

A man in a blue suit and glasses is speaking at a podium. The podium has an AIST logo on it. In the background, other people are seated at a table, and there are blue bokeh lights on the wall.

# Shaping the Future: The Steel Industry Challenges

## 2024 AIST William T. Hogan, S.J. Lecture

by Máximo Vedoya  
Chief Executive Officer, Ternium



Máximo Vedoya was the recipient of the 2024 AIST William T. Hogan, S.J. Lecture Award, conferred on 7 May 2024 during the President's Award Breakfast during AISTech 2024 in Columbus, Ohio, USA.

Good morning and thank you for the kind introduction. Let me start by congratulating all the award recipients today, with a special mention to Chuck Schmitt for being named Steelmaker of the Year. Congratulations, Chuck, for a more-than-deserved recognition.

I would like to thank Barry [Schneider], Ron [Ashburn] and all the AIST team for the honor of being here representing Ternium as a leading steel company in the Americas, and for being recognized with the Father Hogan Award.

In Ternium, we are proud of our long relationship with AIST, especially through the Mexico Chapter, where

we have been active for nearly 30 years. And something that we're very proud of: The last two years, this chapter was recognized for its rapid growth. So, thank you very much to all the Mexican delegates for this great job.

“Steel Challenges” — what a subject! Ron, how many hours do we have for this? With so many challenges upfront, we will need about 2 hours!

Undoubtedly, there are many challenges in our industry: Safety, how to attract and retain talent, continue incorporating advanced technologies into our processes — things that you probably will be discussing during these days.





[Slide 1 – Ternium's Profile]

So, I would like to talk about the two specific challenges that should be our top priorities and will probably shape our future as an industry. Interesting enough, for our region, we could also see these challenges as opportunities to build a stronger and competitive regional steel industry.

First, decarbonization. The iron and steel sector contributes to 8% of global emissions, and that places us in the spotlight as part of the problem. But our region is in a very competitive position. As we will see, we have the conditions to be at the center of the energy transition, and we can lead it.

Second, China. After more than 20 years of joining the World Trade Organization, China failed to meet their commitment of becoming a market economy. And even more concerning, far from getting closer to a solution, the situation is getting even worse. From steel and aluminum to EVs, batteries and rare earth magnetics, China is now occupying all [of the] manufacturing spectrum through subsidies, lack of transparency and incentives to state-owned enterprises. The path or

solution for this challenge is more complex, but as a region we have a stronger position if we act together.

Before addressing these issues, let me offer a very quick glimpse of Ternium, since I'm pretty sure not everyone here is familiar with who we are.

## Ternium

Ternium is part of the Techint Group, which has nearly 100,000 employees, and operates globally in the steel, engineering, construction, oil and gas, technology, and health sectors.

Ternium in particular is a vertically integrated steel industrial system. As you can see in the slide, our activities go from mining to the production of finished steel products, with industrial facilities located in Mexico, Brazil, Argentina, Colombia, Central America and the United States.

In mid-2023, we furthered our commitment in Brazil by increasing our stake in USIMINAS, where Ternium had already participated for 10 years. With this agreement, we began consolidating USIMINAS into our financial statements starting in the third quarter of last year.

This move consolidates Ternium's position as the leading steelmaker in Latin America, and one of the largest in all the Americas, taking us to a production capacity of more than 20 million metric tons of hot-rolled steel and more than 12 million tons of iron ore.

Regarding our expansion plans, last year we announced the most ambitious investment plan in our history of US\$3.5 billion in northern Mexico.

Of this, the most important part (US\$2.4 billion) will go to build an integrated direct reduced iron (DRI)/electric arc furnace (EAF) steel mill.

This new steel shop will provide our system with 2.6 million metric tons of slabs per year and support our ongoing efforts in decarbonization. This will be

the first and cleanest DRI-EAF to be able to produce all the range of automotive exposed products. We will operate with one the lowest CO<sub>2</sub> emissions per ton in the Americas for the automotive industry.

Our decision was to move forward with Tenova's technology, our sister company, and the Techint Group's R&D arm, which has been leading innovation on decarbonization through this route.

For us, DRI-EAF technology is the cleanest and smartest choice considering the automotive market we are aiming for.

