

Steelmaking Coal Resilience

March 14, 2023



Teck

Caution Regarding Forward-Looking Statements

Both these slides and the accompanying oral presentation contain certain forward-looking information and forward-looking statements as defined in applicable securities laws (collectively referred to as forward-looking statements). These statements relate to future events or our future performance. All statements other than statements of historical fact are forward-looking statements. The use of any of the words “anticipate”, “plan”, “continue”, “estimate”, “expect”, “may”, “will”, “project”, “predict”, “potential”, “should”, “believe” and similar expressions is intended to identify forward-looking statements. These statements involve known and unknown risks, uncertainties and other factors that may cause actual results or events to differ materially from those anticipated in such forward-looking statements. These statements speak only as of the date of this presentation.

These forward-looking statements include, but are not limited to, statements concerning: steel demand projections, steelmaking coal demand and supply projections, the expectation that long-term demand for seaborne hard coking coal will remain robust; steel decarbonization expectations; the statement that Teck’s hard coking coal is optimally positioned for a decarbonization future; expectations regarding decarbonizing technology; expectations regarding CCUS technology, including efficacy and adoption expectations; expectations regarding the Teck Trail Smelter CCUS Pilot, including timing and contribution to emissions reduction targets; expectations regarding hydrogen steelmaking; Teck’s carbon neutrality targets and other statements relating to steelmaking coal resilience.

Actual results and developments are likely to differ, and may differ materially, from those expressed or implied by the forward-looking statements contained in this presentation. Such statements are based on a number of assumptions and expectations that may prove to be incorrect, including, but not limited to: general business and economic conditions; the supply and demand for, deliveries of, and the level and volatility of prices of steelmaking coal; our production and productivity levels, as well as those of our competitors; the impacts of the COVID-19 pandemic on our operations and projects and on global markets; development and performance of technologies in accordance with expectations, including but not limited to CCUS technologies; and continued use of steelmaking coal in accordance with expectations. . Our sustainability goals are based on a number of additional assumptions, including those regarding the development, availability, performance and effectiveness of technologies needed to achieve our sustainability goals and priorities; the availability of clean energy sources and zero-emissions alternatives for transportation on reasonable terms; our ability to implement new source control or mine design strategies on commercially reasonable terms without impacting production objectives; our ability to successfully implement our technology and innovation strategy; and the performance of new technologies in accordance with our expectations.

Inherent in forward-looking statements are risks and uncertainties beyond our ability to predict or control. The foregoing list of risks, important factors and assumptions is not exhaustive. Other events or circumstances could cause our actual results to differ materially from those estimated or projected and expressed in, or implied by, our forward-looking statements. Factors that may cause actual results to vary materially include, but are not limited to: government action relating to carbon-related industries; current and new technologies relating to steelmaking coal resilience and our sustainability goals and targets may not be available on reasonable terms or perform as anticipated; and alternative technologies may develop more quickly than anticipated and reduce the demand for steelmaking coal.

Except as required by law, we undertake no obligation to update publicly or otherwise revise any forward-looking statements or the foregoing list of factors, whether as a result of new information or future events or otherwise. Further information concerning risks and uncertainties associated with these forward-looking statements and our business can be found in our Annual Information Form, including under the section titled “Risk Factors”, and in subsequent filings, including, but not limited to our quarterly reports, all of which can be found under our profile on SEDAR (www.sedar.com) and on EDGAR (www.sec.gov).



Steel demand is forecast to remain strong through to 2050

- Steel is not substitutable for most applications
- Steel is required for infrastructure development, including that required to support electrification and decarbonization



Demand for high-quality seaborne hard coking coal used in blast furnace steelmaking is forecast to remain strong

- Forecast long-term demand for steel is strong in high growth importing regions such as India and South-East Asia where blast furnace steelmaking will dominate
- Teck's high-quality seaborne steelmaking coal will continue to be a key resource for the low-carbon transition



Global steel industry emits 7-10% of total GHG emissions

- Meeting the objective of the Paris Accord will rely on a range of steelmaking abatement technologies
- Together they can reduce steelmaking emissions by more than 80% by 2050



Blast furnace CCUS is the only technology capable of decarbonizing steelmaking at the rate and scale required by 2050

- >70% of the world's steelmaking uses blast furnaces
- Leverages sunk cost of more than US\$1 trillion of young blast furnaces, which will last well into the second half of this century
- Blast furnace CCUS is the only technology commercially ready for near-term adoption

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Long-Term Steelmaking Coal Demand



Steel is Essential for Economic Growth In a Low-Carbon World

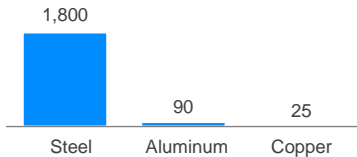
World's largest metal market today



Steel is **widely used** and **hard to substitute**

Growth continues to be driven by **decarbonization** and ongoing economic development

Global Production in 2019 (Mt)



Enables low-carbon energy system



Fundamental to **renewable energy transition** and **1.5° C target** of Paris Accord

Steelmaking coal required while **alternatives evolve** and **carbon abatement policy advances**

~25% Lower

CO₂ footprint in steel relative to cement

Suited for a circular economy



Easily recyclable (e.g., without alloy issue of aluminum)

80%+ recycle rate of steel scrap in developed economies¹

>90% Lower

CO₂ footprint of recycled steel compared to new steel

Essential to lifting global living standards



Middle class expected to grow by **2-3 billion people** by 2050, **mostly in India and South-East Asia (SEA)**

Rural communities are **moving to cities**, driving infrastructure build

~165% Increase

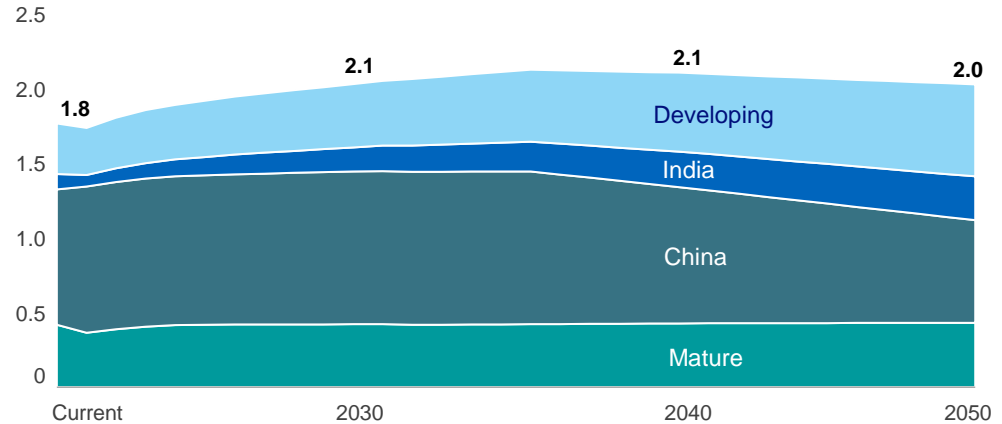
in combined annual demand growth for India and SEA² between 2019 and 2050

Steel Demand Is Robust Through 2050 In all IEA Scenarios

Finished steel demand, billion tonnes

Standard Growth scenario – IEA SDS¹

- Industrialized growth in India and South East Asia
- China plateaus until 2030 before converging to Japan/Germany levels
- Growth in North America from green infrastructure development



Robust Growth Scenario – IEA STEPS²

China grows for several more years and then joins developed Asian rate

2.1 2.3 2.4

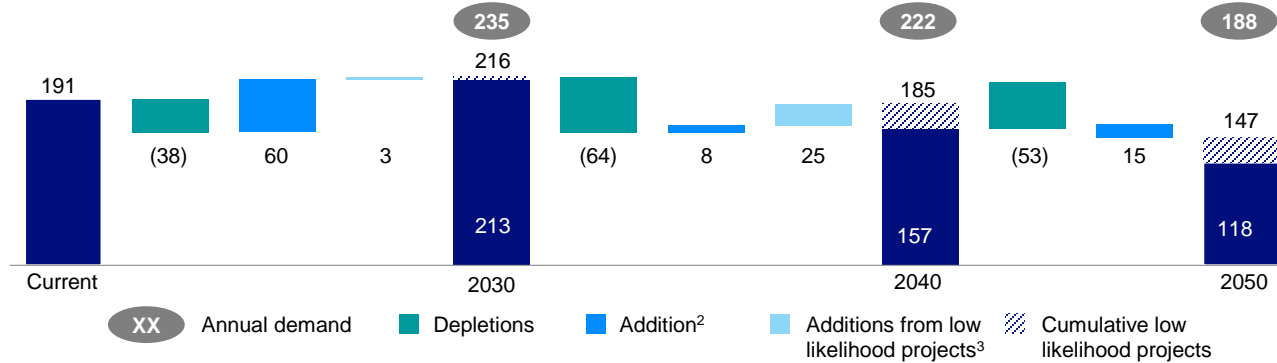
Muted Growth Scenario

China decline to Western European levels by 2050

1.8 1.9 1.8

High-Quality Steelmaking Coal is Required For the Low-Carbon Transition

Seaborne Steelmaking Coal Supply Changes With All Projects Through 2050¹ (Mt)



Long-term demand for seaborne steelmaking coal will remain robust

At the same time, supply growth is constrained

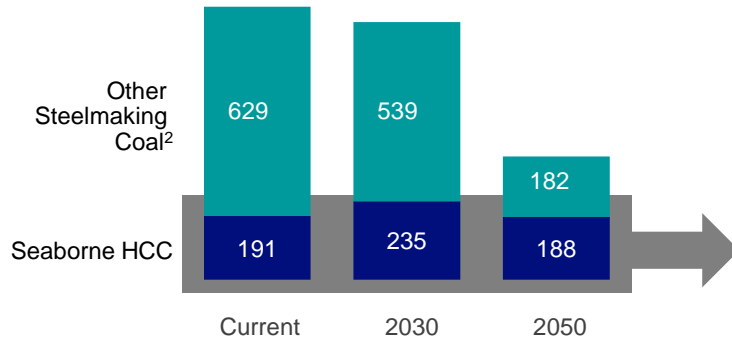
Seaborne Steelmaking Coal Supply/Demand Gap (Mt)

(Mt)	Net Capacity 2030	Net Capacity 2040	Net Capacity 2050
Gap with high likelihood projects	-22	-65	-70
Gap with high and low likelihood projects	-19	-37	-41

Without the addition of confirmed and unconfirmed greenfield and brownfield projects, there will be a significant gap to steelmaking coal demand between 2025 and 2030

Despite Robust Steel Demand, Long-Term Demand for Steelmaking Coal Is Expected to Decline...

