



Reservoir Development & Management

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SCOTLAND UK

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5th November 2014

Dear Sirs

Statement of Resource Associated with the Kincardine UCG Licence

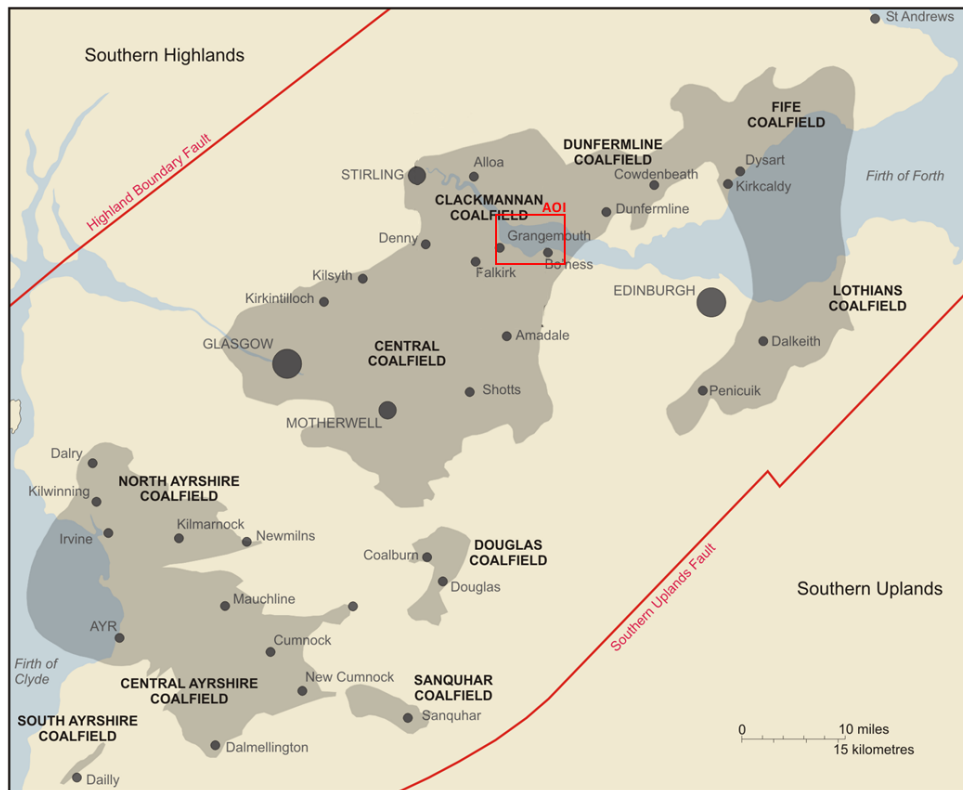
In accordance with your request, Belltree Ltd (Belltree) has conducted a geological and volumetric assessment of the coal resource for the Kincardine Underground Coal Gasification (UCG) licence held by Cluff Natural Resources (CNR) in the Midland Valley of Scotland. A full report ('The Report') has been compiled listing all data sources, definitions and methodologies. This Statement provides a summary of the findings.

Objectives and Scope

Belltree was commissioned to undertake a geological review of the licence leading to an estimation of resources contained within it. The contractual rights to the licence have not been examined by Belltree, nor has the actual degree or type of interest owned been independently confirmed. The data used in Belltree's estimates were obtained from CNR, public data sources and the non-confidential files of Belltree and were accepted as accurate. Supporting geological and work data are supplied with the final report.

Licence Background

The Kincardine UCG licence covers an area of 37.6 km² of tidal estuary waters in the Firth of Forth, in an area where coal has been mined underground for at least 300 years. The licence straddles two well-documented coalfields in the Midland Valley of Scotland: to the west lies the Clackmannan Coalfield of the Stirling and Falkirk districts; and to the east lies the Dunfermline Coalfield of Fife. For the purposes of the evaluation, an Area of Interest (AOI) has been defined which encloses the licence and has been the focus of an intensive data gathering exercise.



The numerous coals contained within the AOI bear characteristics of both the Clackmannan and Dunfermline coalfields and a confusing array of seam names and correlations has resulted. All the coals are of Namurian age (Upper Carboniferous) and belong to two geological formations: the Upper Limestone Formation and the Limestone Coal Formation with the bulk of the resource held in the latter. The following diagram lists the main geological horizons of interest in the licence area together with the average thickness and range (coals highlighted in red often attain thicknesses in excess of 1.8 m and are the main seams worked underground within the licence and AOI).

