

Title: Enabling a discretionary power to remove obligations to decommission offshore oil and gas facilities when re-used for carbon dioxide storage Lead department or agency: DECC Other departments or agencies:	Impact Assessment (IA)
	IA No: DECC0052
	Date: 01/06/2011
	Stage: Final
	Source of intervention: Domestic
	Type of measure: Primary legislation
	Contact for enquiries: Selcan Kayihan 0300 068 6913

Summary: Intervention and Options

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

All offshore oil and gas facilities¹ are subject to a decommissioning programme under s.29 of the Petroleum Act. This requires the owner/operator who is the primary duty holder for the facility to decommission it once it's reached the end of its life, but it may also require (under s.34) previous duty holders to be responsible for decommissioning should the primary duty holder fail to do so. This obligation currently continues even where there has been a change of use of the facility to carbon dioxide storage. The cost and nature of decommissioning carbon dioxide storage facilities is currently unknown. This uncertainty leads to a disincentive to convert the use of sites for carbon dioxide storage even when it is technically and economically viable to do so. Carbon dioxide storage is an essential element of CCS, which is central to the Government's climate change and energy security agenda.

What are the policy objectives and the intended effects?

To remove the disincentive to transfer oil and gas facilities for conversion to store carbon dioxide, whilst providing appropriate protection for the public purse against the risk of default by the owner/operator who is the primary duty holder (duty to commission).

The intended effect is successful transfer deals between petroleum facility owners and carbon dioxide storage developers that allow the conversion of the facilities to carbon dioxide storage for CCS demonstration purposes where it is technically, environmentally and commercially preferable to new-build.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

The options considered are:

Option 1: leave the current arrangements in place ('do nothing')

Option 2: (preferred option) A discretionary power to remove the s.34 power where there is a change of use from oil and gas production from oil and gas production to carbon dioxide storage (intended to be exercised for CCS demonstration projects)

Option 3: Automatically remove the s.34 power for all offshore facilities, both oil/gas production facilities and carbon dioxide storage facilities, in perpetuity.

Option 2 is the preferred option. In instances where the discretionary power is exercised, it will remove the disincentive on petroleum facility owners to sell facilities to be converted to store carbon dioxide (in the case a facility were sold to a CCS developer, the previous Petroleum facility owner would no longer be liable for the cost of a decommissioning programme, which can't currently be estimated, in the case of default by the CCS developer). At the same time option 2 maintains protection of the public purse against the risk of default by primary duty holders for offshore facilities, which have not been used for CCS demonstration projects.

Will the policy be reviewed? It will be reviewed. **If applicable, set review date:** 2018

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?

Yes

SELECT SIGNATORY Sign-off For final proposal stage Impact Assessments:

I have read the Impact Assessment and I am satisfied that (a) it represents a fair and reasonable view of the expected costs, benefits and impact of the policy, and (b) the benefits justify the costs.

Signed by the responsible SELECT SIGNATORY: _____ Date: _____

¹ Offshore facilities include pipelines, the platform and the well

Summary: Analysis and Evidence

Policy Option 1

Description:

Leave current arrangements in place. 'Do nothing' option

Price Base Year 2009	PV Base Year 2009 ¹	Time Period Years 30	Net Benefit (Present Value (PV)) (£m) 0		
			Low:	High:	Best Estimate: 0

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low			
High			
Best Estimate	0		0

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

N/A – please see assumptions box

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

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low			
High			
Best Estimate	0		0

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

N/A – please see assumptions box

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

Key assumptions/sensitivities/risks

Discount rate (%) 3.5

The additional costs and benefits are estimated in comparison to a baseline of status quo, including the envisaged future effects of regulations remaining as they are. Hence this policy option of 'do nothing' has no additional costs or benefits.

Direct impact on business (Equivalent Annual) £m):			In scope of OIOO?	Measure qualifies as
Costs: 0	Benefits: 0	Net: 0	N/A	NA

¹ The base year is 2009 to maintain consistency with the analysis in the Impact Assessment for the other policies contained in the Energy Bill 2011

Enforcement, Implementation and Wider Impacts

What is the geographic coverage of the policy/option?		United Kingdom			
From what date will the policy be implemented?		N/A			
Which organisation(s) will enforce the policy?		N/A			
What is the annual change in enforcement cost (£m)?		N/A			
Does enforcement comply with Hampton principles?		Yes			
Does implementation go beyond minimum EU requirements?		N/A			
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: 100		Benefits: 100	
Distribution of annual cost (%) by organisation size (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 duties² 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	

² Public bodies including Whitehall departments are required to consider the impact of their policies and measures on race, disability and gender. It is intended to extend this consideration requirement under the Equality Act 2010 to cover age, sexual orientation, religion or belief and gender reassignment from April 2011 (to Great Britain only). The Toolkit provides advice on statutory equality duties for public authorities with a remit in Northern Ireland.

