

# Lochinvar Coking Coal Project Scoping Study Update

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- An update of the Operating Costs and Capital Costs completed by technical consultants, Palaris
- The Directors have chosen to use the current spot Hard Coking Coal (HCC) Benchmark price of US\$160/t and current spot exchange rates as long term assumptions for the valuation update
- A marketing study for Lochinvar coal including demand assessment and expected price discounts completed by coal market research consultants, Wood Mackenzie
- Update of the project valuation completed by Palaris, with sensitivity analysis completed internally.

Other than the above listed updates, and as detailed in this announcement, the remainder of the 2014 Scoping Study results as announced on 27 October 2014 remain materially unchanged.

The valuation update has resulted in a substantial improvement in project economics from the 2014 results. The project now has a base-case NPV<sub>9%</sub>, determined to an accuracy of  $\pm 40\%$ , of approximately US\$410M, an IRR of approximately 27% and a payback period of approximately 4 years.

#### **Cautionary Statements**

The Scoping Study update referred to in this announcement has been undertaken for the purpose of ascertaining whether a business case can be made to proceed to more definitive studies on the viability of the Lochinvar Coking Coal Project. It is a preliminary technical and economic study of the potential viability of the Lochinvar Coking Coal Project. It is based on low level technical and economic assessments that are not sufficient to support the estimation of ore reserves. Further exploration and evaluation work and appropriate studies are required before NAE will be in a position to estimate any ore reserves or to provide any assurance of an economic development case.

As was the case for the 2014 Scoping Study announced on 27 October 2014, NAE believes it has reasonable grounds under ASIC information Sheet 214 to report the results of the Scoping Study Update. The mine plan on which the updated valuation is based contains 38% Indicated Mineral Resource, 56% Inferred Mineral Resource<sup>1</sup> and 6% Exploration Target<sup>2</sup>. The first 7 years of mining referred to in the Scoping Study Update are 100% within the Indicated Resource area, years 8-11 of mining is within a mix of Indicated and Inferred Resource areas and from year 12 onwards mining is primarily within the Inferred Resource area.

- 1. There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the Production Target itself will be realised.
- 2. Exploration Targets: The potential quantity and quality of the exploration targets referred to in this announcement are conceptual in nature, and there has been insufficient exploration to date to define a mineral resource in accordance with the Australian Code for Reporting of Mineral Resources and Ore Reserves published by the Joint Ore Reserve Committee ("JORC Code"). Furthermore, it is uncertain if further exploration at its exploration targets will result in the determination of a mineral resource.



The Scoping Study is based on the material assumptions outlined in this announcement and in the original 2014 Scoping Study Announcement of 27 October 2014 referred to above. These include assumptions about the availability of funding. While NAE considers all of the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the Scoping Study will be achieved.

To achieve the range of outcomes indicated in the Scoping Study, funding of in the order of US\$250M will likely be required. Investors should note that there is no certainty that NAE will be able to raise that amount of funding when needed. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of NAE's existing shares. It is also possible that NAE could pursue other 'value realisation' strategies such as a sale, partial sale or joint venture of the project. If it does, this could materially reduce NAE's proportionate ownership of the project.

Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the Scoping Study.

## **Project Economics Update**

The base-case results from the 2017 Lochinvar valuation update recently completed by Palaris, along with the corresponding results from the 2104 scoping study valuation (±40% accuracy), are summarised in Table 1.

Parameter		Unit	2014 Scoping Study Results	2017 Scoping Study Update
Production	LOM ROM	(Mt)	47	47
	LOM Saleable Coal	(Mt)	34	34
	Life of Mine	(Years)	26	26
	Annual Ave. ROM	(Mtpa)	1.9	1.9
	Annual Ave. Saleable Coal	(Mtpa)	1.4	1.4
	First Production	Year	2018	2022
Revenue	Benchmark HCC Price	(US\$/t)	165	160
	Lochinvar Realised Price	(US\$/t)	143	150
	Average Price Discount	(%)	13.3	6.0
<b>Operating Costs</b>	Unit Operating Cost	(US\$/t)	70	58
Capital Costs	Pre-Construction Capital	(US\$ M)	-	23
	Construction Capital	(US\$ M)	284	229
	Life of Mine Capital <sup>1</sup>	(US\$ M)	593	513
Cash	Annual Cash	(US\$ M pa)	75	95
	Operating Margin	(US\$/t)	73	92
Valuation <sup>2</sup>	NPV (@9%)	(US\$ M)	263	410
	IRR	(%)	20	27
	Payback (undiscounted)	(Years)	5	4

Table 1: Summary Economic Comparison - Lochinvar Scoping Study (Base-Case)

The update has delivered an improvement in the Base-Case NPV of 54% and an improvement in the Base-Case IRR of 35% when compared to the 2014 Scoping Study.

<sup>&</sup>lt;sup>2</sup> Real after tax,unleveraged, 1 Jan 2017 basis



<sup>&</sup>lt;sup>1</sup> Life of Mine Capital includes Construction, Pre-Construction, Sustaining and Replacement Capital

The Scoping Study Update NPV improvement has primarily been driven by depreciation of the British Pound Stirling (GBP) against the USD following Brexit, and by high demand for high volatile coking coals in Europe resulting in reduced quality discounts (i.e higher realised price) expected for Lochinvar coal sales into Europe.

These results show the potential for the Lochinvar project to deliver excellent returns on investment with lowest quartile operating costs resulting from short rail transport distances, low labour costs, high coal yield (71%), low royalties, and low taxes.

### HARD COKING COAL BENCHMARK PRICE ASSUMPTIONS

NAE's Directors have selected the current Hard Coking Coal (HCC) spot price (US\$160/t) as the long-term HCC benchmark price assumption for the Base-Case valuation update.

The Directors have formed the view that the current HCC Spot price (US\$160/t) is a reasonable point of reference given the highly volatile HCC price over the past year, driven by a constantly moving supply and demand dynamic influenced by global steel demand. Global steel demand is projected to steadily increase going forward, in particular in the US, China, India and Japan where major infrastructure spending programs are planned, and we expect this will exacerbate HCC availability shortfalls. The limited investment in new coking coal production during the commodity downturn period also means that it will take some time for new mines to come on line and respond to the expected demand growth.

The impact of Chinese demand on the price has a significant influence but in itself is driven by the regulatory decisions surrounding HCC production internally which is, as noted by all recognised commodity commentators, almost impossible to predict. The mid and long term HCC prices, as indicated by the majority of credible commentators, are therefore subject to wide swings.

The Directors are therefore of the view that the it is probable that the HCC price will remain in the range of US\$140/t to US\$170/t over the medium to long term and have therefore selected the current spot price (US\$160/t), which is within this range.

Details of the potential effect of prices being above or below the selected HCC benchmark price assumption are described in the sensitivity analysis commencing on page 5.

## REALISED PRICE ASSUMPTIONS (QUALITY AND FREIGHT DISCOUNTS)

Strong demand growth for High Volatile coking coals in Europe forecast by Wood Mackenzie, has resulted in significantly reduced quality discounts for Lochinvar coal sales in the European market. As detailed on pages 11 and 12, Wood Mackenzie has determined that Lochinvar coal sales into the UK and Europe could achieve an average quality discount of 91% of the HCC Benchmark price over the Life of mine.

Based on the Company's sales plan (34% sales to UK and 66% sales to Europe over life of mine), and average sea freight premiums provided by Wood Mackenzie, a freight premium of 3% of the HCC Benchmark price assumed by NAE is also expected for Lochinvar coal sales into the UK and Europe.

The Realised Price for Lochinvar coal sales has been determined by adding the expected quality discount (91%) and the expected freight premium (3%), resulting in a net quality and freight adjusted discount of 94% of the HCC Benchmark price. The application of this 6% net discount reduces the HCC Benchmark price of US\$160/t assumed by NAE to a Lochinvar Realised Price of US\$150/t (see pages 11 and 12 for further details).