Steelmaking Coal Demand¹ (Mtpa)



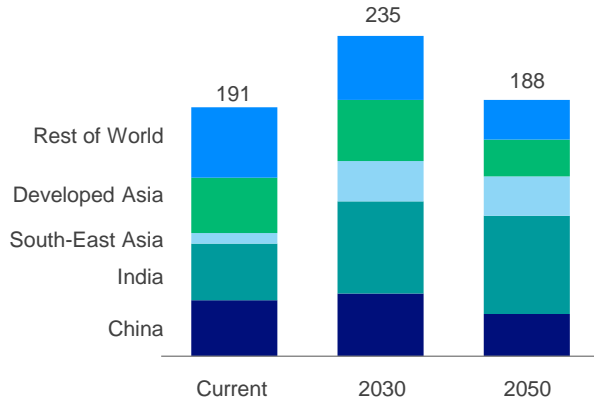
Global demand for non-seaborne hard coking coal is expected to decline by 2050 due to 3 factors:

1. **Increased steel scrap availability and recycling** in mature regions
2. **Declining coke rates** due to blast furnace efficiency gains, expected to erode some coking coal demand
3. **Ramp up of direct reduced iron (DRI) steelmaking using natural gas and hydrogen**, expected to displace some coking coal demand mainly after 2040

The magnitude of steelmaking coal demand will ultimately be driven by the pace of decarbonization

...But Long-Term Demand for Seaborne Hard Coking Coal Will Remain Robust

Seaborne Steelmaking Coal Demand¹ (Mtpa)



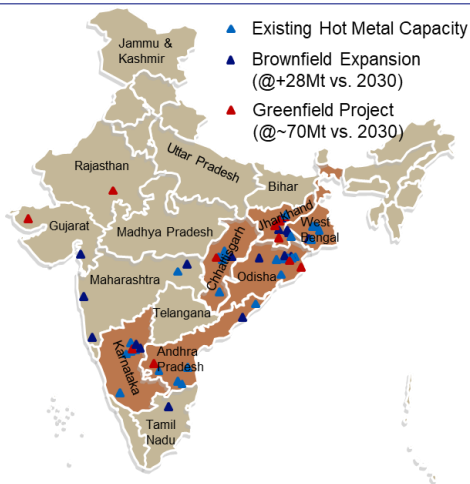
- **Seaborne HCC demand** is expected to remain resilient due to steel demand growth in regions that rely on lower-cost seaborne hard coking coal (HCC) imports (e.g., India and South-East Asia) for blast furnace steelmaking
- **Premium hard coking coal such as Teck's product** is expected to be favored as it improves blast furnace efficiency and lowers emissions

Seaborne hard coking coal demand will benefit from strong growth in major importing regions where blast furnace steelmaking will dominate

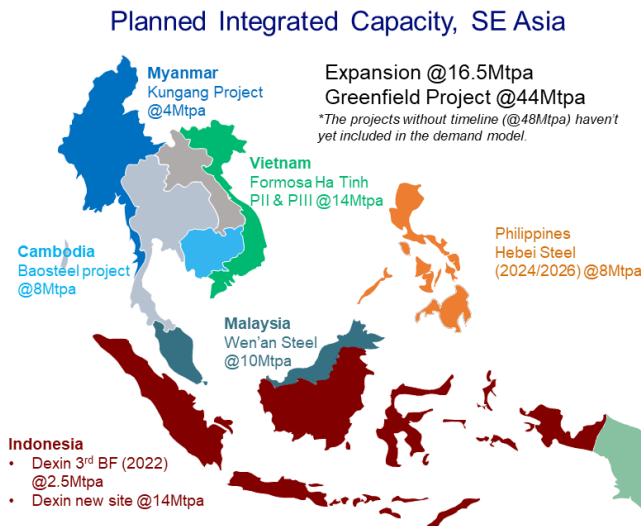
Planned Blast Furnace Capacity Development Is Well Underway in India and South-East Asia

- Asia committing to 20+ years of traditional steelmaking
- European steel mills seek alternatives to coal feed
- Hydrogen pilot plants only, commercial technology still decades away and currently prohibitively expensive
- Seek alternative carbon abatement in CCUS

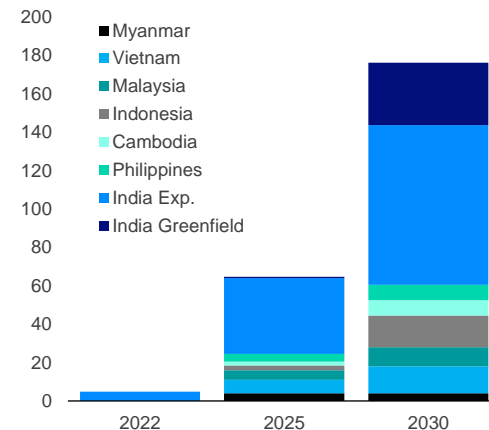
India¹



South-East Asia¹



Blast Furnace Capacity² (Mt)



Financial commitments being made for multi-decade traditional steel making



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Steel Decarbonization

Achieving 1.5°C Will Require Rapid Steel Decarbonization Technology Adoption

- Steel emissions abatement will require **deploying a range of steelmaking decarbonization technologies** regionally beneficial and as they become commercially viable
- Within this range **Blast Furnace (BF) + Carbon Capture, Utilization and Storage (CCUS)** will be the most **advanced** to deploy on a large scale due to its low cost and technological advantage
- CCUS is the **only technology that can be adopted fast enough to effectively meet China's carbon neutrality goals**, with China accounting for >60% of global steelmaking CO₂ emissions
- **High-quality hard coking coal** will also be prioritized due to its ability to lower CO₂ per tonne of steel produced

With a 7-9% share of global GHG emissions, the success of the steel industry to decarbonize will play a crucial role in the challenge to stabilize the climate in accordance with the 1.5°C target in the Paris Accord



Steelmaking Decarbonization Technologies Are Driven By Regional Factors...



Blast Furnace + CCUS

Proven technology with favorable economics, and the best combination of speed and scale for decarbonization



Scrap

Currently accounts for ~30% of global crude steel production, and while expected to grow, availability will be limited in new growth regions



H₂-Direct Reduced Iron (H₂-DRI) via EAF













Expected to increase with technology development, and in regions with steady scrap supply, access to abundant cheap renewable power, and near end-of-life blast furnaces (e.g., Europe)



Natural Gas Direct Reduced Iron (DRI) + CCUS via Electric Arc Furnace (EAF)

Effective where there is low-cost & abundant natural gas (Americas, MENA¹ and parts of Asia)

...Characterized by Different Levels of Carbon Abatement and Maturity

	Blast Furnace	Blast Furnace + CCUS	NG-DRI+EAF	NG-DRI+EAF+CCUS	H ₂ -DRI+EAF	Scrap - EAF
						
Key reductants	Coke	Coke	Natural gas		Hydrogen	Electricity
CO₂ t CO₂/thm	1.4-1.7 ¹	0.3	0.6	0.1	0.1	0.1-0.5
		Up to 80% reduction				
Current maturity		 Proven in hard-to-abate sectors		 One steel plant in Middle East	 Demo plants underway	

Hard Coking Coal Yields the Highest Decarbonization Efficiency

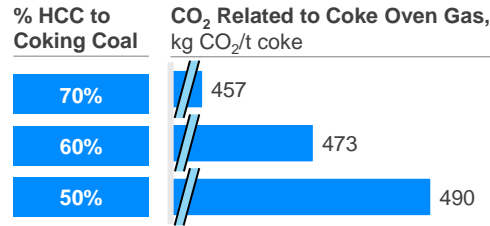
HCC has higher quality parameters that enhance steel production

Steel players are incentivized to maximize HCC due to:

- **Lower volatile matter and higher coke strength**
- **Lower concentration of phosphorous and sulphur**, reducing the cost of impurities removal in coke
- Higher strength coke allows for **higher levels of H₂ injections** which reduces CO₂ emissions

The higher the percentage of HCC to coking coal, the lower the CO₂ emissions

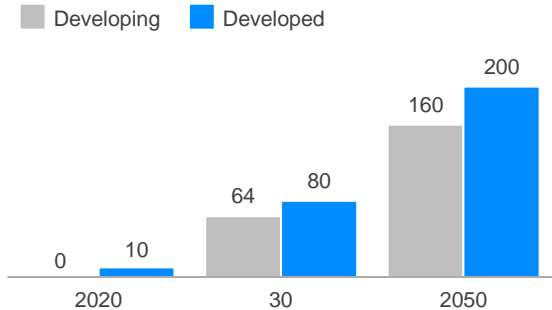
HCC to Coking Coal and CO₂ emissions %



- HCC allows blast furnaces to **operate efficiently and at high productivity levels** minimizing CO₂ emissions per tonne

HCC is expected to become more favorable for steel producers as CO₂ costs rise

CO₂ costs¹
\$/t coke



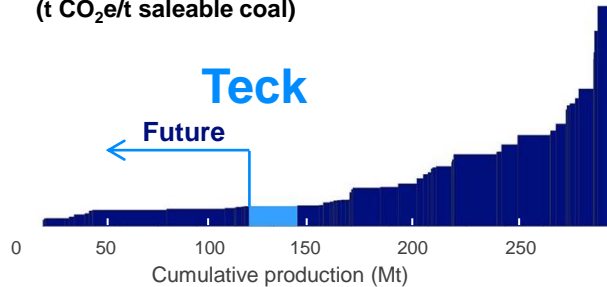
- **Maximizing HCC will be most cost effective** for steel producers given its lower CO₂ emission per unit of steel

Teck's Hard Coking Coal Is Optimally Positioned For a Decarbonizing Future

Teck's HCC has amongst lowest Scope 1 and Scope 2 emissions relative to peers

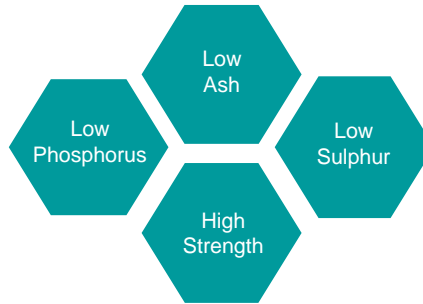
- Teck's emissions intensity is within the **lowest of the commodity range**, assisted by access to low carbon sources of electricity in B.C.
- Teck mines will be **even more cost competitive** with rising CO₂ prices globally

CO₂ Coal Intensity Curve¹
(t CO₂e/t saleable coal)



Highest quality HCC leading to lowest CO₂ emissions in steelmaking

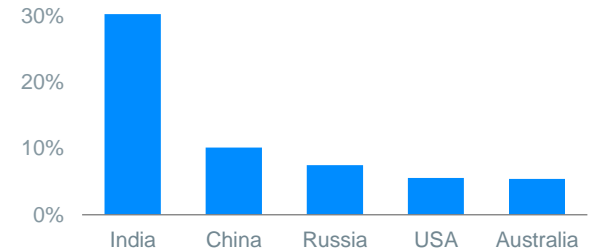
- Teck premium HCC is **amongst the highest quality in the world**, benchmarking favorably to premium Australian coking coal on strength and volatility²
- Teck HCC **improves blast furnace efficiency** and **decreases CO₂ emissions per tonne of steel**



Teck's Premium HCC Has Industry Leading Carbon Efficiency

- **Excellent coke strength** properties allowing for high productivity in blast furnaces
- **Low ash and sulphur content** resulting in reduced coke fuel rates required in blast furnaces
- **Favourable coal to coke yield**

Incremental CO₂ / Ton of Steel Coal Producers vs. Teck HCC²



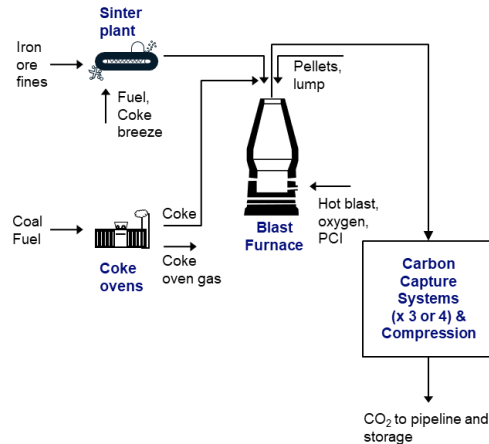
A woman with long brown hair in a braid, wearing a white hard hat with the 'Teck' logo and safety glasses, is shown in profile. She is wearing a light-colored long-sleeved shirt and a high-visibility safety vest with orange and yellow reflective stripes. She is touching the bark of a large tree trunk with her right hand. The background is a blurred forest with green trees and hills under a bright sky. A solid blue triangle is in the bottom right corner.

