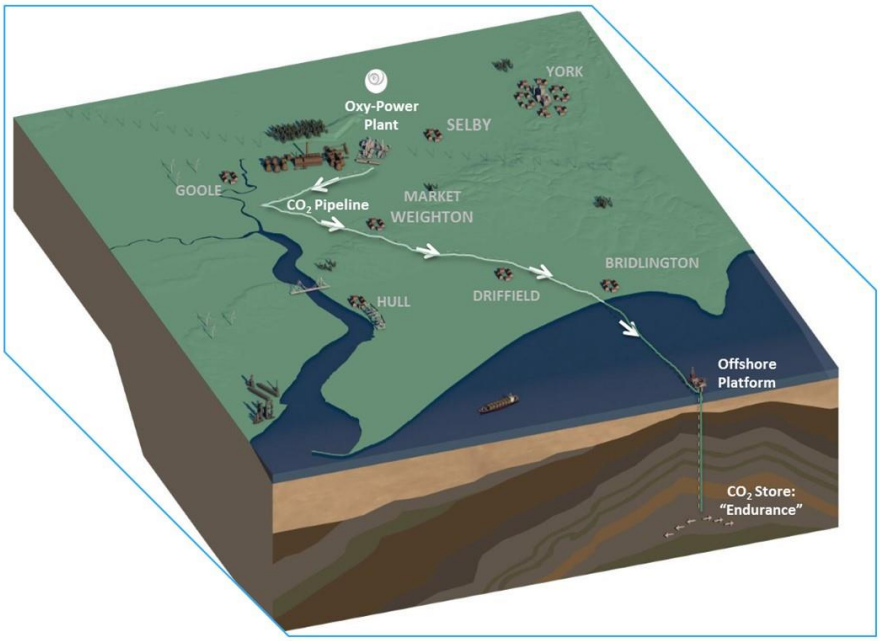
January 2016

WHITE ROSE

K.10 FULL CHAIN FEED PROGRAMME

Commercial: Project Management



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Contents

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Key Words

Key Word	Meaning or Explanation
Carbon Dioxide	A greenhouse gas produced during the combustion process
Carbon Capture and Storage	A technology which reduces carbon emissions from the combustion based power generation process and stores it in a suitable location
Critical Path	The longest sequence of activities in a project plan which must be completed on time for the project to complete on the due date
Development Consent Order	A statutory instrument granted by the Secretary of State to authorise the construction and development of a Nationally Significant Infrastructure Project. The natures of these projects are defined by sections. 14-30 of the Planning Act 2008
Full Chain	A complete CCS system from power generation through CO_2 capture, compression, transport to injection and permanent storage
Judicial Review Period	The period of six weeks after the decision by the Secretary of State allowed under the Planning Act 2008 for an objection to be raised with the courts
Key Knowledge	Information that may be useful if not vital to understanding how some enterprise may be successfully undertaken
Oxy Boiler	The boiler within the OPP capable of producing full load in either the air or oxy-fired mode of operation
Oxy-firing	The use of oxygen (instead of air) in the combustion process
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
Retention Deliverables	Those Deliverables identified in the FEED Contract as being of sufficient importance, either in terms of their content or their evidencing of progress, that the Contract attaches a financial penalty to them if they are not delivered on time.
Storage	Containment in suitable pervious rock formations located under impervious rock formations usually under the sea bed
Transport	Removing processed CO_2 by pipeline from the capture and process unit to storage
Total Float	The maximum amount of time an activity can be delayed from its early start without delaying the entire project
White Rose	The White Rose Carbon Capture and Storage project

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Executive Summary

The Full Chain FEED Programme 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 (KKD) 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 MW_e (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 provides an overview of the FEED programme showing the original intent, as contracted between DECC and CPL, and what actually happened up to the point that DECC notified the withdrawal of the CCS competition funding on 25th November 2015. It provides a narrative of the key changes that occurred and, in particular, how those impacted the critical path of the FEED. Where appropriate it identifies how these changes link to the risks identified in the FEED Risk Register.

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

K.06 Full Chain FEED Risk Report

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1 Introduction

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 NGC.

DECC and CPL signed the FEED Contract in December 2013, Schedule 10 to that contract was formed of a programme laying out how FEED would be undertaken between then and the completion of the FEED phase in April 2016. This programme consisted of some 1350 activities and milestones and had been assembled as an integrated whole from the programmes provided by the four Key Sub-Contractors; NGC, GE (was Alstom), Drax and BOC.

The programme was a fully logically linked critical path analysis undertaken in in industry standard planning software, Primavera P6. This programme was updated every month, as part of the monthly reporting cycle, for both progress and changes in FEED content, strategy, and logic. All such changes were logged and formed part of the monthly reporting.

This KKD is based upon a summarised version of that programme (consisting of around 250 activities and milestones) although the analysis of the changes to the critical path is done at the level of detail in the contract version.

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2 Overview

This Full Chain FEED Programme, Key Knowledge Deliverable K.10, describes the changes in FEED Programme using the contracted and actual FEED programmes.

The basis of this comparison is the FEED programme at one level of detail less than was used as Schedule 10 of the FEED Contract. It shows the original pre-FEED intent (Revision 04)and the actual FEED programme as recorded up to the point that DECC notified the withdrawal of the CCS competition funding on 25th November 2015 (Revision 27). This summary comparison programme is provided in Appendix A.

For all elements of significant discrepancy between the initial and actual programmes a commentary describes the reason for the discrepancy and the impact on the overall FEED programme. For the purposes of this report a significant discrepancy is defined as one which alters the critical path, delays a Retention Deliverable or changes the completion date of a non-critical activity by more than three months. Where appropriate these changes are linked to the items identified in the FEED Risk Register

2.1 Execution Strategy

There was only one significant change in execution strategy during FEED and that occurred very early on and had no impact on either the critical path or Retention Deliverables within the FEED. The change occurred within the NGC element of the FEED and arose when the project manager appointed to execute FEED identified a potentially more cost efficient mechanism for its delivery.

Originally, NGC anticipated executing their FEED work managed by an external owner's engineer, with other discrete packages also containing an element of project management, all overseen by an internal NGC internal management structure. This strategy was changed to one where all project management was by NGC directly with no owner's engineer or other packages with a project management component. Whilst this did not impact on the critical path or Retention Deliverables it did entail the undertaking of certain parts of the Transport and Storage FEED work somewhat later than planned as indicated in the comparison programme in Appendix A.

The remainder of the FEED was executed within the originally planned strategies.

2.2 Critical Path

The original critical path of the project was some 27 months long and ran through the obtaining of the Development Consent Order (DCO) which equates to planning permission for the OPP element of the project. Despite adopting aggressive durations for the nine months that were under the control of CPL this left almost 18 months for the period when the project was in the formal DCO process over which CPL had no control as long as it met the required deadlines. Outside of this critical path the next most critical activities had significant (several months) of total float.

During the execution of FEED there were a few weeks slippage on the OPP DCO process but there was significantly more slippage on the commercial and financial activities driven by the need to negotiate and market test the commercial structures for the full chain project based upon the underlying allocation of risk. In the absence of clear precedents for such a first of a kind commercial CCS project and with CPL pursuing a project financed model, these activities required significant levels of effort with a market,

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including the financing institutions, that was to a large extent unfamiliar with CCS. Significant progress was made with this set of activities, sufficient to support the ISBU process, however it did eventually become the critical path of the FEED.

These changes are described in section 3 of the report.

2.3 Retention Deliverables

The FEED Contract included 245 specified Deliverables, 200 FEED Deliverables being those submitted to DECC for contract purposes only and 45 KKDs written for publication, via the DECC web portal, to wider interested audiences. (Note, these totals were reduced to 189 and 41 respectively due to the early termination of the FEED Contract). As noted above, some of these, 100 in total, were identified as Retention Deliverables against which a financial penalty could be attached for delayed delivery.

At the time of the notice to terminate some 53 of the 100 had been delivered to DECC and two that should have been delivered had been delayed by agreement. Of the 53 all but two had been delivered on time and only one of those two had had a financial penalty applied which had subsequently been recovered.

The details of and reasons for these delays are provided in section 4 of this report.

2.4 Other Changes

There are a number of other events that occurred during FEED which resulted in significant changes to the completion date of an activity or a string of activities whilst not impacting the critical path or any Retention Deliverable. Where that change was greater than three months, section 5 of this report provides a narrative explaining what happened.

2.5 Linkage to FEED Risks

Most of the significant changes to the programme that occurred resulted from events that had been identified in the FEED risk register. Section 6 of this report identifies those linkages and describes how the mitigations that had been identified were either ineffective or effective in only reducing rather than eliminating the impact

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3 Critical Path

The critical path is defined as the longest sequence of activities in a project plan which must be completed on time for the project to complete on the due date. Any activity on the critical path cannot be started until its predecessor activity is complete (or until the logic linking the activities is met); therefore if an activity is delayed for a day, the entire project will be delayed for a day unless an activity following the delayed activity is completed earlier.

Figure 1 below shows the critical path at Revision 04 of the programme, this revision was used as the baseline (ie. the fixed point of reference against which progress and change is measured) for the programme. Figure 2 below shows the critical path as at Revision 27 which was the last updated version of the FEED programme at the point of termination. In both cases the originally planned and actual start and finish dates are shown for each activity on the critical path.

Tables 1 and 2 below detail the changes in composition and dates of the critical path as the programme was updated from reporting period to reporting period. An explanation of these changes is detailed in the narrative below in section 3.3.

3.1 Baseline

The original critical path of the project was some 27 months long and ran through the obtaining of the Development Consent Order for the OPP element of the project. Despite adopting aggressive durations for the nine or so months that were under the control of CPL this left almost 18 months for the period when the project was in the formal DCO process over which CPL had no control as long as it met the required deadlines set by the Planning Inspectorate (PINS).

