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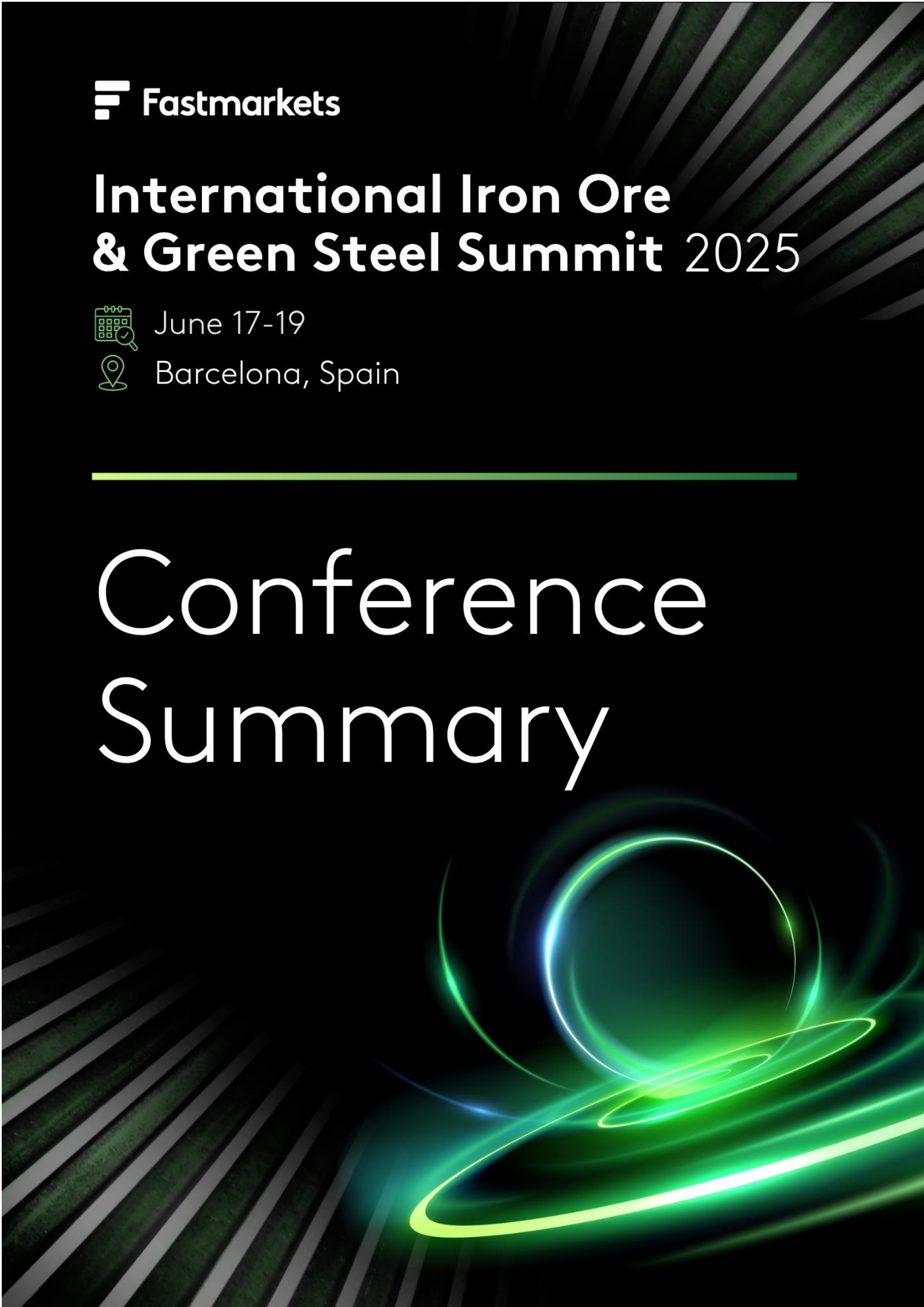
International Iron Ore & Green Steel Summit 2025

June 17-19

Barcelona, Spain

Conference Summary



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Day One – 17th of June

Session: Iron Ore Market Outlook – Understanding the Past, Navigating the Present, Positioning for the Future

Speaker: Miriam Falk, Principal Analyst, Steel & Steel Raw Materials, Fastmarkets

Summary

Miriam Falk delivered a comprehensive overview of the global iron ore market, highlighting how China's decades-long dominance is waning and giving way to a more diversified future for steel and iron ore demand. Her presentation examined historic drivers, current pressures, and evolving supply and demand trends as the industry positions for a low-carbon, multipolar steel world.

Key Takeaways

- **China's Era of Dominance Is Receding**
  Over the past two decades, China's steel output surged nearly tenfold, becoming the primary driver of global iron ore demand. However, this growth is plateauing due to demographic shifts, a transition to a service-based economy, and ongoing weakness in the construction sector.
- **Steel Margins Under Pressure**
  Chinese steel mills are experiencing negative or razor-thin margins, even with lower iron ore and coking coal prices. As a result, mills are increasingly sourcing lower-grade ore to cut costs, significantly narrowing price differentials between iron ore grades.
- **Supply Is Rising – But Quality Is Declining**
  Iron ore exports from Australia and Brazil continue to grow, yet Australian ores are showing higher impurity levels, prompting the introduction of a new 61% Fe index. Meanwhile, projects like Simandou in Guinea may inject high-grade supply and reshape market balance by 2030.
- **Demand Diversifies Beyond China**
  India, Turkey, and ASEAN markets are driving growth in crude steel output and per capita steel consumption. This shift is reducing global reliance on China and broadening demand geographically.
- **Decarbonisation Drives a Two-Speed Market**
  The transition to green steel is bifurcating demand. While Europe leads in DRI and hydrogen-based technologies, high costs are slowing widespread adoption. Emerging markets continue to rely on traditional blast furnace capacity, prolonging the transition.

Presentation: Responding to Market Challenges – Transformation of Steel Production

Speaker: Andreas Eichstädt, Head of Research & Strategy Raw Materials Procurement, Thyssenkrupp Steel

Summary

Andreas Eichstädt provided a strategic update on Thyssenkrupp Steel Europe's decarbonisation journey, emphasizing both the urgency and complexity of transforming one of Europe's largest flat steel producers. He outlined the company's phased path toward climate-neutral steel, the challenges of operating in a volatile market environment, and the conditions necessary for a successful green transition.

Key Takeaways

- **Major CO_2 Contributor with Big Responsibility**
  Thyssenkrupp Steel accounts for ~20 million tonnes of CO_2 annually—around 2.5% of Germany's total emissions—highlighting the critical role of industrial decarbonisation in national climate goals.
- **Green Steel Transition Underway**
  The company has committed to building Germany's largest direct reduction (DR) plant in Duisburg, complemented by two smelters, aiming to reduce emissions by 30% by 2030. This will replace coal-based blast furnaces with hydrogen-ready DR and SAF technology.
- **Full Climate-Neutral Goal by 2045**
  The transformation plan includes full decarbonisation of downstream production and tackling residual emissions through technologies like Carbon2Chem® (CCU/CCS).
- **Hydrogen Strategy: A Multi-Channel Approach**
  Hydrogen sourcing will come from a mix of near-site production, European pipeline projects, and imports in derivative forms (e.g., ammonia), depending on energy costs and scalability.
- **Navigating a VUCA World**
  Volatility, uncertainty, complexity, and ambiguity (VUCA) define today's market landscape. Green steel adds yet another layer of complexity and demands proactive strategic thinking.
- **Policy Framework is Crucial**
  Success depends on supportive frameworks:
  - Hydrogen infrastructure and pricing mechanisms

- Carbon border adjustment reforms
- Incentives for green product demand
- Fair competition against dumping and overcapacity
- Affordable and renewable energy access

Presentation: Update on DRI/HBI/Pig Iron – How Is Demand Shaping Up Globally?