PERIOD	AGE	GROUP	THICKNESS (m)	FORMATION / COAL
CARBONIFEROUS	WESTPHALIAN	Middle Coal Measures	2.97	Nine Foot Coal
			1.07	McNeish Coal
			0.3	Airdrie Blackband Coal
			M	Queenslie Marine Band
			M	
		Lower Coal Measures	0.15 - 0.56	Airdrie Virtuewell Ironstone/Coal
			0 - 0.97	Kiltoungue (Crow, Crow) Coal
			0.2 - 0.61	Airth Shellband
			0.91	Mill (Auchengane) Coal
			0.61	Armadaile Main (Glenfuir, Airth Main, Lower Splint) Coal
	NAMURIAN	Passage Formation	M	Lowstone Marine Band
			0.3	Bowhousebog Coal
			0 - 0.35	Netherwood Coal
		Upper Limestone Fm	M	No. 2 Marine Band
			M	No.1 Marine Band
			M	
	DINANITAN	Limestone Coal Formation	0 - 0.59	Castleary Limestone
			0.21 - 1	Plean No.2 & 3 Coal
			0.84 - 2.36	Plean No.1 Coal
			0.84 - 2.36	Calmy Limestone
0.2 - 1			Upper Hirst (Wood, Jenny Plate) Coal	
0.98 - 2.39			Cowie Rock	
0.27 - 1.12			Orchard Limetone	
0.31 - 0.46			Cadell's Parrot (Mount Hunger) Coal	
0.84 - 2.16			Index Limestone	
0.53 - 0.95			Blairhall Main (Bo'ness Splint, Oakley Main, Lowrie Graham) Coal	
0.97 - 3.32	Corbiehall Coal			
M	Bo'ness Upper Ironstone			
M	Cowdenbeath 7 Foot Coal (Hartley)			
M	Comrie 2 Foot Coal			
M	Wester Main (Kelty, Jersey) Coal			
M	Black Metals Marine Band			
0.18 - 1.32	Lochgelly Parrot (Knott) Coal			
1.04 - 2.36	Bo'ness 6 Foot (Garibaldi, Cowdenbeath 5 Foot) Coal			
1.04 - 1.42	Dunfermline Splint (Lower Knot, Easter Main) Coal			
0.41 - 1.19	Smithy Coal			
0.5	Carsey Coal			
LLF*		Hosie Limestone		