The essential elements of this critical path were as follows:

- Controlled by CPL
  - Preparation of the Preliminary Environmental Information Report (PEIR)
  - Consultation on the PEIR
  - Preparation of the DCO application
- Controlled by PINS
  - Acceptance of the application
  - Pre-Examination
  - Examination
  - Determination (PINs and then Secretary of State (SoS))
- Judicial Review Period
- Closure of Financial Close Conditions Precedent

Outside of this critical path the next most critical activities had significant (several months) of total float.

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3.2 Actual

- During the execution of FEED there was slippage on the OPP DCO process, some five weeks in the CPL controlled element and some four weeks in the PINS controlled element. However, there was significantly more slippage on the commercial and financial activities driven by the need to negotiate and market test the commercial structures for the full chain project based upon the underlying allocation of risk between all of the stakeholders including the supply chain as a key element of the overall project financed structure. This in turn led to a delay in being able to finalise the supply chain contracts and instigate the formal fund raising processes with the lenders. As a result, these and associated activities became the critical path of the process. These changes are reflected in Figure 1: Programme Critical **Path at Revision 04 (Baseline)**
- Figure 2: Programme Critical Path at Revision 27
- Table 1: Revision 04 Critical Path Chronology
- Table 2: Revision 27 Critical Path Chronology below.

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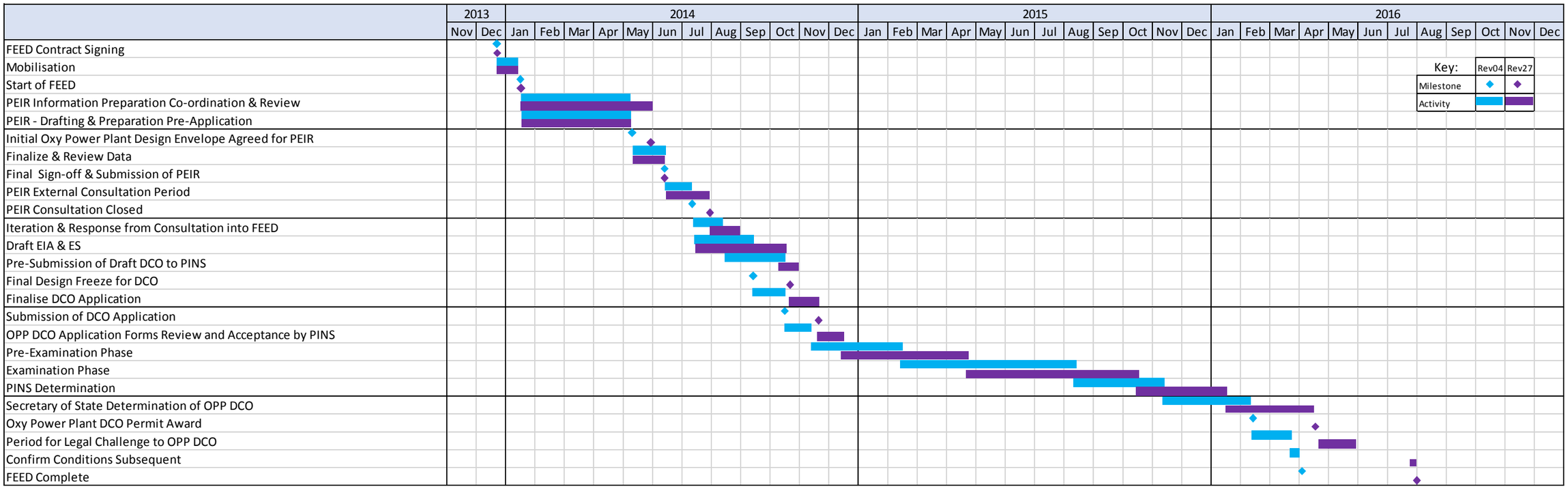

Figure 1: Programme Critical Path at Revision 04 (Baseline)

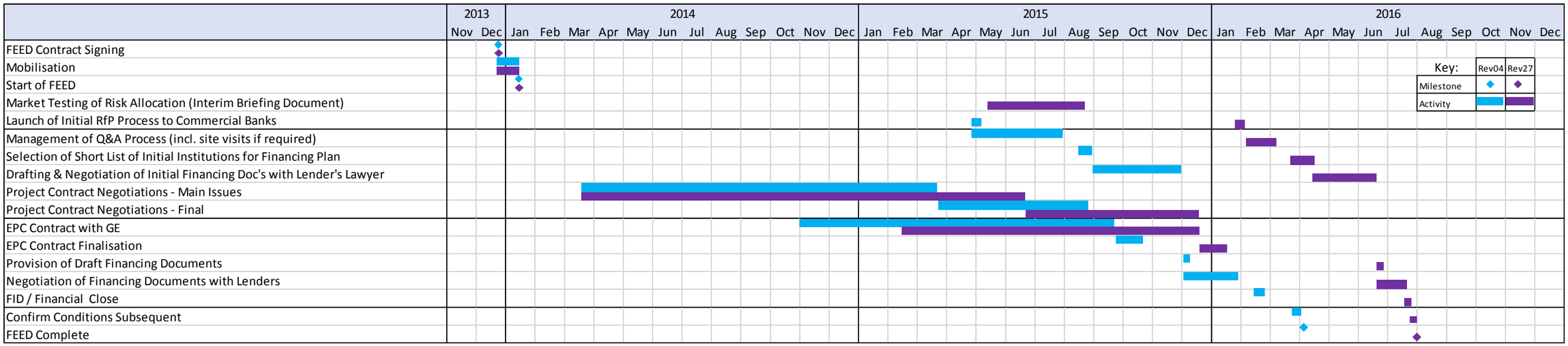

Figure 2: Programme Critical Path at Revision 27

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K.10 FULL CHAIN FEED PROGRAMME

	Dec-13		Jan-14		May-14		Jun-14		Jul-14		Aug-14		Sep-14	
	Rev 04		Rev 05		Rev 09		Rev 10		Rev 11		Rev 12		Rev 13	
Activity Name	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
FEED Contract Signing	20-Dec-13		Completed											
Mobilisation	20-Dec-13	10-Jan-14	Completed											
Start of FEED (incl. Agreed BoD)	13-Jan-14		Completed											
PEIR Information Preparation Co-ordination & Review	13-Jan-14	09-May-14			Completed									
PEIR - Drafting & Preparation Pre-Application	13-Jan-14	09-May-14			Completed									
Initial Oxy Power Pant Design Envelope Agreed for PEIR	09-May-14				Completed									
Finalize & Review Data (PEIR)	12-May-14	12-Jun-14					Completed							
Final Sign-off & Submission of PEIR	12-Jun-14						Completed							
PEIR External Consultation Period	13-Jun-14	11-Jul-14							Completed					
PEIR Consultation Closed	11-Jul-14								Completed					
Iteration & Response from Consultation into FEED	14-Jul-14	12-Aug-14									Completed			
Draft EIA & ES	14-Jul-14	12-Sep-14							16-Jul-14	15-Sep-14			16-Jul-14	17-Oct-14
Pre-Submission of Draft DCO to PINS	13-Aug-14	13-Oct-14							Completed					
Final Design Freeze for DCO		12-Sep-14							15-Sep-14				17-Oct-14	
Finalise DCO Application	10-Sep-14	13-Oct-14											15-Oct-14	14-Nov-14
Submission of DCO Application	13-Oct-14												14-Nov-14	
OPP DCO Application Forms and Acceptance by PINS	14-Oct-14	11-Nov-14											17-Nov-14	12-Dec-14
Pre-Examinatin Phase	12-Nov-14	13-Feb-15											15-Dec-14	18-Mar-15
Examination Phase	16-Feb-15	12-Aug-15											19-Mar-15	15-Sep-15
PINS Determination	13-Aug-15	12-Nov-15											16-Sep-15	15-Dec-15
Secretary of State Determination of OPP DCO	13-Nov-15	12-Feb-16											16-Dec-15	16-Mar-16
Satisfaction of Financing CPs	01-Feb-16	18-Feb-16											29-Feb-16	17-Mar-16
Oxy Power Plant DCO Permit Award	12-Feb-16												16-Mar-16	
Period for Legal Challenge to OPP DCO	15-Feb-16	24-Mar-16											17-Mar-16	28-Apr-16
FEED Complete	04-Apr-16												06-May-16	

	Oct-14		Nov-14		Dec-14		Mar-15		Jul-15		Sep-15	
	Rev 14		Rev 15		Rev 16		Rev 19		Rev 23		Rev 25	
Activity Name	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
FEED Contract Signing												
Mobilisation												
Start of FEED (incl. Agreed BoD)												
PEIR Information Preparation Co-ordination & Review												
PEIR - Drafting & Preparation Pre-Application												
Initial Oxy Power Pant Design Envelope Agreed for PEIR												
Finalize & Review Data (PEIR)												
Final Sign-off & Submission of PEIR												
PEIR External Consultation Period												
PEIR Consultation Closed												
Iteration & Response from Consultation into FEED												
Draft EIA & ES	Completed		Completed									
Pre-Submission of Draft DCO to PINS												
Final Design Freeze for DCO	Completed		Completed									
Finalise DCO Application			Completed									
Submission of DCO Application			Completed									
OPP DCO Application Forms and Acceptance by PINS			21-Nov-14	19-Dec-14	Completed							
Pre-Examinatin Phase			22-Dec-14	25-Mar-15	18-Dec-14	25-Mar-15						
Examination Phase			26-Mar-15	22-Sep-15			23-Apr-15	22-Oct-15	23-Apr-15	08-Oct-15	23-Apr-16	15-Oct-15
PINS Determination			23-Sep-15	22-Dec-15			23-Oct-15	22-Jan-16	09-Oct-15	08-Jan-15	16-Oct-15	15-Jan-16
Secretary of State Determination of OPP DCO			23-Dec-15	23-Mar-16			25-Jan-16	22-Apr-16	11-Jan-16	08-Apr-16	18-Jan-16	15-Apr-16
Satisfaction of Financing CPs			07-Mar-16	24-Mar-16			06-Apr-16	25-Apr-16				
Oxy Power Plant DCO Permit Award			23-Mar-16				22-Apr-16					
Period for Legal Challenge to OPP DCO			24-Mar-16	06-May-16			25-Apr-16	06-Jun-16	11-Apr-16	20-May-16	18-Apr-16	27-May-16
FEED Complete			13-May-16				20-Jun-16		06-Jun-16		13-Jun-16	