Speaker: Marina Shulga, Team Leader, Steel & Ferro-alloys, EMEA, Fastmarkets

Summary

Marina Shulga provided a strategic overview of the shifting global landscape for metallics — specifically pig iron, direct reduced iron (DRI), and hot briquetted iron (HBI). Her presentation examined how geopolitical disruptions, evolving decarbonization priorities, and regional market behaviours are reshaping demand patterns, pricing dynamics, and supply strategies.

Key Takeaways

- **Geopolitics Reshaping Supply Chains**
  The war in Ukraine significantly disrupted traditional trade flows. U.S. buyers self-sanctioned against Russian pig iron, while countries like Italy increased their reliance on Russian supply.
- **Price Volatility in Key Markets**
  Both U.S. and Italian markets saw sharp price spikes following supply disruptions. The U.S. premium market attracted new sources, including increased Ukrainian pig iron exports.
- **Brazil's Dual Pig Iron Supply**
  Brazil’s coke-based and charcoal-based pig iron production was highlighted, with charcoal-based pig iron commanding a higher price due to its lower carbon footprint — particularly relevant in Europe’s green steel push.
- **Green Premium Emerging**
  European buyers are increasingly willing to pay a premium for lower-emission metallics. This is strengthening the case for charcoal-based pig iron and shaping procurement strategies around ESG credentials.
- **HBI Trends**
  Germany has increased its HBI imports as part of its decarbonization efforts, while Italy remains more dependent on Russian HBI — underscoring regional differences in sourcing approaches.

- **Pig Iron in Decarbonization Pathways**
  Pig iron remains a key transitional input for lower-emission steelmaking in both the U.S. and Europe, especially as blast furnaces are gradually phased out.
- **Market in Transformation**
  Marina emphasized that the metallics market is in the midst of a long-term transformation — suppliers are changing, and decarbonization is steering future trade flows and investment.

Presentation: How is the Expansion of DRI Projects in MENA Rewriting Global Iron Ore Flows?

Speaker: Gabriela da Silva Ferrao, Vice President of Sales and Marketing, CMP

Summary

Gabriela delivered a forward-looking analysis of how the expansion of Direct Reduced Iron (DRI) projects—particularly in the MENA region—is reshaping global iron ore trade flows. She positioned CMP as a reliable, high-quality supplier of DR-grade pellet feed and addressed the market dynamics, capacity shifts, and infrastructure developments underpinning this transition.

Key Takeaways

- **China's Shrinking Iron Ore Demand**
  Chinese steel production is expected to fall by 20% by 2050, with a significant pivot to scrap-based steelmaking. This shift will result in a projected 50% reduction in the country's iron ore demand.
- **DRI Growth in MENA and Southeast Asia**
  In contrast to China, demand for iron ore in the MENA region and Southeast Asia is set to rise, driven by the expansion of DRI capacity. The MENA region alone is expected to more than double its DRI capacity by 2050, with over 35 million tonnes of new projects already announced.
- **Impending Pellet Feed Shortage**
  The industry is projected to face a shortage of around 60 million tonnes of DR-grade pellet feed by 2050, even as a surplus of blast furnace-grade pellets accumulates.
- **CMP's Strategic Positioning**
  CMP has supplied DR-grade pellet feed to MENA since 1999. Its ore is low in gangue and appropriately sized for pelletizing. CMP currently produces 17 million tonnes of iron ore annually and is planning to increase DR-grade pellet

feed production to 14 million tonnes by 2030, plus an additional 12 million tonnes from the Tofo project by 2035.

- **Integrated Logistics & Port Infrastructure**
  CMP operates three mining complexes in Chile, each with its own port, and plans to build a dedicated port for the Tofo expansion, underscoring its commitment to reliable delivery.
- **Challenges & Enablers**
  Gabriela noted that while DRI capacity buildout is slowing in Europe and parts of the Middle East due to financial and macroeconomic uncertainties, government backing and natural gas availability remain key enablers of progress in the MENA region.

Presentation: Global DRI Capacity Outlook and Its Role in the Green Steel Transition

Speaker: Chris Bandmann, Senior Research Analyst, Wood Mackenzie

Summary

Chris offered a comprehensive forecast of the future of Direct Reduced Iron (DRI) in the global steel industry, outlining the growing pipeline of DRI projects and the strategic considerations shaping investment. He emphasized DRI's central role in decarbonizing steelmaking and presented a regional breakdown of opportunities, challenges, and long-term capacity projections.

Key Takeaways

- **Surging Global Capacity**
  Over 70–75 DRI projects have been announced worldwide, representing 120–125 million tonnes of capacity. Roughly 62% of this capacity is captive (linked to specific steel producers), with the remainder intended for the merchant market.
- **Strong Growth in Strategic Regions**
  DRI production is expected to grow substantially in the Middle East, Europe, China, and Australia. Europe is seeing a rapid rollout of capacity due to supportive policy frameworks, despite challenges faced by large players like ArcelorMittal.
- **Regional Nuances**
  - **Middle East:** Will remain a global DRI production hub through 2050, aided by access to natural gas and growing hydrogen investments.

  - **Europe:** Facing cost and policy hurdles but still pushing forward with decarbonization.
  - **China:** Pursuing a modest buildout of domestic DRI capacity, focusing instead on HBI imports and high-grade ore from Simandou.
  - **Australia:** Positioning itself around hydrogen supply and renewable energy to support future DRI hubs.

- **Merchant Market for Green DRI Emerging**
  A merchant market for Green DRI and HBI is developing, with the Middle East expected to serve regions like China and potentially Europe.
- **Key Determinants for Viability**
  The success of future DRI hubs will depend on:
  - Availability of DR-grade, high-quality iron ore
  - Reliable hydrogen or natural gas supply
  - Access to renewable energy
  - Policy incentives and infrastructure support
- **Feedstock & Infrastructure Challenges**
  Chris acknowledged the limited current supply of high-grade DR-grade iron ore but noted that new mining and beneficiation projects are underway to fill the gap.
- **Hydrogen vs. Gas-Based DRI**
  The choice between hydrogen and natural gas will depend largely on regional economics and energy policy environments.
- **Downstream Integration Strategies**
  Steelmakers are adjusting their downstream operations to integrate DRI production—modifying infrastructure, shifting processes, and aligning long-term procurement strategies.

Panel Discussion: Scaling DRI Project Pipelines – Partners, Timelines, and Realities

Moderator: Marina Shulga, Team Leader, Steel & Ferro-alloys, EMEA, Fastmarkets
Panellists: Vincent Chevrier, Technical Sales & Marketing, Midrex Technologies, Wolfgang Sterrer, Vice President of Direct Reduction, Primetals

Summary

This expert panel explored the opportunities and complexities involved in scaling global Direct Reduced Iron (DRI) capacity. Drawing from technology, policy, finance, and raw material perspectives, the discussion emphasized the importance of flexibility, regional differentiation, and cross-sector partnerships in enabling the transition to low-carbon steelmaking.

Key Takeaways

- **Steel's Energy Challenge**
  Wolfgang underscored that steel is inherently energy-intensive, and transitioning to more efficient and circular production methods—including DRI—requires systemic change and sustained innovation.
- **Strong Growth Outlook for DRI**
  Both panelists forecast substantial growth in DRI production through 2040 and 2070, driven by decarbonization and the adaptability of DRI technology to various inputs and energy sources.
- **Regional Opportunities & Constraints**
  - **Middle East, North America, and Europe** were highlighted as key DRI growth zones.
  - **Europe** offers both high potential and major challenges due to its diverse and evolving energy mix.
  - **Ukraine and Spain** could emerge as future DRI hubs, supported by natural gas access, iron ore supply, and renewables investment.
- **Green Energy & Policy Support**
  Wolfgang pointed to the importance of a transforming European energy market and long-term green energy investment. Vincent emphasized government support and public-private partnerships as crucial enablers—citing France, Spain, Portugal, and Sweden as leading examples.
- **Technology & Innovation**
  The panel noted ongoing R&D in electrolysis and fluidized bed reactors, stressing the need for industry-wide collaboration and patient capital to bring these technologies to scale.

