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**Part 1: The Global Shift To EAF Steelmaking and the  
Implications for DR Grade Iron Ore Demand**

**February 2024**

**Coal to Renewable Power | Clean Steel | Potash | Copper | Lithium | Nickel | Cobalt**

# The Global Shift To EAF Steelmaking and the Implications for DR Grade Iron ... and Altius!

**Electric Arc Furnace (EAF)  
steel transition momentum  
building on carbon cost  
pressures and growing  
market demand for low  
emission rooted steel**

**Scrap and DRI-quality ore  
demand growth accelerating  
as EAF based steelmaking  
market share increases**

**Limited visibility exists as to  
where increased supplies of  
DRI-quality ores will  
come from**

**Altius shareholders  
well positioned**



# Steel Decarbonization Macrotrend is Driving a Process Transition in Steelmaking

EAF Route Market Share Growing - BF Route in Structural Decline

## Blast Furnace (BF) Steelmaking

BF Grade Iron Ore

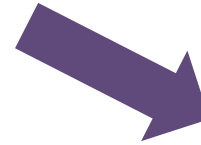


+



Coal

71% Steel  
84% CO2



## Electric Arc Furnace (EAF) Steelmaking

Scrap Steel



+



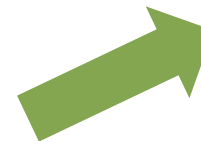
DR Grade Iron Ore Pellets

↓ Nat Gas / H<sub>2</sub> Reduction ↓



DRI/HBI

29% Steel  
16% CO2

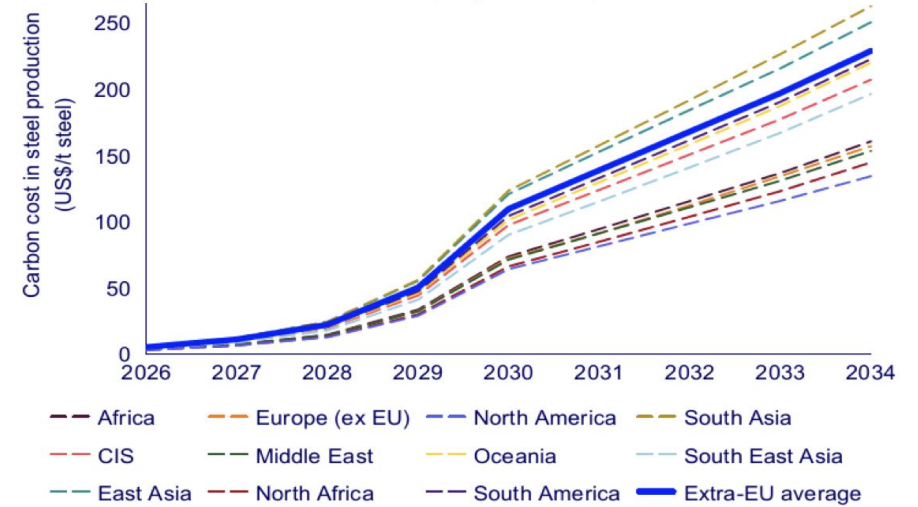


# Emissions an Increasing Part of Steelmaking Cost Structure

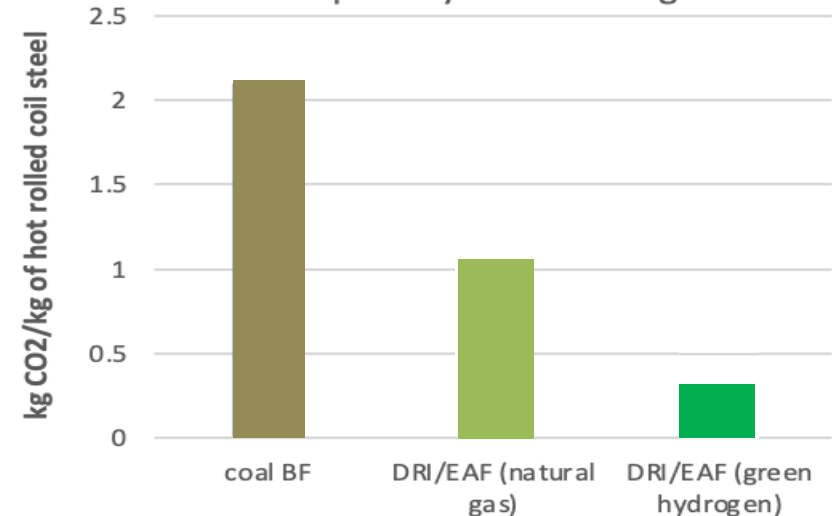
## Financial Advantage For EAF Based Production

- The increased costing of emissions, and decreasing market acceptance of high emission intensity steel, is driving the current sectoral transition away from BF based steel manufacturing and towards Electric Arc Furnace (EAF) based steelmaking
- The costing of carbon emissions in steelmaking is expected to take on even greater significance over the next decade as carbon border adjustment policies and fees are ramped up to economically discourage “offshoring” of emissions
- DRI / Scrap EAF based steel production (using natural gas) is already cost competitive with BF production
- EAF plants can shift from natural gas to hydrogen should this become economic in the future and /or if end users choose to pay offsetting premiums for green steel

**AVERAGE CARBON COST IN STEEL PRODUCTION (US\$/T STEEL)**



**CO2 Footprint by Steel Making Method**



Sources:

(1) Average Carbon Cost in Steel Production: Wood Mackenzie, European Parliament.

(2) CO2 Footprint by Steel Making Method: Data by MineSpans by McKinsey, Wood Mackenzie



# Green Steel Demand Growth

## More Discerning End-Buyer Product Preferences Emerging

- Private and public sector commitments being made to procure low emission-based steel for manufacturing and infrastructure end-use

- Providing additional market motivation to steelmakers for strategic EAF investment decisions



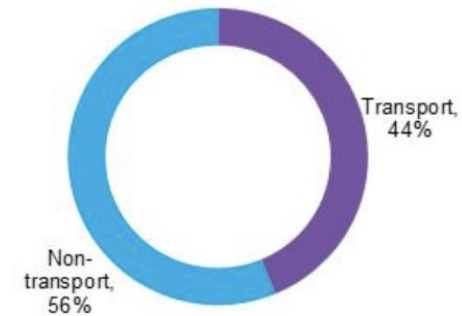
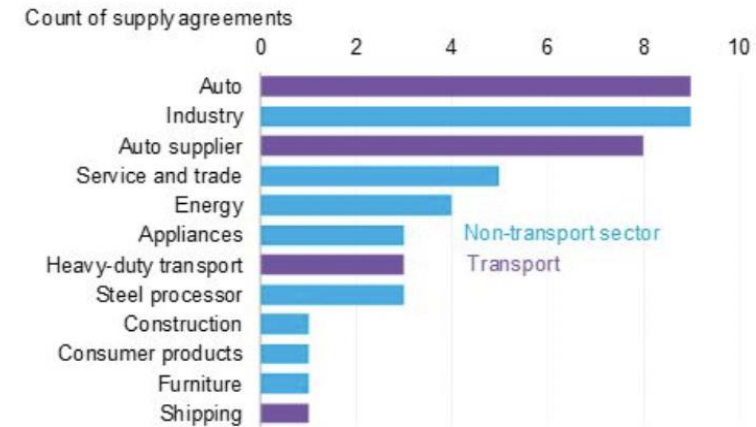
### IDDI GREEN PUBLIC PROCUREMENT PLEDGE ANNOUNCEMENT

