UK Carbon Capture and Storage Demonstration Competition

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Insurance Report

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ScottishPower CCS Consortium
IMPORTANT NOTICE

Information provided further to UK Government’s Carbon Capture and Storage (“CCS”) competition to develop a full-scale CCS facility (the “Competition”)

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ScottishPower CCS Consortium

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ScottishPower Consortium UKCCS Demonstration Competition:
Knowledge Transfer

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1. Introduction

This document seeks to set out the risk and insurance issues relative to Carbon Capture and Storage projects, in terms of potential exposures and how insurance or other risk transfer products might mitigate them.

It should be noted that many of the risks involved in CCS are not that different from a typical Upstream-project (albeit the process of extraction is reversed) and are closely aligned with those of Enhanced Oil Recovery (EOR) projects in which Shell and our partners have been involved over the past 20 years. However, certain elements unique to CCS will prove more cumbersome if not impossible in setting up insurance cover, such as liability cover for a long term post-injection period (the long term nature thereof) or the costs of CO₂ credit repurchases, should those be required for instance.

At present it is anticipated that Shell, as operator of the Storage Joint Venture (SJV) would apply its normal Risk Insurance Strategy (see addendum 1) to CCS activities and that partners in the SJV will arrange insurance on same basis. For its equity share in the SJV, Shell may utilise its captive insurance company for a large part of the requirements. For other partners in the SJV a market solution may be required if no such instruments are available in house.

2. Insurance Requirements

It is assumed that the SJV will provide the CO₂ storage service within the Consortium as part of the CCS chain. The diagram below illustrates the components of the CCS Chain highlighting the main physical assets involved at each stage of the process. This is split into the following 3 main sections:

- Longannet Power Station (LPS);
- Onshore transportation comprising of a pipeline between LPS and the onshore terminal at St Fergus and a compressor station located in the vicinity of the at St Fergus terminal;
- Offshore transportation from the outlet of the compressor at St Fergus to the Goldeneye reservoir offshore storage site.

As far as the SJV’s responsibility is concerned the following non-limitative list of insurance covers will only focus on the elements of the CCS-process for which Shell and its SJV partners are
responsible, being offshore transportation, injection of CO₂ and a post-injection/monitoring period until handover to competent authority.

2.1. Construction All Risks (CAR)

CAR addresses any risks for physical damage to construction works, damage to existing property (onshore at the Shell/Esso gas terminal and the St Fergus National Grid reception terminals, and offshore on the Goldeneye field facilities) and third party liability as a result of such construction works (as excluded from normal TPL-cover). Coverage can be extended to include materials in transit/storage. Coverage will be provided for principal insured and can be extended to counterparties and (sub)contractors. Basis for declaration will be a capital expenditure-value attributable to the project. It is expected that for the SJV scope of work, a CAR insurance will be procured with deductible USD 0.5-1 mln and limit to be determined by the scope of work and the capital expenditure.

2.2. Property Damage / Business Interruption (PDBI)

In terms of infrastructure, from the CO₂ capture equipment at the source, through pipelines and the associated separation, compression and injection facilities, the risks should be insurable to the extent of any other physical assets. Limited insurance is available for subsurface assets such as down-hole equipment while no coverage would be available for the storage reservoir itself.

Physical loss or physical damage cover can be purchased for all assets, which would be reinstated or replaced in the event of damage or destruction. Business Interruption coverage will provide protection for fixed costs and profit and is triggered by a covered event under the Property Damage-cover accordingly. Typical insurance companies provide Business Interruption Insurance, as part of Onshore/Offshore Property insurance coverage, and will compensate for financial losses while a site is out of operation following a property damage, which is covered under the Insured’s property policy.

It is expected that for the SJV scope of work, a Property insurance will be procured with deductible USD 1 mln and limit of the estimated maximum loss (EML) of the property assets.

2.3. General Third Party Liability (GTPL)

The Operator of the SJV and each of the other SJV parties must insure against loss of or damage to third party property and personal injury, death or disease to persons, including environmental, helicopter and marine liability (i.e. charterer’s) exposures and contractual obligations to third parties using facilities, as applicable.

Coverage for third party liabilities is insurable in terms of bodily injury/death and property damage resulting from an escape of CO₂. Coverage would be on a sudden and accidental basis and subject to the strict reporting provisions of discovery within 20 days and full reporting to insurers within 80 days.

