



# Atrum: Premium hard coking coal developer

Investor update, February 2019





# Important information

## Forward Looking Statements

This presentation includes various forward looking statements which are identified by the use of forward looking words such as “may”, “could”, “will”, “expect”, “believes”, “intend”, “plan”, “estimate”, “anticipate”, “continue”, and “guidance”, or other similar words and may include, without limitation statements regarding plans, strategies and objectives of management, anticipated production or construction commencement dates and expected costs or production outputs. Statements other than statements of historical fact may be forward looking statements. Atrum believe that it has reasonable grounds for making all statements relating to future matters attributed to it in this presentation.

Forward looking statements inherently involve known and unknown risks, uncertainties and other factors that may cause the Company's actual results, performance and achievements to differ materially from any future results, performance or achievements. Relevant factors may include, but are not limited to, changes in commodity prices, foreign exchange fluctuations and general economic conditions, increased costs and demand for production inputs, the speculative nature of exploration and project development, including the risks of obtaining necessary licences and permits and diminishing quantities or grades of resources or reserves, political and social risks, changes to the regulatory framework within which the Company operates or may in the future operate, environmental conditions including extreme weather conditions, recruitment and retention of personnel, industrial relations issues and litigation. Investors should note that any reference to past performance is not intended to be, nor should it be, relied upon as a guide to any future performance.

Forward looking statements are based on the Company and its management's good faith assumptions relating to the financial, market, regulatory and other relevant environments that will exist and affect the Company's business and operations in the future. The Company does not give any assurance that the assumptions on which forward looking statements are based will prove to be correct, or that the Company's business or operations will not be affected in any material manner by these or other factors not foreseen or foreseeable by the Company or management or beyond the Company's control.

Although the Company attempts to identify factors that would cause actual actions, events or results to differ materially from those disclosed in forward looking statements, there may be other factors that could cause actual results, performance, achievements or events not to be anticipated, estimated or intended, and many events are beyond the reasonable control of the Company. Accordingly, readers are cautioned not to place undue reliance on forward looking statements. Actual results, values, performance or achievements may differ materially from results, values, performance or achievements expressed or implied in any forward looking statement. None of Atrum, its officers or any of its advisors make any representation or warranty (express or implied) as to the accuracy or likelihood of fulfilment of any forward looking statement, or any results, values, performance or achievements expressed or implied in any forward looking statement except to the extent required by law.

Forward looking statements in this release are given as at the date of issue only. Subject to any continuing obligations under applicable law or any relevant stock exchange listing rules, in providing this information the Company does not undertake any obligation to publicly update or revise any of the forward looking statements or to advise of any change in events, conditions or circumstances on which any such statement is based.

## Competent Person Statement

### Exploration Results and Coal Resources

The information in this document that relates to Exploration Results and Coal Resources is based on, and fairly represents, information and supporting documentation prepared by Mr. Brad Willis, who is a Member of the Australasian Institute of Mining and Metallurgy (#205328) and is a full-time employee of Palaris Australia Pty Ltd (Palaris).

Mr. Willis has read and understands the requirements of the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012 Edition). Mr. Willis is a Competent Person as defined by the JORC Code, 2012 Edition, having twenty years' experience that is relevant to the style of mineralisation and type of deposit described in this document.

Neither Mr. Willis nor Palaris have a direct or indirect financial interest in, or association with Atrum Coal, the properties and tenements reviewed in this report, apart from standard contractual arrangements for independent consulting work. In preparing this information, Palaris has been paid a fee for time expended. The present and past arrangements for services rendered to Atrum Coal do not in any way compromise the independence of Palaris with respect to this estimate. Mr. Willis has visited the Elan project area in September 2018 during the 2018 Elan South drilling program.

The Company confirms that it is not aware of any new information or data that materially affects the Previous Announcements and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the Prior Announcements continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the Prior Announcements

Mr. Willis consents to the inclusion in the report of the matters based on the information, in the form and context in which it appears.



# Atrum corporate snapshot

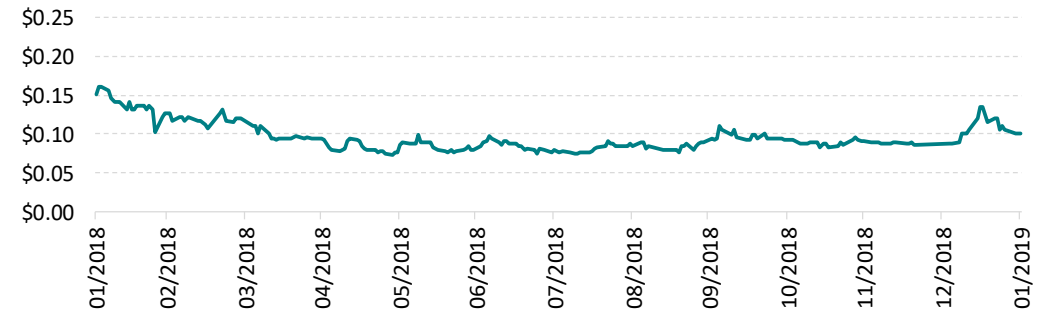
## Capital structure

|                                   |          |
|-----------------------------------|----------|
| ASX ticker                        | ATU      |
| Share price (31 January 2019)     | A\$0.10  |
| Shares on issue                   | 360.8 M  |
| Options and performance rights    | 127.2 M  |
| Market capitalisation (undiluted) | A\$36 M  |
| Cash (31 December 2018)           | A\$3.1 M |
| Debt                              | A\$0.0 M |

## Major shareholders

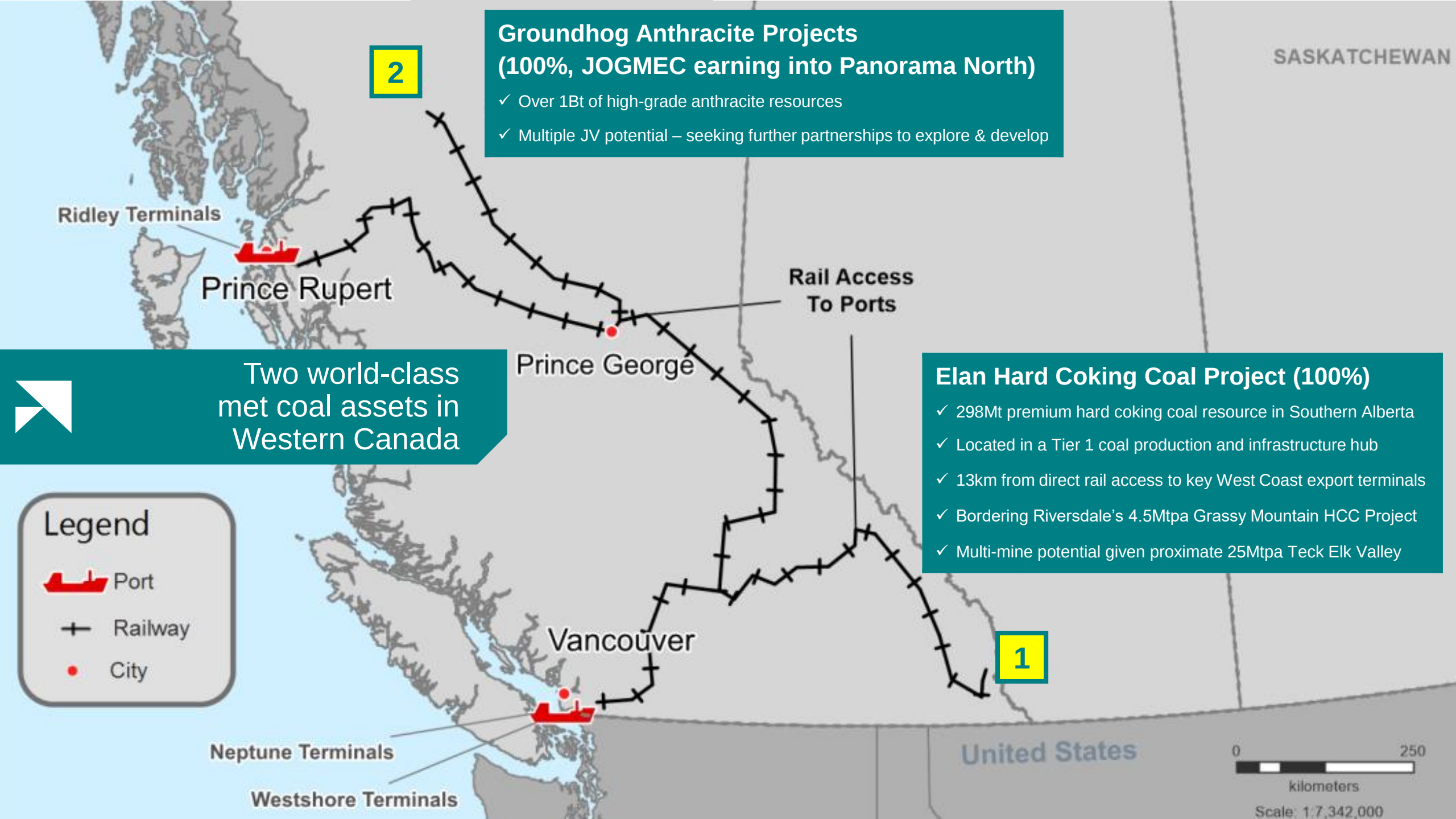
|                    |       |
|--------------------|-------|
| Lenark PL          | 11.8% |
| Nero Resource Fund | 4.1%  |
| Stephens Group     | 3.3%  |

## Share price (1 year basis)



## Board and management

|                           |                       |
|---------------------------|-----------------------|
| Non-Executive Chairman    | Charles (Chuck) Blixt |
| Managing Director and CEO | Max Wang              |
| Non-Executive Director    | Richard Barker        |
| Non-Executive Director    | James Chisholm        |
| Non-Executive Director    | George Edwards        |
| Non-Executive Director    | Charles Fear          |
| CFO                       | Jayram (Jay) Hosanee  |
| VP Marketing and BD       | Tayfun (Ty) Zehir     |
| Chief Geologist           | Daniel Campbell       |



