

**Competition for a  
Carbon Dioxide Capture and Storage  
Demonstration Project**

**PROJECT INFORMATION MEMORANDUM**

**19 November 2007**

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BERR shall bear no liability whatsoever for the outcome of this procurement process, including but not limited to any loss of profit or economic loss incurred by bidders or any other person arising out of or in connection with this procurement process.

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# 1 INTRODUCTION

## 1.1 General

The Department for Business, Enterprise and Regulatory Reform (BERR) is the UK Government Department with responsibility for business relations and energy issues. BERR intends to award a contract (Project Contract) for the design, construction and operation of a project which successfully demonstrates the full chain of carbon dioxide (CO<sub>2</sub>) capture, transport and storage technology (Project). The plant will have to demonstrate the integrated capture, transport and geological storage of CO<sub>2</sub> at a commercial scale and on a long term basis using post-combustion capture on a coal-fired power station.

## 1.2 Purpose of this Project Information Memorandum (PIM)

This PIM has been prepared to provide Applicants with sufficient information to enable them to understand the structure of the competition and the scope, scale and requirements of the Project in order to allow them to develop their approach to the Project and understand the requirements of BERR in completing the Pre-Qualification Questionnaire (PQQ)<sup>1</sup>.

BERR appreciates that a number of different entities may need to collaborate for all elements of the Project to be designed and delivered. The early release of this PIM is intended to assist organisations in understanding the requirements, identifying the need for possible collaboration and considering how different organisations might combine in order to respond to this opportunity.

## 1.3 Content of this PIM

This PIM is set out as follows:

- Background - describes the Government's policy on energy and CO<sub>2</sub> capture and storage (CCS), as a context to this Project, and sets out the Government's objectives for this Project;
- Competition structure - sets out how the competition will be run and describes the approach which will be taken to ensure that the procurement of the Project achieves value for money;
- Competition process – outlines the procurement process, outlines the evaluation criteria, describes the different stages of the proposed competition and provides an indicative timetable;
- Technical Issues – outlines the technical details and requirements in relation to the Project;
- Regulatory issues – outlines the regulatory issues that may have an impact on the Project; and
- Commercial issues – outlines the commercial approach, the proposed payment mechanism, funding arrangements, insurance and taxation issues and BERR's approach on market risk allocation which are likely to be relevant to the Project.

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<sup>1</sup> <http://www.berr.gov.uk/energy/sources/sustainable/carbon-abatement-tech/ccs-demo/page40961.html>

## 1.4 Background

Energy is essential in almost every aspect of our lives and for the success of the economy. The Government faces two long-term energy challenges – tackling climate change and ensuring secure, clean and affordable energy.

Climate change threatens the stability of the world's climate, economy and population. More than two thirds of the world's CO<sub>2</sub> emissions come from the way we produce and use energy. At the same time, energy demand worldwide continues to increase, particularly in emerging economies such as India and China. On the basis of present policies, global energy demand will be more than 50% higher in 2030 than today, with energy related greenhouse gas emissions around 57% higher<sup>2</sup>.

Despite the growing use of low carbon sources of energy, it is clear that coal, oil and gas will continue to play a significant part in meeting the world's energy needs for the foreseeable future. But with global CO<sub>2</sub> emissions set to double compared to pre-industrial levels before 2050, Governments need urgently to find ways to reduce emissions from fossil fuels.

Much of the increase in world CO<sub>2</sub> emissions from energy generation is driven by the continued use of coal. China and India account for at least 60% of the forecast increase in emissions, with China building new coal-fired capacity at an average rate of one new 1GW power station every four days in 2006.

CCS technology has the potential to reduce CO<sub>2</sub> emissions from fossil fuel power stations by as much as 90%. It is the key technology option currently available that tackles emissions from large scale fossil fuel power plants. It also has the potential to be retro-fitted to existing plants and can therefore tackle CO<sub>2</sub> "locked-in" as a result of each new fossil-fuel power station commissioned without CCS. The International Energy Agency suggests that CCS technology could contribute up to 28% of global CO<sub>2</sub> mitigation by 2050<sup>3</sup>.

Yet despite the increasing interest in CCS technologies, there are only 3 countries committed to funding the next step – CCS on a commercial-scale power station. When the UK Project is operational, by 2014, it will be a world leader in this globally important technology. As well as being one of the first full-scale CCS demonstrations, it will be the first to demonstrate post-combustion-capture of CO<sub>2</sub> at scale on a coal-fired power station in the world.

The decision to support the CCS demonstration Project is a significant commitment by the UK Government. The Government recognises the potential of CCS and is determined to work with industry to ensure that the full chain of CCS technologies is demonstrated on a commercial-scale by 2014.

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<sup>2</sup> International Energy Agency, World Energy Outlook, 2007

<sup>3</sup> International Energy Agency, Energy Technologies Perspectives, 2006

## 1.5 Policy objectives

BERR has had a Carbon Abatement Technologies Strategy since 2005. The objective of the strategy is to ensure the UK takes a leading role in the development and commercialisation of carbon abatement technologies (including CCS). The strategy outlines several key action areas - including supporting R&D, increasing public awareness and understanding of CCS and facilitating international collaboration, all of which are being taken forward.

The separate processes involved in CCS – capture, transport and storage – have been proven on an individual basis over many years. CO<sub>2</sub> capture has been a part of refining and petrochemical processes for decades, and CO<sub>2</sub> storage has been demonstrated in a number of locations including Sleipner in the North Sea and Weyburn in Canada. The application of the full chain of CCS technology on a commercial-scale power station has not yet, however, been demonstrated. A commercial-scale demonstration is needed to test scalability, process integration, operating flexibility and the impact on plant efficiency. It is also needed to test the robustness of regulatory frameworks, including the regime for site selection and monitoring of the stored CO<sub>2</sub>.

In early 2007, BERR appointed consulting engineers (PB Power Ltd.) to carry out a study to further its understanding of the costs of a CCS demonstration project based in the UK. PB Power Ltd's findings confirmed that companies would not bring forward a CCS project without Government support in current market conditions. Following completion of this study the Government announced, in the 2007 Budget, that it would launch a competition to develop the UK's first commercial-scale CCS demonstration.

The Energy White Paper 2007 provided further details. It confirmed that the Project must cover the full chain of CCS technology (capture, transport and storage) on a commercial-scale power station. The Project should store around 90% of the CO<sub>2</sub>, start demonstrating the full chain of CCS by 2014 and be located in the UK. The Energy White Paper also outlined BERR's wish that the Project will contribute to the longer term potential of CCS in the UK as well as encouraging the wider deployment of CCS across Europe and internationally, particularly in countries with significant future energy needs such as India and China.

The Press Notice published by BERR on 9<sup>th</sup> October<sup>4</sup> set out the key requirements for the Project. It should demonstrate post-combustion capture technology on a coal-fired power station, with the CO<sub>2</sub> being stored in offshore geological storage sites. It also stated that BERR would consider a phased approach to the Project, providing that the full CCS chain is demonstrated by 2014 and the Project captures around 90% of the CO<sub>2</sub> produced by the equivalent of 300MW generating capacity as soon as possible thereafter.

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<sup>4</sup> <http://www.gnn.gov.uk/environment/fullDetail.asp?ReleaseID=321108&NewsAreaID=2&NavigatedFromDepartment=True>



## 1.6 Project Objectives

There are two main objectives that BERR wants the Project to achieve – a successful demonstration of the full chain of CCS technologies at commercial scale and a successful demonstration of technology that is relevant and transferable to key global markets, particularly the big emerging economies. The support provided by Government will be aligned to the fulfilment of these objectives, with Government providing up to 100% of the additional capital and operating costs incurred by the Project Developer in successfully demonstrating the technology for the capture, transportation and storage of CO<sub>2</sub> at a commercial scale and on a long term basis. BERR anticipates the demonstration period, during which support will be provided, will be at least 15 years, but would like to discuss this with Bidders during the Negotiation Stages.

There are also a number of further objectives that the selected Project will be expected to achieve namely that it:

- Delivers value for money and is affordable;
- Proves that the full CCS chain can be operated safely and reliably over the demonstration period;
- Gives greater certainty concerning the costs of deploying and operating CCS;
- Contributes to the longer term potential of CCS in the UK;
- Represents a progressive step in the technical development and demonstration of CCS;
- Transfers the knowledge and experience gained to the UK and the international community;
- Implements CCS over a timeframe that is consistent with the UK's strategy for international leadership (i.e. demonstration of the full chain of CCS technologies by 2014); and
- Acts as a "test case" project for designing and implementing the necessary authorisation and regulatory framework that could be applied in the UK and internationally.

## 1.7 Project Outline

BERR requires the Project to provide a complete demonstration of CO<sub>2</sub> capture, transport and storage for a power station at a commercial scale.

The CO<sub>2</sub> capture method will be based upon a post combustion capture method. The power plant will be of a coal-fired type and will have an electrical output of at least 300MW, after the installation of CCS, in order to ensure that it is of a suitable size to operate on a commercial scale. There is no upper limit on the size of the power plant or the scale of the capture facility, however BERR will only fund the capture of CO<sub>2</sub> (and the subsequent transport and storage) contained in the flue gases produced by the generation of 300-400MW.

The CO<sub>2</sub> capture plant will be required to capture around 90% of the CO<sub>2</sub> in the flue gases dispatched to the CO<sub>2</sub> capture plant. The precise rate will be a subject for negotiation. In certain limited circumstances a lower CO<sub>2</sub> capture rate of 85% may be acceptable as a minimum, depending on the extent to which that would still achieve other Project objectives, but this could receive a lower mark in the evaluation process. The captured and purified CO<sub>2</sub> will be transported to an offshore storage facility.

Although BERR would prefer the Project to demonstrate the full chain of CCS technologies on the flue gases of 300-400MW by 2014, it is prepared to consider proposals for phased scaling of the Project provided that the full chain is demonstrated by 2014. If a Bidder intends to take a phased approach, BERR envisages flue gases being captured from 50-100MW by 2014 with the associated CO<sub>2</sub> being transported and stored. The flue gases of 300-400MW would then need to be processed as soon as possible thereafter. BERR is willing to discuss alternative approaches to meeting these target dates.

