements implement the majority of the Directive requirements in relation to pipelines, they do not currently extend to storage sites..

Arrangements for third party access are important because there are considerable up-front costs and economies of scale in pipeline construction. Access to CO₂ infrastructure could also become a significant competitive factor in the power generation and other high emitting industries. This could lead to a conflict between the efficient use of resources and wish for greater competition. There are currently no CCS pipelines or storage sites in the UK and CCS is not currently a commercially demonstrated technology. Economic factors will also be important in determining the timing and scale of investment in CCS infrastructure.

Existing Government initiatives relevant to the policy

The Government has committed to support a programme of four CCS demonstration projects on power stations with a view to CCS being available for wider deployment from 2020. DECC is currently progressing a competition for the first of these CCS demonstration projects which will require licensing from in the later part of early 2011. Those considering investment in this projects also require regulatory transparency about the arrangements they will be facing.

The public consultation, of which this IA a part, implements a Directive and builds on previous policy announced and is therefore already a matter of public knowledge.

Rationale for Intervention

As the main method of de-carbonising fossil fuel power generation, it will be important that CCS, should it prove viable at a commercial scale, is able to be deployed without unnecessary hindrances.

We expect companies will want to work together to exploit economies of scale in sharing CO₂ infrastructure and maximise the value out of the assets they have invested in. There may however be circumstances where developers are more reticent about sharing their infrastructure, drag out negotiations and seek overly high terms. These could be as developers may be competing upstream with applicants and could achieve commercial advantage through refusing access. It may also be the case that a local monopoly develops which could exploit other potential users. As such, the opportunity to refer a negotiation to an independent party is likely to help support timely and fair negotiations. This will promote efficient use of infrastructure, realise economies of scale, help prevent multiple pipelines along similar routes and thereby reduce the environmental impact.

Failure to transpose these elements leads the UK open to infraction proceedings for not implementing the EU Directive on geological storage of carbon dioxide.

Objectives

The policy objectives are to:

- Provide a third party access regime for both CO₂ transportation and storage infrastructure which balances the interests of the owners of those assets with those of other potential users.
- Promote co-operation between owners and potential users both on the construction and use of CO₂ infrastructure
- Ensure that smaller third parties are not disadvantaged or overcharged when seeking access to storage sites or pipelines and that infrastructure resources are brought forward in a way that reflects likely foreseeable future demand
- Implement the EU Directive on geological storage of carbon dioxide

Options Considered

Option 1: Do Nothing

Doing nothing would not implement the Directive's requirements in total. The UK would therefore be open to infraction proceedings.

Option 2: Minimal Transposition (preferred option)

Extend the principles of existing legislation covering pipelines only, to also include storage sites and introduce new requirements to implement the Directives additional requirements for transparency in the least burdensome way. These new arrangements will be incorporated into a unified set of regulations.

Option 3: Transposition going further than the minimum requirements of the Directive
Introduce additional requirements intended to implement the transparency requirements of the Directive. In particular by requiring publication of additional commercial terms for transport, for a period of 'open season' and unbundling of transport and storage infrastructure from capture.

Option 1

The "do nothing" option is not tenable in the long-term as it would not enable the UK to comply completely with the terms of the CCS Directive. It could therefore be subject to challenge. Thus, Option 1 is not discussed any further in this Impact Assessment.

Option 2

The preferred option involves the minimum transposition of the (relevant Articles of the) CCS Directive by the transposition date in June 2011.

The costs and benefits of transposition of the Directive are uncertain and will depend on the rate and spatial location of development of carbon capture and also on the role that CCS plays in the electricity market (e.g. will it be price leading or price setting). They will also depend crucially on the way the new powers in the regulations are exercised. Those powers and the intended way they would be used are therefore described here in some detail.

The UK already has a legal framework which covers pipelines. This is set out in the Petroleum Act 1998 (offshore pipelines) and the Pipe-lines Act 1962 (long distance onshore pipelines) in combination with the Planning Act 2008. While these Acts are not specific to CO₂, their provisions extend to pipelines carrying CO₂ and already go a very long way to meeting the Directive's requirements in relation to pipelines. There is currently no equivalent legislation for CO₂ storage sites.

Since existing legislation already goes a long way to meeting the CCS Directive's requirements in relation to pipelines the focus of this IA is on the effect of new regulations on those seeking/providing third party access for the storage of CO₂ where the CCS Directive requires dispute resolution procedures to be introduced. Access to storage is different in nature to access to pipelines because storage has a cumulative capacity.

The existing arrangements for pipelines essentially allow regulatory intervention to require modification of a pipeline prior to construction where this would avoid the construction of an additional pipeline and also to secure access for third parties to existing spare capacity. In both cases the consenting authority is also able to determine the associated financial arrangements. In more detail, the existing legislation on pipelines:

- prohibits the construction of a pipeline without consent;
- allows the consenting authority to require the modification of the design of a pipeline to provide additional capacity to convey the same or similar material or, for an offshore pipeline, to change its route;
- determines the financial arrangements for any modification;
- provides for the consenting authority to be able to secure access by a third party to an existing pipeline designed for the purpose of conveying the substance in question; and set the conditions under which that access should be granted.

Under these arrangements the onus is on the parties to reach agreement on commercial terms on the joint development of, or access to, pipelines but if the process of commercial negotiation fails then the consenting authority has the power to intervene to ensure fair access.

These arrangements also protect the rights of pipeline owners. For example, under the Pipelines Act 1962, modifications to a proposed pipeline (by way of conditions in a pipeline construction authorisation) can be required only where the consenting authority is satisfied that there is evidence of demand existing or likely to arise over the same or a similar route. And, when imposing requirements related to third party access to an existing pipeline, the consenting authority must be satisfied that granting such access would not prejudice the proper and efficient operation of the pipeline for the owner's use.