## **EXCHANGE RATE ASSUMPTIONS**

NAE's Directors have selected the following current (17 Feb 2017) spot exchange rates as the long-term exchange rate assumptions for the valuation update.

**Table 2: Exchange Rate Assumptions** 

Parameter		2014 Scoping Study	2017 Scoping Study
<b>Exchange Rates</b>	GBP : AUD	1.82	1.63
	GBP : USD	1.69	1.25

Since the 2014 Scoping Study, the GBP has depreciated ~26% against the USD, largely as a result of Brexit, and the AUD has depreciated 10% against the USD. As the majority of Operating Cost and Capital Cost estimates are estimated in GBP and AUD, the devaluation in these currencies since the 2014 Scoping Study has significantly reduced the 2017 Lochinvar Operating Costs and Capital Costs in USD terms, whereas the revenues remain independent of these fluctuations. This represents a significant part of the valuation improvement and places Lochinvar as an even lower cost operation in USD terms and clearly in the lowest quartile of the global seaborne metallurgical cost curve (see Figure 5).

## **UPDATED OPERATING COST AND CAPITAL COST ESTIMATES**

Palaris have updated the Operating and Capital Cost estimates for the valuation update. In the majority of instances, the source currency cost estimates have been reviewed and remain unchanged other than several minor operating costs where current estimates had changed (eg reduced costs of diesel and underground supports based on current estimates).

#### **Operating Cost Estimate Update**

Operating costs estimates have been updated by Palaris using a combination of first principals an industry benchmarks. A breakdown of the updated Operating Cost Estimate is shown in Table 3.

Table 3: Updated Operating Cost Estimate by Area

Cost Area	US\$/t ROM	US\$/t Clean Coal
Longwall	4.7	6.6
Development	8.2	11.6
Outbye	6.3	8.8
Technical Support	3.0	4.2
Operations Support	3.2	4.5
ROM Cash Costs	25.4	35.7
Coal Handling & Processing	5.8	8.1
FOR Cash Cost	31.2	43.8
Transport & Handling	8.5	11.9
Corporate & Marketing	1.3	1.9
Royalties	0.2	0.2
FOB Cash Costs	41.2	57.8



An FOB cost of US\$58/t clean coal has been estimated as an average for the life of mine, placing Lochinvar clearly in the lowest quartile of the global seaborne metallurgical cost curve (see Figure 5).

The accuracy of the operating cost estimate is up to  $\pm 40\%$ .

## **Capital Cost Estimate Update**

Construction capital costs to first coal sales have been estimated by Palaris using a combination of first principles, quotes and industry benchmarks. The capital cost estimate includes a 12% contingency. A breakdown of capital costs is shown in Table 4.

A Construction Capital Cost for the project of US\$228M has been estimated which is now slightly below average industry capital intensity for coking coal projects of this size based on information available to the Company. The project benefits from a low infrastructure component of the overall capital cost, which is partially offset by the initial cost to access the coal.

The Scoping Study update includes all of the Development and Exploration expenditure for the project in the up-front project capital cost (see Pre-Construction Capital in Table 1).

The financial evaluation includes sustaining and replacement capital in line with industry standards for the life of the project.

Leasing of mobile mining and surface equipment has been assumed for the Update, and therefore remains unchanged from the 2014 Scoping Study.

The accuracy of the capital cost estimate is up to  $\pm 40\%$ .

**Table 4: Updated Capital Cost Estimate by Area** 

Category	Capital Estimate (US\$M)
Drift and Shafts	42
Longwall Equipment etc.	36
Underground Infrastructure	32
Capitalised Development	1
Total Underground Development	110
Surface Facilities	40
Coal Handling and Preparation	20
Rail Spur	15
Total Surface Development	75
Owner Cost and Land Acquisition	18
Contingency (@12%)	27
Total Construction Capital	229

## Sensitivity Analysis

Sensitivity analysis undertaken internally on the valuation model has indicated the valuation results are most sensitive to:



• **HCC Benchmark Price**: The valuation is most sensitive to variation in the HCC Benchmark price (which in turn directly affects the realised price of the product). The updated Breakeven HCC price (i.e. where NPV=0) for Lochinvar is approximately US\$100/t.

Table 5: NPV Sensitivity to HCC Benchmark Price (US\$/t)

HCC Price	110	120	130	140	150	160	170	180	190	200
NPV <sub>9</sub> (US\$m)	80	140	210	270	340	410	470	540	600	670

- **Coal Yield:** Coal yield drives revenue and costs and therefore financial returns are sensitive to the assumptions that influence the coal yield. These assumptions include ash content, roof and floor dilution and CPP performance.
- **Longwall Production:** The productivity of the longwall remains a key risk factor of the project and will be evaluated further in future studies.
- Operating Costs: Mining, processing and G&A costs have a lesser impact on the NPV than the above variables that drive the revenue of the project. However, the lowest quartile operating cost is a key feature of the Lochinvar Project and the importance of creating a project that delivers low FOB costs is critical to long term economic viability.
- **Construction Capital Costs**: The Lochinvar project is only moderately sensitive to construction capital cost.

The sensitivity to changes in the key inputs and their assessed potential risk ranges is shown in Figure 1.

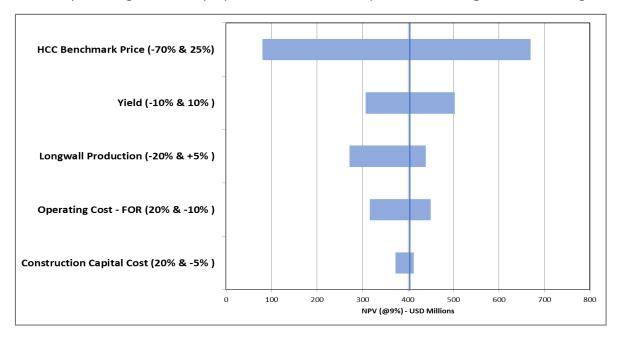


Figure 1: Lochinvar 2017 Valuation Sensitivity Analysis Chart

The above sensitivity analysis shows that the project economics remain robust over the range of assumptions considered.

In particular, the analysis highlights that the valuation changes most significantly as a result of changes in Hard Coking Coal (HCC) Benchmark prices which have displayed a high degree of volatility over recent years. Notwithstanding the high sensitivity of the valuation to HCC price variation, the sensitivity analysis demonstrates that the project economics remain robust within the HCC price range considered.



## Recent Coking Coal Price History

Since the beginning of 2011, Hard Coking Coal (HCC) Benchmark spot prices have varied from peaks of over US\$300/t to a low of ~US\$70/t. The average HCC spot price over this period has been US\$172/t.

The 2014 Lochinvar Scoping Study assumed a long-term benchmark HCC price of US\$165/t when the HCC spot price was around US\$120/t.

In September 2015, when the HCC spot price was around US\$93/t, NAE made the decision to place activities at Lochinvar on hold due to the significant fall in coking coal prices.

On 14 November 2016, NAE announced the re-start of activities at Lochinvar due to strong increases in the HCC price during 2016 which had risen to US\$307/t.

In early 2017, HCC spot prices have fallen from the Nov 2016 high, flattening recently at ~ US\$160/t.