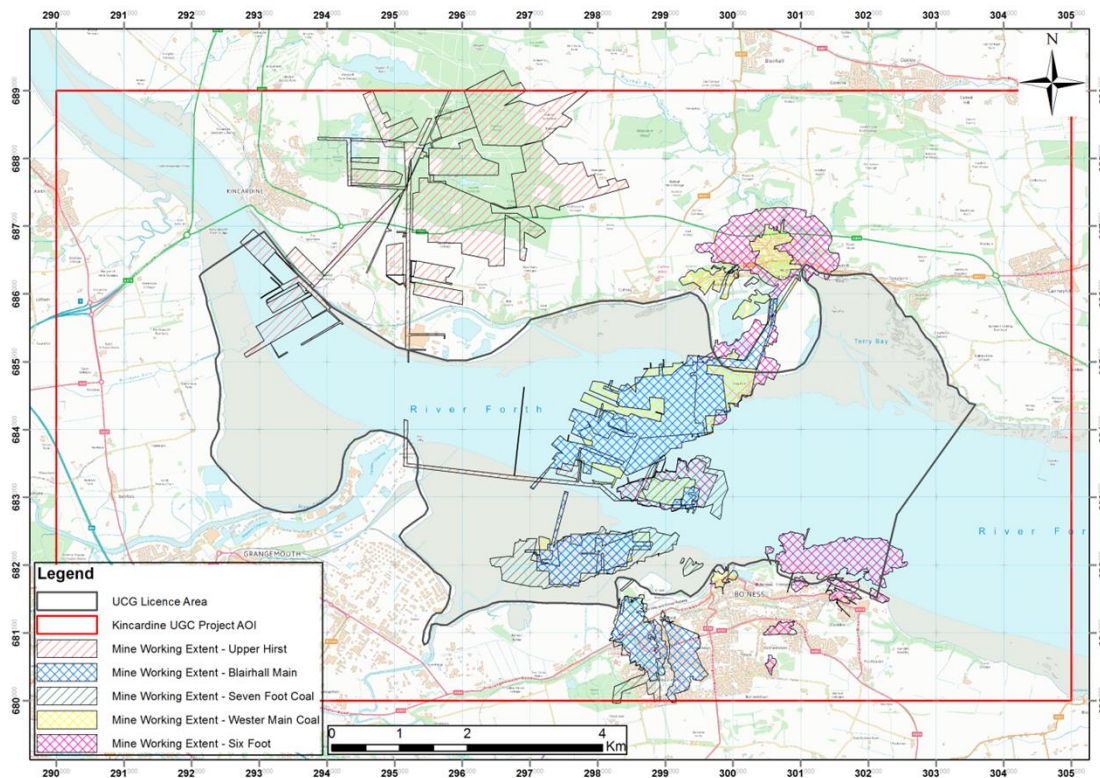
*Lower Limestone Formation

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Extensive abandoned workings exist in these coal seams from outcrop to depths of about 700 m below sea level. Beyond this depth, a significant virgin coal resource remains in numerous seams of coal, some of which attain thickness in excess of 1.8 m.

Three colliery complexes were predominantly responsible for deep underground extraction on the licence: Longannet in the west; Valleyfield in the north and Kinneil in the south. The following figure shows the extent of known underground workings in and around the Kincardine licence.



To date, no UGC activities have taken place on the licence. Adjacent acreage has been the subject of Coalbed Methane (CBM) and conventional Oil & Gas drilling, and seismic acquisition during the past three decades. Underground coal mining ended in 2001 with the closure of Longannet Colliery resulting from accidental flooding of the workings.

