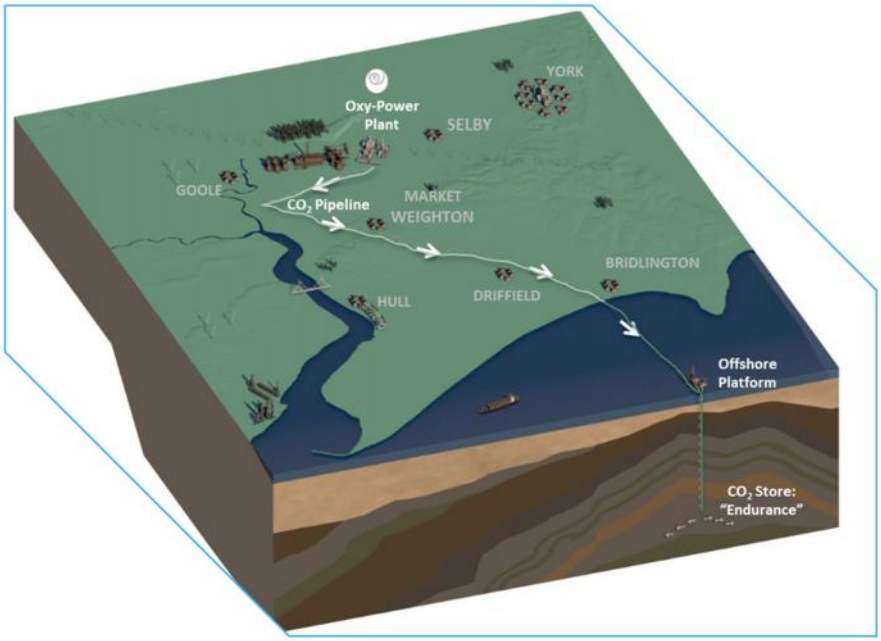
February 2016

WHITE ROSE

K.20 Project Implementation Phase project execution plan

Project Management: Full Chain



CAPTURE POWER

drax

BOC
A Member of The Linde Group

nationalgrid

Contents

List of Tables

List of Figures

Key Words

Key Word	Description
Air Separation Unit	A unit whose function is to separate oxygen from the air for use in the oxyfuel process
Air Separation Plant	Collective term for two ASU units
Carbon	An element, but used as shorthand for its gaseous oxide, Carbon Dioxide, CO_2.
Carbon Dioxide	A greenhouse gas produced during the combustion process, the chemical symbol for which is CO_2.
Carbon Capture and Storage	A technology which reduces carbon emissions from the combustion based power generation process and stores it in a suitable location
Capture	Collection of CO_2 from power station combustion process or other industrial facility
Financial Close	The point at which the final investment decision is taken and the Notice to Proceed with the Implementation Phase is issued
Gas Processing Unit	Unit in which the processing and compressing of CO_2 gas takes place before transportation to storage
Interconnections	Links for supply between existing Drax and OPP facilities
Implementation Phase	Stage of CCS project that covers construction
Lessons Learnt	Key insights into learnings specific to Carbon Capture and Storage, as a result of undertaking FEED
Operating Mode	The method of operation of the OPP, which can operate in air or oxy-firing mode
Oxyfuel	The technology where combustion of fuel takes place with oxygen replacing air as the oxidant for the process, with resultant flue gas being high in CO_2
Oxy Power Plant	A power plant using oxyfuel technology
OPP Process	The flow of input and output streams through the Oxy Power Plant
Pipeline	The long pipe used for conveying CO_2 from the power plant to the storage facilities
Plot Plan	Layout of main items of equipment and buildings
Storage	Containment of CO_2 in suitable pervious rock formations located under impervious rock formations usually under the sea bed
Transport	Transfer of processed CO_2 from the capture and process unit by pipeline, to the permanent storage
White Rose	The White Rose Carbon Capture and Storage project

Executive Summary

The Project Implementation Phase project execution plan (PEP) was generated as part of the Front End Engineering Design (FEED) contract with the Department of Energy and Climate Change (DECC) for White Rose, an integrated full chain Carbon Capture and Storage (CCS) Project. This document is one of a series of Key Knowledge Deliverables (KKDs) from White Rose to be issued by DECC for public information.

White Rose comprises a new coal-fired ultra-supercritical Oxy Power Plant (OPP) of up to 448 MWe (gross) and a Transport and Storage (T&S) network that will transfer the carbon dioxide from the OPP by pipeline for permanent storage under the southern North Sea. The OPP captures around 90% of the carbon dioxide emissions and has the option to co-fire biomass.

Delivery of the project is through Capture Power Limited (CPL), an industrial consortium formed by General Electric (GE), BOC and Drax, and National Grid Carbon Limited (NGC), a wholly owned subsidiary of National Grid.

This report describes CPL's intended execution plan for the Implementation Phase through to and including commissioning of the full chain. The execution plan is the governing document that establishes the means by which CPL will execute, monitor and control the White Rose CCS Project, and will serve as the main communication vehicle to ensure that everyone is aware of project objectives and the mechanisms by which they will be accomplished. It covers all CPL's full chain activities including project management, organisation and staffing, governance and compliance; Environment, Health and Safety (EHS); quality management and assurance; full chain engineering, procurement, construction and commissioning management; Engineering, Procurement and Construction (EPC) Contractor management; interface management, and project controls.

Her Majesty's Government (HMG) Autumn Statement and Statement to Markets on 25 November 2015 regarding the Carbon Capture and Storage Competition confirmed that the £1 billion ring-fenced capital budget for the Carbon Capture and Storage Competition was no longer available. This meant that the Competition could not proceed on the basis previously set out. A notice of termination of the White Rose FEED Contract was issued to CPL on 23 December 2015 and the FEED Contract was terminated on 25 January 2016; a date which was earlier than the expected completion date. The Government, CPL and National Grid are committed to sharing the knowledge from UK CCS projects, and this Key Knowledge Deliverable represents the learning achieved up to the cancellation of the CCS Competition and termination of the FEED Contract and therefore does not necessarily represent the final and completed constructible project.

This document should be read in conjunction with the following documents:

- K.09 Full Chain Project Programme

1 Introduction

1.1 Background

The White Rose Carbon Capture and Storage (CCS) Project (White Rose) is an integrated full chain CCS project comprising a new coal-fired Oxy Power Plant (OPP) and a Transport and Storage (T&S) network that will transfer the carbon dioxide from the OPP by pipeline for permanent storage under the southern North Sea.

The OPP is a new ultra-supercritical power plant with oxyfuel technology of up to 448 MWe gross output that will capture around 90% of carbon dioxide emissions and also have the option to co-fire biomass.

One of the first large scale demonstration plants of its type in the world, White Rose aims to prove CCS technology at commercial scale as a competitive form of low-carbon power generation and as an important technology in tackling climate change. The OPP will generate enough low carbon electricity to supply the equivalent needs of over 630,000 homes.

White Rose is being developed by Capture Power Limited, a consortium of GE, BOC and Drax. The project will also establish a CO_2 transportation and storage network in the region through the Yorkshire and Humber CCS pipeline being developed by National Grid Carbon Ltd (NGC).

A project execution plan was developed in the FEED phase up to the point at which CCS competition funding was withdrawn. This KKD reflects a redacted version of that plan, excluding Commercially Sensitive Information (CSI), and provides a description of CPL's intended execution plan for the Implementation Phase through to and including commissioning of the full chain. It covers all CPL's full chain activities including project management, organisation and staffing, governance and compliance; Environment, Health and Safety (EHS); quality management and assurance; full chain engineering, procurement, construction and commissioning management; Engineering, Procurement and Construction (EPC) Contractor management; interface management, and project controls.

1.2 Objective

The PEP:

- Sets out the objectives and targets for the project;
- Links the project objectives to business objectives and company policies;
- Defines the scope and context for the project;
- Sets out the organisational design for the project;
- Describes the agreed plans for project execution;
- Outlines the key project management mechanisms and processes to ensure successful delivery of project objectives;
- Allows consistent communication across the integrated team for the project's plans and processes to execute the required scope;
- Provides a reference document for project team members.

The PEP does not provide a full description of all the policies, procedures and work instructions that will be required to execute the work. These will be developed separately and in line with the required scopes of work defined in the PEP.

As this is CPL's PEP it does not attempt to describe how CPL's EPC Contractors intend to manage their elements of the work but it does define how CPL will interface with and between them, as well as describing how CPL plan to execute their own work.

The PEP is a living document and will be updated to describe current and future processes and procedures, such as integrating safety into the design process. Updates will be prepared as the project moves through the main project phases of engineering, construction and commissioning.

Any change to this PEP or the Division of Work (DoW) schedule will be managed through CPL's Management of Change (MOC) process.

2 Project Overview

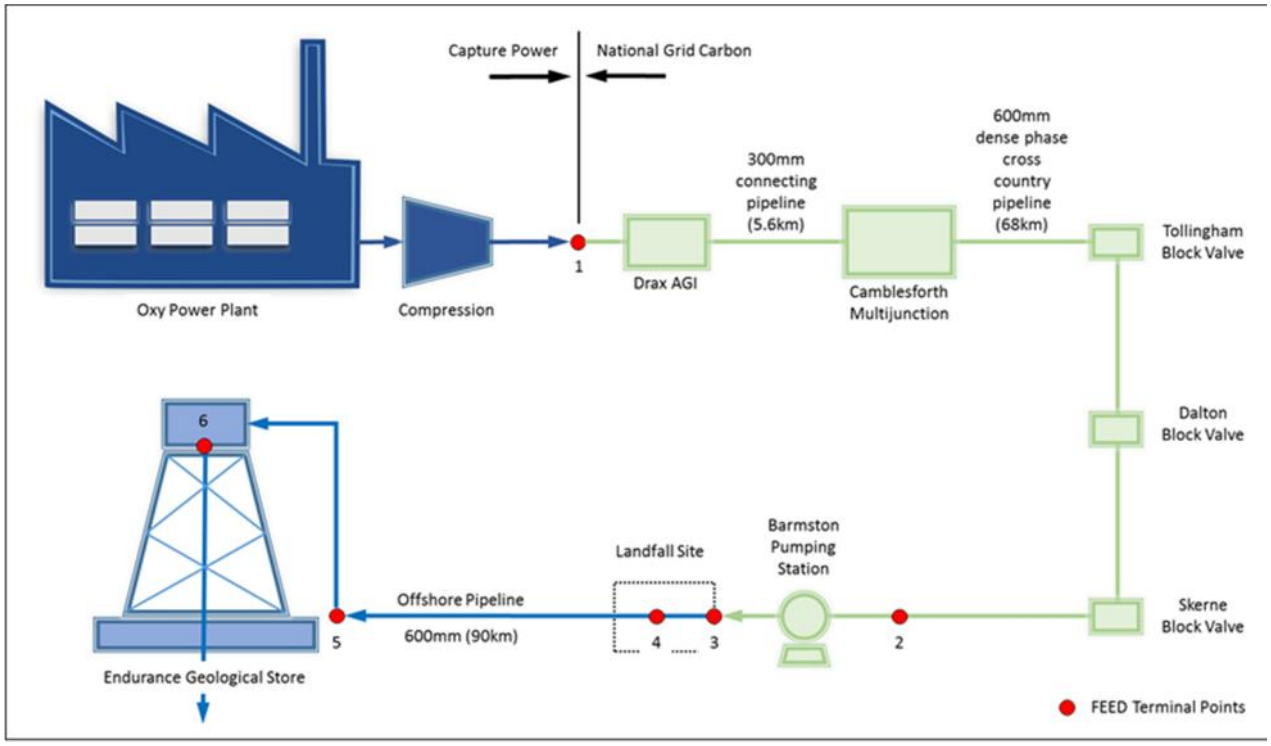
2.1 Project Scope

CPL are responsible for management of the full chain through to and including commissioning including provision of the OPP site and for the design, construction and operation of the OPP.

CPL are partnering with National Grid Carbon Limited (NGC) who will be responsible for the construction and operation of the CO_2 transport pipeline and the permanent CO_2 undersea storage facilities in Endurance (formerly 5/42) in the North Sea.

A full chain schematic of the White Rose CCS Project is shown in Figure 2.1.

Figure 2.1: White Rose CCS Project Full Chain Schematic



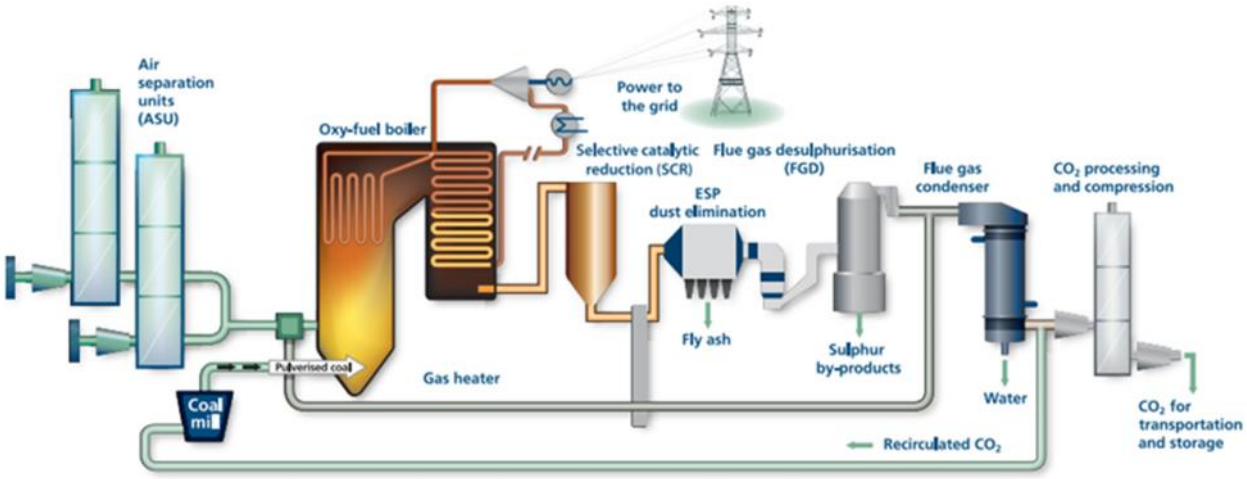
Source: Capture Power Limited

The OPP will be located adjacent to the existing Drax Power Station site near Selby, North Yorkshire, generating electricity for export to the National Electricity Transmission System (NETS) whilst capturing approximately 2 million tonnes of CO_2 per year, some 90% of all CO_2 emissions produced by the plant. The by-product CO_2 from the OPP will be compressed and exported via a pipeline for injection into an offshore saline formation for permanent storage.

The power plant technology, known as oxyfuel combustion, burns fuel in a modified combustion environment with the resulting combustion gases having high CO_2 concentration. This allows the CO_2

produced to be captured without the need for additional chemical separation, before being piped for storage. A schematic of the OPP Process is shown in Figure 2.2.

Figure 2.2: OPP Process



Source: Capture Power Limited

2.2 Division of Work

The Enabling Works EPC Contractor will execute those works required to ensure the OPP site is handed over to the OPP EPC Contractor free from obstructions and constraints to facilitate efficient mobilisation and start of construction activities. These works include improvements and extensions to existing main site access, diversion of existing utilities and services where these impact on the OPP site or laydown areas, (including 11kV overhead power line, footpaths and woodyard) and installation of temporary/permanent fencing.

The OPP EPC Contractor will engineer, procure, construct and commission the OPP under a turnkey EPC Contract. Their scope will interface with Drax Power Limited (DPL) who will execute the Interconnections on Drax operating land between the existing Drax Power Station and the OPP, also under a turnkey EPC Contract. The OPP EPC Contractor will be responsible for any interconnections scope within the OPP site, and will also be responsible for the coal conveyor and fly ash disposal systems which cross the site boundary and which will be constructed on Drax operational land by Drax. OPP EPC Contractor scope will also include procurement of a temporary heavy lift crane facility adjacent to the existing DPL jetty. The 400 kV connection to the NETS also crosses the OPP site boundary. The OPP EPC Contractor will contract with National Grid Electricity Transmission (NGET) for connection of the 400 kV cable in the NGET switchyard, while the Interconnections EPC Contractor will dig the cable trench on Drax operating land to interface with the trench on the OPP site. The 400 kV cable and termination in the NGET sub-station will be installed by an NGET approved sub-contractor to the OPP EPC Contractor.

The OPP EPC Contractor will also cooperate with NGC who will be responsible under a Transport and Storage Services Agreement (TSSA) for engineering, procurement and construction of the Transport and Storage (T&S) system from the OPP to the offshore platform and storage facility. These interfaces include

providing access and laydown areas for NGC to construct their Above Ground Installation (AGI) at the OPP site and the CO_2 pipeline, and subsequent connection to the pipeline for filling and commissioning of the system.

The overall integrated control of the T&S system will be by NGC and is anticipated to be similar to that of the National Grid natural gas pipeline network. Local operating procedures will be developed with individual parties to cover all operational aspects including start-up, normal and abnormal operation, controlled and emergency shutdowns. The procedures will include a hierarchy of operation, responsibility, communication procedures and protocols.

Refer to section 5.8 for Scope Management.

2.3 Environment, Health and Safety (EHS)

Refer to section 3.

CPL's Environmental Health Safety and Quality (EHSQ) policy and guidelines will govern the project's management of all EHS matters.

The CPL EHSQ policy includes the following principles which will form the basis for the execution of the project:

- Safety, health, quality and care for the environment are foundational principles of our business;
- The safety and health of our colleagues, customers, business partners and communities in which we do business are paramount and are at the forefront of our business objectives;
- Visible leadership and personal accountability for EHSQ exist at all levels in the business.

Within the CPL team there will be a senior manager responsible for EHSQ who will report directly to CPL's Chief Executive Officer (CEO).

