

# Atrum Coal NL (ASX:ATU) Updated Pre-Feasibility Study

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[Company Overview](#)



Atrum Coal NL ("Atrum" or the "Company") ([ASX:ATU](#)) ([OTCMKTS:ATRCF](#)) is pleased to provide an update on the Pre-Feasibility Study ("PFS") for the Groundhog North Mining Complex ("Groundhog North Complex"), British Columbia, Canada.

## HIGHLIGHTS

- Atrum is currently finalising a revised Pre-Feasibility Study for the Groundhog North Mining Complex, which now includes a staged approach to development initially employing a low cost starter mine producing 880,000tpa ultra-high grade anthracite.  
Starter mine economics:
- Total capital requirement of US\$142M, with 64% funded by third parties (the majority through the equipment financing arrangement with China Coal Technology and Engineering Group ("CCTEG"))
- Project NPV of US\$239M
- Project IRR of 21%, and equity IRR of 38%

- Potential major customers for Atrum's anthracite are now requesting access to bulk samples for testing
- Following the grant of the Bulk Sample Permit, Atrum team has commenced preparations for site works

The Company announced results from its initial Pre-feasibility Study on 6 May 2014 (refer to ASX announcement 6 May 2014 "A\$2.1 Billion NPV for First Stage Production at Groundhog Anthracite Project") and provided supplementary guidance on the Pre-feasibility Study on 20 October 2014 (refer to ASX announcement on 20 October 2014 "Supplementary PFS delivers A\$1.7 Billion NPV for Groundhog North").

Over the last year the Company has been updating the PFS based on additional studies. In preparing the revised PFS, the Company has evaluated a number of small scale starter mine options that accelerate early cash flows for minimal capital cost which maximise shareholder returns. A preferred option has been identified and modelled which has been incorporated into the draft development plan for the Complex.

The Company has now started engaging with potential strategic and financial investors in relation to funding the bulk sample extraction and ultimately, subject to permitting, a small scale starter mine development.

Robert Bell, Executive Chairman commented:

"The award of the Bulk Sample Permit and the updated PFS with the smaller, starter mine demonstrates the economic viability of the Groundhog North project and accelerates Atrum's plans to achieving commercial production. We can now proceed with detailed discussions with potential long-term buyers of Groundhog anthracite, as well as potential strategic and financial investors. We will update the market as these discussions deliver partners that share our vision to become a world class, low cost, anthracite producer."

"The supply-demand dynamic of high-grade and ultra-high grade anthracite used in metals manufacture, filtration, plastics manufacture, for briquettes and for specialty carbon products continues to be

encouraging for Atrium's near term entry to production.

Global seaborne supply of anthracite has halved over the past decade, creating a structural supply shortage of anthracite."

Following drilling in 2014, the Company completed a JORC 2012 Coal Resource Estimate for the Groundhog North Complex (refer to ASX announcement 14 August 2015, "Resource Increase at Groundhog North" including the accompanying JORC Table 1) and identified potential mining areas that could be developed with small scale starter mines. These areas have now been investigated in more detail and added to the PFS.

#### GROUNDHOG NORTH: Revised Pre-Feasibility Study

An updated PFS is being finalised at present. In the updated PFS, the Company has adopted a staged approach to development, beginning with a low capital cost underground mine, capable of producing up to 880,000tpa of saleable ultra-high-grade anthracite. The updated PFS, when finalised, will include subsequent development stages for the larger underground operations at the Groundhog North Complex. This development approach has been well-received by potential offtake investors and joint venture funding partners.

The staged approach to the development of the Groundhog North Complex importantly provides the Company with early cash flows while the larger underground operations are being developed in step with infrastructure capacity.

The smaller, starter mine will allow the Company to:

- establish operations in the area;
- prove the logistics chain for transporting larger amounts of product;
- continue to develop long term and sustainable relationships with the Company's aboriginal partners;
- train aboriginal and local personnel to build a workforce that will support sustainable, long-term operations;

- establish customer channels;
- investigate alternative high value markets;
- increase debt funding potential for the larger underground mini-wall operations and thus provide superior shareholder returns, by leveraging greater debt servicing ratios from cash reserves;
- generate early cash flows, not just for the Company, but for local families, contractors, communities, and government; and
- build credibility with a range of key stakeholders, including parties interested in the Company's growth and value potential.