Table 1: Revision 04 Critical Path Chronology

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	Dec-13		Jan-14		Mar-14		Apr-14		May-14		Jun-14		Jul-14		Sep-14		Nov-14	
	Rev 04		Rev 05		Rev 07		Rev 08		Rev 09		Rev 10		Rev 11		Rev 13		Rev 15	
Activity Name	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
FEED Contract Signing	20-Dec-13		Completed															
Mobilisation	20-Dec-13	10-Jan-14	Completed															
Start of FEED	13-Jan-14		Completed															
Launch of Initial RfP Process to Commercial Banks	28-Apr-15	06-May-15																
Management of Q&A Process (incl. site visits if required)	28-Apr-15	29-Jul-15																
Market Testing of Risk Allocation (Interim Briefing Document)																		
Selection of Short List of Initial Institutions for Financing Plan	17-Aug-15	28-Aug-15																
Drafting & Negotiation of Initial Financing Doc's with Lender's Lawyer	01-Sep-15	20-Nov-15																
Project Contract Negotiations - Main Issues	17-Mar-15	24-Mar-15			13-Mar-14	20-Mar-15	13-Mar-14	09-Apr-15										
Project Contract Negotiations - Final	25-Mar-15	26-Aug-15			23-Mar-15	24-Aug-15	10-Apr-15	24-Aug-15	04-Jun-15	16-Sep-15	02-Jul-15	16-Sep-15						
EPC Contract with GE	03-Nov-14	24-Sep-15			31-Oct-14	23-Sep-15					21-Nov-14	16-Sep-15	03-Dec-14	16-Sep-15			16-Feb-15	16-Sep-15
EPC Contract Finalisation	25-Sep-15	13-Oct-15			24-Sep-15	12-Oct-15					17-Sep-15	05-Oct-15						
Provision of Draft Financing Documents	02-Dec-15	08-Dec-15																
Negotiation of Financing Documents with Lenders	02-Dec-15	29-Jan-15																
FID / Financial Close	15-Feb-16	19-Feb-16													11-Mar-16	17-Mar-16	18-Mar-16	24-Mar-16
Confirm Conditions Subsequent	29-Mar-16	01-Apr-16													29-Apr-16	05-May-16	09-May-16	12-May-16
FEED Complete	04-Apr-16														06-May-16		13-May-16	

	Mar-15		Apr-15		May-15		Jun-15		Jul-15		Aug-15		Sep-15		Oct-15		Nov-15	
	Rev 19		Rev 20		Rev 21		Rev 22		Rev 23		Rev 24		Rev 25		Rev 26		Rev 27	
Activity Name	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
FEED Contract Signing																		
Mobilisation																		
Start of FEED																		
Launch of Initial RfP Process to Commercial Banks															04-Jan-16	11-Jan-16	28-Jan-16	04-Feb-16
Management of Q&A Process (incl. site visits if required)															12-Jan-16	08-Feb-16	05-Feb-16	03-Mar-16
Market Testing of Risk Allocation (Interim Briefing Document)					11-May-15	27-Jul-15	11-May-15	14-Aug-15	11-May-15	21-Aug-15	Completed							
Selection of Short List of Initial Institutions for Financing Plan															25-Feb-16	17 Amr 16	22-Mar-16	14-Apr-16
Drafting & Negotiation of Initial Financing Doc's with Lender's Lawyer															18-Mar-16	24-May-16	15-Apr-16	20-Jun-16
Project Contract Negotiations - Main Issues	13-Mar-14	28-Apr-15	13-Mar-14	22-May-15	13-Mar-14	22-Jun-15	Complete											
Project Contract Negotiations - Final	20-May-15	04-Aug-15	02-Jun-15	31-Jul-15	23-Jun-14	21-Aug-15			23-Jun-15	20-Nov-15					23-Jun-15	17-Dec-15		
EPC Contract with GE			16-Feb-15	22-Sep-15					16-Feb-15	20-Nov-15					16-Feb-15	17-Dec-15		
EPC Contract Finalisation			04-Nov-15	20-Nov-15					23-Nov-15	09-Dec-15					18-Dec-15	13-Jan-16		
Provision of Draft Financing Documents															25-May-16	01-Jun-16	21-Jun-16	27-Jun-16
Negotiation of Financing Documents with Lenders															25-May-16	22-Jun-16	21-Jun-16	18-Jul-16
FID / Financial Close	07-Jun-16	13-Jun-16							23-May-16	27-May-16			31-May-16	06-Jun-16	23-Jun-16	29-Jun-16	19-Jul-16	25-Jul-16
Confirm Conditions Subsequent	14-Jun-16	17-Jun-16							31-May-16	03-Jun-16			07-Jun-16	10-Jun-16	30-Jun-16	05-Jul-16	26-Jul-16	29-Jul-16
FEED Complete	20-Jun-16								06-Jun-16				13-Jun-16		06-Jul-16		01-Aug-16	

Table 2: Revision 27 Critical Path Chronology

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3.3 Changes to the Critical Path over the Duration of FEED

3.3.1 Original Critical Path (OPP DCO)

The following narrative describes month by month the events that caused the critical path to change across the whole FEED duration (December 2013 to November 2015. In any month that is not identified below there were no changes to the critical path.

July 2014 (Rev 11)

The PEIR having been issued in June, focus turned to managing the process through to Development Consent Order (DCO) submission in October. That section of the programme was revised to reflect the scope and timing of the work to be undertaken in the light of consultation feedback. As the critical path changed to reflect the revision of the DCO process a number of activities were superseded on the critical path and were, therefore, removed from it. Two remaining ones had minor date changes but these did not impact the anticipated DCO application submission date and hence the FEED completion date which remained 4th April 2016.

September 2014 (Rev 13)

CPL decided to delay submission of the DCO application to PINS by one month to 14th November 2014. This impacted directly on the critical path and it was recognised that there would be little opportunity for recovery of this delay as the timeline beyond DCO submission through to the end of FEED was in the hands of PINS and not CPL. The end of FEED date became the 6th May 2016.

The timing of the submission of the DCO application was necessarily a balance between the requirement of maintaining the critical path of FEED and the need to ensure that the application was of sufficient quality and consistency to minimise the risk of problems and delays, or possibly rejection, during the formal DCO consideration process. CPL decided to delay the submission to allow the issue of operational noise levels to be resolved to meet targets agreed with the local authority. This was achieved which should have smoothed the path of the DCO through Examination by PINS although during Examination it became clear that the targets had not been agreed by the local authority in the manner that had been understood by CPL.

The additional time in DCO preparation created by this delay for noise was used to de-risk further the application in two areas; allowing a second pre-submission DCO draft review with PINS and the taking forward of an agreement with the Environment Agency and Natural England (NE) on a specific Habitats Regulations Screening Assessment.

November 2014 (Rev 15)

The DCO application was submitted to PINS on 21st November 2014. The additional one week delay to the critical path was incurred due to an intervention by NE on 12th November. The intervention related to the methodology adopted by CPL for air-borne contaminants that had been previously agreed and included in the PEIR report. NE formally informed CPL of its requirement to re-examine its position in the light of the

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Environmental Performance Standard three-year exemption available for commissioning of CCS enabled coal-fired plants.

Based on the stance taken by PINS in response to NE's concerns, CPL and its advisors concluded that it would be too risky with respect to the DCO application not being accepted by PINS to submit it prior to resolving the issue. Consequently, the DCO application was submitted on 21st November, five weeks later than originally planned and this moved the FEED end date to 13th May 2016.

March 2015 (Rev 19)

The draft Examination timetable issued by PINS showed six months for the OPP DCO Examination with the Preliminary Meeting on 22nd April 15 resulting in the judicial review period ending in June 2016. This represented a slip of one month on the critical path with the end of FEED moved to 20th June 2016.

July 2015 (Rev 23)

PINS confirmed that the OPP DCO Examination would conclude two weeks earlier than the six month period originally timetabled, resulting in a likely date for the end of the judicial review period after approval of May 2016. This reduced the duration of the critical path by two weeks and moved the FEED end date to 6th June 2016.

September 2015 (Rev 25)

In September 2015 Drax announced that they would not be making any investment in the project following conclusion of the FEED phase but would continue to support the project on a supplier basis. As a result PINS extended the DCO Examination period by one week in order to allow all parties to review and assess the impact of Drax's decision. This added one week to the critical path with the FEED end date moved to 13th June 2016.

3.3.2 New Critical Path (Commercial & Financial Development)

October 2015 (Rev 26)

Due to the challenges in negotiating and market testing the risk sharing mechanisms between the various stakeholders the commercial and financial activities in the programme had been extending for some time and they finally overtook the OPP DCO as the driving process, and therefore became the critical path. The end of the FEED moved to 6th July 2016.

November 2015 (Rev 27)

The continuing nature of the challenge noted above and with the attention turning to the preparation of the ISBU response the critical path extended and moved the end date of FEED to 1st August 2016. This was the status of the FEED critical path in the final version of the FEED programme at the point CCS competition funding was withdrawn.