5 December 2023

**We, the undersigned governments, are committed to helping drive the global decarbonisation of heavy industries by creating a market demand for low and near zero emission steel, cement, and concrete, through public procurement.**



### Tracked supply agreements for green steel



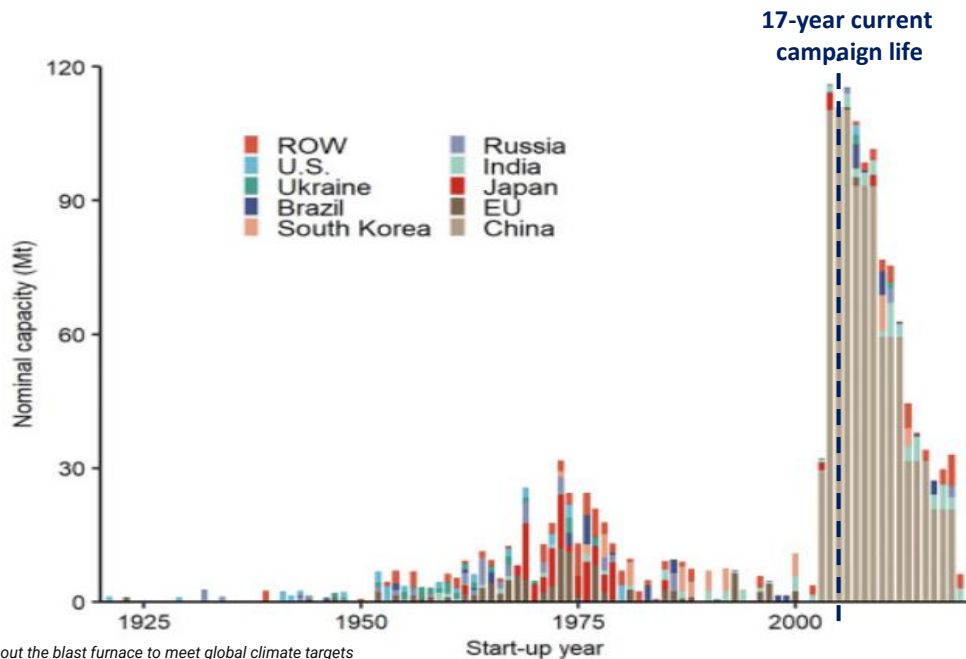
# Strategic Investment “Decision Time” For Steelmaking

## EAF Based Capital Investment Flows Accelerating

- A blast furnace has a “campaign life” of 17 years on average, after which a substantial re-investment decision to rebuild the furnace interior is required
- Rebuilding typically requires the plant to halt operations for several months and ~\$300 million in investment (per 4Mt capacity), which represents up to 1/2 of the original plant construction cost
- A large proportion of the global blast furnace steelmaking fleet is at or near the point of having to make this re-investment decision

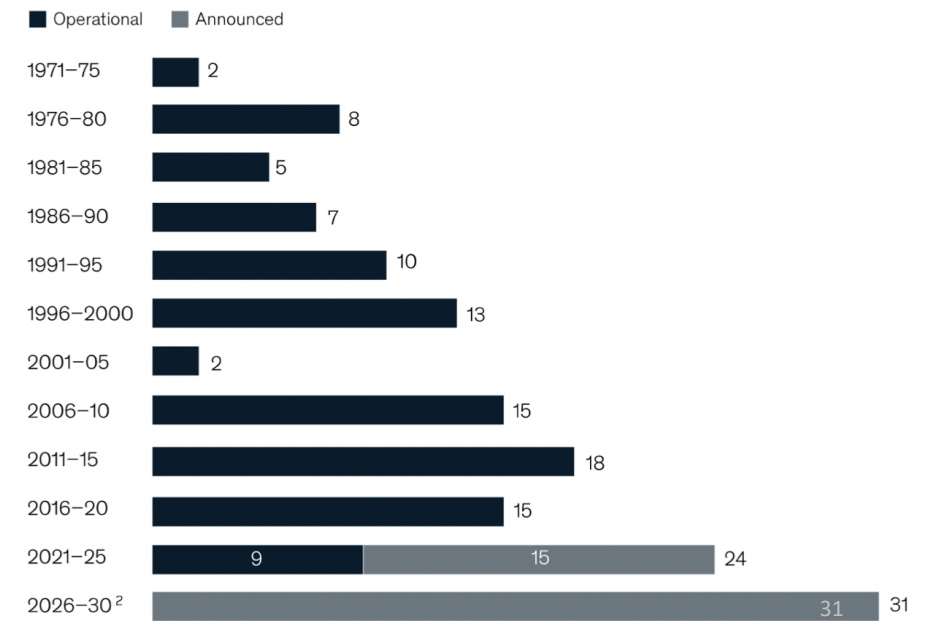
- Stranded capital risks are now being featured more heavily in these decisions as emissions related BF operating costs increase and customer abandonment of high emission intensity produced steel gains momentum
- A growing pattern is emerging of strategic decisions being made by steelmakers to invest in the conversion to EAF based plants

### Age Structure of Blast Furnace Fleet



Source: Phasing out the blast furnace to meet global climate targets  
Joule 5(10):2646-2662 October 2021

Total number of shaft DRI/HBI<sup>1</sup> projects by year of beginning operations



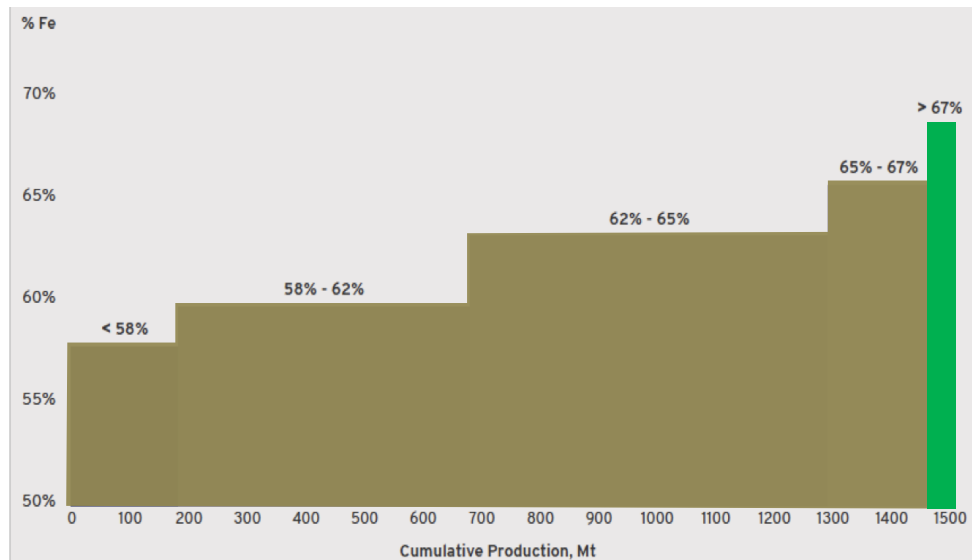
Sources: Fastmarkets, McKinsey & Company April 2023. (1) Hot Briquette Iron, (2) More announcements expected