- **Project Finance & Planning Evolve**
  Vincent outlined how project financing and client expectations have changed: longer planning horizons, greater demand for emissions transparency, and more complex project structures involving technology providers, raw material firms, and energy suppliers.
- **Rethinking Raw Material Strategy**
  Vincent challenged the rigidity of "DR-grade" definitions, suggesting a broader "EAF-grade" classification based on steelmakers' varying needs. He encouraged flexibility in feedstock strategies.
- **Plant Size & Flexibility**
  Midrex's optimal plant size was identified as 1.6–2.5 million tonnes/year. Vincent noted the growing preference for multiple smaller units, which offer greater operational agility and lower risk.
- **Hydrogen vs. Natural Gas**
  The panel acknowledged the continued role of natural gas-based DRI combined with carbon capture, especially in regions lacking hydrogen infrastructure. Hydrogen will dominate where renewable energy and hydrogen transport infrastructure exist.

Session: The Outlook for EAF Growth and Steel Decarbonization Trends

Speaker: Adrian Doyle, Expert, McKinsey

Summary

Adrian delivered an insightful presentation on the global outlook for electric arc furnace (EAF) steel production, contextualizing it within the broader shift toward low-emission steelmaking. His analysis covered geographic trends, technological drivers, and economic constraints shaping how and where new capacity will emerge.

Key Takeaways

- **EAF Expansion Accelerating**
  Over the next five years, approximately 90 million tonnes of new EAF capacity is expected globally—a 15% increase in crude steel production via EAFs. Europe leads the charge, followed by the MENA region and North America.
- **Advanced Project Pipeline**
  Many announced EAF projects are already well funded and in advanced planning stages, indicating that a large share is likely to come online soon.

- **Shift in Product Mix**
  New EAFs are designed to produce more flat steel and higher-value products, which will increase demand for high-quality scrap and ore-based metallics like DRI and HPI.
- **China's EAF Slowdown**
  EAF production in China remains less competitive due to high electricity costs and weaker construction demand. Utilization rates are lower, leading to a revised, more cautious outlook for Chinese EAF growth.
- **Blast Furnace Growth Limited**
  Traditional blast furnace capacity is declining globally, with growth limited to India and parts of Southeast Asia.
- **Materials Mix is Changing**
  The future will see greater use of scrap, DRI, and HPI in steelmaking. EAFs are positioned as the leading technology for decarbonized production, supported by emerging technologies and policy drivers.

Q&A Highlights

- **China's Decarbonization Outlook**
  In response to a question from SteelWatch's Caroline Ashley, Adrian clarified that while near-term economic pressures are slowing progress, China still holds long-term potential for adopting DRI and hydrogen in steelmaking.
- **China Unlikely to Export Scrap to Europe**
  Asked whether China might become a scrap exporter to Europe, Adrian responded that domestic scrap is more likely to be retained for its own decarbonization efforts.

Panel Discussion: Beyond DRI – Exploring Alternative Decarbonization Pathways

Panellists: Paolo Frediani, Senior Analyst, Fastmarkets, Rutger Gyllenram, Founder & CEO, Kobolde & Partners, Chris McMahen, Head of Marketing, Binding Solutions

Summary

This panel broadened the decarbonization discussion beyond Direct Reduced Iron (DRI), exploring a diverse set of strategies to reduce emissions in steel production. The speakers emphasized the need for a full value chain perspective and highlighted the potential of evolving blast furnace technologies, electrification, biomass, and emerging low-carbon innovations.

Key Takeaways

- **DRI Is Not the Only Path**
  While DRI remains a major focus, Rutger stressed that alternative solutions—like decarbonizing blast furnaces and improving pelletization—are also essential. The transition will require a multi-pronged, adaptable approach.
- **Electrification & Biomass**
  Chris highlighted the promise of electrification and biomass in steel decarbonization. Electric smelting furnaces and biomass-based carbon sources, alongside better iron ore beneficiation, can play a complementary role.
- **Modernizing the Blast Furnace**
  Rutger argued that blast furnaces still have a role in the transition. Innovations such as oxygen-based operation and top gas recycling can significantly reduce emissions from existing BF infrastructure.
- **Technology Scale-Up & Policy Needs**
  Scaling novel technologies remains a key challenge. The panelists called for clear political direction to allocate limited resources—such as hydrogen and biomass—effectively across sectors.
- **Investment & Technology Choices**
  Chris emphasized the importance of investing in commercially viable technologies today, like shaft furnace DRI, while continuing to support R&D into fluidized bed reactors and other future solutions.
- **Cost Sensitivity & Market Reluctance**
  High-cost decarbonization technologies face adoption barriers. The panelists noted that buyers remain cost-sensitive, underscoring the need for government incentives and carbon pricing to drive uptake.
- **Looking Ahead: Blue Hydrogen & Electrolysis**
  Both Rutger and Chris pointed to the long-term potential of blue hydrogen, electric smelters, and direct electrolysis as next-generation decarbonization tools—though many remain at early stages.

Audience Insights

- **Electrified Blast Furnaces**
  An audience member from SMS shared active developments in electrifying blast furnaces to reduce emissions, reinforcing the theme that innovation is underway on multiple fronts.
- **Biocarbon Parity with Coke**
  The feasibility of biocarbon achieving cost parity with metallurgical coke was discussed. While biocarbon has a growing role, panellists were cautious about its ability to fully replace coking coal.

Presentation: Supplying High-Grade Iron Ore for the Green Steel Transition

Speaker: Dave Tan, Regional Sales Manager – MENA, Anglo American

Summary

Dave Tan presented Anglo American's strategy for supporting the decarbonization of the steel industry through its portfolio of high-grade iron ore products. He emphasized the company's focus on quality, innovation, and sustainability as key enablers for both blast furnace efficiency and DRI adoption. The presentation also highlighted new projects, third-party collaborations, and Anglo's leadership in responsible mining.

Key Takeaways

- **Global High-Grade Portfolio**
  Anglo American operates major high-grade iron ore assets in South Africa (Kumba and Kolomela) and Brazil (Minas-Rio), tailored for both blast furnace and DRI applications in a decarbonizing steel sector.
- **Quality-Over-Volume Strategy**
  While many producers have lowered product specifications, Anglo American is doubling down on quality to improve furnace efficiency and provide suitable feedstock for direct reduction processes.
- **UHDMS Project Approved**
  The Ultra-High Dense Media Separation (UHDMS) project at Kumba will double premium lump output to 12 million tonnes/year and produce up to 5 million tonnes of premium fines annually. A new 65.5% Fe DRI-grade lump product is under development.
- **Key Product Highlights**
  - **Kumba Premium Lump:** High hardness and metallization; test results suggest optimal use at 20%, with customers using up to 30% in DRI.
  - **Minas-Rio Pellet Feed:** ~68% Fe content; highly suitable for both blast furnaces and DRI plants.
- **Third-Party Sourcing**
  Anglo American is augmenting its portfolio with third-party high-grade products, forming strategic partnerships with companies like Grängesberg Iron and Black Iron to ensure supply diversity.
- **Sustainability Leadership**
  Anglo is the first major producer to achieve **IRMA 75 certification**, reflecting its commitment to transparent and responsible mining practices.

- **Innovation & Collaboration**
  The company is actively investing in decarbonization tech—partnering with steelmakers and supporting startups like **Helios** and **Limelight** to develop novel carbon reduction solutions in steelmaking.

Session: Final Panel – Ironmaking and Energy: Confronting Today's Costs and Constraints

Speakers: Andrew Wells (Moderator) Editorial & Pricing Director, Fastmarkets, Thiago Campos, Head of Green Steel, SMS Group, John Gordon, Senior Vice President, Raw Materials and Sustainable Resources, US Steel, Michael Lovgren, Head of Metallics, Stegra, Tanja Ilij, CCO, GreenIron, Gilles Calis, Steel Consult

Summary

The closing session combined insightful presentations from Tanya Ilich and Gilles Calis with a lively panel discussion featuring major players across the green steel ecosystem. Together, they explored the economics, infrastructure, and partnerships required to bring green steel to scale—while grappling with ongoing cost and policy challenges.