**Groundhog Anthracite Projects  
(100%, JOGMEC earning into Panorama North)**

- ✓ Over 1Bt of high-grade anthracite resources
- ✓ Multiple JV potential – seeking further partnerships to explore & develop

Two world-class met coal assets in Western Canada

**Elan Hard Coking Coal Project (100%)**

- ✓ 298Mt premium hard coking coal resource in Southern Alberta
- ✓ Located in a Tier 1 coal production and infrastructure hub
- ✓ 13km from direct rail access to key West Coast export terminals
- ✓ Bordering Riversdale's 4.5Mtpa Grassy Mountain HCC Project
- ✓ Multi-mine potential given proximate 25Mtpa Teck Elk Valley

**Legend**

-  Port
-  Railway
-  City



# Elan Hard Coking Coal Project

A premium flagship asset

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Large, high-quality, hard coking coal deposits

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Located in a Tier 1 coal production and infrastructure hub; 13km from export rail

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Open-pit focus with multi-mine development scale potential



# Strategically located in a mining and infrastructure hub

**Teck's Elk Valley complex  
(25Mtpa HCC) 40km to the west:**  
*The heart of coking coal  
production in Canada*

**Excellent infrastructure and  
availability to services**

Teck Fording River

Teck Greenhills

Teck Line Creek

Teck Elkview

Teck Coal Mountain (suspended)

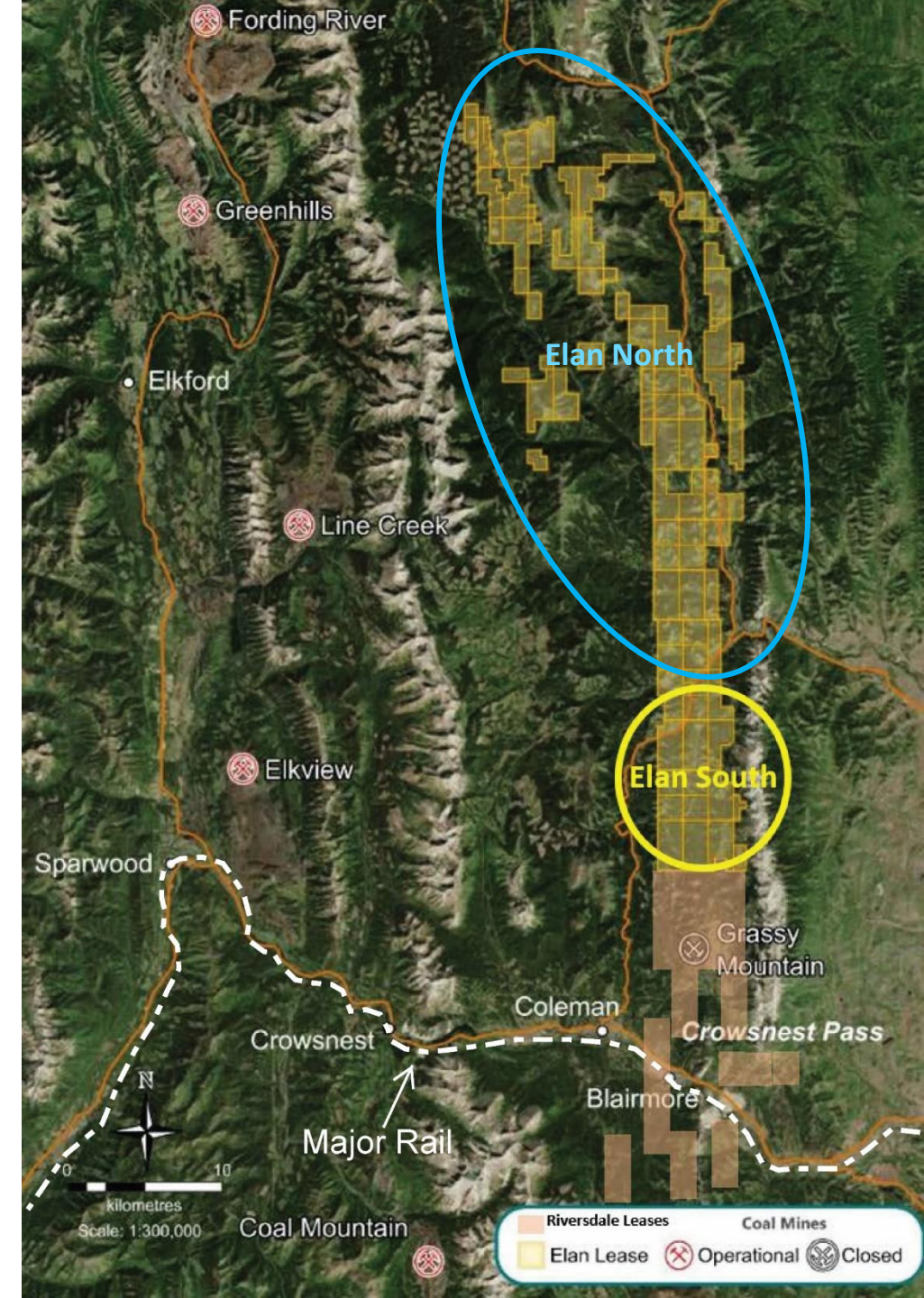
150km south of Calgary and 13km  
north of Coleman

Highway going through the property

Rail is 13km south providing access  
to key West Coast export terminals

138kV powerline nearby

**A total 22,951ha (230km<sup>2</sup>) of highly prospective  
tenements which are immediately north of the  
4.5Mtpa Grassy Mountain HCC project (Riversdale)**





# Elan presents a rare opportunity

Acquired by Atrum in early 2018 (100% ownership)

298Mt total JORC Resources delineated; open-pit focus

**Top-tier hard coking coal quality**

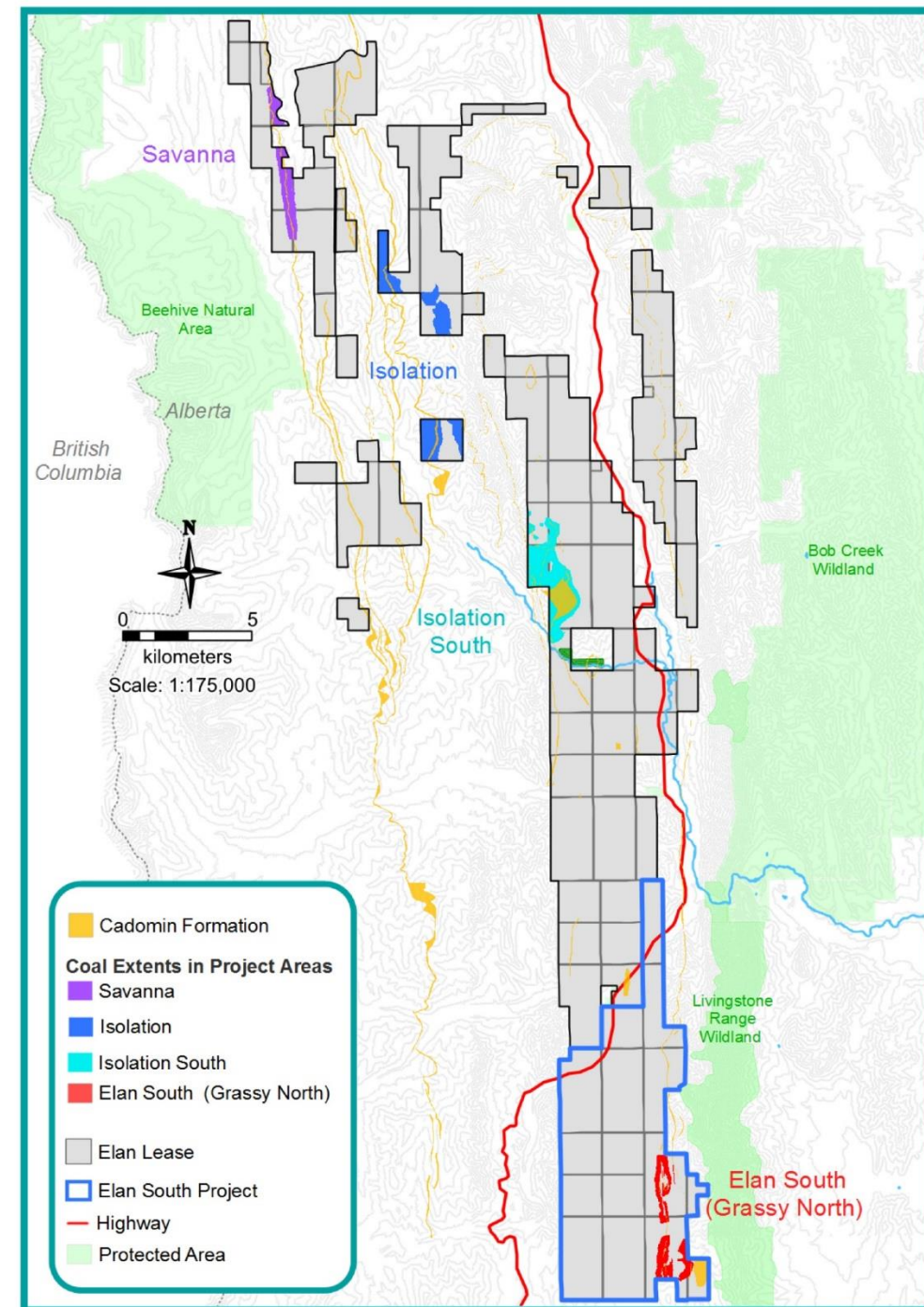
Proximate rail access to key West Coast ports