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**Carbon Capture,
Utilization, and
Storage (CCUS)**



Plant Setup



Capture & Compression

- Capture of CO₂ from conventional blast furnace (BF) / basic oxygen furnace (BOF) steelmaking operations
- Separation of the CO₂ from other gases using solvents (amine), sorbents and/or membranes
- Compression of CO₂ to a state suitable for transportation and storage

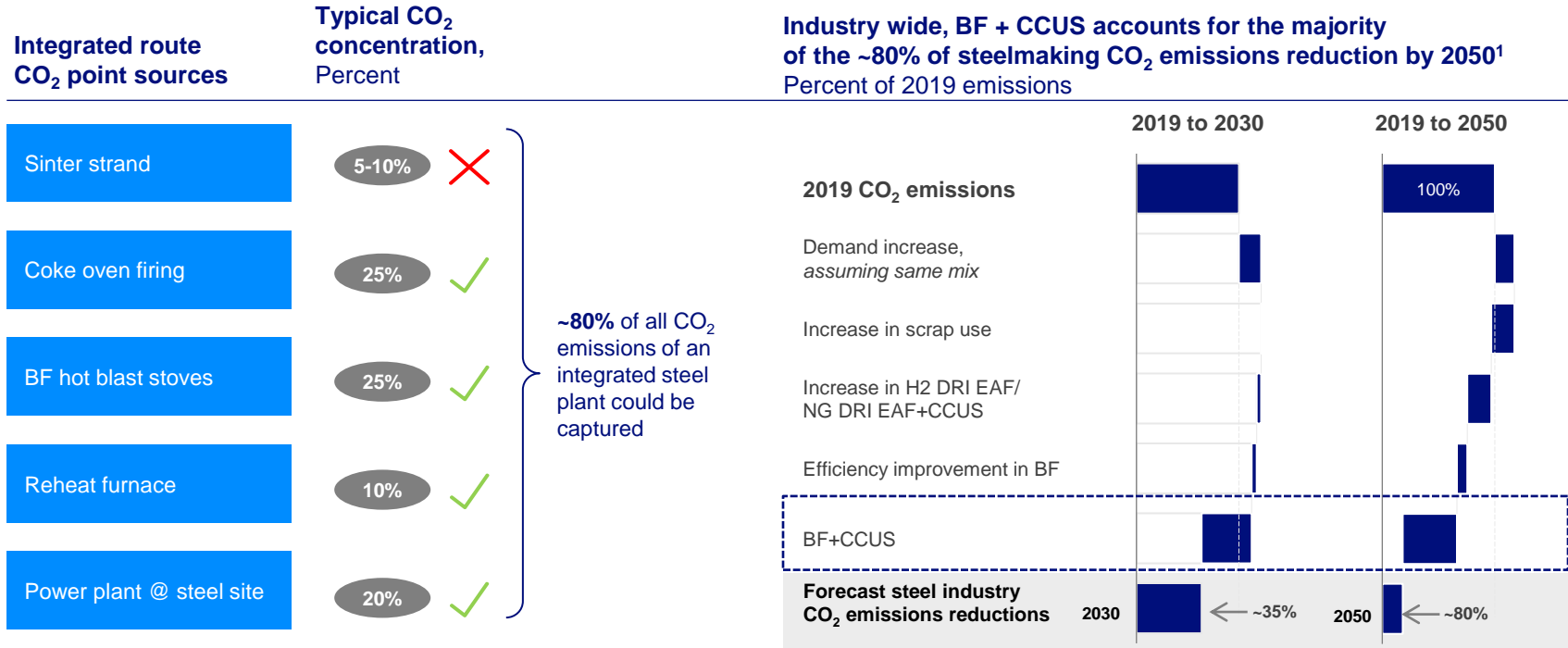
Transportation

- Transportation of the compressed CO₂, via pipelines, trucks or ship

Utilization / Storage

- Utilization options include building materials and conversion of CO₂ to chemicals, etc.
- In Storage, CO₂ is injected into deep underground rock formations, depleted oil or gas fields and saline aquifers that trap the CO₂ permanently

CCUS Decarbonizes up to 80% of Blast Furnace Steelmaking Emissions



Blast Furnace + CCUS will Lead Large-Scale Decarbonization Adoption



Blast Furnace + CCUS is adoption ready



Proven technology in hard-to-abate industries

- CCUS operates in power generation, refining, petrochemicals, agrichemicals, and steel/iron industry



Blast Furnace + CCUS is commercially feasible

- Leverages >US\$1 trillion of young installed blast furnace fleet
- Ample global CCUS storage capacity of ~5 trillion tonnes CO₂



Fastest path to large-scale decarbonization

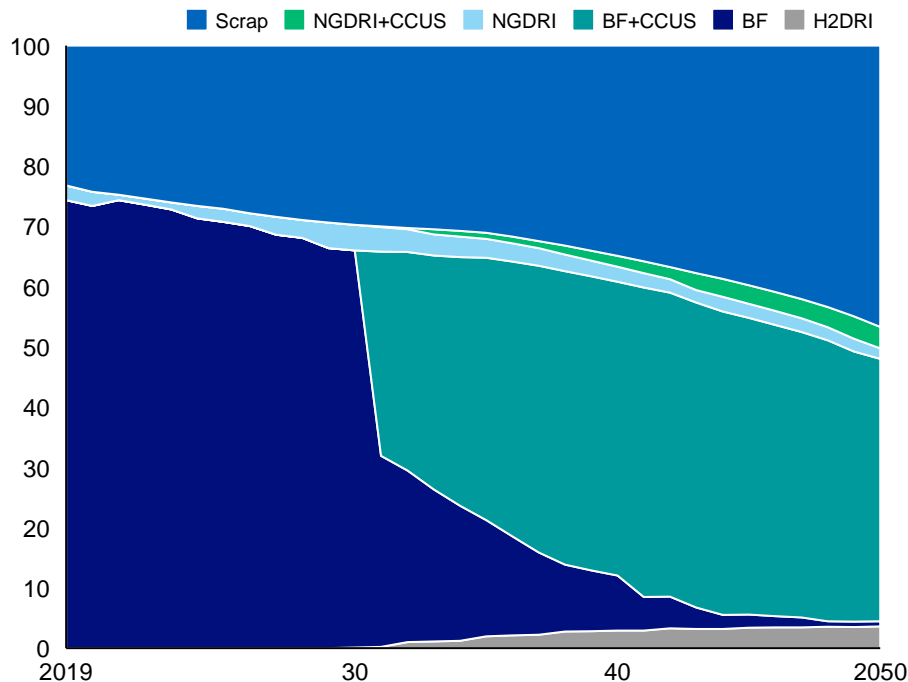
- >75% of global steel is produced through the blast furnace route
- Requires moderate CO₂ pricing (>US\$50-100/t) to be economic¹
- Cost reductions achieved with generational learning



Accelerators to adoption

- Large-scale hub and cluster transportation and storage infrastructure will support economies of scale

Blast Furnace + CCUS adoption will lead through 2050 (Asia view¹)



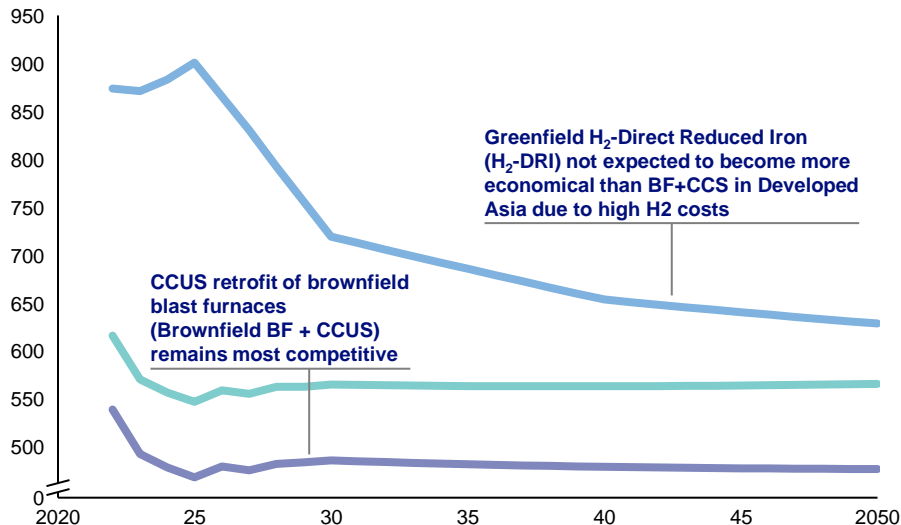
1. Including China, India, SEA, Developed Asia

Blast Furnace + CCUS is the Only Technology That can be Adopted with Speed and Scale



Total Cost of Ownership¹ (US\$/t liquid steel) Developed Asia¹ (SDS – 1.7° scenario)

BF+BOF+CCS (brownfield) BF+BOF+CCS (greenfield) H2DRI



Levelized Cost of PV – South Korea (US\$/kWh)

6.6

3.1

To make hydrogen steelmaking cost competitive, ample access to low-cost hydrogen (US\$1-2/kg) is required. This implies:

Stable supply of renewable power <US\$1.5c/KWh

- Significant investment in large-scale renewable infrastructure development that does not exist today
- >60% lower wind and solar costs, which will be challenging in Developed Asia due to low insulation, lack of space to reach scale and need for expensive off-shore wind

Low-cost hydrogen

- Decline in electrolyzer capex by ~80%
- High capacity scale-up and utilization rates, expected to be challenging in Developed Asia given costly renewable power. Dependence on imports will add US\$1.50-2.00/kg in transportation and conversion cost
- Sufficient H2 storage capacity to allow stable and continuous supply

High-grade iron ore pellet availability

- Availability constraints on high-grade iron-ore pellets suitable for DRI will limit H2-DRI adoption beyond 2030

1. South Korea, Japan

Slow Transition to Green Hydrogen-Based Steel Given the Enormity of Required Inputs

Input needed for one tonne liquid steel in H₂-DRI-EAF

Input needed for all 2030 non-scrap based liquid steel (1,800m tonnes)...

...Exceeds current capacity



50 kg Hydrogen

720 GW Electrolyzer capacity

21 times more than announced capacity today for the entire industry



3.2 MWh Power

5,800 TWh Power

~25% of global power demand today, or ~140% of US total power demand



1.25 t DR pellets

2,250 Mt DR pellets

15 times today's global DR pellet capacity



450L Water

810BL Water

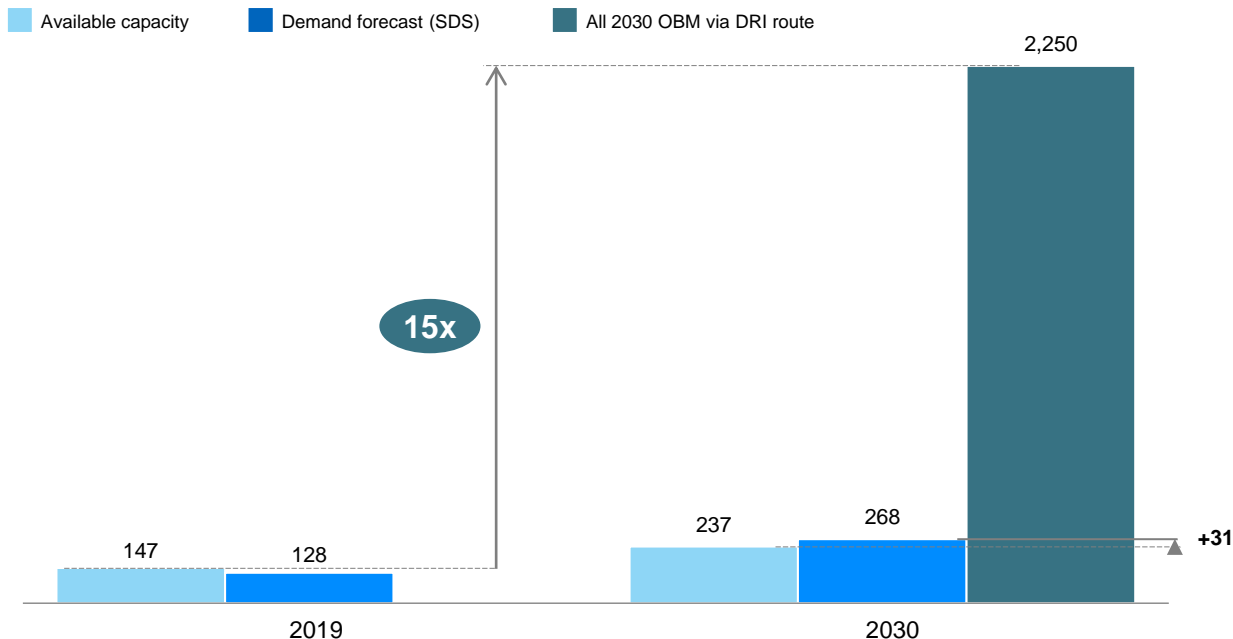
~2M household yearly water use in the US