There is currently no equivalent legislation for CO₂ storage sites. In order to transpose the Directive's obligations in relation to storage sites the intention is to introduce arrangements based on those for pipelines. The main additional burden from implementing the Directive will thus come from the extension of the pipeline arrangements to storage sites. Depending on how those powers are discharged they could require a storage site to be expanded, or a third party to be given access to an existing site, and also determine the financial terms on which this will take place. Such an intervention could significantly change the financial risk profile for an investor in a storage project, especially in relation to contingent storage liabilities. The exercise of these powers will therefore be constrained (as they already are for pipelines) in order to ensure that the integrity of the infrastructure is maintained, the owners reasonable needs are protected and any determination strikes a reasonable balance between the interests of the parties and the risks they are bearing.

It is proposed that the principles of the existing pipeline regulations will be reflected in a new uniform set of requirements for all CO₂ infrastructure, including onshore and offshore pipelines, storage sites and associated infrastructure (e.g. pumps, interim storage facilities). It is not the intention for these arrangements to extend to capture facilities or to an CO₂ enhanced oil recovery project that does not involve permanent storage. In practice this will mean that those seeking access or modification to existing CO₂ infrastructure would first be expected to seek an agreement with the owner on commercial terms. If negotiation fails then the party seeking access, or modification, would then be able to appeal to the consenting authority to secure access or modification. The intention is that the consenting authority will be constrained in exercising these powers. In particular, in deciding a determination, the consenting authority would be obliged to take into account:

- the capacity of the pipeline and storage site that can reasonably be made available,
- the potential for increasing that capacity,
- incompatibilities in technical specification that cannot reasonably be overcome,
- the owner's reasonable needs for transport and storage, and
- any potential negative impact on the environmental security of the infrastructure.

If the consenting authority is required to determine the financial terms for access or modification for either pipelines and storage sites, then they would be guided by principles similar to those already used in other sectors. In particular the arrangements will recognise that infrastructure owners and developers have a key role to play in the development and deployment of CCS, and that too narrow a focus on setting terms on a cost-reflective basis would reduce the incentive for them to bear risk, keep their infrastructure in operation and available, invest in innovative solutions and offer added value services. For example:

Where infrastructure has been built as part of an integrated development where provision has already been made for capital costs and spare capacity can be made available to a third party, then it is anticipated that the consenting authority would normally set terms reflecting the incremental costs and risks imposed on the infrastructure owners.

Where infrastructure has been built oversized or maintained with a view to taking third party business the terms set by the consenting authority would normally provide for the recovery of capital costs incurred in the expectation of third party business, and be set at a level, taking account of the risks involved, to earn the owner a reasonable rate of return on the costs incurred.

Where there is competition for limited capacity then the consenting authority is unlikely to require the owner to make the capacity available to a prospective user who values the capacity less than other prospective users.

In practice this means that in most cases the terms that would be determined by the Secretary of State are likely to be in line with those that would be offered by infrastructure owners were they to face effective competition from other infrastructure owners who also have sufficient spare capacity to store or transport carbon dioxide.

The terms determined by the consenting authority would also reflect the risks borne by the parties. For example, one of the issues that will have a significant impact on the cost of storage is the extent to which the contingent liabilities (that might arise in circumstances where the storage site requires remediation after it has closed for example) would be shared between the storage site operator and the originator of the CO₂ or the owner of the additional pipeline or storage site capacity. Whilst the CCS Directive makes the storage site permit holder legally responsible for such events, this would not stop the emitter and the storage site operator reaching agreement to share the cost in the unlikely event that such remediation was required. The extent that such risk sharing is practical will depend on the financial strength of the parties involved and the availability of risk transfer instruments, such as insurance. Clearly the balance of risk in such circumstances would have an impact on the commercial terms of storage. Any determination by the consenting authority, where one of the parties assumed risks for the remediation of the site, would be very different from the terms in circumstances where those risks are shared. The consenting authority would use its judgement in such circumstances having regard to the specific commercial, financial and technical circumstances of the projects the come forward for determination.

To give effect to the Directive's requirement for transparency the intention is that key information about the pipeline and storage site should be published. The approach proposed in the consultation document is to require owners of CO₂ pipelines and storage sites to publish annually information about the forecast available capacity of the pipeline or storage site and any technical specifications (such as dryness and impurities) that must be met in order to secure access. Such capacity estimates will take account of the owner's reasonable foreseeable needs.

For pipelines, except in circumstances where:

- there has been speculative investment in additional capacity,
- an existing pipeline has been re-used for CO₂ transport, or
- where the original emitter's planned requirements have reduced for some reason,

it would normally be expected that available capacity would be zero. Where this is the case we would not require information about technical specifications to be made publicly available. Similar principles would apply to storage sites.

Summary of the proposed Third Party Access Regime

- Regime covers CO2 transportation and storage infrastructure pre and post construction
- Examples of access are modification of existing or planned infrastructure include increasing capacity, extending or adding taps to allow access
- Access should not be denied for lack of capacity or lack of connection if it is economic or the applicant is willing to pay for necessary enhancements
- Developer and applicant negotiate the terms of access
- Applicant can refer the issue to the Secretary of State for resolution
- Secretary of State considers whether there is a case for access and if so can grant access including the terms of that access
- In reaching that decision, Secretary of State is to consider
 - available capacity
 - technical compatibility
 - need and interest of owners of the infrastructure and the needs of the whole network of users
 - that the modifications will not compromise the safety or result in significant additional environmental detriment

Costs and Benefits of Option 2

The principal effect of the proposed regulations (from both its use and its presence) is to allow the CCS industry to develop without undue delays as a result of a party refusing access to a competitor. The benefits of such a CCS industry were described in the CCS Impact Assessment for 'A framework for Development of Clean Coal'; the present value of the benefits was estimated to be £4.8-14 billion.