Scale and life: multi-mine development potential

## Elan Hard Coking Coal Project JORC Resources<sup>1</sup>

| Project area | Indicated    | Inferred      | Total         |
|--------------|--------------|---------------|---------------|
| Elan South   | 31 Mt        | 66 Mt         | 97 Mt         |
| Elan North   | 39 Mt        | 162 Mt        | 201 Mt        |
| <b>TOTAL</b> | <b>70 Mt</b> | <b>228 Mt</b> | <b>298 Mt</b> |

1. For full Elan Project JORC Resource details see Atrum ASX releases dated 8 January 2019 (*Elan South Hard Coking Coal Resource increased by 170% to 97Mt*) and 22 January 2019 (*Additional 201Mt JORC Resources defined for Elan Project*)

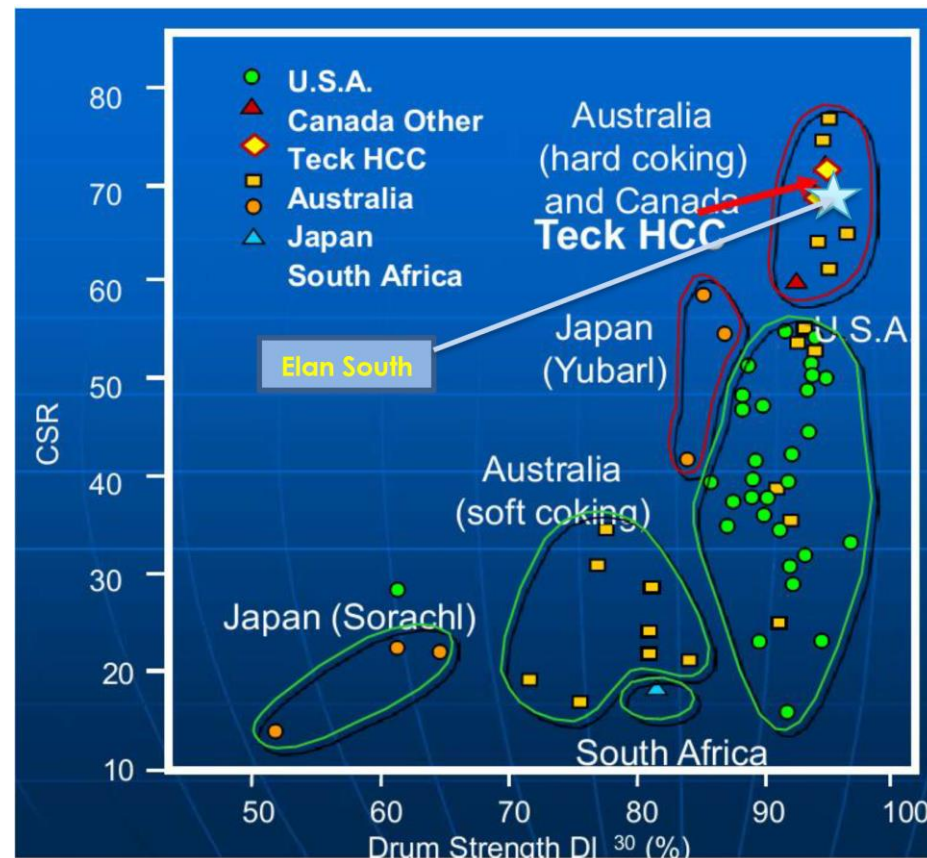


# Top-tier global hard coking coal quality

|                     | Elan South <sup>1</sup><br>(Atrum) | Grassy Mount.<br>(Riversdale) | Platts Aust. HCC<br>64 | Elk Valley<br>(Teck<br>Premium) <sup>4</sup> | IHS Aust.<br>Prime HCC |
|---------------------|------------------------------------|-------------------------------|------------------------|----------------------------------------------|------------------------|
| CSR                 | <b>62 – 70<sup>2</sup></b>         | 65                            | 64                     | (EST 65 – 70)                                | 71                     |
| Coal Rank RoMax (%) | <b>1.14 – 1.21</b>                 | 1.2                           | -                      | 1.07 – 1.17                                  | 1.15 – 1.55            |
| Yield (%)           | <b>&gt; 65</b>                     | 55                            | -                      |                                              | -                      |
| Volatile Matter (%) | <b>23.3 – 25.3</b>                 | 23.5                          | 25 – 26                | 24.5 – 26.5                                  | 26 max                 |
| Total Moisture (%)  | <b>&lt; 10</b>                     | 10                            | 9 – 10                 | < 10                                         | 10 max                 |
| Sulfur (%)          | <b>0.60 – 0.68</b>                 | 0.5                           | 0.5 – 0.7              | 0.65 – 0.70                                  | 0.7 max                |
| Phosphorus (%)      | <b>0.060 – 0.085<sup>3</sup></b>   | 0.04                          | 0.05                   | 0.075                                        | 0.05                   |
| Fluidity (ddpm)     | <b>60 – 330</b>                    | 150                           | 1,500 – 1,700          | 200 – 500                                    | 100 min                |

***Elan South coal is a high quality mid-vol hard coking coal rightly classified in the top tier of export market.***

1. Elan South data based on test work programs conducted in 2014 & 2018; testing of all 2018 samples not yet complete
2. Results from 2018 small-scale carbonisation test work (see recent Atrum ASX release)
3. South area (2018 samples) shows 0.060 – 0.085% while North area (2014 samples) shows 0.010 – 0.020%
4. Properties other than CSR are from NI 43-101 Technical Report on Coal Resources and Reserves of the Fording River Operations (2011)



**Seaborne coking coal product parameters**

Source: Teck Resources, January 2019



# Immediate focus: Elan South

Flagship area targeted for rapid development

Highly successful drill program in 2018

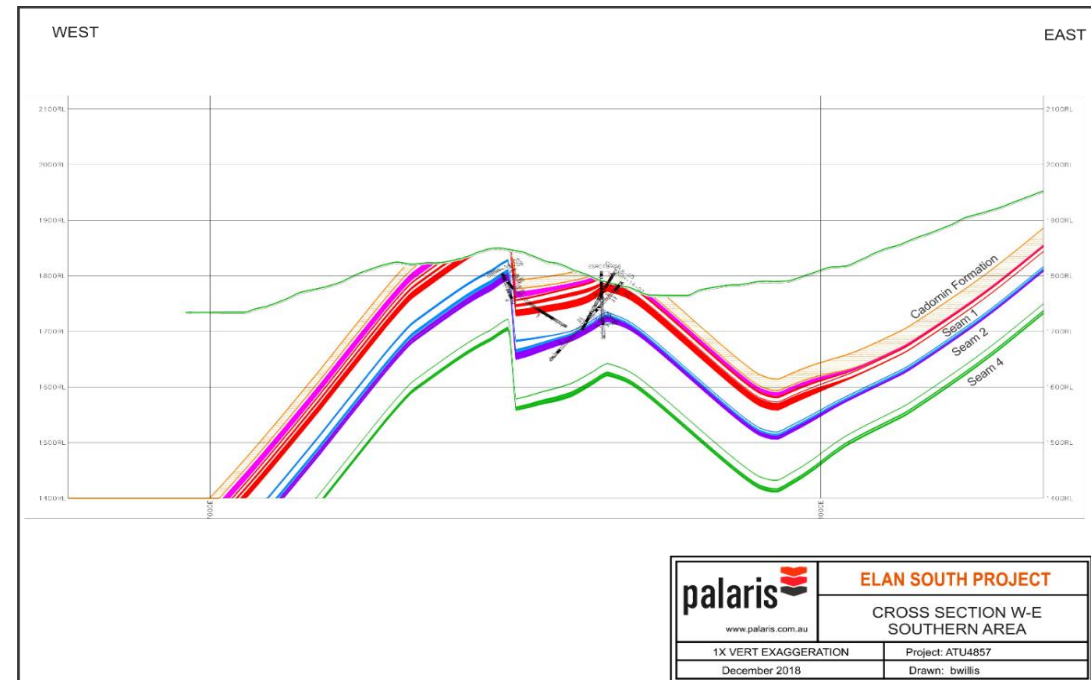
97Mt JORC Resources and growing

Initial testing - Tier 1 hard coking coal

Thick and shallow coal seams

Low cost mining and logistics in the Crowsnest Pass / Elk Valley area: (i.e, Teck 2017 actual at US\$80/t FOB, Riversdale estimate ~US\$68 FOB)

***A large, high-quality HCC project potential with excellent proximity to critical rail infrastructure***





# The further leg: Elan North

All northern Elan tenements (north of Elan South)

