Scottish Power Energy Networks

Kennoxhead to Coalburn Overhead Line

Minerals Report

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RSK

RSK GENERAL NOTES

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1 INTRODUCTION

1.1 Context

RSK has been instructed by Scottish Power Energy Networks to undertake a minerals assessment to support the routeing study for an overhead line (OHL) in South Lanarkshire. The 132 kV OHL is intended to be a trident wood pole line from Kennoxhead Wind Farm to Coalburn Substation. The direct route is approximately 12.5 km in length and crosses areas of open upland, forestry plantation and former opencast coal mining sites. It is also possible that areas of future mineral prospectivity are located within or adjacent to the Study area. This Minerals Report will investigate the current and former coal and mineral sites in order to inform the routeing study.

There is evidence that a number of different minerals and materials have historically been extracted within the study area. These include:

- Coal for domestic and industrial use, mined using opencast and underground methods;
- Fireclay, seatearth and ironstone, both frequently associated with coal deposits and exploited with the coal;
- Limestone mining;
- Aggregate extraction;
- Peat extraction, formerly on a large scale particularly associated with Coalburn Moss, now a protected area.

1.2 Data sources

Information has been collated from several sources to identify past, current and potential future extractive sites. Key sources used include the following:

- British Geological Survey (BGS) online geological mapping and borehole data;
- South Lanarkshire Council Adopted Minerals Local Development Plan (2012) and subsequent monitoring updates in 2013 and 2017.
- South Lanarkshire Council Non-Statutory Planning Guidance: Minerals (2017);
- Details of past and extant planning applications including consents, agreements and associated documents submitted to South Lanarkshire Council;
- Coal Authority online mapping portal;
- Ramboll Environ minerals report for Dalquhandy to Coalburn overhead line, produced for SPEN;
- Satellite imagery.

1.3 Assessment method

Data have been compiled from available sources, listed above, which indicate areas of existing mineral extraction, former areas of extraction and any potential future sites, based on submitted planning documentation. Areas of potential future mineral extraction have been delineated to inform the routeing study, and available information regarding likely extraction methods has been taken into account.

It should be noted that this study is based on the documents available at the time of writing. It should be recognised that this study is, of necessity, based mainly on available documented information and that areas identified as having potentially economically viable prospects would require additional intrusive investigation to prove the reserves before any extractive works could be undertaken.

1.4 Report structure

This report is set out into four sections. Section 2 sets out the context of the Study area and presents the baseline geological conditions, in a resource context, along with the relevant Local Authority Planning Policy. Section 3 identifies the areas of existing mineral extraction and the implications for the OHL routeing. Section 4 identifies former extractive sites and potential future sites, and the possible consequences these may have for the OHL routeing.

2 GEOLOGY AND MINERAL PLANNING POLICY

2.1 General location

The 132 kV OHL is to run from Kennoxhead Wind Farm substation, located at National Grid Reference (NGR) NS 7714 2440 to the Coalburn Collector Substation at NGR 7714 24408. The area is located entirely within the South Lanarkshire Council (SLC) area.

The Study area (Figure 2.1) is an area of undulating topography, varying between 240 m and 490 m above Ordnance Datum (AOD), with cover consisting of forestry plantation, some natural woodland, open upland and former opencast coal sites with associated restored and unrestored land and spoil heaps. The area lies to the west of the M74 and the OHL route would run in a roughly south to north direction in relative proximity to the communities of Glespin, Douglas and Coalburn and existing wind farms. The OHL route could take several paths in order to avoid sensitive or high risk sites.

2.2 Superficial geology

The superficial deposits are predominantly diamicton (glacial till), clays to sands and gravels, of Devensian age.