If the Secretary of State is called upon to intervene in third party access negotiations, there will be a small cost to business. The third party seeking to access capacity on another's storage site will need to prepare a report setting out their case for the Secretary of State, but since they will have been involved in negotiations, this cost is assumed to be very little. The owner of the storage site may face higher costs in preparing their response as it is assumed to be more onerous. The exact cost of preparing the case will depend on the nature of the storage site, the access requested and the dispute. Given the uncertainties, it is only possible to produce illustrative costs.

If an owner were to use a manager, an engineer, an economist and a lawyer to work on their response full time for one month, it would cost them about £14,600 (calculated using Annual Survey of Hours and Earnings, 2009).

The owner of a storage site may wish to hire consultants to prepare their response, but as that is above and beyond the requirement of the regulations it is not included as a cost here.

It is assumed that the regulations related to referring a case to the Secretary of State will not be used before 2020 by which time major investment in the deployment of CCS in the economy may be expected.

Thus, if the regulations were called into action in, say, 2020², the present value of this one-off cost would be approximately £10,000 (base year 2009).

² Chosen as part of the illustration. It's possible that at that time firms would be involved in the design and planning stages of any CCS plants they wished to build and operate in the 2020s and so this is a time when a problem with access to storage may arise.

It is believed that only in rare cases would a third party be seeking to access capacity on another's storage site at a time when its capacity was capable of being modified economically. A dispute over the terms for that access would be most likely if both parties were electricity generators and the owner saw advantage in restricting supply in that market by refusing access to a competitor. Whether that would happen in practice would depend on the scale of the generators and which generation plant was expected to be price setting.

In addition to this as CCS becomes much more widespread in the future, competition is likely to develop which would limit the need for intervention.

For these reasons, it is estimated that the regulations will only be called into action once.

Another source of cost to businesses (both pipe owners and storage site owners) arising from the regulations is the requirement to provide information on capacity and technical specifications for the following five years on an annual basis.

It is assumed that there will be no extra costs from information collection as the information required will be known to the owner from their business as usual activities, but there will be additional cost from the need to publish the information. The regulations do not specify the manner in which the information is to be published and so the owner can choose the least cost method. If the owner chose to publish the information on their website, the cost to the business would be the salary of an Information and Communication Technology Professional for one day a year. This is estimated to be approximately £150 per year per owner (calculated using Annual Survey of Hours and Earnings, 2009). It is not possible to say how many owners there will be of pipes carrying CO₂ and stage sites containing CO₂.

Risks and assumptions

The rate and spatial location of development of carbon capture is uncertain. It is also not known how much access to storage sites in the UK will be required since it is possible for CO₂ to be used for enhanced oil recovery (in the UK or elsewhere) or to be transported or imported from abroad (by pipeline or boat). The publications of the North Sea Basin Task Force (available at <http://nsbtf.squarespace.com/>) include scenarios for the deployment of CCS which indicate the range of possibilities.

While efforts will be made to reduce regulatory uncertainty by defining a set of criteria in how determinations by the SOS would be made, a degree of judgement will remain and some residual regulatory uncertainty will have some impact.

Option 3

Option 3 is the most interventionist option and applies greater reporting burdens for developers, applicants and the Government than option 2. At this pre-commercial stage of CCS development, we do not feel there is sufficient evidence that the benefits of a more interventionist approach is justified by the additional regulatory burden.

The consultation document accompanying this IA explores some options for making possible future changes to the arrangements in option 2. These might be expected to increase the transparency of the arrangements, but will also impose additional regulatory burden. Such enhancements might include a requirement to publish commercial terms for some or all infrastructure, a requirement to undertake an 'open season' prior to seeking approval for the construction of a pipeline or storage site, or the unbundling of CCS infrastructure from the production of carbon dioxide. The consultation is the start of the process for assessing the costs and benefits of these and other reforms.

The Government is also considering the longer-term approach to deployment post a successful demonstration of CCS. One of the options could be for a centralised approach where a set tariff is charged for CO₂ transportation and storage. This would negate the need for a negotiated

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The current regulations involve the establishment, as required by Article 22 of the CCS Directive, of a dispute settlement mechanism to enable expeditious settlement of disputes regarding access to CO₂ transport networks and storage sites which recognises the transport and storage capacity which is available or can reasonably be made available.

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- Implement the EU Directive on geological storage of carbon dioxide

What policy options have been considered, including any “alternatives to regulation”. Please justify the preferred option below.

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Option 2: Minimal Transposition (preferred option)

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Option 3: Transposition going further than the minimum requirements of the Directive

Modify arrangements for pipelines to include provisions intended to make the negotiated access process more effective. Changes considered include imposing an additional requirement for formal open season arrangements and unbundling of transport and storage. Extend those arrangements to storage.

Will the policy be reviewed? It will be reviewed	If applicable, set review date 06/2015
What is the basis for this review? duty to review	If applicable, set sunset clause date
Are there arrangements in place that will allow a systematic collection of monitoring information for future policy review?	No

SELECT SIGNATORY Sign-off For consultation stage Impact Assessments:

I have read the Impact Assessment and I am satisfied that, given the available evidence, a) it represents a reasonable view of the likely costs, benefits and impact of the leading options

Title: Implementing the Third Party Access Requirements of the CCS Directive Lead department or agency: DECC Other departments or agencies:	Impact Assessment (IA)
	IA No: DECC0024
	Date: 20/10/2010
	Stage: Development/Options
	Source of intervention: EU
	Type of measure: Secondary legislation
	Contact for enquiries: David Rutland 03000685479 David.rutland@decc.gsi.gov.uk

Summary: Intervention and Options

What is the problem under consideration? Why is government intervention necessary?