The Project Contract will set out the allocation of risks between the contracting parties. The allocation of these risks and the basis of any risk sharing will be the subject of discussions and negotiations between BERR and Bidders during the procurement process. The actual allocation of risks will be based on the principle that the risk will be allocated to the party that is best able to manage that risk.

The Project Contract will include a payment mechanism to provide financial support for the Project Developer to support the undertaking of this project. The payment mechanism will be structured so as to create incentives for efficient operation of the capture plant and successful abatement of CO<sub>2</sub>.

## **1.8 Point of Contact**

All queries regarding this PIM, the Project and the procurement process should be addressed to:

Rachel Crisp,  
Deputy Director,  
CCS Demonstration Project Team,  
1 Victoria Street,  
London,  
SW1H 0ET;  
0207 215 0303  
[ccsdemo@berr.gsi.gov.uk](mailto:ccsdemo@berr.gsi.gov.uk)

Applicants should not contact any other officials, either in BERR or other Government departments or agencies, or BERR's advisers in regard to this Project or its procurement.

## 2 COMPETITION STRUCTURE AND PROCESS

### 2.1 Procurement Rules

BERR is using the Negotiated Procedure in light of the special circumstances of the Project. However, BERR reserves its position as to whether Directive 2004/18/EEC and the Public Contracts Regulations 2006 (PCR) apply in relation to this Project.

### 2.2 Procurement Procedure

BERR is using the Negotiated Procedure under PCR because it considers it is the most suitable procedure in the light of the special circumstances, namely that it is a first of a kind Project which involves a significant technical challenge. In addition the legislative and regulatory frameworks within which the Project will operate are currently being developed and the criteria set out in Regulation 13 of the PCR are met. BERR considers that these factors make the Project exceptional and that it is appropriate to use the Negotiated Procedure as described further below. However, as noted above, BERR reserves its position as to whether the Regulations actually apply at all in relation to this Project.

The procurement will be structured in a number of stages, which will commence with the selection of the Applicants who have the necessary Technical Ability and Capacity, and Economic and Financial Standing, to deliver the Project (more information about this pre-qualification stage can be found in the PQQ document<sup>5</sup>). This will be followed by discussions or negotiations with BERR, of which there will be two stages. The discussions and negotiations are intended to both assist BERR in developing its requirements for the Project, including getting a better understanding of costs, and to enable Bidders to develop solutions which will satisfy these requirements. In the final bid stage Bidders will be invited to submit their final bids, on the basis of which BERR will choose the Preferred Bidder. BERR reserves the right to down select the number of Bidders during the procurement process in accordance with the evaluation criteria set out in the Invitation to Negotiate (ITN).

The procurement process will be conducted in a manner which ensures that all substantive matters are discussed with Bidders during the Negotiation Stages.

BERR currently envisages that any negotiation with Bidders once they have submitted their final bids will focus only on matters which were not resolved prior to the submission of final bids. In particular, negotiations will focus on those areas where there are factors which are not under the control of BERR, Bidders or their related parties (including other Government departments or agencies, funding providers and sub-contractors) and which impact on the final bids following their submission.

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<sup>5</sup> <http://www.berr.gov.uk/energy/sources/sustainable/carbon-abatement-tech/ccs-demo/page40961.html>

All steps taken by BERR as part of the negotiations with Bidders will be carried out in accordance with procurement law guidelines, observing the underlying principles that Bidders should be treated equally and non-discriminatorily and that BERR should act in a transparent way. The remainder of this section outlines the proposed procurement approach for this Project.

### **2.3 Procurement Approach**

Given that this is a first of a kind project and that this is a first of kind procurement there will need to be considerable interaction between BERR and Bidders over a significant period of time. BERR acknowledges that the procurement is likely to involve a significant investment by Bidders and so will ensure that the procurement process, as far as possible, is designed to limit costs to Bidders.

The procurement process, as set out below is designed to ensure that genuine competitive pressure is maintained for as long as possible as BERR believes that this will be important in ensuring that overall value for money for the Government is achieved.

### **2.4 Consortia**

BERR recognises the challenges in developing and undertaking the Project. Applicants (organisations submitting PQQs) will need to demonstrate their experience and technical ability across an extensive supply chain. In order to do this, Applicants may elect to form consortia. BERR envisages that this may result in one of the following three structures -

- A single organisation;
- A consortium of organisations acting together in a Special Purpose Vehicle, Joint Venture or otherwise (whether or not these entities have been legally formed at the time of submission of the completed PQQ), or the lead organisation representing any of the above;
- A single organisation which envisages being part of a consortium, but which has yet to formalise arrangements, yet has a credible plan to do so.

BERR recognises the limited number of organisations in the UK and international markets in relation to the provision of certain specialist services for the Project, and is accordingly willing to receive submissions from Applicants who propose to use an organisation for services which may also have been nominated by another Applicant. Applicants who seek to require any organisation to deal exclusively with their consortia may be disqualified from further participation in the Project.

Where an organisation is involved with more than one Applicant, each such Applicant must ensure that adequate safeguards are put in place to protect any confidential information that is held by any organisation in respect of the Applicant and their plans for the Project. Evidence must be provided to satisfy BERR that this is the case.

Applicants will need to notify BERR of any material adverse changes in financial strength, changes in composition, or any change of control in respect of the Applicant or a key member of the consortium occurring at any stage of the procurement process. Applicants should discuss any such proposed changes before they occur as any change which is unacceptable to BERR may result in the Applicant being excluded from further participation in the procurement process. In the event of any such changes BERR is likely to re-assess the Applicant against the PQQ criteria and reserves the right to require the Applicant to submit a revised PQQ or part thereof.

## **2.5 Stages of the Procurement Process**

### **2.5.1 Prior Information Notice (PIN)**

BERR published a PIN in the Official Journal of the European Union (OJEU) regarding this Project on 14 August 2007 and published a Contract Notice in the OJEU in November 2007.

### **2.5.2 Contract Notice and Pre-qualification stage**

Following the publication of the Contract Notice BERR has published this PIM on its website along with the PQQ.

As set out in the PQQ document interested parties are required to submit a completed PQQ to BERR by 31 March, 2008. Interested parties will have to demonstrate that they have the necessary Technical Ability and Capacity, and Economic and Financial Standing to develop, fund and deliver this Project. Further details on the evaluation of the PQQ are set out in sections 3.1.1 and 3.1.2.

BERR is sensitive to the likely level of investment which Bidders will have to undertake during the procurement and considers that it would not be beneficial, either for the Government or Bidders, to take too many Applicants beyond the pre-qualification stage of the procurement process. Therefore, BERR reserves the right to limit the number of Applicants who will be invited to take part in the next stage of the procurement process.

### **2.5.3 Stages of negotiation**

Those parties which are pre-qualified ("Bidders") will then be issued with copies of the ITN, by which they are invited to participate in the negotiations. BERR intends that this will consist of a number of different stages, during which Bidders will be required to undertake detailed discussions and negotiations on a number of topics. These discussions and negotiations will enable BERR and Bidders to refine their understanding of various aspects of the Project so that BERR is able to define their requirement for the Project upon which Bidders will be invited to submit final bids.

BERR currently envisages undertaking two stages of discussions or negotiations. The first stage will focus primarily on technical issues (with some discussions or negotiations on commercial and contract issues), after which Bidders will be asked to present an outline solution (including an indicative price), and the second stage will focus primarily on developing commercial and financial issues as well as further discussions on technical aspects. A fully developed and priced detailed solution will then be requested. BERR will require cost information to be available throughout the process, with increasing accuracy as submissions are refined.

In order to limit the overall bid costs, BERR may reduce the number of Bidders during the procurement process. More detail on the stages of negotiation, the evaluation criteria and the procurement process as a whole will be set out in the ITN, which will be issued to pre-qualified Bidders.

#### **2.5.4 Final bids**

When BERR is satisfied that the remaining Bidders have developed solutions which are acceptable to BERR it will invite Bidders to submit final bids. These will be based on the outcomes of the negotiations and the bids will be binding.

#### **2.5.5 Appointment of Preferred Bidder**

BERR will then evaluate the bids in order to select a Preferred Bidder. The detailed evaluation criteria for selecting the Preferred Bidder are referred to in section 2.6 and will be set out in the ITN document.

#### **2.5.6 Contract award**

Any Project Contract awarded at the end of the competition will be conditional on State aid approval. The Project Contract will be entered into with the successful Bidder once a 10 day standstill period has expired.

## **2.6 Evaluation Methodology**

The PQQs submitted by Applicants will be assessed to determine the Applicant's Technical Capacity and Ability, and Economic and Financial Standing. More details on the process are in section 3.1.1.

The basis on which solutions and bids will be assessed will be set out in the ITN. Final bids will be evaluated using the criteria stated in the ITN to determine the most economically advantageous bid. The criteria will relate to both quality and cost. Indications of quality will include – the amount of CO<sub>2</sub> captured, transported and stored by 2014 and thereafter, provision of a robust financial and business plan, contributions to longer term deployment of CCS in the UK, plans for the dissemination of commercial and technical information internationally, provision of access to project information for production of reports and publicity materials. BERR will provide more detail on the basis on which solutions and bids will be assessed in the ITN.

If a decision is taken to reduce the number of Bidders in the competition during the procurement process, the same evaluation criteria used to evaluate the final bids will be applied. BERR recognises that any information relating to costs provided by Bidders will be indicative until Final Bids are submitted and will not therefore take it into account in any decision to reduce the number of participants.

## **2.7 Affordability and Relevant Costs**

BERR wants to make best use of the resources available to support the Project. Value for money will therefore be an important aspect in the overall bid evaluation.

BERR will contribute up to 100% of the funding of those aspects of the overall costs of construction and operation of the Project which relate exclusively to the achievement of BERR's objectives, i.e. the additional capital and operating costs incurred in relation to successfully demonstrating the capture, transport and storage of CO<sub>2</sub>. BERR will not subsidise the construction or refurbishment of the power station or the generation of electricity, except to the extent that operation of the power station is directly impacted by the capture process.