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4 Retention Deliverables

Retention Deliverables are the 55 FEED Deliverables and 45 Key Knowledge Deliverables against which a financial penalty could be attached if delivery was delayed without prior agreement. DECC had the right to withhold (retain) that value until such time as the document was delivered and accepted.

The Retention Deliverables which were delivered later than originally planned as at 25th November 2015 are listed in Table 1. below. As will be seen there were four in total but two of these were by agreement with DECC and only one of the two that were delayed without agreement entailed a financial penalty being applied.

Deliverable	Description	Baseline Date	Date	Variance (Days)
P.0106	DCO Application Form	20-Oct-14	21-Nov-14	-23
C.11	Oxy-Power Plant Cost Estimate - Initial	24-Dec-14	28-Aug-15	-166
T.625	Provisional Closure and Post Closure Report	14-Aug-15	27-Nov-15	-74
T.623	Storage Risk Assessment, Monitoring and Remediation Reports	14-Aug-15	27-Nov-15	-74

Table 3: Delayed Retention Deliverables

P.0106: DCO Application Form

As noted in 3.3.1 above CPL delayed the submission by one month to allow the issue of operational noise levels to be resolved to meet local authority targets. This was followed by a further one week delay due to an intervention by NE. These delays to the DCO submission led to the delay in being able to submit to DECC the DCO Application Form. As the Retention Deliverable was still delivered within the Payment Period no retention was withheld by DECC.

C.11: Oxy-Power Plant Cost Estimate – Initial

Delivery was postponed initially until 28th February 2015 due to a delay in receiving both the Alstom (now GE) and BOC cost estimates. The Deliverable was further delayed in February 2015 as CPL regarded the estimate as being insufficiently developed to enable a satisfactory submission to be made. For several elements of the cost estimation effort of the Key Sub-Contractors, in particular construction, the levels of market response from industry were limited, reflecting in part the long period still to run before contracts could be expected, and the status of the project being still pre-FID. Further work was undertaken by the Key Sub-Contractors and the estimate was delivered in August 2015. This delay caused DECC to apply retention across two Payment Periods.

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T.625: Provisional Closure and Post Closure Report and T.623: Storage Risk Assessment, Monitoring and Remediation Reports

Both Deliverables were due to be delivered to the Authority in August 2015, CPL requested that this date be changed in order to align the requirements of the Deliverable Specification to the planned execution intent as described in the programme. This was agreed by DECC and the submission dates formally amended so retention was not applicable.

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5 Other Significant Changes

There are a number of events that occurred during FEED which resulted in significant changes to the completion date of an activity or a string of activities whilst not impacting the critical path or any Retention Deliverable. Where that change was greater than three months these are identified and explained below.

5.1 Onshore Transport DCO

The onshore transport system DCO was impacted by two delays; a three month delay in submission to PINS which resulted from extended preparation work to reduce the risk of issues arising during the formal processes and a six month delay created by the SoS when, on the day that the final decision was due to be issued, the SoS announced that the decision would be delayed by six months in order for it to be aligned to the DCO decision for the OPP.

5.2 Storage Permit

The submission of the storage permit application, and hence the anticipated award date, were delayed by six months due to the wish of the regulator, the Oil and Gas Authority (OGA) to have an extended pre-submission phase during which all the contents of the application could be agreed prior to the application being made. This approach would reduce the risk of problems during the formal review process during which the European Commission and the OGA both have to review the application.

5.3 OPP Site Raising Design

As a requirement of the Flood Risk Assessment agreed with the Environment Agency the OPP site has to be raised by an average of over 1.5m. This will entail the placement of around one million tonnes of imported material and activity that would lie on the critical path of the project's execution. Site geotechnical investigation early in FEED showed that such filling would also cause consolidation of underlying ground strata which added a significant complication to the design of the site raising and the choices of materials to be used. This delayed final decisions on site raising design by some nine months but a set of key assumptions for civils design were agreed early on to allow civil design to proceed independently of the site raising design and thus avoided any critical programme impact.

5.4 Grid Connection Agreement

The original FEED programme placed the obtaining of a grid connection agreement with National Grid Electricity Transmission (NGET) towards the end of FEED as a cost risk mitigation. It was identified early in FEED that there would be uncertainty around the export voltage (132kV or 400kV) and the resulting location of the grid connection point unless the project engaged sooner with NGET. The work on the connection agreement was thus brought forward and started some ten months earlier than planned with the eventual agreement being signed some three months earlier than planned.

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5.5 Full Chain Availability Review

The four month delay in completing this activity arose from the wish to optimise the approach to planned outages and thus maximise the target availability.

5.6 Full Chain Modelling

The six month delay in starting and ninth month delay in completing the full chain modelling arose from an error in the initial programme. The initial programme indicated this being completed ahead of the necessary work being completed within the T&S FEED.

5.7 Appointment of CPL's Owner's Engineer

CPL decided to combine the scopes of their owner's engineer and technical adviser into a single advisor contract with Mott MacDonald. This resulted in appointing the owner's engineer some six months earlier than planned.

5.8 Condition Report on Existing Assets

This was reprogrammed four months later than originally planned to suit Drax's FEED resourcing.

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6 Impact of Risks on FEED Programme

At the commencement of FEED it was identified that there were a number of risks to the Programme. The major risks were captured within the FEED Risk Register and mitigation plans put in place to reduce the impact and likelihood of such risks occurring. The most significant of these risks have been captured and described in section 5 of Key Knowledge Deliverable K.06 Full Chain FEED Risk Report. The programme specific elements of those risks are described below (the references are as per the risk list in K.06).

1. FEED Scope Adequacy

   Although there were some minor additions to the scope of FEED there was no impact on the critical path due to these additions although there were some programme activities that were extended or added as a result.

7. FEED Commercial Negotiation Delay

   This risk was realised and led to the shift of the critical path from the OPP DCO process to the commercial/financial process as described in 3.3.2 above.

8. First-time Permitting of a CCS Power Plant

   The project was only partially effective in mitigating this risk with the DCO being delayed by a number of weeks compared to the initial aggressive timeline. Without close management this delay could have been significantly worse.

9. DCO Process

   The particular issue addressed by this risk, the effectiveness of the PEIR and associated consultation, was effectively managed and there was no delay to the DCO process from this source.

12. Storage Permit Delay

    There was a delay to the storage permit process as identified in 5.2 above.

17. Offshore Infrastructure Routing/Layout

    There was no delay to the project due to this risk which was effectively mitigated.

23. Full Chain Integration Management Process

    The process of agreeing the full chain philosophies was tightly managed thus allowing technical FEED to progress as planned.

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7 Abbreviations

Abbreviation	Meaning or Explanation
ASU	Air Separation Unit
CCS	Carbon Capture and Storage
CfD	Contract for Difference
CPL	Capture Power Ltd
DCO	Development Consent Order
DD	Due Diligence
DECC	Department of Energy and Climate Change
ECA	Export Credit Agency
ECIA	Engineering Contractors Industry Association
EIA	Environmental Impact Assessment
EPC	Engineering Procurement and Construction
ES	Environmental Statement
ESP	Electrostatic Precipitator
FA	Financial Adviser
FEED	Front End Engineering Design
FID	Final Investment Decision
GE	General Electric
GPU	Gas Processing Unit
HAZID	Hazard Identification Study
HoT	Heads of Terms
IR	Industrial Relations
ITP	Inspection and Test Plan
KKD	Key Knowledge Deliverable
KSDA	Key Sub-Contractor Direct Agreement
NE	Natural England
NGC	National Grid Carbon Ltd
NGET	National Grid Electricity Transmission
O&M	Operations and Maintenance
OGA	Oil and Gas Authority (Part of DECC)
OPP	Oxy-Power Plant
PCG	Parent Company Guarantee
PEIR	Preliminary Environmental Information Report
PINS	Planning Inspectorate
Q&A	Question & Answer
RfP	Request for Proposal
SoS	Secretary of State
T&S	Transport & Storage
TP	Terminal Point
WFGD	Wet Flue Gas Desulphurisation

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Appendix A Full Chain FEED Programme