900 New DRI/EAF plants

~12 times the amount of DRI plants in operation today

A Significant Supply Shortage of Hydrogen Steelmaking DR Grade Pellets is Forecast by 2030

Supply & demand balance of direct reduction grade pellets¹
Projected market balance of DR-grade pellets (Million tonnes)



Based on the current demand forecast for DR grade pellets, a deficit of 31M tonnes emerges by 2030

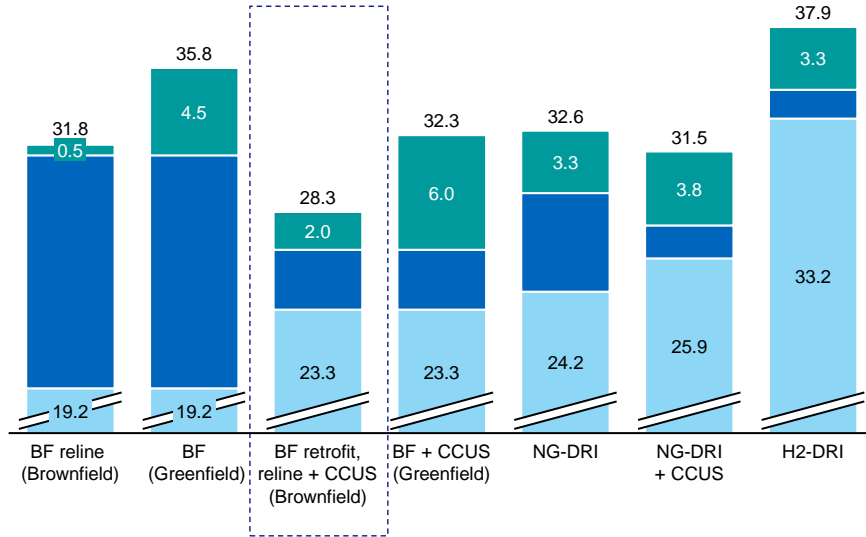
Large-scale hydrogen-based steelmaking would require 15 times today's DR Pellet capacity by 2030

Blast Furnace + CCUS is the Most Cost Competitive Decarbonization Technology

Net present cost of steelmaking technologies¹

Developed Asia¹ 2030 cost basis, Billion US\$ (5mtpa Blast Furnace)

Opex CO₂ cost Capex



Key economics, 2020

Capex in US\$ per annual ton liquid steel

Greenfield coke plant, sinter plant, blast furnace + CCUS ~1,200

Brownfield blast furnace reline only ~100

Brownfield retrofit + CCUS ~300

OPEX in US\$ per annual ton of liquid steel

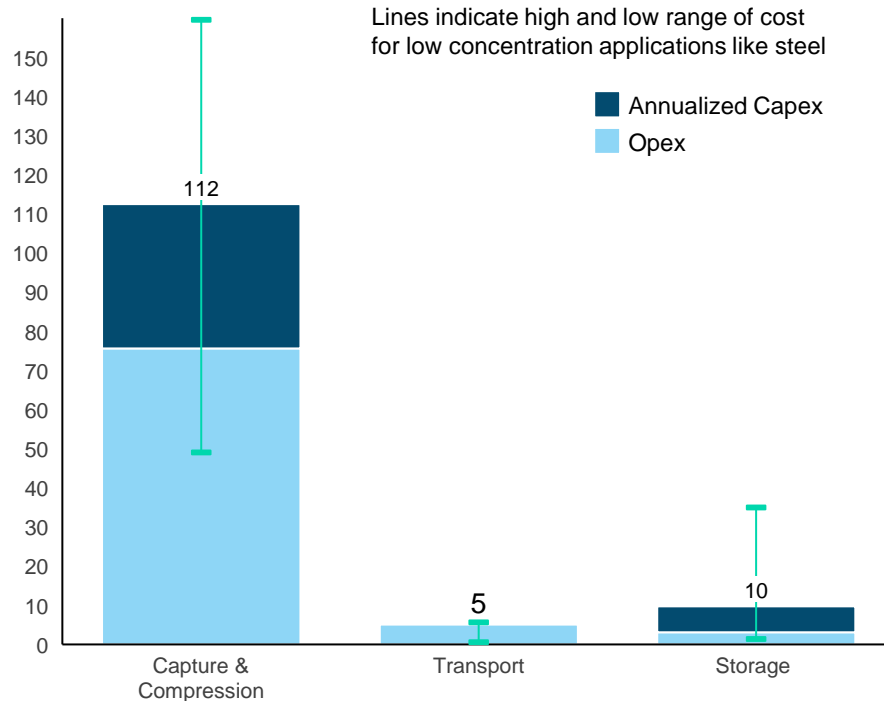
Traditional blast furnace route ~400

Blast furnace + CCUS ~500

CCUS only ~100

1. South Korea and Japan

2020, US\$/tonne liquid steel¹
5mtpa Blast Furnace Facility in Developed Asia







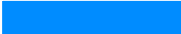


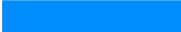




























CCUS Cost Drivers

- Carbon capture is typically the highest cost element, **varying by CO₂ concentration** of the source gas
- Transport and storage costs are driven by:
 - Suitable **CO₂ sequestration geological characteristics and capacity** and **extent of monitoring**
 - **Mode of transportation** from blast furnace to sequestration site
 - Proximity to **CCUS hubs**, shared by multiple users and supported by governments to drive down costs (shared transport and storage)

Geological Distances to Sequestration Vary

Assumed Distances for Steel Plants to Storage and Fraction of BF Production Assumed Suitable for CCUS¹

	Assumed Distance Steel to Storage (km)	2019 Pig Iron Production (M tonnes)	BF Capacity Suitable For CCUS (%)	
China	 1000	 810	 100	NE steel regions close to CCUS, inland steel could leverage on-shore
Developed Asia	 500	 137	 100	Good match Japan, South Korea steel and CCUS
CIS	 2000	 74	 100	Strong historic O&G production storage capacity
India	 2000	 74	 50	Substantial distance across India for some facilities
Western Europe	 1000	 71	 50	Coastal steel is close to CCUS, inland steel mills substantial distances
Latin America	 1000	 33	 66	Some mismatch in BFs vs potential CCUS sites
North America	 500	 29	 100	US BFs close to CCUS, 2 DR plants on Gulf Coast have good access
Eastern Europe	 2000	 17	 25	No storage options in close proximity
Other Asia	 500	 17	 100	Indonesia – good proximity to CCUS
MENA	 500	 13	 100	Good match with historical O&G production
Oceania	 1000	 4	 100	Two BFs in Australia – moderate distance to CCUS sites
Subsaharan Africa	 1000	 4	 100	Moderate distance for two South Africa BF sites

Large-Scale Blast Furnace + CCUS Adoption Has Increasing Technical and Economic Tailwinds

Requirements for large-scale CCUS adoption



Rapid demonstration of BF+CCUS feasibility



Credible and sustained cost of

CCUS < CO₂ price: requires CO₂ pricing of >US\$50/t CO₂ and CO₂ abatement cost of US\$50-100/t CO₂¹ (2020 abatement cost of ~US\$100-150/t CO₂).



Government support (and public acceptance):

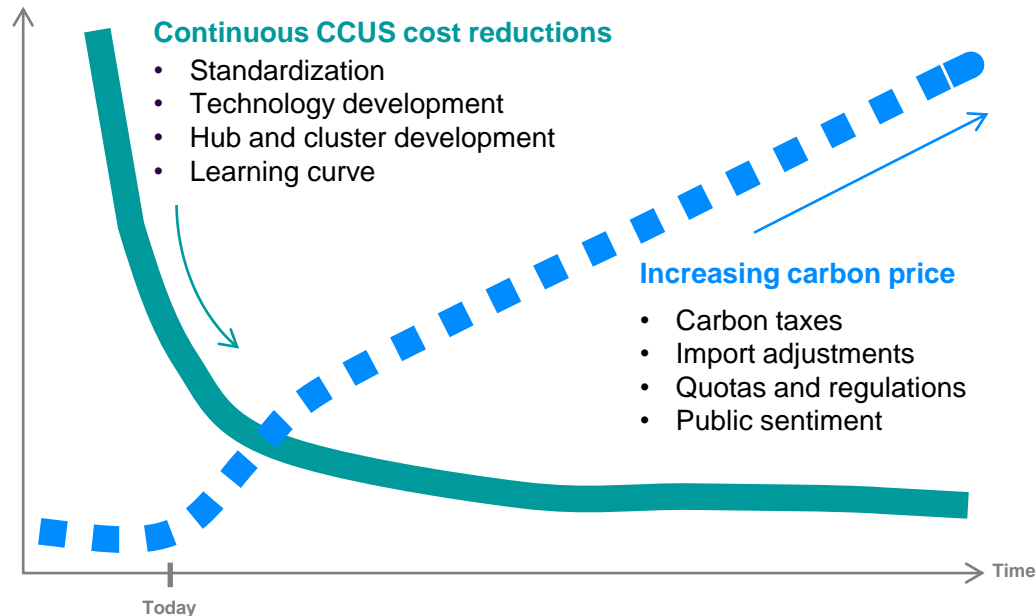
carbon and tax policy, carbon capture facility and infrastructure development funding



CCUS hub development: Large-scale hub and cluster CO₂ power, transportation, and storage sites that will support economies of scale

Cost of CCUS will decline

Cost per
tonne



Key Factors Driving China's Leadership in CCUS Adoption

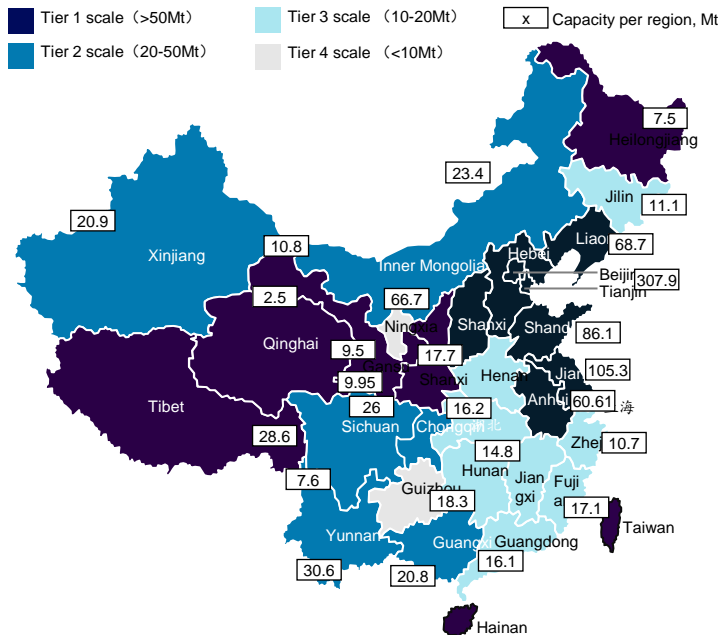
- China accounts for **~60% of global blast furnace steelmaking¹** and **>60% of global steelmaking CO₂ emissions²**- ~93% of steelmaking in China to utilize the blast furnace process²
- CCUS leverages China's **>US\$1 trillion of existing installed blast furnace fleet**, with more than 260 young blast furnaces (average 10 years) employing more than 1 million people
- China has **ample CCUS storage capacity of up to ~4 trillion tonnes CO₂³**, CO₂ storage will require transportation infrastructure development

