



PRESCOUTER

DECARBONIZING THE STEEL INDUSTRY

Investment-ready
decarbonization pathways
for low-carbon metallurgy

The challenge

A global investment firm sought a decision-grade map of low-carbon steel pathways. To allocate multi-billion-dollar capital, they needed TRL 8–9 options ranked by abatement cost and CO₂ impact.

Lacking a rigorous benchmark, the investor risked backing projects unable to meet climate targets or returns.



At a glance outcomes

12



Pathways modeled for emissions, cost, and scalability.

9



Pathways prioritized for high readiness (TRL \geq 7).

36



Carbon capture technologies providers mapped.

12



Economic models built using real-world data.

3



Low TRL, high abatement technologies flagged.

20



Steelmakers and technologies startups benchmarked.

3



Subject-matter experts contributed cost figures and up-to-date market perspectives.

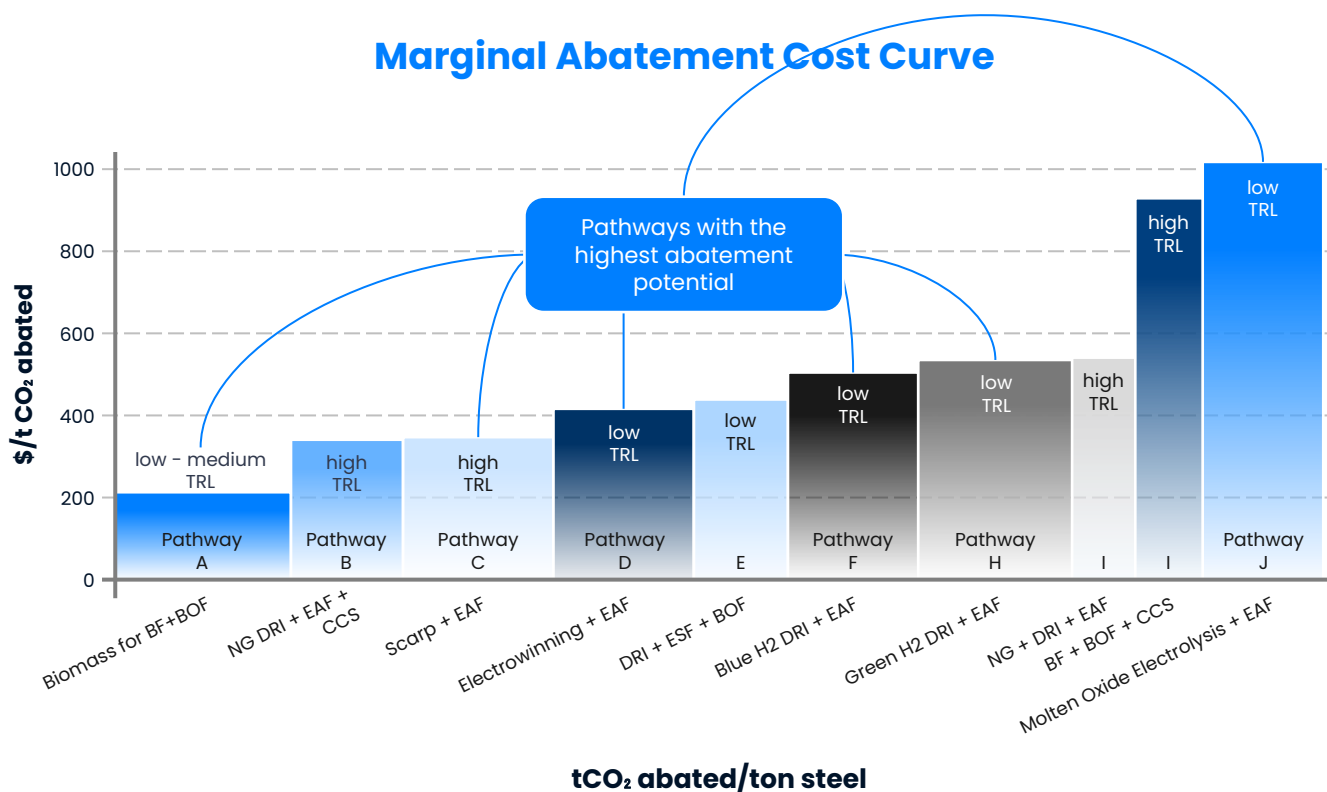
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Unified roadmap for near and long-term investment action.