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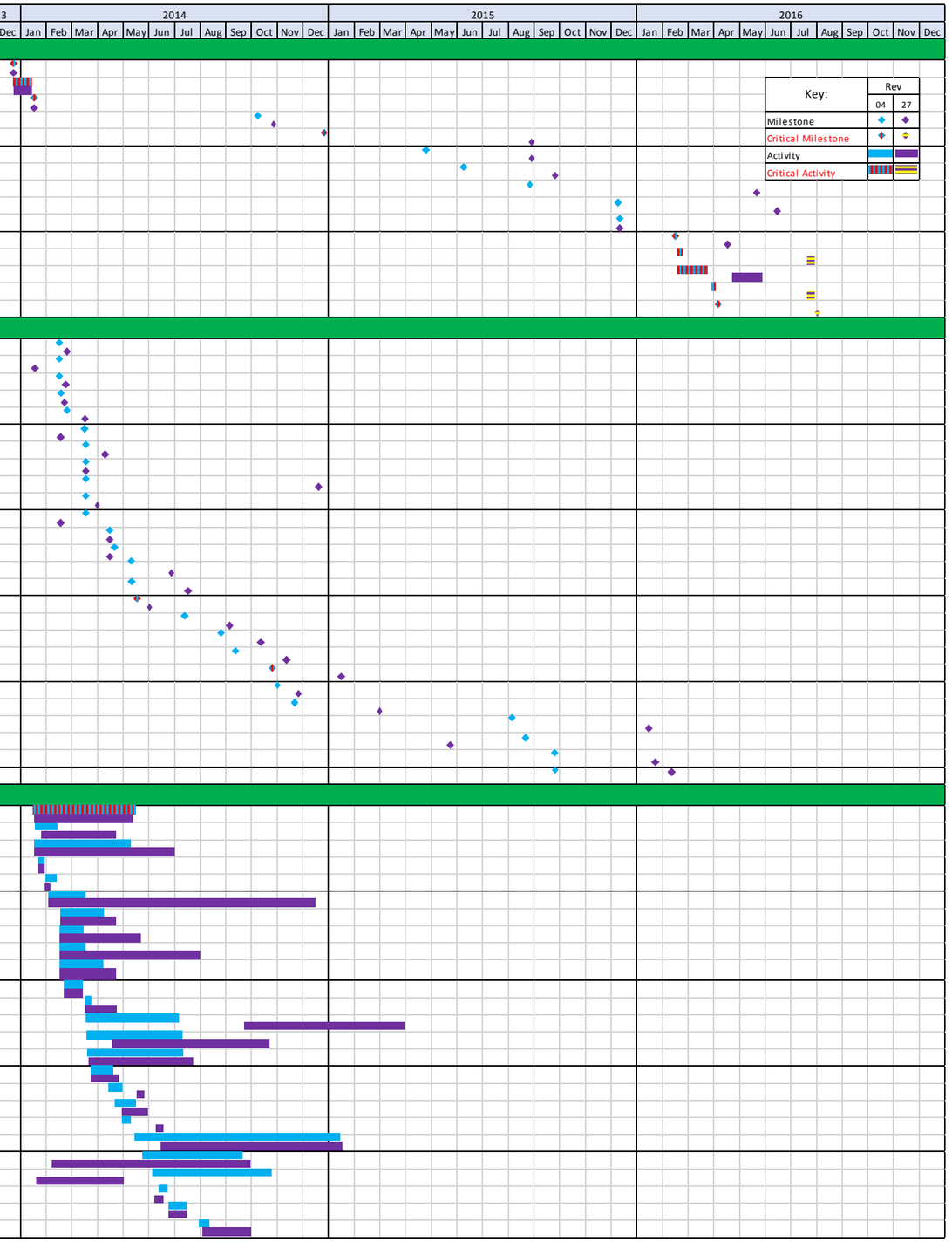
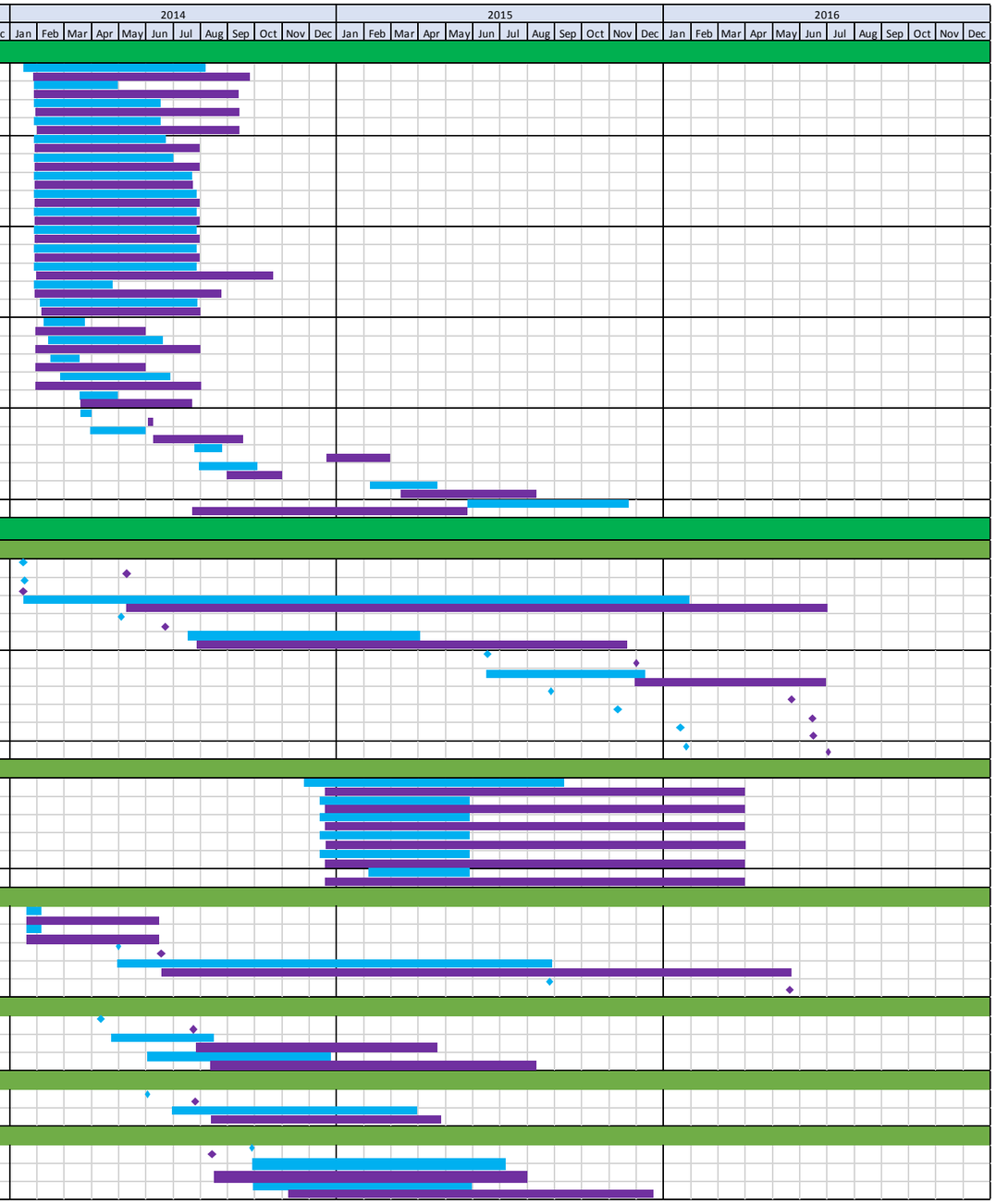
K.10 FULL CHAIN FEED PROGRAMME

White Rose FEED Programme	Rev 04 Start	Rev 04 Finish	Rev 27 Start	Rev 27 Finish
Key Milestones				
FEED Contract Signing	20-Dec-13		20-Dec-13	
Mobilisation	20-Dec-13	10-Jan-14	20-Dec-13	10-Jan-14
Start Of FEED	13-Jan-14		13-Jan-14	
Submission of Oxy Power Plant Technical FEED to the Authority	09-Oct-14		27-Oct-14	
Submission of Oxy Power Plant CAPEX Cost Estimate Report -Initial- to the Authority	24-Dec-14		28-Aug-15	
Submission Of Onshore Transport Technical FEED to the Authority	24-Apr-15		28-Aug-15	
Submission of Offshore Technical FEED to the Authority	08-Jun-15		25-Sep-15	
Transport Onshore DCO Granted	28-Aug-15		19-May-16	
Storage Permit Granted	08-Dec-15		13-Jun-16	
Submission of Full Chain Project Cost Estimate Report - Final to the Authority	10-Dec-15		10-Dec-15	
Oxy Power Plant DCO Permit Award	12-Feb-16		15-Apr-16	
FID / Financial Close	15-Feb-16	19-Feb-16	19-Jul-16	25-Jul-16
Legal Challenge To DCO	15-Feb-16	24-Mar-16	18-Apr-16	27-May-16
Confirm Conditions Subsequent	29-Mar-16	01-Apr-16	26-Jul-16	29-Jul-16
Notice To Proceed	04-Apr-16		01-Aug-16	
Integration Milestones				
Construction Staffing No. Available	12-Feb-14		21-Feb-14	
ASU Input for Combined Geotechnical Study (Factual Report)	13-Feb-14		13-Jan-14	
ASU Layout & Interfaces Location	13-Feb-14		23-Jan-14	
Access to Site for Soil Investigations	14-Feb-14		19-Feb-14	
Basic Stack Data Available	21-Feb-14		14-Mar-14	
ASU Electrical Load List (1st Issue)	13-Mar-14		14-Feb-14	
ASU Input for Route Survey	14-Mar-14		07-Apr-14	
Construction Materials / Traffic	14-Mar-14		14-Mar-14	
Confirmation of Backfill	14-Mar-14		15-Dec-14	
Terminal Point Process Data Available	14-Mar-14		31-Mar-14	
ASU Utility Consumption List (Prelim.)	14-Mar-14		14-Feb-14	
Stack Height Confirmed	14-Apr-14		11-Apr-14	
Oxy Power Plant Factual Soil Report Available	17-Apr-14		11-Apr-14	
ASU Utility Consumption List (Final)	09-May-14		27-Jun-14	
ASU Operating Concept	09-May-14		14-Jul-14	
Initial Oxy Power Plant Design Envelope Agreed for PEIR	12-May-14		30-May-14	
Full Chain Design Requirements Available	08-Jul-14		05-Sep-14	
Quantities for Site Construction & Commissioning Costs	27-Aug-14		11-Oct-14	
Submission of Oxy Power Plant Technical FEED to CPL	11-Sep-14		10-Nov-14	
Power Plant Cost Estimates from Subcontractors Complete	27-Oct-14		14-Jan-15	
Ready to Negotiate EPC Contracts	31-Oct-14		25-Nov-14	
Documentation Ready for Preparation of Lenders Base Case	19-Nov-14		27-Feb-15	
Documentation Ready for Preparation of Final Information Package to Lenders	05-Aug-15		13-Jan-16	
Electrical Grid Connection Agreed with NGET	19-Aug-15		22-May-15	
T&SSA Tariff Finalised	23-Sep-15		21-Jan-16	
Commercial Documentation Ready for FA Sign-Off	23-Sep-15		10-Feb-16	
Full Chain Engineering				
PEIR Information Preparation Co-ordination & Review	13-Jan-14	12-May-14	13-Jan-14	09-May-14
Reliability & Availability Philosophy	13-Jan-14	13-Feb-14	22-Jan-14	21-Apr-14
Agree Metering Philosophy with Authority	13-Jan-14	09-May-14	22-Jan-14	30-Jun-14
Drax-Alstom-BOC Interconnection/TP meeting	23-Jan-14	24-Jan-14	23-Jan-14	24-Jan-14
Discussion with NGET re Grid Code	31-Jan-14	13-Feb-14	31-Jan-14	05-Feb-14
Decision on Site Raising Material & Method	03-Feb-14	13-Feb-14	03-Feb-14	15-Dec-14
Full Chain Commissioning Philosophy	12-Feb-14	08-Apr-14	12-Feb-14	22-Apr-14
Overall Electrical Design Philosophy	14-Feb-14	13-Mar-14	14-Feb-14	23-May-14
Overall Plant Availability Review	14-Feb-14	14-Mar-14	14-Feb-14	31-Jul-14
CO_2 Venting Philosophy	14-Feb-14	08-Apr-14	14-Feb-14	22-Apr-14
Plant Operation Concept	18-Feb-14	13-Mar-14	18-Feb-14	13-Mar-14
Initial Construction Approach, Laydown & Access Review	14-Mar-14	20-Mar-14	14-Mar-14	25-Apr-14
Full Chain Modelling	14-Mar-14	04-Jul-14	23-Sep-14	31-Mar-15
Full Chain Availability Study	14-Mar-14	07-Jul-14	22-Apr-14	17-Oct-14
Metering & Billing for Tariff and Interfaces	14-Mar-14	04-Jul-14	17-Mar-14	21-Jul-14
Initial Construction Programmes	21-Mar-14	16-Apr-14	21-Mar-14	25-Apr-14
Power Plant HAZID	14-Apr-14	28-Apr-14	15-May-14	23-May-14
Joint Construction Programme Review	17-Apr-14	14-May-14	01-May-14	30-May-14
Full Chain HAZID	29-Apr-14	08-May-14	06-Jun-14	16-Jun-14
Full Chain Control	12-May-14	13-Jan-15	13-Jun-14	14-Jan-15
Grid Code Compliance	21-May-14	16-Sep-14	06-Feb-14	30-Sep-14
Owner's Engineer Appointment	03-Jun-14	20-Oct-14	20-Dec-13	30-Apr-14
Interfaces Review - Final	11-Jun-14	17-Jun-14	06-Jun-14	12-Jun-14
Plant Design & Operations Review	18-Jun-14	18-Jul-14	18-Jun-14	18-Jul-14
Final Constructability Review	30-Jul-14	12-Aug-14	05-Aug-14	30-Sep-14

