



2022

AIST William T. Hogan, S.J. Memorial Lecture



The Modern Steelmaker — A World of Opportunity

Barbara R. Smith / Chairman of the Board, President and Chief Executive Officer, Commercial Metals Company

Good morning. And thank you for your kind introduction, Steve [Henderson]. I would also like to thank Ron Ashburn and the AIST board. I am humbled to be recognized with the Father Hogan Award and honored to speak with all of you today.

And congratulations Mark [Millett] on being named this year's Steelmaker of the Year. A couple of years ago I was sitting in your seat, and

I remember that you were one of the first people to call to congratulate me, so it is a real honor to be here today as we celebrate your recognition as Steelmaker of the Year for a second time! Once again, congratulations Mark on this well-deserved acknowledgment of your leadership and success in the industry.





Over the past two days, many of us have attended roundtable discussions, meetings, presentations and technical sessions, and we have visited many of the booths in the exhibition hall. We have networked with one another, met new industry experts and shared ideas about the future. Among you and the exhibitors are some of our industry's most important technology leaders.

I don't need to stand here today and educate you on the current and future technological aspects of our industry, as so many past years' keynote speakers have done so well. Steve highlighted in his opening remarks a number of exciting technological advances which will carry the industry forward, creating enormous opportunity for the next generation of steelmakers.

So, I would like to break with that tradition.

Instead, I want to offer some thoughts on an issue no less critical. My topic today will focus on what it means to be a modern steelmaker — or to become a modern steelmaker, where there is so much opportunity.

It's an issue we don't often address in settings such as this, yet it is crucial to our future.

One of the most pressing challenges we face as an industry is our ability to attract, train and retain a workforce that has the skills, the passion and the ambition to maximize technology's positive impact on how we operate ... and what we can accomplish ... to not only build a better world with steel, but to build a better world by how we make steel.

Candidly, looking at how we as an industry are faring, my fear is that we are falling dangerously behind in the war for talent.

We need to consider how the world and the competition for human resources is evolving. We must fully recognize we are no longer only competing with one another for the best talent. We are competing with organizations that have

positioned themselves as "attractive" places to work — companies like the Apples and Googles of the world, among many others.

We are competing with the financial services industry for this talent. We are competing with other manufacturing industries for the best talent.

Despite the fact that these and other organizations and industries have unique needs and deliverables very different from our own, we are all competing for the same pool of smart, motivated, tech-savvy individuals.

But here's the irony: We in the steel industry have a great story to tell about ourselves. We offer young people — who increasingly want to work for "mission-driven" companies and who hunger to change the world — a unique opportunity unavailable to them elsewhere.

But for reasons I'll talk about, we may not be doing a good enough job at telling — or selling — what we have to offer.

We need to figure out what our compelling narrative is and communicate it more effectively.

If we don't begin to recognize this and adapt, we won't just continue to fall behind, we may never be able to catch up.

Here's why I say this: We have always thought of ourselves as an asset-intensive industry, and we are. But in order to realize the full potential of our assets we need the best people managing, operating and improving those assets.

As we all know deep in our souls, it's the people who make our businesses successful. Our people are our most valuable asset!

Historically, our workers had to be physically strong, as well as skilled and determined — characteristics that mattered when it took 10 man-hours to make a ton of steel versus the less than one man-hour it takes today.

We still need some of these workers. But more than ever, we need people who can make the most of the highly automated assets we have now, as well as discover, develop and manage the technology that will be needed tomorrow.

The technology of the future is increasingly digital. Consider the impact of moving from automation, where one person monitors a variety of technologies that are doing the work, to artificial intelligence, where software, with input from hundreds of sensors, will independently adjust variables to generate specific outcomes and improve steelmaking performance over time.

To make the most of these and other technologies requires a different kind of labor force and talent pool than we have traditionally relied upon.

We knew what we needed back then, and we know what we need now. The question is, how do we build that workforce that will be critical to our future in a fiercely competitive talent environment?

Let's say you are a college graduate deciding where to make your career. You've invested four years and tens of thousands of dollars studying software or electrical engineering; data analytics and AI; automation systems and robotics; or a wide variety of other cutting-edge topics.

You're a digital native. You've grown up with technology and "get it" in a way your parents don't. It's a language, a way of thinking, that's as natural to you as knowing how to read and write.

You're young and idealistic. You want a meaningful career. You want to help solve big problems, make a positive difference on a range of issues. Maybe you are passionate about solving issues related to climate change, which organizations from the Business Roundtable to the UN call the "biggest threat modern humans have ever faced."

