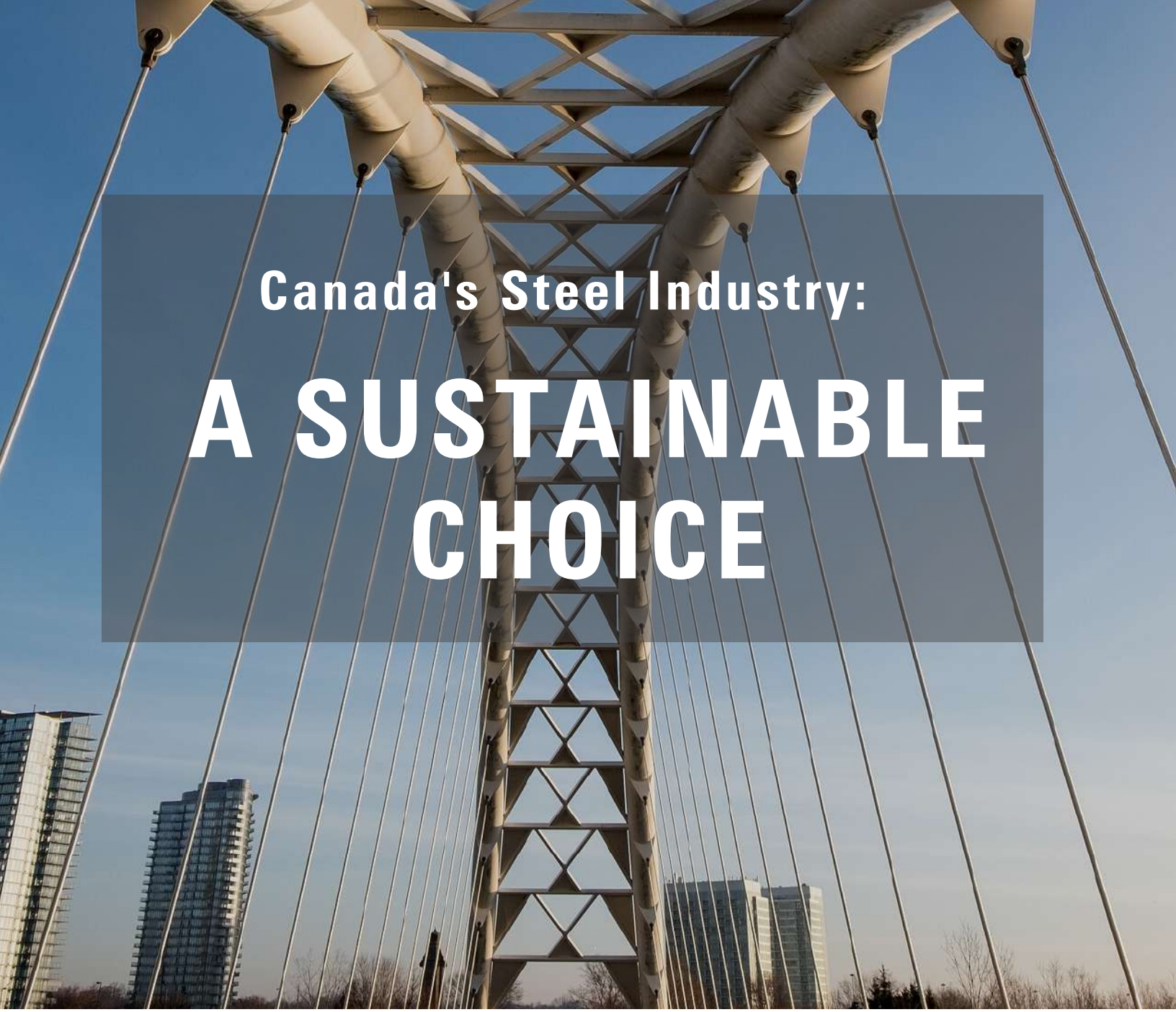


Canada's Steel Industry:

A SUSTAINABLE CHOICE

CSPA ACPA

www.canadiansteel.ca

#WeAreCdnSteel

President's Message

Steel is an essential material in our evolving world. It is in demand for the technologies and applications of modern society. And it will continue to be integral for the future.

The Canadian Steel Producers are proud of our contribution to the circular economy and the overall sustainability of our processes. Working with this 100% recyclable material, we know firsthand the benefits of its durability, reduced emissions, and the resulting conservation of raw materials.

The industry continues to make significant improvements in its environmental emissions profile and has reduced its greenhouse gas emissions by approximately 25% since 1990. However, we recognize that we must strive to seek ways to do more.

Canada is poised to be a global leader in fighting climate change. Members of the CSPA are ready to work on this global challenge and call on our governments and partners to support us. You will find in the following pages our ideas and perspectives on how we can move forward together for a greener, more sustainable future.

CATHERINE COBDEN
PRESIDENT, CANADIAN STEEL PRODUCERS ASSOCIATION

WE ARE CANADIAN STEEL

The Canadian Steel Producers Association (CSPA) is the national voice of Canada's $15 billion steel industry. Our member companies annually produce approximately 13 million tonnes of primary steel as well as over 1 million tonnes of steel pipe and tube products in facilities located across Canada. Domestic steel operations directly employ some 23,000 Canadians while supporting an additional 100,000 indirect jobs.

Canadian steel producers are a critical component of Canada's economy and industrial base, serving the needs of North American customers with high quality, competitive, and innovative products. Key market segments for member companies include: automotive; energy discovery, extraction, and transport; major infrastructure projects; commercial/residential construction; renewable energy creation; and many general manufacturing applications.

CSPA is committed to fostering a strong and sustainable future for Canada's vital steel producers and enabling our members to prosper in both domestic and international markets.