China Carbon Neutrality Goals Support CCUS Adoption

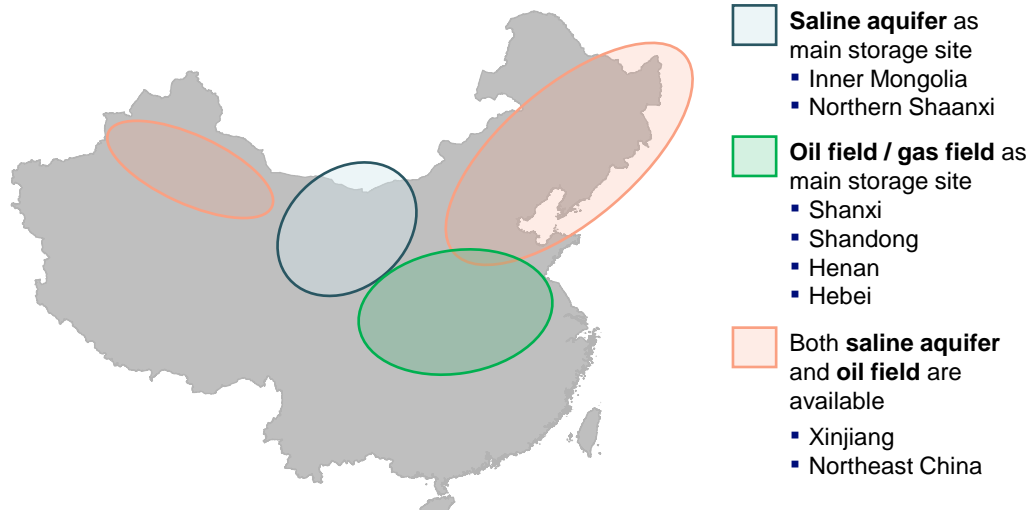
- **China Carbon Neutrality Goals and Ambitions**
 - Government commitment to achieve **carbon emission peak by 2030, and carbon neutrality by 2060**
 - » CCUS is the only decarbonization technology that can be adopted fast enough to meet China's 2060 goals
 - Government consultancy proposal to **reduce carbon emissions by 30% from the peak by 2030** (~420 million tons)⁴
- **China Steelmaking Decarbonization**
 - Exploring a steel output limit to **reach peak steelmaking emissions within four years and to reduce steelmaking emissions by 30% by 2030⁵**
 - Several Chinese steelmakers have signaled that they aim to peak their carbon emissions before 2025⁶

Chinese Blast Furnace + CCUS Will Be Driven By Infrastructure Development

China's BF capacity by location, 2019, Mt¹



Areas with high CO₂ storage potential²



Southern/Inland blast furnaces will require transportation infrastructure development of up to 1000km to connect to the North-Eastern Storage Fields

Successful and early adoption of CCUS in Canada include:

- **Boundary Dam CCUS Facility** the world's first commercial scale post-combustion CCS facility
- **Shell Quest CCS Facility**
- **Whitecap Resource's Weyburn oil CCS CO₂-EOR**
- **CNRL's Horizon project CO₂ recovery plant**
- **The Alberta Carbon Trunk Line**

Canada also hosts several leading technology carbon capture companies, including:

- **Svante** next-generation adsorbent-based carbon capture technology
- **Carbon Engineering** direct air capture

The Alberta Canada Trunk Line System



- A large-scale multi-hub carbon capture and storage pipeline
- The Alberta Canada Trunk Line (ACTL) system captures industrial CO₂ emissions from oil refinery and fertilizer facilities, sent to oil and gas reservoirs in Southern Alberta (used for enhanced oil recovery and permanent storage) via a 240km pipeline
- The pipeline can transport up to 14.6 Mt of CO₂ per year with capacity to tie in more CO₂ emissions

Europe is Focused on Large Scale CCUS Hub And Cluster Infrastructure Development

- **Zero Carbon Humber** and **Net Zero Teesside** are two of the UK's largest industrial CCUS clusters,
- The **Northern Endurance Partnership** will transport and store CO₂ from both clusters in the North Sea
- The combined projects aim to **decarbonize nearly 50% of the UK's industrial cluster emissions**
- **Funded privately and publicly**
- **£800 million** of UK Government funding
- Both projects aim to be **commissioned by 2026**



CCUS Policy

Active Global CCUS Policy Activity Is Underway

CCUS Activity And Government Support By Region¹

CCUS Activity

■ High

■ Low

Government
Support

■ N/A or no position

North America



US and Canada are global leaders in large-scale CCUS projects. Major government support with 45Q tax credits or Canadian government funding.

Latin America



Limited historical CCUS projects in Brazil, little current activity or government mandate

UK



Major government support and firm targets for CCUS volumes, CCUS funding allocated as part of decarbonization fund

Netherlands



CCUS capped by government, not part of long-term green transition

MENA



Oil and steel projects underway, mostly on basis of profitable EOR

Norway



Significant government support for major CCUS project (government funding for 2/3 of Northern Lights)

Germany



Significant historical opposition and caps – the debate has been re-opened by Merkel

China



Many CCUS hubs and projects in China, awaiting details as part of 5-year plan for future CCUS targets and policy to incentivize adoption

India



Very little activity, except for minor R&D grants

CIS



Little CCUS activity in Russia

Developed Asia



Government support, with CCU favored over CCUS

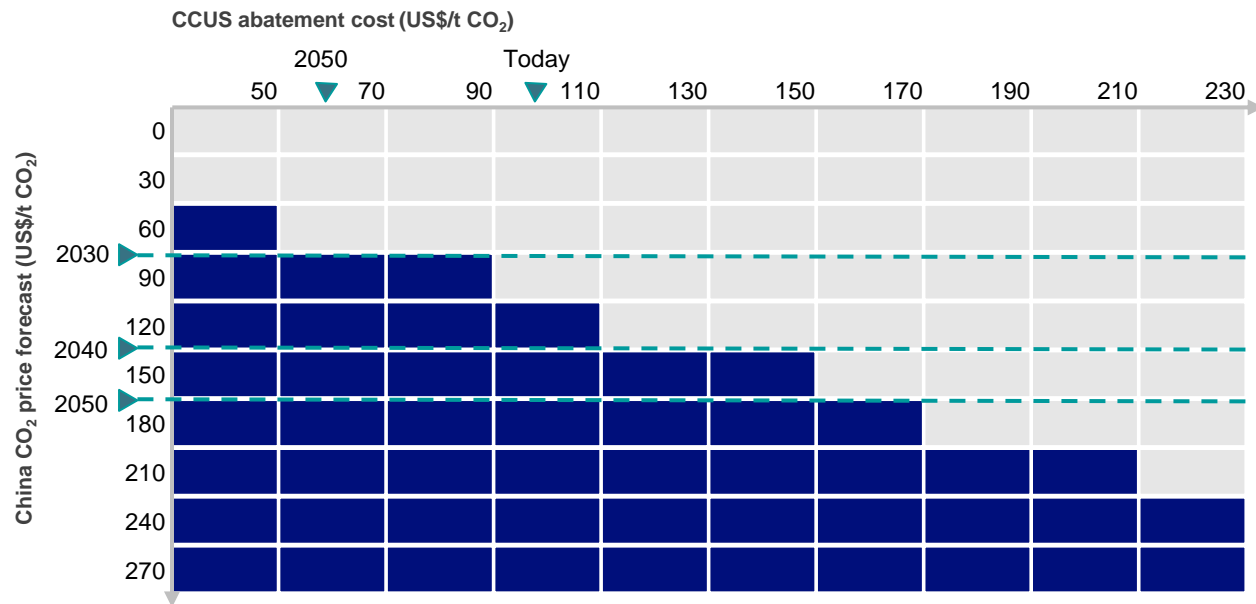
Australia



Current projects limited but major government support going forward

Steelmaking CCUS abatement cost / carbon tax economic trade-off matrix China, based on 2030 prices

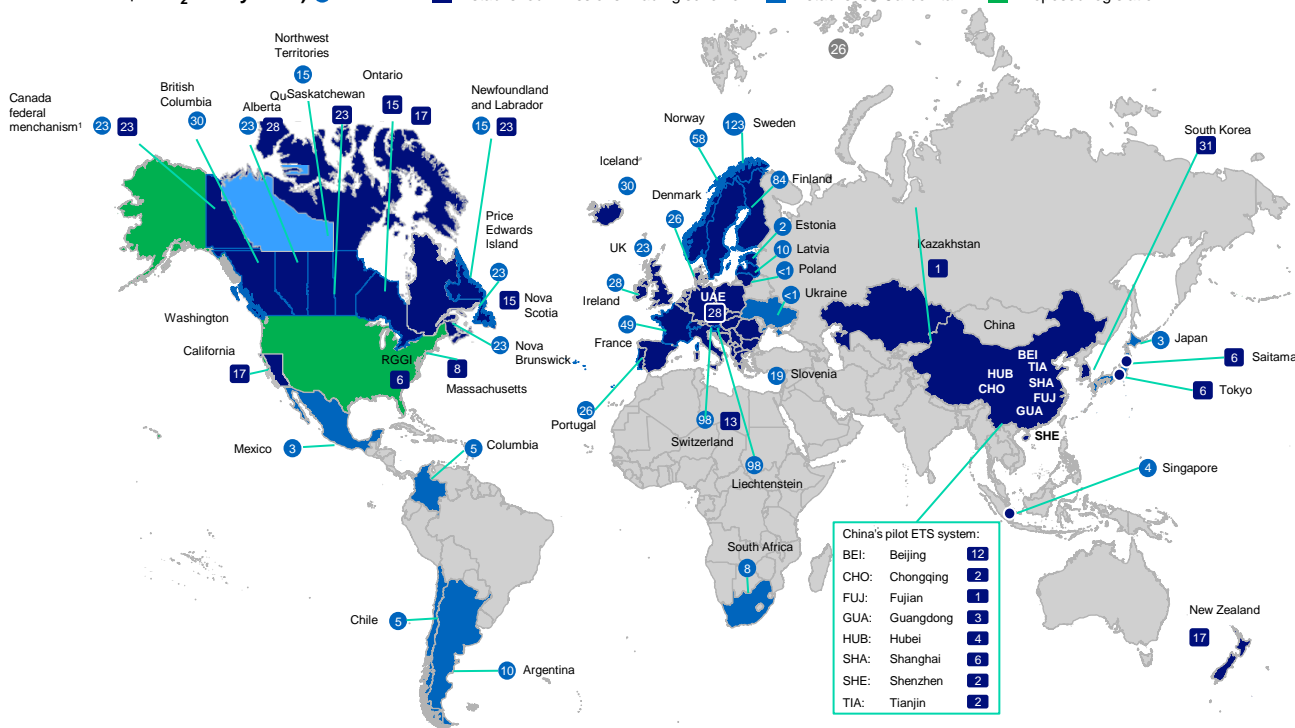
■ BF ■ BF + CCUS



- **BF+CCUS becomes economic** once the CO₂ price exceeds the CO₂ abatement cost
- The **major risks** to large-scale adoption of BF+CCUS are:
 - **Slower than expected carbon pricing** framework
 - **CCUS costs declining less rapidly than expected** (current forecast ~100 US\$/t CO₂ in 2020 and ~60 US\$/t in 2050)
 - **Inadequate government support** for CCUS in the areas of carbon policy, funding, social acceptance