# Steelmaking Transition

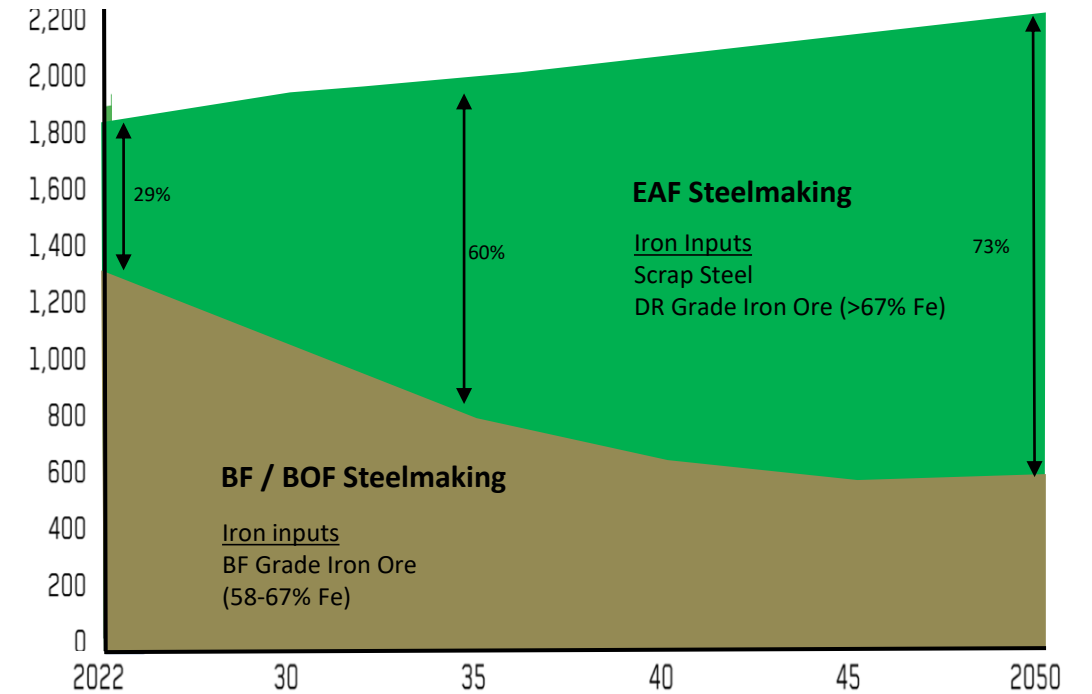
## High Purity Iron Ore Deliverability Is a Potential Challenge

- 70:30 current BF to EAF steelmaking market share projected to reverse
- BF Grade iron ore to experience relative demand decline
- DR Grade iron ore supply requirement to grow by up to 10x to enable increased scrap steel recovery and recycling rates

**Current Seaborne Iron Ore by Quality**



**Steelmaking Market Share by Process**



Sources:

(1) Current Seaborne Iron Ore by Quality: Mission Possible Partnership: Net Zero Steel Sector Transition Strategy

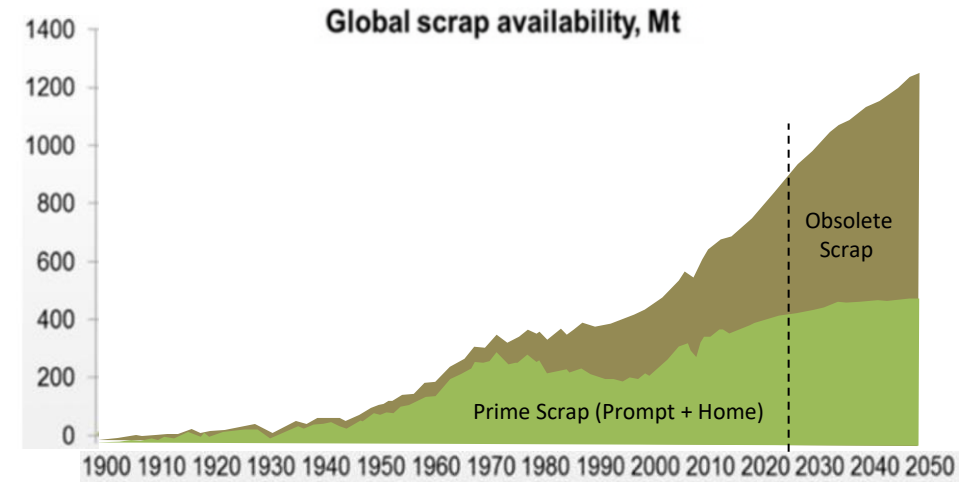
(2) Steelmaking Market Share by Process: Champion Iron Limited, data by MineSpans by McKinsey



# Steelmaking Transition – EAF Raw Material Challenge

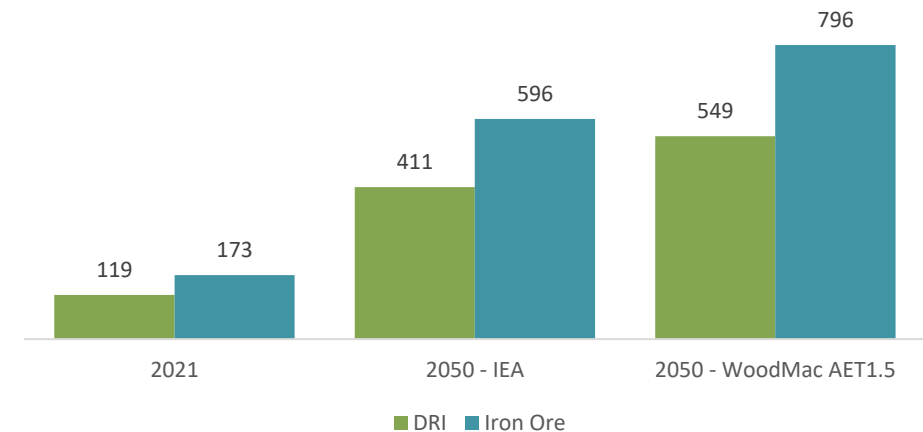
## Scrap & DRI Inter-relationship

- DRI typically serves as a complement to scrap steel in an EAF but in select cases represents up to 100% of the metallic iron inputs
- Projected continued growth in global scrap steel availability represents the primary expected source of the additional raw material inputs required for increased EAF based steelmaking
- Prime grades of scrap will remain in short supply globally however (end user process advances resulting in less manufacturing waste), meaning that much of the expected increase in scrap supply will come from obsolete forms of scrap that typically contain higher levels of contaminants
- Scrap steel contaminants (often referred to as “tramp elements”) must be diluted in an EAF by greater input proportions of clean DRI in order to meet required steel product quality specifications
- Higher scrap steel utilization is therefore best considered as a key driver of, rather than a competitor to, DR quality iron ore demand



Source: WorldSteel

DRI Production in 2050 - Scenario Comparison (Mt)  
includes both integrated and merchant production



Sources:

(1) Global Scrap Availability: WorldSteel

(2) DRI Production in 2050: CIX, IEA, WoodMackenzie, assumes 1.45 tonnes of Iron Ore per tonne DRI