Summary: Analysis and Evidence

Policy Option 2

Description:

A discretionary power to remove the s.34 obligation where a new decommissioning plan is required on change of use of structures from oil and gas production to carbon dioxide storage (intended to be exercised for CCS demonstration projects)

Price Base Year 2009	PV Base Year 2009 ¹	Time Period Years 30	Net Benefit (Present Value (PV)) (£m) 0		
			Low:	High:	Best Estimate: 0

COSTS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low				
High				
Best Estimate		0		0

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

This IA concerns an enabling a discretionary power and as such no costs are attributed to the enabling power. Specific cost estimates will be estimated in subsequent IAs accompanying secondary legislation that will remove s.34 for specific infrastructure

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

BENEFITS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low				
High				
Best Estimate		0		0

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

This IA concerns an enabling a discretionary power and as such no benefits are attributed to the enabling power. Specific benefit estimates will be estimated in subsequent IAs accompanying secondary legislation that will remove s.34 for specific infrastructure

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

Key assumptions/sensitivities/risks	Discount rate (%)	3.5
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Direct impact on business (Equivalent Annual) £m):			In scope of OIOO?	Measure qualifies as
Costs: 0	Benefits: 0	Net: 0	Yes	OUT

¹ The base year is 2009 to maintain consistency with the analysis in the Impact Assessment for the other policies contained in the Energy Bill 2011

Enforcement, Implementation and Wider Impacts

What is the geographic coverage of the policy/option?	United Kingdom				
From what date will the policy be implemented?	Q3 2011				
Which organisation(s) will enforce the policy?	DECC				
What is the annual change in enforcement cost (£m)?	0				
Does enforcement comply with Hampton principles?	Yes				
Does implementation go beyond minimum EU requirements?	N/A				
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: 100		Benefits: 100		
Distribution of annual cost (%) by organisation size (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.

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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	

² Public bodies including Whitehall departments are required to consider the impact of their policies and measures on race, disability and gender. It is intended to extend this consideration requirement under the Equality Act 2010 to cover age, sexual orientation, religion or belief and gender reassignment from April 2011 (to Great Britain only). The Toolkit provides advice on statutory equality duties for public authorities with a remit in Northern Ireland.

Description:

Automatically remove the s.34 power for all offshore facilities, both oil/gas production facilities and carbon dioxide storage facilities, in perpetuity

Price Base Year 2009	PV Base Year 2009 ¹	Time Period Years 30	Net Benefit (Present Value (PV)) (£m) £340m		
			Low:	High:	Best Estimate: £340m

COSTS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)		Total Cost (Present Value)
Low					
High					
Best Estimate		0			0

Description and scale of key monetised costs by ‘main affected groups’
 N/A – please see assumptions box

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

BENEFITS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)		Total Benefit (Present Value)
Low					
High					
Best Estimate		£400m			£340m

Description and scale of key monetised benefits by ‘main affected groups’
 The benefit is that the disincentive to convert offshore facilities to be used for offshore carbon dioxide storage has been removed. The benefit estimate is based on the first UK CCS demonstration project² being able to use and convert existing infrastructure instead of new-build infrastructure being used and so there will be a reduction in the financial cost of the project.
 Also there will be a reduction in the total spend on decommissioning as the petroleum facility owner will not decommission the facility, only the CCS developer will decommission the facility.

Other key non-monetised benefits by ‘main affected groups’
 Reduced environmental cost as existing offshore facilities will be converted and new-build facilities will not be used.

Key assumptions/sensitivities/risks	Discount rate (%)	3.5
<p>It is a legal requirement that the decommissioning programme of offshore facilities takes place and hence the costs will always be incurred. Under this policy the government will pay the decommissioning costs if the owners/operators with the duty to decommission can't cover the costs. Under the status quo, where new-build infrastructure is used the government will pay the decommissioning costs if the owners/operators with the duty to decommission can't cover the costs. Hence there is no additional cost.</p> <p>It is assumed that the probability of default is not affect by the policy. This is because there is no change in moral hazard. The provision that, in the case of default, the cost of a decommissioning programme would still be met is already in place. This policy only affects which agent pays the cost in that case there is a default by the primary duty holder.</p>		

Direct impact on business (Equivalent Annual) £m):			In scope of OIOO?	Measure qualifies as
Costs: 0	Benefits: 0	Net: 0	Yes	£OUT

¹ The base year is 2009 to maintain consistency with the analysis in the Impact Assessment for the other policies contained in the Energy Bill 2011

² Although the UK CCS Demonstration Programme is made up of four demonstration projects, the estimates of the benefits are only based on the first UK CCS demonstration project as the competition for the first demonstration project is underway, whereas the competition for demos 2-4 has not been launched yet. Also there are no benefits from the inclusion of offshore oil and gas infrastructure being included in the policy as there is no market failure identified there.

Enforcement, Implementation and Wider Impacts

What is the geographic coverage of the policy/option?	United Kingdom				
From what date will the policy be implemented?	Q3 2011				
Which organisation(s) will enforce the policy?	DECC				
What is the annual change in enforcement cost (£m)?	0				
Does enforcement comply with Hampton principles?	Yes				
Does implementation go beyond minimum EU requirements?	N/A				
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: 100		Benefits: 100		
Distribution of annual cost (%) by organisation size (excl. Transition) (Constant Price)	Micro	< 20	Small	Medium	Large
Are any of these organisations exempt?	No	No	No	No	No

Specific Impact Tests: Checklist

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Rural proofing Rural Proofing Impact Test guidance	No	
Sustainable development Sustainable Development Impact Test guidance	No	

³ Public bodies including Whitehall departments are required to consider the impact of their policies and measures on race, disability and gender. It is intended to extend this consideration requirement under the Equality Act 2010 to cover age, sexual orientation, religion or belief and gender reassignment from April 2011 (to Great Britain 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	Petroleum Act, 1998
2	
3	
4	

+ 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	0	0	0	0	0	0	0	0	0	0
Annual recurring cost	0	0	0	0	0	0	0	0	0	0
Total annual costs	0	0	0	0	0	0	0	0	0	0
Transition benefits	0	0	0	0	0	0	0	0	0	0
Annual recurring benefits	0	0	0	0	0	0	0	0	0	0
Total annual benefits	0	0	0	0	0	0	0	0	0	0

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



Microsoft Office
Excel Worksheet

Evidence Base (for summary sheets)

Problem under consideration:

The issue being considered here is the unwillingness of offshore Petroleum facility owners to sell the facilities¹ to CCS developers. The unwillingness is the result of the uncertainty surrounding the cost, the nature and extent of decommissioning a carbon dioxide store as it has never been carried out before. If the facility is sold to a CCS developer, but they later default on the decommissioning obligations, the Petroleum facility owners may be called upon to meet the decommissioning obligations, which are currently uncertain.