Given CPL's contracting strategy, the implementation of EHS management will be largely in the hands of CPL's supply chain both in the Implementation Phase and in the transition to Operations. The performance of CPL's EPC Contractors in respect of EHS will be overseen by the Project Management Contractor (PMC) and by the CPL team with respect to all other aspects.

Whilst CPL, and all other project participants, have general responsibilities for Health and Safety (H&S) under the Health and Safety at Work Act 1974 and for environmental management under the Environmental Protection Act 1990, the key legislation that provides the framework for H&S is, for the parts of the project which are the main responsibility of CPL (i.e. the OPP), the Construction Design and Management Regulations 2015 (CDM) and the Control of Major Accident Hazards Regulations 2015 (COMAH). With respect to the environment, the key regulatory controls for CPL's compliance are provided through the Development Consent Order (DCO) with its various requirements and the Environmental Permit and its conditions.

2.4 Quality Management and Assurance

Refer to section 4.

Quality Assurance (QA) will be undertaken to ensure that project activities are planned, controlled, performed, verified and documented in such a way that all specified contractual requirements are met.

All parties shall apply their own Quality Management System (QMS) for the areas of the project for which they are responsible.

The EPC Contractors will be required to demonstrate compliance with CPL's QA requirements, based on the International Organisation for Standardisation (ISO) Management Systems and the expectations described in the respective EPC Contracts. A fundamental principle of the CPL quality system is for the EPC Contractors to monitor and approve their own work, including that of any of their sub-contractors, and implementation of the quality systems. The PMC will monitor the EPC Contractors' ability to follow approved plans and procedures throughout the entire project, i.e. design, construction, commissioning and completion, and handover, and CPL will undertake a reasonable number of QA audits in order to confirm that activities are being performed in accordance with contract requirements.

Each EPC Contractor will be required to prepare and submit an Inspection and Test Plan (ITP) covering, as appropriate, design, construction, manufacture, installation, testing and commissioning. The PMC, on behalf of CPL, will verify EPC Contractors' performance against the ITPs.

2.5 CPL Project Management

Refer to section 5.

The basic CPL structure for the Implementation Phase consists of four main elements that will manage all aspects of project delivery up to handover into operation. These four elements are:

- CPL, comprising security, EHS, quality, legal and secretariat, and finance;
- CPL Delivery Team;
- Sponsors' office;
- Asset management.

The CPL organisation reports to the Chief Executive Officer (CEO).

The CPL Delivery Team will be responsible for all aspects of delivery of the full chain system, including compliance with all applicable EHS regulations and standards, quality assurance, stakeholder management, engineering management including technical change control and assurance, contract and change management, commissioning management, readiness for operations and project and financial controls.

The CPL Delivery Team will appoint a PMC to manage the EPC Contracts on CPL's behalf with an appropriate Delegation of Authority (DOA).

The Sponsor function covers two key areas for project success: maintaining the integrity of the business case and administration of contracts with DECC as well as any third party equity providers and lenders.

Asset Management will be accountable for the operation of the OPP and will be engaged during the delivery phase to provide operations input into OPP design, testing and commissioning and subsequent plant handover. Asset management also includes trading.

Project governance anticipates a CPL Board structure, a CPL Executive Committee and a supervisory meeting chaired by DECC.

Project management also includes Project Controls and Project Coordination. See sections 11 and 12.

2.6 Stakeholder Management

Refer to section 6.

Stakeholder management aims to take control of the external influences that may impact on project success by developing relationships with stakeholders who will support the project at every interface.

The requirements of stakeholder management activities will feed into project requirements in terms of systems, standards and processes, and will form an integral part of project execution by the CPL Delivery Team.

2.7 CPL Project Delivery

2.7.1 Engineering

Refer to section 7.

CPL's strategy is to maximise the amount of full chain engineering work performed within the EPC contracts and the TSSA. However, it is recognised that there may be some scope or activities which cannot be so included. The CPL Engineering Manager, reporting to the CPL Delivery Director, will fulfil CPL's obligations with regards to the full chain and will have lead responsibility for the chain integration and co-ordination of full chain reviews.

All EPC Contractor scope will comply with the relevant codes and standards in force at Contract award, and with safety, legal and other regulations (local and national), acts and legislation in force in the United Kingdom.

The OPP will be designed in accordance with Good Industry Practice (GIP) to enable it to be constructed, installed, commissioned, operated and maintained in a prudent and safe manner, compliant with UK regulations and legislation. The CDM Regulations 2015 shall govern onshore construction works, including the OPP, onshore pipeline and beach crossing, with the CPL Delivery Team providing the Principal Designer (PD) and NGC providing the PD for the onshore transport system.

The CPL Delivery Team will implement a formal engineering change management process to ensure that a safe and operationally robust design is achieved that allows the project to be executed in accordance with

the project programme, within budget and to meet its operational performance objectives. Respective EPC Contractor engineering changes will be managed by the PMC on behalf of the CPL Engineering Manager, with changes that impact the full chain programme, budget or operational performance referred in the first instance to the CPL Engineering Manager for approval/endorsement and subsequent elevation to the CPL Project Sponsor if required by the DOA.

The CPL Engineering Manager is accountable for assuring design quality for the OPP and interfaces across the full chain. The PMC will undertake assurance of the OPP on behalf of the CPL Engineering Manager.

A Value Engineering process will be implemented with the OPP and Interconnections EPC Contractors targeting improved profitability.

2.7.2 Supply Chain Management

Refer to section 8.

The contracting strategy of CPL, as a special purpose company, is typical of a project financed independent power project. The objective of the CPL contracting strategy is to transfer as great a risk as possible from the special purpose company, its shareholders and creditors into the supply chain through contracts that are typically fixed price, and which deliver to a pre-defined programme schedule.

The CPL Commercial Manager, reporting to the CPL Delivery Director, will be responsible for the placement and administration of all contracts, including trading services agreements for the CPL corporate organisation, supply-side services and works for the CPL Delivery Team and the Operations and Maintenance (O&M) Contract for Operations.

The contract strategy is split into two distinct sections: one dealing with Key Sub-Contracts (including the EPC Contracts) and the other dealing with Non-Key Sub-Contracts. All the Key Sub-Contracts will be executed contemporaneously with the Principal CCS Contracts at or around Financial Close (FC), and the non-Key Sub-Contracts will be let in the Implementation Phase.

The Key Sub-Contracts anticipated are:

- Pre-Notice to Proceed (NTP) Works
- PMC
- Supply-Side Services
- Supply-Side Works
- Power Offtake Services
- CO_2 Offtake Services
- Emissions Trading Services
- Insurance

In addition, there will be a number of service contracts let by CPL including Lenders' advisors (technical, legal, insurance and market), technical facilitation and assurance, audit and accountancy services, public relations and communications, courier services, graphics consultant and legal support.

2.7.3 Commissioning and Start-up

Refer to section 9.

CPL's commissioning strategy, embedded in the EPC Contracts, is designed to minimise the commissioning interfaces between the EPC Contractors. The PMC will co-ordinate commissioning on behalf of CPL.

There are a number of key commissioning issues that will be resolved between the parties prior to finalisation of the supply chain contracts. These items include the 'hot' commissioning of Interconnections and commissioning of the OPP downstream of the Gas Processing Unit (GPU) once the onshore pipeline is available to receive CO_2.

The commissioning plan to be drawn up during the earlier stages of the Implementation Phase will address how EHS matters, and particularly the safety issues, related to commissioning will be handled.

2.7.4 Operations Readiness

Refer to section 10.

Operation of the OPP will be the responsibility of CPL's Asset Manager through the services of a suitably experienced and qualified O&M Contractor. DPL will be responsible for operation of the Interconnections with the Drax Power Plant (DPP), and NGC will be responsible for operation of the T&S.

CPL will mobilise its Operations Team during the Implementation Phase. The OPP EPC Contractor will provide classroom based and on-the-job training for CPL's Operations Team. As part of their training, CPL's Operations Team will participate in commissioning of the OPP under the direction of the OPP EPC Contractor.

The CPL Operations Team will participate in design, safety and operations reviews undertaken by CPL or in those performed by the EPC Contractors in which CPL participates. The CPL Operations Team will be responsible for defining the operational spares holding for the OPP.

The CPL Operations Team and O&M Contractor will begin preparing for the hand-over of responsibility for operation of the OPP in the construction phase. Prior to take-over of the OPP, the CPL Operations Team and O&M Contractor will support the CPL Delivery Team during construction and commissioning. Transition to Operations for the O&M Contractor will commence during their mobilisation phase, while that for the CPL Delivery Team will formally commence during the latter stages of commissioning. The PMC, on behalf of the CPL Delivery Director, will be responsible for ensuring that all systems are fully tested and operational prior to take-over of the OPP, working closely with the CPL Asset Manager.

2.7.5 Finance and Insurance

Refer to section 14.

Finance

In the Implementation Phase, the Finance function will move from focusing primarily on reporting and compliance to serving as an integral part of the management team. The Finance function will support the Company during its construction phase as well as the operations phase by providing critical information and financial analysis for management to make operating decisions, whilst focusing on processes and risk minimisation. The role of the Finance function will also be key to providing the business insight required to prepare financial reporting and analytics to meet investors' and lenders' requirements.

The core finance activities of CPL cover accounting and finance, regulatory and tax compliance, financial control, and risk and funding management.

Insurance

The insurance programmes implemented by CPL and NGC are expected to perform an important role in the overall commercial framework of the White Rose CCS Project in seeking to transfer risk from their respective special project vehicles, being CPL, NGC, their respective shareholders and DECC, and into the commercial insurance markets. The programmes are designed to be complementary to provide suitably integrated insurance cover and associated efficient claims response for the full chain project.

The overall insurance programme and its procurement is based on delay and interruption liquidated damages being payable by NGC to CPL under the TSSA (and vice versa). NGC liquidated damages will be backed by appropriate NGC security in favour of CPL, such as a parent company guarantee.

CPL will procure insurance programmes for the construction phase of the OPP, and separately for the Commissioning, Commercial Proving and Operations phases of the project.

Similarly, NGC will procure a construction insurance programme for the T&S construction phase, and separately an operational insurance programme for the T&S Commercial Proving and Operations phases. Both NGC programmes will incorporate onshore and offshore assets.

NGC will also procure stand-alone cover for offshore Delay in Start-up (DSU) for the construction phase, and separately for offshore Business Interruption (BI) for the Commissioning, Commercial Proving and Operational phases of the project. It is anticipated that both programmes will cover CPL and NGC for their respective risks.

3 Environment, Health and Safety

3.1 General

CPL's EHSQ policy and guidelines will govern the project's management of all EHS matters. However, given CPL's contracting strategy, the implementation of EHS management will be largely in the hands of CPL's supply chain both in the Implementation Phase and in the transition to Operations. The performance of the EPC Contractors in respect of EHS will be overseen by the PMC, and by the CPL team with respect to scope managed by CPL.

Whilst CPL, and all other project participants, have general responsibilities for H&S under the Health and Safety at Work Act 1974 and for environmental management under the Environmental Protection Act 1990, the key regulations that provide the framework for H&S are, for the parts of the project which are the main responsibility of CPL (i.e. the OPP), CDM and COMAH. With respect to the environment, the key regulatory controls for CPL's compliance are provided through the DCO with its various requirements and the Environmental Permit and its conditions.

The approaches that the project will adopt with respect to CDM and COMAH are described below. Based on the project FEED design, the site will be lower tier under COMAH. If during detailed design the quantities of hazardous substances were to change such that the site becomes upper tier, then the requirements within the PEP will be amended to include for the additional obligations that arise on an upper tier site.

3.2 CDM Regulations 2015

There will be three notifiable Projects under CDM Regulations 2015. Each of the OPP, Interconnections and Onshore Pipeline contracts will have a Principal Contractor (PC). This is based on the three scopes of work being mutually exclusive. The OPP site would be fenced off fully from Interconnections and from NGC. Where this is not possible (e.g. at the connection point for export of CO_2 on the OPP site), the responsibility for the work will be clearly under one PC with the other acting solely as a contractor for that work if needed.

CPL will have a PD who will be the same for the OPP and Interconnections EPC Contracts. NGC will have a PD who shall be a different person with the two PDs cooperating over design issues at the interface.

EPC designers will be responsible for passing Pre-Construction Information (PCI) to their EPC construction teams. This shall be copied to the CPL PD so that the PD can be assured that the PCI is being provided.

The EPC Contractors will be responsible for compiling the H&S File for their scope.

CPL's PD will be responsible for:

- Overseeing design H&S matters at the interfaces;
- Ensuring that the EPC designers are providing full and appropriate PCI to their construction teams;
- Providing PCI originating from outside the EPC Contractor to the EPC Contractor;
- Ensuring the H&S Files compiled by the EPC Contractors are acceptable;
- Compiling the overall H&S File from the elements provided by the EPC contractors.

In order to implement the above principles into the various execution contracts PD and PC responsibilities will be assigned to each EPC Contractor accordingly to enable respective works to be segregated with effective coordination and interchange of required information between the parties.

3.3 COMAH

CPL will be the Operator until the long term O&M Contractor is appointed but during the commissioning phase the OPP EPC Contractor will be the Operator. For long term operations, the O&M Contractor will be the Operator as they are a single legal entity and have 'operational autonomy', having the ability to decide whether the plant or any part of the plant is safe to operate and working to their own procedures with the staff of their choosing. CPL will be responsible for the management of change as the Operator changes from the EPC Contractor to the O&M Contractor at take-over.

The Hazardous Substances Consent will need to be updated with final locations and quantities of materials. It is anticipated that the OPP will not have adjacent domino sites.

Site raising is not construction for COMAH purposes. The start of construction is marked by start of foundations.

As a lower tier site, the HSE are in reactive mode and will come to review what CPL have in place for the Major Accident Prevention Policy (MAPP) rather than needing pro-active submissions other than the required Notifications.

Responsibilities will be assigned to each EPC Contractor to ensure that the design, in particular that associated with COMAH hazardous substances, meets GIP and achieves appropriate Safety Integrity Levels (SIL), and to ensure each party collaborates with CPL and the OPP O&M Contractor on design delivery of the SIL. Each party will also collaborate in preparation of an adequate MAPP with no objection from the Health and Safety Executive (HSE).

4 Quality Management and Assurance

CPL's QMS is designed to meet the corporate requirements of CPL for the execution and operation of the White Rose Project. The QMS will:

- Define the framework for delivering work in line with the Quality Policy Statement;
- Provide a set of procedures and documents to enable a consistent approach for delivery of the project objectives;
- Document CPL's methods of work to enable understanding for both the CPL team and external parties, including the EPC Contractors and PMC.

4.1 QA

QA will be undertaken to ensure that project activities are planned, controlled, performed, verified and documented in such a way that all specified contractual requirements are met.

All parties shall apply their own QMS for the areas of the project for which they are responsible.

The EPC Contractors will be required to demonstrate compliance with CPL's QA requirements, based on ISO Management Systems and the expectations described in the respective EPC Contracts. Each EPC Contractor will implement QA arrangements which as a minimum meet the requirements set out in the relevant parts of BS EN ISO 9001:2008. Where the EPC Contractor does not operate under ISO 9000 they are to subcontract the works to a suitably qualified organisation.

A fundamental principle of the CPL quality system is for the EPC Contractors to monitor and approve their own work, including that of any of their sub-contractors, and implementation of the quality systems. The PMC will monitor the EPC Contractors' ability to follow approved plans and procedures throughout the entire project, i.e. design, construction, commissioning and completion, and handover.

For the duration of the project, CPL will undertake a reasonable number of QA audits, (performed on their behalf by an independent body), of EPC Contractors' QA systems in order to confirm that activities are being performed in accordance with contract requirements. The audits will be carried out against the requirements of BS EN ISO 9001: 2008 Quality Management System Requirements.

Each EPC Contractor will be required to prepare and submit an Inspection and Test Plan (ITP) covering, as appropriate, design, construction, manufacture, installation, testing and commissioning. These ITPs will identify specific activities, inspections, testing, CPL witness points and applicable records. The PMC, on behalf of CPL, will visit the EPC Contractors or their sub-contractors' premises and/or audit records to verify that sufficient reviews, checks, and tests are being performed.

5 Project Management

5.1 Organisation and Responsibilities

5.1.1 Basis

CPL's organisation structure for the Implementation Phase has not yet been finalised. The basis of the organisation presented in this document represents definition work carried out with CPL's Technical Advisor but not completed following the withdrawal of CCS competition funding.

The work remaining includes:

- Developing the corporate governance framework and the required corporate and project policy, processes and procedures;
- Finalising the CPL organisation structure with roles, responsibilities and a chart showing by role those Responsible, Accountable, Consulted and Informed (RACI);
- Finalising and executing the strategies to procure the PMC, CPL support and CPL specialist services;
- Developing and executing the strategies required to transition the CPL organisation from the FEED Phase into the Implementation Phase with respect to people, systems and facilities.

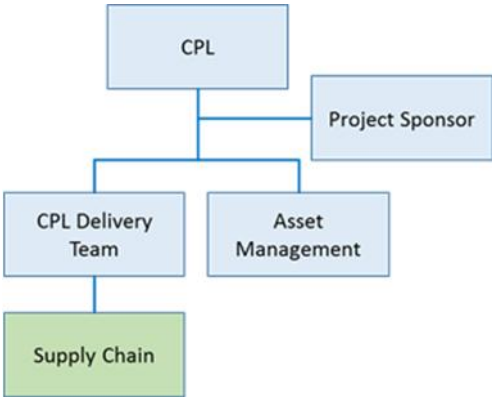
5.1.2 Organisational Structure

The basic CPL structure for the Implementation Phase consists of four main elements that will manage all aspects of project delivery up to handover into operation. These four elements are:

- CPL, comprising security, EHS, quality, legal and secretariat, and finance;
- CPL Delivery Team;
- Sponsors' office;
- Asset management.

A high level organisation structure is shown in Figure 5.1.