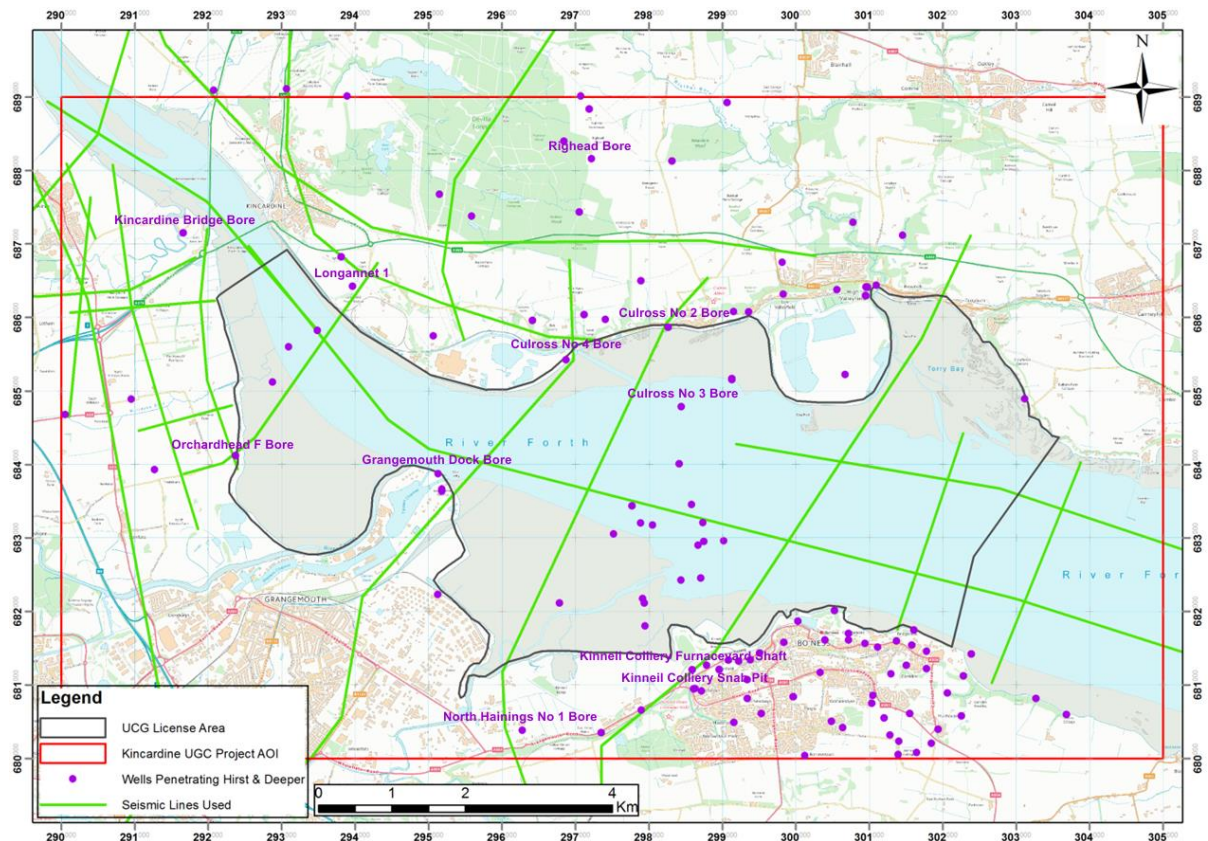
Data Sources

In order to create a robust framework for the resource estimations, Belltree acquired and interpreted a large amount of public domain material from a variety of sources including, but not restricted to: British Geological Survey (BGS) surface geology mapping and memoirs; economic memoirs; coal exploration borehole and 2D seismic data from the BGS; oil & gas and coalbed methane well data from agents of DECC; 2D seismic data shot for oil & gas exploration from agents of DECC; and mine abandonment plans purchased from the Coal Authority. Data were also supplied to Belltree by CNR and comprised: selected coal seam geochemistry derived from National Coal Board archive, geological reports and seismic interpretations relating to mine planning at Longannet Colliery obtained from the archives of the National Mining Museum.

Structural Interpretation

Key to the resource estimation has been a structural interpretation of the licence area. This combined data from numerous boreholes within the AOI and a new interpretation of public 2D seismic shot during the 1980s for coal and oil & gas exploration. A map showing the location of seismic lines, key boreholes

and data points is shown below. The seismic data quality was deemed to be adequate but would benefit considerably from reprocessing. Structure maps were prepared for key surfaces (top Upper Limestone Formation, top Limestone Coal Formation and top Lower Limestone Formation) and isochore maps created for the Upper Limestone Formation and Limestone Coal Formation. Major faults were mapped where data density and resolution allowed but a complete structural interpretation is limited by the relatively low density of the seismic lines. The existence of unmapped major faults is certainly possible and, on the basis of mine abandonment plans, sub-seismic faulting (<30m throw) will definitely exist and would be currently undetectable even in areas where existing 2D seismic coverage is good.



Coal Quality

The excellent quality of the Namurian coals in the Clackmannan and Dunfermline Coalfields has been established through many decades of mining and many hundreds of coal property analyses are available for samples taken in or in close proximity to the licence. Volatile matter is generally high though variable between sample locations in the same seam (20-43% dry ash-free); sulphur content is very low (commonly <2% air dried for the Limestone Coal Formation coals, <1% for the Upper Limestone Formation coals); and ash content is also low (<8% air dried for the Limestone Coal Formation coals, <23% air dried for the Upper Limestone Formation). Calorific values are also good; for example, two of the thickest and most laterally continuous coals in the licence area, the Wester Main Coal (Limestone Coal Formation) and the Upper Hirst Coal (Upper Limestone Formation) have averages of 34.8 MJ/Kg (dry ash-free) and 32.9 MJ/Kg (dry ash-free) respectively.

Resource Estimation

The estimates of coal resource in The Report have been prepared in accordance with the definitions and guidelines set out in the 'Australian Code of Exploration Results, Mineral Resources and Ore Reserves' and 'Australian Guidelines for the Estimating and Reporting of Inventory Coal, Coal Resources and Coal Reserves' commonly known as JORC. A summary of the JORC definitions and methodology required for

JORC compliance are set out in the Resource Estimation section of The Report and all working data are provided in Appendix documents.

Two different types of resource estimation were requested by CNR:

- 1) An overall estimate of in-place coal conforming to universally accepted UCG screening criteria (e.g. depth, thickness, geochemistry) for all unmined coal occurring on the licence without regard to recovery and accessibility factors which might be imposed by regulators or required for technical reasons; and
- 2) An estimate of in-place coal for those seams which occur in panels that are not compartmentalised by faulting, attain a minimum thickness of 1.8 m, and form a developable area which allows for horizontal and vertical buffers from abandoned mine workings, medium and large-scale faults and the licence boundary.

For the first resource requirement, Belltree estimates that the mid case total resource for all coals within the Kincardine licence to be **334.65 MT** (equivalent in energy to 11,492.2 PJ). A more detailed breakdown of the mid case resource categories held in each formation are provided in the following tables. Definitions of the JORC resource categories are provided in The Report.