Arrangements for potential users to obtain fair, open and non-discriminatory access to carbon dioxide (CO₂) transport networks and storage sites are required because such access 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 carbon capture and storage (CCS).

The current regulations involve the establishment, as required by Article 22 of the CCS Directive, of a dispute settlement mechanism to enable expeditious settlement of disputes regarding access to CO₂ transport networks and storage sites which recognises the transport and storage capacity which is available or can reasonably be made available.

What are the policy objectives and the intended effects?

The policy objectives are to:

- Provide a third party access regime for both CO₂ transportation and storage infrastructure
- Promote co-operation between owners and potential users both on the construction and use of CO₂ infrastructure
- Ensure that smaller third parties are not disadvantaged or overcharged when seeking access to storage sites or pipelines and that infrastructure resources are brought forward in a way that reflects likely foreseeable future demand
- Implement the EU Directive on geological storage of carbon dioxide

What policy options have been considered, including any “alternatives to regulation”. Please justify the preferred option below.

Option 1: Do Nothing

Do nothing is not a practical option as it would lead to infraction proceedings for not implementing the EU Directive.

Option 2: Minimal Transposition (preferred option)

Extend existing arrangements covering pipelines to also include storage sites and new provisions on making information available. New provisions on making information available on capacity and technical specification to meet transparency requirements for both pipelines and storage sites.

Option 3: Transposition going further than the minimum requirements of the Directive

Modify arrangements for pipelines to include provisions intended to make the negotiated access process more effective. Changes considered include imposing an additional requirement for formal open season arrangements and unbundling of transport and storage. Extend those arrangements to storage.

Will the policy be reviewed? It will be reviewed	If applicable, set review date 06/2015
What is the basis for this review? duty to review	If applicable, set sunset clause date
Are there arrangements in place that will allow a systematic collection of monitoring information for future policy review?	No

SELECT SIGNATORY Sign-off For consultation stage Impact Assessments:

I have read the Impact Assessment and I am satisfied that, given the available evidence, a) it represents a reasonable view of the likely costs, benefits and impact of the leading options

Signed by the responsible SELECT SIGNATORY:..... Date:.....

Description:

Option 2

Price Base Year 2009	PV Base Year 2009	Time Period Years	Net Benefit (Present Value (PV)) (£m) - £0.01m		
			Low:	High:	Best Estimate:

COSTS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low				
High				
Best Estimate				£10,000

Description and scale of key monetised costs by 'main affected groups'

The cost presented here represents an estimate of the cost to one storage site operator of preparing a response to a case being brought forward by a third party trying to gain access to the site. The exact cost will also depend on the nature of the of the storage site, the access requested and the dispute.

Other key non-monetised costs by 'main affected groups'

Owners of pipelines and storage sites will be required to provide information on capacity and technical specifications once a year. The cost of providing this information is estimated to be approximately £150 per year per owner. It is not possible to estimate the future number of CO₂ pipes and storage sites containing CO₂ to estimate the full costs to business.

BENEFITS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low				
High				
Best Estimate				

Description and scale of key monetised benefits by 'main affected groups'

Other key non-monetised benefits by 'main affected groups'

The principal effect of the proposed regulations (from both its use and its presence) is to allow the CCS industry without undue delays as a result of a party refusing access to a competitor. The benefits of such a CCS industry were described in the CCS Impact Assessment for 'A framework for Development of Clean Coal'.

Key assumptions/sensitivities/risks

Discount rate (%) 3.5%

The cost is based on the assumption that a dispute involving storage is only referred to the Secretary of State once and this happens in 2020.

Direct impact on business (Equivalent Annual) £m):			In scope of OIOO?	Measure classified as
Costs:	Benefits:	Net:	NO	

Enforcement, Implementation and Wider Impacts

What is the geographic coverage of the policy/option?		United Kingdom			
From what date will the policy be implemented?		01/06/2011			
Which organisation(s) will enforce the policy?					
What is the annual change in enforcement cost (£m)?					
Does enforcement comply with Hampton principles?		Yes			
Does implementation go beyond minimum EU requirements?		No			
What is the CO ₂ equivalent change in greenhouse gas emissions? (Million tonnes CO ₂ equivalent)		Traded:		Non-traded:	
Does the proposal have an impact on competition?		No			
What proportion (%) of Total PV costs/benefits is directly attributable to primary legislation, if applicable?		Costs:		Benefits:	
Annual cost (£m) per organisation (excl. Transition) (Constant Price)	Micro	< 20	Small	Medium	Large
Are any of these organisations exempt?	No	No	No	No	No

Specific Impact Tests: Checklist

Set out in the table below where information on any SITs undertaken as part of the analysis of the policy options can be found in the evidence base. For guidance on how to complete each test, double-click on the link for the guidance provided by the relevant department.

Please note this checklist is not intended to list each and every statutory consideration that departments should take into account when deciding which policy option to follow. It is the responsibility of departments to make sure that their duties are complied with.

Does your policy option/proposal have an impact on...?	Impact	Page ref within IA
Statutory equality duties ¹ Statutory Equality Duties Impact Test guidance	No	
Economic impacts		
Competition Competition Assessment Impact Test guidance	No	
Small firms Small Firms Impact Test guidance	No	
Environmental impacts		
Greenhouse gas assessment Greenhouse Gas Assessment Impact Test guidance	No	
Wider environmental issues Wider Environmental Issues Impact Test guidance	No	
Social impacts		
Health and well-being Health and Well-being Impact Test guidance	No	
Human rights Human Rights Impact Test guidance	No	
Justice system Justice Impact Test guidance	No	
Rural proofing Rural Proofing Impact Test guidance	No	
Sustainable development Sustainable Development Impact Test guidance	No	

¹ Race, disability and gender Impact assessments are statutory requirements for relevant policies. Equality statutory requirements will be expanded 2011, once the Equality Bill comes into force. Statutory equality duties part of the Equality Bill apply to GB only. The Toolkit provides advice on statutory equality duties for public authorities with a remit in Northern Ireland.