## **2.8 Changes to the Procurement Process**

BERR reserves the right to:

- determine whether it wishes to down select Bidders during the procurement process;
- vary any aspect of the procurement process and/or introduce additional steps or stages into the procurement process; and
- vary any aspects of its requirements.

BERR will notify each Bidder's nominated contact of any changes made to the procurement process.

## 2.9 Indicative Timetable

The following is an indicative timetable for the procurement process.

EVENT	TARGET DATE
Publication of Prior Information Notice	August 2007
Publication of Contract Notice, PIM and PQQ	November 2007
Submission of PQQ	March 2008
Selection of pre-qualified Applicants	April 2008
Invitation to Negotiate	April 2008
First Negotiation Stage– culminating in an Invitation to Submit Outline Solutions (including an indicative price)	April to August 2008
Evaluation of Outline Solutions and possible down selection	September to October 2008
Second Negotiation Stage – culminating in an Invitation to Submit Detailed Solutions	November 2008 to January 2009
Evaluation of Detailed Solutions and possible down selection	January 2009 to February 2009
Further Negotiation and/or Clarification if required to resolved outstanding issues – culminating in Invitation to Submit Final Bids	February 2009
Final Tender Process – response to Invitation to Submit Final Bids	March 2009
Evaluation of Final Bids and Preferred Bidder recommendation	April 2009 to May 2009
Preferred Bidder appointed	May/June 2009
Contractual close	September 2009

In developing the procurement process and timetable, BERR has sought to balance the need to manage overall bid costs with the need to ensure that the procurement process allows sufficient time to ensure that the process is both fair and robust.

All dates in the above timetable are provisional only and BERR may alter or terminate the outline timetable and procurement process in any way at its sole discretion.



## 3 Procurement Process In Detail

### 3.1 Pre-Qualification Selection

#### 3.1.1 Evaluation Criteria

BERR will need to be satisfied that each Bidder invited to take part in the Negotiations stage has the necessary capabilities and resources available to undertake the procurement process and to develop, deliver and operate the Project over the full term of the Project Contract.

Subject to eligibility, including confirmation that no grounds for rejection exist by reference to Regulations 23.1 and 23.4 of the Public Contracts Regulations 2006, Applicants' pre-qualification submissions will be evaluated on the basis of the following criteria:

- Technical Capacity and Ability, which includes –
  - Understanding of, and experience (or plans to gain experience) in, the design, construction, commissioning and operation of power generation and CO<sub>2</sub> capture, transportation and storage
  - Project Management and Delivery; and
  - Governance across a complex supply chain
- Economic and Financial Standing, which includes –
  - Financial strength; and
  - Ability to secure funding.

The PQQ submissions will need to contain all the necessary information required to assess Applicants against the criteria set out in the PQQ documentation.

#### 3.1.2 Evaluation and Short Listing of Applicants

Each Applicant not excluded under Regulation 23 of the Regulations will be evaluated in respect of, Technical Capacity and Ability (in the areas of power generation, capture technologies, transport technologies and storage technologies, complex project management and governance arrangements) and Economic and Financial Standing in accordance with the evaluation methodology established by BERR. Where necessary, any supplementary information required by BERR to clarify the information submitted in respect of Regulation 23 matters, Technical Capacity and Ability and Economic and Financial Standing, will also be used to assess Applicants.

Applicants will be required to achieve a minimum threshold score in respect of overall Economic and Financial Standing. Applicants will also be required to achieve a minimum threshold score in each of the Key Roles in the Technical Capacity and Ability section. Any Applicant who fails to achieve the necessary minimum score will be excluded from further evaluation.

Applicants will also be required to meet a minimum standard on their safety policy and record, environmental policy and record and quality assurance policy. Any Applicant who fails to meet this minimum standard will be excluded from further evaluation.

In order to identify the final short-list of Applicants to be invited to receive the Invitation to Negotiate (ITN), Applicants meeting the minimum thresholds outlined above will be ranked on the basis of their total scores received in the areas of Technical Capacity and Ability and Economic and Financial Standing.

BERR will determine the number of Bidders to take through to the Negotiation Stages following the evaluation of responses to the PQQ. It aims to commence negotiations with a minimum of three Bidders (on the basis that there are three appropriately qualified Bidders) and may do so with more. BERR also reserves the right to extend the PQQ stage or, in extreme circumstances, end the process if it appears there are not enough strong Bidders that will meet our pre-qualification requirements.

## **3.2 Negotiation stage**

### **3.2.1 Introduction**

BERR intends to undertake a series of detailed discussions and negotiations with Bidders. This will enable BERR and Bidders to refine their understanding of various aspects of the Project so that BERR is able to define their requirement for the Project upon which Bidders will be Invited to Submit Final Bids.

### **3.2.2 Overview of the Negotiation Stage**

It is anticipated that the Negotiation Stage will consist of two main stages:

- The first stage (the "First Negotiation Stage") is expected to focus on the development of possible technical solutions but will also involve some discussions and negotiations around commercial and contractual issues. This stage will end with Bidders being required to provide an outline solution. BERR will also require Bidders to provide indicative pricing;
- The second stage of negotiations (the "Second Negotiation Stage") will include further technical discussions and negotiations as well as discussions and negotiations on commercial and financial issues. At the end of this negotiation stage, Bidders will be invited to submit detailed solutions.

BERR's initial position on each Negotiation topic will be set out in papers circulated to Bidders before each Negotiation Stage. Bidders will be expected to respond to BERR's proposals on these issues and to engage in an open, meaningful and positive discussion at the appropriate Negotiation session. Alternative options to the position outlined in the papers may be discussed and the rationale, drivers, costs, potential benefits, associated risks and risk allocations can be explored.

BERR may decide to reduce the number of Bidders involved in the procurement process during the negotiation stage. The evaluation criteria for the down selecting of Bidders at any stage will be the same as the evaluation criteria used to evaluate the Final Bids and will be set out more fully in the ITN.

### 3.2.3 The First Negotiation Stage

The objective of this stage is to inform both BERR and Bidders as to the potential solutions that best satisfy BERR's requirements. These will focus on the development of technical solutions and issues but will also encompass some of the major commercial and contractual issues which will be important in the development of the final contractual arrangement. Bidders will be requested to provide an outline solution at the end of this first stage. BERR will also require Bidders to submit an indicative price.

It is envisaged that the First Negotiation Stage will commence with discussions and negotiations on the topics listed below.

#### 3.2.3.1 First Negotiation Stage Topics

##### Project

- *Design issues:* To demonstrate that all elements of the Project are based on a sound design with regards to safety, reliability and technical performance and to provide a clear understanding of the technology risks associated with any such plant and equipment which is unproven.
- *Phased Implementation of CO<sub>2</sub> Capture:* If the Bidder proposes a phased scaling up approach to implementing CO<sub>2</sub> capture, transport and storage, discussions will be required regarding the advantages and disadvantages of such approach and how this will be achieved.
- *CO<sub>2</sub> storage:* To review and develop the CO<sub>2</sub> storage proposal in relation to site selection, site characterisation, site performance assessment, site monitoring, remediation strategy, site closure plan, third party issues and, if applicable, EOR.
- *Possibilities for additional infrastructure:* Consider the potential for and implications of sizing the CO<sub>2</sub> transport and storage systems for third party usage, including third party access requirement provisions.
- *Project monitoring:* Consider the measurement of CO<sub>2</sub> produced, CO<sub>2</sub> captured, fuel consumption and electricity produced.
- *Plant operating plan:* Consider how each section of the Project will be tested and commissioned, the integration and the commissioning plan for the complete CCS chain and the commercial operation and business plan with respect to ensuring the Project demonstration objectives are satisfied.
- *Understanding project costs:* Consider the breakdown of capital costs, project costs and operating costs into generation, CO<sub>2</sub> capture, transport and storage, particularly with a view to understanding how different project options may impact on project costs and the phasing of costs.

- *Programme:* Consider the programme, end date, critical path, likely areas of risk and mitigation actions, early ordering of items, permits required and approach for handling regulatory authorities.
- *Risk allocation:* Consider the allocation of risks between the Project Developer and the Government, and within the group, selection of contractors and subcontractors and relevant experience and capabilities of all parties.

### ***Financial***

- *Payment mechanism:* Consider and understand the acceptability and practicality of the payment mechanism proposed in the tender documents and the pros and cons of any alternatives that Bidders may propose.
- *Long term responsibilities and liabilities:* Discuss the allocation of the relevant risks between parties, the impact of different regulatory and licensing requirements. Consider the amount and form of security the operators will be required to provide while they remain licensees and the adequate financing of long-term liabilities and responsibilities following the handover from the operators.

### ***Dissemination of Knowledge and Know-how***

- *Intellectual property:* Consider access to, and dissemination of, information.

This listing of topics for negotiation is provisional and BERR may at its discretion, change and update the negotiation topics in future.

Following each session Bidders will be required to provide a written summary of their position regarding the topic and these will be used by BERR in developing the content and requirements of the Invitation to Submit Outline Solutions at the end of the First Negotiation Stage.

### 3.2.4 The Second Negotiation Stage

The objective of this stage is to further develop the Bidder's overall solutions and to inform and develop BERR's requirements which will ultimately be set out in the Invitation to Submit Final Bids. As well as continuing to inform the development of Bidders' technical solutions these negotiations will focus on confirming positions in relation to the detailed commercial issues and contractual terms. At the end of this stage Bidders will be required to submit Detailed Solutions which will require fully priced solutions based on agreed commercial terms and subject only to detailed drafting points on the Project Contract, the completion of technical schedules to the Project Contract and final approval following due diligence and to any matters which could not be resolved due to the evolving legislative and regulatory framework surrounding the Project.

The detailed list of negotiation topics will be clear once the First Negotiation Stage has been undertaken. However, in addition to further consideration of some of the topics included in the First Negotiation Stage, the Second Negotiation Stage is likely to address the following additional topics.