Key Takeaways from Tanja Ilij (GreenIron)

- **Hydrogen DRI in Practice**
  GreenIron is already producing hydrogen-based DRI in Sandviken, Sweden. Tanya emphasized the importance of "starting small and scaling smart" using modular, flexible technologies.
- **Green Hydrogen Bottlenecks**
  Securing reliable, low-cost green hydrogen remains a key challenge. Tanya called for broader industry collaboration and strategic partnerships to build a viable hydrogen value chain.
- **Infrastructure as a Limiting Factor**
  Grid stability, water access, and affordable electricity are essential to expanding hydrogen-based ironmaking. GreenIron's modular approach allows operations to adapt to grid capacity and intermittent renewable energy.

Key Takeaways from Gilles Calis (Steel Consult)

- **Emissions vs. Output Decline**
  Europe's 37% CO_2 reduction over the past two decades has stemmed more from declining output than true efficiency gains—highlighting the need for deeper structural change.

- **CO_2 Costs Becoming Critical**
  Carbon costs already account for ~20% of EBITDA margins for EU steel mills, and this will rise sharply as free emissions allowances are phased out.
- **Cost Competitiveness Gap**
  Blast furnace routes remain more cost-effective than green steel today. However, by 2034, rising CO_2 prices could tip the scales toward hydrogen-based production.

Panel Discussion Highlights

- **Partnerships & Ecosystem Thinking**
  Tanja reiterated that no single company can decarbonize alone—cooperation across energy, technology, and policy sectors is essential.
- **Green Hydrogen Economics**
  Panelists agreed that price parity for green hydrogen is crucial to unlocking commercial-scale green steel. Long-term investment and political stability will be key.
- **Government Support is Pivotal**
  Public funding, regulatory certainty, and infrastructure investment were cited as necessary for building a competitive green steel industry in Europe and beyond.
- **Strong Demand, Lagging Supply**
  Michael noted that while green steel demand is robust, supply has slowed—underscoring the need for predictable green premiums and harmonized trade policies.

This session closed the conference day on a forward-looking note, reinforcing that decarbonizing steel is not just a technological challenge, but a systemic one - requiring cross-industry collaboration, policy alignment, and bold innovation.

Day Two – 18th of June

Session: Iron Ore Pricing and Supply Update

Speaker: Norman Fong, Senior Price Reporter, Steelmaking Raw Materials, Fastmarkets

Summary

Norman Fong opened Day Two with a detailed pricing outlook, exploring the factors driving international iron ore prices through the first half of 2025. He focused on the downward pressure from weak steel margins, shifting procurement patterns, and regional supply dynamics, while also highlighting new index developments and anticipated market headwinds.

Key Takeaways

- **Iron Ore Prices Fall Below $100/t**
  After peaking in February, seaborne prices have stabilized between $90–105/t. Weak downstream demand and pressure on steel mill margins are driving more price-sensitive procurement.
- **Procurement Shift to Low-Grade Ores**
  With narrowing 65/62 spreads and falling margins, mills are increasingly opting for lower-grade, lower-cost ores. High-grade iron ore consumption is down across both DR and blast furnace markets.
- **Pellet Premiums Under Pressure**
  Depressed margins, rising inventories, and weak steel demand have slashed pellet and pellet feed premiums. Vale cut Q3 premiums for DR and BF pellets by $10 and $8/t respectively.
- **Short-Term Rebounds & Disruptions**
  Some late Q2 rebound in pellet feed premiums was observed due to supply disruptions in Peru and increased spot demand for high-grade feed, but these are expected to be short-lived.
- **New Fastmarkets Indices**
  Fastmarkets introduced a new 61% Fe index from June 2025 to reflect the growing share of medium-grade ores in the market.
- **Anticipated Price Movers (2H 2025 & Beyond)**
  - Stronger Australian shipments expected.
  - Simandou's ramp-up will exert long-term pricing pressure.
  - CBAM's full rollout may reshape demand and establish green premiums.
  - Chinese exposure to global trade restrictions (e.g., anti-dumping cases) could weigh on steel demand and IO pricing.

Session: European Steel Market Trends & 2026 Outlook

Speaker: Alexandre Claude, CEO, DBX Commodities

Summary

Alexandre Claude provided a data-driven overview of the European steel market, combining real-time satellite tracking and economic indicators to assess the state of production, imports, and future pricing. He highlighted improving margins and mill

restarts across the region, while cautioning against short-term volatility from trade tensions and global demand uncertainty.

Key Takeaways

- **European Steel Prices Rebound**
  Hot-rolled coil (HRC) prices rose to $689/t, supported by Germany's infrastructure and defense stimulus. However, U.S. Section 232 tariffs on EU steel threaten 16% of exports, potentially capping further price gains.
- **Margins Strengthen**
  Proxy margins surged to €243/t (from €85/t a year earlier), driven by lower raw material costs and a stronger euro. This has enabled several mill restarts across Germany, Italy, Belgium, Poland, and Spain.
- **Mill Restarts and Capacity Utilization**
  DBX satellite data confirmed increased activity at seven ArcelorMittal sites across Europe. Regional capacity utilization rose to 82% in April 2025—above Japan and Korea but still below the global average of 87%.
- **Iron Ore & Met Coal Imports Stabilizing**
  EU iron ore imports have held steady at ~6 Mt/month, led by the Netherlands, Germany, and France. Supply is sourced mainly from Brazil and Canada. Met coal imports (~3 Mt/month) are growing modestly, with nearly 50% from Australia and the rest from the U.S.
- **Macroeconomic Headwinds Persist**
  - German auto production remains sluggish, facing increased Chinese competition.
  - EU manufacturing PMI ticked up to 49.4 in May but remains in contraction territory.
  - Currency volatility and inflation pose risks to profitability.
- **2026 Outlook**
  - **Short Term:** Steel prices likely to remain flat due to weak global demand and low input costs.
  - **Medium Term:** Infrastructure investment in emerging markets could lift demand, but rising raw material costs may constrain margin recovery.
  - Vertically integrated producers are best positioned to weather volatility.

Session: Bracing for CBAM – What It Means for Iron and Steel

Speaker: Stuart Evans, Chief Economist and Head of Environmental Markets – Carbon, Fastmarkets

Summary

Stuart Evans gave an in-depth briefing on the Carbon Border Adjustment Mechanism (CBAM), focusing on its implementation timeline, cost implications for steel imports, and the challenges facing global trade partners. His analysis emphasized the scale of impact on the iron and steel sector and the high variability in emissions intensity across exporting countries.

Key Takeaways

- **CBAM Timeline & Coverage**
  CBAM is the EU's mechanism to price carbon on imported goods, aligning them with the EU Emissions Trading System (ETS). It enters full effect in 2026, with certificate purchases starting in 2027. Covered sectors include iron and steel, aluminium, cement, fertilizers, electricity, and hydrogen.
- **Free Allowances Phased Out**
  EU ETS free allowances will be gradually removed for CBAM-covered sectors. For iron and steel, the coverage drops from 97.5% in 2026 to 0% by 2034, increasing carbon cost exposure.
- **Iron & Steel: The Most Affected Sector**
  - Iron and steel is the **largest sector by import value** affected by CBAM.
  - It has the **third-highest effective tariff rate** under CBAM.
  - The sector experiences the **widest range of emissions intensity**, leading to cost volatility.
- **CBAM Costs Could Exceed Import Values**
  For some high-intensity steel products, CBAM costs in 2035 could exceed the value of the imported goods. Fastmarkets modeling shows potential CBAM cost shares of over 100% in extreme cases.
- **Asian Suppliers Face Highest Costs**
  India, Russia, Ukraine, and China together are expected to bear more than 50% of total CBAM-related steel costs by 2030. India is most exposed, with high volumes and high emissions intensity. The U.S., by contrast, faces lower exposure due to its cleaner production profile.