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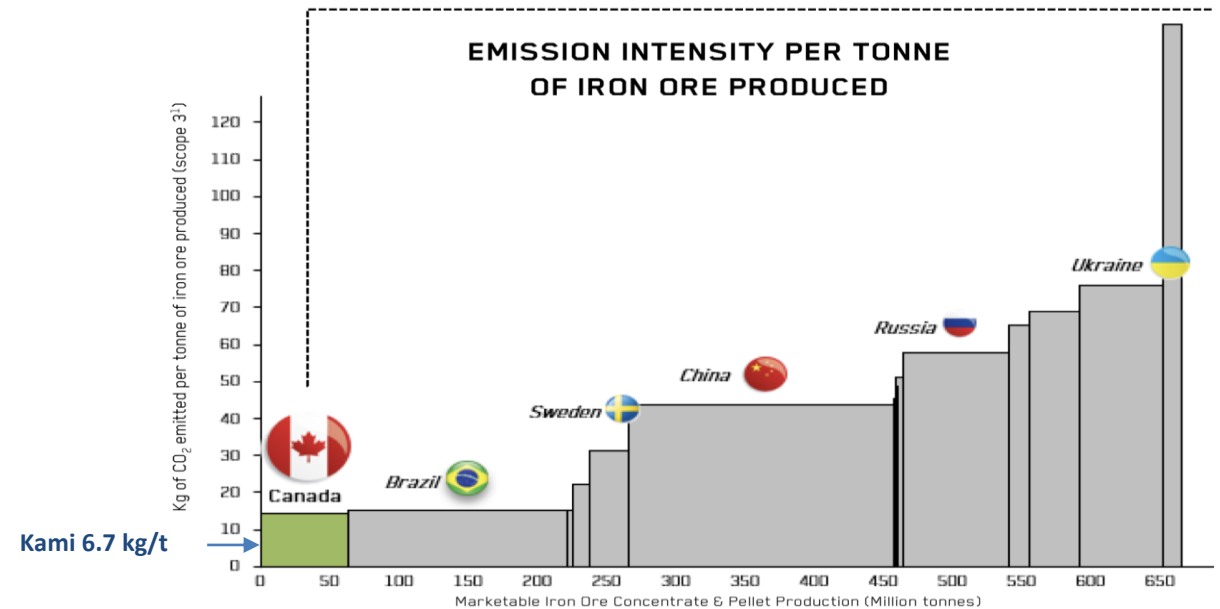
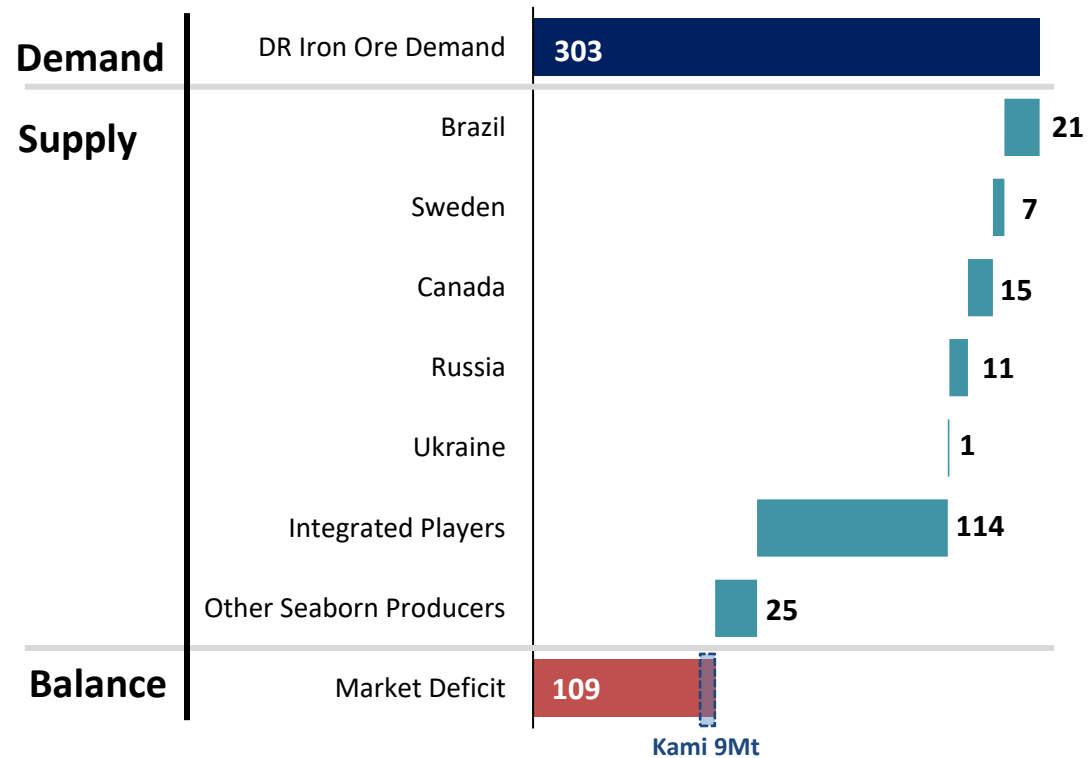
# Steelmaking EAF Transition – Raw Material Challenge / Opportunity

## Availability of DR Grade Iron Ore Seen as a Key Potential Bottleneck

- Several of the geologic regions that are typically noted to contain technically suitable ores are logistically, geopolitically or otherwise constrained and others provide diminished decarbonization benefits due to the emissions associated with available energy sources

- Embedded competitive advantages of the Labrador Trough region of Canada as a growth region for DR grade iron ore relate to:
  - High-quality iron ore resources and available logistics and power infrastructure
  - Relative environmental standards and rule of law based geopolitical risk profile

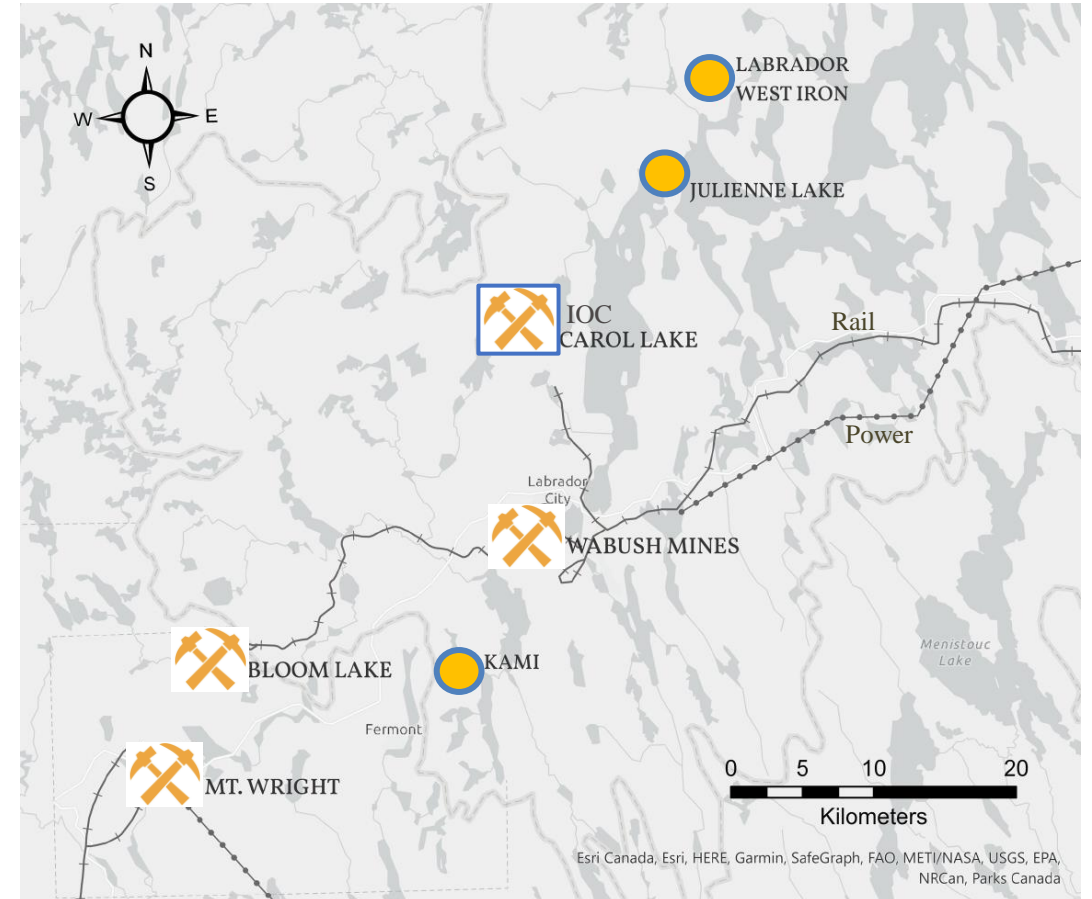
### DR-Grade Iron Ore Supply / Demand Balance by 2031