#### 3.2.4.1 The Second Negotiation Stage Topics

##### ***Financial***

- *Financial support model used to determine required financial support:* Consider the model to be used to determine the required level of financial support and the basis and amount of support required by Bidders.
- *EU-ETS* – Consider the basis of treatment and allocation rules. During discussions, BERR will provide as much information as possible regarding possible approaches that Phase 3 of the EU-ETS may take towards CCS projects and discuss the impact on the finances of the Project and possible implications for the financial support mechanism.
- *Taxation structure:* Consider Bidder's proposed approach to ensure that the structuring is appropriate and aligned with the objectives of the Government and the tax treatment of EOR or non EOR based projects.
- *Insurance:* Consider the use of insurance as a means of managing various risks, including long term liabilities.
- *State aid:* Where necessary, Bidders will be expected to assist BERR in providing further information on the Project, competition and/or Bidders to the European Commission in relation to State aid approval.
- *Financial structure:* Consider how Bidders intend to fund the Project, including proposed providers of equity and debt, the likely terms and returns, and requirements, and the timing, of any due diligence requirements.

### **Contractual**

- *Contractual issues* – including change procedures and protocols, termination and step-in rights.

### **Regulation**

- *Dealing with outstanding regulation issues:* Discussions on the impact on Bidder's solutions of the Government's proposed regulatory regime which will apply to the storage of CO<sub>2</sub>, including the approach to long term liabilities.
- *Safety cases for issues including CO<sub>2</sub> transportation:* Further negotiations on the appropriate approach to health and safety issues involved in transporting CO<sub>2</sub> and operating a CO<sub>2</sub> capture plant and any cost issue that may be associated with these.

Further description of these issues and the process for engaging in the Negotiation process will be set out in the ITN document and in subsequent documents issued to those Bidders who are invited to participate in the Second Negotiation Stage.

When discussions and negotiations have been concluded on all the topics, Bidders will be invited to submit their Detailed Solutions.

#### **3.2.5 Period of Further Negotiation and/or Clarification**

Following the submission of Detailed Solutions BERR will allow a short period for further negotiation and/or clarification of any remaining issues. These issues are not expected to be substantive as the procurement process will be conducted in a manner which is designed to ensure that all substantive matters are discussed during the Negotiation Stages.

Following the period of further negotiation and/or clarification, BERR will invite Bidders to submit Final Bids.

#### **3.2.6 Approach to Discussions/Negotiations**

BERR reserves the right to determine whether or not Bidders will be down selected from the competition process during the Negotiation Stages.

As outlined above, the Negotiation Stages are intended to assist BERR in identifying the best means for achieving its needs by allowing the Bidders to discuss their proposed solutions, engage with BERR on any major issues that are raised and receive answers to their questions. The discussion and negotiation sessions themselves will not be evaluated and therefore should be taken as an opportunity for a full and frank exchange.

BERR has general obligations of transparency and equal treatment towards all Bidders during the procurement process and recognises the importance to Bidders of adequately protecting confidential or commercially sensitive information. Bidders will therefore be required to clearly identify, in any document which they submit during the procurement process, any information communicated which a Bidder considers is specific to its solution or is otherwise confidential or commercially sensitive, stating the reasons why it considers it to be so. BERR will decide, in its discretion, whether or not to accept the Bidder's request for specific information to be treated as confidential. If BERR does not agree with the classification of the information by the Bidder it will inform the Bidder to the extent practicable. See the relevant paragraphs in the Important Notice for further detail on the treatment of information.

BERR expects and will actively support a process of clarification, information supply and exchange to help Bidders shape their proposed solutions as positively as possible.

### **3.3 Appointment of Preferred Bidder**

#### **3.3.1 Final Tender Stage**

BERR will endeavour to ensure that all required outstanding issues are concluded prior to the issue of the Invitation to Submit Final Bids.

Final Bids will be sought following the issue of the Invitation to Submit Final Bids after the closure of the Period of Further Negotiation and/or Clarification. The Final Bids will contain all the elements required for the successful development and operation of the Project. The expectation is that the Bidders will reconfirm the detailed solutions delivered after the Second Negotiation Stage and, having fully developed and agreed the final draft of the Contract, will provide their final price for the bid.

Following any further negotiations and any necessary clarifications of the content of the Final Bids these will be evaluated with a view to appointing a Preferred Bidder. BERR reserves the right (at its sole discretion) to make any such appointment conditional.

#### **3.3.2 Post Final Tender**

BERR's intended position is that at the appointment of the Preferred Bidder, the Project Contract will be in substantially final form. BERR currently envisages that there will be no negotiation with Bidders once they have submitted their Final Bids except in respect of matters which were not resolved prior to the submission of Final Bids.

Following the appointment of the Preferred Bidder, BERR will finalise the Project Contract with the Preferred Bidder.

Once the Preferred Bidder has been selected, BERR will send to all parties who applied to participate in the procurement a letter stating its decision on the award of the Project Contract subject to a standstill period of at least 10 days between the date of the letter of notice and entering in to the Project Contract.

### **3.4 Impact on Resources**

It is envisaged that the procurement process for this Project will include extensive negotiations and focused engagement between BERR and the Bidders. During the Negotiation Stages it is possible that a number of issues will arise through an iterative process, which will require Bidders to be flexible to analyse and respond quickly to the issues and incorporate responses within their bids. Bidders should therefore note that the procurement for this Project is likely to be a resource intensive process, and Bidders should make necessary arrangements to ensure that they have the necessary resources in place and have the commitment and company approvals to participate fully in the process

#### **3.4.1 Bid Costs**

BERR and each Bidder will bear their own costs arising out of or in connection with the procurement. BERR reserves its position as to whether or not it will enter any contractual arrangements as a result of this procurement process and Bidders' participation in the process will be entirely at their own risk.



## 4 TECHNICAL ISSUES

### 4.1 Roles and responsibilities of the Project Developer

The Project Developer will be responsible for ensuring that its solution is fit for purpose, taking on the technical and wider risks around delivery and the risks associated with the successful operation of the Project.

The payment mechanism and other commercial arrangement will be designed to support the successful and efficient capture, transport and storage of CO<sub>2</sub>. The arrangements will also encompass financial penalties in the event of performance failure or shortfall. The Project Developer will be required to sign up to a knowledge sharing regime consistent with the status of the Project as a demonstration project. This is likely to require access to the Project and dissemination of commercial and technical information to third parties in order to further the development and deployment of CCS related technologies in the UK and internationally.

### 4.2 Technical Overview

The technical elements of the Project can be divided into four main categories as follows:

- Power Generation;
- CO<sub>2</sub> Capture;
- CO<sub>2</sub> Transportation; and
- CO<sub>2</sub> Storage.

The technical delivery challenge for the Bidder is therefore, broadly, to deliver an integrated solution incorporating these elements. The Bidder will be required to demonstrate the commercial and technical capability to achieve this along with the overarching technical integration elements, drawing on specific experience of these elements and broader experience in related industrial areas and applying them to the demands of a project of this nature.

The following sections outline the high level requirements for each of these elements as they relate to the proposed Project.

#### **4.2.1 Health and Safety Considerations**

The prospect of capturing, transporting or injecting very large quantities of CO<sub>2</sub> was not envisaged when the current health and safety regulatory framework for controlling the risks from hazardous installations was drafted. Consequently, the presence of CO<sub>2</sub> does not by itself trigger any of the major hazard legislation. The information currently available gives some cause for concern regarding its major accident potential particularly due to the scale of CO<sub>2</sub> envisaged in CCS projects. The Health and Safety Executive (HSE) would require developers to give a health and safety compliance demonstration as if CO<sub>2</sub> was classified as a dangerous substance or fluid under Control of Major Accident Hazard Regulations (COMAH) and Pipelines Safety Regulations (PSR), and (for offshore installations) as if all relevant offshore regulations applied, in order to satisfy the requirements of the Health and Safety at Work etc Act 1974.

This should be presented as a safety case with reference as necessary to additional studies. There is extensive industry experience with regard to the type of documentation that is likely to be required.

The successful Project Developer must provide technical information to HSE throughout the Project, to inform the development of appropriate health and safety standards.

#### **4.2.2 Power Generation**

The main requirement concerning the power generation element of the Project relates to the need to demonstrate a CCS process which is replicable at a commercial scale. The overall sizing and the detailed design and operation of the power generation element will be dependent on Bidders' wider economic and commercial requirements. The following form the likely minimum requirements for the Project;

- The Project will be located in the UK and will store the captured CO<sub>2</sub> offshore, within the UK Extended Economic Zone.
- The power plant fitted with CCS shall have an electrical output of at least 300MW after the installation of CCS. This can comprise a single unit or fraction of a unit connected to a CCS plant such that the minimum volume of flue gases treated are equivalent to a power plant with an electrical output of 300-400MW net, (the "Minimum Output Requirement"). This may be implemented in phases as further described in section 4.4. There is no upper limit on the size of the power plant or the capture facility, but BERR will only fund the capture of CO<sub>2</sub> (and the subsequent transport and storage) contained in the flue gases produced by the generation of 300-400MW.

- If the power plant proposed is of combined heat and power type (meeting CHPQA), the electrical output requirement will be assessed against the summation of the plant's proposed:
  - Net electrical output; and
  - The net heat output converted to an equivalent net electrical output, calculated assuming the heat energy is converted to electrical output in the proposed generating plant.
- It is expected that the power plant will be designed for high efficiency (supercritical), high reliability, and high availability. However, BERR is prepared to consider interim solutions, covering not more than five years of the Project's duration, based on sub-critical power generation (taking account of the economics and timing of start of operations in each case).
- The power plant will be coal-fired type. Co-firing of biomass will be permissible and would be eligible for Renewable Obligation Certificates in the same way that a non-CCS co-firing coal power station would be.

#### **4.2.3 CO<sub>2</sub> Capture**

BERR requires the capture system to be based upon a post-combustion capture approach. In the context of a post-combustion capture system, the individual components the Bidder will specify are expected to be a CO<sub>2</sub> capture plant, a CO<sub>2</sub> purification plant, and a CO<sub>2</sub> compression plant.

In order to maximise the value from the demonstration it is desirable that the CO<sub>2</sub> capture process should be suitable for adoption by pulverised coal-fired power plants, which account for the majority of coal plants being deployed internationally and in the UK, and should also be appropriate for both new build and retrofit applications.