Figure 5.1: High Level CPL Organisation Structure



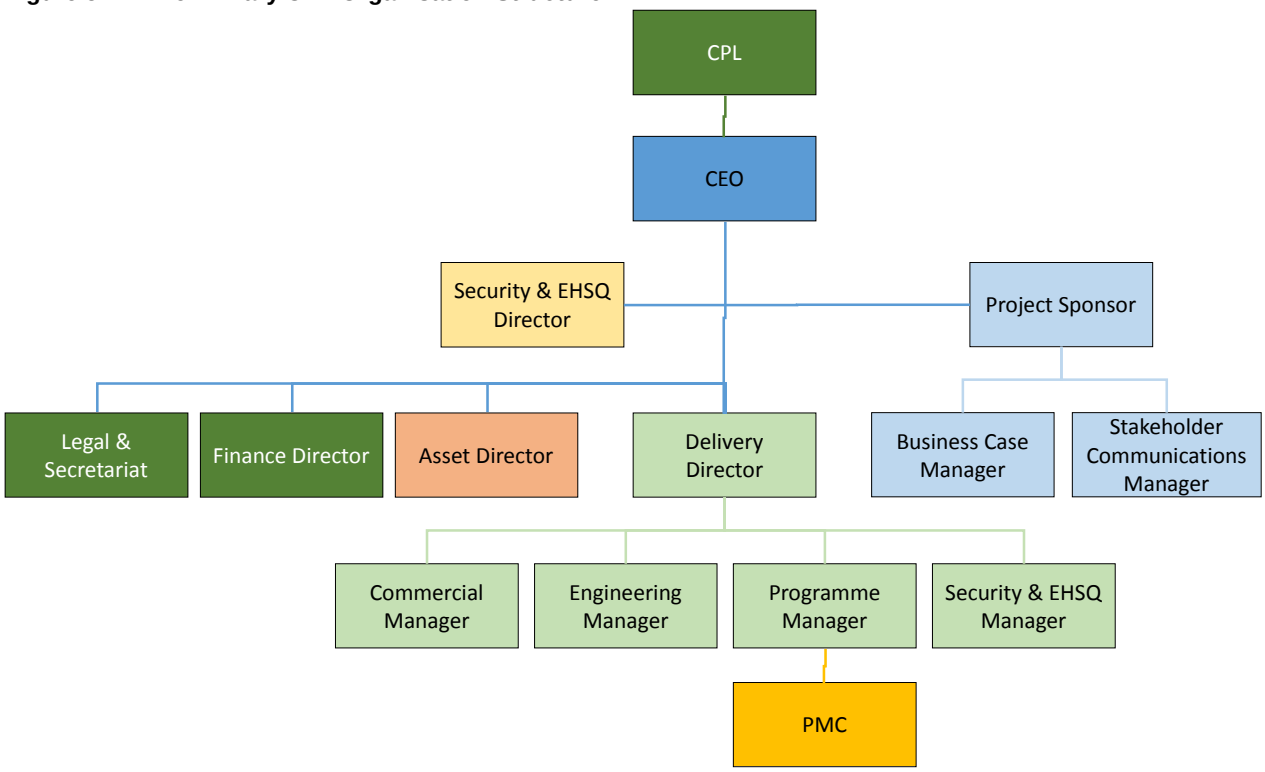
Source: Capture Power Limited

Asset Management is identified as a separate element in the CPL Implementation organisation that will endure and be accountable for operation of the OPP. This recognises the importance of the transition into

Operations and ensures consistent input to the development and stability of OPP delivery, testing, commissioning and subsequent handover. Late introduction of operational input is a common cause of late and expensive project change. Trading is also included within Asset Management.

A first level of organisational structure has been developed for CPL to function as an intelligent client in the HSE sense and to fulfil its obligations in delivering the project benefits. The key elements of the CPL organisational structure are shown in Figure 5.2.

Figure 5.2: Preliminary CPL Organisation Structure



Source: Capture Power Limited

The required primary functional areas reporting to the CEO are:

- Security, EHS and quality;
- Legal and secretariat;
- Finance;
- Asset Management;
- Delivery;
- Sponsors' Office.

Each functional area will be led by a responsible Director and staffed to deliver the accountabilities and responsibilities defined. The CEO will be accountable for the overall successful delivery of the project in accordance with the business case. This includes the interface with the shareholders and funding providers.

The primary flow of information to and from DECC will be through the CPL Project Sponsors' Office with the CEO retaining accountability.

The CPL Project Sponsor function covers two key areas for project success: maintaining the integrity of the business case and administration of contracts with DECC as well as any third party equity providers and lenders.

The CPL Delivery Director will have four key functions: commercial management; engineering management; programme management and management of security; EHS and quality. It should be noted that operational security, EHS and quality management is consciously kept separate from the policy setting and audit function, which will report straight to the CEO and has recourse to the Project Board in accordance with best practice for high hazard sites.

The PMC will be responsible for management of the EPC contracts with appropriate DOA as CPL's representative. The PMC and EPC Contractors will be contractually accountable to the CPL Delivery Director with routine reporting and instructions issued and recorded through the CPL Programme Manager.

The CPL Programme Manager will provide overall management of the non-PMC managed, Non-Key Sub-Contracts and will retain resources sufficient to verify progress and compliance on these contracts that enables appropriate and timely contract management decisions/interventions to be made.

The same principle applies to the CPL Commercial Management workstream in the context of commercial/contract and cost assurance of non-PMC managed, Non-Key Sub-Contracts.

The CPL Engineering Manager will oversee the integrity of the OPP plus its interfaces as a system via configuration control, validation and verification in conjunction with the PMC on a defined hierarchy of work split. The CPL Engineering Manager will also fulfil CPL's obligation with regards to the full chain. That duty includes assessing both CPL's and NGC's identified CCS risks which, if appropriate, will be passed upwards via the CPL Project Sponsor's Office to assemble and either validate or reject the technical and commercial case relative to the overall Business Case.

The CPL Asset Director will work closely alongside the CPL Operations Team and CPL Delivery Team to ensure operational readiness on handover of the project. The CPL Operations Team, led by the O&M Manager reporting to the CPL Asset Director, will provide trained operators to operate and test the plant as directed by the OPP EPC Contractor during plant commissioning. Until the plant is accepted by CPL, the EPC Contractor will retain risk in the commissioning and handover phase. In addition, the CPL Asset Director will be responsible for developing the integrated procedures for full chain commissioning and managing the process to achieve full chain operational readiness.

An Operations Team organisation chart is shown in section 10.

5.2 Staffing

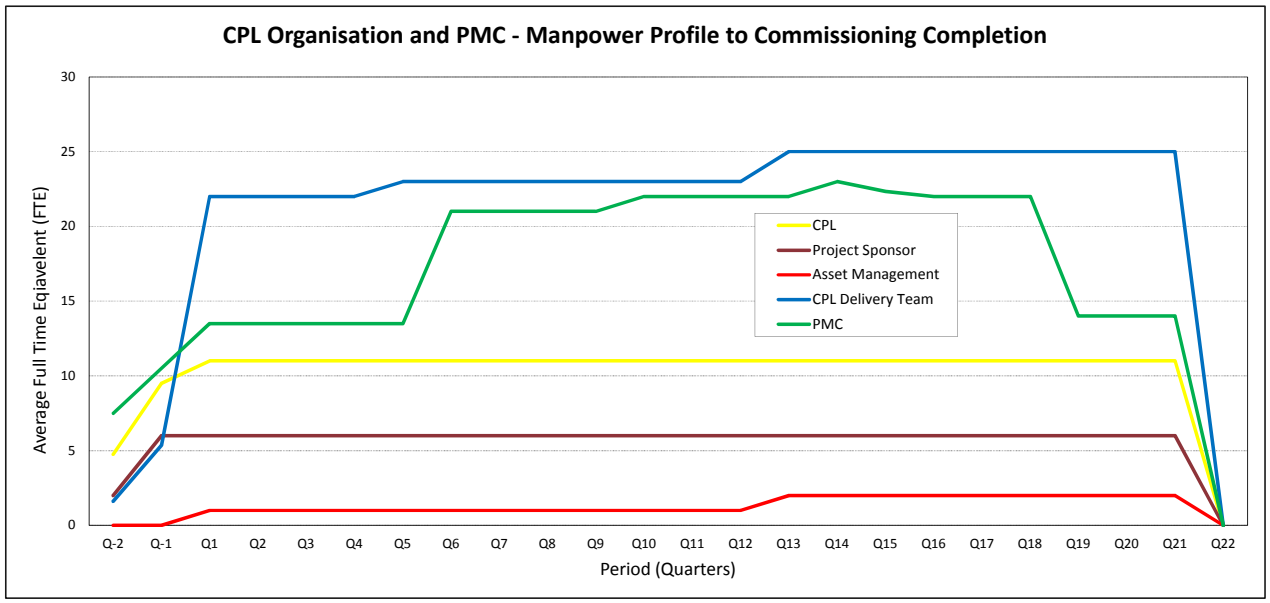
The CPL FEED Team comprises shareholder employed staff engaged as secondees, and consultants either directly contracted by CPL or through an agency. CPL currently has no directly employed resource

within the FEED team. CPL intend to engage long term, key roles on an employee basis with bought-in personnel for the majority of the CPL Delivery Team roles and certain CPL roles.

5.3 Mobilisation

A preliminary manpower plan for the CPL organisation and PMC has been developed. The manpower plan is shown in Figure 5.3.

Figure 5.3: CPL and PMC Organisation Manpower Profile



Source: Capture Power Limited

The ramp-up of the CPL organisation, particularly the CPL Delivery Team, assumes that a significant number of personnel engaged in the FEED Phase will transition to the Implementation Phase. These transitioning personnel are not shown in the chart which implies a steep ramp-up at the start of the Implementation Phase. In reality, the ramp-up is expected to be lower and more manageable.

The first CPL mobilisations occur prior to the start of the Implementation Phase and include overlap of key CPL staff roles not anticipated to transition from the FEED Phase, to allow a timely handover from current incumbents. Later mobilisations are associated with the testing and commissioning phases.

Early PMC management personnel will mobilise prior to the start of the Implementation Phase to input into finalisation of the EPC Contracts prior to award and general familiarisation. The next ramp-up is timed to coincide with the start of major site works, (i.e. not site raising). A further ramp-up for the start of commissioning is anticipated, as well as a ramp-down of technical specialists that will no longer be required during the overall OPP / full chain commissioning period.

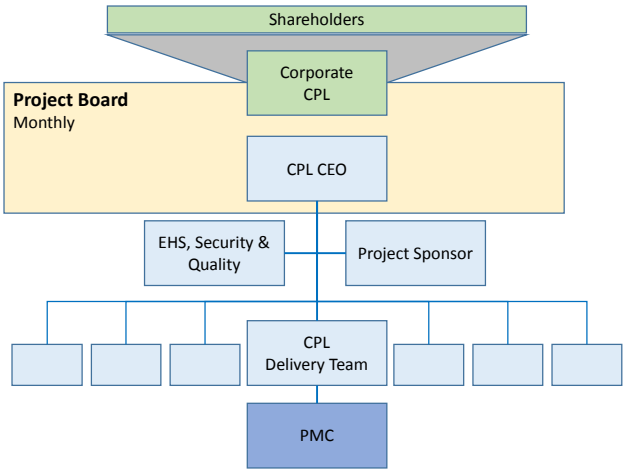
The mobilisation and ramp-up of Operations personnel is discussed in section 10.

5.4 Governance and Delegation of Authority

CPL's governance structure for the Implementation Phase has not yet been finalised. Initial work anticipates two key governance bodies which collectively will provide the high level governance of CPL for White Rose:

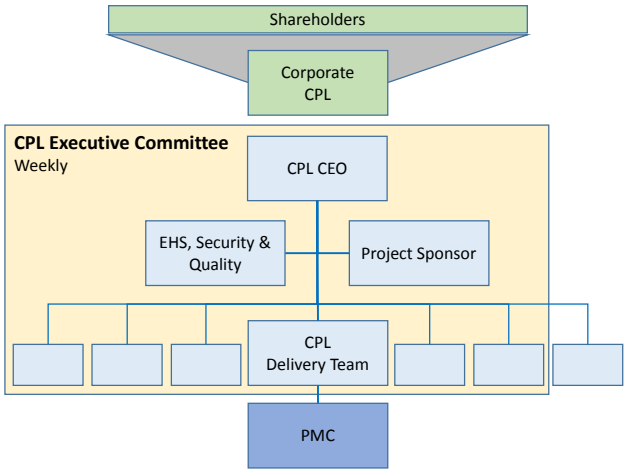
- CPL Project Board (see Figure 5.4)
- CPL Executive Committee (see Figure 5.5)

Figure 5.4: CPL Project Board



Source: Capture Power Limited

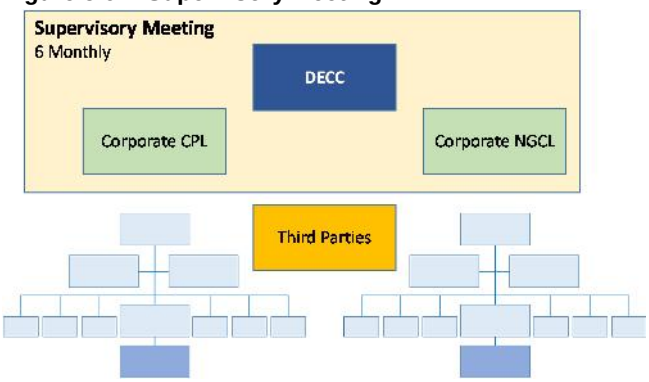
Figure 5.5: CPL Executive Committee



Source: Capture Power Limited

In addition, it is anticipated that DECC will chair a supervisory meeting (see Figure 5.6) to ensure, ex-contractually, that CPL's and NGC's responsibilities towards delivering the project remain additive and efficient. This body will assure a climate for success founded upon a project charter pre-agreed between the parties towards the common purpose of the project.

Figure 5.6: Supervisory Meeting



Source: Capture Power Limited

A Governance Plan will be developed with the primary function of regulating the controls that apply to the operation and management of CPL, the DOA and the corresponding signatory authorities for commitments. It is expected that a limited DOA will be given to the PMC to act as CPL's representative in managing the EPC Contracts, including the authority to enforce contract compliance and respond to certain contractual matters.

Detailed control and management of activities between the CPL Project Board, the CPL Delivery Team and the PMC will be provided through a series of policies, processes and procedures where:

- Policy - Business rules that ensure consistency and compliance with strategic direction;
- Process - Discrete and/or interrelated activities that produce a specific functional output which also identifies who is accountable and/or who is responsible for performing the process (or part thereof), what major functions are performed and when the activity is triggered;
- Procedure - Specific instructions necessary to perform a part of a Process (activity) that states what steps are performed, who performs them and how they are performed.

The responsibility for authoring and maintaining policy, process and procedure will cascade throughout the implementation organisation in line with the relative roles and responsibilities of each element. Certain policies will be developed and incorporated into at least the major supply chain contracts, for example the PMC and EPC Contracts, so that integration and consistency is established as a clear contractual obligation. This way, the project starts off under proper control which has a major influence on ultimate success.

5.5 Review Processes

While the EPC Contractor will be responsible for the management and control of all phases of their work, CPL will identify those documents from the Master Document List that it wishes to review and comment on. In addition, CPL will define certain inter-disciplinary reviews to allow continuous quality control of engineering. As a minimum the following engineering reviews are anticipated:

- Concept freeze;
- Process Mass Flow diagram (PMF) screening;
- Plot plan review;
- Constructability reviews;
- Piping and Instrument Diagram (P&ID) reviews;
- Hazardous Operations (HAZOP) reviews;
- Area classification drawing review;
- 3D model reviews;
- Pre- start-up safety assessment;
- Agreement of design freezes at appropriate stages.

5.6 Monitoring and Auditing of PMC

To ensure that the PMC performs their project controls role in accordance with Contract requirements, and to assure that the information provided is accurate, reliable and timely to allow the CPL Delivery Team to make informed decisions, the CPL programme manager will undertake the following assurance activities:

- Monitor PMC resourcing to ensure competency and experience requirements are met;
- Review and endorse PMC project controls procedures to ensure alignment with CPL Delivery Team processes and procedures, and that use of industry best practices is considered / implemented where appropriate;
- Perform periodic audits of PMC project controls procedures to assure these are implemented and understood where appropriate in the PMC organisation and that any deliverables produced by the PMC are fully compliant with the procedures;
- Perform periodic sampling of PMC data in all disciplines to assure accuracy, integrity and traceability and ongoing compliance with relevant procedures.

5.7 Risk Management

Appropriate risk management is a key enabler for the realisation of CPL's business objectives including an on-time and in-budget delivery of the project, requiring a risk management process that would be implemented from the start of project construction to completion of full chain testing, under the responsibility of the CPL Programme Manager. The risk management process covers all of CPL's activities pertaining to implementation of the full chain project, including EHS, cost, programme and performance.

5.7.1 Team Empowerment

CPL's staff (and advisors and contractors) will be encouraged to manage risks actively. Personal and team objectives established as part of mobilisation for the Implementation Phase or subsequently will include the significance of risk management and ownership to individual, project and business success.

5.7.2 Systematic Handover of Risks from the FEED Phase

Hand-over workshop(s) organised for transferring key knowledge from the FEED to the CPL Delivery Team will facilitate a discussion on project risks across all work-streams. The discussion shall cover risk details and mitigation planning as established as a part of FEED activities and shall not be limited to risks logged in the FEED stage project risk register. The hand-over workshop shall additionally include a discrete session reviewing the FEED stage project risk register. Specific actions from the individual sessions shall be recorded as necessary.

5.7.3 Risk Reporting

Formats and templates establishing reporting requirements from Key Sub-Contractors and other contractual counterparties, (as appropriate), will either be included in respective EPC Contracts or established in the initial weeks after the effectiveness of those contracts.