Research, such as Edelman's recent Trust report, shows that today's generation of workers want to work for a company that not only has a strong purpose, but a purpose based on issues you care about and

values you share. Today, more than half of employees... 60%, in fact... choose, leave, avoid or consider a place to work based on their beliefs and values, according to Edelman research.

And this next generation of talent is in high demand. Every industry not only wants them, but needs them. These employees can chart their own course; the world is, as they say, their "oyster."

I'm here to say to those young people right now, on behalf of my organization, CMC, and I believe, on behalf of the companies all of you here today represent: We need you in the steel industry. We need your skills, your knowledge, your vision. We need your passion and your drive.

More importantly, we care about the same issues you care about and we share the same values.

So, I say, come join us.

But will they?

Will these smart, savvy young people — more than 70% of whom, according to the Edelman research, want "meaningful work that shapes society" — want to make their careers with us in the steel industry?

The truth is, I'm not convinced they will. And that's a problem for the future of our industry.

A very big problem.

Before we talk about why they should want to join us, and what we can do about it, let's talk briefly about why they may not want to join us.

After all, what do they see when the steel industry is in the news? How does the media, how does pop culture, how does the ESG movement, portray the steel industry? What's the image tomorrow's workforce conjures in their minds about us?

I can tell you — and I know you'll agree — that for the most part, it's far from today's reality.

It's imagery and ideas stuck in the past, almost all of it ridiculous to those of us in

the industry today, yet it is what still drives the narrative.

It's images of smokestacks belching clouds of particulates and CO₂. Three-thousand-degree blast furnaces. The faces of men handling hot billets, in front of furnaces with plumes of hot gases lighting the interior. It's a picture of an unsafe and unattractive environment. Dilapidated rust belt towns.

It's all very visual. And it tells a story. But here's our conundrum: it's no longer our story. It's yesterday's news... 20, 30, 40, 50 years out of date. But, much to our detriment, it's lingering.

So who can blame an optimistic young person looking to make their mark in the world — even to save the world from the many challenges and crises it faces — from saying, “no, thank you,” if that's what comes to mind?

They want to be part of the solution, after all; not part of an industry they believe is part of the problem. That is so

ironic, because steel will always be needed. Nothing can replace it.

As an article in *The New Yorker* magazine last year pointed out, steel is “part of seemingly everything, including buildings, bridges, fridges, planes, trains and automobiles.”

It seems to me that if you want to have an impact on the world, there's no better way





quitting their job in 2021, and we know many actually did.

Furthermore, Baby Boomers, the youngest of whom are 58 years old, are retiring in record numbers. And younger generations, the Millennials and Gen Z, aren't pursuing careers as their Boomer parents did. With the transfer in wealth from Boomers to their children estimated to be US\$68 trillion over the next 12 years alone, they will become the richest generation on earth, and that transfer of wealth is going to impact their perspective on work, making it an even more challenging and competitive environment in which to build the workforce we need.

Our ability to attract, develop and retain a skilled workforce — equipped not with the skills needed 20 years ago, but with those that will be needed 20 years from now — is among the most pressing,

urgent issues we face as an industry today.

That's why I believe this is an existential fight for our futures.

By "our" I don't mean the steel industry's alone. After all, as "part of seemingly everything," steel is the backbone of an incredible array of products and industries, and in turn, much of the world economy.

The U.S. Department of Energy views the steel industry — our industry — as a potential catalyst to define the path for all of manufacturing to follow.

As Ron Ashburn said to me, "that's an audacious responsibility, a huge challenge and a generational opportunity for steel."

I couldn't agree more, Ron.

We must be a vibrant industry and we must have the workforce of the future that can support it.

than to work with one of its essential commodities.

Steel is not going away. According to some estimates, global demand for steel will nearly double by 2050.

Will we be able to meet that demand? Good question.

Compounding our efforts to do so, to build tomorrow's workforce, is the challenge of maintaining the one we have today.

As Steve mentioned in his opening remarks, the pandemic created what we now know as "the great resignation," with more than 20 million people in the U.S. voluntarily leaving their jobs. This isn't a U.S. problem alone. Not too long ago, *The Washington Post* ran a story headlined "The 'Great Resignation' Goes Global."

In fact, according to Microsoft's 2021 Work Trend Index, more than 40% of the global workforce considered

Our shared future depends on it.

So what is the opportunity we offer a future workforce? I think maybe we don't realize just how big it is: The opportunity is nothing less than to be a part of the ongoing transformation of one of the most critical industries on earth, and in doing so, to protect and preserve the planet for generations to come, if not millennia.

If purpose-driven, environmentally concerned and technologically savvy young people today are searching for a way to make a real, tangible, lasting difference, then why wouldn't they want to join our industry?

