



GLOBAL STEEL DYNAMICS FORUM

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Global Steel Dynamics Forum '24: Innovation, Illumination and Inspiration

By Sam Kusic

The global steel industry's commitment to adaptation and innovation is as durable as steel itself. It is, as Linde plc chief executive officer Sanjiv Lamba recently noted, a hallmark. "You constantly innovate. Efficiency is right on top of your agenda. All great steel companies demonstrate that commitment," he said from the floor at the 2024 Global Steel Dynamics Forum, which was held 17-18 June 2024 in New York City.

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Lourenco Goncalves,
Cleveland-Cliffs Inc., and
Philipp Englin, World Steel
Dynamics

The Forum is meant to offer a high-level, wide-ranging look at the state of the global steel industry and a window into the thinking of those who are leading it. Granted, Lamba was speaking to a room full of customers, but his observation is nevertheless reflective of an industry sprinting toward the future, given the billions of dollars invested in new process technologies, the new sustainability practices that are being introduced and the responsive adaptation being made to shifting market demands.

Those demands include greener steels, and Lamba argued that successful decarbonization of the industry will come by way of deployment of multiple technologies that include, but are not limited to, hydrogen. “Is hydrogen ... a silver bullet that is going to solve all of the problems? I will be very honest and tell you up front, no. I’m very bullish on the role hydrogen is going to play, but it’s not the magic bullet,” he said.

“There isn’t enough renewable energy in the world to support the aspirational demand of green hydrogen. There just isn’t. And you know what? It just got a lot tougher. Why? Because we are going to be building AI data centers like there is no tomorrow. So the same amount of renewable energy is now going to be split between hydrogen electrolyzers demand and data centers. Guess what? I think the data centers might just get a little bit of preferential treatment.”



Sanjiv Lamba,
Linde plc



David Burritt,
United
States Steel
Corporation

A Green Future

Decarbonization was a prominent theme of the 2024 Forum, with participants taking a variety of views on everything from the availability of scrap to the role of hydrogen and the technologies most likely to be at the forefront of the transition.

John Bianchini, chairman and chief executive officer of Hatch, an engineering and project management specialist, echoed Lamba's comments, saying he, too, believes companies will take multiple approaches to meeting climate goals.

But he said Hatch is very bullish on green hydrogen's potential, noting that it is one of four ways to replace metallurgical coal. Biomass is one of those, he said, but the need far outstrips supply. Natural gas is another, but it ultimately is a transitional substance. That leaves green electrons that can be put toward hydrogen production.

He also predicted a natural decoupling of ironmaking and steelmaking, with ironmaking being centered in places



with access to iron and clean energy, and steelmaking being centered in the markets the final product is intended to serve.

Market Growth

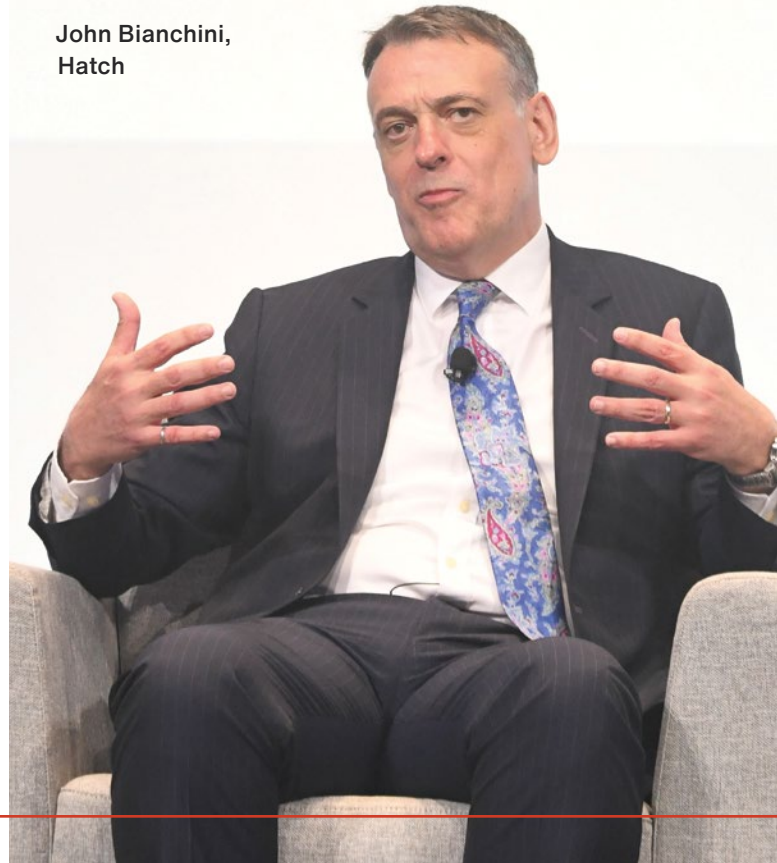
Speaking of steel markets, none is growing faster than perhaps in India, JSW Steel joint managing director and chief executive officer Jayant Acharya told attendees.