Global carbon emission price applied by country¹Prices in US\$/tCO₂e *May 2020) \$

■ Established Emissions Trading scheme ■ Established Carbon tax ■ Proposed legislation



- Globally, **44 countries and 31 provinces or cities** operate a carbon pricing scheme, through a carbon tax and/or an Emissions Trading System (ETS)
- Carbon taxes would need to increase to **~US\$300/t by 2050** to achieve the Paris Agreement targets, increasing from \$75-100\$/t in 2030 to \$125-140\$/t by 2040 (IEA)
- China is expected to focus initially on an **emissions trading scheme**



Teck

Appendix

SDS (+1.7°C) is the Primary Scenario used to Evaluate Steelmaking Technology Economics

Comparable scenarios

CO₂ price²
US\$/t CO₂

■ Developing regions
■ Developed regions

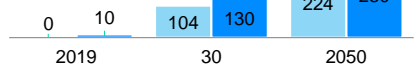
Steel carbon budget³ (GtCO₂)

Energy mix
(Btoe)

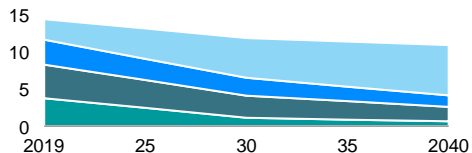
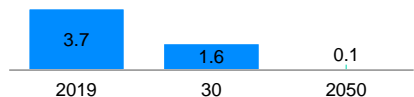
■ Other⁴ ■ Oil
■ Natural gas ■ Coal

+1.5°C scenario¹

McKinsey – 1.5°C scenario



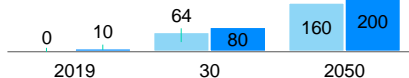
Steel free allowances removed post-CBAT



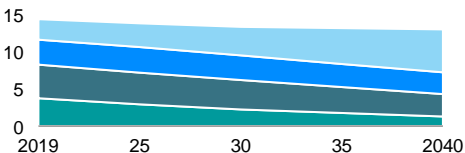
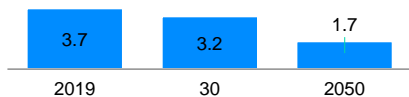
SDS +1.7°C scenario¹

Sustainable Development Scenario

IEA – SDS



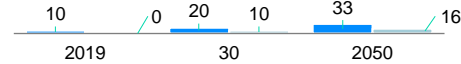
Steel free allowances removed post-CBAT



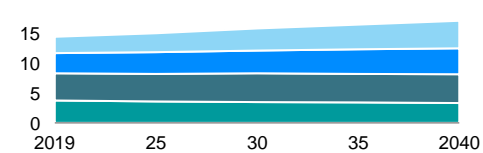
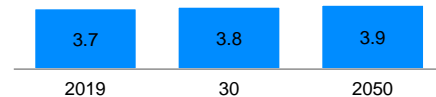
STEPS +2.7°C scenario¹

Stated Policies Scenario

IEA – STEPS



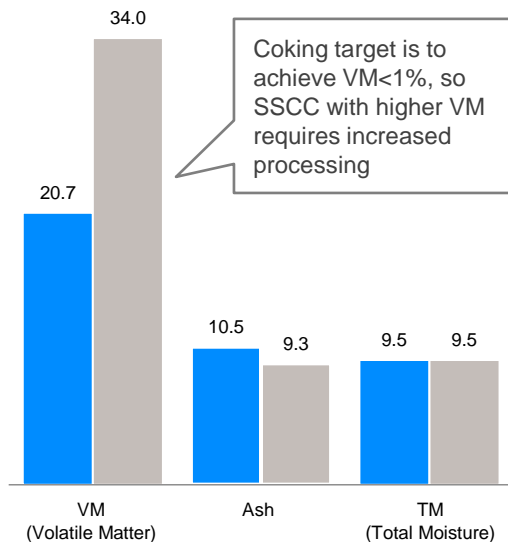
50% free allowances removed



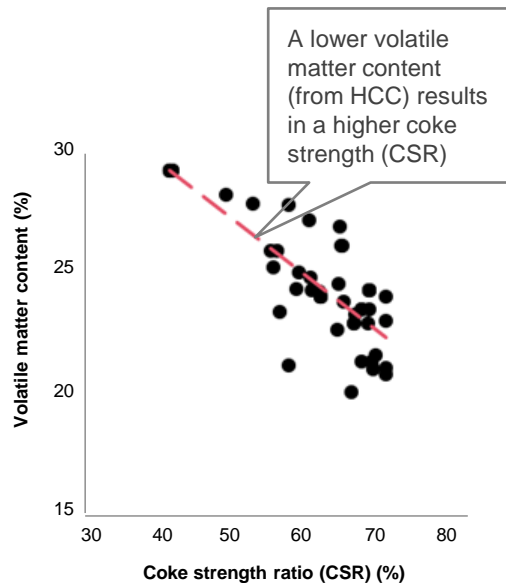
HCC Lower Volatile Matter Content Improves Coke Strength and Reduces CO₂ Emissions

Quality benchmark of HCC vs SSCC%

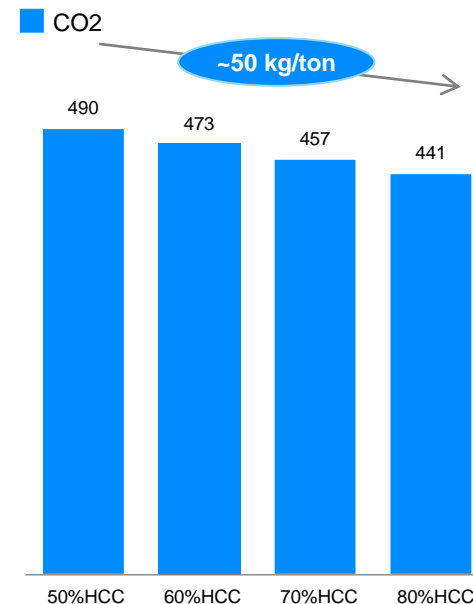
■ Peak Downs HCC ■ Semi-soft CC China



Correlation between quality parameters (Coke Strength (CSR) and volatile matter (%))



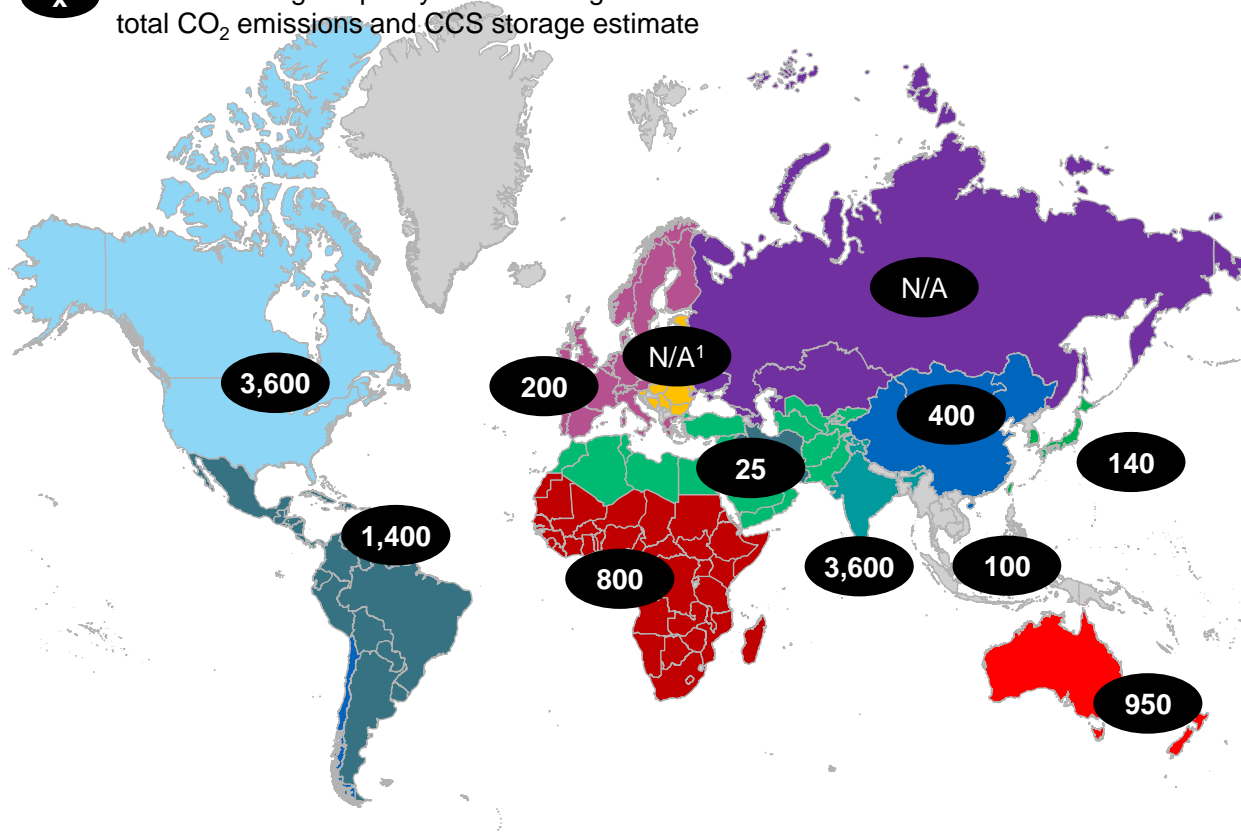
CO₂ emissions (kg/ton Coke)



There is Adequate Global CO₂ Storage Capacity

x

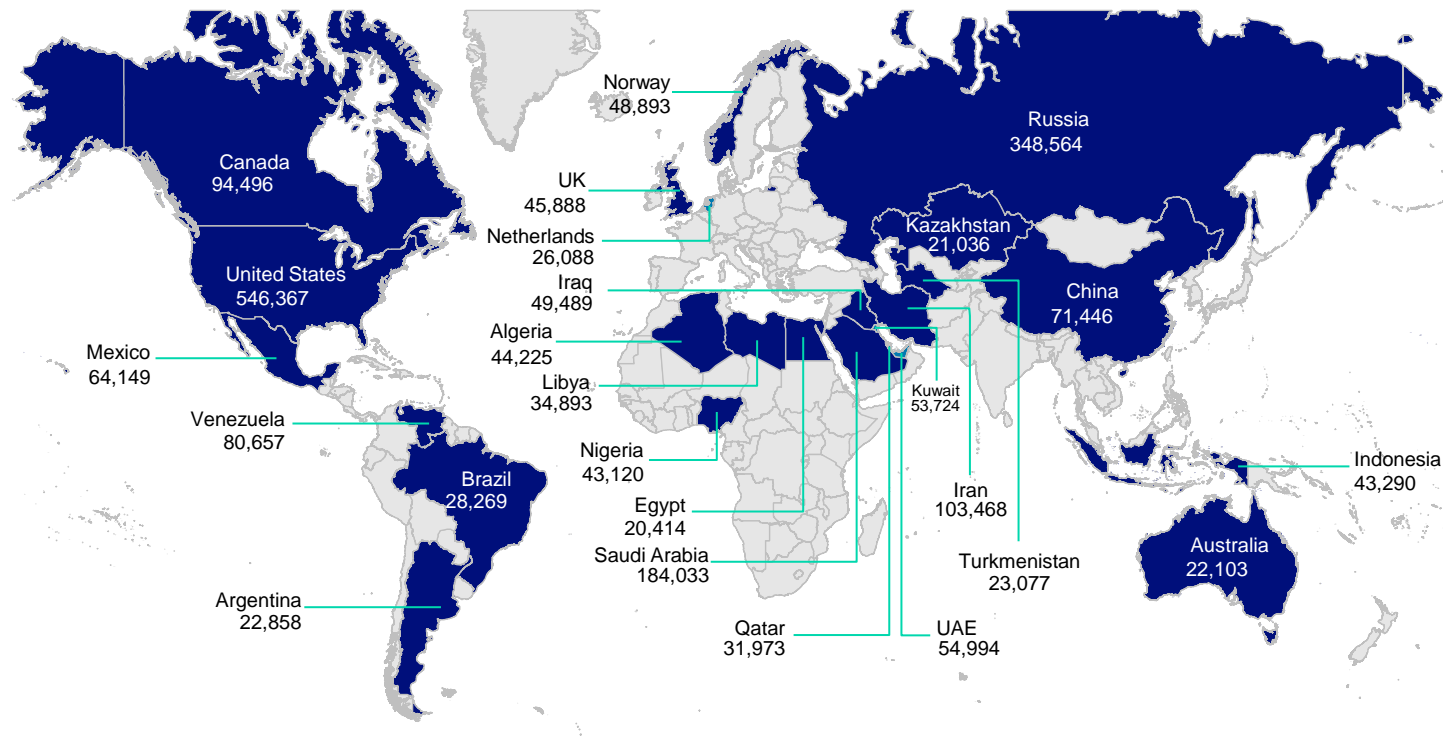
Years of storage capacity based on regional 2019 total CO₂ emissions and CCS storage estimate