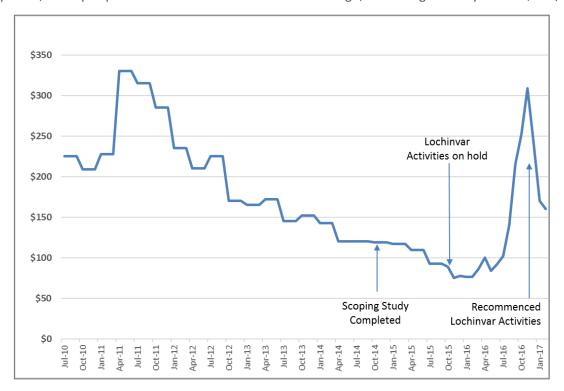


Figure 2: Historical Benchmark Hard Coking Coal (HCC) Spot Prices

## **Project Funding**

To achieve the range of outcomes indicated in the Scoping Study, funding of in the order of US\$250M will likely be required for the Exploration and Development and project Construction Capital Expenditure required to develop the project.

Whilst there is no certainty that project development funding will be obtained on satisfactory terms, at the time required, or at all, the NAE Directors believe that it is reasonable to assume the availability of funding for the development of the Lochinvar project for the purposes of updating the Scoping Study. Factors which support this assumption, without stating that funding will be necessarily be able to be obtained, include:



- The Company has a successful record of having raised a significant amount of funding for exploration and project development of its projects by way of equity placements.
- The Company has supportive shareholders who have participated in equity capital risings in the past
- The Board and Management have a strong track record in mining project finance and equity raising.
- The Company has commenced discussions with potential strategic investors who may wish to participate in the project and provide funding.
- The Company has had preliminary discussions with potential Debt providers regarding the possibility of project debt financing as the project is more advanced.
- The possibility of attracting 'off-take' agreement financing as the project is more advanced.

As referred to above, there is no certainty that NAE will be able to obtain funding when needed. It is possible that funding may dilute or otherwise affect the value of NAE's existing shares. It is also possible that NAE could pursue other 'value realisation' strategies such as a sale, partial sale or joint venture of the project. If it does, this could materially reduce NAE's proportionate ownership of the project.

## **Lochinvar Coal Marketing Study**

Coal market research consultants, Wood Mackenzie have been engaged by NAE to undertake a marketing study to assess the demand for Lochinvar coal in the European coking coal market and the expected quality and freight discounts to the Hard Coking Coal (HCC) Benchmark price that Lochinvar sales could be expected to achieve. This section summarises the key results of Wood Mackenzie's study.

## GLOBAL METALLURGICAL COAL DEMAND

Global crude steel demand is forecast to grow from around 1.2Bt this year to 1.3Bt by 2035 (CAGR of 0.4%) with European production growing from 136Mt to 147Mt (CAGR 0.5%). As a result, global metallurgical coal imports are forecast to grow from around 283Mt this year to 348Mt by 2035 (CAGR of 1.1%). Global metallurgical coal import demand is forecast to increase by some 4 Mt each year to 2025. Post-2025, global metallurgical coal demand growth is forecast average around 5Mtpa.

## **EUROPEAN METALLURGICAL COAL DEMAND**

Wood Mackenzie forecast European Metallurgical coal imports to grow from around 52Mt in 2017 to 61Mt in 2035, with the highest forecast growth coming from the UK, France, and Turkey.

Wood Mackenzie's study has indicated that Lochinvar coal is comparable to the US High Volatile A Coking Coal Benchmark specification.

European steel mills have a preference for High Volatile Hard Coking Coals (HV HCC) over use of Australian Semi Soft Coking Coals in their coke blends. Traditionally European steel mills have utilised the coals available (i.e. domestic or imports from the US) and have therefore developed blends that utilise these coals. Australian Semi Soft Coking Coals are not favored in the European market due to cost to supply (higher sea freight) and the fact that to be utilised they also require (mainly Australian) Low Volatile HCC's to produce a sufficiently strong coke.

Wood Mackenzie's forecast for HV HCC imports into Europe is shown in Figure 3.



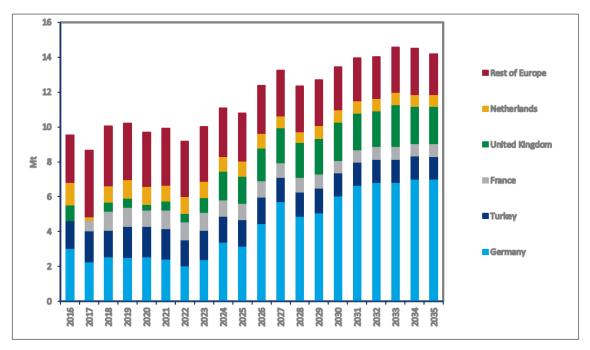


Figure 3: Europe – Forecast HV HCC Imports (source: Wood Mackenzie)

Wood Mackenzie forecast European import demand for HV HCC to grow from 8.7 Mt in 2017 to 14.2 Mt in 2035. This represents a forecast increase of over 5Mt (>50% increase) in European imports of HV HCC over the forecast period. Being located locally in the UK, Lochinvar is well placed to supply the strongly growing European HV HCC market.

## **LOCHINVAR COAL QUALITY ASSESSMENT**

Wood Mackenzie have made an assessment of the expected Lochinvar coal specification compared with industry standards benchmark coals and other coals commonly traded in the seaborne market.

A comparison of the Lochinvar Indicative specifications along with US Hampton Road High Volatile Hard Coking Coals Type A and Type B is shown in Table 6. Figure 4 presents the graphical comparison of the Lochinvar coal quality with HCC, US HVA HCC and US HVB HCC benchmarks.

Wood Mackenzie's assessment has indicated that:

- Lochinvar coal is comparable to highly sought after a US High Volatile A Hard Coking Coal (US HVA HCC)
- Similar quality high volatile coals are mined in the US and are well accepted by European consumers
- The Lochinvar product is attractive for its low ash content
- While high, the sulphur content is within the tolerance of European steel mills, especially as a blended feed



Table 6: Coal Specifications (source: Wood Mackenzie)

Area	Coal Type	ТМ	IM	Ash	VM	FC	TS	Р	CSN	CSR	Ro. Max	Max Fluidity
Queensland	HCC - Low- Vol	9.5	1.0	9.7	20.7	68.6	0.60	0.035	8.5	74.0	1.42	400
US Hampton Roads	HCC High- Vol A	7.5	-	8.6	33.2	49.9	0.81	0.015	8.4	53.0	1.0	27,247
US Hampton Roads	HCC High- Vol B	6.7	-	9.2	32.7	50.6	0.78	0.015	7.3	47.0	0.9	23,137
Lochinvar	Indicative Specification	8.0	3.0	5.0	35.0	57	1.4	0.010	7	50	0.84	500 - 11,000

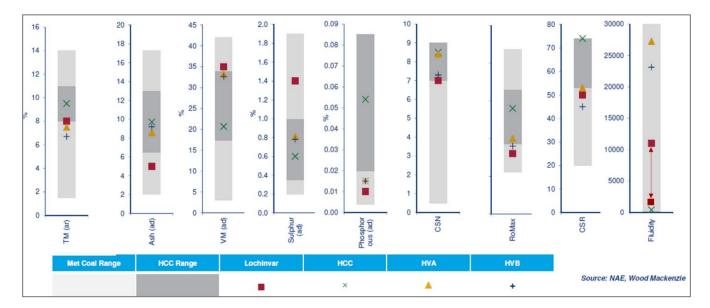


Figure 4: Comparative coal quality ranges for seaborne traded metallurgical coals (source: Wood Mackenzie)

The Lochinvar Indicative Specification is of a preliminary nature and it should be noted that:

- Lochinvar coal processing modelling results indicate potential to produce a 1.2% Sulphur product, and 1.4% is considered the expected upper limit
- Lochinvar Coke Strength after Reduction (CSR) has been predicted by Pearson Coal Petrography, Australia. Bulk samples and CSR tests are planned for the next phase of studies at Lochinvar but have not yet been undertaken.
- Lochinvar currently shows a wide range of fluidity results ranging from 500 ddpm to 11,000 ddpm which is understood to be caused by wash media used in the laboratory during washability tests. This has a documented effect on suppressing fluidity in some coals. Further work is required to more accurately determine fluidity for Lochinvar coal.