This steel shop will include:

- One electric arc furnace (300-ton) using Tenova's Consteel system, which uses EAF offgas to pre-heat scrap for energy efficiency, achieving lower NO<sub>x</sub> and CO<sub>2</sub> emissions compared to a traditional furnace. Among other features, this Consteel EAF will have benchmark productivity because of low tap-to-tap time, with automated operation and optimized process control.

## New Investment in Pesquería, Mexico

**US\$ 3.5 Billion**

Total Investment

**2024** Center for Finishing lines  
Pickling Line [0.55 MMtpy]

**2025** Hot-Dip Galvanizing Line [0.6 MMtpy]

**2026** Cold rolling mill [1.6 MMtpy]  
DRI/EAF [2.6 MMtpy]



[Slide 2 – New Investment Project in Pesquería, Mexico]



- Two ladle furnaces with a capacity of 300 tons of liquid steel.
- One RH-type vacuum degasser system.
- One continuous casting machine with two strands.

The investment will also have a state-of-the-art Energiron DRI module of 2.1 million metric tons/year. Ternium already operates three DRI facilities with carbon capture in Mexico.

The main feature of the plant is its flexibility: In fact, the EAF can also be fed with variable percentage of

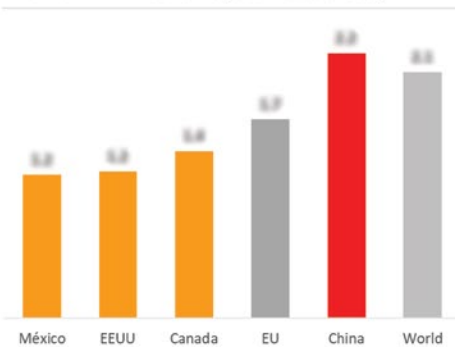
scrap and hot DRI through the HYTEMP pneumatic transport system. Additionally, the DRI plant includes carbon capture technology, enabling the beverage industry to save CO<sub>2</sub> production and enhance the circular economy. It is also fully prepared for the use of green hydrogen in the future as soon as it becomes more readily available.

This investment will have an important contribution toward our decarbonization goal of reducing CO<sub>2</sub> emissions by 20% by 2030 and our ambition of achieving carbon neutrality of our products and operations.



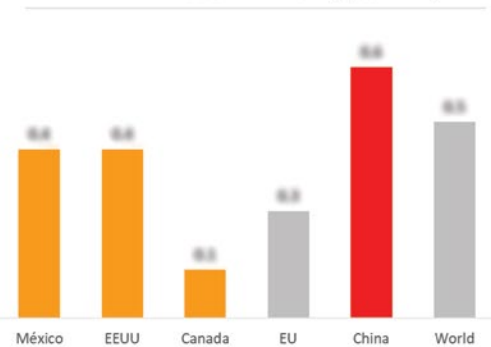
## Sustainability | USMCA's Competitive Advantage

CO2 STEEL EMISSIONS [tCO2/t.crude.steel]



Source: Ternium based on CRU  
2023 CO2 emissions (Scope 1+2+3) from Crude Steel Production

ELECTRICITY EMISSION FACTOR [kgCO2/kwh]



4

[Slide 3: Sustainability – USMCA's Competitiveness]

## Decarbonization

And talking about decarbonization, as I mentioned before, this is a huge challenge for the iron and steel sector because we contribute to 8% of global emissions and this places us in the spotlight as part of the problem.

Yet, I firmly believe that we are a core part of the solution. If we want to grow as an industry, to get capital to invest in new technologies, if we want to attract the best talent, we should deliver this message loudly:

Steel is an infinitely recyclable material, and there is currently no substitute with fewer emissions. Globally, more steel is recycled than twice the combined total of all other recyclable materials. Steel also plays a fundamental role in the energy transition, serving as the material for structures in renewable energy projects such as solar panels, wind energy towers, thermal power plants and hydroelectric stations.

Now, in a world that is becoming more regionalized, I think we need to analyze how we as a region are inserted in this challenge.