**Substantial historical exploration, sampling and test data**

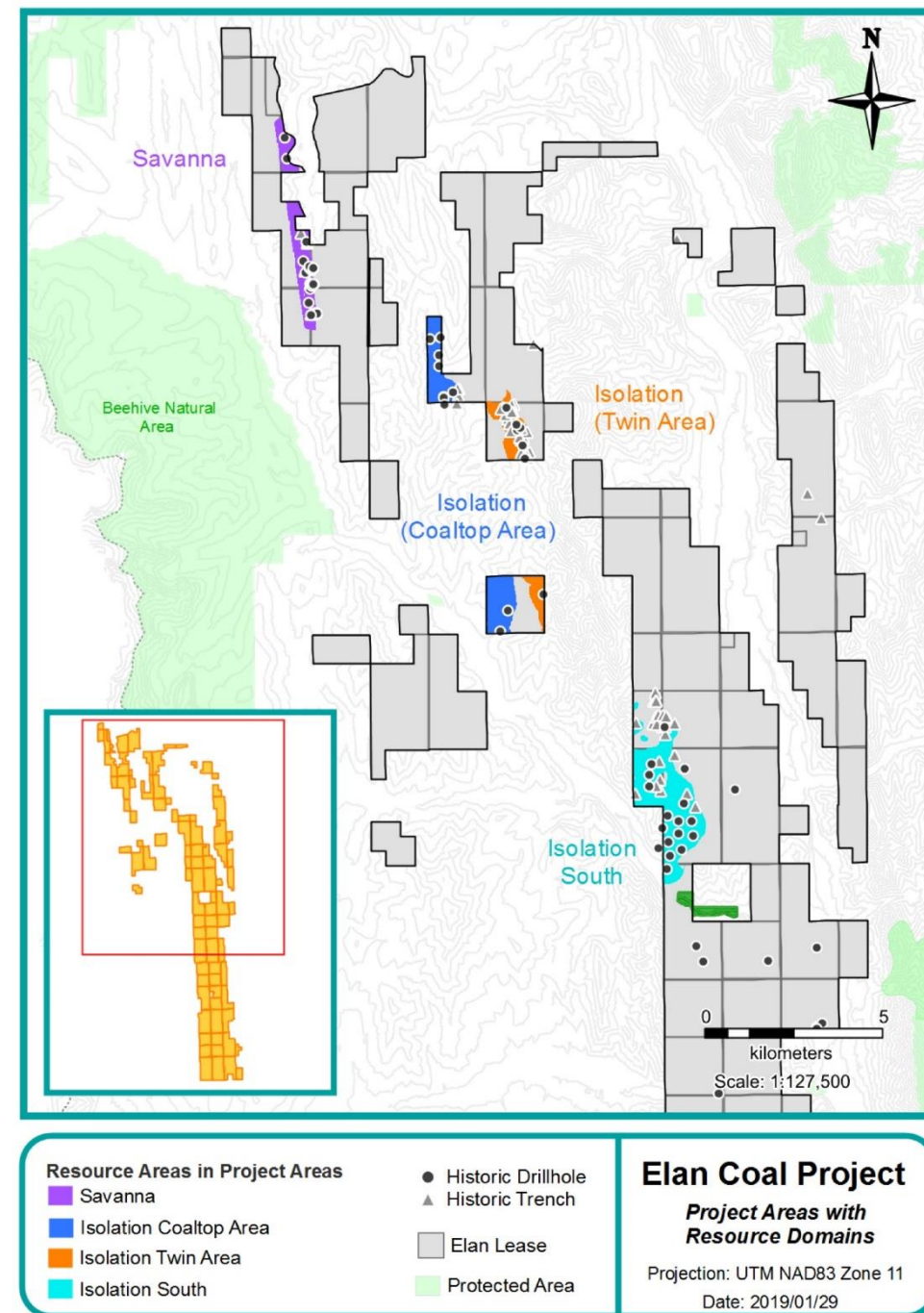
201Mt JORC Resources and growing

Similar high-quality HCC seam parameters as Elan South

Delivers clear scalability and life (multi-project) opportunities

## Elan North JORC Resources

| Project area                      | Indicated    | Inferred      | Total         |
|-----------------------------------|--------------|---------------|---------------|
| Savanna                           |              | 30 Mt         | 30 Mt         |
| Isolation South                   | 39 Mt        | 81 Mt         | 120 Mt        |
| Isolation – Ridge, Twin & Coaltop |              | 51 Mt         | 51 Mt         |
| <b>TOTAL</b>                      | <b>39 Mt</b> | <b>162 Mt</b> | <b>201 Mt</b> |



# Elan North offers clear scale and life potential

Geologically and geometrically attractive deposition in many areas

Focussed on open-pit opportunities

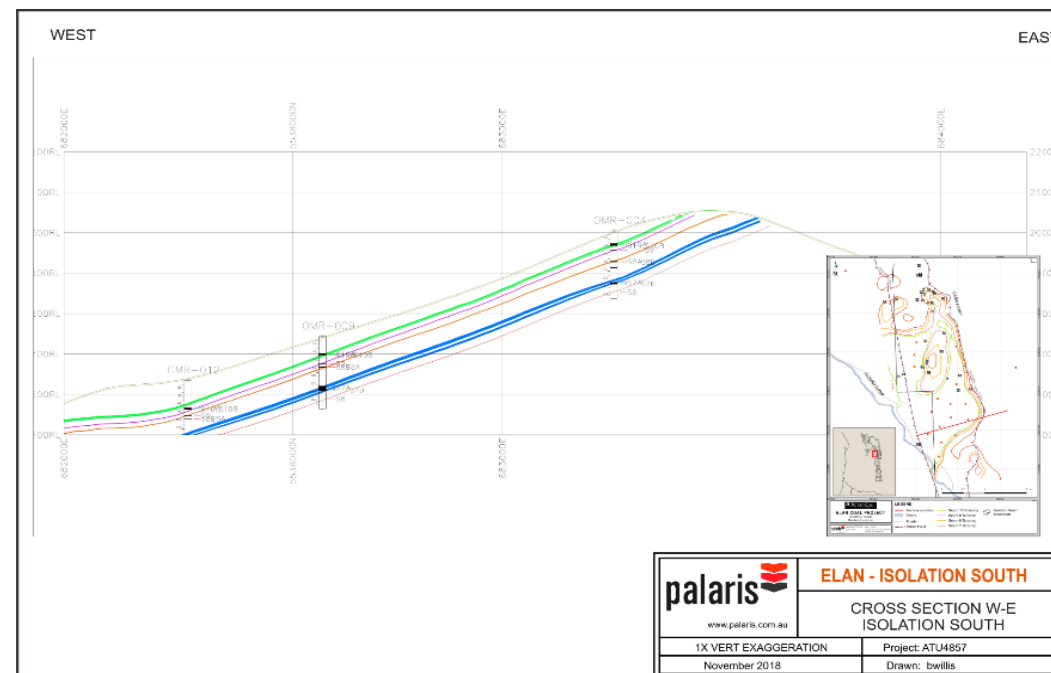
Extensive historical coal quality test work provides confidence in coal quality

Increasing coal rank (1.21-1.53) moving north

## Preliminary coal quality parameters

| Project area            | CSR     | Yield | ASH   | VM         | S <sup>2</sup> | p <sup>2</sup> | Max Fluidity DDPM |
|-------------------------|---------|-------|-------|------------|----------------|----------------|-------------------|
| Elan South              | 62-70   | >65%  | 6-7%  | 23.3-25.3% | 0.60-0.68%     | 0.060-0.085%   | 60-330            |
| Elan North <sup>1</sup> | Est >65 | >65%  | 5-10% | 19.8-20.9% | 0.18-0.60%     | Not tested     | 3-80              |

1. Elan North data based on extensive review of historical test work programs
2. Clean coal test work on 2014 cores extracted north of the 2018 Elan South drill hole locations indicated 0.47-0.71% Sulphur and 0.010-0.020% Phosphorus



**Large land areas, 201 Mt JORC resources & growing, high quality HCC with multi-project potential**

# A potential multi-mine development

Large landholding proximate to Teck's Elk Valley (25Mtpa HCC)

Direct correlation with Elk Valley coal seams & many other settings

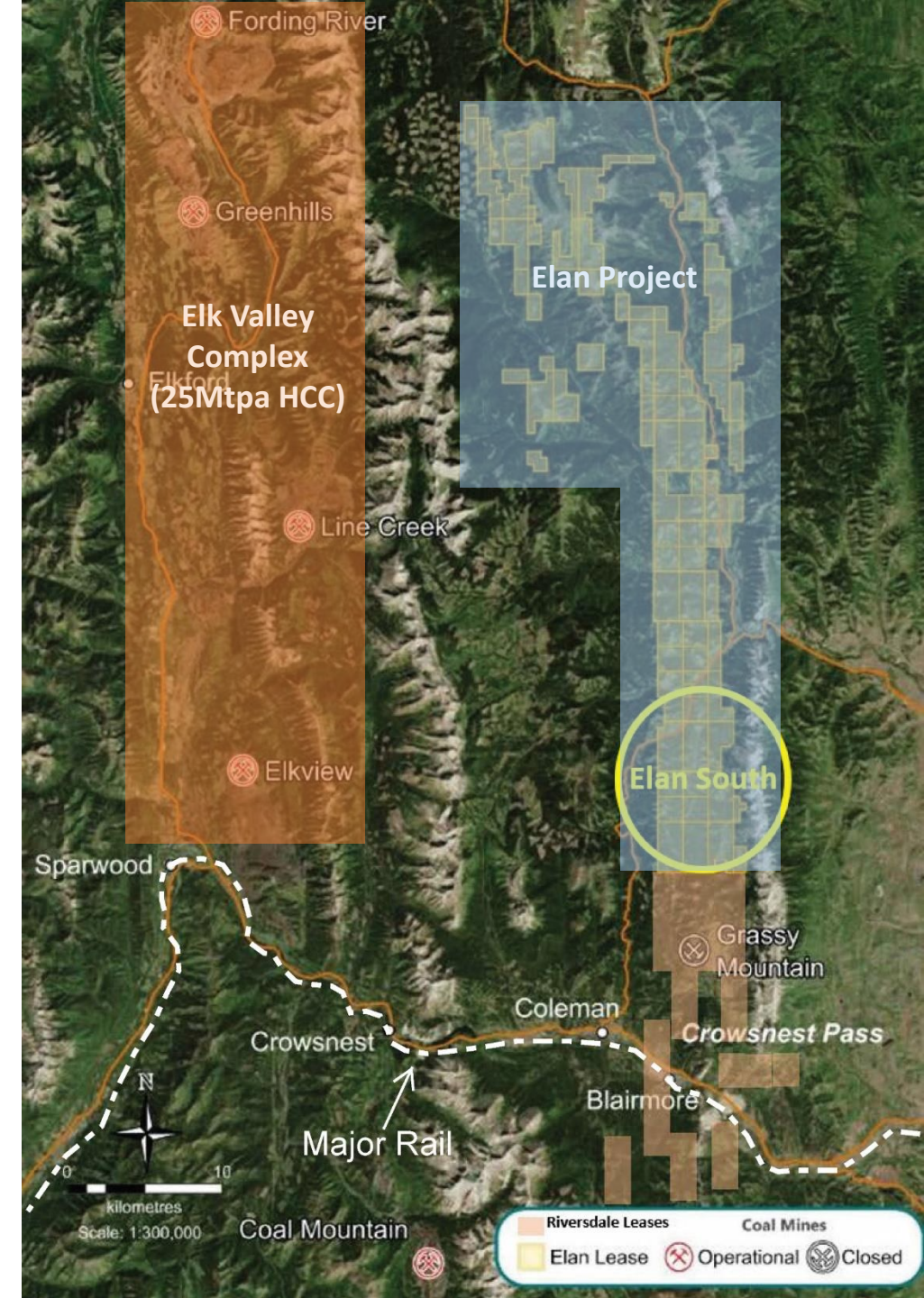
**Clear potential for multiple large Tier 1 HCC projects**