Coverage would not respond in respect of claims for environmental damage as a result of releases of CO₂ (whether intended or unintended) but rather addressed by an environmental liability cover. Likewise any legal liabilities incurred by the SJV in respect of CO₂ emissions would not be covered – for example in the event that a “class action” type litigation has been made against either other parts of the project chain or more generally against power plants and other CO₂ emitters.

Sudden and Accidental coverage is available through Shell’s captive insurance policy, however, the existing uncertainties of valuing the damage caused and cleaning this up means that the commercial insurance market is not currently likely to provide coverage.

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It should be noted that sub-surface risks are likely difficult to insure from a liability perspective. This is largely due to a lack of actuarial data and the huge challenges in determining damage and collecting accurate information to determine a claim. For instance if CO$_2$ leaked from the reservoir into a neighbouring coal seam, this would not be covered.

It is expected that for the SJV scope of work, a General Third Party Liability insurance will be procured with deductible USD 1 mln and limit of USD 150 mln.

### 2.4. Control of Well (CoW)

Shell routinely insures drilling activities and operational wells, both production and injection wells (water and gas) and it is anticipated that coverage would apply for the injection wells related to CO$_2$ injection as it already does on Enhanced Oil Recovery (EOR) projects. Coverage will be sought by the SJV in respect of all drilling activity (whether appraisal, exploration, development or injection) and producing and workover activities to indemnify against costs to control and redrill wells following a blowout and associated pollution liabilities. Certain limits may be required where there are regulatory or statutory requirements (e.g. OPOL North Sea).

### 2.5. Director’s and Officer’s Liability (D&O)

For Shell, this will be arranged in line with Shell strategy to protect Shell directors and offices for private liability. Where not covered under existing policies, these policies will be placed in the commercial market. Other SJV partners will follow their insurance strategy in this respect.

### 2.6. Obligatory Local Insurance covers

Any obligatory insurance covers by law or contract will be taken out accordingly.

### 3. Risk Management

While the technology for transporting, injecting and storing CO$_2$ is not new, the objectives of a CCS project do differ from existing natural gas storage and EOR projects and this has greater implications in terms of the uninsurable risks. Natural Gas storage is typically short term, with production at periods of low demand (i.e. summer) being kept back to meet times of peak demand (winter). The commercial model is inherently short term with gas being put into, or taken out of, storage at various times during the year. In EOR projects the objective is to increase the production yield of the field with the CO$_2$ seen as having no real commercial value until the advent of carbon credits and trading. With a CCS project, the CO$_2$ is injected into the storage site over a time, until the site is full. At this point the site is sealed and the carbon is expected to be stored ad infinitum.

Given the limitations of insurance to address the long-term liabilities and its inability to respond to numerous sub-surface risks, the focus needs to be on managing risks around site selection as well as long-term monitoring of the site’s technical integrity to ensure that the CO$_2$ does not escape over time.

### 4. Commercial Insurance Market

The reduction of CO$_2$ into the environment is a public good/service, which benefits society as a whole. From a commercial perspective companies will not undertake an activity unless there is an economic benefit and so governments need to find a middle ground that ensures that companies manage the risks in an appropriate way whilst also recognizing that the CO$_2$ storage site may well in the majority of instances outlive the commercial enterprises that establish and operate them.
As part of the FEED submission the commercial market has been tested by Shell for responsiveness in reference to CCS. There are a (very) limited amount of commercial insurers currently developing market products, addressing typical CCS risks. It must be noted that underwriting experience, especially for offshore CCS, is limited. We have had engagements with amongst others Zurich, who claim to provide a combined policy addressing CCS-typical risks. In various meetings during 2010 we have explored their service offering up until the point of exchanging preliminary generic underwriting information in order to get an indication of premiums, limits and conditions. The delivery thereof extends into 2011 as the underwriting information depends on the design outcomes of FEED.

The initial indication of coverage provided through commercial insurers, albeit limited in supply and capacity, includes cover for pollution events, business interruption, control of well, transportation liability and geo-mechanical liability in relation with Underground Sources of Drinking Water, subject to specific exclusions, limits and policy procedures. The Consortium is still considering what part of the cover is relevant for offshore storage operations.

A key constraint of insurance for CCS projects is the term of available insurance. Generally insurance, including the combined CCS policy referred to above, has a short term character. This means that policies are issued for up to a maximum number of years, which is less than the lifetime of a CCS project. If new policies are available, their pricing, limits, terms and conditions may change, depending on various causes including loss experiences. So albeit insurance may be able to contribute to CCS risk mitigation, it will not provide full cover for the whole CCS project.