Evidence Base (for summary sheets) – Notes

Use this space to set out the relevant references, evidence, analysis and detailed narrative from which you have generated your policy options or proposal. Please fill in **References** section.

References

Include the links to relevant legislation and publications, such as public impact assessments of earlier stages (e.g. Consultation, Final, Enactment) and those of the matching IN or OUTs measures.

No.	Legislation or publication
1	Third Party Access to Pipelines and Storage for Carbon Dioxide Consultation Document
2	EU Directive Geological Storage of Carbon Dioxide http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0114:0135:EN:PDF
3	The Petroleum Act (1998) http://www.legislation.gov.uk/ukpga/1998/17/contents
4	The Pipe-lines Act (1962) http://www.legislation.gov.uk/ukpga/1962/58/pdfs/ukpga_19620058_en.pdf

+ Add another row

Evidence Base

Ensure that the information in this section provides clear evidence of the information provided in the summary pages of this form (recommended maximum of 30 pages). Complete the **Annual profile of monetised costs and benefits** (transition and recurring) below over the life of the preferred policy (use the spreadsheet attached if the period is longer than 10 years).

The spreadsheet also contains an emission changes table that you will need to fill in if your measure has an impact on greenhouse gas emissions.

Annual profile of monetised costs and benefits* - (£m) constant prices

	Y ₀	Y ₁	Y ₂	Y ₃	Y ₄	Y ₅	Y ₆	Y ₇	Y ₈	Y ₉
Transition costs										
Annual recurring cost										
Total annual costs										
Transition benefits										
Annual recurring benefits										
Total annual benefits										

* For non-monetised benefits please see summary pages and main evidence base section

Evidence Base (for summary sheets)

Problem under Consideration

Overview

The UK has committed to a reduction in GHG emissions of 80% by 2050 – to achieve this we must decarbonise electricity supplies. Carbon capture and storage (CCS) technology has the potential to reduce carbon dioxide emissions from fossil fuel power stations by as much as 90%. The IEA suggests that CCS technology could contribute up to 28% of global carbon dioxide mitigation by 2050.

Demonstration of the full chain of CCS – capture, transport and storage – at commercial scale is the vital next step, the various technological stages of the CCS chain have been shown to work but have not yet been demonstrated end-to-end at large scale on a power station. CCS is not currently commercial without subsidy. The Government recently confirmed that it would provide up to £1bn to support what is expected to be one of the world's first demonstration projects, and committed to a further 3 projects. Creating an effective fit for purpose regulatory regime is also crucial to the demonstration of CCS. National and EU legislation has been agreed to address this. An EU CCS Directive contains requirements to ensure that third parties are able to access CO₂ transportation and storage sites in a transparent and non-discriminatory manner. Some scenarios for third party access are:

- New capture plant linking in with a nearby pipeline which passes their facility
- Extension of existing pipeline to reach new plant
- Increasing the capacity of a pipeline prior to construction to accommodate another project in the same area
- Access to a storage site – separate pipeline to injection point or via trunk pipeline to the storage site

Existing legislation already covers third party access to pipelines (including CO₂ pipelines). Under that legislation, developers and applicants negotiate access and modifications on a voluntary basis, with the ability to appeal to the consenting authority (usually a Minister) where it is not possible to secure a voluntary agreement. Whilst these arrangements implement the majority of the Directive requirements in relation to pipelines, they do not currently extend to storage sites..

Arrangements for third party access are important because there are considerable up-front costs and economies of scale in pipeline construction. Access to CO₂ infrastructure could also become a significant competitive factor in the power generation and other high emitting industries. This could lead to a conflict between the efficient use of resources and wish for greater competition. There are currently no CCS pipelines or storage sites in the UK and CCS is not currently a commercially demonstrated technology. Economic factors will also be important in determining the timing and scale of investment in CCS infrastructure.

Existing Government initiatives relevant to the policy

The Government has committed to support a programme of four CCS demonstration projects on power stations with a view to CCS being available for wider deployment from 2020. DECC is currently progressing a competition for the first of these CCS demonstration projects which will require licensing from in the later part of early 2011. Those considering investment in this projects also require regulatory transparency about the arrangements they will be facing.

The public consultation, of which this IA a part, implements a Directive and builds on previous policy announced and is therefore already a matter of public knowledge.

Rationale for Intervention

As the main method of de-carbonising fossil fuel power generation, it will be important that CCS, should it prove viable at a commercial scale, is able to be deployed without unnecessary hindrances.

We expect companies will want to work together to exploit economies of scale in sharing CO₂ infrastructure and maximise the value out of the assets they have invested in. There may however be circumstances where developers are more reticent about sharing their infrastructure, drag out negotiations and seek overly high terms. These could be as developers may be competing upstream with applicants and could achieve commercial advantage through refusing access. It may also be the case that a local monopoly develops which could exploit other potential users. As such, the opportunity to refer a negotiation to an independent party is likely to help support timely and fair negotiations. This will promote efficient use of infrastructure, realise economies of scale, help prevent multiple pipelines along similar routes and thereby reduce the environmental impact.

Failure to transpose these elements leads the UK open to infraction proceedings for not implementing the EU Directive on geological storage of carbon dioxide.