Large undrilled or underdrilled areas

Combined Exploration Target Range for Elan of 210Mt to 900Mt<sup>1</sup>

*The Exploration Target potential quantities and grades are conceptual in nature and there has been insufficient exploration to date to define a mineral resource. It is not certain that further exploration will result in the determination of a Mineral Resource under the "Australian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves, the JORC Code" (JORC 2012). The Exploration Target is not being reported as part of any Mineral Resource or Ore Reserve. Elan South ETR is 70 – 320Mt and Elan North ETR is 140 – 580Mt.*

1. For full Elan Project Exploration Target details see Atrium ASX releases dated 8 January 2019 (Elan South Hard Coking Coal Resource increased by 170% to 97Mt) and 22 January 2019 (Additional 201Mt JORC Resources defined for Elan Project)





# Elan permitting status

## Elan has Category 2 land status

Special approval required for surface mining

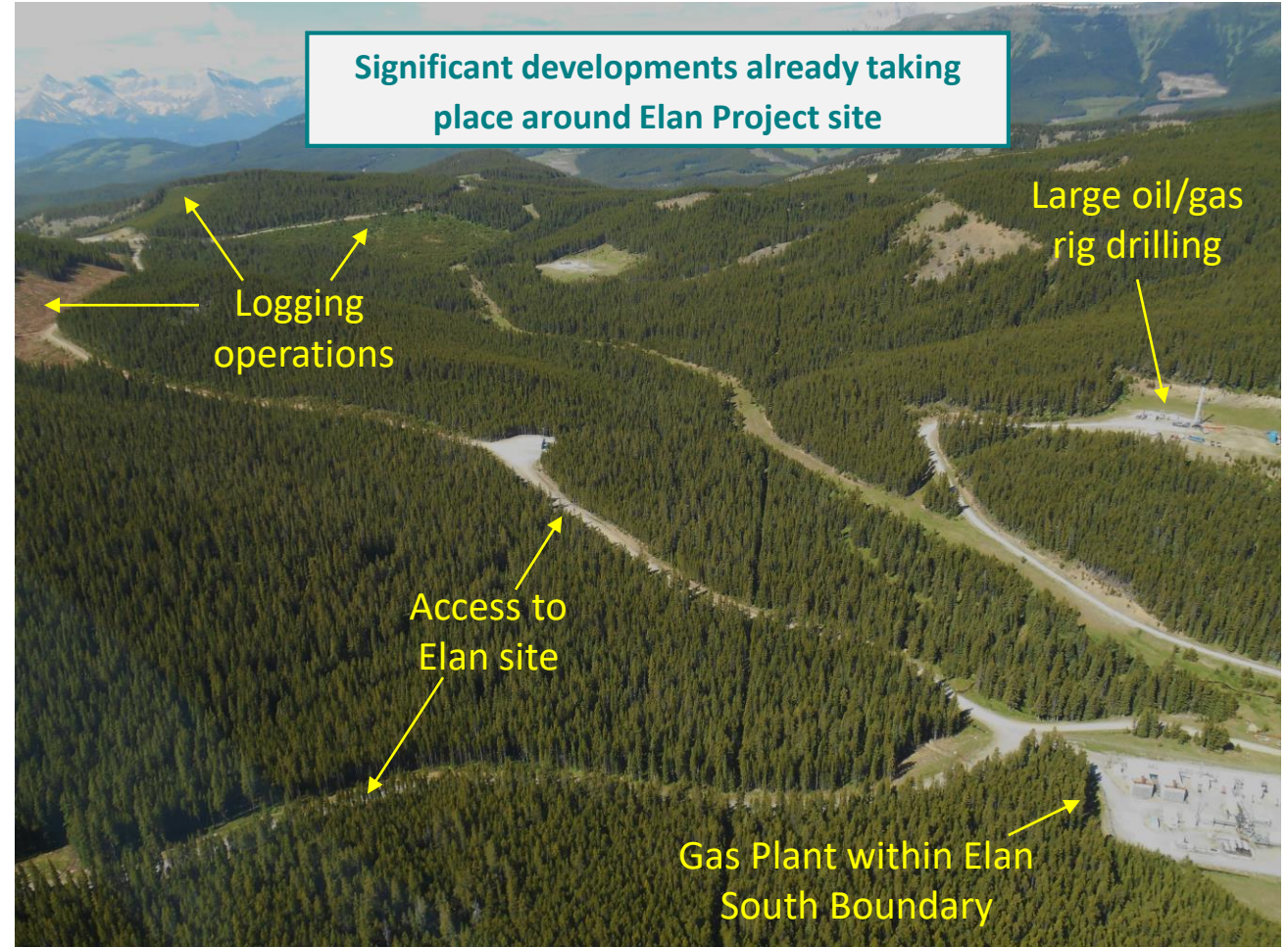
Ram River Aries Project precedent (July 2016)

Elan site is mostly Zone 5 (multiple use) where O&G/forestry development has already occurred

Significant local & regional economic impact

Available existing infrastructure – another key positive driver

Environmental Baseline Study underway





# Process water options and community support



## Water sourcing options

Surface water permit required for industrial use

One ground water source discovered in 2018

Water sharing with other industrial users

High efficiency water use design & technologies

## Excellent social dynamics

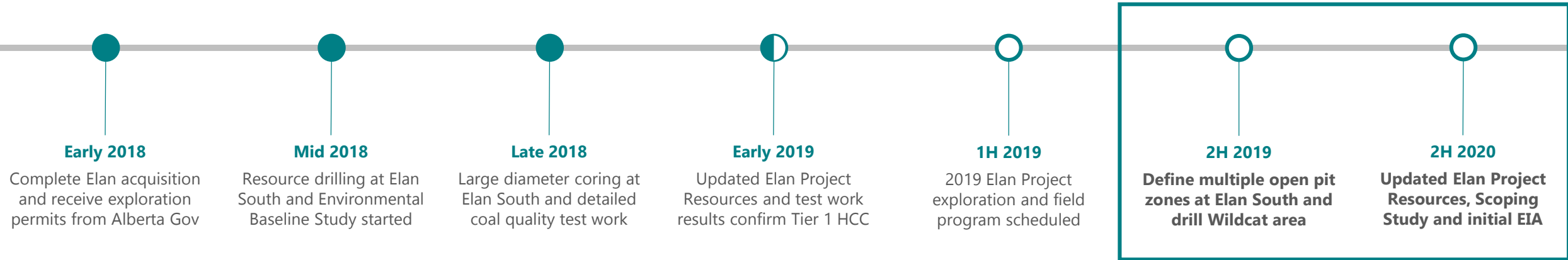
Pro-coal development community

Highly positive economic impact

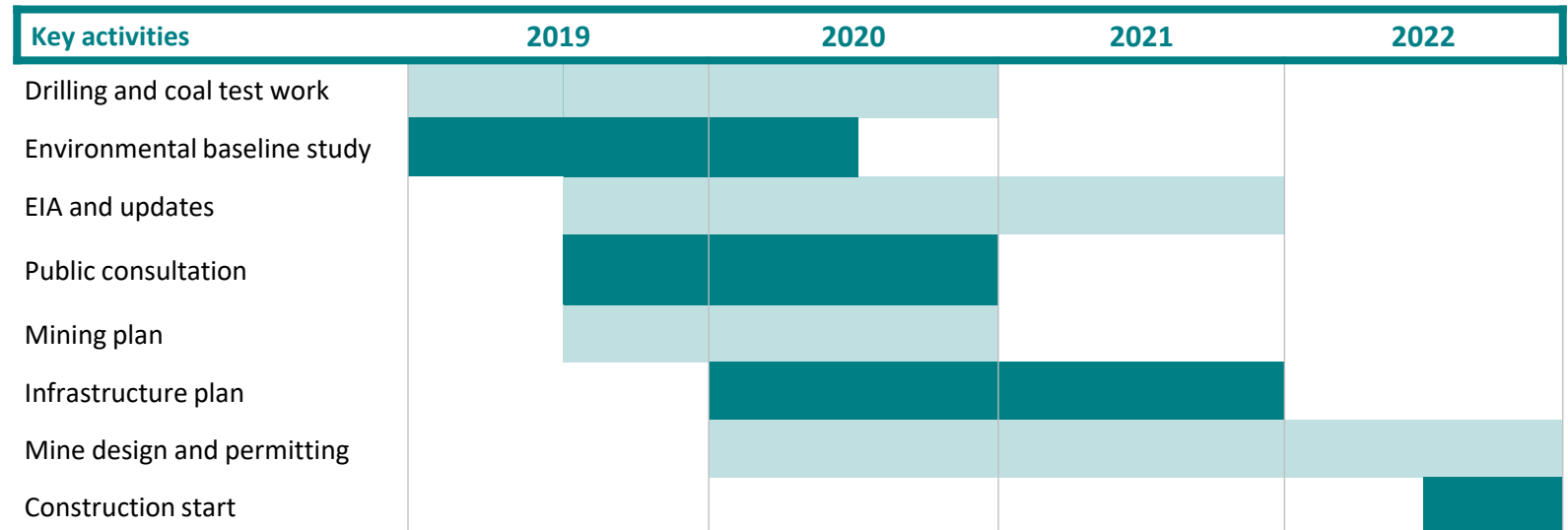
Infrastructure sharing with other resource developers, e.g., forestry and oil & gas