For the purposes of this competition, the oxyfuel CO<sub>2</sub> capture process applicable to pulverised coal-fired power plants is considered to qualify as a post-combustion capture method. The CO<sub>2</sub> capture plant will be required to capture around 90% of the CO<sub>2</sub> in the flue gases dispatched to the CO<sub>2</sub> capture plant. In certain limited circumstances a lower CO<sub>2</sub> capture rate of 85% may also be acceptable as a minimum, but this could receive a lower mark in the evaluation process.

It is expected that a CO<sub>2</sub> compression plant will be provided to compress and dehydrate the captured CO<sub>2</sub> to pipeline operating conditions. The compression plant will remove any condensed water during and after cooling as required to produce CO<sub>2</sub> at the required temperature and pressure for transmission in the pipeline.

#### **4.2.4 CO<sub>2</sub> Transportation**

The transport of CO<sub>2</sub> to the storage site may be provided by pipeline or another approved means of transport (e.g. ship). The pipeline(s) will be either newly constructed or modified existing pipelines. In either case, the pipeline will need to be capable of safe operation in compliance with Health and Safety at Work Act and Pipelines Safety Regulations requirements. In particular, the transport of CO<sub>2</sub> under sub-critical and supercritical conditions will be specified, and sufficient costing and safety analysis undertaken to ensure the integrity of the pipeline under the required operating conditions for a period of at least 15 years.

#### **4.2.5 Storage System**

CO<sub>2</sub> injection facilities will be required that are capable of the safe injection of the CO<sub>2</sub> into an offshore storage location at required temperature and pressure conditions and at rates consistent with the expected flows of CO<sub>2</sub> from the power station. Onshore storage will not be considered in this competition. The storage system may be a depleted oil or gas field, a saline aquifer or utilise the CO<sub>2</sub> for enhanced oil or gas recovery.

The proposed geological storage site will be suitably characterised to demonstrate that it will safely accept injected CO<sub>2</sub> for at least the duration of the Project and retain the injected CO<sub>2</sub> over the long-term, without damage to the surrounding environment and without hindering legitimate uses of the marine area.

A sound performance assessment of the integrity of the proposed CO<sub>2</sub> store will need to be developed by Bidders, together with an evaluation of containment risks and a plan for managing uncertainty. A suitable monitoring programme will be designed to reduce uncertainties and to calibrate and interactively update the performance assessment. A suitable remediation strategy will need to be in place, linked to the monitoring programme. An assessment of long-term issues will need to be developed, linked to a plan for site closure.

### **4.3 Decommissioning**

Provision will need to be made for the complete and safe decommissioning of all facilities related to the generation of electricity as well as the capture, transport and storage of CO<sub>2</sub> upon ceasing operations in accordance with all applicable local, national and international regulations.

## 4.4 Phasing of CO<sub>2</sub> capture

BERR recognises that for a post combustion plant of the size proposed there is significant uncertainty regarding design and is prepared to consider proposals that include an initial design-proving phase in relation to the CO<sub>2</sub> capture element of the Project.

If a proposed solution does take a phased approach, BERR requires flue gases to be captured from 50-100MW by 2014 with the CO<sub>2</sub> being transported and stored. Flue gases from 300-400MW would then need to be processed as soon as possible thereafter. BERR is willing to discuss alternative approaches to meet these target dates.

Phasing is intended primarily to give Bidders additional flexibility to integrate the Project with their plans for commissioning new or refurbished super-critical pulverised coal plant. An additional benefit is that Bidders can gain experience in operation and optimisation of the capture facility before the total CO<sub>2</sub> capture plant is installed.

The installation of the initial phase would preferably be on the same power plant site as the proposed final CCS plant.

If the initial phase is installed on a subcritical unit or a supercritical unit other than the unit to be used for the CCS system, it is expected that it would be arranged so that it could easily be transferred to the supercritical unit intended to be used for the CCS system over the majority of the life of the Project and thus form part of the CCS system.

## 4.5 General Requirements

BERR will require Bidders to develop their own solutions that meet the output specification referred to above. Any proposed solution must also meet the general requirements set out below (any deviation from these would require specific justification) -

- All elements of the Project should be based on a sound design with regard to safety, reliability and technical performance. The design should conform to the best current engineering practise and comply with appropriate International Standards;
- The generation plant should be designed for baseload and flexible operation;
- The unit to be expected to run 365 days a year, less scheduled downtime and to have an overall average availability of 85% (including scheduled and forced outages) within two years of commissioning (after successful demonstration of baseload operation the Project Developer will be required to demonstrate operation under a range of different scenarios (see section 4.7));
- All apparatus and material supplied, and all work carried out must conform, throughout the Project Contract period, in all respects to all the laws and regulations, by-laws and requirements of national/local or other authorities which are applicable to the Project.

## 4.6 Monitoring

While the commercial model for the operation of the Project between BERR and the Project Developer has yet to be developed it is expected that the commercial arrangements will drive a monitoring requirement. Payments under the commercial arrangements would typically be payable subject to the achievement of pre-agreed performance levels.

Continuous monitoring of emissions will also be important for demonstration purposes and therefore monitoring requirements over and above those normally required by a power station may be needed to demonstrate performance of key plant and associated infrastructure.

Detection and quantification of any CO<sub>2</sub> leakage will be important. The proposed EU Emissions Trading Scheme Monitoring and Reporting Guidelines will require measurement-based techniques to monitor and report CO<sub>2</sub> quantities transferred at key stages in the system, discrepancies in these measurements will indicate and quantify any leakage.

It will be a requirement of the regulatory regime that a comprehensive monitoring programme for the CO<sub>2</sub> storage site is agreed with the regulatory authority. This will include the rationale, methodology, frequency, techniques and technologies to be used. Whilst the specific monitoring methodology, techniques and technologies will depend upon site specific factors (and future technological developments) and will be agreed with the regulatory authority, the requirements will follow the overall methodology and principles provided by the Intergovernmental Panel on Climate Change (IPCC) Guidelines for Greenhouse Gas Inventories (2006) and the requirements of the OSPAR Guidelines (2007). It is expected that the forthcoming EU regulatory requirements will also follow these overall principles and methodologies.

## 4.7 Testing

The results of testing are also likely to form part of the commercial arrangements between BERR and the Project Developer. Set out below are details of testing that would typically be required:

### *Minimum Requirement Tests*

The Project Developer will be required to demonstrate that the Project meets the Minimum Requirements. The Minimum Requirement demonstration tests are expected to include the following:

- Net Electrical Output (MW);
- Net Plant Heat Rate;
- Overall Rate of CO<sub>2</sub> capture (% of CO<sub>2</sub> produced that is stored); and
- CO<sub>2</sub> Purity

### *In Works Testing*

Individual in-works performance tests for equipment are also likely to be required and will need to be specified by the Bidder and agreed with BERR during the design phase of the Works, and should include test descriptions together with references to relevant standards.

### *During Commissioning*

The Project Developer will be responsible for carrying out all the commissioning work associated with bringing the plant to a condition where it is ready to undergo its reliability and performance tests.

### *Optimisation and Demonstration Tests*

As a demonstration project BERR will require details from the Project Developer of how the CCS plant performs at different levels of operation. The Project Developer may therefore be required to demonstrate a range of operational characteristics.

# 5 REGULATORY ISSUES

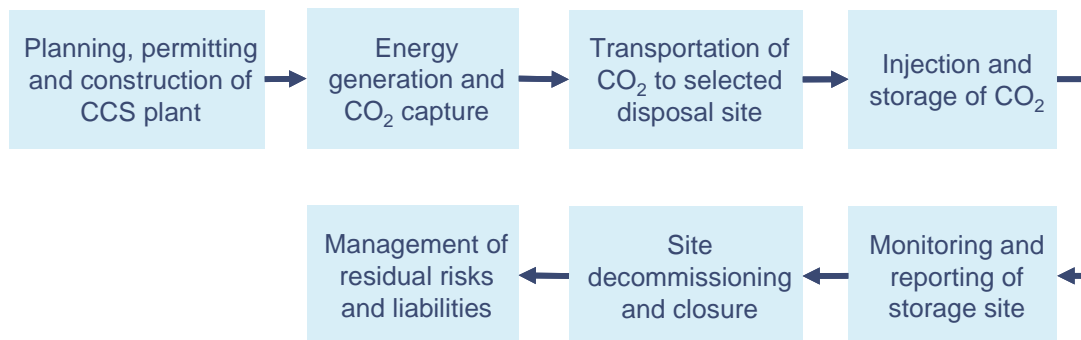
## 5.1 Introduction

The Project will be procured, designed and undertaken in a multi-tiered and evolving regulatory environment. Some aspects of the construction and operation of a CCS plant will fall within existing, established regulatory frameworks, either within a domestic or EU policy setting; whereas other elements will require the introduction of new procedures and alignment with multilateral agreements on the use of shared resources, such as the marine and sub-surface environment.

This section sets out BERR's initial views on the key regulatory issues for the Project and outlines the proposed approach and timetable.

Over the lifetime of a CCS project, the areas of regulation could be considered sequentially, as illustrated in Figure 1. Each of these components is discussed in turn below.

**Figure 1**



## 5.2 Planning, permitting and construction of CCS plant

Currently, overall planning permission for the onshore aspects of a new-build CCS project would be required under the Town and Country Planning Act 1990 and this would include any requirements for Environmental Impact Assessments. It is recognised, however, that developers usually request deemed planning consent for developments with a thermal capacity exceeding 50MW from the Secretary of State when applying for Section 36 consent under the provisions of the Electricity Act 1989. Planning consents may also be needed for any additional infrastructure associated with the Project.

In future, however, the planning regime for large infrastructure projects is likely to change with proposals set out in the Planning Bill (expected to be introduced in Parliament in November 2007) that will see the introduction of a new Infrastructure Planning Commission (IPC), as outlined in the Planning for a Sustainable Future White Paper<sup>6</sup>.

<sup>6</sup> [www.communities.gov.uk/publications/planningandbuilding/planningsustainablefuture](http://www.communities.gov.uk/publications/planningandbuilding/planningsustainablefuture)



It is expected that this new body will start work during the course of 2009. Hence, it is likely that any applications submitted to the Secretary of State under the Electricity Act 1989 prior to the IPC starting work will be dealt with by the Secretary of State; otherwise the IPC is likely to be the relevant authority.

