Ingenious Brain

Case Study

How We Helped Our Client in the Hard-to-Abate Industry Drive Sustainability via **Adopting Innovative Power-to-Heat Solutions**

Objective

One of the leading energy-intensive industry clients engaged IeB to build a comprehensive understanding of advanced Power-to-Heat (P2H) solutions for high-temperature industrial applications. The goal was to assess technology innovations, competitive positioning, and feasible adoption pathways that could drive efficiency, decarbonization, and long-term sustainability.

Our Strategic Approach

To assist the client in identifying high-potential thermal energy solutions and aligning them with industrial decarbonization strategies, IeB applied a structured assessment combining technology benchmarking, market intelligence, and sectoral opportunity mapping. Our step-by-step solution framework includes:

Technology & Innovation Tracking

Evaluated advanced P2H technologies with emphasis on efficient thermal energy conversion, optimized thermal energy storage (TES), and integration with waste-heat recovery systems.

Sector-Specific Application Mapping

Assessed the feasibility of deploying modular P2H and TES solutions across high-temperature sectors, with specific focus on iron & steel, ceramics, and glass industries.

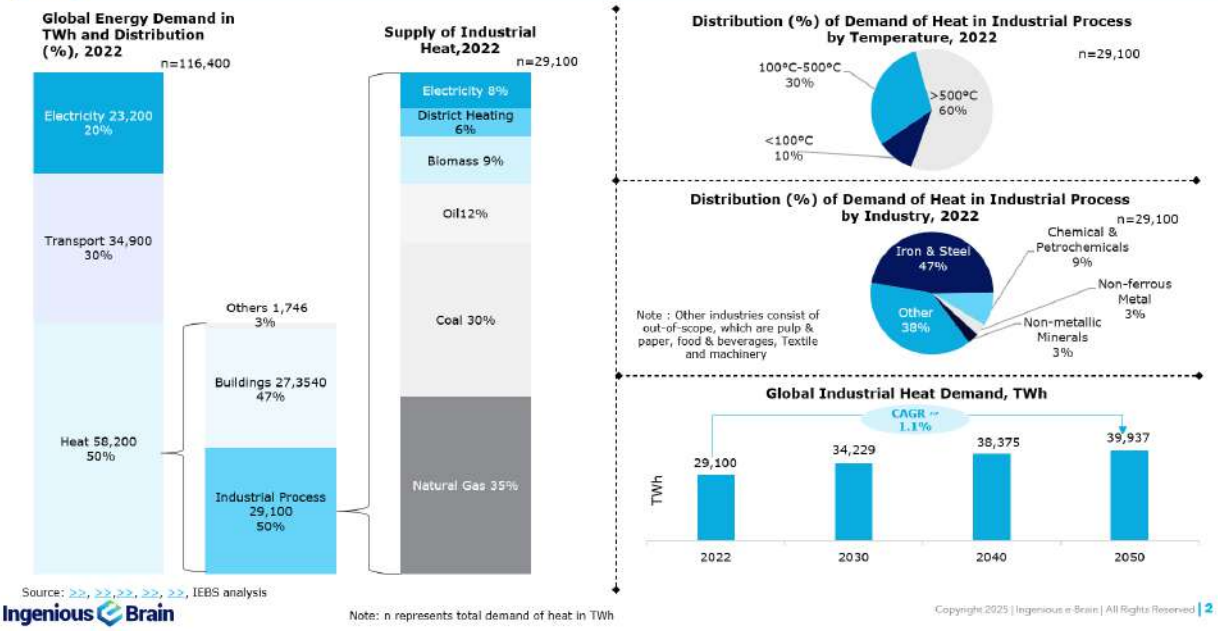
Competitive Landscape Analysis

Mapped active players and system integrators working on large-scale P2H systems, identifying leading technologies and commercial readiness levels.

Snippets

Industrial Heat Demand – Overall

IEBS anticipates that steel and cement manufacturing account for over 75% of high-temperature demand, representing the biggest opportunities for TES



