



## Where Does Steel Go Now?

*With the first wave of consolidation bringing stability, the industry looks to further integration and policy change to remain competitive.*

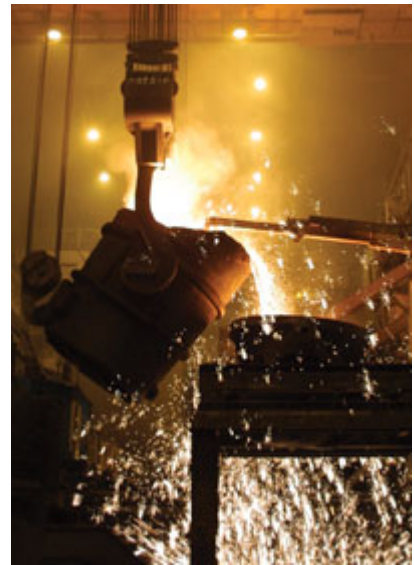
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by **Jonathan Katz**

**January 16, 2008** -- The U.S. steel industry is off life support and breathing on its own again. Resuscitated by consolidation, restructuring and import relief tariffs, domestic steel enters 2008 with four years of strong growth behind it. The question for steel makers now is, How do we sustain this momentum? That will likely depend on the industry's response to rising raw materials and energy costs, booming global competition and environmental regulation. It also could hinge on how the federal government proceeds with proposed legislation to address trade inequities with China.

One thing analysts and steel executives agree on is that the industry will consolidate even more in the coming years. In the late 1990s and early 2000s large domestic and foreign-owned steel producers gobbled up bankrupt companies, such as LTV, Bethlehem Steel and Weirton Steel. Today, the top three producers in the United States account for 68% of domestic output, according to Fitch Ratings. The mergers helped raise steel prices and create stronger companies more capable of weathering demand downturns.

In North America consolidation of large, integrated mills has largely run its course. The new consolidation wave that's emerging is acquisitions of raw materials suppliers, mini mills and downstream steel producers. On the raw materials front, tremendous demand from China has driven up the cost of iron ore, coking coal, scrap metal and other steel-making ingredients. But many steel producers have managed through ownership. "A lot of the U.S. companies have been somewhat insulated because of having their own supplies," says Nicholas Sowar, global steel leader with consulting firm Deloitte & Touche USA LLP.



For instance, in 2007 mini-mill steel producer Steel Dynamics Inc. purchased a 6,000-acre taconite mine on the Mesabi Iron Range in Minnesota from Cleveland Cliffs Inc. and acquired scrap processing and trading company OmniSource Corp.

U.S. Steel Corp. is fairly secure with its domestic raw-materials supplies, but the company is exploring opportunities in Europe for its overseas operations where prices are more volatile, says John Goodish, executive vice president and chief operating officer for U.S. Steel. "We're

essentially self-sufficient on iron ore here domestically in the U.S. and Canada, and we have an adequate supply of coking coal under our control to supply our coke batteries, but in Europe we are subject to market conditions to acquire iron ore and our coking coals, so we continue to look for those opportunities. Unfortunately, in today's economy with the performance steel companies have had in recent years, those assets are reasonably expensive."

Steel industry consultant **Michael Locker** refers to this movement as backward integration. Previously, steel producers sold off their raw materials operations and transportation facilities; now they want them back, says **Locker, president, Locker Associates**. "Those that own the mines, those that own the facilities which produce those goods, are less subject to international price increases, so U.S. producers stand in good stead because a number of them own iron ore mines here in the United States... and there's a move to build more coking coal facilities. That's the integrated world."

### **Downstream Convergence**

Indeed, the world of steel production is about to become even more integrated with buyers targeting manufacturers of such downstream steel products as pipe and tube, evidenced by U.S. Steel's 2007 purchase of steel tubular products maker Lone Star Technologies Inc. and Nucor Corp.'s acquisition of Toronto-based Harris Steel Group Inc. U.S. Steel expects the Lone Star deal will strengthen its position as a provider of piping for the expanding oil and natural gas market, while reinforcement bar manufacturer Harris Steel provides Nucor with an opportunity to reach new markets and grow geographically.