Why wouldn't they want to grab the opportunity to be a vital part of solving the challenge of decarbonization, which some define as among the single greatest challenges of our time?

Equally important, when they do join us, they're not only helping to make the steel industry greener, cleaner and leaner, but all of the industries that rely on steel for their own products — from the construction sector, which uses 50% of all the steel that's produced, to automobile and automotive component manufacturing, metal goods fabrication, shipbuilding,

machinery manufacturing and energy infrastructure, among others.

This is a very positive narrative, demonstrably grounded in fact, and it's also a very compelling story.

It hasn't helped that the ESG movement and some in the media and government — despite what they say are their best intentions — have targeted us, without recognizing how we've taken the lead on the issues they care about most, and the extraordinary progress we've made in addressing them. We hold the solutions to the problem, we are not the problem itself!



Nationwide Labor Shortage



It is becoming increasingly clear that our reticence to tell our story — to showcase the progress we've made, to be honest about the challenges we still face and the opportunity that exists to overcome them — is holding us back.

It has allowed an outdated image and vision of us to become fixed in the popular imagination.

It has allowed the voice of some activists to take away the power of our actions.

Our reticence is hurting us and will only get worse if we don't do something about it.

As I mentioned earlier, we have an appealing story to tell, at least in the U.S., a genuinely good, technologically based, future-forward, environmentally advanced, good-for-society story to tell that can establish us as one of the most exciting industries in the world, an industry that can give employees the opportunity to do well for themselves, their families and communities, while making a positive, meaningful difference in the world.

Because of steel's ubiquity, that's a claim few other industries can make.

This is a story that can attract the talent we need to create a better future for our industry and, frankly, for the world.

Let's state at the outset, however, that steel in general is one of the world's largest producers of greenhouse gases; in fact, it is among the three biggest producers of carbon dioxide. A recent report from McKinsey noted that our industry is responsible for about 7% of global carbon dioxide emissions.

More concerning, steelmakers not based in North America and Europe have contributed to the increase in emissions intensity globally over the past 20 years — and are responsible for the nearly 6% deterioration in energy efficiency in that same time period. They continue these behaviors not only at their own peril, but to the detriment of our entire industry. They mar the great record so many of us have created, and they feed the narrative that is an obstacle to attracting and building the workforce of tomorrow.

This is exactly why we need that workforce — to ensure that as an industry we continue moving forward, not backward.

On the one hand, all of us here are competitors. On the other hand, we are bound together, and we rise and fall together, too.

This is both our challenge and our opportunity: we've got a problem and we have to solve it.

But it's a journey.

What we've accomplished thus far, where we stand today and the road ahead, is our story, and it is the key to our winning the war for talent.

That image of the steel industry I spoke of earlier is outdated for a lot of reasons, but perhaps most especially because in the U.S., at least, over 70% of the United States' industry's capacity is electric arc furnace — modern, scrap-based, as green as the Chicago River on St. Patrick's Day.

This is the image of today's steelmaking at CMC, no billowing smoke... it's an image to be proud of!

I don't need to tell you that EAF technology uses less energy — 80% less energy than the industry average — and produces 75% less CO₂ per ton of steel we melt.

EAF technology recycles scrap that would otherwise flow into landfills.

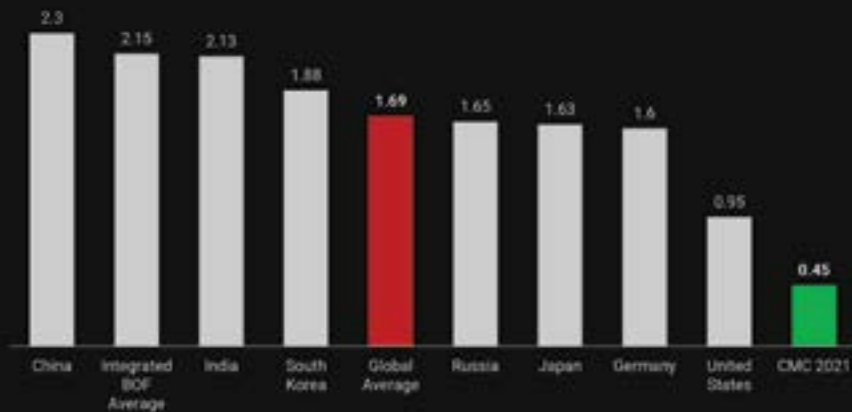
Scrap is not only the most recycled material in the world, but more than many other materials, it can be recycled again and again without losing any of its original quality or properties.

Technology and our free market economy allowed the electric arc furnace to flourish in the U.S., starting with the least complex product that can be converted from scrap — reinforcing bar.