## LOCHINVAR COMPETITIVENESS – 2017 GLOBAL SEABORNE COST CURVE

Lochinvar sits comfortably in the first quartile of the 2017 Wood Mackenzie Global Seaborne Coking Coal FOB cost curve. At US\$58/t, Lochinvar has the potential to deliver a low-cost operation due to relatively low mining costs (especially due to low labour rates in comparison to most international operations) and



favourable exchange rates. Wood Mackenzie do not expect the cost curve profile to change dramatically over the life of production.

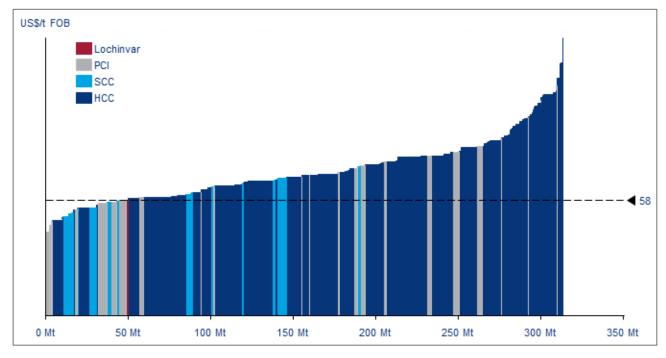


Figure 5: 2017 Global Seaborne Metallurgical Coal Total Cash Cost Curve (source: Wood Mackenzie)

## **LOCHINVAR PRICING**

## **Quality Discount**

Given that the Lochinvar coal is similar to the US High Vol A coals, Wood Mackenzie have recommended that Lochinvar coal is priced at a penalty to US HVA HCC. Wood Mackenzie forecast that US HVA HCC coals will trade at an average discount of 96% to the HCC Benchmark over the forecast life of mine.

Wood Mackenzie expect that an estimated 54 Mt of US HVA style coal will be removed from the market due it its higher cost basis. In response, European steel mills may support a higher differential price for the remaining HVA style coals (over historical norms, although not as high as currently) to be able to continue sourcing the high fluidity material they require.

Wood Mackenzie have assessed the premia / penalty for Lochinvar coal quality versus benchmark HVA and HVB quality and have determined that Lochinvar could achieve a price of 95% of the US HVA HCC price or 91% of the HCC Benchmark price over the life of mine.

#### **Sea Freight Premium**

Wood Mackenzie has provided average sea freight premiums for Lochinvar coal sales into UK and Europe over the life of mine as follows:

- Domestic UK Sales US\$9.70/t (the full cost of alternative US-UK sea freight)
- Export Sales to Europe US\$2.20/t (the difference in US-Europe vs UK-Europe sea freight cost), over the life of the mine.

Based on the Company's sales plan (34% sales to UK and 66% sales to Europe over life of mine), the Average Freight Premium for all sales is expected to be **US\$4.70/t**, or **3% of the HCC Benchmark price** assumed by NAE.



### **Net Quality and Freight Discount**

On a quality and freight adjusted basis, Lochinvar coal is therefore expected to be priced at an average of 94% of the Australian HCC Benchmark price over the life of mine.

Figure 6 shows the relative impacts of the Wood Mackenzie quality discounts and sea freight premium adjustments applied to the HCC Benchmark price of US\$160/t assumed by NAE and based on NAE's Lochinvar Coal sales plan into UK Europe, resulting in a net Realised Price of US\$150/t, which has been assumed for the valuation update.

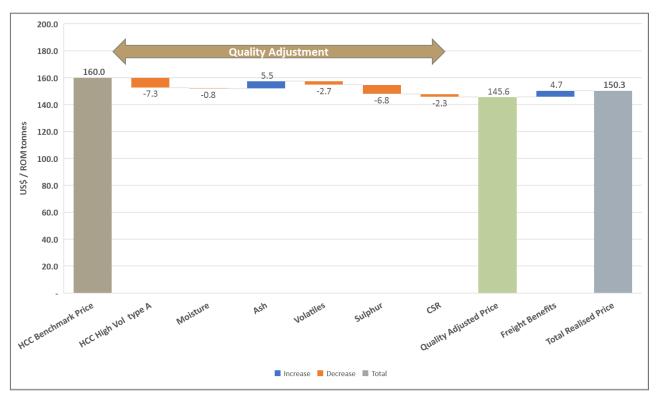


Figure 6: Lochinvar Realised Price Build UP (US\$/t) (Source NAE and Wood Mackenzie)

## ASSESSMENT OF EUROPEAN MARKET DEMAND FOR LOCHINVAR COAL

With an expected average annual production of 1.4 Mtpa, Lochinvar represents around 12% of European demand for HV HCC in 2021.

Wood Mackenzie forecasts European demand for Lochinvar style high volatile coal will increase over the forecast period from 10.4Mt in 2017 to 15.9Mt by 2035 (an increase of over 50%). While demand rises, Wood Mackenzie forecast a decline in supply of US HV HCC's through the forecast period due to resource depletion and cost inflation.

In response, steel mills will seek replacement coals either from new sources or, pay a premium (relative to the benchmark) to incentivise this supply to remain in the market.

With its proximity to European demand, coal quality and cost basis Wood Mackenzie believe Lochinvar is well positioned to take advantage of the forecast environment and gain market share.



## **Next Steps and Development Timeline**

As a result of the decision in 2015 to place activities at Lochinvar on hold due to low coking coal prices at the time, the Lochinvar Future Work Program and timeline outlined in the 2014 Scoping Study announcement has now become outdated.

The completion of this update to the Scoping Study marks the completion of the first major milestone in the re-start of activities on the Lochinvar project announced on 14 November 2016.

A new potential timeline of 4 years to production has been assumed in the valuation update as shown in Figure 7. An additional 1 year has been added to the 2014 Scoping Study development timeline, primarily to include an allowance for time to seek funding for the development and exploration work program.

NAE expects to re-commence a staged exploration program during 2017 H2, initially from its available cash. It is expected that the first stage of the exploration program may focus on opportunities to extend the resource into the Lochinvar South licence and / or de-risking the project (eg CSR, Fluidity tests or seismic work to improve understanding of the geological structure). The exact work program is still to be determined by the Company and further announcements will be made when a decision is taken.

NAE believes that shareholder value may be maximized through the involvement of a strategic partner to fund and to advance the project and advancing discussions aimed at progressing this will be the short term focus this year.

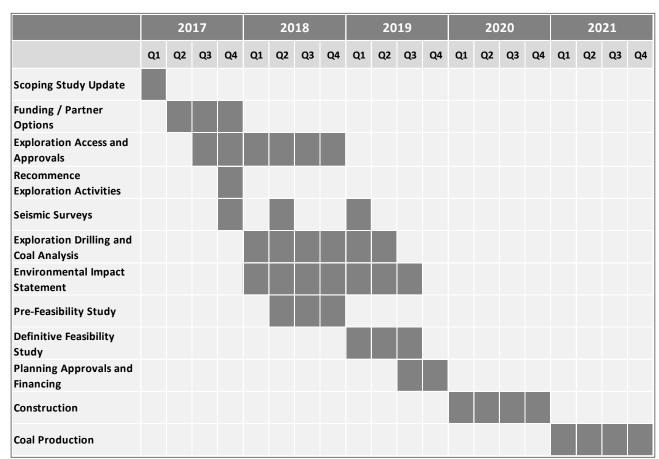


Figure 7: Lochinvar Timeline for Development and production



## 2014 Scoping Study - Background

## **2014 SCOPING STUDY**

During 2013 and 2014, NAE completed two drilling programs which defined a total Indicated and Inferred Resource of 111 Mt at Lochinvar as detailed on page 16 (see NAE Announcement, 29 August 2014). Other than as updated as detailed in this announcement, the Company is not aware of any new information or data which affects the information in the 29 August 2014 and the remainder of the information in that announcement remains materially unchanged

In October 2014 NAE completed its Scoping Study on the Lochinvar Project confirming positive economics for the project (*see NAE Announcement, 27 October 2014*). The above sections detail the updates which have been made to the 2014 Scoping Study. The sections which follow provide a summary of the 2014 Scoping Study sections which remain current and have been relied on in the 2017 Scoping Study Update.