# Accelerated progression towards development



## Target Elan South Development Schedule





# A highly attractive Canadian HCC project exposure

|                                                   |  |  |  |  |
|---------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Company name                                      | Atrum Coal                                                                         | Riversdale Resources                                                                | Jameson Resources                                                                   | Allegiance Coal                                                                     |
| Primary listing                                   | ASX: ATU                                                                           | Private                                                                             | ASX: JAL                                                                            | ASX: AHQ                                                                            |
| Enterprise value (A\$m)                           | 35                                                                                 | ~392 <sup>1</sup>                                                                   | 42                                                                                  | 29                                                                                  |
| Flagship project, location and ownership interest | Elan, Alberta (100%)                                                               | Grassy Mt, Alberta (100%)                                                           | Crown Mt, BC (83%) <sup>2</sup>                                                     | Tenas, BC (80%)                                                                     |
| Project type                                      | Open pit                                                                           | Open pit                                                                            | Open pit                                                                            | Open pit                                                                            |
| Project resources (Mt)                            | 298                                                                                | 195                                                                                 | 99                                                                                  | 37                                                                                  |
| Attrib. EV/resource (A\$/t)                       | 0.12                                                                               | 2.01                                                                                | 0.51                                                                                | 0.98                                                                                |
| Product reserves (Mt)                             | -                                                                                  | 88                                                                                  | 30                                                                                  | 21                                                                                  |
| Target production (Mtpa product)                  | -                                                                                  | 4.5                                                                                 | 1.7                                                                                 | 0.75                                                                                |
| Product type                                      | HCC <sup>3</sup>                                                                   | HCC                                                                                 | HCC + PCI                                                                           | SSCC                                                                                |
| Completed study phase                             | Pre-Scoping                                                                        | Feasibility Study                                                                   | Pre-Feasibility Study                                                               | Pre-Feasibility Study                                                               |

Source: Publicly available company data, February 2019

1. Based on total equity subscription of A\$99.3M by Hancock Prospecting in 2H 2018 for a 19.99% equity interest.
2. A subsidiary of Bathurst Resources Limited (asx: BRL) has committed to invest up to C\$121.5 million cash in Crown Mountain. BRL now owns 8% of Jameson's NWP Coal Canada Ltd subsidiary, which holds a 90% interest in Crown Mountain. Should BRL fully fund the remaining tranches Crown Mountain would become a 50/50 JV.
3. Initial detailed coal quality and coke test work on Elan South has indicated a medium-volatile, hard coking coal (residual core sample testing still pending).



# Groundhog and Panorama Anthracite Projects

Huge undeveloped high-grade anthracite deposit

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Funded Panorama North JV with JOGMEC

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Multiple further large-scale JV opportunities

# Large scale Groundhog and Panorama Projects

Massive Groundhog field with +1Bt JORC resources

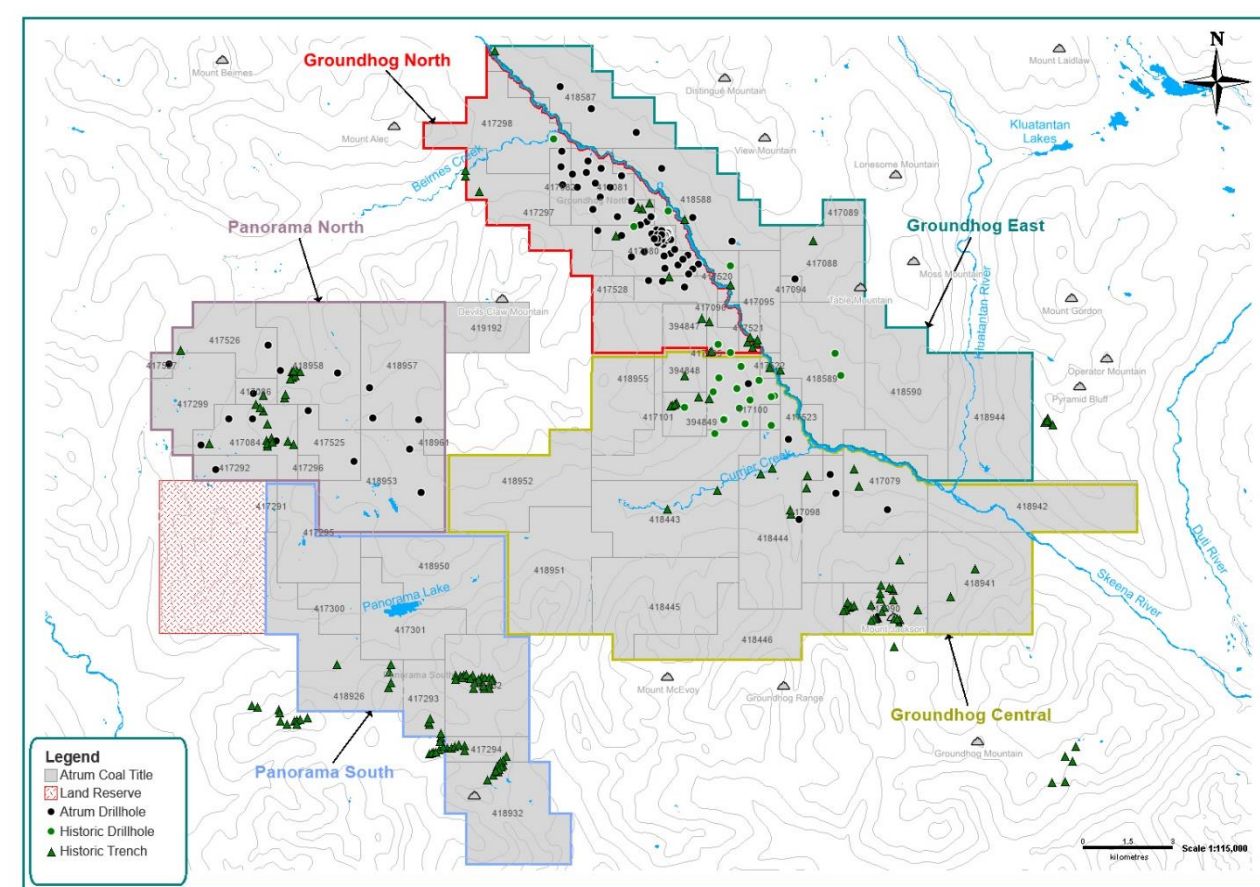
High grade anthracite (+ low ash, high yield)

Multi-decade historical exploration work

Several large project areas suitable for multiple JV and partnership development opportunities

## JORC Resources for Groundhog North & East areas only

| Area           | Measured   | Indicated  | Inferred   | Total        |
|----------------|------------|------------|------------|--------------|
| Western Domain | 156        | 193        | 260        | 609          |
| Eastern Domain | -          | 260        | 147        | 407          |
| <b>Total</b>   | <b>156</b> | <b>453</b> | <b>407</b> | <b>1,016</b> |





# Panorama North: Fully funded exploration with JOGMEC

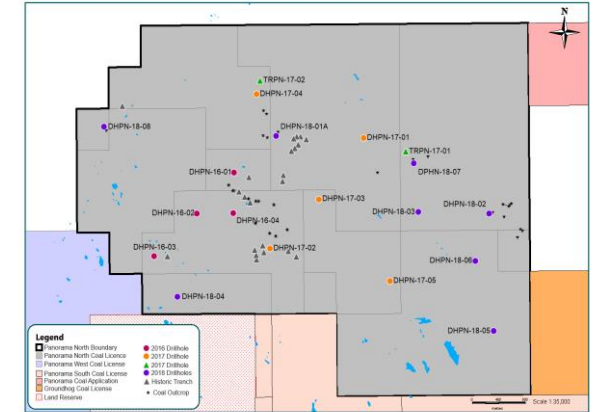
**Japan Oil, Gas and Metals National Corporation (JOGMEC) earning up to 35% in Panorama North by investing C\$5.0M over 3 years**

Fully funded 2018 program (C\$1.9M) completed with excellent results

Significant coal seam intersections with drill core submitted for coal quality analysis

Initial JORC resource estimate and coal quality results expected Q1 2019

Exclusivity with JOGMEC until 2021 to negotiate JV exploration for Panorama South





# Summary: Atrum executes a solid strategy & achieves results

## Elan Coal Acquisition and Exploration

- ✓ Complete acquisition
- ✓ Very successful exploration
- ✓ Major resource increases
- ✓ Confirmed high coal quality
- ✓ Set the stage to accelerate exploration & development

## Groundhog and Panorama JV Exploration

- ✓ Maintained Panorama North JV with 2018 JOGMEC
- ✓ Very successful 3<sup>rd</sup> year \$1.9M JV exploration
- ✓ Extend exclusivity with JOGMEC for Panorama South

## New Board New Strategy, with Operational Discipline

- ✓ Major reduction in staff & admin costs
- ✓ Major reduction in corporate legal and consulting costs
- ✓ Industry leading exploration efficiency in 2018