- **Uncertainty and Risk**
  Key uncertainties include:
    - EUA price volatility
    - Indirect emissions inclusion
    - Policy changes around export support and emissions benchmarks
    - Third-country responses (e.g., carbon pricing, WTO challenges, retaliation)
    - Potential future CBAM expansions to new products and upstream materials

This session underscored the transformative - and disruptive - potential of CBAM for global iron and steel trade. As it stands, producers with higher emissions intensity and limited abatement options will be at a distinct disadvantage in the EU market.

Session: Regional Spotlight – Scandinavia, Southeast Asia & Africa

Speaker: Chris Bandmann, Senior Research Analyst, Wood Mackenzie

Summary

Chris Bandmann provided a global tour of key developments in green steelmaking and iron ore supply across three critical regions: Scandinavia (as a green steel pioneer), Southeast Asia (as an emerging steel production hub), and Africa (as a source of high-grade iron ore with strategic significance). His presentation underscored the geographic diversification of supply chains and the industrial shifts shaping steel's low-carbon future.

Key Takeaways

Scandinavia – Green Steel First Movers

- **HYBRIT Joint Venture (LKAB, SSAB, Vattenfall):**
  Aims to commercialize fully fossil-free steel production, from pelletizing to EAF steelmaking using hydrogen-based DRI.
    - December 2024: Permit secured for EAF construction at SSAB's Luleå site.
    - February 2025: Hydrogen gas storage proven viable.
    - Commercial-scale launch targeted by 2026; full scale by 2030.
    - €265 million in EU state aid supports development.

- **Stegra:**
  Previously H2 Green Steel, this project will produce H2-DRI from renewable power.
    - Multiple electricity agreements signed (Axpo, Uniper).
    - Test pellet deliveries with LKAB begin end-2026.
    - Expansion planned beyond Sweden into Portugal, Brazil, the U.S., and Canada.

Southeast Asia – Steel Onshoring & Demand Growth

- **Rapid Steel Output Growth Expected:**
  As Chinese production plateaus, Southeast Asia will drive BF-BOF growth with strong project pipelines in Vietnam, Indonesia, Malaysia, Thailand, and the Philippines.
- **Scrap Demand Rising:**
  Alongside increased crude steel output, the region will see substantial growth in demand for scrap and ore-based metallics to support long-term decarbonization.

Africa – Untapped Potential in High-Grade Iron Ore

- **Simandou, Guinea:**
  One of the world's largest untapped high-grade iron ore deposits.
    - Estimated 120–180 Mt annual capacity; >65% Fe grade.
    - $15+ billion total investment with backing from Rio Tinto and Baowu.
    - Rail and port infrastructure well underway; first shipments expected by end-2025.
- **Blending Strategy:**
  Simandou ore could be blended with lower-grade Pilbara material to meet DR-grade thresholds, supporting the green steel supply chain and extending Pilbara mine life.
- **Other Emerging Projects:**
    - **Belinga (Gabon):** 65% Fe, linked to Fortescue.
    - **Zanaga (Congo):** 68% Fe pellet feed potential with a 30 Mtpa phased plan.
- **South Africa:**
  Faces long-term structural challenges: logistics constraints, unreliable power,

and declining competitiveness in the Chinese market. Kolomela and Sishen mines expected to wind down by 2040.

This session highlighted how geographic diversification—both in demand and supply—is transforming the iron ore and green steel landscape. Regions like Scandinavia and Southeast Asia are leading the transition to low-emission production, while Africa may become a vital source of premium-grade ore to fuel that shift.

Presentation: Canada's role in the future of iron ore

Speaker: François Lavoie, Senior Vice President Sales, Technical Marketing & Product Development, Champion Iron

Summary

François Lavoie presented Champion Iron's strategic roadmap for supplying high-grade, low-emission iron ore from Canada to support the global transition to green steel. He detailed the company's DR Pellet Feed (DRPF) upgrade project, current operations, and Canada's unique positioning as a secure and sustainable source of premium iron ore.

Key Takeaways

Canada's Strategic Role in Green Steel

- **Classified as a Critical Mineral:**
  High-purity iron ore is now officially recognized as a critical mineral by the federal government and provincial authorities in Québec and Newfoundland & Labrador — reflecting its importance in decarbonizing the steel industry.
- **Responsible Production, Low Emissions:**
  Champion Iron's operations benefit from access to hydroelectric power, resulting in some of the **lowest scope 1–3 emissions per tonne** of iron ore in the world. This positions Canadian supply as a premium, responsible option.
- **Proximity to Key Markets:**
  Year-round deep-water port access and reduced shipping distances offer logistical advantages and lower Scope 3 emissions to major markets in Europe and MENA.

Champion Iron's High-Grade Portfolio

- **Bloom Lake Operations:**
  Produces high-grade concentrate (66.2% Fe) with scalable infrastructure to support DR-grade production.
- **DRPF Project (Direct Reduction Pellet Feed):**

  - Scheduled to begin production in **December 2025**.
  - Will deliver **7.5 Mtpa of ultra-high-grade DR pellet feed (69% Fe)**.
  - As of March 2025: 60% completed, C$339.6M invested (from a total C$470.7M capex).
  - Features low moisture content for safer and cleaner transportation and processing.

- **Product Performance:**
  - Excellent green pellet strength and reducibility for DRI use.
  - Supports high productivity and air quality in downstream operations.

Growth Pipeline and Exploration

- **Kami Project:**
  Under study for production of 9 Mtpa of DR-grade pellet feed. Benefits from pre-existing permitting and infrastructure.
- **Portfolio Depth:**
  Champion controls **7 properties within 60 km of Bloom Lake**, with significant exploration expenditures across FY23–24.

Global Context & Outlook

- **DRI Demand Soaring:**
  Global DRI production is projected to reach 277 Mtpa by 2035, with pellet feed demand climbing to 325 Mtpa. Europe and MENA remain key demand centers.
- **Canada's Formula for Green Steel:**
  Champion Iron combines critical mineral status, world-class ore quality, ESG leadership, and favorable logistics to emerge as a **foundational supplier of DR-grade feedstock** for the global green steel industry.

Presentation: Cold Iron Ore Briquettes – Low Carbon Innovation from Vale

Speaker: Débora Gracio, Market and Business General Manager – Iron Ore Briquettes, Vale

Summary

Débora Gracio presented Vale's Cold Iron Ore Briquette as a transformative, low-carbon solution for both BF and DRI steelmaking routes. Developed over 20 years and patented in 65 countries, the technology offers substantial CO_2 savings while maintaining excellent handling and metallurgical performance. She shared updates on production

milestones, client trials, and business models designed to support flexible, scalable adoption worldwide.

Key Takeaways

Technology Overview

- **Proprietary Cold Agglomeration Process**
  Unlike traditional pelletizing or sintering, Vale's cold briquetting uses no water or high-temperature firing, delivering up to **70% lower emissions in agglomeration** and a **10% emissions reduction in BF-BOF routes** when replacing sinter.
- **Operational and Environmental Benefits**
  - Comparable or superior performance to lump, sinter, or pellets
  - No water needed in processing
  - Minimal SOx, NOx, and particulate emissions
  - Circular economy benefits through byproduct inclusion
- **Versatile Applications**
  Suitable for blast furnaces and direct reduction routes with high productivity and durability. Already tested with multiple clients.

Production Progress

- **BT01 – Fixed Plant in Tubarão, Brazil**
  - Launched in December 2023 (2 Mtpa capacity)
  - Initial production prioritized quality and process learning
  - Second plant (BT02) postponed to implement identified improvements
  - Product already being used by domestic clients
- **BM01 – Mobile Briquetting Plant**
  - Operational since September 2024
  - Capacity of 160–200 ktpa
  - Compact, modular layout allows flexible deployment (3000–4000 m^2 footprint)
  - Product meets performance and waterproofing criteria

Client Trials & Product Validation

- **BF Trials:**

  - One client ran 10 months with 60% briquette burden—good performance
  - Ongoing trial testing 100% briquette burden
  - A second client is scaling up to 30% briquette usage
- **DRI Trials:**
  - Briquettes showed superior reduction degrees in less time compared to pellets in flash furnace testing
  - Undergoing final validation for full-scale use

Business Models for Scale-Up

- **Model 1:** Sell briquettes as a finished product (traditional approach)
- **Model 2:** Co-locate briquetting units inside customer sites
- **Model 3:** Develop hubs next to concentration plants for DR-grade output

Vale's cold briquetting initiative reflects a powerful convergence of emissions reduction, operational flexibility, and collaborative innovation. As deployment scales, the technology could redefine how iron ore is prepared for the green steel transition - offering tailored business models to fit diverse customer needs.