There are glaciofluvial deposits of Quaternary age and alluvium of Holocene age within the study area, which are mainly confined to river valleys. The glaciofluvial deposits consist of sand and gravel with occasional lenses of silt, clay or organic material. The alluvium, of similar characteristics, comprises soft to firm, consolidated, compressible silty clay, with some layers of silt, sand, peat and basal gravel. The glaciofluvial and alluvium deposits are broader and more notable adjacent to Poniel Water, near the M74, and along the Douglas Water, from around Glespin and continuing north-east under the M74.

There are some areas of discontinuous peat deposits across the hill slopes, and in isolated lowland areas such as to the south of Coalburn and the lower flanks of the North side of Hagshaw Hill and Henry's Hill.

Areas with no superficial cover mainly identify former opencast coal mines, where the cover is no longer natural material (classed as 'made ground'), and some steeper hillslopes.

2.3 Bedrock geology

2.3.1 Bedrock summary

The bedrock across the study area mainly consists of moderately to heavily faulted sedimentary rocks of Silurian to Carboniferous age with occasional volcanic rocks of Silurianto Devonian age. The area is cross-cut by north-west to south-east trending Palaeogene age dolerite dykes.

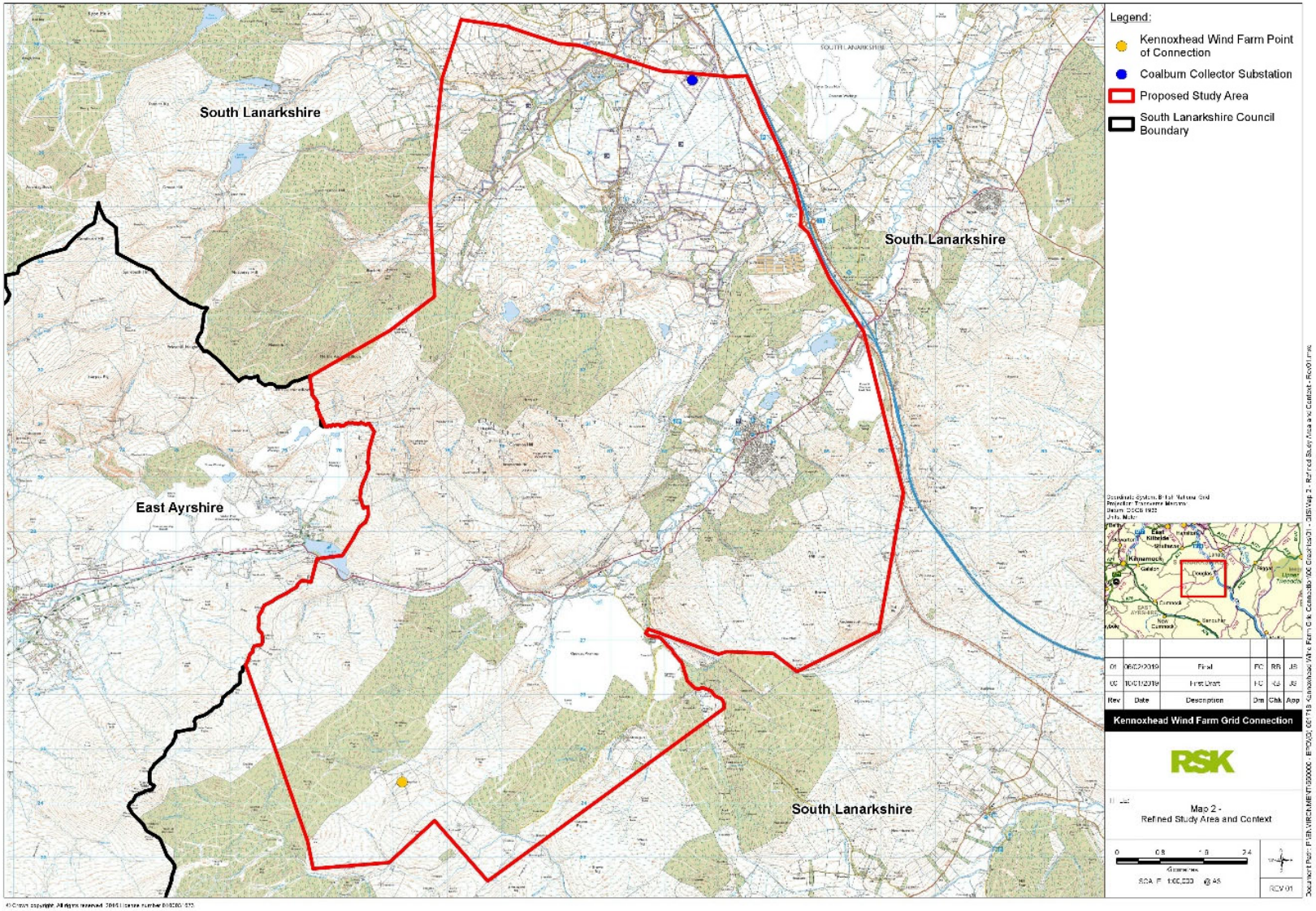

Figure 2.1: Map of the study area and connection points

2.3.2 Stratigraphy

The bedrock geology of the study area is dominated by Carboniferous strata, which contain most of the potential resources in the area. The geology of the area is complex, consisting mainly of rocks from the Scottish Coal Measures, the Clackmannan Group, the Strathclyde Group and the Inverclyde Group.

All the main rock formations are characterised by cyclic sequences of sandstones, siltstones and mudstones. They include interbeds of ironstone, seatearth, limestone and coal seams in varying proportions. The seatearths, coals and limestones have traditionally been the main units targeted for exploitation. The older Inverclyde Group is dominated by sandstones with silty mudstone interbeds, and is largely lacking coals, seatearths and exploitable limestone.

The central-western part of the study area is characterised by rocks from the Lanark Group, of Silurian and Devonian age. These include the Swanshaw Sandstone and Quarry Arenite Formations and are typically sandstones with minor conglomerate and mustone.