All the material assumptions underpinning the Production Target are detailed in the 27 October 2014 Scoping Study Announcement and the 29 August 2014 resource statement announcement, and are also repeated below, and as referred to above other than as updated as detailed in this announcement continue to apply and have not materially changed.

#### LOCATION AND OWNERSHIP

The Lochinvar Coking Coal Project is situated on the border of Scotland and England and benefits from close proximity to excellent infrastructure including direct access to rail, power, water, major roads, the major town of Dumfries and city of Carlisle.

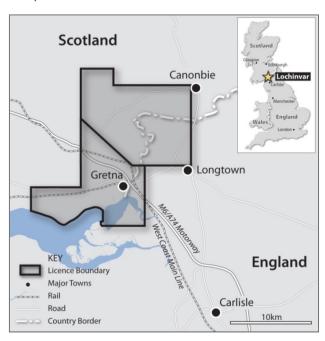


Figure 8: Lochinvar Project Location

NAE holds a 100% interest in the Exploration Licences and Conditional Underground Mining Licences over the Lochinvar and Lochinvar South areas as shown in Figure 1. The Lochinvar and Lochinvar South Licences were granted to NAE by The Coal Authority in July 2012 and April 2014, respectively.



## PROJECT OVERVIEW

An underground mine connected by a drift (decline) to the surface where coal will be processed and loaded into rail wagons has been selected as development case for the Study.

Underground coal will be mined using a 200m wide longwall with development roadways constructed by 3 continuous miner/ bolters.

An average of 1.9 Mt per annum (Mtpa) of run-of-mine (ROM) coal will be conveyed from underground to the surface through the drift where it will be stockpiled in the ROM stockpile.

The ROM coal stockpile will be reclaimed via front end loader and fed into an adjacent coal processing plant (CPP) which will produce an average of 1.4 Mtpa of clean saleable coal. From the CPP, the clean coal will be conveyed to nearby final product stockpiles located alongside a rail siding.

The short rail siding will connect the operation to the West Coast Main Line (WCML). Coal will be loaded from final product stockpiles into rail wagons by front end loader for direct delivery to UK steel mills or export to European steel mills via Hunterston and/or Blyth ports.

Reject from the CPP will be trucked to a nearby reject storage area that will be contoured into the surrounding landscape. Excess process and mine water will be treated on site and piped to the Solway Firth for discharge in line with approved water quality standards.

Ventilation will be a single vertical shaft, with the drift completing the ventilation circuit. The ventilation shaft will also be utilised as the second means of egress for emergency evacuation.

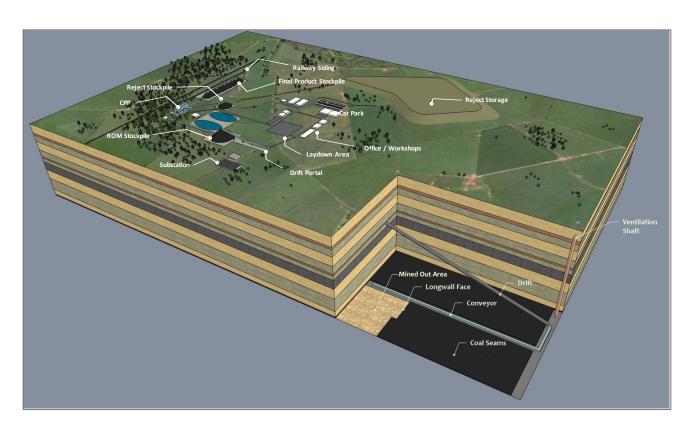


Figure 9: Schematic Lochinvar Mine and Surface Layout



## **RESOURCES**

In August 2014 NAE announced an upgrade to the Lochinvar coal resource following completion of its 2014 drilling program (NAE Announcement, 29 August 2014). A total resource of 111 Mt, comprising of a 49 Mt Indicated Resource and a 62 Mt Inferred Resource, was defined for the Nine Foot and Six Foot Seams as show in Table 7.

The resource estimate is based on 9 holes drilled by the National Coal Board (NCB) from 1979 through to 1983 and 10 holes drilled by NAE in 2013 and 2014. Over 100km of seismic data was also incorporated in the resource estimate providing interpretative evidence for the lateral continuity of coal seams.

Coal Seam (Air Dried Basis)	Indicated Resource (Mt)	Inferred Resource (Mt)	Total Resource (Mt)
Nine Foot Seam	37	49	86
Six Foot Seam	13	13	26
Total	49	62	111

Table 7: Lochinvar Resource Statement (August 2014)

The Nine Foot Seam has an average thickness of 2.2m over the entire resource. The Study assumes mining of the Nine Foot Seam only at depths between 260m and 1,000m.

A revised structural interpretation was completed by Palaris in August 2014 based on geological data from the two NAE drilling programs and a re-interpretation of the historic seismic data. The revised structural interpretation shown in Figure 10 identified an increased density of faulting at Lochinvar and the resource and mine plans used in the Study are based on the revised structural interpretation. Additional minor faults have also been interpreted on seismic profiles which have not been included in the revised structural interpretation due to very low confidence in existence, orientation and extent of these faults.

An additional Exploration Target of 31 - 64 Mt has been identified in areas where there is insufficient information to define a resource at Lochinvar. These areas are located primarily to the south and west of the resource area and also extend further south on the Lochinvar South licence.

The Lochinvar Resource and Exploration Target is constrained by a minimum seam thickness of 1.2m, a maximum depth of cover of 1,000m and a maximum parting distance of 0.8m between coal plies of the Nine Foot Seam where the upper plies are split from the lower ply of the seam.

**Cautionary Note:** The potential quantity and grade of an exploration target is conceptual in nature, there has been insufficient exploration to determine a mineral resource and there is no certainty that further exploration work will result in the determination of mineral resources or that the production target itself will be realised.



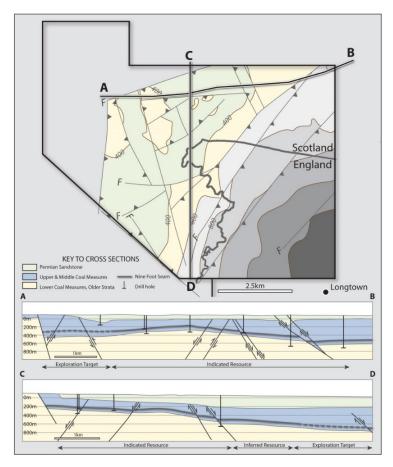


Figure 10: Lochinvar Revised Structural Interpretation (August 2014)

### MINING

#### **COAL ACCESS AND VENTILATION**

The Nine Foot Seam will be accessed from the surface with a single drift approximately 1,700m in length and 6m in diameter. This will be excavated with a tunnel boring machine (TBM) to a 1 in 8 gradient to allow rubber-tyred vehicle access for mine workers and machinery. Coal will be transported to the surface by a 3,500t/h (tonnes per hour) overhead conveyor hung from the drift roof and exit the mine onto a 60,000 tonne ROM stockpile adjacent to the CPP.