Legislative Background

Part IV of the Petroleum Act 1998 provides powers for the regulation of decommissioning offshore facilities on the United Kingdom Continental Shelf (UKCS) and the Energy Act 2008 provides for Part IV of the Petroleum Act to also apply to carbon storage installations. Duty holders² of offshore facilities are required to decommission those facilities once activity comes to an end.

The UK Government also has international obligations on decommissioning that are governed principally by the 1992 Convention for the Protection of the Marine Environment of the North East Atlantic (OSPAR Convention). These have their origins in the United Nations Convention on the Law of the Sea of 1982. And requires '*...any installations or structures which are abandoned or disused to be removed...*'. These international agreements impose a duty on Government to ensure the decommissioning of disused offshore facilities in the event that the primary duty holder fails to do so.

Before the owners of an offshore oil & gas installation or pipeline can proceed with its decommissioning they must obtain approval of a decommissioning programme under Part IV of the Petroleum Act 1998.

The principal provisions of Part IV of the 1998 Act:

- enable the Secretary of State under s.29 of the Act, by written notice, to require the submission of a costed decommissioning programme for each offshore installation and submarine pipeline. Those persons given notices are jointly liable to submit a programme;
- where a decommissioning programme is approved by the Secretary of State, make it the (joint and several) duty of the persons who submitted it to secure that it is carried out;
- provide the Secretary of State with means to satisfy himself that any person who has a duty to secure that an approved decommissioning programme is carried out will be capable of discharging that duty and, where he is not so satisfied, require that person, to take such action as may be specified;
- in the event of failure by those given notice to submit a programme or secure that it is carried out, enable the Secretary of State to do the work and recover the cost from those given notice;

¹ Offshore facilities can include pipelines, the platform and the well.

² This could be the owner or the operator depending on which party or parties are identified in section 29; this is done on a case by case basis. The party or parties identified in section 29 are those connected to the facility that DECC feels has the financial ability to cover the decommissioning costs when they arise. The party identified could even specify a parent company if deemed necessary. Alternatively a security (such as liquid assets) could be required.

- provide penalties for failure to comply with notices;

In the event that there is a change of ownership of the facilities, then a new s.29 notice is served and the new owners become responsible for preparing and implementing a decommissioning programme. At this point a decision will be made whether to withdraw the section 29 notice from the previous owner, the notice can be withdrawn if it is judged that the new owner has sufficient financial strength to cover the decommissioning liabilities.

However, under s. 34 of the Act, any person that has previously been subject to a s.29 notice, or on whom as s.29 notice could have been served, may be required to undertake the decommissioning programme. It is expected this power would only be used if a person who was under a duty to decommission fails to do so.

Collectively Part IV of the Act is intended to provide a strong guarantee that public finances will not be required to meet the cost of decommissioning offshore oil & gas facilities.

Carbon Capture and Storage Policy

Carbon Capture and Storage (CCS) allows the continued use of fossil fuels for the generation of electricity while reducing carbon dioxide emissions to the atmosphere by 90%. CCS has a key part to play in a low-carbon energy future. The same technologies could also be used to capture carbon dioxide from other large point source emitters such as steel, petrochemical and cement works. The Government is committed to support the development of CCS. Key to this is to support the construction and operation of the UK CCS Demonstration Programme, which will be formed of four CCS demonstration projects, as part of the global effort to develop CCS as a commercially deployable technology.

CCS involves three key steps:

- 1 capturing carbon dioxide;
- 2 transporting carbon dioxide to storage sites;
- 3 permanently storing carbon dioxide in geological sites such as depleted oil and gas fields or deep saline formations.

Carbon dioxide storage is the least technically and commercially developed part of this process.

Depleted oil and gas fields are amongst the most suitable sites for carbon dioxide storage; they have contained buoyant fluids over geological timescales. For example, the North Sea is a mature reservoir and it also benefits from significant capital investment in facilities that could potentially be reused for carbon dioxide transport and storage.

One of the CCS projects currently being developed in the UK involves the reuse of existing offshore infrastructure together with a change of ownership. Under s.34 of the Petroleum Act, in the event of failure by the primary duty holder, parties that have previously been responsible for decommissioning when used for oil & gas production, can be made responsible for decommissioning after it has been used for carbon dioxide storage. There is established precedent for building this legacy liability into asset sales within the oil & gas sector, but not on change of use to carbon dioxide storage.

Offshore CO₂ storage technologies and processes are new and their development and use is being led by a very small number of organisations. They are not widely understood in detail and there is considerable uncertainty about how the industry will develop and on the nature and extent of the decommissioning liabilities that would be associated with offshore installations converted in use from petroleum production to carbon dioxide storage.