Source: >>, >>,>>, >>, >>, IEBS analysis

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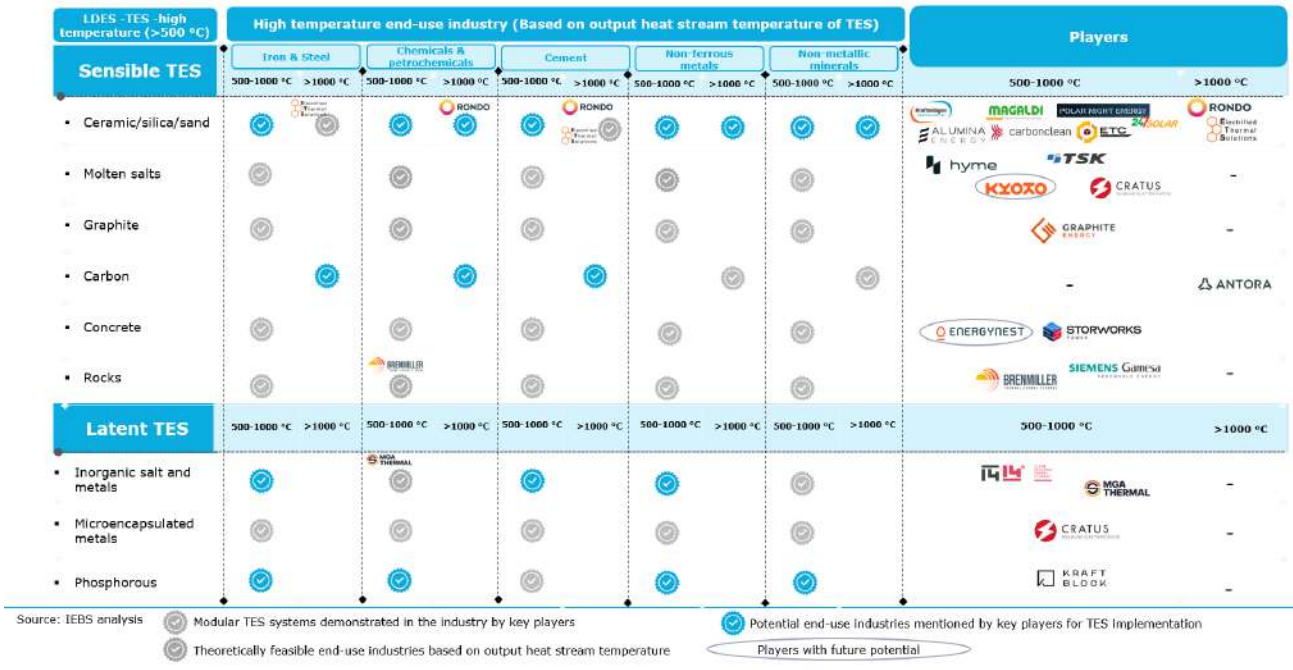
Note: n represents total demand of heat in TWh



Source: IEBS analysis

Modular TES systems demonstrated in the industry by key players

Theoretically feasible end-use industries based on output heat stream temperature

Potential end-use industries mentioned by key players for TES implementation

Players with future potential

Impact

- Enabled the client to define a feasible decarbonization route by adopting modular P2H solutions integrated with waste-heat recovery.
- Highlighted iron & steel as the priority sector, followed by ceramics and glass, for near-term deployment of P2H technologies.
- Strengthened the client's roadmap for industrial sustainability by aligning P2H adoption with long-term carbon reduction targets.

Conclusion

Through technology and market insights, IeB guided the client in charting a clear pathway toward industrial decarbonization using Power-to-Heat solutions. The study equipped the client with actionable strategies to integrate advanced TES systems, optimize energy efficiency, and identify priority sectors for implementation.

Ingenious e-Brain

Ingenious e-Brain is a global research advisory and management consulting firm that helps businesses future-proof their operations by addressing complex challenges with sustainable, strategic, and expert-led solutions. With a global network of over 300 domain experts, analysts, scientists, and consultants across 5 offices in 4 countries—we bring world-class research capabilities and a proven track record of delivering 5,000+ projects across various industries.

With over 13 years of proven excellence, we have successfully tackled business challenges for Fortune 500 and Global 1000 corporations, industry leaders, manufacturing giants, startups, investors, universities, and top companies across domains such as healthcare, sustainability, chemicals, advanced materials, automotive, energy, food & beverage, consumer packaged goods, and high-tech industries, particularly in the field of intellectual property and innovation.

Our services empower organizations to accelerate innovation, optimize R&D portfolios, and navigate complex intellectual property (IP) challenges, all while scaling operations with resilience. We support clients at every stage of the innovation process—from product launches and IP co-creation to market intelligence, consumer sentiment analysis, and gathering actionable customer insights through surveys.

We are located at

India (HQ)
207-208 Welldone TechPark, Sohna Road Sector 48, Gurugram, Haryana 122018

+91 124 429 4218

California (USA)
99 S Almaden Blvd, Suite 600, San Jose, CA

+1 347 480 2054

Delaware (USA)
8 The Green, Suite B, Dover, DE 19901

+1 302 450 1418

Germany
5th Floor, Hahnstrasse 70, Frankfurt am main, 60528

+49 335 2773 4678

For enquiries e-mail us at
contact@iebrain.com

Find more about us at
www.iebrain.com

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