***Top tier assets, multi-project potential and  
experienced board & management***



# Contact

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## **Michael Vaughan**

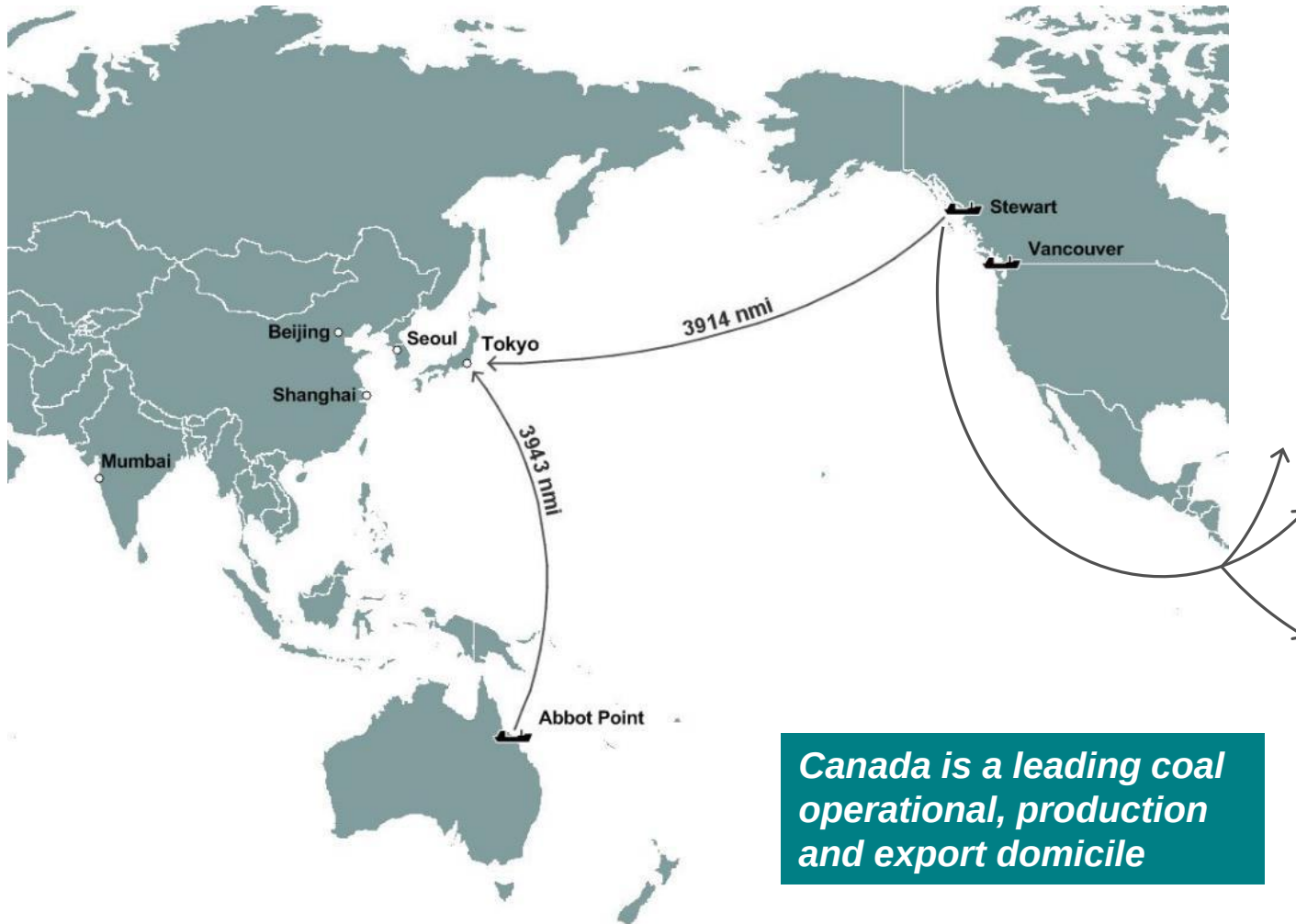
Media Contact  
+61 422 602 720  
[michael.vaughan@fivemark.com.au](mailto:michael.vaughan@fivemark.com.au)



# Appendix: Further Details



# The Canadian advantage



*Canada is a leading coal operational, production and export domicile*

## Low sovereign risk

### Government and regulatory environment encourages mine development

- Mine exploration rebate program in BC (33%)
- CAPEX amortization incentives and low coal royalty

### Extensive and regulated infrastructure

- Direct rail access to ample port capacities
- Low electricity and natural gas costs

### Comparable Asian shipping distance as Australia

- Australia-to-Japan and BC-to-Japan are equidistant

## Less major weather disruption

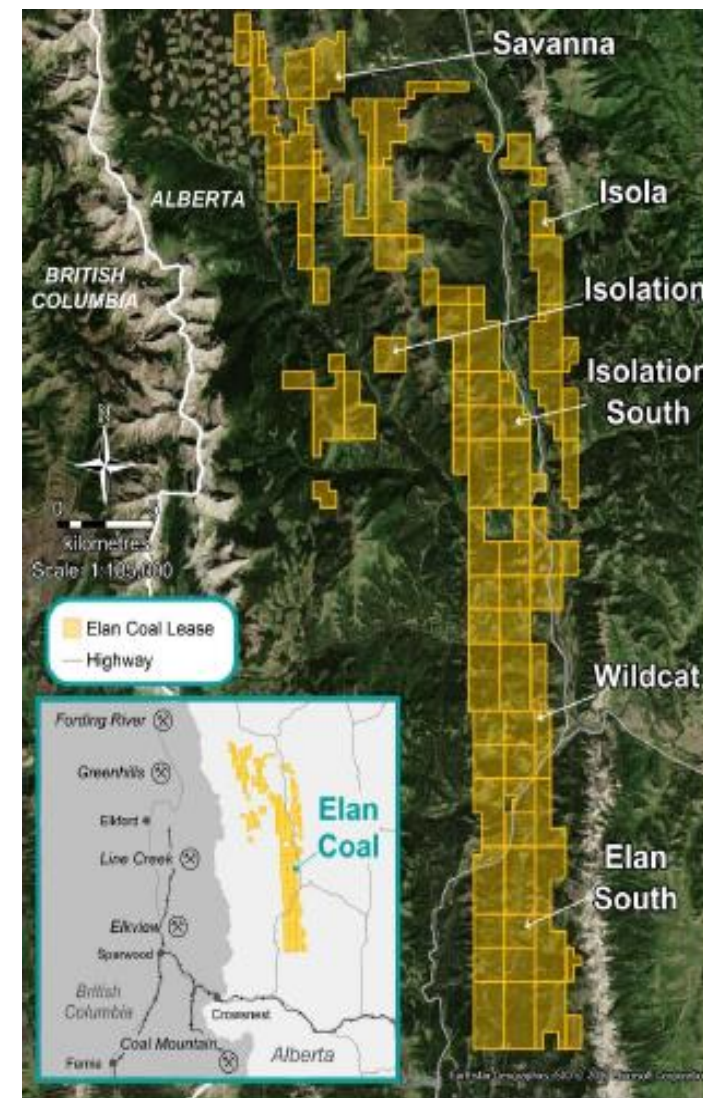
Recent global significant investment activity in southwest Alberta HCC projects



# Significant historical exploration and sampling at Elan

## Summary of Elan Coal historical exploration data (Dahrouge 2013)

| Area                  | Operator    | Campaign | Core holes | Bore holes/<br>Wells | Adits     | Trenches   | Mapping            | Access Trails (km) |
|-----------------------|-------------|----------|------------|----------------------|-----------|------------|--------------------|--------------------|
| OMR (Isolation South) | Scurry      | 1970     | 19         | -                    | 3         | 24         | -                  | 22.5               |
| Savanna               | Bralorne    | 1969-72  | 8          | 57                   | 5         | 15         | 1:4,800 ft         | -                  |
| Savanna               | CIGOL       | 1971     | 2          | -                    | -         | -          | -                  | -                  |
| Isolation             | CanPac      | 1969-71  | 76         | 5                    | 6         | 76         | 1:12,000 / 1:2,400 | ~117.5             |
| Isolation             | Granby      | 1974     | 18         | 9                    | -         | 45         | 1:2,400            |                    |
| Regional-OMR          | W.C.C       | 1949-55  | -          | -                    | -         | 33         | 1:12000            | Extensive          |
| Regional-Isola        | CCL         | 1971     | 3          | -                    | -         | 15         | -                  | -                  |
| Regional-OMR          | Consol      | 1976     | -          | -                    | -         | -          | 1:12,000           | -                  |
| Regional              | CHE & Devon | 1989     | -          | 1                    | -         | -          | -                  | -                  |
| Regional              | NEC         | 2001-02  | -          | 20                   | -         | -          | -                  | -                  |
| <b>Total</b>          |             |          | <b>126</b> | <b>92</b>            | <b>14</b> | <b>208</b> |                    |                    |





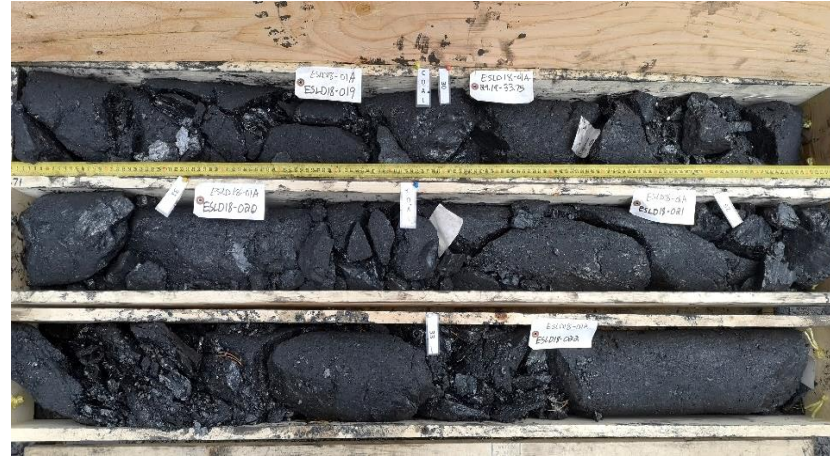
# 2018 Elan South exploration and field program



*Significant coal intersections in most drill holes and exposed in road cuttings, with apparent cumulative intersections of up to 42.8m (hole ESRAB18-14)*