Objectives

The policy objectives are to:

- Provide a third party access regime for both CO₂ transportation and storage infrastructure which balances the interests of the owners of those assets with those of other potential users.
- Promote co-operation between owners and potential users both on the construction and use of CO₂ infrastructure
- Ensure that smaller third parties are not disadvantaged or overcharged when seeking access to storage sites or pipelines and that infrastructure resources are brought forward in a way that reflects likely foreseeable future demand
- Implement the EU Directive on geological storage of carbon dioxide

Options Considered

Option 1: Do Nothing

Doing nothing would not implement the Directive's requirements in total. The UK would therefore be open to infraction proceedings.

Option 2: Minimal Transposition (preferred option)

Extend the principles of existing legislation covering pipelines only, to also include storage sites and introduce new requirements to implement the Directives additional requirements for transparency in the least burdensome way. These new arrangements will be incorporated into a unified set of regulations.

Option 3: Transposition going further than the minimum requirements of the Directive
Introduce additional requirements intended to implement the transparency requirements of the Directive. In particular by requiring publication of additional commercial terms for transport, for a period of 'open season' and unbundling of transport and storage infrastructure from capture.

Option 1

The "do nothing" option is not tenable in the long-term as it would not enable the UK to comply completely with the terms of the CCS Directive. It could therefore be subject to challenge. Thus, Option 1 is not discussed any further in this Impact Assessment.

Option 2

The preferred option involves the minimum transposition of the (relevant Articles of the) CCS Directive by the transposition date in June 2011.

The costs and benefits of transposition of the Directive are uncertain and will depend on the rate and spatial location of development of carbon capture and also on the role that CCS plays in the electricity market (e.g. will it be price leading or price setting). They will also depend crucially on the way the new powers in the regulations are exercised. Those powers and the intended way they would be used are therefore described here in some detail.

The UK already has a legal framework which covers pipelines. This is set out in the Petroleum Act 1998 (offshore pipelines) and the Pipe-lines Act 1962 (long distance onshore pipelines) in combination with the Planning Act 2008. While these Acts are not specific to CO₂, their provisions extend to pipelines carrying CO₂ and already go a very long way to meeting the Directive's requirements in relation to pipelines. There is currently no equivalent legislation for CO₂ storage sites.

Since existing legislation already goes a long way to meeting the CCS Directive's requirements in relation to pipelines the focus of this IA is on the effect of new regulations on those seeking/providing third party access for the storage of CO₂ where the CCS Directive requires dispute resolution procedures to be introduced. Access to storage is different in nature to access to pipelines because storage has a cumulative capacity.

The existing arrangements for pipelines essentially allow regulatory intervention to require modification of a pipeline prior to construction where this would avoid the construction of an additional pipeline and also to secure access for third parties to existing spare capacity. In both cases the consenting authority is also able to determine the associated financial arrangements. In more detail, the existing legislation on pipelines:

- prohibits the construction of a pipeline without consent;
- allows the consenting authority to require the modification of the design of a pipeline to provide additional capacity to convey the same or similar material or, for an offshore pipeline, to change its route;
- determines the financial arrangements for any modification;
- provides for the consenting authority to be able to secure access by a third party to an existing pipeline designed for the purpose of conveying the substance in question; and set the conditions under which that access should be granted.

Under these arrangements the onus is on the parties to reach agreement on commercial terms on the joint development of, or access to, pipelines but if the process of commercial negotiation fails then the consenting authority has the power to intervene to ensure fair access.

These arrangements also protect the rights of pipeline owners. For example, under the Pipelines Act 1962, modifications to a proposed pipeline (by way of conditions in a pipeline construction authorisation) can be required only where the consenting authority is satisfied that there is evidence of demand existing or likely to arise over the same or a similar route. And, when imposing requirements related to third party access to an existing pipeline, the consenting authority must be satisfied that granting such access would not prejudice the proper and efficient operation of the pipeline for the owner's use.

There is currently no equivalent legislation for CO₂ storage sites. In order to transpose the Directive's obligations in relation to storage sites the intention is to introduce arrangements based on those for pipelines. The main additional burden from implementing the Directive will thus come from the extension of the pipeline arrangements to storage sites. Depending on how those powers are discharged they could require a storage site to be expanded, or a third party to be given access to an existing site, and also determine the financial terms on which this will take place. Such an intervention could significantly change the financial risk profile for an investor in a storage project, especially in relation to contingent storage liabilities. The exercise of these powers will therefore be constrained (as they already are for pipelines) in order to ensure that the integrity of the infrastructure is maintained, the owners reasonable needs are protected and any determination strikes a reasonable balance between the interests of the parties and the risks they are bearing.

It is proposed that the principles of the existing pipeline regulations will be reflected in a new uniform set of requirements for all CO₂ infrastructure, including onshore and offshore pipelines, storage sites and associated infrastructure (e.g. pumps, interim storage facilities). It is not the intention for these arrangements to extend to capture facilities or to an CO₂ enhanced oil recovery project that does not involve permanent storage. In practice this will mean that those seeking access or modification to existing CO₂ infrastructure would first be expected to seek an agreement with the owner on commercial terms. If negotiation fails then the party seeking access, or modification, would then be able to appeal to the consenting authority to secure access or modification. The intention is that the consenting authority will be constrained in exercising these powers. In particular, in deciding a determination, the consenting authority would be obliged to take into account:

- the capacity of the pipeline and storage site that can reasonably be made available,
- the potential for increasing that capacity,
- incompatibilities in technical specification that cannot reasonably be overcome,
- the owner's reasonable needs for transport and storage, and
- any potential negative impact on the environmental security of the infrastructure.