Some igneous rocks are present, mainly also Silurian and Devonian in age. These consist of volcanic sequences within the Lanark Group, mainly basaltic in composition, and are present in the south-western and south-eastern parts of the study area.

A series of dykes cuts across the region, with a characteristic north-west to south-east trend. These are all Palaeogene in age, associated with the volcanic activity on Mull and related areas, and are typically dolerite or quartz dolerite composition.

2.3.3 Structural geology

The area shows considerable faulting and formation of basin fold structures. The study area is located just north of the Southern Uplands Fault, a major extensional fault that forms the southern boundary of the Midland Valley of Scotland. A number of prominent regional north-east to south-west trending faults are associated with movement on the Southern Uplands Fault.

In addition, a series of west to east and north-west to south-east faults are associated with the formation of basins during the Carboniferous period. The study area contains part of a major local syncline (downfold) structure, the centre of which exposes the Passage Formation sandstones and coals at the top of the Clackmannan Group, located at the eastern side of the study area.

2.3.4 Resource context

The study area includes a number of former mine workings, including extensive opencast coal sites. The Dalquhandy Opencast Site occupied an area of approximately 10 km^2 and extracted from a number of coal seams within the Limestone Coal Formation. The Mainshill Site, currently undergoing restoration, exploited coals within the Upper Limestone and Limestone Coal Formations. The Glentaggart Opencast Site exploited coal reserves within the Scottish Coal Measures. Some underground coal mining in the southern study area, around Glespin, have left significant numbers of shafts and adits in this part of the area (Appendix Map 3).

Aggregate was formerly extracted from the area around the Poniel Water, taking advantage of superficial sand and gravel deposits adjacent to the river.

Planning permission for a new coal mine, Glentaggart East (Figure 3.1) is currently in the final stages of agreement with the council.