# Large diameter coring completed at Elan South 2018



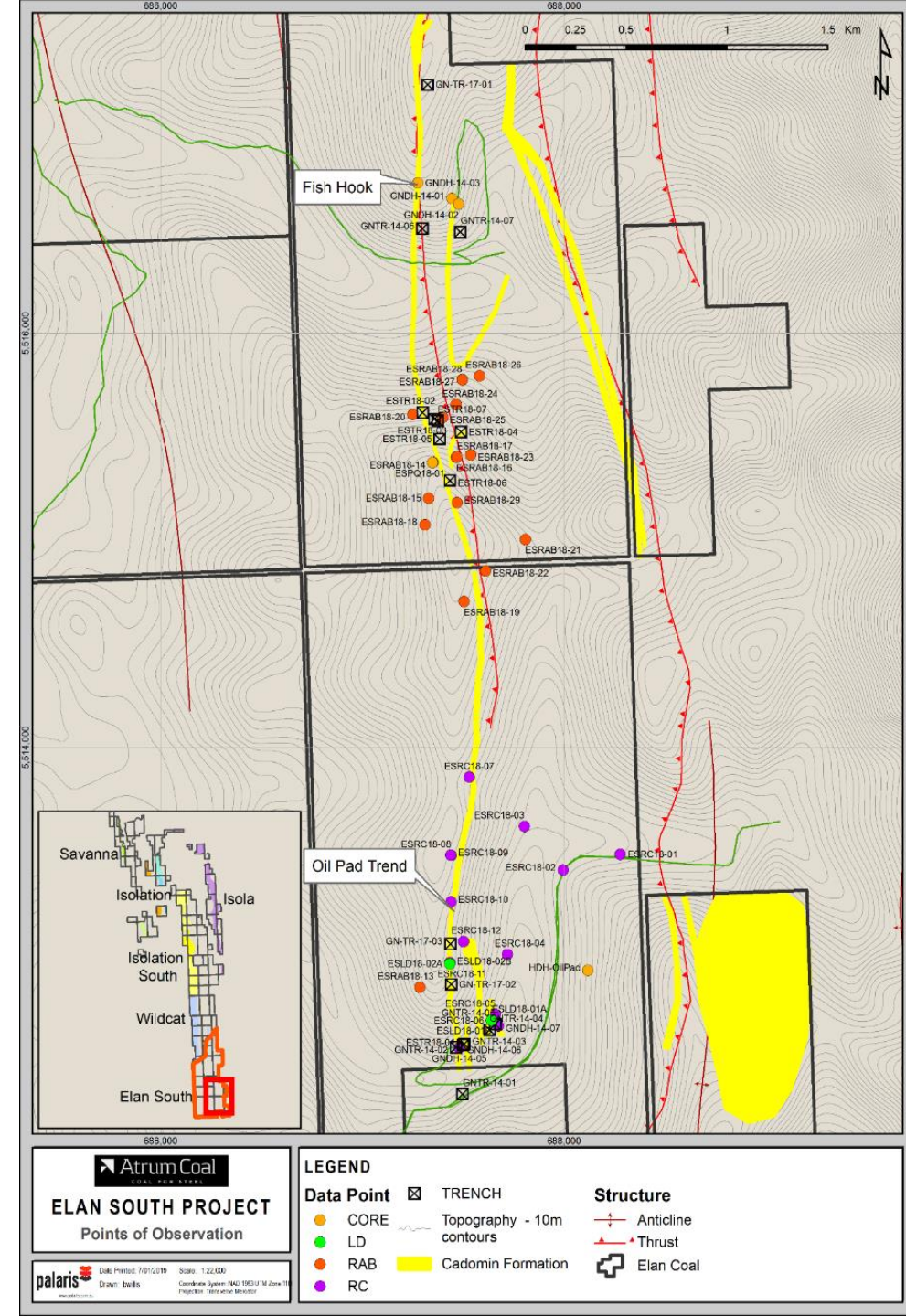


# Elan South: Drilling locations and JORC Resource estimates

## Elan South JORC Resources By Seam<sup>1</sup>

| Seam   | Sub-Seam | Indicated | Inferred | TOTAL |
|--------|----------|-----------|----------|-------|
| Seam 1 | S1C      | 6.1       | 9        | 15.0  |
|        | S1CL     | 0.5       | 2        | 2.3   |
|        | S1B      | 1.1       | 3        | 4.3   |
|        | S1AU     | 4.6       | 4        | 8.4   |
|        | S1AL     | 8.2       | 7        | 14.9  |
| Seam 2 | S2BU     | -         | 5        | 4.6   |
|        | S2B      | 1.1       | 9        | 9.9   |
|        | S2BL     | -         | 2        | 1.7   |
|        | S2AU     | 4.4       | 10       | 14.8  |
|        | S2AL     | 5.3       | 12       | 16.8  |
| Seam 4 | S4A      | -         | 1        | 1     |
|        | S4B      | -         | 3        | 3.2   |
|        | S4C      | -         | 1        | 1     |
| TOTAL  |          | 31.3      | 66       | 97    |

1. For full Elan South area JORC Resource details see Atrum ASX release dated 8 January 2019 (*Elan South Hard Coking Coal Resource increased by 170% to 97Mt*)





# Preliminary/partial individual clean coal results for Elan South

| Hole ID    | Composite ID | Lab Yield % | Moist (IM) % | Ash % | Vol % | F.C. % | TS%  | FSI |
|------------|--------------|-------------|--------------|-------|-------|--------|------|-----|
| ESLD18-01A | COMP-01      | 82.1        | 0.5          | 7.6   | 23.4  | 68.6   | 0.65 | 5.0 |
| ESLD18-01A | COMP-02      | 93.4        | 0.6          | 5.9   | 23.8  | 69.8   | 0.63 | 5.5 |
| ESLD18-01A | COMP-03      | 92.7        | 0.5          | 5.4   | 24.9  | 69.1   | 0.70 | 7.0 |
| ESLD18-01B | COMP-04      | 54.2        | 0.6          | 9.4   | 24.5  | 65.5   | 0.70 | 5.5 |
| ESLD18-01B | COMP-05      | 96.4        | 0.6          | 5.0   | 26.3  | 68.2   | 0.73 | 7.5 |
| ESLD18-01B | COMP-06      | 85.4        | 0.6          | 6.2   | 25.1  | 68.1   | 0.71 | 7.0 |
| ESLD18-02A | COMP-07      | 65.3        | 0.9          | 7.1   | 24.6  | 67.5   | 0.61 | 4.0 |
| ESLD18-02A | COMP-08      | 80.3        | 0.6          | 6.4   | 25.9  | 67.1   | 0.68 | 8.5 |
| ESLD18-02A | COMP-09      | 88.0        | 0.7          | 5.1   | 26.6  | 67.6   | 0.65 | 8.0 |

Notes: Clean coal was washed at CF1.45



# Raw coal test results for Elan South LD cores

| BORE ID    | LAB #   | From m | To m  | IM % | ASH % | VM % | TS % | CV kcal/kg | FSI |
|------------|---------|--------|-------|------|-------|------|------|------------|-----|
| ESLD18-01A | COMP-01 | 21.95  | 23.11 | 0.6  | 11.8  | 22.2 | 0.63 | 7,449      | 4   |
| ESLD18-01A | COMP-02 | 23.11  | 29.19 | 0.5  | 7.5   | 23.3 | 0.60 | 7,901      | 3   |
| ESLD18-01A | COMP-03 | 29.19  | 34.21 | 0.5  | 8.0   | 24.3 | 0.67 | 7,877      | 6   |
| ESLD18-01B | COMP-04 | 19.46  | 22.52 | 0.7  | 22.3  | 20.6 | 0.60 | 6,468      | 4   |
| ESLD18-01B | COMP-05 | 22.52  | 26.73 | 0.7  | 5.6   | 25.6 | 0.73 | 8,151      | 6   |
| ESLD18-01B | COMP-06 | 26.83  | 32.84 | 0.8  | 10.8  | 24.0 | 0.71 | 7,573      | 5   |
| ESLD18-02A | COMP-08 | 28.0   | 32.0  | 0.7  | 13.6  | 25.0 | 0.71 | 7,242      | 7.5 |
| ESLD18-02A | COMP-09 | 32.0   | 38.0  | 0.7  | 9.5   | 25.9 | 0.69 | 7,698      | 7.5 |
| ESLD18-02A | COMP-10 | 38.0   | 43.73 | 0.8  | 10.9  | 24.9 | 0.96 | 7,480      | 6.5 |
| ESLD18-02A | COMP-11 | 43.88  | 48.9  | 0.7  | 11.8  | 24.6 | 0.87 | 7,457      | 6   |
| ESLD18-02A | COMP-12 | 48.9   | 52.56 | 0.8  | 19.6  | 23.4 | 1.08 | 6,664      | 5.5 |
| ESLD18-02B | COMP-15 | 28.35  | 32.35 | 1.0  | 11.7  | 24.8 | 0.76 | 7,437      | 6.5 |
| ESLD18-02B | COMP-16 | 32.35  | 38.34 | 1.2  | 16.7  | 24.0 | 0.71 | 6,905      | 5.5 |
| ESLD18-02B | COMP-17 | 38.46  | 42.25 | 1.3  | 16.8  | 24.0 | 0.54 | 6,863      | 5.5 |
| ESLD18-02B | COMP-18 | 42.35  | 46.5  | 1.2  | 18.6  | 23.8 | 0.78 | 6,740      | 4.5 |
| ESLD18-02B | COMP-19 | 46.5   | 53.7  | 1.4  | 12.2  | 23.8 | 0.73 | 7,315      | 5.5 |
| ESLD18-02B | COMP-20 | 53.7   | 60.18 | 1.5  | 15.6  | 23.7 | 0.66 | 6,924      | 4.5 |
| ESLD18-02B | COMP-21 | 60.2   | 61.8  | 0.9  | 25.1  | 20.1 | 0.65 | 6,096      | 1.5 |



# Environmental Baseline Study started in June 2018

Wildlife monitoring

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Stream flow monitoring

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Surface water quality sampling

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Core rock sampling and testing

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Groundwater monitoring