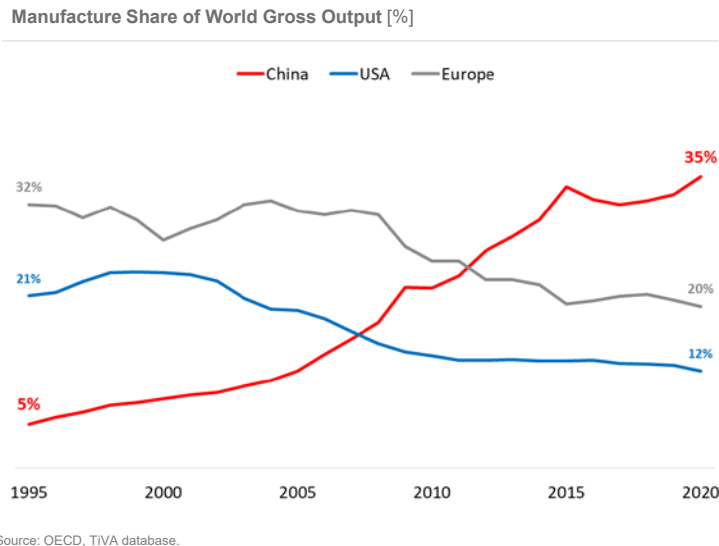
Today, considering the mix of production routes and local energy matrix emission factors (see Slide 3), our region has an important competitive advantage against other regions such as Europe and China in respect to carbon emissions per ton of crude steel produced. You can see this on the left side of the chart.

Although we are better than China and the world, if you see the right side of the chart, we have an important opportunity on reducing emissions if we work in improving our electricity emission factor.

Our challenge is to go further in this path. In the short and medium term, our region should concentrate on developing renewable energy sources that are reliable and affordable to replace fossil fuel-based energy, and investment in infrastructure for transmission and distribution.

We also need policy and legal frameworks that incentivize investment in research and development and industrial decarbonization efforts. Additionally, policies should prioritize the consumption from clean regional manufacturers over imports from countries with higher carbon footprints.

## USMCA: Addressing Unfair Trade Challenges



[Slide 4: USMCA: Addressing Unfair Trade Challenges]

It's clear: have a cleaner energy matrix against other regions, advanced technology for steel production, geographic conditions and the necessary skills for pushing innovation.

That's why producing steel in North America is much cleaner for our planet than producing steel in other regions of the world like China. We are in the best position to lead the energy transition.

### China

The other enormous challenge is China.

Allow me to provide a brief overview of where we are today.

After more than 20 years of joining the World Trade Organization, China failed to meet their commitment of becoming a market economy. After all these years, far from getting closer to a solution, the situation is getting even more concerning.

Since late 2001, China surged from concentrating less than 5% of global manufacturing output to nearly 40%. This is a massive move of manufacturing jobs from around the world to China.

As you can see in the chart, this affected the U.S. and Europe, but let me give you another example of what happened to a developing economy like Brazil.

Brazil was quite industrialized during the 1970s and 1980s. In 1980, the industrial production represented 30% of their GDP and collapsed to less than 11% in 2022. Today, most of Brazil's exports are soybeans and mining, very important sectors but not very value-added, while importing manufactured goods from China. The result was a transition to a primary sector-driven economy that represented a massive number of industrial job losses, which are more stable, better paid, high quality and with a greater economic ripple effect.

The Chinese approach is clear: They create an addictive dependence market for steel and metal goods, deteriorating the capacity of other countries to compete in manufacturing and draining their natural resources.



This process was named by some economists as the “China Shock (1.0).”

The world realized that this wasn’t a sustainable path, and began a process of regionalizing the supply chains, initiating a process of “decoupling” from China.

The United States, Canada and Mexico (USMCA) are capitalizing on this momentum. Industries within our countries have announced substantial investments to bring manufacturing and value-added supply chains back.

But now we are facing a new wave that experts have recently named “China Shock 2.0,” and that’s even more concerning. This new wave is driven by China’s overcapacity, now extending into the energy transition supply chain and advanced technology manufacturing also with a strong component of steel and metal goods.

This situation is getting even worse with a slowdown in their domestic consumption,


**THE WALL STREET JOURNAL.**

### The World Is in for Another China Shock

China is flooding foreign markets with cheap goods again. This time it isn't buying much in return.