This uncertainty applies especially in relation to the plugging and abandonment of wells at the end of the lifetime of the store. The cost of decommissioning a reservoir that could potentially

exceed the original reservoir pressures would not have been anticipated. Similarly, the well design and casing will have been constructed to a specification that did not anticipate the use of carbon dioxide. When the well is decommissioned this would add significant additional costs in the well and significant additional uncertainty about the costs of decommissioning. Suitability for alternative use will have been confirmed as part of issuing the storage licence, but such an assessment does not factor in the additional costs of decommissioning which it is impossible to estimate given that CCS has not been demonstrated yet.

Because of the lack of experience in decommissioning carbon dioxide storage facilities, there are no commercial norms, as there are in the oil & gas industry, for assessing the value of decommissioning liabilities when transferred through asset sales to CCS developers. This could lead to a failure to agree contractual terms.

The uncertainty drives the owners of facilities to prefer to decommission the existing infrastructure using provisions it had set aside for the purpose, rather than “pay”³ those provisions to the new owner with the risk that if the new owner were to fail it could become liable for the costs of decommissioning. This is compounded by the fact that those decommissioning costs are also likely to be significantly higher than the provisions set aside as a result of the use of the facilities for oil & gas production. These circumstances are unique to reuse for carbon dioxide storage, since all other changes of use (such as gas storage) leave the reservoir at a depleted pressure and involve chemicals that would have been anticipated during the design of the reservoir.

This may happen even in the instances where it is technically, environmentally and commercially preferable to sell the facility. This effectively acts to favour new-build infrastructure over re-use of existing infrastructure, resulting in significant cost increases of CCS projects.

The alternatives to the situation described above is that CCS developers may decide to not go ahead with the project if the owners will not sell the facility or Alternatively, a situation could arise where a change of use of offshore facility does occur, but at a disproportionate cost, which is not efficient, due to the uncertainty.

Rationale for intervention

The rationale for deregulating the arrangements for decommissioning offshore oil & gas facilities is to remove the disincentive to reuse offshore facilities for carbon dioxide storage due to uncertainty of the cost, the nature and the extent of any future decommissioning of offshore carbon dioxide storage facilities.

Without intervention the current arrangements under s. 34 of the Petroleum Act will either prevent the sale of existing offshore oil & gas installations and pipelines for conversion to carbon dioxide storage purposes. Alternatively, the sale and subsequent change of use will only take place at disproportionate cost.

Policy objective

The policy objective is to remove the disincentive to transfer oil and gas facilities for conversion to store carbon dioxide, whilst providing appropriate protection for the public purse against the risk of default by the primary duty holder.

³ The provisions for the cost of decommissioning are factored into the commercial agreement, rather than transferred.

Description of options considered (including do nothing)

The main options considered include:

Option 1

Retain the current position (do nothing)

In the event that any owner/operator that has a duty to decommission fails to do so, then any owner/operator that has previously been subject to a s.29 notice may be required to undertake the decommissioning programme.

Option 2 (Preferred option)

A discretionary for the removal of s.34 requirement only when there is a change of use from oil and gas production to storing carbon dioxide. It is intended to be used for the UK CCS Demonstration Programme.

Where the Secretary of State exercises the discretionary power, in the event that any owner/operator that has a duty to decommission an offshore storage site used as part of the UK CCS Demonstration Programme fails to do so, the government will be liable for the costs of the decommissioning programme.

Option 3

Complete removal of the s.34 requirement for all offshore facilities, in perpetuity.

In the event that any person that has a duty to decommission an offshore storage site fails to do so, the government will be liable for the costs of the decommissioning programme.

Costs and Benefits of options

The costs and benefits presented here are measured against a baseline of the status quo, including the envisaged future effects of regulations remaining as they are, i.e. the disincentive for owners of existing offshore facilities to allow the facilities to be converted for the use of carbon dioxide storage.

The assumed status quo is that when a CCS developer wishes to store carbon dioxide in an offshore facility, new-build infrastructure will be used, up until a time where the industry learns more about what will be required to decommission such infrastructure. New-build infrastructure is used because the owners of existing infrastructure that would be suitable for use by the CCS industry are not willing to sell the infrastructure and will instead decommission it.

The assumption of new build infrastructure being used under the counterfactual is thought to be reasonable. While hydrocarbon producers obtain rights to produce petroleum from the ground beneath a defined area of the seabed and as a result they also have the rights to construct the necessary infrastructure, those rights do not preclude someone else from locating infrastructure in the area of the seabed for which the hydrocarbon rights exist. If another party wished to construct infrastructure in an area of the seabed allocated for hydrocarbon production then they would be free to do so, although the regulator would ensure that such joint developments did not compromise either activity.

This means that two decommissioning programmes will be carried out when a suitable offshore infrastructure, that has reached the end of its useful life for the oil and gas industry, is identified by a CCS developer. One on the infrastructure used by the petroleum facility owner and one on the infrastructure used in the process of storing carbon dioxide.

Option 1

This option does not address the market failure. This option would be likely to be perceived as Government failure to create appropriate conditions for achieving CCS demonstration.

Existing decommissioning provisions will continue to favour decommissioning of offshore facilities used for oil or gas production rather than reuse for carbon storage purposes and result in lack of asset transfer to potential CCS developers. It is assumed that since existing offshore infrastructure will not be available for conversion new-build infrastructure will be used instead.

Using the status quo as the baseline, this option does not lead to any additional costs or benefits.

Option 2 (preferred option)

Where the discretionary power is exercised, the disincentive for offshore facilities to be converted to store carbon dioxide from the UK CCS Demonstration Programme will be removed. Offshore Petroleum facility owners/operator will no longer be liable for the costs of a decommissioning programme that it is not currently possible to estimate.