The PMC will be responsible for implementing risk management requirements with the EPC Contractors, and subsequent review and validation of EPC Contractor risk processes, procedures and risk registers on behalf of the CPL Delivery Team.

Whilst relevant members of the CPL Delivery Team assigned to specific areas remain responsible for oversight, review and management of risks reported by the EPC Contractors or others, risks above a pre-defined threshold (to be prepared as a part of project mobilisation activities) shall be logged and managed in CPL's central project risk register.

5.7.4 Risk Identification, Assessment and Management

Key risks to CPL's business plan and the project shall be logged in a central project risk register managed by professional risk management software. Visibility of all significant risks that could impact CPL is essential irrespective of whether the primary ownership is with a contractual counter-party or with the CPL organisation. The CPL organisation shall be free to suggest inclusion of new risks in the register at any point in time. A decision whether to include or not include a risk in the central project risk register will not obviate the requirement for clear ownership and active management of all identified risks. A requirement for the regular updating of risk status will be established through the risk management software. Risk workshops bringing together key CPL Delivery Team staff, CPL Project Sponsor and advisors shall be conducted at regular intervals, facilitated by the CPL programme manager. The frequency of these workshops may vary during the different project phases. Identified CCS or business case risks will be discussed with the CPL Project Sponsor and if appropriate elevated to the CPL Executive Committee.

5.8 Scope Management

The full delivery scope for the project has been allocated to the various contracting parties and, where not CPL, included in the relevant supply chain contracts. The DoW schedule is owned by the CPL Delivery Director. Any change to the DoW will be managed through CPL's MOC process.

5.8.1 Interface Management

The CPL Delivery Team will be responsible for coordinating the interfaces between the various EPC Contractors tasked with constructing the works. CPL's Delivery Team will assign this co-ordination responsibility to the PMC. The contracting strategy for project execution adopted by CPL minimises the number of interfaces between contracting parties as there are only four organisations with construction responsibilities, namely:

- The Enabling Works EPC Contractor;
- The Interconnections EPC Contractor;
- The OPP EPC Contractor (including Air Separation Plant (ASP));
- NGC for the onshore pipeline.

All other interfaces lie within those scopes and will be the responsibility of the relevant EPC Contractor to manage.

There are four types of interfaces that need to be managed:

- The physical Terminal Points (TP);
- General design issues;
- Construction management;
- Commissioning.

Physical TPs

Each of the TPs between the EPC Contractor scopes has been identified during FEED and the requirements (process conditions, location, physical description and construction responsibility) embedded in 'mirror fashion' in the supply chain contracts. Where it has not been possible to be absolutely specific at this time, (e.g. the exact geospatial location of a TP), these will be finalised through the general design co-ordination process. Any change requested to any of the specified TP parameters that arises during detailed design will be managed through CPL's MOC process.

General Design Issues

Through the regular co-ordination meetings organised by the PMC, any issues arising from detailed design that have the potential to impact another party will be identified and appropriate actions agreed. If necessary, depending on the nature of the issues and agreed actions, the CPL MOC process will be triggered.

Construction Management

The management of the interfaces between the parties during construction will be determined by the approach to CDM identified in section 3.2.

Commissioning

The commissioning strategy embedded in the supply chain contracts is designed to minimise the commissioning interfaces between the EPC Contractors. The PMC will co-ordinate commissioning on behalf of CPL through the use of a Joint Commissioning Board (JCB). Up to the point that CO_2 enters the NGC onshore transport system, the chairmanship of the JCB will lie with the OPP EPC Contractor as being responsible for the OPP. After that point, chairmanship will pass to NGC. For further details on the approach to commissioning, refer to section 9.

5.8.2 Consenting

All permits and consents required for the execution and operation of the project will be logged in a project Permits and Consents register. The project Permits and Consents register will be maintained and reviewed on a regular basis.

All conditions and requirements pertaining to consents and other agreements entered into by CPL prior to the start of the Implementation Phase are tabulated in the project Permits and Consents register. The responsibility for compliance in each case has been allocated to a contracting party and included in the relevant supply chain contracts. Any change to the register will be managed through CPL's MOC process.

Most consenting obligations will be transferred to the EPC Contractors through their respective contracts, however some will remain the responsibility of CPL to obtain and maintain. Visibility of all permits and consents that could impact CPL is essential irrespective of whether the primary ownership is with a contractual counter-party or with the CPL organisation.

The PMC will be responsible for review and validation of EPC Contractor progress in obtaining and maintaining their assigned consents and permits.

5.9 Critical Success Factors / Key Performance Indicators

The EPC Contractors will work in accordance with the requirements of their contracts to CPL and will deliver in accordance with the specifications, milestones and other delivery criteria specified therein. It is, however, essential for the CPL team in its various elements that there is a common and aligned view of success with each group and individual incentivised, as necessary, in a manner that aligns to it.

Prior to FC, at the point where the commercial structures are finalised and the financial model embedding the business case is fixed, the CPL Board will agree a number of Critical Success Factors (CSFs) and Key Performance Indicators (KPIs) to align CPL corporate behaviour and provide a basis for any agreed team/individual incentives.

At this stage it is sufficient to identify the areas these will cover:

- EHS - excellent EHS performance has already been identified as a CSF for the project. The KPIs will consider both leading and lagging indicators;
- Plant Performance - designed to optimise the project in respect of the commercial commitments and business case;
- Cost - minimising the use of contingency;
- Programme - achieving the agreed overall milestone dates.

The CPL Board will also provide guidance on the balance between these different CSFs.

6 Stakeholder Management

Stakeholder management aims to take control of the external influences that may impact on project success by developing relationships with stakeholders who will support the project at every interface.

Stakeholder management has been undertaken on various consenting activities including for the DCOs for the OPP and onshore pipeline, environmental permits and Storage Permit.

The requirements of stakeholder management activities will feed into project requirements in terms of systems, standards and processes, and will form an integral part of project execution by the CPL Delivery Team.

Stakeholder planning covers CPL's engagement strategies and will identify deliverables and stakeholder mapping for each key stakeholder within the groups identified below:

- Regulators;
- EU and UK Government;
- Funding Institutions;
- Suppliers;
- Customers;
- Consumers/Consumer Associations;
- Adjacent property owners, businesses, and projects;
- Communities;
- Special interest groups, pressure groups, Non-Governmental Organisations (NGO);
- Media.

Any of the stakeholders identified above could be engaged through a variety of processes including for example, prescribed consultees on consenting, as supporters or influencers on the project, or as contracting parties with the project. Table 6.1 below identifies the key stakeholders within the groups above.

Table 6.1: Key Stakeholders

Stakeholder Group	Key Stakeholders
Regulators	• HSE • Environment Agency • Civil Aviation Authority • Highways Authority • Office of Rail Regulation and Approved Operators • Gas and Electricity Market Authority • Internal Drainage Board
EU and UK Government	• DECC, Treasury, Department of Business, Innovation & Skills (BIS) and other Departments as necessary • Local Members of Parliament (MPs), Members of European Parliament (MEPs), members of the House of Lords, members of relevant Select Committee's and All Party Groups • Committee on Climate Change • European Commission departments dealing with climate change and energy including Climate Action (CLIMA) and Energy (ENER)
Funding Institutions	• Green Investment Bank

Stakeholder Group	Key Stakeholders
	• Infrastructure UK • Societé Generale • European Investment Bank • European Energy Programme for Recovery (EEPR) • Export Credit Agencies (ECA) • Potential investors and lenders
Suppliers	
Customers	
Consumers / Consumer Associations	
Adjacent property owners, businesses and projects	• Residents living in the vicinity of the OPP project site • Landowners, agents and tenants along the route of the onshore pipeline • Sargas Power • Teesside Collective
Communities	• North Yorkshire County Council • East Riding of Yorkshire Council • Selby District Council • Doncaster Metropolitan Borough Council • Other County, District, Parish and Town Councils as necessary • Local Enterprise Partnerships (LEP) • Homes and Communities Agency • Commission for Rural Communities
Special interest groups, pressure groups, NGOs	The following is a list of organisations that have been involved in the project in some form, stakeholder management will include these and additional organisations identified during project implementation; • Area of Outstanding Natural Beauty (AONB) Conservation Boards • Joint Nature Conservation Committee • Canals and Rivers Trust • Commission for Sustainable Development • Centre for Ecology and Hydrology • Friends of the Earth, Greenpeace • Royal Society for the Protection of Birds (RSPB) • Natural England • Zero Emissions Platform (ZEP), Bellona, Carbon Capture and Storage Association (CCSA), Energy Technologies Institute • Confederation of British Industry (CBI) • Trades Unions Congress (TUC) • North Sea Commission (NSC) • The Crown Estate • Port Authorities, Humber Estuary European Marine Site, The North Eastern Sea Fisheries Committee, The British Chamber of Shipping, North Sea Basin Task Force (NSBTF), North Sea Offshore Authorities Forum (NSOAF), British Waterways Ltd • Campaign for the Protection of Rural England (CPRE) • World Wildlife Fund (WWF) • E3G, Green Alliance, Renewable UK

Stakeholder Group	Key Stakeholders
	• Humber Renewables Network, Hull and Humber Chamber of Commerce, Industry and Shipping, Hull Environment Research Institute
	• Yorkshire Wildlife Trust
	• Forestry Commission
	• Local campaign groups
Media	• UK national newspapers
	• Selby Post, Selby Times, Goole Courier, The Press Selby and Tadcaster Edition, Yorkshire Post, Yorkshire Evening Post
	• National and local TV and radio
Other	• Strategic Health Authorities
	• Historic Buildings and Monument Commission
	• Fire and Rescue Authority
	• Police Authority
	• Commission for Architecture and the Built Environment
	• Equality and Human Rights Commission
	• Highways Agency
	• Passenger Transport Executive
	• Disabled Persons Transport Advisory Committee
	• Coal Authority
	• Health Protection Agency
	• Network Rail
	• Forestry Commission
	• Airport Operators, Port Operators
	• British Geological Survey
	• British Waterways
	• Commission for Racial Equality
	• Freight Transport Association
	• Other prescribed consultees under the DCO for the OPP or onshore pipeline not listed elsewhere.

Source: Capture Power Limited

6.1 Power / Influence Grid

A Power / Influence grid maps and classifies the stakeholders in terms of their power over the project and their influence on it.

The stakeholder position on the grid drives the actions taken to engage with them:

- High Power – High Influence: the stakeholders who CPL must fully engage with and make the greatest efforts to satisfy noting their capability to influence others;
- High Power – Low Influence: the stakeholders who CPL must engage with enough to keep them satisfied commensurate with their level of influence;
- Low Power - High Influence: the stakeholders that CPL must keep adequately informed and consulted to ensure that no major issues arise;
- Low Power – Low Influence: the stakeholders that CPL must monitor and engage with at an appropriate level to ensure their level of interest is maintained.

The Stakeholder Management Plan, Communication Plan and Stakeholder Power/Influence Grid will be regularly reviewed as stakeholder power and influence may shift during the project or in response to other external factors, e.g. political issues, initiatives in the industry as a whole, safety incidents etc.

6.2 Communications

A communication plan will outline how communications will be maintained; who CPL talks to, about what and when. The following sections describe how communications are anticipated to be managed.

6.2.1 Internal Communications within CPL

Communication with the CPL Board will be via the CEO.

Communications between CPL personnel will be by any appropriate method. Decisions, actions and other important information should be copied to all relevant staff, and stored and/or recorded in the CPL Electronic Document Management System (EDMS).

6.2.2 Communication with EPC Contractors and NGC

Communications relating to the delivery of the project should always be copied to the relevant CPL EPC Contract Manager and the CPL Delivery Director.

Significant communications and notifications will be assigned a correspondence number and stored and/or recorded in the CPL EDMS.

Communications can be by any appropriate method.

6.2.3 Communication with DECC

Contractual communications with DECC will be via the DECC Huddle system.

Other communications can be by any appropriate method, but should always be copied to the CPL Stakeholder Communications Manager and DECC Contract Manager.

A communications team will be established, reporting to the CPL Stakeholder Communications Manager, to be responsible for all public communications including gaining agreement from DECC for all public statements, (any requirements for approval of public statements will be as agreed in the Project Contract). The communications team will also be responsible for maintenance of the White Rose website.

6.2.4 Communication with other External Parties

Communication can be by any appropriate method. Decisions, actions and other important information should be copied to all relevant staff in CPL, and stored and/or recorded in the CPL EDMS.

All communications with external parties will be in compliance with any requirements agreed in the Project Contract.

6.3 Industrial Relations

As a significantly large power plant construction site, CPL has decided that it will bring the site within the terms of the National Agreement for the Engineering Construction Industry (NAECI) agreement, being nominated a Category 1 site. The lead on all matters relating to Industrial relations (IR) will be with the OPP EPC Contractor.

7 Engineering

7.1 Full Chain Engineering Management

CPL's strategy is to maximise the amount of full chain engineering work performed within the EPC contracts and the TSSA. However, it is recognised that there may be some scope or activities which cannot be so included.

The CPL Engineering Manager, reporting to the CPL Delivery Director, will fulfil CPL's obligations with regards to the full chain and will have lead responsibility for the integration and co-ordination of full chain reviews.

The CPL Engineering Team, reporting to the CPL Engineering Manager, will be the primary resource for the full chain integration work for which CPL is directly responsible, and the PMC will review that for which the EPC Contractors are responsible and for which the CPL Engineering Manager is accountable.

7.2 Engineering Standards and Specifications

All EPC Contractor scope will comply with the relevant codes and standards in force at Contract award, and with safety, legal and other regulations (local and national), acts and legislation in force in the United Kingdom.

In addition, EPC Contractor scope will be required to comply with the particular codes and standards specified in the Contract. Such codes and standards will be the latest editions with applicable addenda and code cases in effect on the Contract award date. Application of subsequent addenda and code cases published after Contract award will be subject to agreement between CPL and respective EPC Contractors.

7.3 Design Safety

The OPP design completed in FEED will enable it to be constructed, installed, commissioned, operated and maintained in a prudent and safe manner. The FEED design will be further refined during detailed engineering in the Implementation Phase. The facilities shall comply with UK regulations and legislation.

The design and layout of the OPP will be reviewed, initially through Hazard Identification studies (HAZID), and then through Hazard and Operability studies (HAZOP) in order to identify and evaluate problems that may represent risks to personnel or equipment, or prevent efficient operation. Actions from the HAZOP will be assigned, tracked, and their resolution reflected in the as-built design.

The CDM Regulations 2015 shall be applied to onshore construction including the OPP, onshore pipeline and beach crossing, with CPL providing the PD for the OPP and NGC providing the PD for the onshore Transport system.

Sub-Contractors shall also comply with CPL's and their own safety, health and environmental policies.

7.4 Engineering Change Management

The CPL Delivery Team will implement a formal engineering change management process. The process will manage design development change to ensure that a safe and operationally robust design is achieved that allows the project to be executed in accordance with the project programme, within budget and to meet its operational performance objectives.

Changes will be carefully assessed to ensure that they add value; following this the timing of implementation will be assessed and a decision made on whether to implement.

Respective EPC Contractor engineering changes will be managed by the PMC on behalf of the CPL Engineering Manager, with changes that impact the full chain programme, budget or operational performance referred in the first instance to the CPL Engineering Manager for approval/endorsement and subsequent elevation to the CPL Project Sponsor if required.

Engineering changes associated with the T&S system identified by NGC under the TSSA which have the potential to impact the full chain process will be subject to the same level of change control as for the EPC Contracts, managed by the CPL Delivery Team.

7.5 Engineering Assurance

The CPL Engineering Manager is accountable for assuring design quality for the OPP and interfaces across the full chain. The PMC will undertake assurance of the OPP on behalf of the CPL Engineering Manager. The CPL Engineering Team, reporting to the CPL Engineering Manager, are responsible for assurance of the interfaces across the full chain.

Assurance activities will be risk based and derived through criticality assessment of all packages and equipment. Criticality ratings will be used to determine the required level of design verification, procurement and construction quality requirements and will be included in the project Assurance Plan.

7.6 Value Engineering

A Value Engineering process will be implemented with the OPP and Interconnections EPC Contractors targeting improved profitability.

The CPL Delivery Team, in conjunction with the CPL Project Sponsor, will define the value factors to be used to assess any value engineering options that impact the project programme or operational performance.