Environmental consents in relation to water abstraction and wastewater, solid wastes, local airborne emissions and site-specific Environmental, Health and Safety (EHS) requirements would need to be sought in the normal way under the procedures contained in inter alia the Pollution Prevention and Control Regulations 2000, the Water Resources Act 1991 and the Water Industry Act 1991. Since the plant will have a thermal capacity exceeding 20MW, it will also be bound by the requirements under the Greenhouse Gas Emissions Trading Regulations 2005 which transposes the EU Directive establishing the EU Emissions Trading Scheme (EU-ETS). Compulsory Purchase Orders and wayleaves may also be needed, depending on the nature of the Project.

The construction of onshore and offshore pipelines will be subject to existing regimes set out under the Pipelines Act 1962 for onshore infrastructure and the Petroleum Act 1998 for offshore infrastructure as well as to the requirement to undertake Environmental Impact Assessments and, where necessary, Appropriate Assessments.

### **5.3 Energy generation and CO<sub>2</sub> capture**

Once the plant is operational, the Project Developer will be required to adhere to their various permit and licensing conditions pertaining to the generation aspects and provide monitoring and other reportable data on environmental and other parameters to the enforcing agencies (HSE, Environment Agency, etc) in the normal manner.

#### **5.3.1 Interaction with the EU Emissions Trading Scheme**

As noted above, it is expected that the Project will fall under the requirements of the EU Directive establishing the EU-ETS. As such, it will be required to follow the prescribed monitoring and reporting guidelines and surrender EU allowances to cover verified emissions on an annual basis.

At present, however, whilst the principles of CCS being within the scope of the EU ETS is agreed, it is subject to being 'opted-in' under Article 24 of the Emissions Trading Directive for Phase II, and will be subject to the revised Emissions Trading Directive for Phase III. The allocation basis for allowances for CCS projects will follow existing procedures and principles for the emission source and it is not currently proposed to issue additional allowances for any element of a CCS project.

BERR and The Department for Environment, Food and Rural Affairs have been developing appropriate monitoring and reporting guidelines and have been in dialogue with the European Commission to 'opt-in' potential CCS projects within Phase II of the EU-ETS which will cover the period 2008-12.

The UK, the European Commission and some other Member State governments have expressed strong support for inclusion of CCS within Phase III of the EU-ETS, which is likely to cover the period 2013-18 or 2013-2020 depending on the outcome of a Strategic Review of the EU-ETS currently being undertaken by the European Commission. It is expected that the European Commission will release proposals in January 2008 for amendments to the EU-ETS that will take effect in time for Phase III. An enabling legislative framework for the inclusion of CCS projects in the EU-ETS is expected to be a component of these proposals.

## **5.4 Transportation of CO<sub>2</sub> to selected disposal site**

For a pipeline transporting CO<sub>2</sub> from the capture facility to the designated storage site it can be assumed that the HSE will require comprehensive safety-related information to be prepared by the Project Developer based on the additional duties for major accident hazard pipelines in the PSR.

For other known potentially dangerous fluids e.g. natural gas, there are established industry codes that specify design and operation standards. For CO<sub>2</sub> transported on a large scale under both subcritical and supercritical conditions (which is a possible requirement for the offshore element of transportation) there is little precedent, and the HSE would need to agree a suitable framework to support decision-making in this regard. BERR is currently in discussion with the HSE on their requirements in this area.

## **5.5 Injection and storage of CO<sub>2</sub>**

BERR requires that storage sites relating to the Project will be located offshore. The regulations concerning offshore storage are discussed in the following section.

### **5.5.1 International regulatory context**

#### **5.5.1.1 London/OSPAR Conventions**

There are two key multilateral agreements that will impact upon the Project. The OSPAR Convention (1992) is the framework for international cooperation on the protection of the marine environment of the North-East Atlantic and the London Convention (1972) is a global agreement to limit disposal of wastes and other matter at sea under the auspices of the International Maritime Organisation.

Until recently, both these agreements had prohibited the disposal of CO<sub>2</sub> to the marine environment under certain CCS scenarios. However, the London Convention was amended in November 2006 to facilitate the storage of CO<sub>2</sub> streams from CO<sub>2</sub> capture processes in sub-seabed geological formations<sup>7</sup>. The OSPAR Convention was amended in June 2007. The amendments will permit the storage of CO<sub>2</sub> with the following conditions:

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<sup>7</sup> See: [http://www.imo.org/Conventions/contents.asp?topic\\_id=258&doc\\_id=681#2006](http://www.imo.org/Conventions/contents.asp?topic_id=258&doc_id=681#2006)

- disposal is into a sub-soil geological formation;
- the streams consist overwhelmingly of CO<sub>2</sub>, although they may contain incidental associated substances derived from the source material and the capture, transport and storage processes used;
- no wastes or other matters are added to the streams for the purpose of disposing of those wastes or other matter; and
- they are intended to be retained in these formations permanently and will not lead to significant adverse consequences for the marine environment, human health or other legitimate uses of the maritime area.

Before the necessary amendment to OSPAR can come into effect, it first has to be ratified by seven contracting parties (including the UK)<sup>8</sup>. The precise timing of ratification is still uncertain as this is likely to be influenced by national and European regulatory developments, but the process is expected to take at least two years. Before ratification, it will be possible to use purpose built structures or injection direct by pipeline as methods for injecting CO<sub>2</sub> into an undersea storage facility. However, the re-use of existing offshore energy structures in order to store CO<sub>2</sub> under the seabed will not be permitted (unless for EOR purposes). BERR will seek to ensure that the OSPAR Convention is ratified as soon as possible. Whilst adopting the amendment, OSPAR also put in place a requirement to use the OSPAR Guidelines for Risk Assessment and Management of Storage of CO<sub>2</sub> streams in Geological Formations, and this will take effect from 15 January 2008. UK regulations for injection and storage of CO<sub>2</sub> will take account of the content of this requirement.

Where CO<sub>2</sub> is utilised for enhanced oil or gas recovery, the Offshore Installations (Safety Case) Regulations 2005 and other supporting regulations will apply and developers will be required to modify existing safety cases. Whilst these regulations do not currently apply to new offshore installations, which are solely for CO<sub>2</sub> storage, HSE would require the developer to adopt a similar approach to make a compliance demonstration, in order to satisfy the requirements of the Health and Safety at Work etc Act 1974.

#### **5.5.1.2 European Union**

The European Union is committed to the promotion of CCS technologies and has recognised the need for a regulatory regime to cover CO<sub>2</sub> storage. Negotiations on a European Union Directive covering CO<sub>2</sub> storage are likely to commence early in 2008 (following the expected publication of a draft Directive in January 2008). It is difficult to anticipate when the Directive will be agreed, but it is likely to be 2010 before it is transposed into UK law. The approach the Government is following will put the UK in a position where it is able to regulate the storage of CO<sub>2</sub> before EU legislation is finalised, but it does mean that any steps taken nationally are likely to be interim measures, pending the introduction of an EU-wide regime. However, BERR intends to keep any differences between UK and future EU legislation to an absolute minimum by using the experience of developing a domestic regime to influence what finally applies in the EU.

### 5.5.2 Injection and storage of CO<sub>2</sub> - UK policy proposals

The storage of CO<sub>2</sub> is currently prohibited, unless as part of an EOR process licensable under the Petroleum Act 1998. BERR intend to seek powers in the forthcoming Energy Bill that will enable licences to be issued for the regulated storage of CO<sub>2</sub> below the surface of the UK seabed.

The arrangements in the Energy Bill are anticipated to vest the rights to store CO<sub>2</sub> offshore in the Crown, and these rights would be administered through the Crown Estate. In addition to obtaining a licence to explore for suitable storage sites, and actually store CO<sub>2</sub> BERR anticipates that it will also be necessary for an operator to obtain a lease or licence from the Crown Estate (in a similar arrangement to that already applied in respect of offshore windfarms).

The provisions to be put before Parliament, however, will not set out the detailed regulatory framework for CO<sub>2</sub> storage. That framework will be set out in a licence issued by the designated regulatory authority, taking into account the specific circumstances of each store. The consultation document (to be published in January 2008) will set out the detail of the Government's proposals. The proposed framework will cover exploration, operation of the injection facility, decommissioning and the requirements for monitoring a closed CO<sub>2</sub> store. Some of the provisions that would be contained within the CO<sub>2</sub> store licence are as follows:

- The licence will give an exclusive right to the storage of CO<sub>2</sub> within defined geological boundaries;
- There will be a general obligation on the licensee to ensure that sufficiently competent persons are responsible for the management of the activity;
- The Licensee may be under a general obligation to protect the marine environment from pollution, and to produce a marine contingency pollution plan;
- An obligation on the licensee to undertake licensed activities in a way that does not significantly interfere with other uses of the sea or the seabed;
- An obligation on the licensee to pay an annual licence fee to the designated regulatory authority on a cost recovery basis;
- The licence will specify the permitted operating conditions, including CO<sub>2</sub> stream purity, permitted concentrations of impurities, injection duration, injection rates and pressures, mass of CO<sub>2</sub> to be injected annually and the mass that can be cumulatively stored;
- An obligation on the licensee to keep geological information (including accurate plans and maps);
- Conditions for transferring the licence;
- An obligation on the licensee to carry out specified monitoring and a modelling programme.

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<sup>8</sup> See: <http://www.ospar.org/eng/html/welcome.html>

In order to obtain a licence, the Government is proposing that the regulatory authority must ensure that:

- Disposal is into a sub-soil geological formation;
- Streams consist overwhelmingly of CO<sub>2</sub>;
- No waste or other matter is added; and
- The CO<sub>2</sub> is intended to be retained in the geological storage system permanently and will not lead to adverse consequences for the marine environment, human health or other legitimate uses of the maritime area.

The Project will be required to prepare a satisfactory Risk Assessment and Management Plan in order to satisfy the regulatory authority that all the relevant issues have been assessed to ensure that CO<sub>2</sub> can be retained permanently and that the activity will not lead to significant adverse consequences. An Environmental Impact Assessment may also be required.