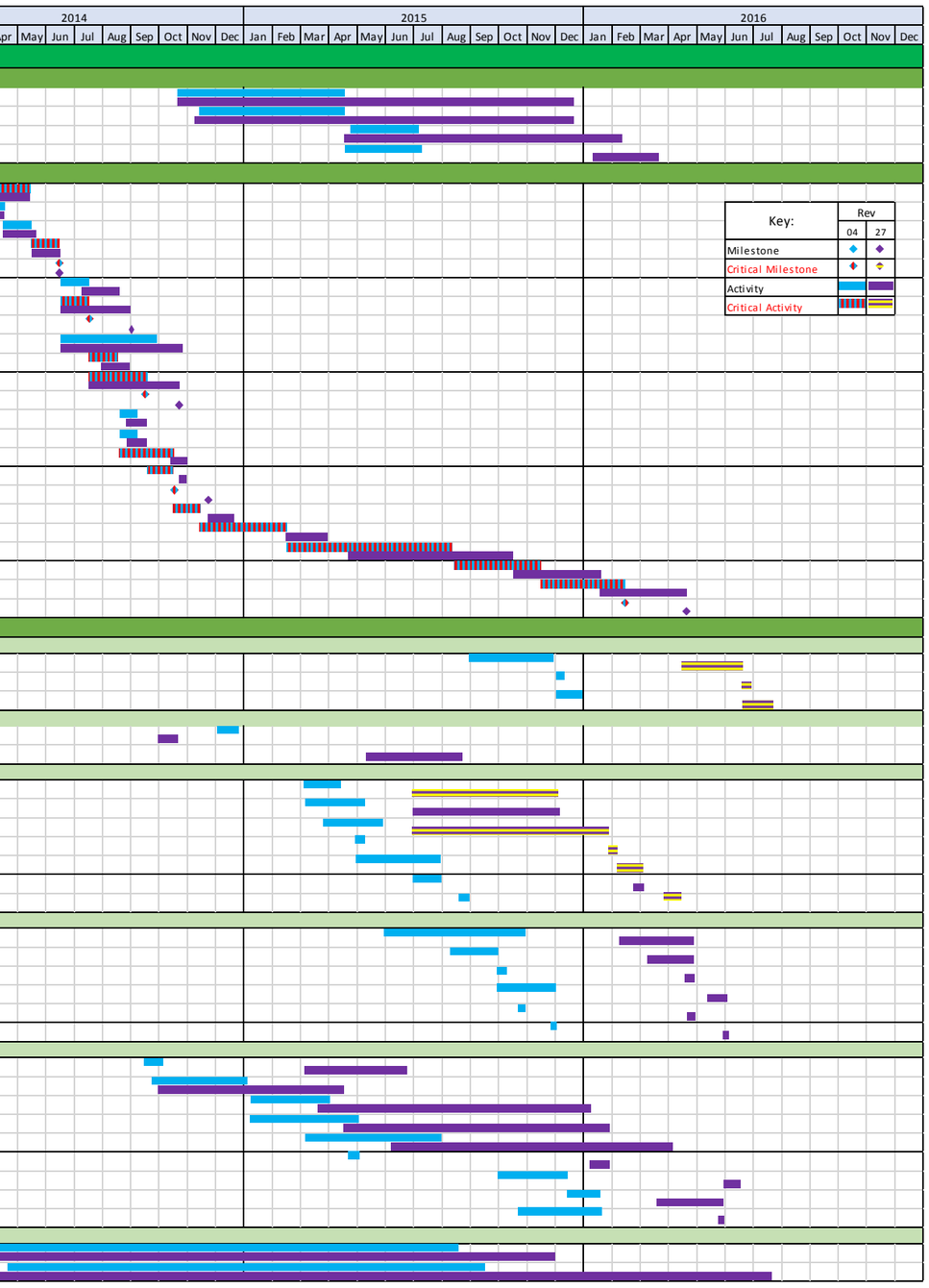


White Rose FEED Programme	Rev 04 Start	Rev 04 Finish	Rev 27 Start	Rev 27 Finish
Power Plant				
Turbine & Boiler				
Project Management				
Overall Cost Estimate Update for Power Plant & Submission to CPL	11-Jul-14	24-Oct-14	15-Jul-14	31-Dec-14
Turbine Engineering				
Turbine Island Electrical Process Engineering	13-Jan-14	16-May-14	13-Jan-14	14-May-14
Turbine Island Mechanical Process Engineering	13-Jan-14	13-Aug-14	13-Jan-14	18-Aug-14
Turbine Island Soil Investigations and Piling Design	13-Jan-14	26-Aug-14	13-Jan-14	25-Aug-14
Turbine Island PEM Engineering	13-Jan-14	10-Sep-14	13-Jan-14	10-Sep-14
Turbine Island Site Preparation Design (inc Roads Fences Design Drainage & Sewage)	13-Jan-14	27-Aug-14	13-Jan-14	25-Aug-14
Turbine Island Overall Arrangement Engineering	13-Feb-14	28-Aug-14	13-Jan-14	28-Jul-14
Turbine Island Steel Structures, Concrete Buildings & Foundations Design	13-Feb-14	10-Sep-14	13-Feb-14	25-Aug-14
Turbine Island Overall Electrical Buildings - General Arrangement	17-Mar-14	13-Jun-14	17-Mar-14	12-Jun-14
Soil Investigations Factual Report	07-Apr-14		10-Apr-14	
Turbine Island Electrical Simulation	16-May-14	12-Aug-14	15-May-14	25-Aug-14
Turbine Island Test Procedure Design	21-May-14	28-Aug-14	26-Mar-14	13-Jun-14
Boiler Engineering				
Boiler Island Ancillary Systems Selection, Description & Data	13-Jan-14	11-Jul-14	13-Jan-14	11-Jul-14
Boiler Island Process Engineering and Design Concepts	13-Jan-14	06-Aug-14	13-Jan-14	06-Aug-14
Boiler Island Oxygen Mixer(s) Requirements Selection	03-Feb-14	19-Mar-14	03-Feb-14	19-Mar-14
Boiler Island Electrical and I&C Systems	03-Feb-14	11-Jul-14	03-Feb-14	11-Jul-14
Boiler-Preliminary Column Loads & Locations to Plants	07-Feb-14	06-Mar-14	31-Mar-14	09-May-14
Boiler Island Architectural and Building Facilities	17-Mar-14	13-Aug-14	02-Apr-14	13-Aug-14
Boiler Cost Estimate Update	11-Jul-14	23-Oct-14	10-Jul-14	31-Dec-14
Procurement				
Procurement Boiler Island	28-Feb-14	28-Jul-14	28-Feb-14	28-Jul-14
Procurement Turbine Island	17-Mar-14	27-Aug-14	14-Mar-14	26-Aug-14
Construction				
Boiler Island Commissioning ITP (prelim.)	13-Jan-14	15-May-14	30-Jan-14	14-Apr-14
Turbine Island Overall Erection Services	17-Mar-14	27-Aug-14	03-Mar-14	28-Aug-14
Boiler Island Review Performance Acceptance Test Procedure	13-May-14	09-Jul-14	30-Jan-14	14-Apr-14
Turbine Island Commissioning Philosophy	07-Aug-14		15-Jul-14	
ESP				
ESP Process Engineering	13-Jan-14	25-Jun-14	13-Jan-14	25-Jun-14
ESP Layout & Piping Engineering	13-Jan-14	03-Jul-14	13-Jan-14	21-Jul-14
ESP Eectrical Engineering	13-Jan-14	03-Jul-14	13-Jan-14	11-Jul-14
ESP Civil & Structural Engineering	13-Jan-14	10-Jul-14	13-Jan-14	21-Jul-14
ESP I&C Engineering	13-Jan-14	10-Jul-14	13-Jan-14	10-Jul-14
ESP Mechanical Engineering	03-Feb-14	09-May-14	01-Feb-14	12-Jun-14
WFGD				
WFGD Electrical Engineering	13-Jan-14	03-Jul-14	13-Jan-14	30-Jul-14
WFGD Civil & Structural Engineering	13-Jan-14	07-Jul-14	13-Jan-14	07-Jul-14
WFGD Process Engineering	13-Jan-14	09-Jul-14	13-Jan-14	09-Jul-14
WFGD Layout & Piping Engineering	13-Jan-14	10-Jul-14	13-Jan-14	25-Jul-14
WFGD I&C Engineering	13-Jan-14	10-Jul-14	13-Jan-14	11-Jul-14
WFGD Mechanical Engineering	03-Feb-14	07-Jul-14	03-Feb-14	07-Jul-14
GPU				
GPU Process Engineering	13-Jan-14	23-May-14	13-Jan-14	30-May-14
GPU Instrumentation & Control Design	13-Jan-14	18-Jul-14	13-Jan-14	30-Jul-14
GPU Plant & Piping Design	13-Jan-14	06-Aug-14	13-Jan-14	13-Aug-14
GPU Civil & Structural Steel Design	13-Jan-14	26-Aug-14	13-Jan-14	03-Sep-14
GPU Electrical Engineering Design	20-Jan-14	13-Aug-14	20-Jan-14	25-Aug-14
GPU Project Engineering	21-Feb-14	27-Aug-14	28-Feb-14	04-Sep-14
GPU Static Equipment Design	07-Apr-14	20-Jun-14	07-Apr-14	27-Jun-14
GPU Rotating Equipment Design	11-Apr-14	13-Jun-14	21-Apr-14	20-Jun-14
GPU Cost Estimate	10-Jul-14	17-Oct-14	26-Jun-14	31-Dec-14
ASU				
ASU Process & Conceptual Engineering	13-Jan-14	04-Jun-14	06-Jan-14	14-Jul-14
ASU Componant Specification	10-Feb-14	17-Apr-14	27-Jan-14	11-Jul-14
ASU Electrical System Engineering	10-Feb-14	13-May-14	20-Jan-14	09-Jul-14
ASU Instrumentation & Automation	21-Feb-14	10-Apr-14	07-Apr-14	14-Jul-14
ASU FEED Reports, Price Estimation and Documentation	17-Mar-14	26-Aug-14	17-Mar-14	17-Oct-14
ASU Compilation of Technical FEED for Board Approval	27-Aug-14	01-Sep-14	27-Oct-14	14-Nov-14