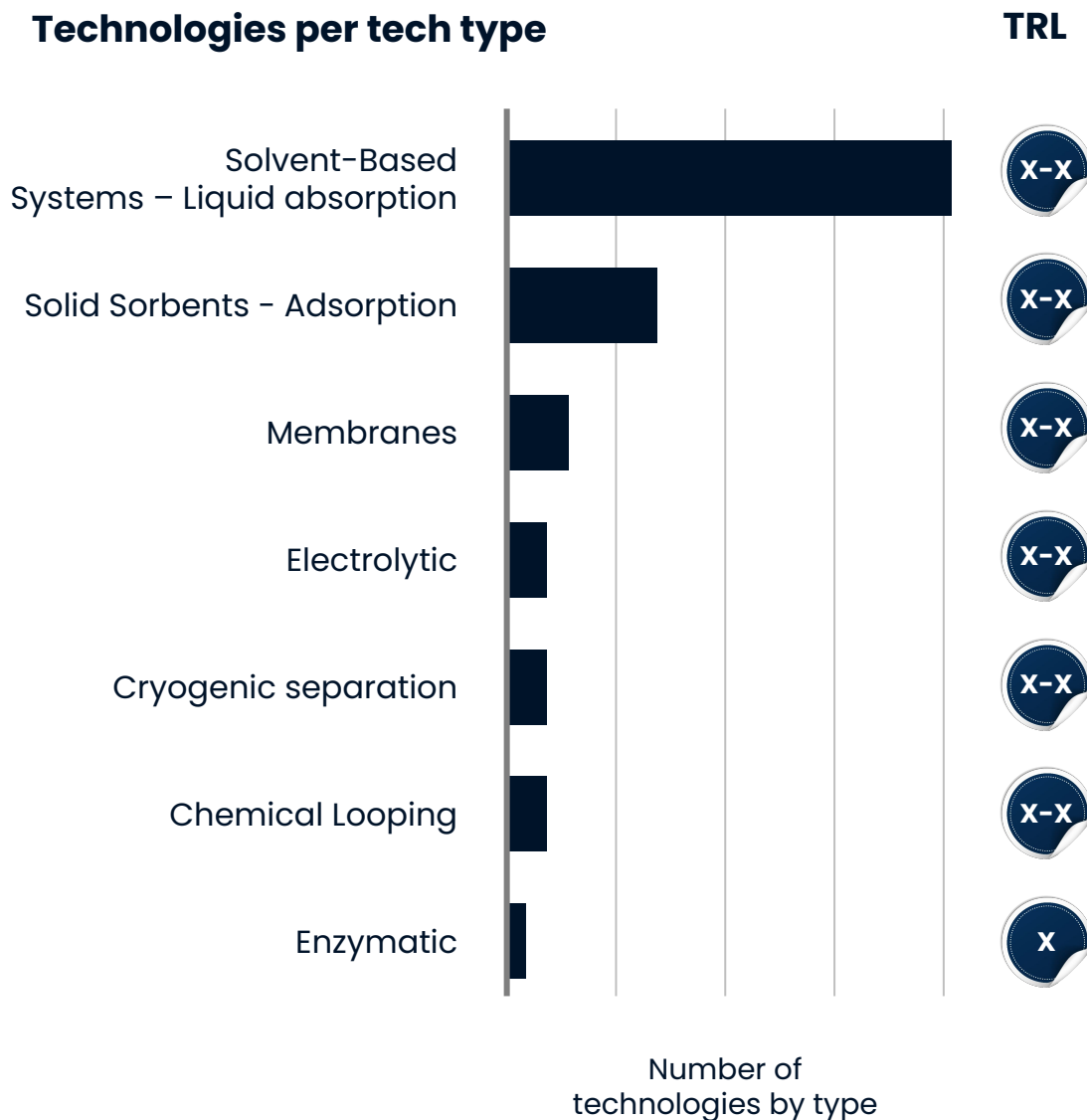
Key findings

Mapping the landscape, we identified 12 decarbonization pathways and filtered for those with high abatement potential (10), favorable cost, and TRL 7–9 readiness.