# Steelmaking EAF Transition – Raw Material Challenge / Opportunity

## Altius's Labrador Trough Positioning

- Altius has been building its shareholders exposure to Labrador Trough Iron Ore for more than 20 years. Its current holdings include:
  - An indirect gross revenue royalty interest in Rio Tinto's majority owned IOC operations that currently produce both high-grade BF feedstocks and DR pellets
  - A gross revenue royalty interest in Champion's Kami Project which has a recently completed feasibility study for the production of DR quality pellet feed – Altius generated project
  - Royalty and equity interests in High Tide Resources' Labrador West Iron Project, for which a maiden mineral resource was recently published – Altius generated project
  - Direct project ownership of part of the resource/scoping study stage Julienne Lake deposit (remainder held by Government of Newfoundland and Labrador)





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**Part 2: Kami DRI Quality Iron Ore Project  
Study Review**

**February 2024**

Coal to Renewable Power | Clean Steel | Potash | Copper | Lithium | Nickel | Cobalt

# Forward Looking Statements

This document includes certain statements that constitute “forward-looking statements” and “forward-looking information” within the meaning of applicable securities laws (collectively, “forward-looking statements”). Forward-looking statements include statements regarding Altius Minerals Corporation’s (“Altius”) intent, or the beliefs or current expectations of Altius’ officers and directors. Such forward-looking statements are typically identified by words such as “believe”, “anticipate”, “estimate”, “project”, “intend”, “expect”, “may”, “will”, “plan”, “should”, “would”, “contemplate”, “possible”, “attempts”, “seeks” and similar expressions. Forward-looking statements may relate to future outlook and anticipated events or results.

By their very nature, forward-looking statements involve numerous assumptions, known and unknown risks and uncertainties, both general and specific, many of which are beyond our control, and there is a material risk that predictions and other forward-looking statements will not prove to be accurate. Do not unduly rely on forward-looking statements, as a number of important factors, many of which are beyond our control, could cause actual results to differ materially from the estimates, concepts and illustrations expressed in such forward-looking statements. Neither Altius or any of its directors, officers or advisers provides any representation or assurance that the events expressed or implied in any forward-looking statements in this document will actually occur.

In particular, the forward looking statements and information contained herein relating to past, present and future commodity prices, price trends, price forecasts, price sensitivities, mineral demand growth and trends, mineral production rates, growth and trends, resource and reserve growth, and the impact any of these matters will have on royalty revenue or valuation of any of Altius’s royalties is conceptual in nature, intended only to be illustrative and do not necessarily constitute the opinion of management. Many factors, events and uncertainties which may arise in the future could cause these statements to differ materially from the facts which may ultimately transpire in the future.

Forward-looking statements speak only as of the date those statements are made. Except as required by applicable law, Altius does not assume any obligation to update, or to publicly announce the results of any change to, any forward-looking statement contained herein to reflect actual results, future events or developments, changes in assumptions or changes in other factors affecting the forward-looking statements.

#### **Non-GAAP Financial Measures**

Attributable royalty revenue, adjusted EBITDA and adjusted operating cash flow is intended to provide additional information only and do not have any standardized meaning prescribed under IFRS and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with IFRS. Other companies may calculate these measures differently. For a reconciliation of these Non-GAAP financial measures to various IFRS measures, please refer to our Management Discussion and Analysis.



# Kami Project Study

## Analysis Overview

- ✦ Champion Iron has recently completed a project study that evaluated the potential of the Kami project as a producer of high-purity (DR Grade) iron ore concentrates that it believes will be required by the market to support the global expansion of electric arc furnace (EAF) based steelmaking
- ✦ This presentation seeks to provide Altius shareholders with its in-house views and analysis of:
  - ✦ The market competitiveness of the capital and operating cost estimates provided by the Kami feasibility study
  - ✦ A comparison of a range of potential approaches to estimating future prices for Kami specific iron ore concentrates – note that this type of ore remains relatively rare but will gain more transparent price discovery as the merchant market expands in response to the current build out of EAF based steelmaking
  - ✦ The economic potential of the Kami Project as indicated by the pricing scenarios that we believe to be most relevant and appropriate



# Kami Project Study

## Competitive Capital and Operating Costs

- ✦ The study results indicate competitive capital and operating costs relative to the specifically targeted product quality and its anticipated supply deficit and pricing profile

### Initial Capital Cost

- ✦ The project has been purposely engineered to meet increasingly discerning steel end user (e.g. automobile manufacturer, government funded infrastructure) requirements with respect to supply chain inputs – with strategic emphasis placed on product quality, extremely low operational carbon intensity and “state of the art” tailings management facilities
- ✦ The study estimated a capital cost of just under US\$3 billion to construct the mine, concentrator facilities and associated tailings and logistics infrastructure to support production capacity of 9 Mtpa (exceeding Altius’s prior internal estimate of 7.5 to 8 Mtpa)
- ✦ The implied capital intensity of \$331/t is in line with the \$328/t average for iron ore concentrate based projects that have been completed globally over the past decade – with competitiveness further underscored when considering that several of the comparators represent less technically and environmentally differentiated operations that are designed to produce primarily lower value (non-DR Grade) products
- ✦ Various opportunities for further capital cost optimization and government incentivization program applicability have been identified for investigation during next project planning and de-risking stages

### Operating Cost

- ✦ Operating cost (C1) estimates of \$58.5/t (delivered in vessel at port) are competitive with comparable operations in the Labrador Trough and globally and indicate attractive margin-adjusted cost curve positioning, particularly when considered against expected pricing for premium quality (DR Grade) iron ore concentrates





# What Price Assumptions Are Appropriate For Kami DR Grade Iron Ore?

## Market Discovery Process Will Evolve as EAF Transition Progresses

### Pricing scenarios we have considered for Kami DR Grade iron ore concentrates:

1. Market Forecast Case: \$120/t for blast furnace grade (P65) iron ore plus a fixed \$34 quality premium - scenario approximates Champion's FS Base Case and broadly aligns with current analyst consensus long-term price decline expectations
2. Trailing Market Average Case: Illustrated using (A) extrapolation of current price-quality differentials and (B) the spot P65 price combined with the spot DR pellet premium – scenario matches Champion's 3-yr trailing average FS Market Case
3. Scrap Steel Benchmarked Case: Back-calculates a DR pellet feed price of \$201/t from current prime scrap steel prices (NA/Europe basis) with adjustments for iron yield, pelleting and reduction (oxygen stripping) costs
4. DR Pellet Price Trendline Case: Extrapolates the past 8-year price trend of DR Pellets out to 2030 (after adjustment for pelletizing costs) to derive a \$275/t price estimate for Kami concentrates