Coal In-Place Resource for Upper Limestone Fm						
JORC Resource Category	Mass (Tonnes)			Energy (Petajoules)		
	Low Case	Mid Case	High Case	Low Case	Mid Case	High Case
Measured	18,772,040	24,214,803	29,560,811	612.2	796.4	980.8
Indicated	24,006,493	30,660,714	37,184,137	782.9	1,008.4	1,233.8
Inferred	21,094,506	26,941,352	32,673,722	687.9	886.1	1,084.1
Total	63,873,038	81,816,870	99,418,669	2,083.0	2,690.9	3,298.7

Coal In-Place Resource for Limestone Coal Fm						
JORC Resource Category	Mass (Tonnes)			Energy (Petajoules)		
	Low Case	Mid Case	High Case	Low Case	Mid Case	High Case
Measured	74,299,672	101,351,902	127,821,869	2,564.8	3,528.0	4,504.3
Indicated	70,650,446	90,699,702	110,067,315	2,438.7	3,157.2	3,878.7
Inferred	47,354,168	60,792,513	73,773,613	1,634.6	2,116.1	2,599.7
Total	192,304,286	252,844,117	311,662,797	6,638.0	8,801.3	10,982.7

Significant areas of two of these coal seams (the Upper Hirst and Wester Main coals) comply with the second resource requirement. They fulfil UCG coal quality criteria as well as displaying consistent thickness in excess of 1.8 m over panels which, on the basis of available low-resolution data, appear to have good lateral continuity. These zones of Upper Hirst and Wester Main coal have sufficient vertical separation to be exploited separately and contain estimated mid case resources of **17.2 MT** (567.0 PJ) and **26.0 MT** (904.5 PJ) respectively. High, mid and low case resources for these two panels are presented in the following tables.

Coal In-Place Resource for Upper Hirst Seam					
Mass (Tonnes)			Energy (Petajoules)		
Low	Mid	High	Low	Mid	High
10,440,512	17,239,868	18,391,230	340.5	567.0	610.2

Coal In-Place Resource for the Wester Main Seam					
Mass (Tonnes)			Energy (Petajoules)		
Low	Mid	High	Low	Mid	High
18,243,828	25,984,037	30,426,104	629.7	904.5	1,072.2

The resources have been estimated using probabilistic methods and make no assumptions about exploitation method or technology. Given the site-specific nature of UCG commerciality and limitations of the available dataset, no geological risk assessment has been conducted for the licence which would address the probability of success for the commercial development of the resource and which would raise some of the JORC 'Resource' to 'Reserve' category. The resources in the report are estimates only and should not be construed as exact quantities. Since no UCG drilling activities have taken place, the resource estimates are based on criteria derived by analogy with properties having similar geological characteristics elsewhere. As more exploration data becomes available it may be necessary to revise these estimates.

In evaluating the information at our disposal, we have excluded from our consideration all matters as to which the controlling interpretation may be political, socioeconomic, environmental, legal, or accounting rather than geological. As in all aspects of geological evaluations, there are uncertainties inherent in the interpretation and therefore our conclusions necessarily represent informed professional judgement.

Conclusions

Data volume and quality have been sufficient for the purposes of a resource estimation for the Kincardine UCG licence requested by CNR. Significant total coal resource has been identified in seams sufficiently thick and laterally continuous to warrant evaluation by a production test. The existence of panels of coal apparently undisturbed by major faulting is indicated by interpretation of low density 2D seismic.

While the in-place coal volumes for the licence are capable of supporting a UCG development, there remains a number of potential drilling and production risks which need to be addressed through an appropriately staged data gathering programme. This could be carried out in conjunction with a UCG pilot to technically de-risk full-scale commercial development plans.

Belltree Statement of Independence

Belltree Ltd was established in 2007 and has its main office in Edinburgh, Scotland. The company performs consulting reservoir engineering and geological evaluations for conventional oil and gas operators, unconventional oil and gas operators (CBM, UCG, shale gas and hybrid play gas), financial institutions, private companies and government bodies throughout the world. Belltree's staff and associates work as a team to provide the integrated expertise required for exploration, complex field studies, resource evaluations and operations support.

This report has been written by Mr David Goold with geological and geophysical contributions from Belltree staff and associates. Mr Goold occupies the position of Chief Geoscientist at Belltree and has over 30 years of industry experience, 15 years of which has been in coal mining geology, coalbed methane and shale gas evaluations in Western Europe. He has conducted coal geology studies and drilling evaluations for coal basins in Upper Silesia, Lower Silesia, Saxony, North Rhine Westphalia, Saarland, Alsace, Campine, the UK East Midlands, Lancashire, Cumbria and the Midland Valley of Scotland. Mr Goold has a Bachelor of Science degree (with Honours) in Geology from Glasgow University, a Master of Science Degree in Geology from Glasgow University and a Master of Science Degree (with Distinction) in Software Engineering from the University of Stirling. Neither Mr Goold nor any person or company involved with the compilation of this evaluation has, or expects to receive, any direct or indirect interest in the securities of CNR or its subsidiaries.

Yours faithfully



David K Goold
Chief Geoscientist, Belltree Ltd
5th November 2014