This option also provides appropriate protection for the public purse against the risk of default by the owner/operator who is the primary duty holder (duty to decommission). The discretionary removal of s.34 requirement only applies to facilities when they are being converted to be used for carbon dioxide storage. If these facilities are later sold, s.34 may be applied in the event that the primary duty holder, at that time, defaults. In this case the CCS developer who first owned/operated the facility would be liable to cover the decommissioning costs.

This IA concerns enabling a discretionary power and as such no additional costs are attributed to the enabling power. Specific cost estimates will be estimated in subsequent IAs accompanying secondary legislation that will remove s.34 for specific infrastructure.

However, analysis of a possible future scenario is presented here. The possible future scenario is that the discretionary power to remove s.34 is exercised for the first UK CCS demonstration project and it is economically, technically and environmentally preferable to use existing infrastructure. As stated previously, these cost and benefit estimates are not attributed to this IA.

Demonstration projects will allow the industry to first familiarise itself with the operation of the facilities and monitor the behaviour of the carbon dioxide and how it interacts with the facilities. This knowledge will allow the industry to get a feel for the nature of decommissioning facilities used for carbon dioxide with more confidence. Eventually the industry will be provided with an estimate of the cost and nature of decommissioning when the first facility is decommissioned. Thus, decommissioning facilities used to store carbon dioxide will become more in line with the decommissioning of oil and gas production sites, which does not require government intervention.

Costs

There is no overall additional cost of this policy compared to the baseline as there is a legal requirement that the decommissioning programme of offshore facilities takes place and hence the costs will always be incurred. Under this policy, assuming the discretionary power is exercised for the first demonstration project, the government will pay the decommissioning costs if the owners/operators with the duty to decommission the

infrastructure used for the first demonstration project can't cover the costs. Under the status quo, where new-build infrastructure is used the government will pay the decommissioning costs if the owners/operators with the duty to decommission can't cover the costs, as there will have been no previous owner. Hence there is no additional cost.

Business is not willing to take on the liability because they would be exposed to greater and unknown risks and they do not perceive any private benefits in doing so. However, there are benefits to society from this going ahead in the form of progress towards our climate change goals and improved security of electricity supply position that demonstration of CCS brings. Therefore to enable this, government is willing to take on the liability and can do so by exercising the discretionary power.

It is assumed that the probability of a duty holder defaulting is not affected by the policy. This is because there is no effect on moral hazard. The provision that, in the case of default, the cost of the decommissioning programme would still be met is already in place. Hence the additional cost to government is balanced out by the reduced cost of the same amount to business, i.e. there is a net transfer from business to government.

The cost⁴ to the government to pay for the decommissioning programme of an offshore facility, where the owner is not able to do so, is driven by the likelihood of the operators/owners not being able to fulfil their decommissioning duties and the actual cost of decommissioning.

The oil and gas offshore industry have been subject to Part IV of the Petroleum Act since 1998, in which time 41 facilities have been decommissioned. S. 34 has not been called into use in any one of these circumstances, suggesting that it is rare for a facility owner not to be able to fulfill their decommissioning responsibilities.

All storage sites are unique and hence the decommissioning costs involved will be different for each site. DECC Energy Development Unit estimate the range of decommissioning costs for oil/gas production facilities to be between £5m and several hundred million⁵. While the cost of decommissioning infrastructure used for the purpose of storing carbon dioxide is unknown, it may well be higher than that for oil/gas production facilities as the decommissioning of the well will be more expensive, as described previously.

It is also assumed that there is no change in the risk of problems occurring under this policy option (assumed conversion and use of existing infrastructure) compared with the counterfactual (assumed construction and use of new infrastructure). Only existing infrastructure that is technically suitable will be converted.

Benefits

The benefit of the policy option is that the disincentive to convert the use of an offshore facility will be removed when the discretionary power is exercised. It is therefore assumed that existing facilities will be used instead of new-build facilities when it is preferable to do so. This will result in a reduction in the financial cost of the project and environmental costs⁶. It is estimated that the cost of a new-build infrastructure for an offshore facility is approximately £450m, while the cost of using existing infrastructure is £150m⁷.

⁴ Which is not an additional cost of the policy

⁵ DECC Energy Development Unit estimate

⁶ It has not been possible to estimate the reduced environmental cost

⁷ Estimates from DECC Energy Development Unit

Using the possible future scenario where the discretionary power to remove s.34 is exercised for the first UK CCS demonstration project, the cost saving is estimated to be £300m⁸. It is the government that will benefit from the avoided cost as it will be funding the demonstration project.

The CCS demonstration projects that are to form part of the UK CCS Demonstration Programme are expected to begin operation within the 2010s so ownership of the facilities will need to be obtained and work carried out on the facilities in the next few years. To calculate the discounted benefit of this possible future scenario, it is assumed that the benefit occurs in 2014 as the first demonstration plant should be operational in 2015. The discounted benefit of the use of existing infrastructure is £250m (base year 2009).

Another benefit of this policy is that the total cost of decommissioning will be lower than under the counterfactual, when the discretionary power is exercised. Under this policy option, once the existing infrastructure that's been converted to be used in the process of storing carbon dioxide has come to the end of its life, it will be decommissioned. Only one decommissioning programme will take place in this scenario.