By Jason Douglas [Follow](#)  
Updated March 3, 2024 12:15 am ET

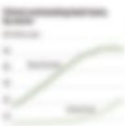
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Vehicles awaiting export in Fuzhou, China. The country is making more cars than its domestic economy can absorb. PHOTO: CFOTO/ZUMA PRESS

### 'China Shock 2.0' Will Be Different

The latest flood of cheap goods is a lot more sophisticated and is important to Beijing's long-term plans



### China's overcapacity is here to stay

By Robyn Mak  
April 9, 2024 4:28 AM CST - Updated 24 days ago

REUTERS

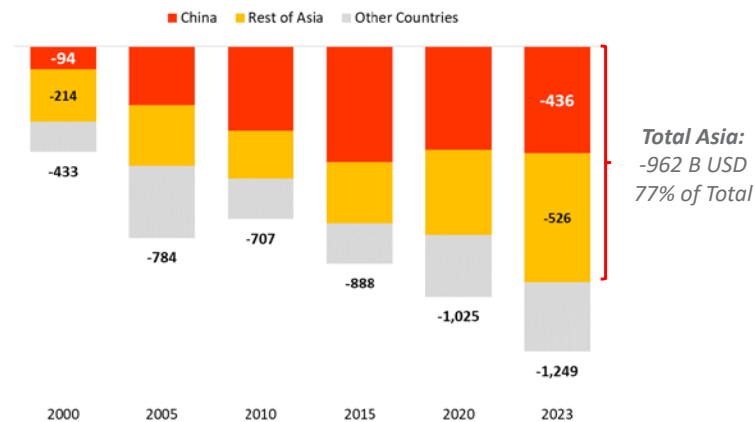
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## USMCA: Trade Balance

USMCA Total Merchandise Trade Balance [B USD]



Sources: USITC, Statistics Canada, and Banco de México  
Note: USMCA interregional trade excluded.

[Slide 6: USMCA Trade Balance]

which could flood our countries even more and risk manufacturing jobs across all the steel value chain.

And to make matters worse, unfair competition comes not only from China, but from its allies.

In our region, when examining the trade balance of USMCA with Asian nations such as China, Vietnam, India and Indonesia, a concerning trend emerges: The deficit has more than tripled, from US\$300 billion in 2000 to almost a trillion (US\$960 billion) in 2023. This deficit, driven mainly by imports of manufactured goods, highlights the urgency for our collective action.

And this is also true for the steel industry: The deficit of USMCA with Asian nations has grown significantly, from US\$7.5 billion in 2000 to US\$37.4 billion in 2023.

We have been witnessing continued dishonest attempts from China to avoid sanctions and tariffs like investing in production capacity in other Asian nations.

We cannot allow China to continue taking away quality production and jobs, driven by unfair imports, and to the detriment of our industry. We need to strongly address unfair trade, from dumping to transshipment in all its forms. Countries that fail to grasp this threat will face a tsunami that will impact employment and economic development.

Talking about this, I'm sure you've seen some news targeting Mexico as a huge exporter of steel to the U.S. and potentially posing a threat for the U.S. steel industry. There's some misinformation on this matter that I want to address:

- Steel trade between Mexico and the U.S. is mutually beneficial, with a surplus for the U.S. In 2023, the U.S. exported 4.1 million metric tons of finished steel to Mexico, while Mexico sent 2.3 million metric tons to the U.S.

- In terms of market share, the disparity is even greater: Mexican steel represents only 2.5% of U.S. market share, while steel from the U.S. represents 14% of Mexico's market share.

Even when there is much to be done, the Mexican government was one of the first that better understood the threat from China and in consequence implemented several measures to defend the national and regional steel industry against unfair trade practices.

- Currently, Mexico has in force 29 antidumping measures for steel products (mainly for flat and pipe products).
- Since August 2023, Mexico raised tariffs from 10% to 25% on various steel and manufacturing products to counter unfair competition. Two weeks ago, this was expanded to over 500 products across multiple sectors, with tariffs ranging from 20% to 35%. These measures target imports from countries lacking free trade agreements with Mexico, such as China, to level the playing field for local producers.
- Mexico also strengthened surveillance measures, including the relaunch of the import licensing monitor, which includes data such as the melt and pour country, in support of transparency, legality and fair trade.



*2023–2024 AIST president Barry Schneider (left) presented Máximo Vedoya (right) with the 2024 AIST William T. Hogan, S.J. Lecture Award.*

Because of all of these, we must view and engage our countries as partners and collectively confront unfair trade practices, which undermine both our economies.

By doing so, we can make sure that we move forward in the right direction and prepare the ground for the continued growth and prosperity of our industry.

Together as a region, by fostering a spirit of cooperation and solidarity, we can navigate the complexities of the global economy and emerge stronger, more resilient, and better equipped to shape our future.

With that, thank you very much Ron, thank you very much Barry, thank you very much to all of the AIST members for this award and this honor of talking here today. Thank you very much to all. ♦