## **5.6 Management of residual risks and liabilities associated with long term storage of CO<sub>2</sub> – UK policy proposals**

Licensees of CO<sub>2</sub> stores will be subject to a wide range of responsibilities arising from their licence conditions, such as monitoring, reporting, record-keeping and maintenance. In addition, if storage containment fails (e.g. if there is a leak or major escape of the stored CO<sub>2</sub>) licensees may be exposed to a range of liabilities, which might include liabilities arising out of the Environmental Liabilities Directive, liability for damage caused to third parties, and the obligation to refund credits under the EU-ETS.

BERR accepts that it would be unreasonable for operators to retain permanent responsibility for stored CO<sub>2</sub> and that it will be necessary for the state to take responsibility for the store once it has reached the end of its operational life.

The model that BERR is proposing is designed to provide for the transfer of the long-term responsibilities and liabilities relating to the store from the licensee to the State, whilst ensuring that for the period the licensee is in charge of the store it is incentivised to manage the store with regard to its long-term management, and that the transfer arrangements do not pass undue risk to the public purse.

In order to ensure that operators have the funds in place to meet any liabilities that might arise during the injection stage, and any responsibilities and liabilities that may arise post-injection while the store is being monitored to ensure its safety and stability, it is envisaged that the licensee will be required to provide an appropriate form of financial security. The security would be financed or accumulated in the course of the injection phase.

The operator will remain responsible for the maintenance, monitoring and control of the store until the regulator has agreed that the permit may be surrendered. The period between the permanent cessation of injection and the surrender of a permit will be at the discretion of the regulatory authority, taking into account the stability of the store and its behaviour compared with appropriate technical models.

Once a permit has been surrendered, any residual responsibility for the monitoring or contingent liabilities associated with the CO<sub>2</sub> store will transfer to the state (via The Crown Estate, which will own or otherwise have the right to license the use of the relevant area of the seabed). The Crown Estate may also require payment to compensate for the risk of accepting these contingent liabilities.

In addition to its responsibilities for the store, the operator will also be required to provide for the decommissioning of the structures and pipelines used to inject the CO<sub>2</sub>. The Energy Bill proposals will include a provision to extend the arrangements that already apply to existing offshore facilities (such as oil rigs) to facilities used for the purpose of CO<sub>2</sub> transport and injection.

## **5.7 Consultation and legislative timetable**

The framework for the regulatory regime will be included in the provisions of the Energy Bill. BERR anticipate that the Energy Bill will be brought before Parliament early in this Parliamentary session and should receive Royal Assent by Summer 2008. Following Royal Assent, BERR will take the steps required to put the full regulatory framework in place. A consultation on the details of the proposed regulatory regime will be published in January 2008.

## 6 COMMERCIAL ISSUES

### 6.1 Commercial Approach

The commercial approach to this Project is aligned to BERR's Project objectives. The Government intends to contribute only towards the additional costs incurred by the selected Project Developer in demonstrating the technology for the capture, transportation and storage of CO<sub>2</sub> at a commercial scale and on a long term basis.

BERR expects that the Project Developer will gain a number of wider benefits from winning the right to undertake this first of a kind Project. For this reason the Government anticipates that Bidders may not require all of the CCS related costs of the Project to be supported by the Government as some of these will be offset by the wider financial and non-financial benefits that will accrue to the Project Developer arising from their participation in the Project and that Bidders will reflect these benefits in their overall pricing for the Project.

BERR's overall approach to risk allocation in developing the contractual basis of this Project will be based on the key principle of ensuring that project related risks are allocated to the party that is best able to manage, or mitigate, the risk. This approach will be developed with reference to any established government policies or precedents in relation to risk allocation. In many areas, BERR's initial risk allocation will be firm and non-negotiable but in other areas, it will wish to discuss possible approaches to risk allocation with Bidders during the Negotiation Stages. The outcomes of these negotiations will then form the basis of the proposed contractual arrangement on which Bidders will be required to base their bids.

The Government will undertake the letting of this Project under a competitive process. Ensuring a level playing field is key to achieving, and maintaining, fair competition during the procurement process and ensuring value for money for Government.

Throughout the Negotiation Stages, BERR will therefore seek to identify any issues which may result in an undue competitive advantage arising for an individual Bidder, or group of Bidders, and to consider possible actions which will ensure that a competitive procurement process can be both achieved and maintained, to the extent that those actions would not distort value for money or affordability of the Project.

For example, BERR will want to ensure that the treatment of EOR and non-EOR projects are dealt with on a level playing field basis, that the regulatory treatments of different projects are non-discriminatory, that Bidders are aware of the tax rules as they apply to EOR and non-EOR projects and that Bidders are not able to use any control over unique assets or rights in an inequitable way.

BERR intends to publish heads of terms for the Project Contract and an initial draft of some of the Project Contract clauses as part of the ITN. A number of the clauses, especially in relation to the non-project specific areas (e.g. in relation to confidentiality and freedom of information) will be based on principles established under the Standardisation of PFI Contracts, version 4 (SoPC4). Contractual terms in these areas have been extensively tested in relation to Government procurements and are now accepted as standard in the market. The more project specific parts of the Project Contract will then be developed during the negotiations with Bidders.

BERR intends that most of the final contractual terms will be the same for all Bidders. However, it recognises that due to either the specific nature of individual Bidder's solutions, or because of the different risk appetites or profile of Bidders, there may be some difference in the contractual arrangements on which Bidders submit their Final Bids.

As this is a "first of a kind" project, with little directly relevant experience of many of the elements of this Project at this scale, the Government wishes to ensure that Bidders are given the maximum opportunity to develop their own solutions to the Government's requirements, using their own experience and capabilities to create innovative and cost effective ways to develop robust deliverable solutions.

The payment mechanism for the Project Contract will be structured on an outputs-based performance approach to ensure that the Project Developer is incentivised to deliver the specified Project requirements and outputs. The Project Developer's overall performance will be subject to a variety of other contractual provisions. BERR will undertake negotiations with Bidders as to the remedies required to ensure that the Government's investment in the Project is appropriately protected, including where, in an extreme scenario of continued non-delivery, there could be provision for termination of the Project. This will be addressed during the Negotiation Stages.

## **6.2 Funding Approach**

BERR is not intending to specify to the Bidders the type of funding approach that they should use for the Project. BERR expects that this flexibility will enable Bidders to select the best overall financing approach for the Project, using whatever mix of funding types and sources they consider most appropriate.

BERR's overall objective will be to ensure that the proposals demonstrate the best value for money solution for Government in the context of this Project and that the overall funding approach is transparent, financially robust and deliverable. Therefore, BERR will take into account and assess the impact the different funding approaches will have on the flexibility, limitations and management of risks of the Project.



### 6.3 Payment Mechanism

The basis and the format of the payment mechanism for the Project will be key to the whole development and delivery of the Project. The method for supporting the development, design, construction and operation of the CCS chain will be made up of several elements:

- Capital contribution(s) towards the costs of capital expenditure which relate specifically to the CCS elements of the Project;
- On-going operational support through a payment mechanism related to the successful operation of the CCS elements of the Project; and
- Claw back mechanisms to ensure that any changes that have an impact on the costs of the Project are factored into the level of ongoing support.

The balance of these elements, the way in which they might be structured and the practical application of any proposed payment mechanism will form the basis of the negotiations with Bidders. The Government does not intend to make any payments under the Project agreement until the next spending round, which commences in 2011. Therefore it is anticipated that any development, research, design or early mobilisation costs incurred by the Project Developer will be, at least initially, funded by them.

If capital contributions are part of the agreed payment mechanism then the Government will wish to make such payments against the achievement of clearly demonstrated milestones.

At this early stage of the procurement process, BERR envisages that the payment mechanism for the operational support to the Project will most likely be based on the tonnage of CO<sub>2</sub> abated (i.e. CO<sub>2</sub> not emitted in comparison with a suitable benchmark), and may involve a contract for difference between a fixed carbon price in the Project Contract and the market price of European Union Allowances (EUAs) under the EU ETS. BERR considers this payment system as likely to be the most suitable form of operational support because:

- It will provide an incentive to operate the power plant and capture facility efficiently;
- It avoids any perverse incentive for the production of CO<sub>2</sub> which might arise if the payment was based on actual tonnage of CO<sub>2</sub> stored; and
- The level of support from the Government will decrease when the market price of EUAs increases and vice-versa.

BERR believes that structuring the payment mechanism as proposed is most likely to incentivise the Project Developer to deliver the development, construction and operational elements of the Project efficiently, within the Government's overall objectives and constraints, and ensures an appropriate allocation of risks to the parties which are best able to manage them.

Allowing a blend of capital and operational payments is likely to facilitate the pricing of the Project and will help minimise the overall cost to the Government, acknowledging that the costs of capital of the Government and Bidders are likely to be different.

The rationale for the proposed payment mechanism and the issues related to it will be discussed in more detail during the Negotiation Stages. It is anticipated that Bidders will be required to submit a detailed financial model as part of their bids which will separate the capital and operational costs of the individual elements of the generation, capture, transport and storage elements of the Project. Refinement of the payment mechanism and the optimisation of the underlying cost and revenue model will be a material part of the various submissions requested during the Negotiation Stages and the Final Bids which Bidders will be required to submit.

The payment mechanism will provide for reductions in payment through claw back mechanisms where external market or regulatory developments result in excess profits; and for deductions from payments where the project fails to deliver specified performance standards.

#### **6.4 Additional Infrastructure**

As well as providing a practical demonstration of the ability to undertake a full-chain CCS process at a commercial scale, this Project will also be the first of what may be many CCS projects in the UK. While CCS is not yet commercial, future changes (e.g. in carbon and fuel prices) may make CCS economic, or there may be regulatory changes which require generators to undertake CCS in the future.

While the Government appreciates that this Project is likely to be the first CCS project in what may become a future UK and international market, it views this Project primarily as a demonstration project and its funding of the Project will reflect this.