This compares with the counterfactual where the assumption is that owners/operators of the infrastructure used in the oil and gas industry will decommission the infrastructure at an estimated cost of £100m⁹. New build infrastructure will be used by the CCS developer, but will also have to be decommissioned at the end of its life. There will be two decommissioning programmes in this scenario. The cost of decommissioning new build infrastructure used for the purposes of storing carbon dioxide is assumed to be at the same cost as the decommissioning of the existing infrastructure that's been converted to be used for the purpose of storing carbon dioxide under this policy.

Hence if the discretionary power to remove s.34 is exercised for the first UK CCS demonstration project, under this policy option, it is estimated that the total decommissioning cost is estimated to be £100m less per CCS project than under the counterfactual.

It should be noted that it is assumed that it is the CCS developers who will benefit. Following the 'norms' of the oil and gas industry, the petroleum facility owner will "pay"¹⁰ the provisions they have set aside for decommissioning to the new owner at the time of asset transfer.

The CCS demonstration projects that are to form part of the UK CCS Demonstration Programme are expected to begin operation within the 2010s so ownership of the facilities will need to be obtained and work carried out on the facilities in the next few years. To calculate the discounted benefit of this possible future scenario, it is assumed that the benefit occurs in 2014 as the first demonstration plant should be operational by 2015. The discounted benefit of the reduced spend on decommissioning is £85m (base year 2009).

If the discretionary powers were extended to the other three demonstration projects that make up the UK CCS Demonstration Programme as it was preferable for them to use and convert existing infrastructure, there could be more benefits. This will increase the benefits of this option. At this stage in the development of the other three demonstration projects it is not possible to quantify what the benefits might be, or even if there would be benefits. That is why a possible future scenario was used to estimate the benefits, but as previously stated, these additional benefits will not be attributed to the enabling power in this IA.

Considerations regarding the discretionary power

⁸ £450m - £150m = £300m

⁹ DECC Energy Development Unit estimate the range of decommissioning costs for oil/gas production facilities to be between £5m and several hundred million. £100m was chosen as the estimate within the range.

¹⁰ The provisions for the cost of decommissioning are factored into the commercial agreement, rather than transferred.

This policy option involves the use of a discretionary power. While it is the intention that the discretionary power will be exercised for all four CCS demonstration projects, there is the possibility that it won't be. If it were the case that the discretionary power was not exercised for one of the demonstration projects, the developers could seek a Judicial Review. There would be costs to business and government if a Judicial Review went ahead.

A fee of £50 is payable when an application is lodged for permission to apply for a Judicial Review. A further £180 is payable if the CCS developers wish to pursue the claim if permission is granted (Civil Proceedings Fees (Amendment) Order 2008). Businesses will also incur the costs of preparing and presenting the case. The costs will be proportional to the length of time of the Judicial Review, which is not possible to know at this time.

In addition to this, there will be costs to the public sector, in the form of the Court's time and civil servants time preparing the case. MoJ have estimated the cost of the courts time for a Judicial Review is about £385,000. Again, the costs of preparing and presenting the case to the public sector will be proportional to the length of time of the Judicial Review.

Option 3

Whilst this policy option, like option 2, removes the disincentive for offshore facilities to be converted to store carbon dioxide the removal is automatic. Also, the scope here has been broadened to include an area where a market failure has not been identified, i.e. facilities used for oil and gas production only. The oil and gas industry has developed procedures for incorporating liabilities into asset sales using accepted norms. This option exposes Government to risk of having to step in and meet decommissioning liabilities for oil and gas installations and pipelines with no offsetting benefit.

It is not known how the CCS industry will develop or how the oil and gas industry demand for existing infrastructure will change in response to this policy option. Hence a possible future scenario is used to calculate estimates of the costs and benefits of this policy. The possible future scenario is that the discretionary power to remove s.34 is exercised for the first UK CCS demonstration project¹¹.

Costs

There is no overall additional cost of this policy compared to the baseline as there is a legal requirement that the decommissioning programme of offshore facilities takes place and hence the costs will always be incurred. Under this policy, the government will pay the decommissioning costs if the owners/operators with the duty to decommission the infrastructure used for the first demonstration project can't cover the costs. Under the status quo, where new-build infrastructure is used the government will pay the decommissioning costs if the owners/operators with the duty to decommission can't cover the costs, as there will have been no previous owner. Hence there is no additional cost.

It is assumed that the probability of default is not affected by the policy. This is because there is no effect on moral hazard. The provision that, in the case of default, the cost of the decommissioning programme would still be met is already in place. Hence the additional cost to government is balanced out by the reduced cost of the same amount to business, i.e. there is a net transfer from business to government.

¹¹ Although the UK CCS Demonstration Programme is made up of four demonstration projects, the estimates of the benefits are only based on the first UK CCS demonstration project as the competition for the first demonstration project is underway, whereas the competition for demos 2-4 has not been launched yet.

The cost¹² to the government to pay for the decommissioning programme of an offshore facility, where the owner is not able to do so, is driven by the likelihood of the operators/owners not being able to fulfil their decommissioning duties and the actual cost of decommissioning.

The oil and gas offshore industry have been subject to Part IV of the Petroleum Act since 1998, in which time 41 facilities have been decommissioned. S. 34 has not been called into use in any one of these circumstances, suggesting that it is rare for a facility owner not to be able to fulfil their decommissioning responsibilities.

All storage sites are unique and hence the decommissioning costs involved will be different for each site. DECC Energy Development Unit estimate the range of decommissioning costs for oil/gas production facilities to be between £5m and several hundred million¹³. While the cost of decommissioning infrastructure used for the purpose of storing carbon dioxide is unknown, it may well be higher than that for oil/gas production facilities as the decommissioning of the well will be more expensive, as described previously.