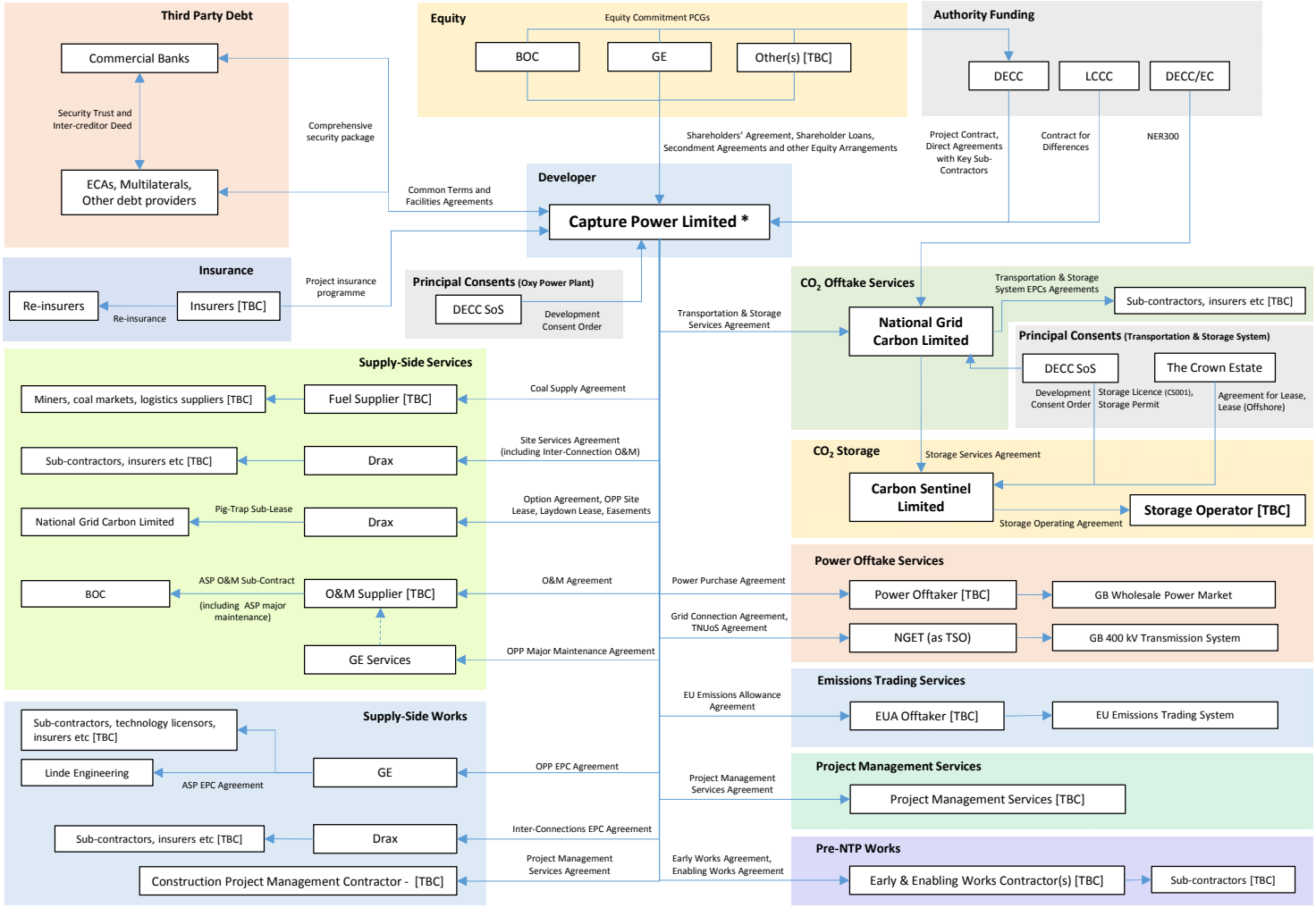
Value management will be managed on behalf of the CPL Engineering Manager by the PMC, with changes that impact the project programme, budget or operational performance referred in the first instance to the CPL Engineering Manager for approval/endorsement and subsequent elevation to the CPL Project Sponsor if required.

8 Supply Chain Management

8.1 Overview and Contracting Map

The contracting strategy of CPL, as a special purpose company, is typical of a project financed independent power project. The objective of the CPL contracting strategy is to transfer as great a risk as possible from the special purpose company, its shareholders and creditors into the supply chain through contracts that are typically fixed price and scope, and which deliver to a pre-defined programme schedule.

Figure 8.1: White Rose CCS Project Contracting Map



Source: Capture Power Limited

Pre-NTP Works

Enabling works performed at the OPP site prior to CPL issuing the NTP to its supply-chain Key Sub-Contractors following FC.

Construction Management Services

A PMC will be appointed to provide professional management services to assist CPL in the co-ordination of the various construction works during the Implementation Phase.

Supply-Side Services

The supply of several services to CPL for the O&M of the OPP.

Supply-Side Works

Works required to deliver the CPL OPP and the inter-connecting media between the OPP and the host Drax site.

Power Offtake Services

The purchase of the CPL net electrical output for sale on the wholesale market, and including the provision of certain power trading services.

CO_2 Offtake Services

Works required to implement the T&S system.

Emissions Trading Services

The procurement of those emissions permits from the European Emissions Trading System (EUETS) required for the CO_2 not captured in the OPP and subsequently emitted to atmosphere.

Insurance

A project insurance programme covering both the Implementation and Operational Phases of the OPP, further details of which are provided in section 14.3.

8.2 Contracting Strategy

The contract strategy is split into two distinct sections; one dealing with Key Sub-Contracts (including the EPC Contracts) and the other dealing with Non-Key Sub-Contracts. The aim is that all the Key Sub-Contracts will be executed at or around FC, and the non-Key Sub-Contracts will be let in the Implementation Phase.

8.2.1 Key Sub-Contracts

This section sets out CPL's current strategy for the procurement/execution of the Key Sub-Contracts for the equipment and services required for the Implementation Phase. The strategy represents CPL's current thinking and is subject to change and/or development as the project evolves.

The strategy separates the Key Sub-Contracts into groups as represented in Figure 8.1, and provides for a specific procurement/contract execution method to suit each individual group. A list and summary of the groups is provided below.

Supply-Side Services

These contracts will be a mix of contracts based on bespoke market-price commodity agreements, manufacturer's standard maintenance/service agreements, and bespoke service agreements most of which will be put out to tender on a competitive basis.

Supply-Side Works

This will consist of (a) a single fixed price EPC contract for the OPP based on the FEED Phase work carried out by CPL and negotiated with GE on a 'sole supplier' basis, and (b) a single fixed price EPC contract for Interconnections let to Drax, based on the FEED Phase work carried out by CPL and negotiated on a 'sole supplier' basis.

Power Offtake Services

These contracts will be based on one or more bespoke market-priced agreements put out to tender on a competitive basis.

Offtake Services (CO_2)

This contract will be a bespoke agreement let to NGC, based on the FEED Phase work carried out by CPL and NGC and negotiated on a 'sole supplier' basis.

Construction Management Services

The PMC contract will be based on a modified industry standard agreement, put out to tender on a competitive basis.

8.2.2 Non-Key Sub-Contracts

The CPL organisation will carry out the purchasing function for all Non-Key Sub-Contracts executed by CPL during the Implementation Phase of the project supported by the appropriate legal resource located within the CPL organisation. The purchasing activity, including any contract award, will be:

- Informed by CPL's Implementation Phase Procurement Procedure;
- Guided by CPL's Code of Ethics: Gifts and Hospitality procedure;
- Authorised in accordance with CPL's Delegation of Authority procedure.

A cross-functional team of the appropriate size may be formed to action a procurement activity depending on the size and complexity of the task and may incorporate personnel from the following functions in addition to procurement and legal: engineering, commercial management, project management, cost management, quality, EHS, and Operations.

It is envisaged that all CPL Non-Key Sub-Contracts will be put out to competitive tender and that the process will be divided into the following four sections:

- Sourcing analysis;
- Requisition/demand management;
- Pre-contract activities;
- Post-contract activities.

Sourcing Analysis

This is a continuous process which draws on the organisation's and employee's historic purchasing data, market intelligence, and wider purchasing knowledge/experience in conjunction with the forward purchasing plan as set by the project to ensure the appropriate purchasing resources, plans and policies are in place.

Demand Management

This recognises that the non-Key Contracts will consist mostly of planned activities but there may be a requirement for flexibility of resource to deal with any contract requirement which arises sporadically or in response to unpredictable events.

Pre-Contract activities

This will consist of a number of activities including:

- Identification of the need/production of a specification;
- Procurement plan;
- Market testing and/or development;
- Issue Invitation To Tender (ITT);
- Evaluation of Supplier/Tender;
- Post tender negotiation/contract drafting and award.

Post-Contract activities

This will consist of a number of activities including:

- Contract administration, including ensuring compliance with contract terms and obligations, change management and formal communications;
- Contract close-out.

8.3 Contract Management

8.3.1 Organisation

Contract management during the project implementation phase will be supported by all three elements of the CPL organisation structure:

- The CPL corporate organisation will incorporate the Legal and Secretariat functions, and will endure post implementation of the project;
- The CPL corporate asset management organisation will incorporate the Asset Management, O&M and Trading functions, and will endure post implementation of the project;
- The CPL Delivery Team will incorporate the project, commercial, engineering, programme, EHS, security and quality management functions for the Implementation Phase of the project only.

The PMC will manage the Enabling Works, OPP and Interconnections EPC Contracts, and will themselves be managed by the CPL Delivery Team.

The appropriate part of the organisation will take the lead on each contract and be responsible for ensuring delivery of such. In some cases another part of the organisation will be accountable for the contract delivery (although will not be responsible for delivery of such) and relevant other parts of the organisation will be consulted on the progress of such contracts.

The three elements of the organization will include and make available the required resources and functions to support contract management of the contracts described above.

8.3.2 Key Sub-Contracts

The following proposed Key Sub-Contracts, to be entered into between CPL and the relevant supply chain party, will incorporate relevant commercial, technical and financial parameters in line with the appropriate terms and conditions in the Project Contract and the Contract for Difference (CfD) developed during the FEED Phase of the project, and, where appropriate, translated into the individual Heads of Terms (HoT). These contracts are all planned to be placed at or around FC.

8.3.2.1 Pre-NTP Works

It is expected that the OPP EPC Contractor and Drax will also be responsible for certain early works and activities, including enabling works for the OPP site and the construction laydown areas.

The approach with regards to the contractual undertaking and timing of the required OPP site raising works is currently under consideration but it is envisaged that it will, as the OPP EPC, be let on a fixed price/fixed time turnkey basis, for the design, engineering, procurement, construction, testing, and completion of such Pre-NTP Works, and be based on the International Federation of Consulting Engineers (FIDIC) turnkey contract with appropriate amendments. This will enable it to be “married-up” to the later let EPC Contract.

8.3.2.2 Construction Management Services

The PMC contract will be based on a modified industry standard contract and put out to tender on a competitive basis. The PMC Contract will be managed in accordance with respective contract terms and conditions by the CPL Delivery Team.

8.3.2.3 Supply-Side Services

Coal Supply Agreement

One or more Coal Supply Agreements (CSA) will be required which address the two main pricing components expected in the terms of the CfD; the commodity price as delivered on a Cost, Insurance and Freight (CIF) basis to continental Europe, and the transportation element to the site.

The commodity element will be a bespoke market priced commodity contract with the price based on the international coal index (API 2). This will be put out to tender on a competitive basis.

The transportation element will also be put out to tender on a competitive basis and may be fully or partially wrapped into the commodity contract, contracted separately in a single stand-alone agreement with a single provider, or broken down into component parts and contracted as multiple stand-alone agreements with different providers e.g. providing port capacity, storage and handling, and one or all of the various elements of rail transport (track access, provision of wagons, haulage etc.).

In principle a single supplier or limited number of suppliers is likely to be preferred for simplicity and contractual certainty, but the cost, risk and benefit of different arrangements will be assessed during the contracting phase.

Site Services

This contract will be a bespoke services agreement which will be a single source negotiation with Drax.

OPP Site Property Agreements

The required property rights including but not limited to the OPP Lease, Pig Trap Lease, Laydown Areas Leases and Easements will either be negotiated and concluded in the usual business manner, or made available through the compulsory acquisition rights afforded to nationally significant infrastructure projects which have a DCO.

O&M of the OPP, ASP, and Interconnection Works

The Operator will be responsible for operating, maintaining, repairing and administering the OPP and ASP during the operational period. Drax will be responsible for same under a separate Contract for the Interconnection Works. The O&M contract will be put out to the market on a competitive tender basis.

8.3.2.4 EU Emissions Allowances Agreement

The EU Emissions Allowances Agreement (EUEAA) will be based on a bespoke market priced commodity contract and put out to tender on a competitive basis in conjunction with the Power Purchase Agreement (PPA). The contract will be matched as far as possible to align with the PPA.

8.3.2.5 Supply-Side Works

Fixed Price OPP EPC Contract

The OPP EPC Contractor will be responsible on a fixed price/fixed time turnkey basis, for the design, engineering, procurement, construction, commissioning, testing, completion and setting into operation of the OPP.

The OPP EPC Contract will be based on the FIDIC Turnkey Contract – Conditions of Contract for EPC/Turnkey Projects, 1st Ed. (1999) (the "Silver Book") with appropriate amendments thereto, although it is envisaged that this will be an integrated contract and not drafted as a schedule of amendments to the Silver Book. The OPP EPC contract will be negotiated on a 'sole supplier' basis with GE.

The OPP EPC Contractor will enter into sub-contracts in relation to the provision of the Works with the following parties:

- ASP sub-contractor in respect of the design, engineering, procurement, commissioning, testing, completion and setting into operation of the ASP;
- Certain specified approved sub-contractors in respect of the Interconnection Works.

The OPP EPC Contract will be managed in accordance with respective contract terms and conditions by the PMC on behalf of the CPL Delivery Team.

Interconnections EPC Contract

The Interconnections EPC Contractor will be responsible on a fixed price/fixed time turnkey basis, for the design, engineering, procurement, construction, commissioning, testing, completion and setting into operation of the interconnections.

The Interconnections EPC Contract will be based on a single source negotiation with Drax.

The Interconnections EPC Contract will be managed in accordance with respective contract terms and conditions by the PMC on behalf of the CPL Delivery Team.

8.3.2.6 Power Offtake Services

Power Purchase Agreement

The PPA (or potentially PPAs) will be put out to competitive tender and is/are likely to be based on the standard market priced commodity contracts offered by the various counterparties (generally consistent with the Grid Trade Master Agreement or International Swaps and Derivatives Association Part 6) but customized for a long-term offtake contract and as required to dovetail with the CfD and Project Contract terms and agreed risk allocation.

Electricity Grid Connection and Use of System Arrangements

The Electricity Grid Connection and Use of System Arrangements will be based on the industry standard contracts and codes.

8.3.2.7 Offtake Services

Transportation and Storage Services Agreement

The TSSA will be a fully bespoke form of agreement and will not be based on an industry standard form of contract. The TSSA will be negotiated with NGC on a 'sole supplier' basis.

NGC, (the CO_2 off-taker), will be responsible for developing, implementing, operating, maintaining and decommissioning the T&S facilities.

The asset and commercial aspects of the TSSA will be managed by the CPL corporate asset management team, while the construction element of the TSSA will be managed by the CPL Delivery Team, both in accordance with respective contract terms and conditions.

8.3.2.8 Non-Key Sub-Contracts

Other Non-Key Sub-Contracts will be procured and managed in accordance with respective contract terms and conditions by the CPL Delivery Team.

9 Commissioning and Start-Up

9.1 Approach to Commissioning

The commissioning strategy embedded in the supply chain contracts is designed to minimise the commissioning interfaces between the EPC Contractors. The PMC will co-ordinate commissioning on behalf of CPL through the use of a JCB. Up to the point that CO_2 enters the NGC onshore transport system the chairmanship of the JCB will lie with the OPP EPC Contractor as being responsible for the OPP. After that point, chairmanship will pass to NGC.

There are a number of key commissioning issues that will be resolved between the parties prior to finalisation of the supply chain contracts. The key items are as follows.

9.1.1 Interconnections

Whilst pre-commissioning of the interconnections can be undertaken by the Interconnections EPC Contractor independently of the OPP, the 'hot' commissioning can only be undertaken once the connections have been made to the OPP and the OPP is ready to receive, (or deliver in the case of export), the process fluids. The hot commissioning of each interconnection will be led by the party providing the process fluid but will be managed as a single activity between the parties and under co-ordination of the JCB.

9.1.2 GPU 'Back-End'

The GPU has a gas return after the final CO_2 compressor that allows compressed, gaseous CO_2 to be sent to the main OPP flue stack and vented to atmosphere. This facility allows the whole of the GPU (and hence OPP in oxy-mode) to be fully commissioned up to that point in the process. Downstream of that point there are three elements of equipment within the OPP scope that can only be commissioned once the onshore pipeline is available to receive CO_2. These are the heat exchanger, pump and metering. The commissioning of these elements will be co-ordinated between the OPP EPC Contractor and NGC as part of the pipeline filling process.