Ventilation will be by means of a single 5m vertical shaft. A second ventilation shaft is required in year 8 of the project.

#### MINING METHOD

Coal will be mined primarily using a single bi-directional longwall shearer with a panel width of 200m. Panel lengths range from 0.44km to 4.4km (average length of 2.8km).

The longwall shearer has a cutting height range of 1.8m to 3.6m which will accommodate the expected range in thickness of the Nine Foot Seam within the planned mining area (1.6m minimum thickness, 3.2m maximum thickness, 2.4m average thickness), including roof (0.1m) and floor (0.05m) dilution.

A geotechnical assessment has been undertaken by Strata Control Technology (SCT), an Australia based company with principals that have direct experience in underground coal mines in the UK. This assessment showed that the roof and floor conditions for the Nine Foot Seam are best suited to longwall extraction. SCT's geotechnical assessment has been used by Palaris in setting mine design and productivity assumptions used in the Study.



Development roadways will be driven to a minimum height of 2.0m using 3 continuous miner / bolters. Roadways will be supported using rock bolts with 50-70m wide pillars being left between longwall panels and gateroads.

Pre-drainage of gas ahead of mining is expected to be required and done conventionally via long holes drilled from underground.

#### **PRODUCTIVITY ASSUMPTIONS**

Longwall mining productivity has been individually assessed for each of the 29 mining panels in the preliminary mine plan and all longwall moves have been included in the mining schedule and economic analysis. An overall longwall productivity factor of between 43% and 50% of maximum shearer productivity has been adopted by Palaris to de-rate longwall productivities due to the following factors:

- Seam height
- Depth
- Geological structure
- Roof and floor conditions
- Gas management
- Mechanical availability

Estimates of longwall productivity are well within internationally demonstrated and documented benchmarks and have been independently reviewed.

Development productivities and costs are based on 3 continuous miners, each achieving 120m of development per week.

#### Mine Plan and Production Schedule

The Study is a scoping level and no reserves have yet been calculated, however Palaris have generated a preliminary mine plan and production schedule for the Study. The preliminary mine plan is conceptual in nature and will change with further exploration and definition of the resource and, as further exploration and a more detailed mine design is done, estimates of subsidence and mitigation will be addressed.

The 2014 Scoping Study mining schedule has been updated with first coal production now commencing in 2021 (previously 2018) as shown in Figure 11. Other than the deferral of the date of first coal production in the mining schedule, the mine plan and production schedule have not been changed since the 2014 Scoping Study.

Based on the production schedule **over the life of mine**, a total of 47.3 Mt ROM coal will be produced, averaging 1.9 Mtpa ROM coal with a peak production of 3.1 Mtpa ROM coal in year 16.

Annual variations in ROM coal production are primarily a result of the number of longwall moves and seam thicknesses mined in each year. No attempt has been made to modify the mine plan to smooth annual variations in ROM coal production; however, this will be examined in subsequent phases of study.

The preliminary mine plan and production schedule are based on Indicated and Inferred Resources and Exploration Target. Over the 26-year life of the project as follows:

- 38% of total ROM coal will be mined from the Indicated Resource area
- 56% of total ROM coal will be mined from the Inferred Resource area
- 6% of total ROM coal will be mined from the Exploration Target area



The first 7 years of mining are 100% within the Indicated Resource area, years 8-11 of mining is within a mix of Indicated and Inferred Resource areas and from year 12 onwards mining is primarily within the Inferred Resource area.

NAE believes there is reasonable basis for the inclusion of a small tonnage of Exploration Target in the production target because there are indications from seismic surveys that the coal is present in the south and west of the Lochinvar licence, but as there is no drilling to date, this remains to be confirmed. As the small tonnage of Exploration Target is at the end of the mine plan, it does not materially affect the valuation.

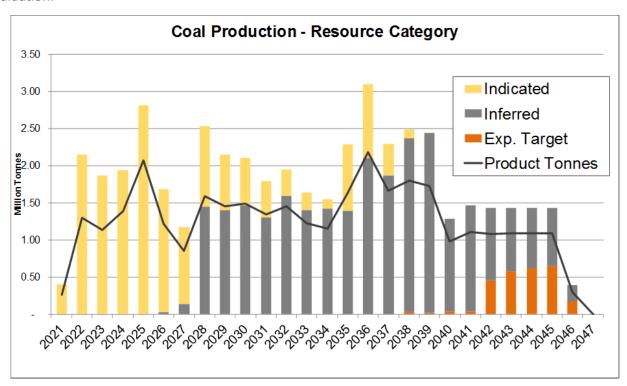


Figure 11: Production Schedule

**Cautionary Note:** There is a low level of geological confidence associated with inferred mineral resources and there is no certainty that further exploration work will result in the determination of Indicated Resources or that the production target itself will be realised.

**Cautionary Note:** The potential quantity and grade of an exploration target is conceptual in nature, there has been insufficient exploration to determine a mineral resource and there is no certainty that further exploration work will result in the determination of mineral resources or that the production target itself will be realised.

## COAL PROCESSING AND MINE SITE INFRASTRUCTURE

QCC Resources, a leading Australian coal processing and materials handling design and construction company, have designed the coal handling and processing plant and determined the indicative product specification for the Study. Other mine site infrastructure has been designed by Palaris. Yield has been estimated by QCC Resources and Palaris and includes adjustments for stone partings within the working section, roof and floor dilution and moisture.

Over the life of mine, a total of 47.3 Mt of ROM coal will be processed at a high 71% yield to produce 33.7 Mt of clean coal (saleable product), averaging 1.4 Mtpa clean coal, with a peak of 2.2 Mt clean coal production in year 16.



A single compact Mine Infrastructure Area (MIA) will be located on the western side of the Lochinvar licence which will include; the drift portal, ROM coal stockpile, crushing and screening plant, coal processing plant (CPP), product stockpiles, rail loading siding, offices, bathhouses, workshops, electrical substation and car park.

The ROM coal stockpile will be reclaimed via front-end loader and fed into a hopper feeding a crushing and screening plant and then to the CPP. The CPP flow sheet is shown in Figure 12 and includes; single stage dense media cyclones, teetered bed separators and flotation circuits in order to minimise ash and Sulphur levels in product coal and maximise yield.

The initial CPP capacity is 400 t/h (2.5 Mtpa) and capital has been allocated to upgrading the capacity to support higher production in later years.

From the CPP, the clean coal will be conveyed to final product stockpiles (50,000 tonne capacity) located alongside a rail siding. Coal will be loaded from final product stockpiles into rail wagons using two front end loaders. The rail siding will connect the operation to the West Coast Main Line.

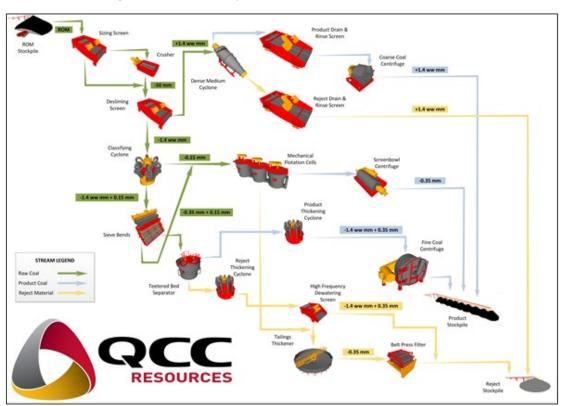


Figure 12 Coal Processing Flowsheet

Fine rejects will be thickened, belt press filtered and recombined with coarse rejects for transport via truck over a short distance on private road to a local storage area that will be contoured into the surrounding landscape.