 The current merchant market for DR Grade iron ore is relatively small and opaque with pricing (and predictions) largely estimated against BF Grade ores (scenarios 1 & 2) - despite the significant industrial application differences between the two

 An EAF cannot effectively utilize BF Grade ore inputs (scrap steel and reduced iron only) but as the DR Grade market share increases in accordance with greater EAF based steelmaking, a more differentiated price discovery process is expected to occur (scenarios 3 & 4)

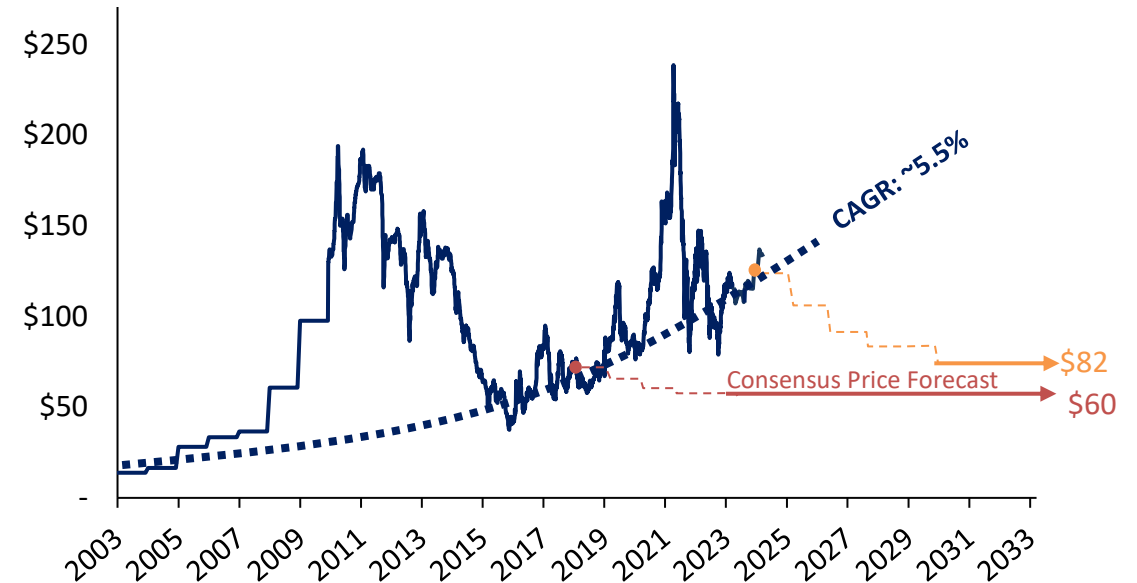


# 1. Market Forecast Case - LT Iron Ore Price Forecast

## Unwavering Conviction – Woeful Track Record

- ✈ Various industry experts make annual predictions as to benchmark short- and long-term future iron ore prices, the average of which is considered the consensus view
- ✈ For more than a decade running, the consensus prediction has been for iron ore prices to decline substantially and then to hold at lower long-term levels
- ✈ The current consensus forecast is for benchmark iron ore prices to decline by ~60% towards the end of this decade (when Kami could potentially begin production) and then maintain these lower levels indefinitely
- ✈ In reality, iron ore prices have been tracking higher at an average of ~5.5% per year for more than 20 years (similar to several other major mined commodities) in general accordance with mining costs inflation and average ore grade declines

**“Benchmark” (62% Fe) Iron Ore Price  
Actual vs Predicted**



*“...everyone usually sees the iron ore price going down in the future because everyone believes it is so easy to build new projects and new projects don’t cost anything to build”*

Champion CEO David Cataford, Q3-FY2024 conference call

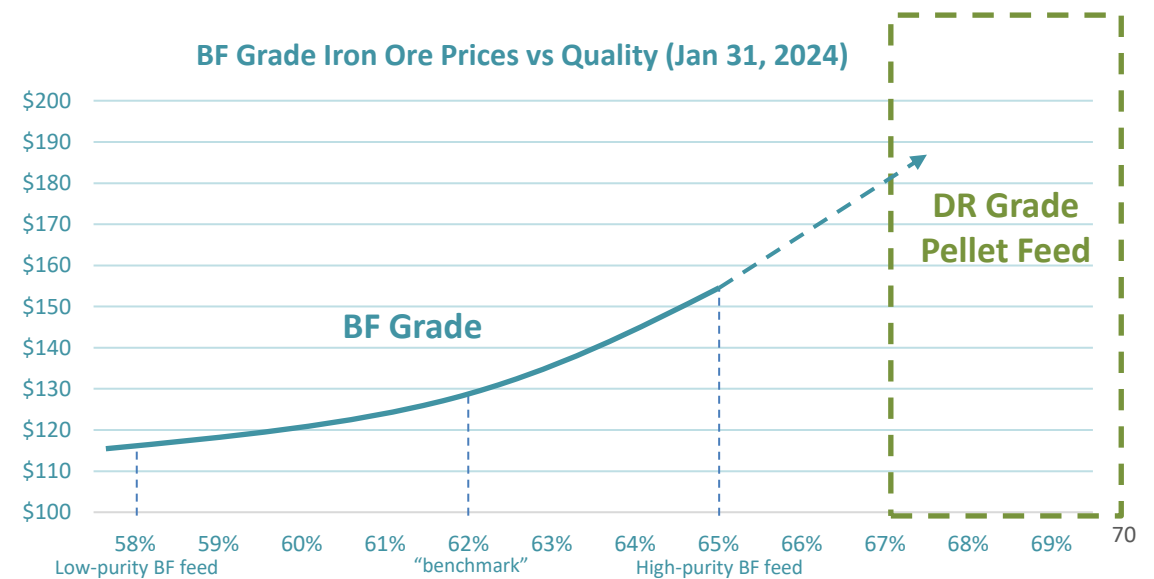
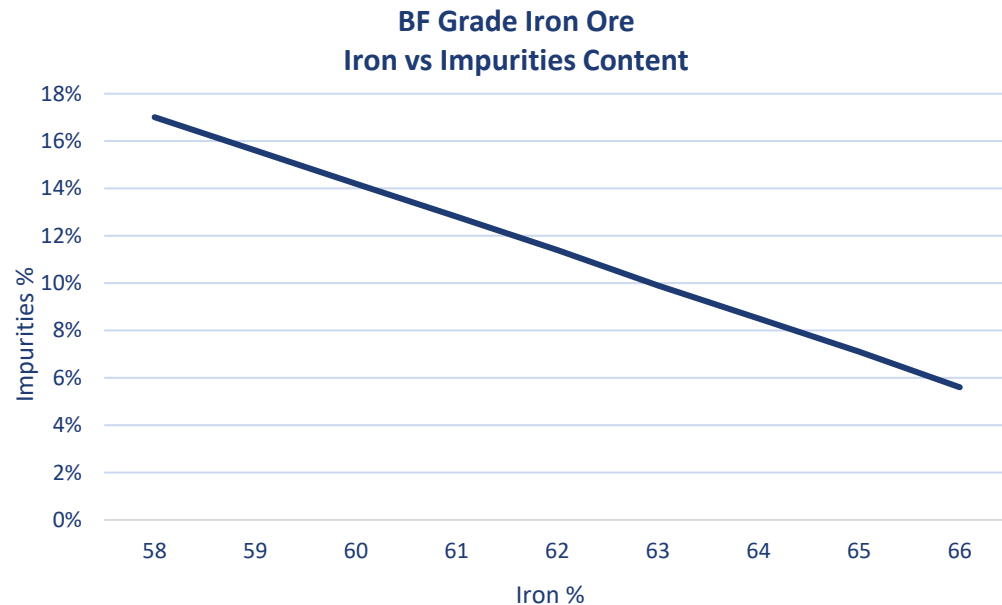