While the estimate of the presented here is only based on the first demonstration project, since this policy is broad in scope the government could be liable to cover the cost of multiple decommissioning programmes, both from the CCS industry and the oil and gas industry. Although the assumed probability of default by each duty holder is still assumed to be low.

Benefits

The benefit of this option is the removal of the disincentive to convert the use of an offshore facility from gas/oil production to carbon dioxide storage. As a result it is assumed that offshore facilities will be converted instead of new-build facilities being used, where preferable. There will be a reduction in the financial and environmental cost of developing an offshore facility to be used as a carbon dioxide store. It is estimated that the cost of a new-build infrastructure for an offshore facility is approximately £450m, while the cost of using existing infrastructure is £150m¹⁴.

Using the possible future scenario where the discretionary power to remove s.34 is exercised for the first UK CCS demonstration project, the cost saving is estimated to be £300m¹⁵. It is the government that will benefit from the avoided cost as it will be funding the demonstration project.

The CCS demonstration projects that are to form part of the UK CCS Demonstration Programme are expected to begin operation within the 2010s so ownership of the facilities will need to be obtained and work carried out on the facilities in the next few years. To calculate the discounted benefit of this possible future scenario, it is assumed that the benefit occurs in 2014 as the first demonstration plant should be operational by 2015. The discounted benefit of this policy is £250m (base year 2009).

Another benefit of this policy is that the total cost of decommissioning will be lower than under the counterfactual, when the discretionary power is exercised. Under this policy option, once the existing infrastructure that's been converted to be used in the process of storing carbon dioxide has come to the end of its life, it will be decommissioned. Only one decommissioning programme will take place in this scenario.

¹² Which is not an additional cost of the policy

¹³ DECC Energy Development Unit estimate

¹⁴ Estimate from DECC Energy Development Unit

¹⁵ £450m - £150m = £300m

This compares with the counterfactual where the assumption is that owners/operators of the infrastructure used in the oil and gas industry will decommission the infrastructure at an estimated cost of £100m¹⁶. New build infrastructure will be used by the CCS developer, but will also have to be decommissioned at the end of its life. There will be two decommissioning programmes in this scenario. The cost of decommissioning new build infrastructure used for the purposes of storing carbon dioxide is assumed to be at the same cost as the decommissioning of the existing infrastructure that's been converted to be used for the purpose of storing carbon dioxide under this policy.

Hence if the discretionary power to remove s.34 is exercised for the first UK CCS demonstration project, under this policy option, it is estimated that the total decommissioning cost is estimated to be £100m less per CCS project than under the counterfactual.

It should be noted that it is assumed that it is the CCS developers who will benefit. Following the 'norms' of the oil and gas industry, the petroleum facility owner will "pay"¹⁷ the provisions they have set aside for decommissioning to the new owner at the time of asset transfer.

The CCS demonstration projects that are to form part of the UK CCS Demonstration Programme are expected to begin operation within the 2010s so ownership of the facilities will need to be obtained and work carried out on the facilities in the next few years. To calculate the discounted benefit of this possible future scenario, it is assumed that the benefit occurs in 2014 as the first demonstration plant should be operational by 2015. The discounted benefit of the reduced spend on decommissioning is £85m (base year 2009).

If the other three demonstration projects that form part of the UK CSS demonstration programme intend to use existing offshore infrastructure, the benefits of this policy would increase. However, at this stage in the development of the other three demonstration projects it is not possible to quantify what the benefits might be, or even if there would be benefits. This is why a possible future scenario was used to estimate the benefits.

There would be no additional benefits of the policy having a broad scope, i.e. removing s.34 for infrastructure used by the oil and gas industry too because there is no market failure identified there.

¹⁶ DECC Energy Development Unit estimate the range of decommissioning costs for oil/gas production facilities to be between £5m and several hundred million. £100m was chosen as the estimate within the range.

¹⁷ The provisions for the cost of decommissioning are factored into the commercial agreement, rather than transferred.

Summary of cost and benefit estimates of the options:

	Costs	Benefits	Net Benefit
<u>Option 1</u> (undiscounted)	£0m	£0m	£0m
<u>Option 1</u> (discounted)	£0m	£0m	£0m
<u>Option 2</u> (undiscounted)	£0m	£0m	£0m
<u>Option 2</u> (discounted)	£0m	£0m	£0m
<u>Option 3</u> (undiscounted)	£0m	£400m	£400m
<u>Option 3</u> (discounted)	£0m	£340m	£340m

Risks and assumptions

Potential Contingent Liabilities

None of above options impose additional costs on business or the third sector. They each involve a movement of risk from business to the public sector. That risk would only materialise as costs if the duty holder were to default on its decommissioning obligations. The cost of decommissioning an offshore structure obviously depends on the nature of that structure.

As part of approval of the decommissioning programme DECC assesses the financial standing of the parties with the primary decommissioning duty. Where the Secretary of State has concerns about the ability of a group of section 29 notice holders to fund the decommissioning of a project he can require security.

This security is in the form of a liquid asset (such as letters of credit) and provides at least 100% of estimated costs of decommissioning including site clear-up after the main removal work. In most cases it will also include a risk factor to cover the uncertainties surrounding cost calculations. The need for and the amount varies depending on the complexities of the facilities to be decommissioned but in most circumstances will add 50% to the total cost estimate.