## TRANSPORT INFRASTRUCTURE

#### Rail

The West Coast Main Line traverses the Lochinvar South licence and is currently used for coal freight. Capacity for Lochinvar coal on this route at proposed production rates has been confirmed by an independent UK based transport consultant (Deltix) and by Network Rail.



There are several rail operators currently transporting coal in the UK with available locomotives and rolling stock. Quotes for rail transport costs to domestic customers and export ports have been sourced independently from selected operators. Coal freight trains are typically 1,500t capacity in the UK.

#### **PORT**

Following a review and visits to a number of UK ports, two preferred port options have been identified. These are the Ports of Hunterston and Blyth. Both are directly accessible via the existing rail network and Lochinvar product could be shipped to customers from either (or both) ports.

With the closure of Redcar steelworks in 2015, it may also now be possible to utilize the Redcar port for coal exports. This will be studied further in the future.

## **ENVIRONMENT**

Prior to commencing its initial exploration program NAE commissioned environmental surveys and reports over its landholding, to identify potential environmental issues or sensitivities in this predominantly agricultural area.

The ecological and hydrological assessments highlighted two small and isolated areas of mire identified as a declining and protected habitat. These areas will be avoided. NAE has undertaken extensive and detailed mapping of these areas and of all water features over its licence area, in close liaison with the Scottish Environment Protection Agency (SEPA), in obtaining the necessary permits for its exploration program.

Ongoing ecological and hydrological monitoring will add to baseline data on the surface environment. Piezometer installations planned for the next phase of exploration drilling and a long-term monitoring program, also in liaison with SEPA, will confirm the hydrogeological regime in the mining licence.

NAE will require additional licences and permits from SEPA prior to mine construction. The Company is committed to environmental best practice across its surface and underground operations to ensure no detriment to existing surface and groundwater quality.

Further studies will be undertaken on landscape and visual effects of the mine infrastructure, on wildlife, on archaeological sites and on emissions. In its evaluation of potential issues that may arise, it is NAE's opinion that that any effects may be avoided, or satisfactorily mitigated, such that the necessary planning permission, licences and permits may reasonably be expected to be obtained.

An Environmental Impact Assessment (EIA) is required by the Local Planning Authority, Dumfries and Galloway Council (Scotland) as part of its assessment of the Planning Permission Application for project development. An EIA will be prepared by the Company which will also include and assessment of socioeconomic and transport issues.

#### COMMUNITY

The Lochinvar licence covers an area of predominantly agricultural land, comprising, for the most part, small, individual landholdings. There are two small settlements in the area, Chapelknowe and Evertown. Over the period of its exploration programs to date, NAE has established close ties with the local community and its representatives through open forums and exhibitions. Continued interaction and dialogue with the community is a cornerstone of the project.

The farming activities of the local community are vital and NAE, in designing the underground mine and surface infrastructure, is committed to ensuring that any potential disruption to the community and its



interests is minimised. Landowner cooperation in the exploration program has been significant and indications are that this will continue through to the development stage.

NAE will address the wider community issues of coal transportation on rural roads through the provision of a dedicated rail link. Agricultural water supply concerns will be addressed through appropriate design of the underground mine and surface infrastructure, as will any potential for surface subsidence.

Other interested parties include wildlife bodies and recreational user groups, all of whom may be expected to participate in the planning permission process. NAE believes that through thorough community consultation it will be able to address any issues raised.

A requirement for approximately 270 persons at peak of mine operations and it is the intention of the Company to fill as many of these positions from nearby locations as possible.

#### **KEY RISKS**

Key project risks have been recognised as part of the Scoping Study. These include:

## **Geological Structure and Mine Productivity**

Exploration to date has identified areas of faulting which have been incorporated into the Study. Faulting of the Nine Foot Seam negatively impacts on mining and further exploration may identify additional faulting that degrades the economics of the project to an unknown extent.

#### Market

The Study assumes that all coal produced can be sold into the domestic UK market (first 450 ktpa) and the remainder into Europe at an average Realised Price of US\$150/t. NAE believes this assumption to be reasonable however there is a risk that the volume and/or price for Lochinvar coal sales are not realised.

## **Coal Quality and Yield**

Nine boreholes drilled by NAE have intersected the target Nine Foot Seam. A full suite of coal analysis on raw and clean coal has been undertaken on these holes and provided confidence of the coal quality for the Study results. Until additional infill drilling with associated coal analysis is completed there remains a risk in relation to the coal quality. Additionally, a coking test (CSR) has not been completed to date due to the requirement for a larger sample than available from drilling. This is planned to be addressed in future work programs.

## Planning, Environment and Community

The Lochinvar Project covers rural farmland and NAE has established a strong track record for informing and involving the community. The majority of stakeholders have been supportive of NAE to date, however ongoing support is required to progress Lochinvar to development. There is a risk that land access required for exploration and surface infrastructure may not be obtained, or may be more expensive and/or time consuming than anticipated.

Planning approvals are required to be obtained prior to commencing construction. There is a risk that these approvals may not be awarded or be delayed.

#### **Funding**

The Study assumes NAE obtains funding to (a) progress Lochinvar to development and (b) construct the project. There is no certainty this funding will be available in the time frames envisaged in the Study.



### **Exchange Rates**

For the purposes of the financial assessment all results have been reported in USD, however many of the capital and operating cost inputs have been estimated in GBP. Since the 2014 Scoping Study, the GBP has depreciated ~26% against the USD, largely as a result of Brexit, and the AUD has depreciated 10% against the USD. As the majority of Operating Cost and Capital Cost estimates are estimated in GBP and AUD, the devaluation in these currencies since the 2014 Scoping Study has significantly reduced the 2017 Lochinvar Operating Costs and Capital Costs in USD terms. Additionally, NAE is an Australian based company and reports all financial results in AUD. There is therefore a risk that exchange rate movements, may affect the project valuation and also the return of profits to Australia at the corporate level should the project proceed to operations phase.

#### **Gas Management**

Based on a limited knowledge of the gas regime, Palaris has assessed that Lochinvar has a moderate gas levels. The current plan allows for the management of gas through standard gas drainage techniques. If gas levels are higher than estimated then additional underground ventilation will be required.

#### **Overlapping Gas Rights**

iGas Energy (previously Dart Energy) previously held overlapping rights to commercial extraction of the coal bed methane gas through a Petroleum Exploration Development Licence (PEDL159) issued by the Department of Environment and Climate Change (DECC). iGas surrendered PEDL159 in 2015, so any risks relating to the interaction between underground coal mining and coal bed methane from the area, which had been identified in the 2014 Scoping Study, now no longer exist.



#### COMPETENT PERSONS STATEMENT

The Resources estimate is based on information compiled by Dr John Bamberry, who is a Member of the Australasian Institute of Geoscientists (Member No. 4090). Dr Bamberry is the Principal Geologist at Palaris. He has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity he is undertaking to qualify as a Competent Person, as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Dr Bamberry has over 25 years' experience in exploration and mining of coal deposits.

Neither Dr Bamberry nor Palaris have a direct or indirect financial interest in, or association with New Age Exploration Ltd, the properties and tenements reviewed in this report, apart from standard contractual arrangements for the preparation of this report and other previous independent consulting work. In preparing this report, Palaris has been paid a fee for time expended based on standard hourly rates. The present and past arrangements for services rendered to New Age Exploration Ltd do not in any way compromise the independence of Palaris with respect to this review.

Exploration Target: The potential quantity and quality of the exploration targets identified in this presentation are conceptual in nature, and there has been insufficient exploration to date to define a mineral resource in accordance with the Australian Code for Reporting of Mineral Resources and Ore Reserves published by the Joint Ore Reserve Committee ("JORC Code"). Furthermore, it is uncertain if further exploration at its exploration targets will result in the determination of a mineral resource.