If the consenting authority is required to determine the financial terms for access or modification for either pipelines and storage sites, then they would be guided by principles similar to those already used in other sectors. In particular the arrangements will recognise that infrastructure owners and developers have a key role to play in the development and deployment of CCS, and that too narrow a focus on setting terms on a cost-reflective basis would reduce the incentive for them to bear risk, keep their infrastructure in operation and available, invest in innovative solutions and offer added value services. For example:

Where infrastructure has been built as part of an integrated development where provision has already been made for capital costs and spare capacity can be made available to a third party, then it is anticipated that the consenting authority would normally set terms reflecting the incremental costs and risks imposed on the infrastructure owners.

Where infrastructure has been built oversized or maintained with a view to taking third party business the terms set by the consenting authority would normally provide for the recovery of capital costs incurred in the expectation of third party business, and be set at a level, taking account of the risks involved, to earn the owner a reasonable rate of return on the costs incurred.

Where there is competition for limited capacity then the consenting authority is unlikely to require the owner to make the capacity available to a prospective user who values the capacity less than other prospective users.

In practice this means that in most cases the terms that would be determined by the Secretary of State are likely to be in line with those that would be offered by infrastructure owners were they to face effective competition from other infrastructure owners who also have sufficient spare capacity to store or transport carbon dioxide.

The terms determined by the consenting authority would also reflect the risks borne by the parties. For example, one of the issues that will have a significant impact on the cost of storage is the extent to which the contingent liabilities (that might arise in circumstances where the storage site requires remediation after it has closed for example) would be shared between the storage site operator and the originator of the CO₂ or the owner of the additional pipeline or storage site capacity. Whilst the CCS Directive makes the storage site permit holder legally responsible for such events, this would not stop the emitter and the storage site operator reaching agreement to share the cost in the unlikely event that such remediation was required. The extent that such risk sharing is practical will depend on the financial strength of the parties involved and the availability of risk transfer instruments, such as insurance. Clearly the balance of risk in such circumstances would have an impact on the commercial terms of storage. Any determination by the consenting authority, where one of the parties assumed risks for the remediation of the site, would be very different from the terms in circumstances where those risks are shared. The consenting authority would use its judgement in such circumstances having regard to the specific commercial, financial and technical circumstances of the projects the come forward for determination.

To give effect to the Directive's requirement for transparency the intention is that key information about the pipeline and storage site should be published. The approach proposed in the consultation document is to require owners of CO₂ pipelines and storage sites to publish annually information about the forecast available capacity of the pipeline or storage site and any technical specifications (such as dryness and impurities) that must be met in order to secure access. Such capacity estimates will take account of the owner's reasonable foreseeable needs.

For pipelines, except in circumstances where:

- there has been speculative investment in additional capacity,
- an existing pipeline has been re-used for CO₂ transport, or
- where the original emitter's planned requirements have reduced for some reason,

it would normally be expected that available capacity would be zero. Where this is the case we would not require information about technical specifications to be made publicly available. Similar principles would apply to storage sites.

Summary of the proposed Third Party Access Regime

- Regime covers CO2 transportation and storage infrastructure pre and post construction
- Examples of access are modification of existing or planned infrastructure include increasing capacity, extending or adding taps to allow access
- Access should not be denied for lack of capacity or lack of connection if it is economic or the applicant is willing to pay for necessary enhancements
- Developer and applicant negotiate the terms of access
- Applicant can refer the issue to the Secretary of State for resolution
- Secretary of State considers whether there is a case for access and if so can grant access including the terms of that access
- In reaching that decision, Secretary of State is to consider
 - available capacity
 - technical compatibility
 - need and interest of owners of the infrastructure and the needs of the whole network of users
 - that the modifications will not compromise the safety or result in significant additional environmental detriment

Costs and Benefits of Option 2

The principal effect of the proposed regulations (from both its use and its presence) is to allow the CCS industry to develop without undue delays as a result of a party refusing access to a competitor. The benefits of such a CCS industry were described in the CCS Impact Assessment for 'A framework for Development of Clean Coal'; the present value of the benefits was estimated to be £4.8-14 billion.

If the Secretary of State is called upon to intervene in third party access negotiations, there will be a small cost to business. The third party seeking to access capacity on another's storage site will need to prepare a report setting out their case for the Secretary of State, but since they will have been involved in negotiations, this cost is assumed to be very little. The owner of the storage site may face higher costs in preparing their response as it is assumed to be more onerous. The exact cost of preparing the case will depend on the nature of the storage site, the access requested and the dispute. Given the uncertainties, it is only possible to produce illustrative costs.

If an owner were to use a manager, an engineer, an economist and a lawyer to work on their response full time for one month, it would cost them about £14,600 (calculated using Annual Survey of Hours and Earnings, 2009).

The owner of a storage site may wish to hire consultants to prepare their response, but as that is above and beyond the requirement of the regulations it is not included as a cost here.

It is assumed that the regulations related to referring a case to the Secretary of State will not be used before 2020 by which time major investment in the deployment of CCS in the economy may be expected.

Thus, if the regulations were called into action in, say, 2020², the present value of this one-off cost would be approximately £10,000 (base year 2009).

² Chosen as part of the illustration. It's possible that at that time firms would be involved in the design and planning stages of any CCS plants they wished to build and operate in the 2020s and so this is a time when a problem with access to storage may arise.

It is believed that only in rare cases would a third party be seeking to access capacity on another's storage site at a time when its capacity was capable of being modified economically. A dispute over the terms for that access would be most likely if both parties were electricity generators and the owner saw advantage in restricting supply in that market by refusing access to a competitor. Whether that would happen in practice would depend on the scale of the generators and which generation plant was expected to be price setting.

In addition to this as CCS becomes much more widespread in the future, competition is likely to develop which would limit the need for intervention.

For these reasons, it is estimated that the regulations will only be called into action once.

Another source of cost to businesses (both pipe owners and storage site owners) arising from the regulations is the requirement to provide information on capacity and technical specifications for the following five years on an annual basis.