Given the potential future development of CCS, BERR recognises that some Bidders may, for wider business or strategic reasons, consider providing some elements of the related infrastructure on a scale which is not specifically required for the delivery of this Project. For example, Bidders may wish to construct pipelines which have a greater capacity than that required for the transportation of the CO<sub>2</sub> captured from this Project.

While the Government does not wish to restrict the ability of Bidders to take such an approach of over provision, it is not appropriate for the Government to support such additional investment financially where this does not provide general public benefits or improve value for money for the taxpayer.

BERR will discuss this with Bidders during the Negotiation Stages to understand both the likely preferences of Bidders to the provision of infrastructure and to develop an appropriate procurement and payment approach.

Prior to these negotiations BERR's initial standpoint is that:

- The Government does not intend to contribute to any infrastructure that Bidders wish to include in their solutions, which is directly for their benefit. Therefore standard bids will be based on infrastructure costs directly related to the scale required for the demonstration Project, with any additional costs being separately identified by Bidders and not supported by Government;
- Bidders will be able to develop variant bids where they believe that there is a valid proposition that large infrastructure will ultimately provide benefits for the taxpayer and that this can be demonstrated to deliver better overall value for money; and
- In the event that this is proposed Bidders will need to propose a suitable mechanism for the sharing of an appropriate proportion of the revenues that arise from any larger infrastructure which the Government has funded or co-funded (e.g. third party revenues arising from transporting CO<sub>2</sub> on other projects).

## **6.5 Insurance**

In addition to Bidders being required to procure standard forms of insurance in relation to any project of this nature, including having in place all insurance required by law, insurance may be an appropriate means of managing or mitigating unusual project specific risks which will either be borne by the Project Developer or may be shared in some way with BERR.

As some of the elements of the Project are unique or unusual there may be a need to discuss with the insurance markets as to whether such risks can be insured against at all, or can be insured on a basis that is likely to provide value for money. Areas where such a dialogue with the market may be necessary may include the management of the risks associated with the storage of the CO<sub>2</sub>, specifically regarding the long term risk allocation and management.

It is expected that insurance will be one of the issues included in the discussions and negotiations with Bidders. BERR will want to work with Bidders in ascertaining whether or not the insurance markets are able to provide, or develop, appropriate insurances for this Project.

## 6.6 Taxation

Bidders should assume that the financial activities relating to this Project will be subject to tax. Subject to the legal form of the bidding structure, this is likely to be corporation tax if the activities are to be conducted by a company.

It is recognised that some bids may involve an EOR based solution while others may not. There may therefore be different tax regimes applying to different Bidders depending on whether they intend to utilise assets and infrastructure currently or previously devoted to the production of North Sea oil or gas.

Bidders proposing EOR based solutions are likely to be familiar with the special “North Sea ring fence” regime that applies to the production of oil and gas on the UK continental shelf. There are several ways in which the North Sea tax regime may trigger costs for the company or other entity in developing this Project. There may be charges or costs relating to the claw back of capital reliefs or on a notional disposal of assets when a change of use occurs, or on cessation of the previous activities within the special regime. Access to tax relief for decommissioning costs will depend upon a number of factors and Bidders should take their own tax advice, based on their own circumstances and proposed mechanisms for delivering the Project.

HM Revenue & Customs (“HMRC”) has been involved in a joint working group with industry representatives, exploring how the current North Sea fiscal regime applies where assets used for oil and gas production are then used for some other purpose. The working group will have recently published a paper<sup>9</sup> which outlines all the direct tax issues that might currently arise from ‘change of use’ and how HMRC and industry interpret the current legislation. These problems arise where there is any alternative use of North Sea infrastructure, not purely as a result of, but possibly triggered by this Project. As part of the working group process, industry has proposed a number of changes to tax legislation, which they say are required to resolve what they view as potential tax “entry costs” for Bidders with current or previous North Sea oil related activities. Industry’s proposals are now being considered as part of the wider discussions on the North Sea fiscal regime which are currently being undertaken by HM Treasury.

Bidders will be required to incorporate tax assumptions in their financial evaluations that reflect their specific circumstances and the general corporation tax regime. It is not expected that Bidders will be required to assume the application or dis-application of any part of the general tax code. However, BERR will maintain consultations with HMRC and, if any specific assumptions are appropriate as a result of these consultations, these will be communicated to all Bidders as soon as practicable.

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<sup>9</sup> <http://www.hmrc.gov.uk/oto/change-of-use.htm>

It is not anticipated that BERR will question a proposed bid structure that sits within the Bidder's established tax and legal structure. However, all Bidders should be aware that BERR will evaluate proposals in the light of HM Treasury guidance to procuring departments (DAO (GEN) 0803). This guidance indicates that artificial tax avoidance mechanics, and in particular the use for tax avoidance purposes of offshore legal entities, is not acceptable in the context of public procurement.

## **6.7 Risk Allocation**

Movements in the financial and energy markets both in the UK and internationally that may have a potential financial impact on Bidders will be, in principle, borne by them. Such movements include, but are not limited to, interest rates, inflation, foreign exchange, power prices, and fuel prices. This is consistent with BERR's prevailing approach to risk allocation, whereby risks are allocated to the party that is best placed to manage or mitigate the risk.

A variation to this general principal is the potential movements in the price of CO<sub>2</sub>. Financial support to this Project is likely to be linked to the market price of CO<sub>2</sub> allowances within the EU-ETS. The level of support provided by government will be set such that it is inversely correlated to movements in carbon prices, e.g. by way of a Contract for Differences.

The allocation of risk is one of the topics in the First Negotiation Stage.

## **6.8 Dissemination of knowledge and know-how**

During the course of the Project, the Project Developer is likely to use various intellectual property rights (IPR) owned by them or their licensors or sub-contractors, including patents and technical know-how, and show-how (collectively referred to as the Project IPR). The Project Developer will not be required to assign any of the Project IPR to BERR or a third party. However, the Project Developer will be required to commit to granting access to, and providing for the dissemination of, information and Project IPR in order to further BERR's aim of facilitating the deployment of CCS in the UK, Europe and internationally.

The exploitation of Project IPR gained as a result of carrying out the Project will be the subject of one of the Negotiation Stages. Amongst other things, final bids will be evaluated on plans for the dissemination of commercial and technical information, know-how and show-how internationally, provision of access to Project information for production of reports and publicity materials.

## 7 GLOSSARY

TERM	DEFINITION
Applicant	Refers to the party submitting a completed PQQ, and may include (but is not limited to) a single company or organisation, a special purpose company or a joint venture consortium (whether or not these entities have been legally formed at the time of submission of the completed PQQ) or the lead company representing any of the above.
Bidder	Refers to an Applicant that satisfied the minimum prequalification requirements, as set out in the PQQ, and has been invited to participate in the next stage of the procurement process.
Carbon Capture and Storage (CCS)	The process of capturing carbon dioxide produced as a result of energy generation or industrial processes and storing it in geological formations.
Crown Estate	The Crown Estate owns virtually the entire seabed surrounding the UK, out to the 12 nautical mile territorial limit, as well as the rights to explore and utilise the natural resources of the UK continental shelf (excluding oil, gas and coal).
Department for Business, Enterprise and Regulatory Reform (BERR)	The UK Government Department with responsibility for business, enterprise, better regulation, free and fair markets and energy policy.
Enhanced Oil Recovery (EOR)	CO <sub>2</sub> pumped into a near depleted field dissolves in the oil, making it more mobile and easier to extract. This can lengthen the life of the field and is an established onshore technology, although not so far used offshore.
European Union – Emissions Trading Scheme (EU-ETS)	Introduced on 1 January 2005 as a cap-and-trade scheme designed to reduce CO <sub>2</sub> emissions from industrial installations. Phase I of the scheme began on 1 January 2005 and will run until 31 December 2007. Phase II of the scheme will run for a five year period from 1 January 2008 to 31 December 2012.
European Union Allowance	Certificates for trading CO <sub>2</sub> emissions under the EU-ETS
Flue Gases	Gas that exits to the atmosphere via a flue, which is a pipe or channel for conveying exhaust gases from a fireplace, oven, furnace, boiler or steam generator.

TERM	DEFINITION
Health and Safety Executive (HSE)	Non-departmental public body of the Government of the United Kingdom responsible for the regulation of risks to health and safety in the UK
Intergovernmental Panel on Climate Change (IPCC)	Established by the World Meteorological Organisation and the United Nations Environment Programme to assess scientific, technical and socio- economic information relevant for the understanding of climate change, its potential impacts and options for adaptation and mitigation.
Intellectual Property Rights (IPR)	IPR includes copyright, designs, patents technical know-how and show-how.
Invitation to Negotiate (ITN)	Document which invites participants who have pre-qualified to participate in negotiations (issued under Negotiated Procedure)
Minimum Output Requirement	In the case of this Project, an electrical output of 300-400MW net after the installation of CCS. This can comprise a single unit or multiple units connected to a CCS section such that the minimum volume of flue gases treated are equivalent to a power plant with an electrical output of 300-400MW net.
Negotiated Procedure	Refers to the procurement procedure whereby the contracting authorities consult with the economic operators of their choice and negotiate the terms of the contract with one or more of these, as introduced in the EU Public Sector Procurement Directive (2004/18/EC). This was implemented into UK law via the Public Contract Regulations S1 2006/5 with effect from 31 January 2006.
Preferred Bidder	Refers to the Bidder who is selected based on evaluation of the final bids.
Pre-Qualification Questionnaire (PQQ)	Used to assess the Technical Ability and Capacity and the Economic and Financial Standing of Applicants applying to participate in the Project. Issued in conjunction with this Information Memorandum.
Project Contract	The full terms and conditions to be agreed between BERR and Preferred Bidder for the implementation of the Project to be developed during the competition process.

<b>TERM</b>	<b>DEFINITION</b>
Project Developer	The Preferred Bidder becomes the Project Developer once the Project reaches financial close.
Renewable Obligation Certificates	A tradeable certificate issued for each megawatt hour of renewable energy generated.
Standardisation of PFI Contracts, version 4	Standard wording and guidance to be used by public sector bodies when drafting PFI contracts. This is the most current version to date <a href="http://www.hm-treasury.gov.uk">www.hm-treasury.gov.uk</a>