The scaled down starter mine will establish access to existing road, rail and port infrastructure in the local area, minimizing capital expenditures through a staged approach. The overall Groundhog North Complex has been designed around a resource base of 1.016 Billion tonnes of anthracite (JORC 2012 - refer to Table 1 and Figure 2 in link below and to ASX announcement 14 August 2015, "Resource Increase at Groundhog North").

Table 1. Groundhog North Resources (JORC 2012)

Geological Area	Measured	Indicated	Inferred	Total		
			Western Domain	156	193	
260	609	Eastern Domain	0	260	147	407 Total
156	453	407	1,016 % of total	15.4%	44.6%	
40.0%	-----					

The starter mine included in the revised PFS is located in the Western Domain of the Groundhog North Complex has estimated total capital of US\$142M, is capable of producing up to 880,000tpa of saleable product. (comprising of 26% Measured resources; 32% Indicated resources; 43% Inferred resources).

The initial small mine allows the Company to prove the mining concept in the region, and generate cash so that further mines can leverage cash flows, maximising shareholder returns. Not only is it forecast for the starter mine to return US\$239M NPV (real, WACC 7.6%, post-tax

Project NPV), this mine is expected to provide investors with a lower risk entry into a rising anthracite market. The forecast cash cost of this small scale mine is US\$96/t FOB. Based on equity capital of US\$51M (see Table 3, Table 4 and Table 5 for material assumptions) the equity IRR is 38%.

Table 2. Pre-Feasibility Economic Assessment (starter mine)

Groundhog North Mining Complex: Starter Mine: Financial Analysis (US\$)			
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Starter Mine	-----	Mine	
Life	28 years	Saleable product (maximum)	
880ktpa	Equity Capital	\$51M	Total Capital
\$142M	Operating Cost (avg. FOB cash incl. royalties)	\$96/t	
Price (avg. FOB, Table 5 estimating 50% lump)		\$156/t	
Project NPV (post tax; WACC 7.6% real)	\$239M	Equity NPV (post tax; CAPM 10.0% real)	\$179M
Project IRR (post tax)	38%	Equity IRR (post tax)	21%

From the small scale starter mine, numerous development paths can be selected from a staged ramp-up to a 1.6Mtpa continuous miner operation through to a larger mini-wall operation as noted in previous PFS releases (refer ASX announcement 6 May 2014 "A\$2.1 Billion NPV for First Stage Production at Groundhog Anthracite Project" and ASX announcement on 20 October 2014 "Supplementary PFS delivers A\$1.7 Billion NPV for Groundhog North"). The Company is updating the economic modelling of these options at present, and will release these results in the coming weeks.

The low capital start-up mine can be a stand-alone operation, established with a relatively low equity contribution of US\$51M as shown in Table 2, with approximately US\$15M funded for infrastructure development from third parties and the remainder from the existing CCTEG equipment finance facility (refer Atrum Coal ASX release 5 May 2015, "Atrum Signs US\$100 Million Equipment Finance and Supply Agreement").

Table 3. Capital Expenditure estimates (starter mine)

Groundhog North Mining Complex: Starter Mine: Capital Expenditure Estimate (US\$)			
Mining Equipment & Construction		\$72.7M	
CHPP & Loadout		\$12.3M	Surface
Infrastructure & Water Mgmt.	\$6.9M	Power Supply (gen sets - could be reduced through rental option)	\$12.6M
Infrastructure (Road/Rail/Port - potentially via Atrum Infrastructure			



and provides the following update:

Global anthracite markets remain undersupplied, and market prices for anthracite are strong. Current prices for imported anthracite are approximately US\$150/t for lumps and US\$100/t for fines (basis 5% volatile matter; 12% ash), see Table 4 and Figure 4 in link below.

The Company is utilising conservative long-term average anthracite prices as its benchmark for long-term pricing forecasts in all PFS modelling, as shown in Table 5.