Rebar is the strength within reinforced concrete, which in turn forms the bridges we cross, the dams that provide water and generate power for us, the stadiums where we support our favorite teams, and the buildings where many of us work and live.

The development of the EAF is a study in how technology can quickly evolve to address customer needs. In its infancy, the electric arc furnace produced rebar,

Scope 1 & 2 Greenhouse Gas



Source: Global Efficiency Intelligence LLC, How Clean is the U.S. Steel Industry? (Dec. 2018); CMC Sustainability Report (2021 Company data); EJ figures (EUROFER)

with less-demanding quality requirements, not the higher purity necessary for more sophisticated uses such as, say, the body of a car, where imperfections would be noticeable and therefore unacceptable.

But EAF technology got better, such that it became suitable for hot-rolled steel and uses that require more precision. The more the electric arc furnace could accomplish with rebar and merchant, the more market share it gained ... and, not incidentally, the greener the industry became.

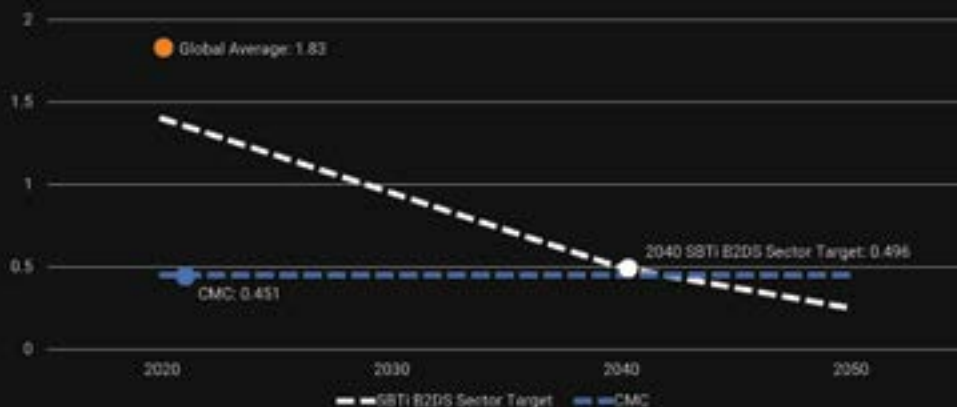
Technology continues to rapidly evolve as we develop new green energy sources to make steel.

At CMC, 100% of our steel-producing facilities use electric arc furnace technology. Our scrap-based micro- and mini-mills consume fewer natural resources, use less energy and release fewer emissions than would have been imaginable even one generation ago.



Paris Climate Agreement Below 2°C Scenario (B2DS)

Scope 1 and 2 Greenhouse Gas Intensities (metric tons of CO₂e per metric ton of steel)



I'm proud that while most steel producers are changing their steelmaking processes to become greener, at CMC we're naturally green and naturally sustainable. It's in our DNA.

Founded 107 years ago as a metals recycler, we carry on that legacy today, operating possibly the cleanest portfolio of steel mills in the world.

We only use 100% recycled scrap steel as the primary material in our steel production process.

Our mills average 98% total recycled content as our steel input, the remaining 2% being alloys that are added to achieve specific grades of steel for customer applications.

In fact, our metal-shredding operations at CMC take recycling to the next level by processing the fluff to extract virtually all metals, which we sell for use in producing new copper and aluminum products that are used in everyday life.

We effectively operate in a closed-loop cycle of steel recycling, production and fabrication, with materials being returned to our recycling operations at the end of

their life for use as raw material in new steel production.

Overall, we prevent over 19 billion lbs. of scrap metal from being added to landfills annually.

Because we only operate scrap-based electric arc furnaces, we have a much lower carbon footprint than the overall steel industry. Our electric arc furnace, scrap-based mini-mills and micro-mills are inherently greener than other steelmaking processes.

And to further improve the efficiency of and reduce the emissions from electric arc furnaces, we're currently building the next-generation micro-mill for the production of merchant bar in addition to rebar adjacent to our existing mill in Mesa, Ariz. So you see the pattern: the innovative micro-mill is now evolving to a more complex set of products, similar to how the EAF mini-mills evolved to now produce prime flat roll. In addition to the new product capability, this mill will also have the capability to directly connect to renewable energy sources.

Industries around the globe are aligning with the Paris Climate

Agreement and setting targets for Scope 1 and 2 emissions by 2050, and some of your companies are setting targets as well. Because of our innovative, environmentally forward process of making steel, CMC is already well below the benchmarks that have been set for the steel industry for 2040 and we are continuing to improve.