Where a company of substantial financial standing can demonstrate its ability to meet all its potential liabilities then it DECC does not require a financial security. The particular circumstances and the level of decommissioning costs will determine whether this is feasible and what defines an acceptable financial status. However, the company would as a minimum have sufficient assets to easily afford both its potential liabilities for the project and its wider UKCS portfolio; with costs for each equating to less than 30% of the company's net worth

The application of these security requirements mean that up to now it has not been necessary to call on the provisions of s.34 for the decommissioning of oil & gas facilities. During this period there have been 41 facilities decommissioned in the North Sea.

Bias towards re-use for CCS

Through the targeted removal of the s.34 requirement we are effectively creating a framework that provides a marginal incentive for the reuse of facilities for the purpose of carbon dioxide storage, rather than oil & gas production, even in circumstances where there may be commercially recoverable oil & gas reserves. However, these decommissioning requirements do not work in isolation. Licensing of petroleum production and carbon dioxide storage is the responsibility of the Secretary of State. The Secretary of State therefore has the right to determine whether a particular geological feature is to be used for oil and gas production or for carbon dioxide storage. It is this primary use that will determine what the associated facilities will be used for. Within the publicly stated policy framework for CCS¹⁸ the Government has made it clear that in circumstances where there are competing uses of a geological feature, then priority will be given to energy security over carbon dioxide storage. This effectively cancels out any bias created by the marginally preferential decommissioning regime.

Timing of the removal of s.34

The timing of the removal of s.34 for options 2 and 3 could be when assets are transferred or at the point that operational injection of carbon dioxide first occurs. It is assumed that the realisation of the benefits will not be altered by the choice of timing of the removal of s.34 as it is assumed that the timing does not affect the industry's confidence in the policy. The benefits are dependent on the owners/operators of infrastructure used for the oil and gas industry having confidence that the policy will remove their exposure to cover future decommissioning costs for infrastructure used for carbon dioxide storage, which are currently unknown.

Direct costs and benefits to business calculations (following OIOO methodology):

This proposal is marginally deregulatory in that it changes the risk allocation between the public sector and government in limited circumstances that the primary duty holder fails to decommission the facilities. Hence this policy is regarded to be an "out" with a value of zero.

Summary and preferred option

The preferred option is policy option 2: a discretionary power to remove the s. 34 power where there is a change of use from oil and gas production to carbon dioxide storage for CCS demonstration projects only.

This is the preferred option as its scope is focused to directly address the disincentive for offshore Petroleum facility owners to sell the facility to be converted to carbon dioxide storage. The discretionary power will allow the government to look at CCS projects intending to use existing infrastructure on a case by case basis. This provides appropriate protection for the public purse against the risk of default by the owner/operator who is the primary duty holder (duty to decommission).

¹⁸ DECC. Towards Carbon Capture and Storage: Government Response to Consultation. April 2009. URN 09D/532

The UK CCS Demonstration Programme will eventually address the market failure as it will provide the industry with information about decommissioning costs so decommissioning facilities used to store carbon dioxide will become more in line with the decommissioning of oil and gas production sites, which does not require government intervention.

Annexes

Annex 1: Post Implementation Review (PIR) Plan

<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>Policy sponsor unit commitment to review</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> <ul style="list-style-type: none">- Ongoing assessment of the degree to which the legislative change allays industry concerns and facilitates asset transfers for conversion to carbon dioxide storage purposes and whether it has unintended consequences through engagement and dialogue with oil and gas industry and developing CCS industry (including through negotiations with entities bidding for CCS demonstration projects and established for a for industry engagement)- Ongoing monitoring, in collaboration with EDU decommissioning units, of instances where default seems likely/takes place on section 29 obligations to submit and implement decommissioning programmes for offshore facilities in order to identify and address any emerging trends in/implications for use of section 34 powers (the balance of risk exposure) in the oil and gas sector and developing CCS sector- Ongoing monitoring of planned and executed asset transfers between oil and gas facility owners and carbon dioxide storage developers to judge the impact of the legislative change on the ground
<p>Baseline: [The current (baseline) position against which the change introduced by the legislation can be measured]</p> <p>There is currently one proposed asset transfer in progress from the owners of the Goldeneye facilities (ExxonMobil, Centrica, endeavour and Shell) to the proposed storage joint venture comprising Shell and Petrofac in connection with CCS Demonstration Project 1</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> <ul style="list-style-type: none">- Achievement of policy objectives will be demonstrated by executed transfer of offshore facilities between oil and gas facility owners and carbon dioxide storage developers for purposes of CCS demonstration projects- Criteria for modifying/replacing policy if it does not achieve its objectives will be lack of executed transfer of offshore facilities between oil and gas facility owners and carbon dioxide storage developers and resultant lack of CCS demonstration projects
<p>Monitoring information arrangements: [Provide further details of the planned/existing arrangements in place that will allow a systematic collection systematic collection of monitoring information for future policy review]</p> <ul style="list-style-type: none">- Existing fora for engaging with oil and gas industry and developing CCS industry and existing negotiation arrangements for CCS Demonstration Project 1, planned arrangements for negotiations on CCS Demonstration Projects 2-4- Existing EDU decommissioning unit arrangements for assessing the likelihood/eventuality of section 29 default- Existing EDU arrangements for approving asset transfers between industry organisations and existing and planned OCCS arrangements for receiving and reviewing asset transfer deals as part of the CCS Demonstration Programme
<p>Reasons for not planning a review: [If there is no plan to do a PIR please provide reasons here]</p> <p>N/A</p>

Add annexes here.