- Global CCS Institute estimates global CCS storage capacity is **~5 trillion tonnes CO₂¹**
- A typical 10 mtpy integrated steel plant produces **20 mtpy CO₂**
- Historical Oil and Gas production expected to **add significant Storage capacity**

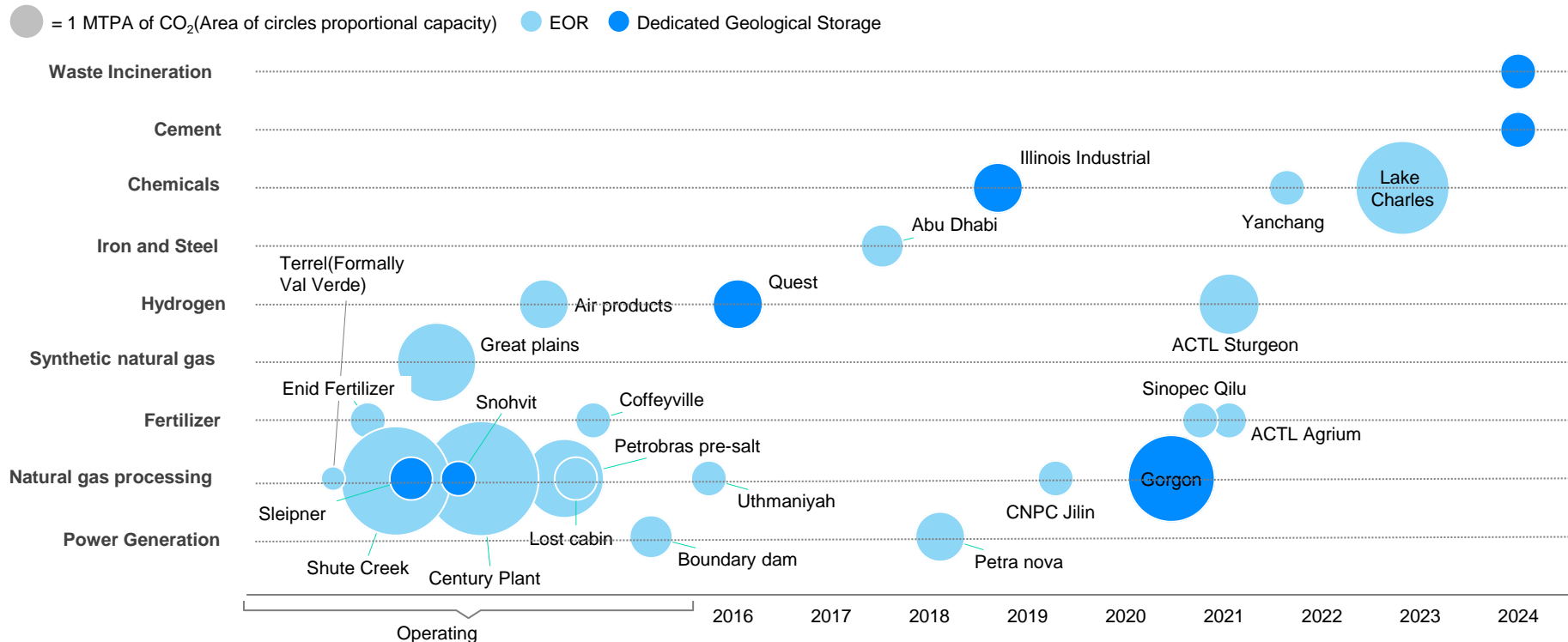
Depleting Oil and Gas Fields Will Add Significant Global CCUS Storage

Million bbl cumulative 1900-2020 for countries >20,000 million bbl¹



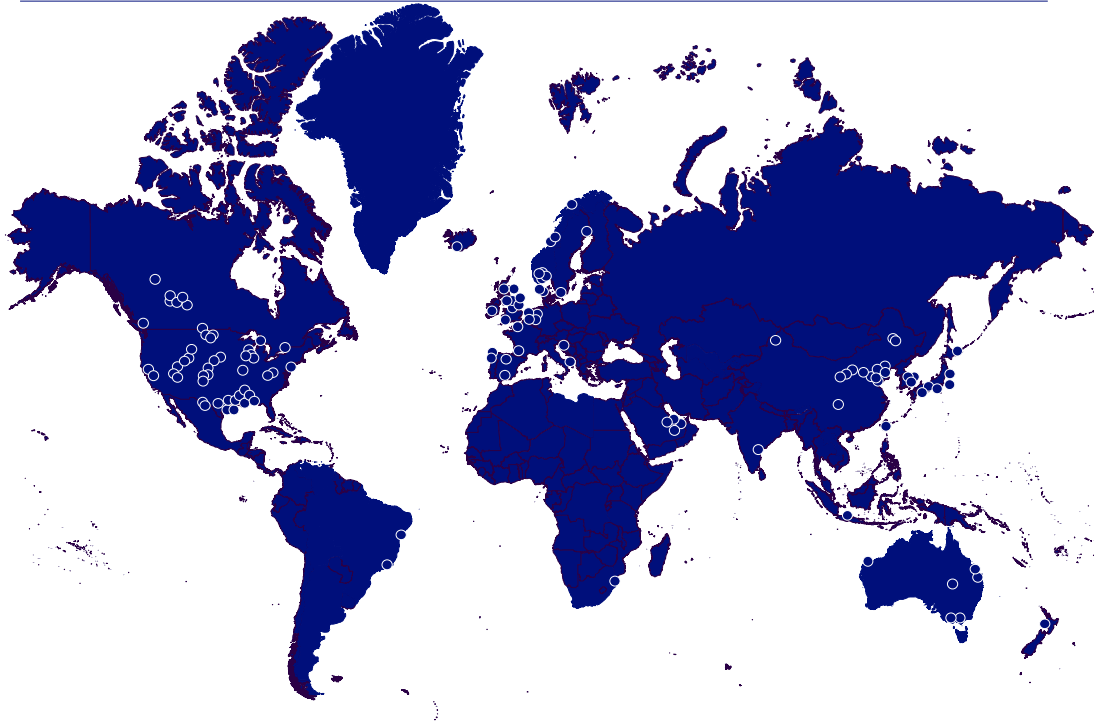
CCUS is a Commercialized Technology in Multiple Hard-to-Abate Sectors

Power and industrial applications of commercial large scale CCUS facilities with actual and expected operation dates up to 2024¹



Most Major Steelmaking Regions Are Active in CCUS

CCUS facilities – commercial or demonstration
(includes completed demos or facilities currently shut down)



Major steelmaking regions active in CCUS:

- Northeast Chinese steelmaking concentration is well suited for current CCUS sites
- Many CCUS options for Developed Asia (South Korea and Japan)
- Major activity in Western Europe, with many developing North Sea off-shore hub and cluster options
- American CCUS activity focused on enhanced oil recovery and increasingly storage

Carbon Policy and CCUS Infrastructure Funding Underpin Commercial CCUS Adoption

CCUS Policy, Funding, and Advocacy Leadership¹



Carbon Policy (carbon pricing and carbon offset incentives)



Tax Policy



Carbon Capture Facility and Infrastructure Development Funding

Successful Government Policy Examples

Canada: Clean Fuel Standard Act, Greenhouse Gas Pollution Act

Norway: Carbon tax enforcement (US\$50/t)

Europe: Policy allowing transboundary shipment of CO₂

USA: 45Q Storage Tax Credit (enhanced oil recovery for US\$50/t CO₂ or geological storage for US\$85/t of CO₂)

Canada: 2021 Federal budget includes proposal for investment tax credit for capital spent on CCS and CCUS projects

UK/Europe:

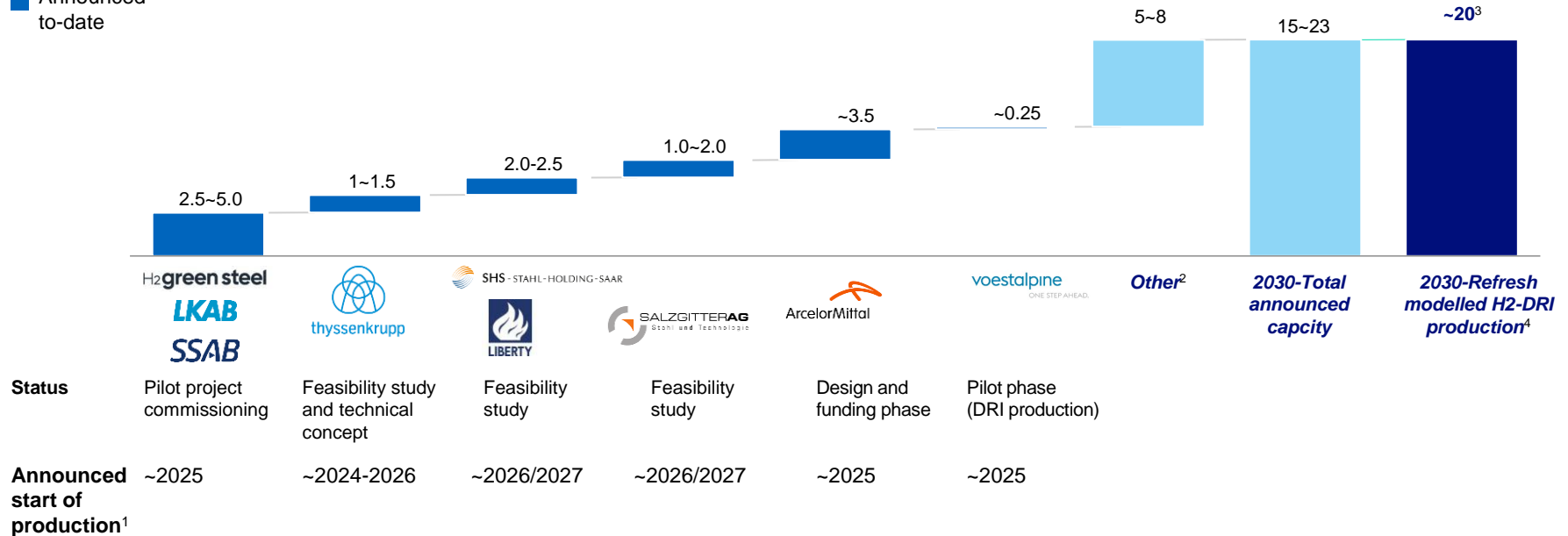
- €10 billion CCUS government funding for planning construction and operation of CCUS across the EU
- £800 million Hub and Cluster funding (UK)
- Northern Lights CO₂ transportation and storage (Norway)