9.2 Commissioning EHS

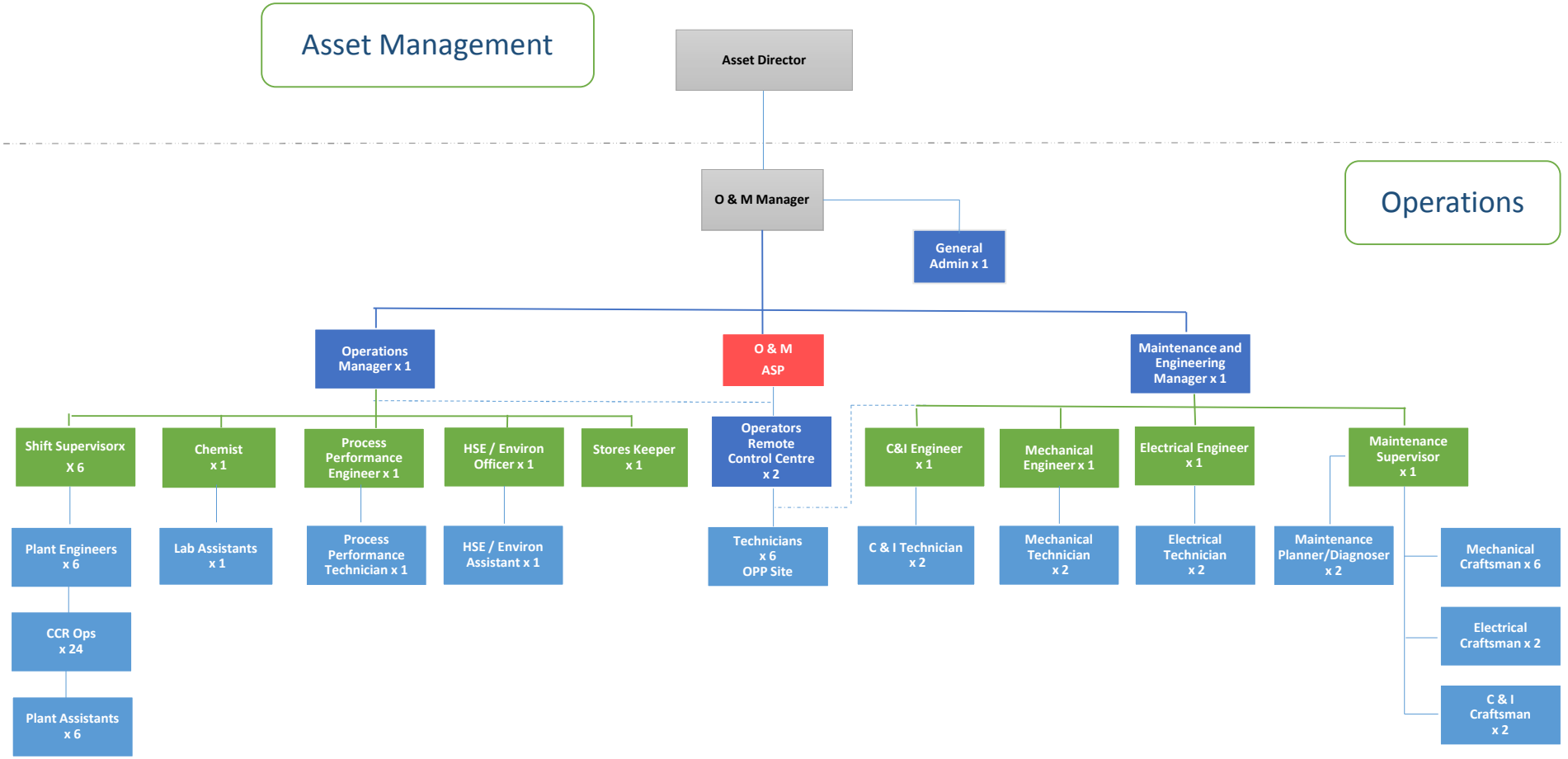
The commissioning plan to be drawn up during the earlier stages of implementation will address how EHS matters, and particularly the safety issues, related to commissioning will be handled. Specifically these plans will address:

- The management of construction and commissioning as parallel activities on the one site;
- The Safe System of Work (including Permit to Work system) that will be used during commissioning;
- Any COMAH notifications required;
- The Safe System of Work (including Permit to Work system) that will be used after Handover to Operations and how the transition between the two systems will be managed.

10 Operations

Operation of the OPP will be the responsibility of CPL's Asset Manager through the services of a suitably experienced and qualified O&M Contractor. A preliminary organisation chart for Operations is shown in Figure 10.1.

Figure 10.1: Preliminary CPL Operations Organisation Chart



Source: Capture Power Limited

The CPL Asset Manager will develop a CPL Operations Team Mobilisation Plan and a CPL Operations Plan with the O&M Contractor.

The mobilisation plan, which will cover the period up to take-over of the OPP will be to monitor and ensure that:

- Appropriate personnel are recruited in a timely manner to align with the project programme;
- All staff are sufficiently and relevantly trained prior to deployment;
- O&M resources and systems are optimally developed and fully in place prior to the Commercial Operations Date (COD) in Oxy Mode;
- Spare parts requirements have been fully evaluated and the requisite parts are available in stock during commissioning and commercial phases;
- COMAH planning requirements are fulfilled and a MAPP policy is in place;
- Safety and environmental standards are met;
- Mobilisation time and expenditure remains within budget;
- Management and communication protocols are established for the communication of technical information between CPL Operations and the CO_2 off-taker Operator;
- Complete readiness to operate at take-over of the OPP.

The Operations Plan, to be developed during the mobilisation period, will cover the period after take-over of the OPP and will include:

- The first year Annual Operating Plan;
- EHS programme for commissioning and operation of the plant;
- Mobilisation budgets and cost schedules;
- Procedures for dealing with third parties e.g. fuel suppliers, dispatch instructions etc.;
- Initiation and development of supply contracts and contractor assessment procedures;
- Medium and long term outage plans;
- Warranty Management Plan;
- Asset Management plans including Business Continuity and Crisis Management plans, and procedures for modifying capital expenditure and programme;
- Human Resource management;
- H&S;
- Environmental and permitting matters;
- Commercial performance;
- Community liaison and stakeholder management.

DPL will be responsible for operation of the Interconnections with the DPP and NGC will be responsible for operation of the T&S.

10.1 Operations Team Role in Implementation Phase

CPL will mobilise its Operations Team during the Implementation Phase.

The OPP EPC Contractor will provide classroom based and on-the-job training for CPL's Operations Team. As part of their training, CPL's Operations Team will participate in commissioning of the OPP on a 24/7 basis, under the direction of the OPP EPC Contractor, from the start of cold commissioning through to take-over of the OPP.

10.2 Operations Input

The CPL Operations Team will participate in design, safety and operations reviews undertaken by CPL or in those performed by the EPC Contractors in which CPL participates.

10.3 Operations Readiness

The PMC, on behalf of the CPL Delivery Director, will be responsible for ensuring that all systems are fully tested and operational prior to take-over of the OPP in collaboration with the CPL Asset Director.

10.4 Operations Spares

The CPL Operations Team will be responsible for defining the operational spares holding for the OPP.

During the Operations mobilisation period, (which will take place during construction and commissioning), the O&M team will review the spare parts and maintenance equipment recommendations provided by the

OEMs (via the EPC Contractors) for the plant including the workshop and laboratory. The review will verify the adequacy of the spares and maintenance equipment provided, and detail any spares or equipment that may not require purchase and/or any additional spares and equipment that should be purchased on a criticality basis. Spares will be recommended for purchase, specified and suitably stored. This activity will take place over the course of 18 months and complete approximately 1 – 3 months prior to take-over.

The spares holding will support the reliability and availability targets of the project.

10.5 Transition to Operations

The CPL Operations Team and O&M Contractor will begin preparing for the hand-over of responsibility for operation of the OPP in the construction phase. Prior to take-over of the OPP, the CPL Operations Team and O&M Contractor will support the CPL Delivery Team during construction and commissioning. Transition to Operations for the O&M Contractor will commence during their mobilisation phase, while that for the CPL Delivery Team will formally commence during the latter stages of commissioning. The CPL Delivery Team will be required to co-manage the transition, including ensuring that all necessary systems knowledge and documentation is transferred in a planned and co-ordinated way.

Transition by the CPL Delivery Team will begin by planning for the 'Readiness to Handover' and 'Readiness to Operate' assessments, which will be prepared for and evaluated by both CPL Delivery and CPL Operations Teams. Each team will be responsible for preparing its own relevant readiness report to be submitted for review by the other team prior to the anticipated take-over date. An initial review will take place 3 months prior to the anticipated take-over date, and will be followed by fortnightly reviews until the month prior to anticipated take-over, at which time both teams will meet weekly to review their readiness plans with a view to identifying any gaps and actions required to achieve readiness to operate.

Planning for readiness to handover and operate will include a schedule of activities identifying the necessary steps to be taken and persons responsible for implementation.

The objective of the 'Readiness to Operate' assessment is to ensure that competent, qualified resources and staff are in place and that all processes, documentation, controls and systems are established and compliant for operation of the plant.

In addition to the 'Readiness to Handover' and 'Readiness to Operate' assessments, the CPL Delivery Team will provide the CPL Operations Team with a register of scope and activities which the CPL Delivery Team will deliver, by agreement with the CPL Asset Manager, during the Operations phase.

11 Project Controls

11.1 Work Breakdown Structure

Project scope will be managed by use of a project Work Breakdown Structure (WBS) and an associated WBS Dictionary that defines the scope included in each WBS element. All scope must be planned in advance, and properly authorized before the commencement of any work. Upon entering the Implementation Phase the WBS Dictionary will be a controlled document. Any additions/revisions to it will require approval before any commitments or mobilisations occur. The project WBS and WBS Dictionary will be maintained by the CPL Programme Manager with EPC Contractor implementation managed by the PMC.

11.2 Planning, Scheduling and Progress Measurement

11.2.1 Master Control Programme

The underlying programme on which the K.09 Full Chain Project Programme is built will be baselined at FC as the Master Control Programme (MCP) for the Implementation Phase to enable CPL to monitor project progress and achievement of key project milestones, and to facilitate the early identification of areas of concern across the full chain for mitigating actions to be taken.

The CPL MCP will be a cost loaded programme based on final EPC Contract prices and the final capital cost estimate but will not be resource loaded. This reflects the project contract strategy of fixed price EPC contracts where man-hours and resources are held internally by the EPC contractors. For this reason earned value analysis is not possible. EPC contractor programmes will be cost loaded with the final EPC Contract prices for generating planned progress curves.

The CPL MCP will be a separate, stand-alone programme and not a consolidation of individual EPC Contractor programmes. This will allow the impact of any individual EPC Contract delay or change on the full chain programme (i.e. related Key Interface Milestones) to be assessed by the CPL Delivery Team prior to incorporation.

Changes to Key Milestones, Interface Milestones or critical path Milestones in the CPL MCP will be subject to the CPL MOC process, see section 11.5.

The CPL Delivery Team will be responsible for maintenance of the CPL MCP during the Implementation Phase, (including Owner and TSSA activities), supported by the PMC who will manage the Enabling Works, OPP and Interconnections EPC Contracts on behalf of the CPL Delivery Team.

The CPL MCP will be updated by the CPL Delivery Team monthly based on input from the CPL organisation for Owner activities and the TSSA, EPC Contract programme updates and progress measurement reports validated by the PMC.

11.2.2 EPC Contract Programmes

The EPC Contractors will develop and submit to CPL a programme control plan which shall cover all programme development, analysis, forecasting, and progress measurement and reporting against their baseline programme.

EPC Contractor programmes will follow the CPL project WBS to facilitate roll-up of activities and progress to the CPL MCP.

The EPC Contractors will develop and maintain individual detailed, cost-loaded programmes and supporting document and work package controls for their own work-scopes in accordance with respective contract requirements, including the use of industry standard planning software (e.g. Primavera).

The PMC will be responsible for implementing respective contract planning and scheduling requirements with the EPC Contractors, and subsequent review and validation of EPC Contractor programmes and changes for action by the CPL Delivery Team.

11.2.3 TSSA

NGC will prepare and maintain a detailed programme with supporting document and work package controls, aligned to the CPL project WBS to facilitate roll-up of activities and progress to the CPL MCP. The TSSA programme will cover the period up to COD T&S Commissioning Complete. From this date, the TSSA will cover ongoing operations of the OPP and T&S, to be co-ordinated by O&M interface arrangements which will be fully defined in the Implementation Phase.

The CPL Delivery Team will be responsible for review and validation of the TSSA programme, progress measurement and progress report.

11.2.4 Progress Measurement

Physical progress, (such as engineering document deliverables per rules of credit, tons of steel installed, or number of systems commissioned), will be the common basis of progress measurement across the full chain where possible. Progressable CPL Owner activities, EPC contractor activities and TSSA activities will be weighted (at a level to be agreed) based on cost as the basis of an overall aggregation process to allow CPL to determine overall progress for the full chain against the CPL MCP.

The PMC will be responsible for review and validation of EPC Contractor progress measurement and progress reporting. Monthly project progress meetings will be held with each EPC Contractor to review their respective progress reports, (validated by the PMC), attended by the CPL Delivery Team and the PMC.

11.3 Budgeting and Cost Control

The CPL Delivery Team will establish and maintain cost control systems and tools to support the monitoring and communication of the CPL Control Budget, commitments, changes and forecast costs including critique and recommendations for corrective actions. It is not anticipated this will comprise an industry management information system, rather a local solution. It is expected that the EPC Contractors will maintain their own corporate management information systems as the basis of their data collation.

11.3.1 Control Budgets

The CPL Delivery Team will prepare a CPL Original Control Budget (OCB) from the final project capital cost estimate per the CPL project WBS as a baseline document for measurement and control during the Implementation Phase. Changes to the CPL OCB will be subject to the CPL MOC process. Approved changes will be incorporated into project reporting as the CPL Current Control Budget (CCB).

Elements of the OCB and CCB may be assigned to individual budget holders within the CPL Delivery Team who will be responsible for managing and controlling expenditure in their area.

11.3.2 Forecasting

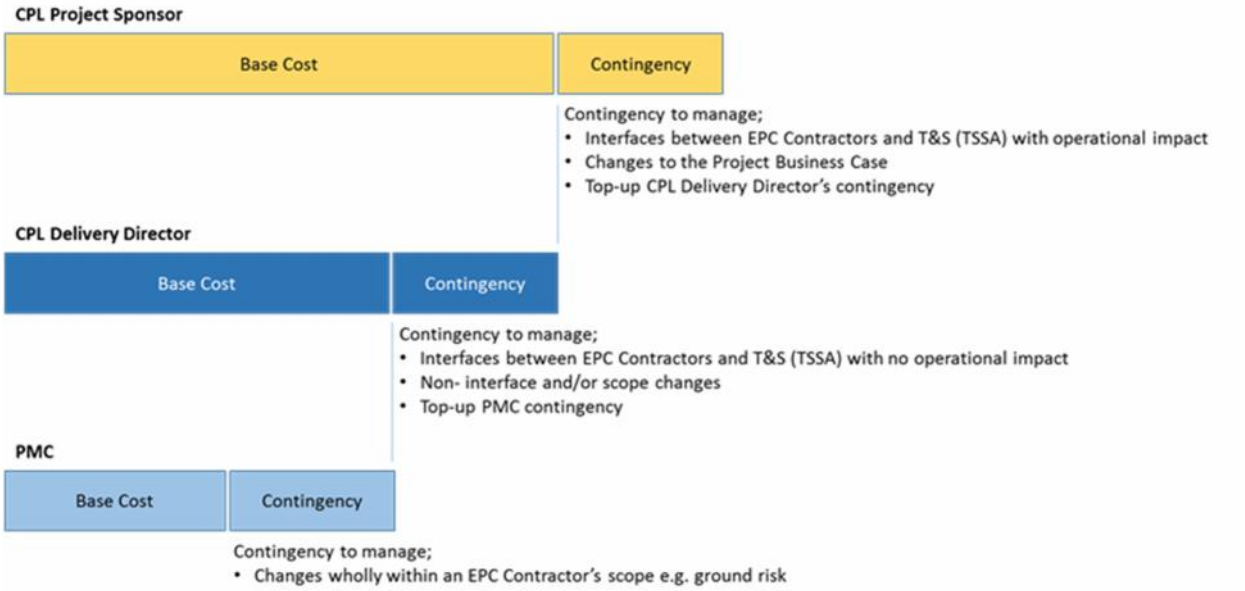
The CPL Delivery Team will be responsible for consolidating the EPC Contractors cost data, (validated by the PMC), together with CPL costs including staffing and any Non-Key Sub-Contract procurement, and producing an overall cost forecast and variance analysis for the full chain versus the CCB.

Monthly review meetings will be held with each EPC Contractor to review their respective cost report, (validated by the PMC).

11.3.3 Contingency Management

A portion of the contingency identified in the final project capital cost estimate will be owned by the CPL Project Delivery Director and a portion will be owned by the CPL Project Sponsor as shown in Figure 11.1. Only when that contingency held by the CPL Project Delivery Director is consumed will top-up contingency be requested from the CPL Project Sponsor. Where any release of contingency is required, this will be subject to the CPL MOC process.

Figure 11.1: CPL Contingency Management



Source: Capture Power Limited

11.3.4 EPC Contract Cost Control and Reporting

The EPC Contractors will develop and submit to CPL a cost control and reporting plan which shall cover cost control, the basis of Value of Work Done (VOWD) calculations, forecasting, reporting and variance analysis against respective Contract prices.

The PMC will be responsible for implementing respective cost control and reporting requirements with the EPC Contractors, and for review and validation of EPC Contractor cost reporting including verification of Value of Work Done (VOWD) reported, Forecast Final Cost (FFC) and the cost validity and impact of any EPC Contract changes.

Monthly project progress meetings will be held with each EPC Contractor to review their respective cost reports, (validated by the PMC), attended by the CPL Delivery Team and the PMC.

11.3.5 EPC Contractors' Payment Milestone Achievement

The EPC Contractors will be reimbursed against a series of Payment Milestones linked to the physical progress of respective works. Each Payment Milestone and the criteria for its satisfactory achievement will be clearly defined within respective contracts at award. Payment Milestone achievement will be validated by an independent verification agent acting on behalf of CPL's lenders and DECC.

11.3.6 TSSA

As development of the T&S system is funded by NGC under the TSSA, no CPL budget, cost or change management will generally be required. However, it is possible that certain NGC emerging costs could impact upon the agreed CfD in which case CPL would need full access to all details of the change to verify/validate any impacts. A mechanism for this aspect of change control with NGC will be agreed prior to FC.

11.3.7 CPL

The CPL programme manager will be responsible for monitoring the cost performance of any Non-Key Sub-Contract procurement by the CPL Delivery Team.

11.4 Procurement and Financial Control Interfaces

11.4.1 Interface with Procurement

The interface between CPL project controls and CPL procurement and contracting is critical to project contracting and execution success.

The Key Sub-Contracts will be finalised in the period up to FC and will include CPL project controls requirements as well as any specific additional requirements to satisfy DECC and CPL's lenders.

The CPL Delivery Team will ensure that any Non-Key Sub-Contract procurement by CPL contains appropriate project controls requirements prior to placement, such as key dates, programme, progress, cost, reporting, and key performance indicator requirements.

CPL Project Controls organisation interfaces with the CPL procurement and contracting organisation will be documented in a project controls and procurement RACI chart to be developed prior to FC.

11.4.2 Interface with Financial Control

The CPL programme manager shall ensure that the project controls and finance interface is robust so that project information is accurately recorded, reported, and forecast.

The CPL Project Controls organisation will provide programme and cost information to finance and assist with the development and reporting of management account budgets, cash flow forecasts, long term plans or financial outlooks as necessary, and will assist finance in developing and updating the CPL DOA, establishing a robust purchase to pay process, and ensuring segregation of duties takes place.