## 2A. Trailing Market Average Case Iron Ore Pricing

### BF Grade Iron Ore Quality Differentials – Extrapolation to DR Grade

- ✎ The purity level of iron ore inputs determines the relative percentage of steel and waste products that a BF produces as well as determines the amount of coal and energy that is required to fuel the steel making reactions
- ✎ The economic correlation between iron ore purity levels and steel making productivity (and reduced emissions) is primarily reflected in the current market through price discounts and premiums (P62 reference) that relate to “value in use” benefits within a BF
- ✎ Price differentials have structurally widened over the past decade as emissions penalties and limits have begun to be more fully incorporated into the cost structure of BF steelmakers - and as average ore quality has declined



Implied Kami DRPF (+67.5%) price of **\$180-\$190** is broadly in line with Champion’s 3-year (P65) Trailing Average Scenario illustration for Kami Project feasibility study  
(note that spot and 3-year trailing average price for P65 are currently similar)



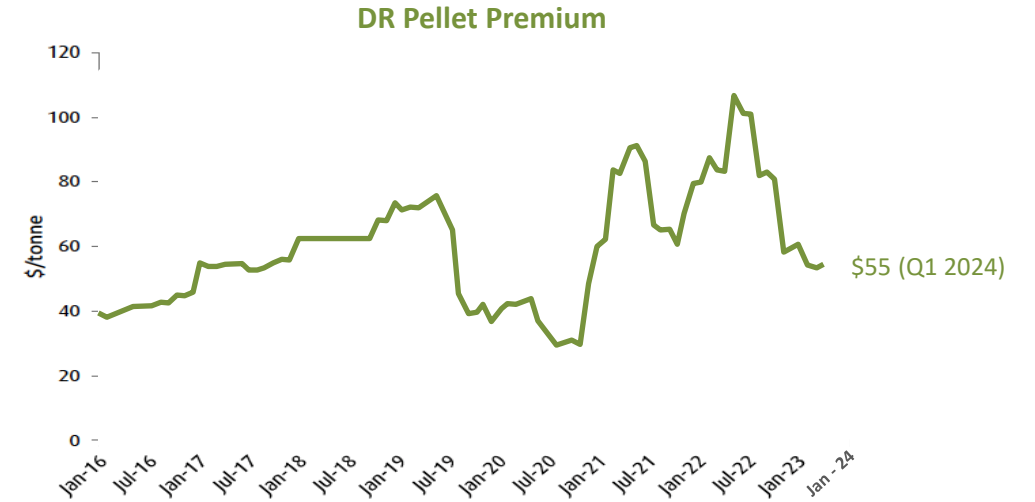
## 2B. Trailing Market Average Case Iron Ore Pricing

### P65 BF Grade Pricing + DR Pellet Premium

- Over the past few years, a new index has begun to be published that provides an estimated value of the premium for DR pellets relative to the BF Grade (P65) (Brazil Origin) index price
- The rationale for creation of the index noted the outsized demand growth expectation for merchant DR Grade pellets as the decarbonization of steelmaking continues to accelerate

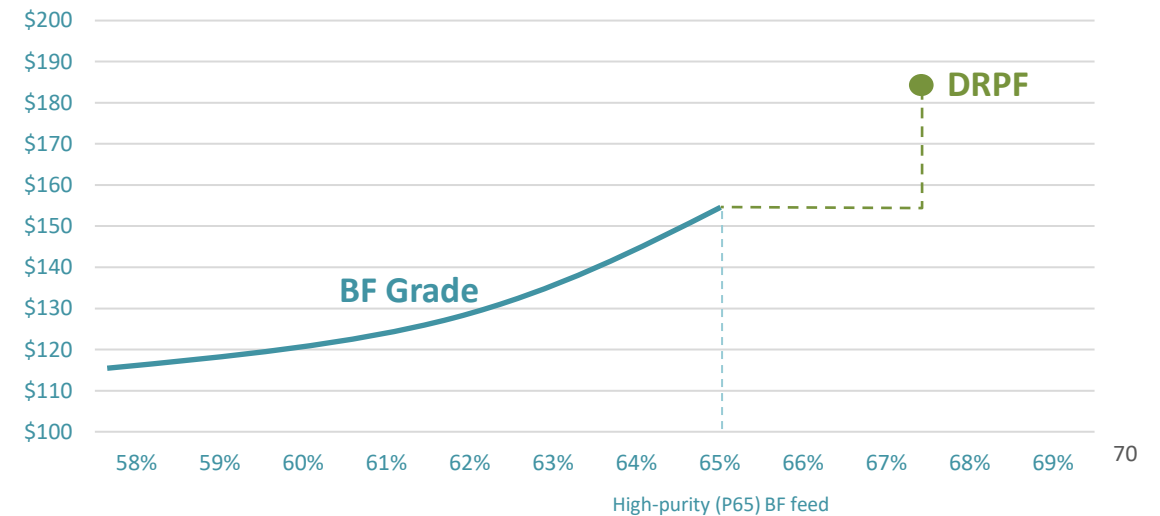
The combined spot price for P65 + the DR pellet premium is ~ US\$210/t

Deducting a cost for pelletizing of US\$25 implies a DR pellet feed price of \$185/t, which also aligns closely with Champion's 3-year (P65) Trailing Average Scenario illustration for the Kami Project feasibility study