Canada: ~C\$1.2 billion of federal and provincial funding to-date; recent Federal proposal for C\$319 million over 7 years to be allocated to CCUS research, development, and demonstration projects

Hydrogen Steelmaking will Account for Less than ~2% of Ore Based Metallics by 2030

Announced Hydrogen decarbonization steel projects in Europe, supply capacity, till 2030 Mt

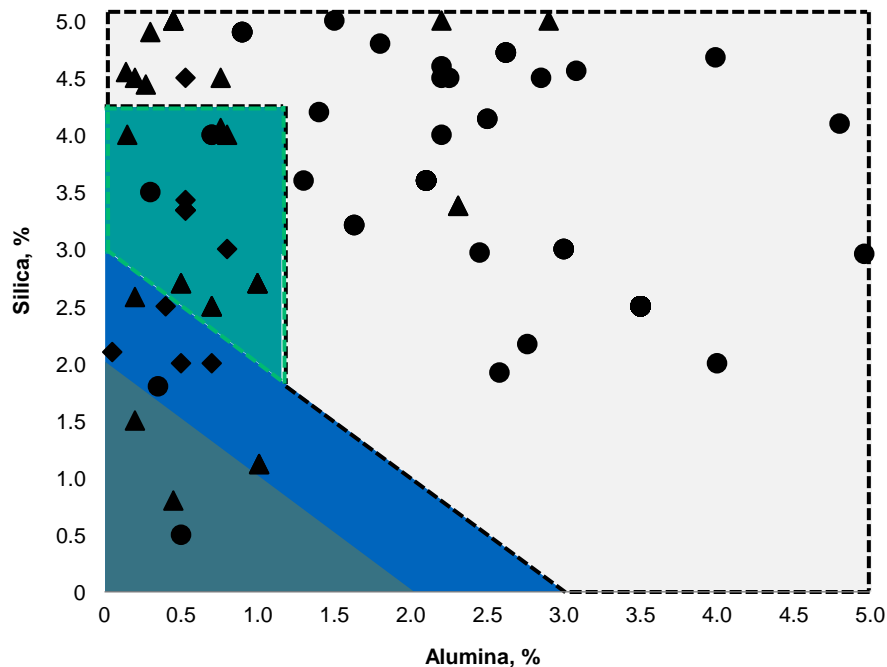
■ Announced to-date



Iron Ore Pellet Quality is a Key Factor Slowing the Advance of Hydrogen DRI

Analysis of iron ore product chemistry¹

● Sinter Fines ▲ Concentrate ◆ Pellet feed



Categorization of iron ore products

2020 volume

● Iron ore fines product ²	1,702 Mt
■ Ideal DR-grade product	14 Mt
■ Acceptable DR-grade product	30 Mt
■ Potential to upgrade to DR-grade ³	55 Mt
□ No potential to upgrade to DR-grade	1,603 Mt

Alumina is the main constraint

Due to its similarity to iron ore, alumina is much more difficult to remove from raw ore during processing than silica. Phosphorus can also be an issue.

Iron content must also be high

To be acceptable for use in DRI, the iron content must be high; ideally > 67%.

Teck Trail Smelter CCUS Pilot Plant Concept

- Trail CCUS scoping study underway; pilot implementation by mid-2023
- A full-scale Trail CCUS facility would contribute to Teck's Scope 1 2030 and 2050 targets (reduction of up to 150 ktpy CO₂)
- Contributes to Scope 3 2050 ambition of supporting partners in advancing GHG reduction solutions capable of reducing the global carbon intensity of steelmaking 30% by 2030

If developed, Teck's Trail CCUS facility would be the first CCUS operation used in a Canadian mining operation



Slide 5: Steel is Essential for Economic Growth In a Low-Carbon World

1. Source: WSA, IEA.
2. India (from ~100 Mt in 2019 to 300 Mt in 2050) and South-East Asia (from ~100 Mt in 2019 to ~230 Mt in 2050) IEA SDS Scenario assumptions on CO₂ pricing (~US\$0/t CO₂ in 2020 to ~US\$160/t in 2050).

Slide 6: Steel Demand Is Robust Through 2050 in all IEA Scenarios

1. Integrated steel demand model closely approximating the IEA Sustainable Development Scenario.
2. Integrated steel demand model closely approximating the IEA Stated Policies Scenario.

Slide 7: High-Quality Steelmaking Coal Is Required for the Low-Carbon Transition

1. All production volumes included in the forecast are based on a 93% utilization rate of capacity.
2. Includes ramp up of current capacity and projects considered to have a high certainty or probability of completion.
3. Low likelihood projects are assumed to come online from 2030 onwards based on increasing prices surpassing the incentive price required for individual projects at a return on investment of 15%.

Slide 8: Despite Robust Steel Demand, Long-Term Demand for Steelmaking Coal Is Expected to Decline...

1. IEA Sustainable Development Scenario (SDS) +1.7°C.
2. Comprised of landborne hard coking coal and global semi-soft coking coal.

Slide 9: ...But Long-Term Demand for Seaborne Hard Coking Coal Will Remain Robust

1. IEA Sustainable Development Scenario (SDS) +1.7°C.

Slide 10: Planned Blast Furnace Capacity Development is Well Underway in India and South-East Asia

1. Announced planned blast furnace expansions and greenfield blast furnaces projects, various company announcements.
2. Announced potential blast furnace capacity increases by country. Source: Various Company Announcements, Wood Mackenzie, CRU, Platts, internal analysis As at September 15th, 2021.

Slide 13: Steelmaking Decarbonization Technologies Are Driven By Regional Factors...

1. Middle East and North Africa.

Slide 14: ...Characterized by Different Levels of Carbon Abatement And Maturity

1. CO₂ footprint range defined by mix of coke, natural gas and PCI used in regional blast furnaces.

Slide 15: Hard Coking Coal Yields the Highest Decarbonization Efficiency

1. Source: McKinsey MineSpans, based on 60/40% hard coking coal/ soft coking coal blend.

Slide 16: Teck's Seaborne Steelmaking Coal Is Optimally Positioned For a Decarbonizing Future

1. Source: Skarn Associates, 2019.
2. Source: Platts, Wood Mackenzie, internal analysis. Comparison of Teck Elkview HCC to India, China, Russia, USA, and Australia coals by reference to coke ash, coke sulfur and coke CSR (coke strength) values. CO₂% values vary by HCC product by region, with the following values representing the upper limit incremental CO₂ potential.

Slide 19: CCUS Decarbonizes up to 80% of Blast Furnace Steelmaking Emissions

1. In upstream steelmaking, based on IEA SDS scenario assumptions for CO₂ pricing and quotas.

Slide 20: Blast Furnace + CCUS Will Lead Large-Scale Decarbonization Adoption

1. Global CCUS Institute estimates.
2. IEA Sustainable Development Scenario (SDS) +1.7°C; US\$90-110/t CO₂ as of 2020.

Slide 21: Blast Furnace + CCUS is the Only Technology that can be Adopted with Speed and Scale

1. Includes operating costs and annualized capital expenditures.
2. Levelized cost of energy, based on solar power.

Slide 23: A Significant Supply Shortage of Hydrogen Steelmaking DR Grade Pellets is Forecast by 2030

1. Source: Minespans, internal analysis.

Slide 24: Blast Furnace + CCUS is the Most Cost Competitive Decarbonization Technology

1. IEA SDS 1.5°C CO₂ price of ~US\$60 in 2030, increasing to 160 US\$/t by 2050.

Slide 25: Blast Furnace + CCUS – Unit Cost By Process

1. Source: Minespans; CCS costs are the median of reported prices for hard-to-capture industrial processes.

Slide 26: Geological Distances to Sequestration Vary

1. Source Global CCS Institute.

Slide 27: Large-Scale Blast Furnace + CCUS Adoption Has Increasing Technical and Economic Tailwinds

1. IEA Sustainable Development Scenario (SDS) +1.7°C; US\$90-110/t CO₂ as of 2020; US\$50-80/t by 2050, forecasts learning curve cost improvements.

Slide 28: China Will Lead Global CCUS Adoption

1. World Steel in Figures 2021: 2021.07.23: 57% in 2020.
2. "China's steelmakers need cleaner process to put climate goals in reach," South China Morning Post.
3. "China Status of CO₂ Capture, Utilization and Storage (CCUS) 2021 — China's CCUS pathways".
4. Economic Information Daily reported in March 2021.
5. China Metallurgical Industry Planning and Research Institute.
6. Economic Information Daily, March 2021. Source: SenecaESG.

Slide 29: Chinese Blast Furnace + CCUS Will be Driven by Infrastructure Development

1. Source: Sxcoal, Mysteel, McKinsey.
2. Source: Asia Development Bank, VDEH, internal analysis.

Slide 33: Active Global CCUS Policy Activity Is Underway

1. Sources: Global CCS Institute 2020, US Department of Energy, MIT Carbon Capture and storage Database, Petrobras, Northern Lights, EnergyPost.EU, Japan CCS Company, Climate Change News, Global Compliance News, Chevron, Frontiers in Energy Research.

Slide 34: Higher Carbon Prices Will Support CCUS Adoption

1. Includes operating costs and annualized capital expenditures.

Slide 35: Global Carbon Abatement Policies Take Different Forms

1. Source: 14CE - Institute for climate economics with data from ICAP, World bank, Government officials and public information, May 2020.

Slide 37: SDS (+1.7°C) is the Primary Scenario used to Evaluate Steelmaking Technology Economics

1. Global warming potential by 2100 ranges for SDS between 1.7-1.8°C and STEPS 2.5-3.0°C.
2. Marginal CO₂ cost required for steel de-carbonization underlying the scenario. In line with BHP 1.5°C scenario and IEA's SDS and STEPS scenarios.
3. Share of direct and indirect emissions attributed to the steel industry based on stated decarbonization scenarios.
4. Includes solar, wind, hydro, nuclear, bioenergy, other renewables.

Slide 38: HCC Lower Volatile Matter Content Improves Coke Strength (CSR) and Reduces CO₂ Emissions

1. Source: SBB Platts coal specification guide, expert interview, VDEH coke database, internal analysis; Coking by different share mix of HCC vs. SSCC.

Slide 39: There is Adequate Global CO₂ Storage Capacity

1. Source: Global CCS Institute.

Slide 40: Depleting Oil and Gas Fields Will Add Significant Global CCUS Storage

1. Source: Rystad, Global CCS Institute; subject to confirmed suitability for geological CO₂ storage sites.

Slide 41: CCUS is a Commercialized Technology in Multiple Hard-to-Abate Sectors

1. Source: Carbonbrief.org, Global CCS Institute.

Slide 42: Most Major Steelmaking Regions Are Active in CCUS

1. Source: Global CCS Institute 2020 report.

Slide 43: Carbon Policy and CCUS Infrastructure Funding Underpin Commercial CCUS Adoption

1. Source: Global CCS Institute 2020 report.

Slide 44: Hydrogen Steelmaking will Account for Less than ~2% of Ore Based Metallics by 2030

1. Production ramp-up potentially not fully carbon-neutral.
2. Other refers to several other projects that could add 5-8 Mt including in the Americas and Middle East.
3. DRI production is calculated based on Fe content at 94.45% with 19Mt DRI Fe unit production output from model.
4. Met coal demand model updated to capture H₂-based green steel projects announced by steel players, based primarily in Europe.

Slide 45: Iron Ore Pellet Quality is a Key Factor Slowing the Advance of Hydrogen DRI

1. Source: Minespans.
2. Includes sinter fines, concentrates and pellet feeds in MineSpans database. Excludes lump.
3. Includes mines with Fe > 65%; may include flotation circuits.