CPL Project Controls organisational interfaces with the CPL finance organisation will be documented in a project controls/finance RACI chart to be developed prior to FC.

11.5 Change Control

All change proposals that may impact the project's delivery, integrity, design parameters, quality, compliance or safety shall be subject to formal change assessment and control. This process shall begin as soon as the potential change is identified.

Although CPL will adopt a 'no change' policy for the Implementation Phase, each proposed change will be considered on its specific merit. The CPL Delivery Team management will set an appropriate culture and communicate expectations around change, however decision making shall not be unnecessarily deferred as this can lead to cost growth, programme impact or operational issues.

The purpose of CPL's Delivery Team change management is to identify and control scope changes, execution changes, deviations and cost trends against the CPL baseline programme (MCP) and budget (OCB and CCB).

The CPL Delivery Team MOC Procedure will be used to manage any addition, deletion, or non-conformance with CPL project objectives, strategy or boundaries as described in governing documents such as the Basis of Design and this PEP, as well as being the mechanism by which contingency owned by the CPL Delivery Director and CPL Project Sponsor are released to the project. This MOC procedure will over-arch and provide a common link to PMC and EPC Contract change processes.

Every change shall be risk assessed and as a minimum an impact assessment of cost and programme impacts shall be performed. Change review will be by competent reviewers and approvers with appropriate technical, discipline and/or financial authority. Except in emergency situations or to comply with essential legislative requirements changes should only be approved if funding has been agreed. Prior to approval of the change an implementation plan covering pre- and post-implementation activities will be developed.

Where an approved CPL change impacts EPC Contractor scope, implementation of the change within each EPC Contractor's scope will be managed by the PMC through the EPC Contractor change management process.

Where the EPC Contractors initiate a contract change wholly within their scope of work, the PMC will be responsible for determination of the change with respect to contract validity, cost and programme impact and technical acceptability, and for approval within the contingency allocated to the PMC for managing such changes.

Where the EPC Contractors initiate a contract change which impacts another EPC Contractor, the PMC will be responsible for determination of the change with respect to contract validity, cost and programme impact and technical acceptability, and for providing a recommendation to the CPL Delivery Team for approval within their DOA.

Whilst the CPL Delivery Team manages changes to scope, and any resulting impact on cost and programme, technical or engineering change will be handled by a separate technical management of engineering design change process. See section 7.4.

The PMC will have an appropriate DOA from CPL, see sections 5.4 and 11.3.3.

11.6 Correspondence and Document Control

11.6.1 CPL

The CPL document control organisation is responsible for and will perform all CPL project document control functions including the preparation, issue, distribution and archiving of CPL Delivery Team documents. The CPL document control organisation will also receive and distribute documents and correspondence issued to the CPL Delivery Team by DECC, the PMC, EPC Contractors and other external parties.

For documents prepared by the CPL Delivery Team, it is likely that a web based document repository (such as SharePoint) will be established with documents numbered in accordance with CPL's correspondence and document numbering procedure.

11.6.2 EPC Contractors

All documents originated by the EPC Contractors, (and other Key Sub-Contractors and Non-Key Sub-Contractors as appropriate), will be numbered in accordance with their own document numbering system and a unique CPL project document number. Documents issued by NGC under the TSSA will not require a CPL document number.

The EPC Contractors will use their internal design checking and approval processes prior to issuance through their respective document control teams and systems for CPL project approval.

EPC Contractor documents for review and approval will be issued to CPL and the PMC as appropriate in accordance with a document distribution matrix to be agreed at contract award. Generally the PMC will be responsible for the co-ordination and collation of comments for return to the EPC Contractors per the time constraints set in respective EPC Contracts. Where document review and approval is required from DECC, the document will be forwarded, and comments/approval co-ordinated, by the CPL document control team prior to return to the EPC Contractor via the PMC.

The PMC shall create within their own internal EDMS separate CPL and EPC Contractor databases which will provide receipt and storage of all received documentation. These databases will be accessible by the PMC only.

11.6.3 Data Protection

To ensure compliance with the Data Protection Act 1998 (DPA) CPL is registered with the Information Commissioner's Office, has put a Data Protection and Security Procedure in place and has appointed a member of the CPL Legal and Secretariat team to act as a Data Protection Officer.

The Data Protection Officer ensures that, with respect to all personal data, the 8 data protection principles detailed in the DPA are adhered to.

12 Project Co-ordination

12.1 Reporting

12.1.1 Introduction

Reporting is the primary method of communicating key information to both the CPL organisation and external stakeholders including DECC and CPL's financing community.

All reports, irrespective of their nature, shall be:

- Well structured – content and format shall fully align with the requirements of the intended recipients;
- Timely – issued in accordance with established timetables;
- Accurate –data and information shall be correct and consistent;
- Concise – data and narratives shall all be presented clearly and succinctly.

Reporting, following the above principles, not only provides good visibility on project status but also gives report recipients confidence that the project is under control. As the project evolves, reporting will be continually reviewed to ensure appropriate focus is given to the correct areas.

12.1.2 Roles and Responsibilities

CPL Project Controls Team

The CPL Programme Manager will be responsible for coordinating, compiling and issuing the project Monthly Report and any other defined project reporting or data requests, on behalf of the CPL Project Director.

The CPL Project Controls team will be responsible for compiling all cost and schedule aspects of reporting, including the consolidation of EPC Contractor reporting validated by the PMC on behalf of the CPL Programme Manager. The CPL Project Controls team will also be responsible for coordinating and assimilating inputs to the reports from other CPL disciplines such as EHS, quality, engineering, operations etc.

CPL Delivery Team

Accurate project reporting depends on the full cooperation of the CPL Delivery Team. Functional leads, delivery and contract managers will be expected to work closely with the Project Controls team throughout the project in order to generate accurate reports.

PMC

The PMC will be responsible for ensuring that EPC Contractor reporting is established in an agreed format and to an agreed calendar to support CPL reporting requirements, and for validating such reporting prior to issuance to CPL.

Finance and Accounting

CPL's Finance Director will be responsible for producing CPL's trial balances and primary reports to form CPL's financial statements, including income statement, balance sheet and management account reporting. The financial statements will be prepared in accordance with the International Financial Reporting Standards (IFRS), and other main General Accepted Accounting Principles (GAAP).

CPL's finance and accounting organisation will develop internal reporting procedures to ensure reconciliation of subcontractors' and suppliers' statements, and for monitoring the payment of invoices.

CPL Project Sponsor

CPL's Project Sponsor will be responsible for compiling and producing all reporting to external stakeholders including DECC and CPL's financing community. CPL's Knowledge Manager, within the CPL Sponsor's organisation, will be responsible for production of Knowledge Transfer (KT) reports to be issued to DECC.

12.1.3 Anticipated Reports

All reports described below are indicative only with frequency, timing and content to be agreed. The reports currently anticipated for the Implementation Phase include:

- Project Monthly Report (prepared by the CPL Programme Manager for the CPL Delivery Director, to be issued to the CPL CEO and CPL Project Sponsor);
- Shareholder Monthly Report (prepared by the CPL Finance Director for the CPL CEO, to be issued to CPL's shareholders);
- Monthly Management Accounts (prepared by the CPL Finance Director in collaboration with the CPL Delivery Director and endorsed by the CPL CEO, to be issued to CPL's shareholders);
- Project Weekly Report (from the PMC to the CPL Programme Manager);
- EPC Contractor Monthly Reports (prepared by the EPC Contractors, reviewed by the PMC, to be issued to the CPL Programme Manager);
- EPC Contractor Daily Report (prepared by the EPC Contractors during construction and commissioning, reviewed by the PMC, to be issued to the CPL Programme Manager);
- TSSA Monthly Report (issued by NGC under the TSSA to the CPL Delivery Director to inform of T&S status and progress);
- CPL Delivery Team Weekly Reports (compiled by the CPL Programme Manager for review at project weekly status meetings);
- Milestone Verification Reports (prepared by the EPC Contractors as required by respective EPC Contractor programmes, and issued to the independent verification agent appointed on behalf of CPL and DECC);
- Project Monthly Report – DECC (prepared by the CPL Project Sponsor, endorsed by the CPL CEO, to be issued to DECC);
- Project Monthly Report – Financers (prepared by the CPL Project Sponsor, endorsed by the CPL CEO, to be issued to CPL's financing community);
- KT Reports – DECC (compiled by the CPL Knowledge Manager on behalf of the CPL Project Sponsor for issue to DECC);

A project Coordination Procedure will be developed prior to FC including details and a timeline of the reporting required for the project, to assure that reporting deadlines for all parties can be achieved.

12.2 Reviews/Meetings

12.2.1 Anticipated Meetings

All meetings described below are indicative only with frequency, timing, attendees and content to be agreed:

- CPL Monthly Project Board Meetings (chaired by the CPL CEO and attended by the shareholders);
- CPL Weekly Executive Committee Meetings (chaired by the CPL CEO and attended by their first-line management);
- DECC Six-Monthly Supervisory Meetings (chaired by DECC and attended by CPL and NGC corporate organisations and third parties as required);
- DECC Monthly Progress Review (chaired by DECC and attended by the CPL Delivery Team, the meeting will review the latest DECC monthly report);
- CPL Monthly Progress Review (chaired by the CPL Delivery Director and attended by their first-line management, the meeting will review the latest CPL project monthly report);
- EPC Contractor Monthly Project Review Meetings (chaired by respective EPC Contractors and attended by the PMC and CPL Delivery Team, the meeting will review the latest EPC Contractor monthly report);
- EPC Contractor Weekly Meetings (chaired by respective EPC Contractors and attended by the PMC and CPL Delivery Team, the meeting will review the latest EPC Contractor weekly report);
- EPC Contractor Daily Meetings (chaired by respective EPC Contractors and attended by the PMC, and CPL Delivery Team as required, these meetings are anticipated during construction and commissioning phases as a look-ahead of work activities for the day);
- TSSA Monthly Meetings (chaired by NGC and attended by the CPL Project Sponsor and CPL Delivery Team, the meeting will review the latest TSSA monthly report);
- CPL Monthly Information Meetings (chaired by the CPL CEO and attended by all CPL team members, this meeting is anticipated for sharing progress status and information of a general nature);
- CPL Interface Management Meetings (chaired by the CPL Delivery Director and attended by the CPL Delivery Team, PMC, EPC Contractors and NGC as needed, these meetings will focus on EPC Contractor achievement of key interface milestones and any issues on full chain programme delivery);
- Quarterly CPL Project Risk Review Workshop (chaired by the CPL Delivery Director and attended by the CPL Delivery Team and PMC as required, these workshops will facilitate an in-depth review of the project risk register and updates provided monthly as part of EPC Contractor scope);
- Quarterly CPL Business Risk Review Workshop (chaired by the CPL Project Sponsor and attended by the CPL organisation and CPL Delivery Team as required, these workshops will facilitate an in-depth review of the CPL business case and CCS risk register and updates provided monthly as part of regular CPL reporting);
- Other specific discipline meetings as required including for example but not limited to EHS, IR etc.

The project Coordination Procedure to be developed prior to FC will include details and a calendar of meetings required for the project.

13 Knowledge Transfer

13.1 Introduction

KT is a key enabler for the successful achievement of DECC's strategic objectives for the CCS Commercialisation Programme. CPL shares DECC's objective of accelerating the growth of a commercial CCS industry and fully supports DECC's view that KT is integral to the successful achievement of the CCS Commercialisation Programme's objective. CPL's KT strategy is intended to deliver this objective.

CPL's KT strategy is:

- To identify the knowledge needs of Target Audiences (TA);
- To capture all appropriate and relevant technical and commercial information as agreed in the Project Contract;
- To transfer this information into a format suitable for dissemination to the TA in KKDs;
- To disseminate the resulting knowledge in the most effective way to the TA in Key Knowledge Services (KKS);
- To use processes that generate greatest value for money while minimising the risks associated with KT.

The outcome of this strategy will be measured on the basis of information captured and disseminated to the TA. While it is hoped and expected that this will lead to the acceleration of CCS commercialisation, such consequences cannot be adopted as measurable outcomes because of the multitude of other factors which affect them.

CPL's shareholders and Key Sub-Contractors are already engaged on a global scale with promoting CCS to the benefit of key stakeholders and will bring this experience to bear in delivering this strategy. These activities include:

- Global CCS advocacy including the need to develop enabling regulatory frameworks;
- Raising awareness and knowledge sharing on a global scale through direct engagement with stakeholders as well as through industry events, such as Powergen etc.;
- Active membership or association with active international bodies such as ZEP, Global Carbon Capture and Storage Institute (GCCSI), European Union (EU) CCS Network, UK CCS Association, South African Association for CCS, International Energy Agency Greenhouse Gas Research and Development (R&D) Programme (IEAGHG), IEA Clean Coal Centre etc.;
- CCS commercial scale and full chain studies, and pilot plants and validation facilities working with partners all over the world;
- Supporting development of demonstration facilities worldwide.

CPL's proposal for implementing its KT strategy is described below. The approach will be applied over the project life-cycle including detailed design, construction, commissioning, testing, operation, decommissioning and post closure monitoring.

13.2 KT Implementation Strategy

13.2.1 Identifying TA needs

CPL believes, based on its experience to date, that the primary areas of focus and the information needs of the TA are as follows:

Table 13.1: Knowledge Transfer – TA Needs

Target Audience	Primary KT Needs
Prospective developers/operators	• **Activities/ decisions:** picking advantaged opportunities; investment decisions; technology choices; development techniques, risk sharing • **Information needed:** final designs/ costs/ footprint; learnings from design process; issues arising/ resolutions; methodology/ technology advances/ Best Available Technology (BAT); consenting requirements; regulatory status; risks identified/ managed; performance data; risk sharing outturn
CCS Supply Chain	• **Activities/ decisions:** focus/ level of investment in technology/ service provision for CCS space; business plan (purpose; model; effort required); project status • **Information needed:** project update report; developer service requirements (including risk transfer); current technology/service provision/ gaps
Policy makers and regulators	• **Activities/ decisions:** whether/how to sponsor further CCS Commercialisation; policy levers to incentivise industry; regulation improvement focus; market reform. • **Information needed:** CCS chain cost data point; CCS commercialisation trajectory knowledge gaps; competition costs; competition process review; potential CCS supply chain appetite/needs
Financiers and insurers	• **Activities/ decisions:** lending decisions/terms; insurance packages to develop; insurance decisions/ terms • **Information needed:** outturn costs versus plan; risk perception changes; risk management success; industry structure; value/supply chain risk sharing agreements; crystallised risks; demand for insurance
Academia	• **Activities/ decisions:** areas of R&D focus; speciality skills business opportunities; capability needs to focus CCS education • **Information needed:** technology/ policy/ commercial gaps; organisational design; raw data
Industry bodies	• **Activities/ decisions:** lobby focus areas; areas of business research focus • **Information needed:** project description; summary of issues/ learnings

Source: Capture Power Limited

In all cases, the KKS will be tailored to ensure that TA have the background context required to understand the Key Knowledge provided, and both the Key Knowledge and background context will be presented in an accessible way to enable easy identification of the knowledge most relevant to the specific TA needs.

CPL will reflect on the new experience gained as it progresses with the project in updating its view of TA needs and will proactively seek input from the TA to inform this view.

13.2.2 Capturing KT information

Relevant and appropriate technical and commercial information will be captured during the project. The list will be developed during the different phases of the project to reflect the natural project progression, (e.g. the evolution of Basis of Design through detailed design to as-built design), and CCS specific learning as the project advances.

The main areas of KT shall comprise:

- Programme abstract;
- Financial Information (e.g. costs);
- Design;
- Project decisions;
- EHS;
- Risk management;
- Consents and permitting;
- Lessons learned.

Each relevant defined activity for the project will identify specific knowledge to be captured and will include a 'lessons learned' review at the end of the activity to capture learning about the conduct of that activity in a CCS context.

CPL will aim for release of Key Knowledge at the earliest possible opportunity, to the extent possible under any competition and confidentiality restrictions, and identify new Key Knowledge that emerges during the project.

13.2.3 Formatting KT Information for Dissemination

The Project Contract will define KKDs to be delivered during the project in individual specification sheets including details of the information to be provided, dates for delivery to DECC and for publication, and KKS events when the information will be presented to the TA. The KKDs and KKS will be output based.

Detailed specifications of the KKDs will be agreed and included within the Project Contract and will be expected to cover the following areas:

- Project organisation;
- Arrangements for third parties to access the CO_2 T&S infrastructure;
- Procurement report;
- Additional revenue streams report;
- Full chain project cost report;
- Supply chain structure;
- Insurance review;
- Operating cost report;
- EPC Contract report;
- Project termination report (if applicable);
- Consents and permits register;

- Environmental management plan;
- Environmental performance report;
- Stakeholder and landowner engagement report;
- Annual project summary report;
- Risk report;
- Lessons learned report;
- Storage decommissioning information;
- Storage site closure information;
- Financial plan updates including re-financing;
- Commissioning and testing report;
- Annual operational performance report;
- Annual CO_2 storage metering, monitoring and verification (MMV) report;
- Performance test report;
- Start-up and load flexing capability report;
- Metering systems report;
- Project construction programme report;
- As-built drawings;
- EHS reports for each project phase;
- Engineering standards report;
- CO_2 pipeline report;
- Services and management services report;
- Storage and model report;
- Non-technical summary report.

For reasons of commercial confidentiality, the information included in the KKDs and KKS will exclude, (or include, but only in redacted form), certain defined commercially sensitive information as agreed with DECC in the Project Contract.

13.2.4 Key Knowledge Dissemination

The KT will be disseminated by two methods, (i) publication of the KKDs by DECC via a dedicated website, and (ii) KKS events for the TA. KKS events will be defined in the Project Contract and are expected to include the following events:

- Supply chain events;
- CCS events;
- Financing events;
- Insurance market events.