New Mines Update

Presentation: Kon Kweni – Guinea's New High-Grade Iron Ore Opportunity

Speaker: Melinda Moore, VP Innovation & Commercial Development, Ivanhoe Atlantic

Summary

Melinda Moore introduced the **Kon Kweni iron ore project**, a promising new high-grade development located in southern Guinea, near the Liberia border. The project positions Ivanhoe Atlantic as a future global supplier of premium iron ore for both blast furnace and electric arc furnace (EAF) markets. Emphasizing purity, proximity to infrastructure, and long mine life, Kon Kweni offers flexibility for green steel supply chains amid rising demand for DR-grade feed.

Key Takeaways

Resource Overview

- **750+ Mt Total Resource**
  - Includes a **209 Mt high-grade core** with **67.8% Fe**, low impurities
  - Resource verified by SRK under both JORC and NI 43-101 standards

- **Long Mine Life & Phase Development**
    - Phase 1: DSM (Direct Shipping Material) fines product
    - Phase 2: DSO (Direct Shipping Ore) expansion and DR-grade concentrate targeting green steel applications

Strategic Location & Infrastructure

- **Near Liberia Border:**
    - <46 km haul road to operating Tokadeh rail head
    - <240 km rail to Buchanan Port (existing, standard gauge)
    - Part of broader **West African infrastructure corridor**
- **Hydropower Access & Sustainability Potential**
    - Regional hydropower network enhances sustainability of operations and positions Kon Kweni as a **low-emissions supply source**
- **Permitting in Place**
    - Presidential Decree signed in 2019
    - Cross-border transport approved
    - Rail and port access agreements under negotiation

Market Positioning & Flexibility

- **High Purity = Cost & Emissions Savings**
    - Exceptional chemical properties:
        - Fe: 67.8% (core)
        - Low silica, alumina, phosphorus, and sulfur
    - Supports both BF and EAF use, enabling tailored products for global buyers
- **Positioned for Green Steel Era**
    - Suitable for use in **DRI pelletizing** and **blast furnace burden blending**
    - Designed to serve evolving demands from Europe, MENA, and Asia for high-grade, low-carbon raw materials
- **Growth Path to 30 Mtpa Production**

- Ivanhoe Atlantic targeting scalable, globally significant supply with a focus on long-term commercial partnerships

Ivanhoe Atlantic's Kon Kweni project emerges as a new-generation West African iron ore asset with the geological quality, infrastructure access, and strategic vision to support global green steel supply chains. Its flexibility across steelmaking routes and regulatory progress position it as a major contender in the high-grade ore segment.

Presentation: GRANGEX – Update from Scandinavia

Speaker: Hans Nilsson, Head of Marketing & Logistics, GRANGEX

Summary

Hans Nilsson presented an update on GRANGEX's two flagship ultra high-grade magnetite projects—**Sydvaranger** and **Dannemora**—highlighting their strategic role in supplying DRI-grade iron ore for green steelmaking. With robust technical and economic fundamentals, strong local support, and a deepening partnership with Anglo American, GRANGEX is positioning itself as Europe's leading independent developer of premium iron ore.

Key Takeaways

GRANGEX at a Glance

- **Europe's Largest Independent DRI-Grade Magnetite Developer**
- Fully permitted for both Sydvaranger (Norway) and Dannemora (Sweden)
- 98.5% ownership of Sydvaranger and 100% of Dannemora
- Strategic offtake and financing partnership with Anglo American
  - $27M in royalty financing
  - $25M in project financing
  - Full life-of-mine offtake for Sydvaranger
  - Ongoing technical and commercial collaboration

Sydvaranger Project (Norway)

- **Production Target:** Restart in 2026, with commercial production in early 2027
- **Product:** Ultra-high-grade DR magnetite concentrate (70% Fe, <3% gangue)
- **Life of Mine:** ~19 years (15 years steady-state)
- **Scale:** 4 Mtpa DRI-grade production goal

- **Logistics Advantage:**
  - Six sailing days from Kirkenes Port to key EU steelmakers
  - World-class infrastructure with $250M invested since 2008
- **Environmental & Social Impact:**
  - Strong community support
  - Indigenous Sami partnership agreement
  - Alternative tailings disposal under review
- **Permitted & Fully Funded to FID**
  - Final Investment Decision and financing expected in H2 2025
  - Ramp-up to follow with operations ready for 2026 launch

Dannemora Project (Sweden)

- **Fe Content:** 68% concentrate—DRI-suitable
- **Development Timeline:** To follow Sydvaranger restart
- **2024 DFS Highlights:**
  - 11-year life of mine
  - $269M pre-tax NPV (8%)
  - 25.6% unlevered IRR
- **Annual Production:** ~1.1 Mtpa at full ramp-up

Strategic Context

- **Green Steel Readiness:**
  - Only ~4% of global production meets DR-grade threshold
  - New Fastmarkets price index (67.5% Fe) underscores shift in market focus
- **GRANGEX Positioned for Premium Supply:**
  - EU Critical Raw Materials Act doesn't currently differentiate between BF and DR grades
  - GRANGEX advocating for policy recognition of product value
  - Ready to meet surging demand for high-purity feed from EU and global EAFs

GRANGEX's portfolio, backed by Anglo American, is built to fill the widening supply gap in premium iron ore for decarbonized steel. With financing in motion, permits secured, and production near, the company is a central player in Europe's green steel supply chain strategy.

Presentation: New Mines Update – Planalto Piauí Project

Speaker: Augusto Lopes, CEO, Bemisa

Summary

Augusto Lopes presented an update on Bemisa's flagship **Planalto Piauí Project**, a premium magnetite iron ore development in northeast Brazil. Designed to meet the rising demand for DRI-grade pellet feed, the project boasts world-class resource scale, high product quality, and integrated logistics for export to Europe and MENA. With permitting secured and infrastructure underway, Planalto Piauí is positioned to be a key contributor to the global green steel value chain.

Key Takeaways

Project Overview:

- **Location:** Piauí State, Brazil, near the Transnordestina Railway
- **Product:** Premium Pellet Feed
    - **Fe:** 70.4%
    - **SiO_2:** 2.24%
    - **Al_2O_3:** 0.16%
    - **P:** 0.01%
- **Process:** Cold beneficiation with dry stacking; no tailings dams
- **Sustainability:** Supported by nearby wind farms and hydropower infrastructure

Resource Base and Scale:

- **Total Resources:** 1.6 billion tonnes of magnetite
    - **Certified (SRK, NI 43-101):** 1.2 Bt (resource), 0.7 Bt (reserves)
- **Recovery:** 31.3% beneficiation mass yield
- **Annual Production Target:** 15 Mtpa of premium pellet feed

Product Attributes:

- High Fe grade and exceptionally low impurities
- Tested and validated for **pelletization and DRI suitability** in Germany (SGA)
- Strong performance in furnace efficiency and energy savings
- Aligned with global decarbonization and green steel targets

Permitting and Development Status:

- **Mining Concession and Installation License:** Issued
- **Pre-Feasibility Study:** Conducted by SRK
- **Basic Engineering:** Completed by Ausenco
- **Water Resources:** Guaranteed supply from Poço de Marruá Dam with approved abstraction

Logistics and Export Options:

- **Dual Port Access:**
    - **Pecém Port:** 807 km via Transnordestina (430 km built; completion expected by 2027)
    - **Suape Port:** 717 km with leased iron ore terminal (365 km built; part of national PAC infrastructure plan)
- **Railway Connectivity:** Just 6 km from Transnordestina rail line

Strategic Positioning:

- Positioned to supply the **premium DR pellet feed segment**
- Combines **scale, grade, and ESG performance**
- One of the few Brazilian projects directly targeting DRI-based green steel production
- Backed by **Bemisa**, a diversified mining group owned by Opportunity, with a portfolio of 22 projects across 8 minerals

Planalto Piauí is emerging as one of Brazil's most promising new premium iron ore projects, designed from the ground up to support the low-carbon steel transition through superior product quality and sustainable development practices.