The full levelized cost of steel (LCOS) and emissions model was built using standardized CAPEX, OPEX, fuel, and CO₂ data to enable direct comparison. Thus, The model output was used to build a **Marginal Abatement Cost Curve**, identifying cost-efficient and high-impact pathways.

The PreScouter team identified **36** carbon capture technology providers claiming to cater to the steel industry, spanning **38** technologies across **7** technology types.



SME interviews refined our assessment of maturity, integration, and cost. PreScouter clarified how pathways differ in cost and readiness.

Pathway	CO ₂ Emissions (kg)	LCOS (\$/ton)	TRL
Pathway A	~XXXX	~XXX	X
Pathway B	~XXX	~XXX	X
Pathway C	~XXX	~XXXX	X
Pathway D	~XX	~XXX	X

Strategic recommendations

PreScouter recommended:

- Deploy Pathways A, B, and C to enable immediate decarbonization through high technological readiness and strong cost-performance.
- Invest in Pathways I and G to secure long-term decarbonization gains.
- Support transitional options—Pathways D, E, and F—to reduce capital risk and extend the useful life of existing infrastructure.
- Adapt all decisions to local conditions and downstream integration requirements.

Pathways

IMMEDIATE
INVESTMENT



**DEPLOY
NOW**

Mature, cost-efficient,
infrastructure-ready

A
B
C

TRANSITIONAL
OPTIONS



**BRIDGE
THE GAP**

Viable, mid-term,
adaptable, moderate
abatement

D
E
F

LONG-TERM
INVESTMENT



**POSITION
FOR THE
FUTURE**

High abatement, currently
high cost or low TRL

G
H
I
J

From insights to action

Our client gained:



A clear ranking of steel decarbonization options by cost and readiness.



Defined short- and long-term investment plays.

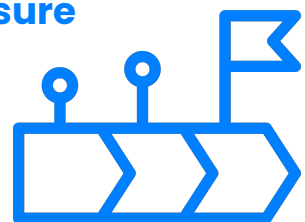


Vetted CCUS providers for fast-track engagement.



A data-backed plan to meet emissions targets and market demand.

PreScouter equipped the client to act decisively, turning regulatory pressure into a roadmap for value creation.



About PreScouter

Strategic Intelligence Through Stage-Gated Research Excellence

Our Proven Approach



Intelligence Briefs

Break topics into focused research segments



Bi-Weekly Reviews

Progress reviews & objective setting for next iteration



Actionable Insights

Strategic recommendations for immediate implementation

What Clients Rely On Us For



Technology Intelligence

- Technology & company landscaping
- Market trends, analysis & research
- Market sizing & forecasting
- Supplier identification
- Sample procurement



Research & IP

- IP landscaping & analysis
- Regulatory landscape mapping
- Academic literature reviews
- Partner vetting & due diligence



Competitive Intelligence

- Competitive landscape mapping
- Trends identification & analysis
- Early warning & monitoring systems
- Industry expert consultations



Data & Analytics

- Custom dashboards & platforms
- Anonymous market outreach
- AI consumer insights
- Data analysis & recommendations

Comprehensive Primary & Secondary Research Sources

Technology & Company Landscaping

Supplier Identification

Sample Procurement

Market Trends, Analysis, Research, & Sizing

Regulatory Landscape

Trends Mapping

Anonymous Outreach

Academic Literature Review

Partner Vetting & Due Diligence

Early Warning, Monitoring, & Detection Systems

Consult With Industry Subject Matter Experts

500+ Subject Matter Expert Interviews Annually

AT A GLANCE OUTCOMES



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