In addition to the above events, CPL will provide secondments for suitable individuals at CPL, its affiliates or NGC, as defined in the Project Contract.

14 Finance and Insurance

14.1 Financing

The financing of the project consists of three parts: equity (both base and contingent equity), grant and long-term debt financing which matches the CfD term. The grant funding is non-repayable, save in certain termination scenarios. Senior debt is expected to include, inter alia, commercial debt, ECA covered debt, (or direct lending in the case of the Export-Import Bank of the United States (US Exim)), bilateral and multi-lateral funding. It is assumed for the time being that disbursement of the three types of funding is on pro-rata basis.

In addition, CPL expects Lenders to require appropriate parent company guarantees (or other appropriate credit support, such as letters of credit) in respect of the shareholders equity obligations to CPL; these will be provided by entities acceptable to the Lenders.

CPL expects to provide a traditional project finance security package to Lenders in respect of CPL's shares and assets. This will include a share mortgage over the shares in CPL, and a fixed and floating charge in respect of all of the CPL's assets. CPL may incorporate a subsidiary Single Purpose Vehicle (SPV) to facilitate the inclusion of third party equity. However, for the purpose of this document, it is assumed that (i) CPL will be the Developer of the project and owns all underlying assets, licenses and leases; and (ii) CPL will be the Borrower of the senior debt.

As per usual for power project financing transactions, CPL will have a number of standard reserve accounts such as a Debt Service Reserve Account and a Maintenance Reserve Account. CPL envisages that additional reserve accounts may be established subject to the agreed commercial position with DECC in relation to the Project Contract and Lenders in relation to the finance documents.

14.2 Key Finance and Business Processes

CPL is seeking to design and implement a target operating model that will support CPL's finance operation in an efficient manner.

In the post FC period, the Finance function will move from focusing primarily on reporting and compliance to serving as an integral part of the management team. The Finance function will support the Company during its construction phase as well as the operations phase by providing critical information, (e.g. comparing cash flow forecast with the forecast numbers in the financial model), and financial analysis for management to make operating decisions, whilst focusing on processes and risk minimisation. The role of the Finance function will also be key to providing the business insight required to prepare financial reporting and analytics to meet investors' and lenders' requirements.

The core finance activities of CPL can be divided into the following 4 categories:

- Accounting and Finance;
- Regulatory and Tax Compliance;
- Management and Control;
- Company's Objective, Risk and Funding management.

14.2.1 Accounting and Finance

The Finance function will deal with the day-to-day transactions of CPL's finance activities. CPL will set up its own Finance team and CPL will centralise its current outsourced accounting and tax services. The Finance function at CPL will be headed by a Finance Director, supported by a Financial Controller and other Finance professionals. CPL will implement a robust Enterprise Resource Planning system (ERP) to manage core accounting activities including transaction processing, financial information, tax, cash management and financial control.

Transaction Processing

The ERP system to be implemented by CPL will integrate the financial and bookkeeping procedures in one place to allow the recording and settlement of the financial transactions arising from CPL's activities. The ERP system enables the recording and coding of cash obligations, expenses, payments and receipts using a standard ledger of debtors, creditors, cash and other general ledgers as required. The ERP will also standardise critical business procedures, manage human resources and payroll.

As CPL's activities gradually increase from the construction phase to the operations phase, a secured 'tried and tested' cloud-based ERP solution would be considered immediately after FC which will then be tailored to include any add-on functions as the company develops.

Accounting and Reporting

With the implementation of an ERP system, the aggregation of financial transactions in general ledgers together with any accounting adjustments will enable the production of CPL's trial balances based on codes of accounts. The trial balances in turn enable the production of the primary reports to form CPL's financial statements including income statement and balance sheet.

Taking into account the scale of the project and the requirement to report to various investors and stakeholders, the financial statements will be prepared in accordance with the IFRS which are adopted globally and are in convergence with other main GAAP, e.g. US GAAP. A full accounting policy manual will also be developed in compliance with IFRS in order to explain the accounting treatment of various transactions from the construction phase through to the operations phase.

Financial Control

A robust financial controls process is required to ensure the protection of CPL's assets and make sure all financial transactions are accurately recorded and reported as governed by the lenders' agreement. CPL will develop internal control procedures and policies, together with a timely financial statement close process. Internal reporting procedures will also be developed to ensure reconciliation of subcontractors' and suppliers' statements and monitoring the payment of invoices.

14.2.2 Regulatory and Tax Compliance

CPL is committed to meet the reporting and regulatory requirements of governmental and other regulatory bodies. The two key compliances of CPL are regulatory and tax.

Regulatory

CPL will set out key compliance activities and time line internally to produce, communicate and verify financial information to meet legal and regulatory requirements. This includes meeting the statutory audit requirement and filing of the audited statutory financial statements to Companies House.

In addition, whilst the reporting requirements to be set out by DECC will be followed continually in the Implementation Phase, procedures will be established to demonstrate to external parties that governance and control procedures are meeting externally set standards, e.g. UK Corporate Governance Code or UK Anti-Money Laundering regulations.

Tax

Tax reporting procedures in compliance with HMRC requirements will continue to be in place in the Implementation Phase. This includes the filing of VAT and Corporation Tax returns. Tax planning and tax structure will be reviewed to ensure CPL is optimising its tax position. A tax function will be also be set up to ensure Income Tax liabilities or Capital Allowance/R&D relief are computed accurately.

14.2.3 Management and Control

In order to meet CPL's objectives post FC, CPL will produce and use financial information to inform, monitor and instigate operational actions governed by the finance/accounts agreements with lenders. The activities in relation to CPL's management and control include:

- Processes to produce and analyse the information for management and control purposes;
- Application of the information produced;
- Internal auditing.

Processes

Well defined processes will be in place to include development, production and analysis of the information used for management and control purposes. The information can be divided into financial and non-financial information.

Financial information includes planning, forecasting, budgeting, target setting, analysis and reporting. Financial planning and analysis professionals will be hired to ensure accurate reporting and communication of annual budget/forecast and project performance.

Non-financial information related to information such as carbon emissions or environmental issues will be prepared and reported by the CPL's finance team working closely with the project management team.

Application

From a general and management control perspective, the Finance function will support CPL's goals including continuous improvement and driving cost reduction. The Finance function will maintain the business calendar based on the financial information produced, including business plan and critical project

review meetings to ensure a co-ordinated approach to reporting, planning and decision making. Any major spending decisions will be assessed based on merits of the different options available. Tax structure, transfer pricing and legal structure will also be examined in order to make sure adequate tax planning is in place to help the company operate.

Another major area the Finance function will focus on is Treasury. This involves initially putting the right treasury target operating model in place and delivering an effective and efficient treasury process. Based on the current state of funding, CPL will structure the Treasury team to deliver value to the business by executing the hedging policy as agreed with lenders' at FC in order to manage known financial risks, e.g. foreign exchange and interest rate risk. The Treasury team will undertake working capital management, raising finance and managing leasing activities as governed by the lending agreement.

Internal Audit

Internal audit procedures will be set up to ensure that controls operate as designed. The Finance team will prepare a comprehensive risk assessment and identify internal and external changes, such as new arrangements with third parties, new regulatory requirements and new technologies, which could affect key existing processes. In particular, CPL will review its processes and controls around social media, mobile computing, cloud computing, cybersecurity, third-party risks, anti-corruption and business continuity management. The risk assessment will be dynamic and yet flexible, the audit plan will identify redundant or ineffective controls and recommend enhancements and cost savings. The internal audit process will include CPL's management input and directly link to the company's strategy.

14.2.4 Company's Objective, Risk and Funding Management

The key objective of the FEED Phase is to deliver a technically integrated full chain project. The Finance function will facilitate efficient delivery by providing the required financial resources and by actively monitoring financial performance. The Finance function will become the strategic partner to the CPL board, supporting and executing the Company's objectives from construction and CCS commissioning through to the commercial operation date in the longer term.

The Finance team will also inform management of the various risks that the Company needs to manage, develop high-level risk policies and monitor action plans designed to manage such risks including business risk, operational risk and finance risk (liquidity, foreign exchange, inflation, interest rate).

In addition to publicly available information, the Finance function at CPL will support the most efficient way of managing the company, (cost/risk opportunity), and provide information to enable investors and funders to appraise the Company's performance, actual and projected, in relation to their financial interest. In terms of debt financing, the Finance team will monitor cash flow, bank covenants and ensure any security remains unencumbered. The terms and lending covenants that were set against CPL's business criteria will be monitored and confirm compliance on an ongoing basis.

14.3 Insurance

The insurance programmes implemented by CPL and NGC are expected to perform an important role in the overall commercial framework of the White Rose CCS Project in seeking to transfer risk from their respective special project vehicles, their respective shareholders being CPL and NGCL, DECC and into the commercial insurance markets.

This section provides a summarised outline of the design and operation of the insurance programmes for CPL and NGC. The programmes are designed to be complementary to provide suitably integrated insurance cover and associated efficient claims response for the full chain project.

14.3.1 Insurance Framework

The CPL and NGC insurance programme design includes the design, procurement and operation of:

- A separate Owner Controlled Insurance Programme (OCIP) procured by CPL for the Construction phase of the OPP incorporating the generation and carbon capture plant technology and other related assets at the Drax site;
- A separate operational insurance programme procured by CPL for the Commissioning, Commercial Proving and Operational phases of the project for the OPP incorporating the generation and carbon capture plant technology and other related assets at the Drax site;
- A separate construction insurance programme procured by NGC for the T&S network construction phase incorporating onshore and offshore assets;
- A separate operational insurance programme procured by NGC for the T&S network Commercial Proving and Operational phases of the project incorporating onshore and offshore assets;
- A stand-alone cover for offshore DSU insurance procured by NGC for the construction phase providing cover for CPL and NGC for their respective risks;
- A stand-alone cover procured by NGC for offshore Business Interruption (BI) insurance for the Commissioning, Commercial Proving and Operational phases of the project providing cover for CPL and NGC for their respective risks.

The overall insurance programme and its procurement is based on delay and interruption liquidated damages being payable by NGC to CPL under the TSSA, (and vice versa). NGC liquidated damages will be backed by an appropriate NGC security in favour of CPL, such as a parent company guarantee.

14.3.2 Principal Features – OPP and T&S Infrastructure Insurance Programmes

The objective, for both the CPL and NGC procured insurance programmes for the construction phase, is to have a single technical lead insurer for each programme and to have committed support insurers to fulfil capacity requirements. The specialist power and engineering markets, (onshore), and energy markets, (offshore), would be engaged to 100% of the cover required, (or up to the capacity available). Cover above the technical lead market would be subject to the same lead wording and insurers would follow the technical lead market in terms of risk engineering requirements and claims settlements.

It is proposed that due to the ongoing works/testing nature of the commissioning and commercial proving phases that a fully joined-up approach to the placement of cover would also be pursued until the end of

these phases. The lead and other key technical support markets for each section would be maintained from the construction phase insurance programme for the commissioning and commercial proving phases' operational insurance programme, to the extent possible, with the intent of achieving seamless cover from construction handover through to the completion of the CPP.

Following the CPP, CPL and NGC would procure stand-alone operational insurance programmes procured on the basis of the widest cover available for the most economic price in the insurance market to cover the exposures.

14.3.3 Principal Insurance Covers Placed during the Implementation Phase

OPP

The following three principal insurance policies form the core of the OPP insurance programme during the implementation phase:

- Erection All Risks (EAR) – Onshore
- DSU – Onshore
- Third Party Liability (TPL) – Construction Onshore

All three policies will have a lead insurer providing common support to the extent possible, with specialist onshore markets providing cover. Protocols will be put in place to co-ordinate placement and any claims made between the OPP and T&S insurance programmes, with any claims settled on a 'follow leader' principle.

T&S

The following three principal insurance policies form the core of the T&S insurance programme during the Implementation Phase:

- Contractors All Risks (CAR) – Offshore
- TPL – Construction Offshore
- DSU - Offshore

Like the approach taken with the OPP insurance programme, all three policies will have a lead insurer providing common support to the extent possible who will co-ordinate where required with the specialist support markets. However, due to the specialist nature of the offshore insurance market, the T&S insurance programme has a single DSU section that contains both CPL and NGC as beneficiaries for respective losses.

14.3.4 Principal Insurance Covers Placed during the Operational Phase

OPP

The following three principal insurance policies form the core of the OPP insurance programme during the operational phase:

- Property Damage All Risks - OPP
- BI - OPP
- TPL – OPP Operation

All three policies will have a lead insurer providing common support to the extent possible, with a single BI section under the policy for CPL.

T&S

The following four principal insurance policies form the core of the T&S insurance programme during the operational phase:

- Operational All Risks (OAR) - T&S
- BI - T&S
- TPL – T&S Operation
- BI - Offshore

Due to limitations in the insurance of offshore risk, a fourth principal insurance cover is required for offshore risks in the T&S programme during the operational phase. It is anticipated that this policy will include both CPL and NGC as beneficiaries for respective losses, and will have a single lead insurer with specialist support markets.

15 Glossary

Abbreviation	Meaning or Explanation
AGI	Above Ground Installation
AONB	Area of Outstanding Natural Beauty
API 2	Argus Price Index 2 (benchmark price reference for coal imported into northwest Europe, calculated as an average of the Argus CIF ARA assessment and the IHS McCloskey NW Europe Steam Coal marker)
ASP	Air Separation Plant
BAT	Best Available Technology
BI	Business Interruption (insurance)
BIS	Department of Business, Innovation & Skills
CAR	Contractors All Risks (insurance)
CBI	Confederation of British Industry
CCB	Current Control Budget
CCS	Carbon Capture and Storage
CCSA	Carbon Capture and Storage Association
CDM	Construction (Design and Management) Regulations 2015
CEO	Chief Executive Officer
CfD	Contract for Difference
CIF	Cost, Insurance and Freight
CLIMA	Climate Action (European Commission department)
CO_2	Carbon Dioxide
COD	Commercial Operations Date
COMAH	Control of Major Accident Hazards Regulations 2015
CPL	Capture Power Limited
CPP	Commercial Proving Period
CPRE	Campaign for the Protection of Rural England
CSA	Coal Supply Agreement
CSF	Critical Success Factor
CSI	Commercially Sensitive Information
DCO	Development Consent Order
DECC	Department for Energy and Climate Change
DoA	Delegation of Authority
DoW	Division of Work
DPA	Data Protection Act
DPL	Drax Power Limited
DPP	Drax Power Plant
DSU	Delay in Start-Up (insurance)
E3G	Independent Body for Climate Diplomacy and Energy Policy
EAR	Erection All Risks (insurance)
ECA	Export Credit Agencies
EDMS	Electronic Data Management System
EEPR	European Energy Programme for Recovery
EHS	Environment, Health and Safety
EHSQ	Environment, Health, Safety and Quality

Abbreviation	Meaning or Explanation
ENER	Energy (European Commission Department)
EPC	Engineering, Procurement and Construction
ERP	Enterprise Resource Planning
EU	European Union
EUEAA	EU Emissions Allowances Agreement
EUETS	European Emissions Trading System
FC	Financial Close
FEED	Front End Engineering Design
FIDIC	International Federation of Consulting Engineers
GAAP	General Accepted Accounting Principles
GCCSI	Global CCS Institute
GIP	Good Industry Practice
GPU	Gas Processing Unit
H&S	Health and Safety
HAZID	Hazard Identification
HAZOP	Hazard and Operability
HSE	Health and Safety Executive
HoT	Heads of Terms
IEACCC	International Energy Agency Clean Coal Centre
IEAGHG	International Energy Agency Greenhouse Gas (Research and Development Programme)
IFRS	International Financial Reporting Standards
IR	Industrial Relations
ISO	International Organisation for Standardisation
ITP	Inspection and Test Plan
ITT	Invitation To Tender
JCB	Joint Commissioning Board
KKD	Key Knowledge Deliverable
KKS	Key Knowledge Services
KPI	Key Performance Indicator
KT	Knowledge Transfer
LCCC	Low Carbon Contract Company
LEP	Local Enterprise Partnership
MAPP	Major Accident Prevention Policy
MCP	Master Control Programme
MEP	Member of the European Parliament
MMV	Measurement, Monitoring and Verification
MOC	Management of Change
MP	Member of Parliament
MWe	Megawatt electric
NAECI	National Agreement for the Engineering Construction Industry
NETS	National Electricity Transmission System
NGC	National Grid Carbon Limited

Abbreviation	Meaning or Explanation
NGET	National Grid Electricity Transmission Limited
NGO	Non-Governmental Organisation
NSBTF	North Sea Basin Task Force
NSOAF	North Sea Offshore Authorities Forum
NTP	Notice to Proceed
O&M	Operations and Maintenance
OAR	Operations All Risk (insurance)
OCB	Original Control Budget
OCIP	Owner Controlled Insurance Programme
OEM	Original Equipment Manufacturer
OPP	Oxy Power Plant
P&ID	Piping and Instrument Diagram
PC	Principal Contractor
PCI	Pre-Construction Information
PD	Principal Designer
PEP	Project Execution Plan
PMC	Project Management Contractor
PPA	Power Purchase Agreement
PMF	Process Mass Flow
QA	Quality Assurance
QMS	Quality Management System
R&D	Research and Development
RACI	Responsible, Accountable, Consulted, Informed
RL	Reserved List
RSPB	Royal Society for the Protection of Birds
SIL	Safety Integrity Level
SPV	Single Purpose Vehicle
T&S	Transport and Storage
TA	Target Audience
TP	Terminal Point
TPL	Third Party Liability (insurance)
TUC	Trades Unions Congress
TSSA	Transport and Storage Services Agreement
US Exim.	Export-Import Bank of the United States
VOWD	Value of Work Done
WBS	Work Breakdown Structure
WWF	World Wildlife Fund
ZEP	Zero Emissions Platform