Session: Comparative Analysis of Ironmaking Feedstocks – DRI Pellets, Briquettes & Beyond

Speaker: Gilberto Cardoso, CEO, Tarraco Commodities Solutions

Summary

Gilberto Cardoso delivered a strategic overview of how steelmakers can gain competitive advantage in the green steel transition by mastering iron feedstock selection. He explored supply constraints, emissions profiles, cost dynamics, and infrastructure bottlenecks across feedstock types—highlighting why DR-grade materials will define decarbonization leadership in the coming decade.

Key Takeaways

Feedstock Choice = Strategic Differentiator

- **Steel = 7–9% of Global CO_2**
  Shifting to low-carbon steelmaking—via **DRI, EAFs, and more scrap**—makes feedstock selection a top strategic priority.
- **Feedstock Portfolio Must Diversify:**
  DR-grade pellets, HBI, scrap, and cold briquettes will coexist. Each has unique properties in terms of reactivity, handling, and emissions.

What Defines DR-Grade Iron Ore?

- **Specifications Matter:**
  - ≥67% Fe
  - <5% gangue
  - Extremely low phosphorus and sulfur
  - High porosity and reducibility (especially for H_2-DRI)
- **Impurity Sensitivity:**
  DRI processes produce no slag—so impurity tolerance is minimal. Premium pricing reflects technical requirements.

Performance & Trade-Offs:

- **Metallization & Handling:**
  - DR Pellets: ~94–95%
  - Vale Cold Briquettes: ~98%
  - HBI: Fully metallized

    - Scrap: Most energy-efficient but highly volatile in price

- **Handling Hierarchy:** HBI > pellets > lump > cold DRI
  Consider transport safety, storage, and durability.

Market Outlook & Supply Bottlenecks

- **DR-Grade Pellet Supply Shortfall Likely by 2030**
  DRI and HBI project build-outs (in MENA, Europe, Brazil) outpacing upstream DR-grade supply growth
- **Lump Ore Expansion Limited**
  Few new high-quality lump ore projects; cold agglomeration could partially fill the gap
- **Infrastructure & Pelletizing Capacity Are Constraints**
  Building out high-quality pelletizing facilities is a long-lead challenge

Cost & Carbon Footprint of Feedstocks

- **Comparative Emissions (tCO_2 per tonne of steel):**
    - BF-BOF: ~2.3
    - NG-based DRI: ~1.4
    - Scrap-EAF: ~0.7
    - H_2-DRI: ~0.2
- **Cold Briquettes:** Cut pelletizing emissions by ~80%
- **Scrap Volatility:** Creates planning risk for EAF steelmakers

Strategic Implications for Steelmakers

- **Secure Long-Term DR-Grade Supply:**
  JVs, long-term contracts, and upstream investments becoming essential
- **Hybrid Pathways Emerging:**
  Mixes of DRI-EAF and BOF blends will allow staged decarbonization
- **HBI Hubs Rising:** MENA, Brazil, and Australia to lead global exports

Conclusion

"Feedstock leadership is decarbonization leadership."

Gilberto urged steelmakers to act now—strategically align with suppliers, invest in DR-grade capacity, and adapt feedstock choices based on emissions, cost, and availability to win in the race for sustainable steel.

Panel Session: China – How Are Changing Consumption Patterns Affecting Global Iron Ore Trade Flows?

Moderator: Miriam Falk, Fastmarkets

Panellists: Julian Ho, Had of China Iron Ore, Vitol, Melinda Moore, VP Innovation & COmmercial Development, Ivanhoe Altantic

Summary

This panel explored how shifting economic fundamentals in China—slowing construction, rising labor costs, and a transition toward a service-based economy—are reshaping the global iron ore market. Participants examined procurement trends, evolving steel production routes, and the implications for major exporters like Australia and Brazil.

Key Takeaways

1. China's Structural Shift is Dampening Iron Ore Demand

- **Construction Slump:**
  Despite policy interventions, China's real estate sector continues to underperform.
    - April 2025 floor space starts fell **22.3% YoY**
    - Starts are now **56.4% below the six-year average**
    - This sustained weakness is pulling down iron ore consumption
- **Industrial Slowdown:**
  Economic transition away from heavy industry and manufacturing toward services and technology sectors is reducing raw material intensity.

2. Changing Steel Production Dynamics

- **BF-BOF Still Dominates (90%)**
    - Highly dependent on iron ore and coking coal
    - Preferred route for high-quality flat products in manufacturing and infrastructure
- **EAF Gaining Slowly (10%)**
    - More flexible and energy-efficient, but adoption is hindered by:
        - Volatile electricity prices
        - Limited availability of high-quality scrap

        - Grid infrastructure and regulatory barriers

- **Margins Under Pressure:**
  Steelmakers face sustained negative margins despite lower input prices.
    - Many are **cutting costs by switching to lower-grade iron ore fines**
    - Diversifying downstream customer bases to spread risk

3. Procurement Patterns and Global Trade Shifts

- **Diversification of Imports:**
    - China remains the largest importer of iron ore globally, but:
        - Share of **Brazilian and Australian ore is falling**
        - Mills sourcing more from **'Others'**—including Africa, India, and Southeast Asia
        - Strategic aim: hedge against supply concentration and grade deterioration
- **Australia:**
    - Shipments continue to rise (up four consecutive years)
    - But **ore grades are declining** and **impurities are increasing**
- **Brazil:**
    - 2024 exports at their **highest since 2018**, aided by stable production and logistics

4. China's Decarbonization Dilemma

- **DRI Projects on the Rise, but Small in Scale:**
    - Announced DRI capacity is growing but still **limited relative to BF investments**
    - Most green steel development remains at pilot or demonstration phase
- **Policy vs. Practice Tension:**
    - China has pledged **carbon neutrality by 2060**, but continues to **build BF capacity**
    - Reflects near-term economic growth goals outweighing decarbonization timelines

This panel highlighted how China's evolving economy is causing a fundamental rethink in global iron ore flows. For suppliers, it means adjusting to a more fragmented and quality-sensitive market. For the steel industry, it underscores the complexity of decarbonization in the world's largest steel-producing country.

Session: Technology Focus – Innovative Iron Ore Processing Solutions

Speakers: Tom Brown, Head of Business Development, Binding Solutions, Michael Masterman, Founder/CEO, Element Zero
Moderator: Rutger Gyllenram, CEO, Kobolde

Summary

This session highlighted two breakthrough approaches to decarbonizing iron ore processing: **cold agglomeration** from Binding Solutions, and **low-temperature chemical reduction** from Element Zero. Tom Brown emphasized near-term scalability and flexible pellet supply for DRI and blast furnace use, while Michael Masterman addressed long-term transformation through energy-efficient, geopolitically resilient green iron production. The Q&A, moderated by Norman Fong, explored emissions reductions, CapEx, and competitive positioning across technologies.

Key Takeaways

Binding Solutions – Cold Agglomeration for Near-Term Decarbonization

Tom Brown presented a modular, low-capital pelletizing process aimed at increasing high-quality pellet supply without the emissions and cost of traditional induration.