Table 5. Anthracite and Coking Coal Prices used in PFS

	Current Prices	Historical Prices	PFS prices
(May 2016)	(5-year average)	(long-term average)	Anthracite Lump
(CFR3 Northern Europe)	US\$150/t	US\$190/t	US\$189/t
Anthracite Fines (CFR Northern Europe)	US\$128/t	US\$100/t	US\$135/t
Hard Coking Coal (FOB4 Queensland)	US\$170/t	N.A.	US\$95/t

The premium in anthracite pricing has remained throughout the coking coal cycle and as metallurgical coals increase in price due to supply/demand imbalances, anthracite has maintained and in some cases, improved its relative price position. With the growth in specialty markets (see below), anthracite is enjoying increased demand, leading larger metallurgical coal companies, steel mills, traders and carbon suppliers to look for emerging supply sources in a tight market. With the award of the Bulk Sample Permit, Atrium's Groundhog resource has been enjoying significant interest from potential customers and off-takers, including for speciality anthracite (see following pages).

### Speciality Anthracite Markets

Anthracite is not only used as a sinter feed and coke replacement in blast furnaces. Speciality markets include water filtration, electric arc furnaces, chemical production, plastics manufacture and the conversion of anthracite into synthetic graphite for electric vehicle batteries.

According to recent research by Market/Markets and TechSci Research5, the worldwide air filtration market is growing at 7.4% CAGR, and is forecast to grow from US\$14.5b in 2015 to US\$20.6B in 2020.

Anthracite is used as one of the filter media in this market. Further,

according to a 2014 report "Global Media Based Water Filters Market Forecast and Opportunities 2019"<sup>6</sup> the worldwide market for water filtration media is expected to exceed US\$12b by 2018. Again, anthracite is a filtration media used in this market. Speciality anthracite markets are being investigated by the Company in some detail as, although volumes are small, pricing is typically much higher than in the steel sector and this can substantially increase the forecast returns of the smaller scale starter mine.

### Bulk Sample Operations Update

With the recent award of the Bulk Sample Permit (refer to ASX announcement 9 May 2016 "Atrum Coal receives Bulk Sample Permit for Groundhog North Mining Complex"), the Company is preparing for site operations to extract bulk samples for potential customers, primarily in Japan and Korea, although since the award of the permit, there has been strong interest from other carbon users for samples of Groundhog anthracite. The award of the Bulk Sample Permit and upcoming commencement of onsite activities represent a major milestone and phase change as the Company transitions from exploration to mining.

As part of the award of the Bulk Sample Permits, the Company is able to establish ground based site access to Groundhog, which has not been possible previously. The ground based access will aid in:

- reducing onsite costs;
- facilitating significant project equipment mobilisation; and
- establishing the production supply chain to the market place and customers

Initial construction, which includes ground based access to Groundhog North is planned to commence during the 2016 construction season, with bulk sample mining activities planned to immediately follow. Atrum will also be working with Aboriginal Groups and local communities in planning for participation in site construction and mining activities.

The Company has been preparing a development plan that outlines how

anthracite mined under the Bulk Sample Permit will be transported offsite for processing and distribution to potential long-term customers in North America, Europe and Asia. Establishing the transportation route will allow Atrum to demonstrate its capability to develop a reliable and sustainable supply chain from the world's largest high grade / ultra-high grade anthracite deposit to Atrum's customers. Since the award of the Permit, the Company has fielded numerous enquiries from anthracite users around the world seeking samples for test purposes.

During this next phase of the project Atrum will evaluate the potential to supply Groundhog anthracite to specialty users in high-value markets, such as filtration media and activated carbon.

The Company is also investigating the supply of upgraded anthracite products to industrial smelters, to users of calcined anthracite and to the rapidly growing markets for synthetic graphite. While the Company has maintained conservative pricing assumptions in all economic analyses, these highvalue markets represent a genuine opportunity to achieve materially higher margins for custom washed and custom sized fractions of ultra-high grade anthracite.

To view tables and figures, please visit:

<http://abnnewswire.net/lnk/44W8UXGL>

## About Atrum Coal NL

Atrum Coal NL (ASX:ATU) is an emerging metallurgical coal explorer and developer.

The Company has a substantial coal position in British Columbia which, as a region boasts:

- Abundance of high quality PCI, coking and anthracite coals
- Well developed rail and port infrastructure with excess capacity
- Access to deep sea ports
- Competitive shipping distance to Asia
- Positive government stance on mining

The Company is building a quality portfolio of metallurgical coal assets suited to the Asian export market and the Board of Directors have a strong track record in identifying and developing world class coal assets in Australia and abroad.

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