The mini-mill segment is another area where there's still some opportunity for consolidation. Much of the mini-mill operations, which produce steel from scrap and utilize electric-arc furnaces, are too isolated to have a wide geographical reach, notes Markus Stahl, director of industry and product marketing for discrete industries at enterprise software provider Infor.

"The U.S. steel industry is still fragmented and a single-location mill has commercial limitations in terms of its ability to offer wide geographical coverage, as well as scheduling flexibility," Stahl observes. "Important success factors for single-location mills are niche products and technological benefits to produce as flexibly as possible, with time, cost and productivity advantages. There is space for well-running, single-location mini mills, but the overall consolidation will continue."

### **China and Beyond**

Outside the United States there is still a sizable opportunity for consolidation, particularly in China where the nation's top five producers only account for about 20% of its overall production, according to Fitch Ratings. The problem, say steel producers, is that the Chinese government doesn't allow foreign investors to own majority stakes in its steel companies. It's one of the many reasons China continues to be a hot-button issue for U.S. steel producers. Currency manipulation, lax environmental regulations and imports are among the other trade concerns when it comes to China (see "[Energy Subsidies Shift Balance of Power Toward Chinese Steel Makers](#)").

The weaker dollar has provided domestic steel producers with a momentary respite from imports. Steel imports in the United States were projected to reach 34 million tons in 2007, down from the record 45 million tons recorded in 2006, according to the American Iron and Steel Institute (AISI).

At the same time, steel exports are forecasted to reach 125 million tons in 2008 compared with an expected finish of 120 million tons in 2007.

That's positive news, but industry experts are cautiously optimistic. Competition from China is expected to gain strength, with the nation representing approximately 40% of global steel production by 2009-2010, says Andrew Sharkey, AISI president and CEO. "I think the single most important concern is capacity that's been put in place not based on market principles, and the potential of that capacity to find its way into steel-intensive products that impact our industry's customer base here in North America," Sharkey says.

Another area of concern deals with the environment. Proposed regulations could force the U.S. steel industry to further reduce greenhouse gas emissions. The industry already has cut its energy intensity by 29% since 1990, according to AISI. Meanwhile, emerging economies such as China have an advantage because they don't follow the same stringent environmental standards, the industry argues. "We don't think they should be given a free pass to pollute in the name of economic development," says U.S. Steel's Goodish.

The solution, say steel makers, is finding a way to implement and enforce a worldwide standard. "It would be very, very useful because I think it would be much fairer in the way you go about treating everybody as we try to get the right kind of energy intensity and environmental impact everywhere," says Sal Miraglia, president of The Timken Co.'s Steel Group.

### **Forward Thinking**

Regardless of what measures the government puts into place, Miraglia and the rest of the industry are aware that with or without regulations, energy prices will continue to rise. At Timken, the company is substituting some of the electrical power used in its furnaces with fluidized pet coke to inject oxygen more efficiently. In November 2007, U.S. Steel announced a \$1 billion plan to update its coke ovens at its Clariton plant near Pittsburgh. The program involves building two coke batteries and a cogeneration facility, along with the rehabilitation of several existing coke batteries. Coke oven gas produced from coke battery operations would be consumed in the proposed cogeneration facility, which would supply electricity for three Pittsburgh-area plants.



A more ambitious industrywide plan that's likely decades from becoming reality, if it ever does happen, is to eliminate CO<sub>2</sub> altogether from the steel-making process. Last year, AISI partnered with the Department of Energy to research the possibility at the Massachusetts Institute of Technology. The process involves producing iron using molten oxide electrolysis, which would generate no CO<sub>2</sub> gases. The project along with others in progress have a time frame of 15 years or more, says Sharkey.

The other processes being explored involve iron making by hydrogen flash smelting, geological sequestration of CO<sub>2</sub> and mineral sequestration. Whether or not the experiments pan out, it's a signal that the industry is taking regulatory threats seriously.

"We have to get out in front of this because at the end of the day we have to find a technology solution to climate change," says Sharkey. But, he adds, government mandates need to be made in concert with the industry's ability to fund, develop and make commercially viable the technologies that will make CO<sub>2</sub>-free steel production possible.