- **Low-CapEx Deployment**:
  Pellet plants can be built for **$30–40M per 1Mtpa**, scalable from 0.5 Mtpa upwards—dramatically cheaper than conventional plants.
- **Meets DRI and BF Standards**:
  Pellets perform well on both **ISO and non-ISO tests** (e.g. HOSIM, brass testing). Results include:
  - **98% metallization**
  - Low fines generation
  - No sticking in basket tests
- **Successful Trials**:
  - DRI basket tests at HYL North America
  - BF trial at **British Steel** (8% burden share) with promising performance

    - Joint report with British Steel to be released October

- **Expansion Plans**:
    - Building **50 t/h demonstration plant** at HES Botlek (Rotterdam)
    - Backed by Mitsui, Champion Iron, and green fund Kotec
    - Signed multiple MOUs with miners and traders for global rollout

"We're agnostic to DRI vs BF—we're solving for both with a near-term, lower-emissions, flexible feedstock."

Element Zero – Chemical Reduction for Long-Term Disruption

Michael Masterman introduced Element Zero's approach to producing **green iron at low temperatures (<150°C)** using chemical reduction of hematite—Australia's dominant iron ore type.

- **Massive Emissions Potential**:
  Steel accounts for **29% of global industrial CO_2**. Element Zero aims to eliminate emissions at the ironmaking stage, which is the largest contributor.
- **Process Advantages**:
    - Operates at low temperatures
    - Minimal electricity requirement
    - Suitable for **hematite**, which makes up 97% of Australia's iron ore exports
- **Geopolitical Context**:
  95% of Australia's iron ore goes to China. There is rising pressure (especially from the U.S.) to diversify and localize supply chains. Element Zero positions its technology as a **sovereignty-enhancing alternative**.
- **Economic Upside**:
  Converting 100Mt of 58% Fe ore into 98% Fe green iron increases product value from **$8B to $31B**
  – and saves **~150Mt of CO_2**

"Green iron is both an emissions imperative and a geopolitical opportunity."

Joint Discussion – Moderated by Rutger Gyllenram

- **Low-Temperature Advantage**:
  Both technologies highlighted the benefits of **avoiding high-heat processing**, which dominates traditional pelletizing and reduction routes.
- **Different Models, Same Goal**:

  - **Binding Solutions** focuses on enabling miners and steelmakers to share value and quickly increase high-performance pellet supply.
  - **Element Zero** aims to **transform the value chain** by offering a new upstream product altogether.

- **Complementary Technologies**:
  Both speakers acknowledged that the global green steel transition will need **multiple solutions**, across timeframes and geographies.

Day Three – 19th of June

Green Steel Outlook & Market Realities

Speaker: Paolo Frediani, Senior Price Reporter, Fastmarkets

Paolo Frediani opened the final day with a clear-eyed overview of what "green steel" really means in practice. He stressed that green steel is not a single product but a broad effort to reduce carbon emissions across processes. Despite nearly 50 million tonnes of green steel capacity announced in Europe, he projected only around 20 million tonnes would be operational by 2030.

Key challenges remain around market confidence and pricing:

- In the U.S., buyers are still largely unwilling to pay a green premium.
- Clarity, consistency, and incentive mechanisms will be essential to scale investment and adoption.

Challenges from the Frontlines: Celsa's Perspective

Speaker: Alex Gordienko, Export Director, Celsa Group
Interviewer: Julia Bolotova, Senior Price Reporter, Fastmarkets

Alex Gordienko shared the challenges faced by long-products EAF producers like Celsa:

- **Policy Support Gap:** Most government funding still targets BOF pathways—EAFs are overlooked despite being more energy-intensive.
- **Green Definitions Evolving:** Standards for green long products are shifting rapidly, with pressure mounting to lower carbon thresholds.
- **Cost Pressures:**
  - High electricity prices and CBAM uncertainty threaten competitiveness.

- Scrap quality - particularly low-copper grades- is becoming a growing concern.

Engineering Green Steel Solutions

Speaker: Christoph Aichinger, Head of Agglomeration Business, Primetals

Aichinger laid out how Primetals is evolving from an equipment supplier to a full-process engineering partner for green steel. His focus areas included:

- **Pellet Flexibility:** Enabling variable DR-grade production from different ores.
- **Digital Design:** Advanced simulation tools help tailor end-to-end green steel flows.
- **Integrated Analysis:** From ore characterization to liquid steel output, Primetals is building the full green steel value chain model.

Scrap Supply in a Decarbonizing World

Speaker: Lee Allen, Strategic Markets Editor, Scrap, Fastmarkets

Allen examined scrap's growing importance - and limitations - in decarbonized steelmaking:

- Scrap offers **up to 58% CO_2 savings**, but:
  - Export restrictions, weak collection infrastructure, and global policy divergence are increasing constraints.
  - EU rules like the Waste Shipment Regulation and potential export tariffs may distort global scrap trade.
- Despite challenges, scrap's share in steelmaking is expected to rise significantly by 2050.

Green Steel Standards: Evolving Frameworks and Tensions

Panel Moderator: Andrew Wells, Editorial & Pricing Director, Fastmarkets
Panellists: Paulo Carvalho, Managing Director, DecarbValue Limited, Caroline Ashley, Executive Director, SteelWatch, John Atherton, Secretary General, International Metallics Association

This panel tackled one of the summit's most pressing issues: the lack of a unified framework for green steel.

Key themes included:

- **Traceability and Digital Passports:** Atherton advocated for adaptive standards that evolve with technology.
- **Investor Clarity:** Carvalho called for better harmonization to unlock green steel financing.
- **Credibility at Risk:** Ashley criticized certificate-only models, calling for physically measurable decarbonization.
- The panel agreed: without clearer, enforceable definitions, buyer trust and long-term investment will falter.

Fireside Chat: Understanding Green Steel Demand – a Ferroalloys Perspective

Speaker: Antonio Salinas, Consultant, LS Alloys
Interviewer: Julia Bolotova, Senior Price Reporter, Fastmarkets

Salinas provided an early look into the emerging green ferroalloys sector:

- **Definitions Still in Progress:** No industry-wide standard exists yet.
- **Buyer Interest Is Growing:** But premiums are still rare.
- **Certification & CBAM Impact:**
    - Producers are working with certification bodies to document emissions.
    - CBAM is already influencing purchasing behaviour - low-CO_2 sources are now a preference for European buyers.

Conference Overview & Closing Reflections

Over three days in Barcelona, the Fastmarkets International Iron Ore & Green Steel Summit 2025 brought together global leaders across mining, steelmaking, technology, and policy to confront the realities of decarbonizing the steel industry.

Day One highlighted the shifting fundamentals of iron ore pricing, the commercial implications of DR-grade supply gaps, and the rapid development of low-emissions feedstocks. The industry is at a critical inflection point: new price benchmarks are emerging, while downstream demand for high-purity iron ore is accelerating faster than supply can respond.

Day Two explored how CBAM, carbon pricing, and traceability are reshaping the commercial landscape. Speakers presented tangible innovations - from cold agglomeration and electrochemical iron to scalable magnetite projects - and underscored the urgency of aligning upstream investments with downstream decarbonization goals.

Day Three turned to the broader system changes required for success: credible green steel definitions, adaptive standards, policy support for EAFs, and the strategic role of scrap. Across sessions, the message was clear - clarity, coordination, and credible action must accelerate if the sector is to meet its 2030 climate ambitions.

The Conference closed with a sense of both urgency and possibility. Decarbonisation is no longer a future scenario - it's an immediate strategic imperative. Those who lead on feedstock, standards and supply chains will define the next era of the steel industry.

Middle East Iron & Steel 2025 Conference

To continue the conversation about everything that is happening in the iron & steel market worldwide, we invite you to **Fastmarkets' Middle East Iron & Steel 2025 Conference**.

The region's most influential steel event is **taking place November 17-19 in Dubai, UAE**. The conference offers three days of strategic insights and high-impact discussions, two parallel content streams focused on geopolitics, trade, green steel, innovation and raw materials, built-in 25+ hours of networking opportunities with roundtables, interactive workshops and a lot more driving real connection.

Join over 1,300 international delegates from more than 460 companies at this premium iron and steel event. With **early bird rates are available until July 18**, now is the best time to secure your place.