2.4 Planning policy

South Lanarkshire Council has three tiers of planning policy: National Planning Policy, Strategic Development Plans (SDPs) and Local Development Plans (LDPs). Planning in South Lanarkshire is also covered by:

- National Planning Framework for Scotland 3 (NPF3) 2014
- Scottish Planning Policy (SPP) 2014
- 'Clydeplan' The Glasgow and Clyde Valley Strategic Development Plan (GCVSDP) 2017
- South Lanarkshire Local Plan 2009 (SLLP)
- South Lanarkshire (adopted) Minerals Local Development Plan 2012 (MLDP)

There is also recent Non-Statutory Planning Guidance for minerals provided by South Lanarkshire in 2017.

The MLDP emphasises that South Lanarkshire has diverse geology, which was historically significant in supporting the heavy industries across the Clyde area. These included the significant areas of the Central Coalfield of Scotland. In addition to the coal resources, the region also contains fireclays and mudstones suitable for brick making. Furthermore, there are also sedimentary sequences suitable for producing hard rock aggregates and natural building stone. The MLDP divides South Lanarkshire into five discrete geographical areas based on their natural resource potential. The study area is located within the Douglas Valley area and the principal mineral resources comprise:

- Coal;
- Fireclay;
- Peat;
- Sand and gravel.

The SPP dictates that Mineral LDPs are to identify 'Areas of Search'. However, due to the range and extent of economically viable resources within South Lanarkshire, the entire county is classified as an 'Area of Search'. Although South Lanarkshire has considerable mineral potential, many areas are either unsuitable or suitable for only limited development because of their environmental sensitivity.

Even if reserves are proven, several provisions must be fulfilled before extraction can take place. Sites must meet certain criteria based on the natural and cultural heritage sites that require protection. Fifteen mineral policy guidelines have been set to assess the feasibility of extractive sites based on the potential impacts and economic interests. One part that of the LDP relates directly to extraction is the Spatial Framework (Policy MIN 1; South Lanarkshire Council, 2012). This is to continue to ensure an adequate and steady supply of minerals and maintain a minimum ten year land bank of aggregates.

There are no specific policies relating to coal (with the exception of restoration and bing reclamation), but many that detail the requirement for protection and enhancement of historical and natural landscapes.

Please refer to the MLDP and LDP 2 for full details of each dedicated policy (South Lanarkshire Council, 2012; 2018a).

3 EXISTING MINERAL EXTRACTION

3.1 Method

Existing mineral extraction in the Study area was assessed using several data sources. The following data were considered, and a series of reports and guidance scrutinised:

- A review of mineral planning applications and consents, including screening and scoping opinions.
- SLC Minerals Local Development Plan (2012) and subsequent monitoring statements (2013 and 2017)
- Planning guidance produced by SLC.
- Information from The Coal Authority via the interactive Map Viewer service
- A previous Minerals report by Ramboll Environ for SP Energy Networks; Dalquhandy Wind Farm to Coalburn Substation 132 kV Overhead Line

The term 'Existing Mineral Extraction' consists of three separate aspects:

- *Areas of existing extraction* – working faces, zones of previous extraction that continue to be used for stockpiling and other associated areas used for access, plant or buildings.
- *Areas yet to commence extraction* – this can be areas within current operational sites that have yet to be exploited or mineral sites with planning approval that have yet to begin operations.
- *Areas under option agreements* – areas with agreed contracts in respect of future mineral extraction operations.

3.2 Baseline conditions

3.2.1 Coal mining

According to the MLDP Monitoring Statement (2017), SLC agreed to grant planning permission for a new surface mine at Glentaggart East (in August 2016; Figure 3.1) The consent is currently awaiting legal agreement from the council, so work has yet to commence. Previous planning permission for the site was granted to the Scottish Coal Company Ltd (Scottish Coal) but no work was implemented because the company was liquidated in 2013.

Mainshill (also formerly owned by Scottish Coal) is the only other working site in the study area. Although reserves of coal remain, work ceased in 2013 after the company's liquidation. Restoration bond monies have been secured and restoration work was expected to start in 2017.

See Appendix Map 5 for existing sites.