I tell you all this because I believe our strategy at CMC, and the technology that powers it, is a great example of the direction our industry is heading, and what we can accomplish when we make the right investments ... when we apply the right resources ... and when we look beyond short-term benefits and toward our shared, long-term viability and growth.

It also addresses the E — environment — of ESG, which is more important than ever to today's purpose-driven post-Boomer generations.

Our environmental record at CMC and that of our industry peers in the U.S. speaks for itself.

Where it gets muddled, perhaps, is the pressure on the U.S. steel industry by those who don't recognize the progress we've made. After all, U.S. steelmakers are demonstrably the most efficient and productive in the world.

But no matter how much progress we make in the U.S., our success addressing environmental issues requires others to follow our example.

Today, 70% of steel produced globally is still using traditional steelmaking practices and only 30% with clean electric arc furnace technology.

Why? Several reasons.

Partly it's because it takes far fewer employees to operate electric arc furnace technology. Same output, fewer labor hours.

For some governments, maintaining employment levels takes precedence over modernizing their steel industry so it relies on more efficient, greener, lower-cost technology.

Jobs are obviously important. But I believe a cleaner, greener steel industry won't necessarily lead to fewer jobs overall; it will lead to more highly technical jobs in steel and adjacent industries and sectors.

And that leads us to the S in ESG — society.

I like to remind people that we don't only care about the environment because it is proven to be good for business, though of course it has been proven.

We are people, after all, who care about the world we live in and the world we are handing to our children and their children.

At CMC, we live in the communities where we operate, and as an organization we are deeply involved in them, in addition to often being a large employer in those communities.

So building healthy, economically stable communities, as well as ensuring high-quality jobs and the training and support necessary to sustain them, are important to us for a multitude of reasons.

And while there's more work to be done, we're also a diverse industry.

I can't speak for other companies, but at CMC 55% of our board of directors are diverse, either women or non-white males, as are 50% of our executive leadership team. If representation matters, and it does, then we are setting a good example for our female and, I might add, male employees.

Forty-one percent of our employees are non-white. And, with one in eight of our workforce being female, we're committed to creating more female steelworkers in the future.

With the need to continue to diversify our team, as well as offer a modern, compelling recruiting and hiring experience for the new generation of steelworkers, we're evolving our practices so we can better attract and engage with the type of employees we seek.

We've upgraded our recruiting system in the U.S., adopting a mobile-friendly system that provides more transparency around generational shifts in the workforce. It allows us to be better equipped to leverage data to improve our recruiting and hiring process and enables us to identify qualified candidates for open positions. In Poland, where we also have facilities, we use a similar recruiting system to drive diversity.

As for governance — the G in ESG — we operate an efficient, productive and fiscally healthy organization. Without that, none of what I've spoken about here this morning matters.



As an industry — especially as leaders in it — let's stop playing defense and start playing offense.

Let's engage with policymakers so they understand how their policies can help or hinder us as we pursue our business and ESG goals.

Let's talk with the media more, and with more confidence, so it can report fairly and accurately on our work, and not take the easy way out and fall back on outdated imagery that for too long have defined and, in many ways, defiled us.

Let's be clearer than ever with the financial community on how our investments and strategies are paying off, both literally and as part of our obligation to be responsible corporate citizens.

Finally, let's be open, adaptable and welcoming to a new generation of workers whose talents and skills we can't live without.

At CMC, we have a Steelmaker Statue in front of each of our mills as a representation and symbol of our strength, grit and responsibility. There is a purpose behind his pose, with his hand outstretched. The hand is pointing to the future — the future of not only CMC, but of all steelmakers, and the future of our industry.

Along with all of us steering the industry today, the next generation of steelmakers will drive the future. And I believe the modern steelmaker is facing a world of opportunity!

We need to do all we can to make sure the best of them build their careers with us.

Thank you. ♦

We have to do well in order to invest in the technology that can help us evolve with purpose and, in turn, attract the people we need to keep it all moving forward in the future.

It's that simple.

The steel industry is on the leading edge of a transformation, so now is the time to build momentum and continue the industry transformation, not only in the U.S., but around the world. I would challenge other companies and countries to join in on this transformation and support not only the best interest of our climate, but our industry.

I hope, moving forward, the progress we've made at CMC and across the U.S. will receive more recognition by those in the ESG movement.

Our values and goals are fully aligned with the principles of the ESG movement, but sometimes we are penalized because our journey forward doesn't always follow the route the ESG movement believes we should take.

Our industry is going to continue to transform, and we can help shape that transformation, or be shaped by it.

To shape it, however, requires us to ensure we have the visionary, technologically advanced, creative, ingenious and inventive workforce that can lead us into a future of our own making.