With a young and large population and a rapidly growing middle class that is expected to number 1 billion people by the mid-point of the century, steel consumption can only go up. He noted that the country has already had two consecutive years in which consumption grew by more than 13%.

The country, as a whole, is shooting for 300 million tons of capacity, and JSW itself is looking to grow its own capacity to 50 million tons by the end of this decade.

“We are so far on track,” he said.

John Bianchini,
Hatch



Stephen Montague, Midrex Technologies Inc.; Stefano Maggiolino, Tenova HYL;
and Ron Ashburn, Association for Iron & Steel Technology



(L-R) Stephen Laxton, Nucor Corp., and Philipp Englin, World Steel Dynamics



Gustavo Werneck, Gerdau

North American Growth

JSW Steel's growth in India is shared by Nucor Corp.'s growth in North America.

As Nucor chief financial officer Stephen Laxton noted, Nucor is currently investing US\$15 billion into what he described as 18 larger projects.

“All of those projects are repositioning our business for decades to come,” he said.

The largest of those projects is Nucor's US\$3.5 billion sheet mill in West Virginia. On target for a 2026 start, it will be equipped with an 84-inch hot mill, a 76-inch tandem cold mill and two galvanizing lines.

All told, the mill will be able to produce 3 million tons of higher-value-added products, including automotive. However, the automotive market won't be its primary focus, Laxton said.

“Well under half of the shipments out of West Virginia will be for automotive,” Laxton added. He said automotive now accounts for “about 7% of all the company's steel shipments.”

During his GSDF appearance, Laxton acknowledged that the West Virginia mill will complement Nucor's other sheet mills, which mainly serve southern and western markets.



(L-R) Timna Tanners, Wolfe Research; Lucas Pipes, B. Riley Securities; and Adam Green, World Steel Dynamics



Jayant Acharya,
JSW Steel

“We’re relatively underweighted in the Midwest and Northeast, so this mill’s geographic orientation is (mainly) Midwest,” Laxton said.

The Big Deal

Other companies are looking to grow in North America not by building, but by buying, as is the case with Nippon Steel Corp.’s planned US\$14.9 billion acquisition of United States Steel Corporation.

The merger of a unionized and iconic American manufacturer with an overseas behemoth certainly hasn’t been without controversy, but U. S. Steel chief executive officer David Burritt defended the deal and offered assurances that it would come to fruition.

“Nippon is clearly the right choice, and I’m extremely confident that we’re going to be able to close this deal this year,” he said. Burritt told the audience that the deal is a win for all stakeholders. Employees — union employees in particular — will benefit, he said, as Nippon Steel has committed to honoring the basic labor agreement and will forgo any layoffs. Moreover, the company will invest US\$1.4 billion in U. S. Steel facilities.



David Stickler,
Hybar LLC

At the same time, customers win with the enhanced competition a combined company will bring to the North American market.

“Customers love (this deal),” Burritt said. “Customers love it so much that they’ve sent letters to the Department of Justice about how they think this deal with strengthen competition, not diminish competition.” And the country wins from a technological standpoint, he said. Nippon Steel, after all, is a company with 30,000 patents and long-standing expertise in integrated steelmaking, Burritt said. It also is a company with a US\$500 million R&D budget.

“As far as I can tell, that’s more than the steel companies in the United States combined in a year. They’re experts in



(L-R) Philipp Englin, World Steel Dynamics; Adam Green, World Steel Dynamics; Carl Orrling, SSAB; and Charles Schmitt, SSAB Americas

Agenda

Karthik Valluru,
Boston Consulting
Group



integrated mills and they want to invest here,” he said.