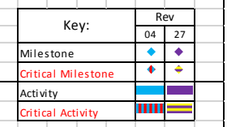
White Rose FEED Programme	Rev 04 Start	Rev 04 Finish	Rev 27 Start	Rev 27 Finish
Interconnections				
132kV Study (400kV)	14-Jan-14	04-Aug-14	27-Jan-14	19-Sep-14
Telecoms & IT Network Connection Assessment & Design	27-Jan-14	31-Mar-14	27-Jan-14	12-Sep-14
Enabling Works Footpath Diversion Design	27-Jan-14	13-Jun-14	31-Jan-14	12-Sep-14
Enabling Works Woodyard Move & Site Clearing	27-Jan-14	13-Jun-14	31-Jan-14	12-Sep-14
Tie-In Potable Water Supply System Design	27-Jan-14	20-Jun-14	27-Jan-14	31-Jul-14
Sanitary Sewage Disposal System	27-Jan-14	30-Jun-14	27-Jan-14	31-Jul-14
Redundancy Assessment	27-Jan-14	18-Jul-14	28-Feb-14	18-Jul-14
Dry Gypsum Return System	27-Jan-14	25-Jul-14	27-Jan-14	31-Jul-14
Solid Fuel Delivery System Design	27-Jan-14	25-Jul-14	27-Jan-14	31-Jul-14
Coal Road Unloading System Design	27-Jan-14	25-Jul-14	27-Jan-14	31-Jul-14
Dry Limestone Supply System	27-Jan-14	25-Jul-14	27-Jan-14	31-Jul-14
Tie-In Fire Protection Systems	27-Jan-14	25-Jul-14	31-Jan-14	20-Oct-14
Condition Report Existing Assets	27-Jan-14	22-Apr-14	27-Jan-14	22-Aug-14
Fly-Ash Disposal System Options	03-Feb-14	25-Jul-14	03-Feb-14	31-Jul-14
Site Preperation and Raising Study - Phase 1 Feasibility	05-Feb-15	10-Mar-14	29-Jan-14	30-May-14
Tie-In Water Purge System Design	10-Feb-14	14-Jul-14	27-Jan-14	31-Jul-14
Site Preperation and Raising Study - Earthworks & Infrastructure	11-Feb-14	17-Mar-14	27-Jan-14	30-May-14
Tie-In Cooling Water Make-Up System Design	24-Feb-14	25-Jul-14	27-Jan-14	31-Jul-14
HAZID Basic Review	17-Mar-14	29-Apr-14	17-Mar-14	18-Jul-14
Site Preperation and Raising Study - Client Review	18-Mar-14	31-Mar-14	02-Jun-14	06-Jun-14
Site Preperation and Raising Study - Phase 2 Design Preferred Scheme	01-Apr-14	30-May-14	09-Jun-14	16-Sep-14
National Grid Substation Development 132 kV Cable Installation	22-Jul-14	21-Aug-14	18-Dec-14	27-Feb-15
Final Detailed Scope & Cost	28-Jul-14	02-Oct-14	01-Sep-14	30-Oct-14
NGET Substation Development & Negotiation	05-Feb-15	22-Apr-15	11-Mar-15	10-Aug-15
NGET Substation Development Connection & Commercial Agreements	26-May-15	19-Nov-15	24-Jul-14	22-May-15
Transport & Storage				
Project Milestones & Key Activities				
Offshore Concept Selection Finalised	13-Jan-14		08-May-14	
Start Transport & Storage FEED	14-Jan-14		13-Jan-14	
FEED Project Management	13-Jan-14	27-Jan-16	08-May-14	01-Jul-16
NGCL Development Consent Order Submission	02-May-14		18-Jun-14	
Onshore Pipeline FEED Whole Life Costs	14-Jul-14	31-Mar-15	22-Jul-14	20-Nov-15
Storage Licence Application Submission	15-Jun-15		30-Nov-15	
Adjudication of Storage License Application	16-Jun-15	08-Dec-15	01-Dec-15	30-Jun-16
NGCL Development Consent Order Granted (statutory period)	28-Aug-15		19-May-16	
Award of Storage Permit	08-Dec-15		13-Jun-16	
Ready for Final Investment Decision	19-Jan-16		13-Jun-16	
Lease Award (Conditional on Funding)	27-Jan-16		01-Jul-16	
EPC Tender Process				
Onshore Pipeline	25-Nov-14	10-Sep-15	15-Dec-14	31-Mar-16
Offshore Pipeline	09-Dec-14	29-May-15	15-Dec-14	31-Mar-16
Offshore Platform & Facilities	09-Dec-14	29-May-15	15-Dec-14	31-Mar-16
Landfall	09-Dec-14	29-May-15	15-Dec-14	31-Mar-16
Store (Wells)	09-Dec-14	29-May-15	15-Dec-14	31-Mar-16
Onshore Pumping Station	02-Feb-15	29-May-15	15-Dec-14	31-Mar-16
Onshore Consents				
Land Access: Referencing, Easements CPO and Book of Reference.	14-Jan-14	03-Feb-14	14-Jan-14	13-Jun-14
Environmental Statement: Preparation, Legal Review, and Printing	14-Jan-14	03-Feb-14	14-Jan-14	13-Jun-14
DCO Submission	30-Apr-14		18-Jun-14	
DCO Consideration Period	30-Apr-14	28-Aug-15	18-Jun-14	19-May-16
DCO Granted		28-Aug-15		19-May-16
Onshore Pipeline FEED				
Commence FEED	07-Apr-14		22-Jul-14	
Onshore Pipeline FEED Initial Design	23-Apr-14	14-Aug-14	22-Jul-14	20-Apr-15
Onshore Pipeline FEED Detailed Design	02-Jun-14	22-Dec-14	11-Aug-14	07-Aug-15
Onshore Pumping Station FEED				
Commence Pumping Station FEED	02-Jun-14		22-Jul-14	
Onshore Pumping Station FEED Detailed Design	30-Jun-14	31-Mar-15	11-Aug-14	27-Apr-15
Offshore FEED				
Commence Offshore Storage FEED	26-Sep-14		11-Aug-14	
Offshore Storage (Pipeline) FEED Detailed Design	26-Sep-14	10-Jul-15	11-Aug-14	31-Jul-15
Offshore Storage (Wells) FEED Detailed Design	26-Sep-14	29-May-15	03-Nov-14	17-Dec-15