It is assumed that there will be no extra costs from information collection as the information required will be known to the owner from their business as usual activities, but there will be additional cost from the need to publish the information. The regulations do not specify the manner in which the information is to be published and so the owner can choose the least cost method. If the owner chose to publish the information on their website, the cost to the business would be the salary of an Information and Communication Technology Professional for one day a year. This is estimated to be approximately £150 per year per owner (calculated using Annual Survey of Hours and Earnings, 2009). It is not possible to say how many owners there will be of pipes carrying CO₂ and stage sites containing CO₂.

Risks and assumptions

The rate and spatial location of development of carbon capture is uncertain. It is also not known how much access to storage sites in the UK will be required since it is possible for CO₂ to be used for enhanced oil recovery (in the UK or elsewhere) or to be transported or imported from abroad (by pipeline or boat). The publications of the North Sea Basin Task Force (available at <http://nsbtf.squarespace.com/>) include scenarios for the deployment of CCS which indicate the range of possibilities.

While efforts will be made to reduce regulatory uncertainty by defining a set of criteria in how determinations by the SOS would be made, a degree of judgement will remain and some residual regulatory uncertainty will have some impact.

Option 3

Option 3 is the most interventionist option and applies greater reporting burdens for developers, applicants and the Government than option 2. At this pre-commercial stage of CCS development, we do not feel there is sufficient evidence that the benefits of a more interventionist approach is justified by the additional regulatory burden.

The consultation document accompanying this IA explores some options for making possible future changes to the arrangements in option 2. These might be expected to increase the transparency of the arrangements, but will also impose additional regulatory burden. Such enhancements might include a requirement to publish commercial terms for some or all infrastructure, a requirement to undertake an 'open season' prior to seeking approval for the construction of a pipeline or storage site, or the unbundling of CCS infrastructure from the production of carbon dioxide. The consultation is the start of the process for assessing the costs and benefits of these and other reforms.

The Government is also considering the longer-term approach to deployment post a successful demonstration of CCS. One of the options could be for a centralised approach where a set tariff is charged for CO₂ transportation and storage. This would negate the need for a negotiated

access regime. As such, we do not feel it would be appropriate to advance a more prescriptive approach at this time and so the costs and benefits are not calculated here.

Summary and preferred option

The preferred option is option 2, which extends existing legislation to bring them in line with the EU Directive on geological storage of carbon dioxide. Option 2 entails a single set of regulations on pipelines and storage sites using the principles already contained in UK pipeline third party access legislation, including new provisions on making information available on capacity and technical specification to meet transparency requirements.

The "do nothing" option is not tenable as it would not implement the CCS Directive and thus leave the UK Government open to infraction proceedings.

Option 3 is the most burdensome option. At this pre-commercial stage of CCS development, we do not feel there is sufficient evidence that a more interventionist approach will be required and the additional burdens the approach requires are justified.

access regime. As such, we do not feel it would be appropriate to advance a more prescriptive approach at this time and so the costs and benefits are not calculated here.

Summary and preferred option

The preferred option is option 2, which extends existing legislation to bring them in line with the EU Directive on geological storage of carbon dioxide. Option 2 entails a single set of regulations on pipelines and storage sites using the principles already contained in UK pipeline third party access legislation, including new provisions on making information available on capacity and technical specification to meet transparency requirements.

The "do nothing" option is not tenable as it would not implement the CCS Directive and thus leave the UK Government open to infraction proceedings.

Option 3 is the most burdensome option. At this pre-commercial stage of CCS development, we do not feel there is sufficient evidence that a more interventionist approach will be required and the additional burdens the approach requires are justified.

Annexes

Annex 1 should be used to set out the Post Implementation Review Plan as detailed below. Further annexes may be added where the Specific Impact Tests yield information relevant to an overall understanding of policy options.

Annex 1: Post Implementation Review (PIR) Plan

A PIR should be undertaken, usually three to five years after implementation of the policy, but exceptionally a longer period may be more appropriate. *If the policy is subject to a sunset clause, the review should be carried out sufficiently early that any renewal or amendment to legislation can be enacted before the expiry date.* A PIR should examine the extent to which the implemented regulations have achieved their objectives, assess their costs and benefits and identify whether they are having any unintended consequences. Please set out the PIR Plan as detailed below. If there is no plan to do a PIR please provide reasons below.

<p>Basis of the review: [The basis of the review could be statutory (forming part of the legislation), i.e. a sunset clause or a duty to review, or there could be a political commitment to review (PIR)];</p> <p>The EU CCS Directive (on which the proposals in this impact assessment are based) is scheduled for review before 2015 in the light of the experience gained in the early phase of its implementation. The proposals in this IA will be reviewed alongside that process, and also the conclusions from the consultation accompanying this IA.</p>
<p>Review objective: [Is it intended as a proportionate check that regulation is operating as expected to tackle the problem of concern?; or as a wider exploration of the policy approach taken?; or as a link from policy objective to outcome?]</p>
<p>Review approach and rationale: [e.g. describe here the review approach (in-depth evaluation, scope review of monitoring data, scan of stakeholder views, etc.) and the rationale that made choosing such an approach]</p>
<p>Baseline: [The current (baseline) position against which the change introduced by the legislation can be measured]</p>
<p>Success criteria: [Criteria showing achievement of the policy objectives as set out in the final impact assessment; criteria for modifying or replacing the policy if it does not achieve its objectives]</p>
<p>Monitoring information arrangements: [Provide further details of the planned/existing arrangements in place that will allow a systematic collection of monitoring information for future policy review]</p>
<p>Reasons for not planning a review: [If there is no plan to do a PIR please provide reasons here]</p>

Add annexes here.