Source: Bloomberg, BMO Capital Markets

### BF Grade Iron Ore Prices vs Quality (Jan 31, 2024)

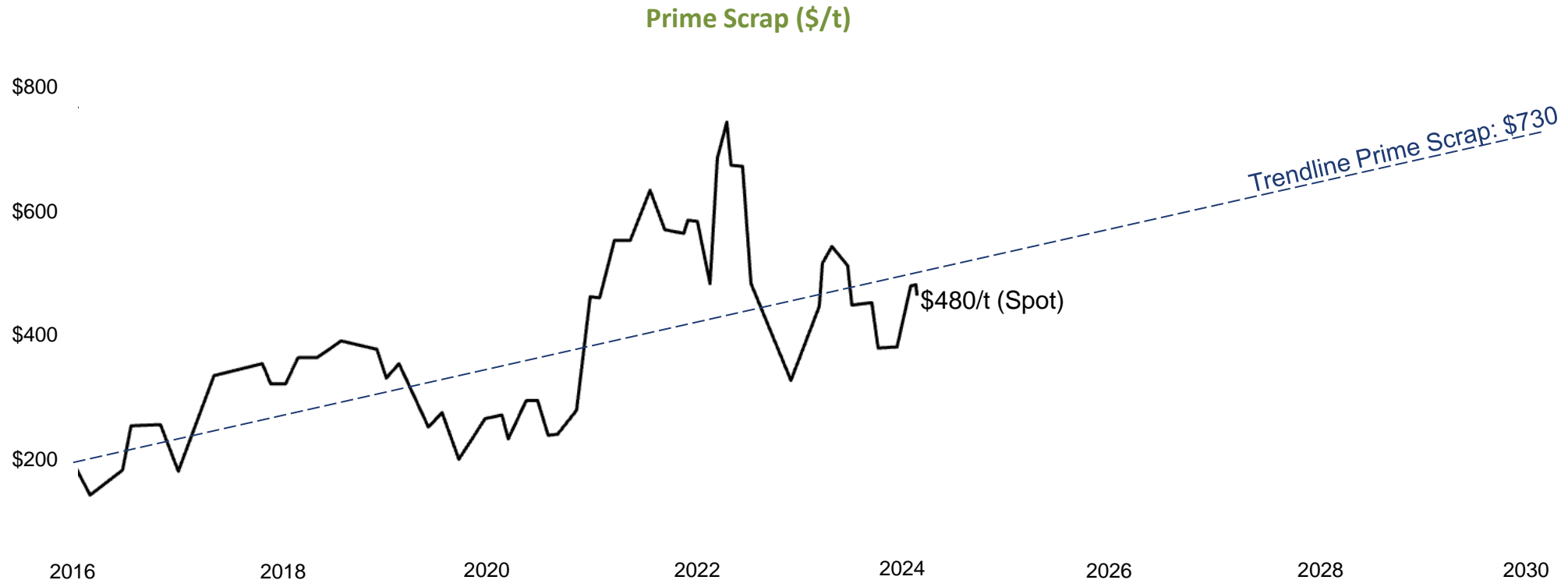


### 3. Scrap Steel Benchmarked Case

#### Most Industrially Logical Input Comparator?

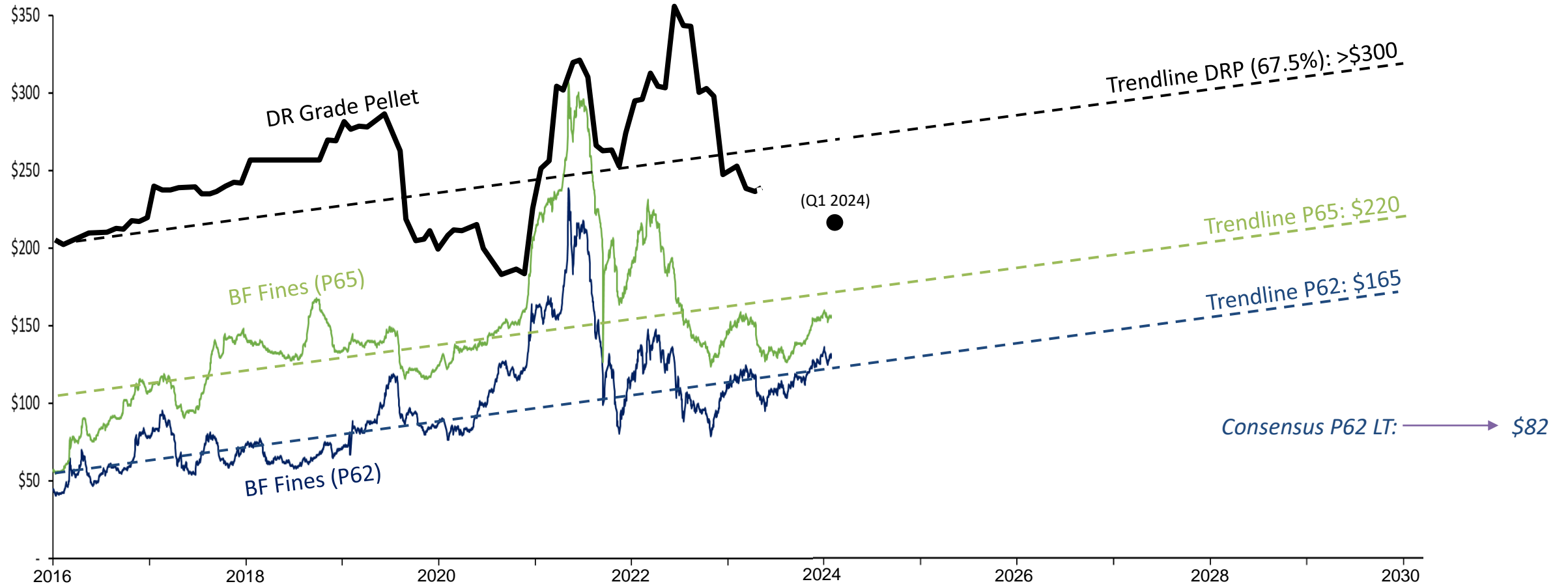
- ✎ DRI usually trades at a premium to prime scrap owing to its predictable quality, easier handling and utility in diluting tramp element contamination found in scrap
- ✎ For purposes of this illustration DRI/HBI is assumed to trade at parity with prime scrap (currently \$480/t)
- ✎ DRI/HBI price of \$480 implies an iron content / yield adjusted DR quality iron ore concentrate price of \$201/t

- Assumed pelletizing cost of \$25/t
- Assumed cost of reducing pellets to DRI/HBI of \$120/t



# 4. DR Pellet Price Trendline Case

History As Good A Guide As Any?



Trendline projection out to 2030 indicates a DR pellet price of >US\$300/t or ~\$275/t for Kami pellet feed after adjusting for pelletizing cost



# Kami Project

## NPV & IRR – Product Price Sensitivity

 Under the 4 price scenarios presented, the range of implied IRR and pre-tax NPV results for the Kami mine project are as follows:

Price Scenario	Implied Kami Product Price \$US/t	NPV 8 C\$ M	IRR
Market Forecast	\$154	\$1,482	12%
Trailing Market Average	\$186	\$4,034	18%
Prime Scrap Benchmarked	\$201	\$6,164	22%
DRPF Trendline	\$275	\$13,500	34%



# Kami Project GSR Royalty

## Royalty NPV and Annual Revenue – Product Price Sensitivity

- Altius discovered the Kami orebodies and holds a 3% gross sales royalty<sup>1</sup> relating to the project.
- Under the 4 price scenarios illustrated, the range of potential annual revenue and pre-tax NPV results for the royalty are as follows:

Price Benchmarking Scenario	Implied Kami Product Price \$US/t	NPV 5 C\$ M	NPV 8 C\$ M	Annual Revenue C\$ M
Market Forecast	\$154	\$356M	\$235M	\$32.5
Trailing Market Average	\$186	\$451M	\$298M	\$41.1
Prime Scrap	\$201	\$518M	\$351M	\$47.2
DRPF Trendline	\$275	\$765M	\$505M	\$69.7



# Kami Mine Project

## Next Steps and Milestones to Watch For

- ✦ Champion has stated that it is engaged in various partnership discussions for the Kami project and that its optimal partner will be a steel making company that requires sources of DR quality iron ore to support either existing or development stage EAF steel making plants
- ✦ Success in attracting steel industry capital to Kami would demonstrate that direct industry participants understand the importance of securing new supplies of DR quality ore - and serve to advance the differentiated price discovery process
- ✦ The initial capital cost estimate for the project reportedly has several optimization opportunities (given that much of the costing was completed during a period of intense inflation and supply chain constraints) - It is also worth noting here that Champion has a rare but well-earned reputation for conservatism and “under-promising and over-delivering” on major capital projects
- ✦ The role of the Kami project in supporting the transition to global green steelmaking offers additional potential economic support benefits through a range of government incentive programs - high purity iron ore has been designated as a Critical Mineral by the provinces of Newfoundland and Labrador and Quebec in recent months and Canada has also provided strong direct financial support to two domestic steel makers to aid in the conversion of blast furnaces to electric arc furnaces
- ✦ Concurrent with completing industry partnering negotiations and capital cost optimization work, Champion is continuing to advance re-permitting of the project (Kami was previously successfully permitted based upon a less sophisticated design), stakeholder partnerships and other social licencing initiatives to advance the project towards an investment decision