## FORWARD LOOKING STATEMENTS

This announcement contains forward-looking statements which are identified by words such as 'may', 'could', 'believes', 'estimates', 'targets', 'expects', or 'intends' and other similar words that involve risks and uncertainties.

These statements are based on an assessment of past and present economic and operating conditions, and on a number of assumptions regarding future events and actions that, as at the date of this announcement, are expected to take place.

Forward looking statements are not factual but rather represent only expectations, estimates and/or forecasts about the future and therefore need to be read bearing in mind the risks and uncertainties concerning future events generally. Forward-looking statements are not guarantees of future performance and involve known and unknown risks, uncertainties, assumptions and other important factors, many of which are beyond the control of the Company, its Directors and management.

Although the Company believes that the expectations reflected in the forward looking statements included in this announcement are reasonable, none of the Company, its Directors or officers, or any person named in this announcement, can give, or gives, any assurance that the results, performance or achievements expressed or implied by the forward-looking statements contained in this announcement will actually occur or that the assumptions on which those statements are based will prove to be correct or exhaustive beyond the date of its making. Investors are cautioned not to place undue reliance on these forward-looking statements.

The forward looking statements contained in this announcement are subject to various risk factors that could cause our actual results to differ materially from the results expressed or anticipated in these statements. Key risk factors are described on pages 22 and 23.

## WOOD MACKENZIE DISCLAIMER

The Wood Mackenzie data or information herein, do not include, nor shall they be construed as including, advice, guidance or recommendations from Wood Mackenzie to take, or not to take, any actions or decisions in relation to any matter, including without limitation relating to investments or the purchase or sale of any securities, shares or other assets of any kind. Should anyone take any such action or decision based on information in this report, you do so entirely at your own risk and Wood Mackenzie shall have no liability whatsoever for any loss, damage, costs or expenses incurred or suffered by you as a result. Any use or reliance by you of the data or information is not foreseeable to Wood Mackenzie.

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# Appendix 1 Material Assumptions

The Production Target and financial information in this scoping study. The scoping study referred to in this annual law level task pical and accompanie assessments and is in						
Study Status  low-level technical and economic assessments and is instance estimation of Ore Reserves or to provide assurate development case at this stage or to provide certainty the scoping study will be realised.	nouncement is based on sufficient to support the ance of an economic					
Resource base of 111Mt:						
Indicated Resource: 49Mt						
Inferred Resource: 62Mt						
<ul> <li>Exploration Target: 31 – 64Mt</li> </ul>						
The 26-year mine plan on which the updated valuation is	s based contains:					
38% of total ROM coal mined from the Indicated Resource						
Mineral Resource estimate						
used for assessment of						
potential production ranger	The first 7 years of mining are 100% within the Indicated Resource area, years 8-					
·	11 of mining is within a mix of Indicated and Inferred Resource areas and from					
	year 12 onwards mining is primarily within the Inferred Resource area. As the					
	small tonnage of Exploration Target is at the end of the mine plan, it does not					
materially affect the valuation.						
See pages 18 and 19 for further details						
Longwall Capacity:						
Nameplate: 2,500tph	Nameplate: 2.500tph					
Average: 1,500tph						
Longwall Factors / Criteria:						
Mining Height: 1.6m to 3.2m						
Mining factors used in the • Face Width (max): 200m  determination of the • Roof Dilution: 100mm						
Production Target  • Floor Dilution: 50mm						
- Noor Britain. Somm						
<ul> <li>Longwall Length: Maximum 4.000m, Minimum ~500m</li> </ul>						
<ul> <li>Longwall Length: Maximum 4,000m, Minimum ~500m</li> <li>Gate Road Development:</li> </ul>						
Gate Road Development:						
Gate Road Development:  • Roadway Height: Max Seam Height / Minimum of 2m						
Gate Road Development:  Roadway Height: Max Seam Height / Minimum of 2m Roadway Width: 5.2m						
<ul> <li>Gate Road Development:</li> <li>Roadway Height: Max Seam Height / Minimum of 2m</li> <li>Roadway Width: 5.2m</li> <li>Gates road Pillar Length: 100m</li> </ul>						
Gate Road Development:  Roadway Height: Max Seam Height / Minimum of 2m  Roadway Width: 5.2m  Gates road Pillar Length: 100m  Processing factors used in						
Gate Road Development:  Roadway Height: Max Seam Height / Minimum of 2m  Roadway Width: 5.2m  Gates road Pillar Length: 100m  Processing Yield (LOM ave.): 71.2%						



Capital estimates have been developed using a combination of benchmark projects, consultant databases and budget quotes from vendors. Capital costs include:

- Pre construction costs, including exploration and development studies.
- Cost to establish the underground mine and mining equipment.
- The cost of the coal processing and washing facility.
- The cost of project support infrastructure, including supply of utilities and a railway spur.

#### **Capital Cost Estimates**

- Ongoing replacement capital.
- Indirect project costs, such as engineering costs and contingency.

The capital costs do not make provision for the following:

- Head office costs.
- Mine closure and environmental costs.
- Social responsibility costs.

The costs presented are real costs and are exclusive of escalation.

The capital cost has been completed based on estimates of up to ±40% level of accuracy.

Operating costs estimated to Free on Board (FOB) basis.

Operating costs include:

- Longwall mining
- Coal handling to the surface
- **Operating Cost Estimates**
- Technical services
- Coal handling and processing
- Transport costs onto ship, including rail and ship loading

The operating cost has been completed based on estimates of up to ±40% level of accuracy.

Royalty: £0.18 per tonne sold

Tax Rate: 20% (UK) Discount Rate: 9%

Valuation date: 1 Jan 2017

**Economic Evaluation** 

Valuations completed in Real, ungeared GBP with the result converted to USD

**Key Exchange Rate Assumptions** 

GBP: AUD: 1.63 GBP: USD: 1.25



	Benchmark HCC Price: US\$160/t
	Quality Discounts: 91% of HCC Benchmark
	Ave Freight Premium: 3% of HCC Benchmark
Marketing	Net Realised Price: \$US\$150/t
	Export Sales (LOM ave.): 66%
	Domestic Sales (LOM ave.): 34%
Infrastructure	Mine (surface) and processing facilities to be constructed in the vicinity of the underground mining operation.
	Access to national rail network via private rail spur.
Environmental	An Environmental Impact Assessment (EIA) is required by the Local Planning Authority, Dumfries and Galloway Council as part of its assessment of the Planning Permission Application for project development. An EIA will be prepared by the Company which will also include and assessment of socioeconomic and transport issues.
Legal	Lochinvar North Licences - Exploration Licence (CA11/EXP/0515/N), Conditional Mining Licence (CA11/UND/0176/N) and Option Agreement (CA11/UND/0176/N) were granted to NAE by The Coal Authority on 16 July 2012. These licences have an initial 5 year term expiring on 16 July 2017. An application for extension is currently being prepared by the Company. Based on discussions with the Coal Authority, the Directors expect that a 3 year extension is likely to be granted by the Coal Authority. All of the licences are 100% owned by NAE.
	Lochinvar South Licences - Exploration Licence (CA11/EXP/0545/N), Conditiona Mining Licence (CA11/UND/0182/N) and Option Agreement (CA11/UND/0182/N) were granted to NAE by The Coal Authority on 10 April 2014. These licences have an initial 5 year term expiring on 10 April 2019. All of the licences are 100% owned by NAE.
	The project straddles the Border of Scotland and England, although all surface infrastructure and the vast majority of coal production is expected to be on the Scottish side.
Government	A planning permission from the Local Planning Authority, Dumfries and Galloway Council (Scotland) is required for development of the underground mine and surface infrastructure. Should any approval also be required from the Cumbria Council (England), the Dumfries and Galloway Council will manage the application with the Cumbria Council being a consultee to the process.