White Rose FEED Programme	Rev 04 Start	Rev 04 Finish	Rev 27 Start	Rev 27 Finish
Capture Power				
Common Site Works				
Prepare HOTs Until Completion of Lease (Project Site & Pig Trap)	17-Oct-14	17-Apr-15	17-Oct-15	18-Dec-15
Negotiations with Farmer Until Notice Effective	10-Nov-14	17-Apr-15	07-Nov-14	18-Dec-15
Woodyard Move Tender	20-Apr-15	06-Jul-15	15-Apr-15	11-Feb-16
Footpath Works Tender	20-Apr-15	07-Jul-15	04-Jan-16	18-Mar-16
DCO Process				
PEIR - Drafting & Preparation Pre-Application	13-Jan-14	09-May-14	13-Jan-14	09-May-14
Calculate Stack Height	24-Feb-14	11-Apr-14	24-Feb-14	11-Apr-14
Formal Public Exhibitions Round 1	11-Apr-14	12-May-14	11-Apr-14	18-Apr-14
Finalise & Review Data	12-May-14	12-Jun-14	12-May-14	12-Jun-14
Final Sign-Off & Submission of PEIR	12-Jun-14		12-Jun-14	
Formal Public Exhibitions Round 2	16-Jun-14	14-Jul-14	07-Jul-14	18-Aug-14
PEIR External Consultation Period	13-Jun-14	13-Jul-14	13-Jun-14	31-Aug-14
PEIR Consultation Closed	14-Jul-14		31-Aug-14	
Prepare DCO Application	13-Jun-14	29-Sep-14	13-Jun-14	19-Oct-14
Iteration & Response from Consultation into FEED	15-Jul-14	13-Aug-14	31-Jul-14	31-Aug-14
Draft EIA & ES	15-Jul-14	15-Sep-14	16-Jul-14	17-Oct-14
Final Design Freeze for DCO	15-Sep-14		17-Oct-14	
Internal Confirmation of Content of ES	14-Aug-14	04-Sep-14	26-Aug-14	17-Oct-14
Alstom / BOC Final Engineering Input into ES and other DCO Documents	14-Aug-14	04-Sep-14	26-Aug-14	17-Oct-14
Pre-Submission of Draft DCO to PINS	14-Aug-14	14-Oct-14	10-Oct-14	31-Oct-14
CPL Review of ES/DCO Documents	16-Sep-14	14-Oct-14	20-Oct-14	31-Oct-14
Submission of DCO Application	14-Oct-14		21-Nov-14	
OPP DCO Application Forms Review and Acceptance by PINS	15-Oct-14	12-Nov-14	21-Nov-14	17-Dec-14
Pre-Examination Phase	12-Nov-14	13-Feb-15	13-Feb-15	30-Mar-15
Examination Phase	16-Feb-15	11-Aug-15	23-Apr-15	15-Oct-15
Receipt of Fully Credit Approved Term Sheet (Subject to Docs)	13-Aug-15	12-Nov-15	16-Oct-15	15-Jan-16
Secretary of State Issues Decision on OPP DCO	13-Nov-15	12-Feb-16	18-Jan-16	15-Apr-16
DCO Permit Award	12-Feb-16		15-Apr-16	
Financial				
Documentation				
Drafting & Negotiation of Initial Financing Docs with Lenders' Legal Adviser	01-Sep-15	30-Nov-15	15-Apr-16	20-Jun-16
Provision of Draft Financing Documents	02-Dec-15	08-Dec-15	21-Jun-16	27-Jun-16
Negotiation of Financing Documents with Lenders	02-Dec-15	29-Jan-16	21-Jun-16	18-Jul-16
Debt Market Monitoring				
Market Sounding	03-Dec-14	23-Dec-14	30-Sep-14	20-Oct-14
Market Testing of Risk Allocation (Interim Briefing Document)			11-May-15	21-Aug-15
Initial RfP Process with Commercial Banks				
Compilation of Lender Preliminary Information Package	03-Mar-15	13-Apr-15	01-Jul-15	02-Dec-15
Preparation of Preliminary Information Memorandum	03-Mar-15	06-May-15	01-Jul-15	04-Dec-15
Negotiation of Preliminary Term Sheet with Lender's Lawyer	24-Mar-15	29-May-15	01-Jul-15	27-Jan-16
Launch of Initial RfP Process to Commercial Banks	29-Apr-15	06-May-15	28-Jan-16	04-Feb-16
Management of Q&A Process	29-Apr-15	29-Jul-15	05-Feb-16	03-Mar-16
Confirmation of Financing Plan	16-Jul-15	29-Jul-15	19-Feb-16	03-Mar-16
Selection of Short List of Initial Institutions for Financing Plan	17-Aug-15	28-Aug-15	22-Mar-16	14-Apr-16
Final RfP Process with Commercial Banks				
Finalisation of Lenders Due Diligence Reports	01-Jun-15	30-Oct-15	05-Feb-16	28-Apr-16
Preparation of Final Information Package	06-Aug-15	30-Sep-15	04-Mar-16	27-Apr-16
Delivery of Final Information Package to Shortlisted Institutions	01-Oct-15	12-Oct-15	20-Apr-16	28-Apr-16
Management of Q&A Process	01-Oct-15	01-Dec-15	11-May-16	01-Jun-16
Delivery of Final Legal / Technical / Market / Insurance DD Reports	19-Oct-15	30-Oct-15	20-Apr-16	28-Apr-16
Receipt of Fully Credit Approved Term Sheet (Subject to Docs)	26-Nov-15	01-Dec-15	26-May-16	01-Jun-16
ECAs & Mulilaterals				
Determine Potential and seek to maximize ECAs Tied Support on EPC Contracts	11-Sep-14	03-Nov-14	02-Mar-15	23-Jun-15
Preliminary ECAs Market Sounding based on Preliminary Terms & Conditions	18-Sep-14	02-Jan-15	30-Sep-14	15-Apr-15
Optimisation of Procurement / Sourcing / Financing Plans	05-Jan-15	01-Apr-15	16-Mar-15	08-Jan-16
Assist ECAs in Due Diligence and Negotiating Terms & Conditions	05-Jan-15	01-May-15	16-Apr-15	28-Jan-16
Submit Formal Application at Relevant ECAs	03-Mar-15	31-Jul-15	04-Jun-15	05-Apr-16
ECAs Preliminary Commitments	20-Apr-15	01-May-15	08-Jan-16	28-Jan-16
ECAs Final Commitments	01-Oct-15	14-Dec-15	01-Jun-16	14-Jun-16
Environmental & Social Impact Assessment Published	15-Dec-15	15-Jan-16	15-Mar-16	31-May-16
ECAs Board Approval	11-Jan-16	15-Jan-16	24-May-16	31-May-16
Project Structure Development				
Support Project Contract / CfD / Commercial Negotiations	18-Mar-14	19-Aug-15	31-Mar-14	30-Nov-15
Input into evolving Risk Matrix and Bankability Assessment	23-Apr-14	16-Sep-15	04-Apr-14	18-Jul-16



White Rose FEED Programme	Rev 04 Start	Rev 04 Finish	Rev 27 Start	Rev 27 Finish
Model & Economics				
Preparation of Draft Financing & Project Model	05-Mar-14	28-May-14	02-Jun-14	30-Sep-14
Prepare Lenders' Base Case and Sensitivities	04-Feb-15	30-Apr-15	01-Jun-15	16-Dec-15
Delivery & Agree Lenders' Base Case	18-May-15	29-May-15	08-Jan-16	20-Jan-16
Manage & Update Base Case for Lenders	01-Jun-15	08-Feb-16	21-Jan-16	21-Jun-16
Commercial				
Project Contract Negotiations - Main Issues	18-Mar-14	25-Mar-15	13-Mar-14	22-Jun-15
CfD Negotiations - Main Issues	18-Mar-14	25-Mar-15	13-Mar-14	28-Nov-15
Fuel Supply, Power Offtake, Utilities Agreements with Drax	12-May-14	23-Sep-15	12-May-14	18-Dec-15
Transport & Storage Services Agreement	13-May-14	23-Sep-15	09-May-14	21-Jan-16
EPC Contract with GE	03-Nov-14	24-Sep-15	16-Feb-15	17-Dec-15
O&M Agreement with BOC	24-Dec-14	23-Sep-15	25-Nov-14	22-Dec-15
O&M Agreement with Drax	24-Dec-14	23-Sep-15	25-Nov-14	22-Dec-15
KSDA (Key Subcontractor Direct Agreements)	26-Mar-15	15-Jul-15	14-Jan-16	10-Feb-16
PGCs	26-Mar-15	15-Jul-15	23-Jun-15	16-Dec-15
Project Contract Negotiations - Final	26-Mar-15	26-Aug-15	23-Jun-15	17-Dec-15
CfD Negotiations - Final	26-Mar-15	26-Aug-15	22-Dec-14	26-Jun-15
Principle CCS Contracts agreed		26-Aug-15		26-Jun-15
EPC Contract Finalisation	24-Sep-15	12-Oct-15	18-Dec-15	13-Jan-16
Management				
IR / Initial Discussions with ECIA	21-Mar-14	21-May-14	21-Mar-14	07-Jul-14
Overall EPC Project Programme Philosophy incl. EPC Scope Split	12-May-14	07-Jul-14	12-May-14	12-Sep-14
Initial EPC Project Programme	27-May-14	21-Jul-14	18-Jul-14	27-Mar-15
Preliminary Oxy Power Plant Cost Estimate	22-Jul-14	16-Dec-14	18-Jul-14	26-Feb-15
EPC Project Programme	11-Sep-14	09-Oct-15	31-Mar-15	16-Oct-15
Project Preparation Discussions with ECIA	28-Apr-15	03-Feb-16	08-Feb-16	03-May-16
Final Cost Estimate	13-Oct-15	07-Dec-15	02-Mar-15	04-Dec-15



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