New Business Venture

Of course, one person who would much rather they didn't is Cleveland-Cliffs Inc. chairman and chief executive officer Lourenco Goncalves, who, with the support of the United Steelworkers union, sought to buy U. S. Steel. Goncalves has been sharply critical of U. S. Steel's decision to sell to Nippon Steel, but speaking at the 2024 Forum, Goncalves was more reserved in his comments. He did, however, reiterate previous skepticism over the deal and repeated that Cliffs would not act as a backstop for U. S. Steel.

“The offer doesn't exist anymore,” he said, adding that the company is focusing its attention on other things, such as recasting its Middletown, Ohio, USA, mill as a leading example of how to decarbonize an integrated plant and launching a new downstream business venture: electrical transformer manufacturing.

Chang In-Hwa,
POSCO Holdings



Goncalves said that with the typical lead time for an electrical transformer extending to 37 weeks in the U.S., Cleveland-Cliffs sees an opportunity. So, he said, the company is repurposing its idled West Virginia tinplate mill, a relatively lower-risk investment that will provide a new outlet for its electrical steel and return scores of union employees to work.

“The decision has been made. We are doing this,” he said. And at the moment, Cleveland-Cliffs is going it alone, he said, although it remains open to a partnership. “If a joint venture partner comes along for the ride and allows us to work at our speed, that’s the best scenario,” Goncalves said.

“But there is no partner at this point, so we are going it alone,” he said. Cleveland-Cliffs idled the mill following the U.S. International Trade Commission’s (ITC) rejection of tariffs on imported tinplate from multiple countries. The ITC disagreed with the U.S. Department of Commerce and ruled that domestic producers had not been harmed by imported tinplate.

Goncalves, however, argued otherwise. As far as he’s concerned, he is out of the tinplate business. “I will never produce tinplate again,” he said.

Setting the Bar

If all goes according to plan, David Stickler will be producing rebar in Arkansas by next



(L-R) Janice Lee, Boston Consulting Group; John Hollatz, Nucor Corp.; David Stickler, Hybar LLC; Barry Schneider, Steel Dynamics Inc.; and Philip Bell, Steel Manufacturers Association

year. His latest startup, Hybar LLC, is building a 630,000-ton mill in Arkansas, not far from the last mill he helped to launch, Big River Steel.

Hybar intends to tap growing demand for construction steel and sell rebar to independent fabricators who sometimes find themselves having to buy from producers that also own competing downstream rebar fabrication businesses. Stickler said Hybar has already sold one-quarter of its planned capacity and, at the time of the conference, was closing in on a deal to sell another 25% — all with a year of construction still to go.

“That gives not only me, not only our investors, but our employees and our banks great comfort that we’re really on to something here,” Stickler said. The mill is scheduled to begin production in 2025, and it will be able to meet 6% of forecast U.S. and Canadian consumption, Stickler said. The company could meet even more of that, too, in the future. “Our plan is to build three or four more of these mills — all environmentally sustainable,” Stickler added.

Mark Millett, Steel Dynamics Inc.





Josh Gossner, ANDRITZ Metals USA Inc.; François-David Martino, John Cockerill; and Ron Ashburn, Association for Iron & Steel Technology

Sustainable Strategies

As the conference showed, companies are pursuing varied sustainability strategies. But at the core of each is deployment of new technologies.

SSAB Americas, for instance, is trialing heats of hydrogen-reduced sponge iron produced at the company's HYBRIT pilot plant in Sweden. SSAB Americas president Charles Schmitt said the first of

those heats, consisting entirely of hydrogen-reduced iron, was to have taken place in June at SSAB's electric arc furnace mill in Iowa.

Schmitt said the outlook for green steels, and particularly plate, looks quite good in the U.S. He said SSAB is seeing robust demand for plate demand he expects will persist on the back of Inflation Reduction Act-driven investment in wind energy as



(L-R) Kevin Dempsey, American Iron and Steel Institute; Ezequiel Tavernelli, Alacero; Kazuo Mike Fujisawa, Japan Iron and Steel Federation; Wu Yunhao, SteelHome; I-Ching (Florence) Ng, interpreter; Wu Wenzhang, SteelHome; and Edwin Basson, World Steel Association

well as road and bridge rehab. “All obvious opportunities for offering a low-emission steel,” he said.

“Quite a number of global companies in automotive construction and agriculture and rail have a very strong interest in pursuing a lower carbon footprint.”

Green Premium

But are they willing to pay for it?

Yes, said POSCO Holdings chairman Chang In-Hwa, arguing that consumers have demonstrated a willingness to pay for higher-priced sustainable goods.

“Consumers are already practicing sustainable consumption. Because they are concerned about the environment as well as their health, they’re already purchasing organic foods and electric vehicles, so this is already sustainable consumer practice ... A green premium is a must for a sustainable future,” he said through an interpreter.

Karthik Valluru, Boston Consulting Group managing director and partner, agreed.

“The willingness to pay for a green premium exists,” he said. “There is clearly a (willingness) to pay for decarbonization.”

The question, he said, is how that premium will be allocated across the value chain.

However, Mario Arvedi Caldonazzo, chief executive officer of Gruppo Arvedi, said their experience so far points to the contrary. Caldonazzo said Arvedi has introduced a certified carbon-neutral steel called Arvzero and took it to the market with the hope that customers would be willing to pay extra for it.



Mario Arvedi Caldonazzo,
Gruppo Arvedi

Steel Federation



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“So far, we’ve succeeded in only a few cases, mainly with automotive OEMs,” he said. “There is a lot of interest in Europe for carbon-neutral steel, but in the end, customers are not willing to pay a premium.”

And that is not likely to change until an international standard for green steel is developed and incentives are created to build a market for it.

Steel Dynamics Inc. chief executive officer Mark Millett said he, too, is skeptical of the market’s willingness to accept a green steel premium. He also said he thought European steelmakers could be in danger of pricing themselves entirely out of the market.

Millett said energy costs are already high in Europe, and, in addition, billions of dollars in investment is being made there now to move the continent’s steelmakers to where their U.S. counterparts already are in terms of CO₂ intensity.

“Someone has to pay for that,” he said.

“We all can hope there is going to be a green premium, but eventually when the market forces take over (and more green steel is made), I’m not so sure it’s going to be as big as one would

hope. At the end of the day, (European steelmaking) is going to be incredibly expensive compared to the U.S.," he said.

Recognizing Leadership

Millett is the 2024 recipient of the 2024 Willy Korf/Ken Iverson Steel Vision Award, which is presented annually at the conference to leaders who have made significant contributions to the steel industry while promoting goodwill and integrity.

Millett said he is humbled to receive an award given in honor of two people he admires greatly. Korf, he said, no doubt pioneered EAF steelmaking, and Iverson, through his vision, demonstrated the success of a management philosophy that paired technological innovation with a workplace culture capable of exploiting innovation.

Also honored during the conference was Diptak Bhattacharya, who received the Willy Korf Award for Young Excellence. A senior researcher at General Motors, Bhattacharya is working to solve the problem of zinc embrittlement that comes when welding coated, third-generation advanced high-strength steels.

Bhattacharya has long been interested in steel, going back to the age of 10, when his father showed him a journal article that explored metallurgical failure of the RMS *Titanic*.



Joseph Dzierzawski, Primetals Technologies USA LLC



Mark Millett received the 2024 Willy Korf/Ken Iverson Steel Vision Award, and Diptak Bhattacharya was presented with the Willy Korf Young Excellence Award (L-R): John Lichtenstein, World Steel Dynamics; Maximilian Wolman, Willy Korf Foundation; Millett; Bhattacharya; Astrid Korf-Wolman, Willy Korf Foundation; Philipp Englin, World Steel Dynamics; and Ron Ashburn, Association for Iron & Steel Technology.



“I feel so proud to be a steel metallurgist,” he said. “As I try to tell my aluminum colleagues, no matter what, you can’t find any other material with the strength and ductility of steel at such low cost.”

Public Perceptions

Gustavo Werneck, chief executive officer of Gerdau, also called attention to steel’s role in society.

“There is no doubt steel is the most relevant material to promote this transition to a low-carbon economy,” he said, stressing the importance of sharing that message with the public.

But, he said, it is impossible to build public confidence in steel when other countries, such as China, export to corners of the world, dirty, carbon-intensive steel.

To that point, Caldonazzo said the green steel market, and all of the investment being made to support it, must be defended.

“Otherwise, it will be a failure,” he said. “We will have carbon leakage, and all of our steel production will move to other parts of the world where there are no constraints,” he said. ♦

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