Canadian Steel Markets

- Energy discovery, extraction, & transport
- Automotive
- Commercial & residential construction
- Major infrastructure projects
- Renewable energy creation
- Other general manufacturing applications

ALGOMA STEEL INC.

AltaSteel

ArcelorMittal DOFASCO | HAMILTON

ArcelorMittal Long Products Canada

EVRAZ NORTH AMERICA

GERDAU

IVACO ROLLING MILLS

RioTinto Fer et Titane

STELCO

Tenaris

THE CORNERSTONE OF THE CANADIAN ECONOMY

Vital Economic Engine

The Canadian steel industry has a long, proud history as a cornerstone of the Canadian economy. Steel is inextricably linked with Canada's economic growth and prosperity. Steel producers are significant employers in Canada and enable economic growth as a critical supplier to other key sectors, such as manufacturing, infrastructure, transportation, and energy.

Responsibly Produced

Steel is 100% recyclable and the most recycled material in the world. Canadian steel producers are an integral part of the global circular economy by playing a pivotal role in the recycling of steel and other metals. Canadian producers continue to improve their environmental stewardship by adopting innovative technologies and by ensuring best practices across their operations.

Essential for Everyday Life

Steel is everywhere in our lives and essential to modern society. Canadian producers provide steel for automobiles, buildings, and infrastructure such as rail, roads, and bridges. Canadian steel is also essential in the energy industry: from drilling and extraction to processing and distributing to renewable energy production.

CANADA'S STEEL PRODUCERS HAVE THE AMBITION TO ACHIEVE NET-ZERO CO_2 EMISSIONS BY 2050.

This is our aspirational goal. We believe it can be achieved if we work with our governments and other stakeholders.

We believe that together we can secure the significant capital investments and partnerships needed to implement transformational change and leverage breakthrough technologies over the next 30 years.

Our climate approach is based upon achieving five key conditions for success:

- **Creating unique partnerships & research collaborations**
- **Developing & adopting breakthrough clean technologies & innovative products**
- **Driving operational excellence through state of the art manufacturing**
- **Levelling the playing field & supporting carbon advantages of domestic use of Canadian steel**
- **Ensuring global leaderership in sustainability, energy management, & environmental best practices**

IMPLEMENTING THE PLAN: IMMEDIATE ACTIONS

The magnitude of the challenge facing the steel sector in implementing this strategy is immense.

We must work with all governments, stakeholders, customers, and the supply chain to achieve our vision of a low-carbon steel sector. A robust approach of policies, tools, and programs are critical to enabling the deployment of low-emissions steelmaking.

To support the realization of this strategy, CSPA members are seeking tools that include:

- Establish a Canadian steel climate council with key government departments to monitor and report on the progress of the sector's climate strategy, to share practices, to engage with other stakeholders, and to evolve the plan as new information and insights emerge;
- Recycle all carbon pricing revenues from the steel sector back into the industry to support the development of low-emission technologies;
- Expand access to abundant low/zero carbon energy supplies for domestic steelmaking operations;
- Maximize compliance mechanisms (such as carbon offsets) to manage emissions and associated regulatory burden linked to the path to low carbon transformation;
- Deepen existing innovation programming and secure additional funding to drive research, clean technology development, demonstration, and adoption of low carbon technologies in the steel sector and our supply chain, and ensure coordination across departments and governments;
- Develop procurement policies and enabling tools both federally and provincially that recognize the inherent carbon benefits of Canadian steel in domestic infrastructure projects; and
- Ensure that steel entering Canada from countries with higher carbon emissions are held to equivalent standards and costs. The use of border measures should be explored.

CANADA'S STEEL PRODUCERS' VISION FOR A MORE SUSTAINABLE FUTURE

THE DETAILS

STEEL SECTOR'S CLIMATE CHANGE CALL TO ACTION

Canada's steel producers have the aspirational goal to achieve net-zero CO_2 emissions by 2050. This means that we must significantly reduce net CO_2 emissions including through removal or offsets.

In order to achieve this aspirational goal, we need to work with stakeholders, including suppliers, customers, and government, to implement transformational changes and breakthrough technologies.

This includes significant capital investments, public-private partnerships, and policies that support the industry during the transition.

Given the scope of the effort and investment needed, the steel sector cannot do it alone.

This call to action is to seek support and invite others to join us to develop and implement new partnerships and solutions that will address climate emissions locally and globally.

Steel making is carbon intensive and there are no proven, commercially viable, low carbon alternatives to many aspects of our production processes in the near term.

To make the changes necessary to drastically reduce our greenhouse gas emissions, we must develop and adopt new breakthrough technologies.

We are seeking support to create an innovation ecosystem dedicated to supporting the steel sector's transition to the low carbon economy.

From deeper engagement of Canada's academic brain trust to improved access to demonstration capital to risk sharing mechanisms for first commercialization and adoption, we envision an innovation pipeline that can accelerate our transformation.

We are also calling for the immediate recognition of the domestic steel industry's unique carbon advantage in Canadian projects. CSPA's members have a greenhouse gas emission profile that is significantly less than foreign steel being shipped to Canada from China and other far-off places.

This is an important opportunity to ensure that inherent carbon benefits of Canadian steel in domestic projects are recognized in procurement projects across the country.

We also know that our existing electricity grid and more renewable and non-emitting energy sources on this grid will play a critically important role to further differentiating our products going forward.

Canada can play a vital role in finding solutions for the global steel industry while still ensuring the ongoing competitiveness of our domestic sector.

We believe that Canada's global leadership to address climate change, coupled with the commitment for action by the domestic steel industry, is a recipe for long-term success.

CREATING UNIQUE PARTNERSHIPS & RESEARCH COLLABORATIONS

The size and pace of investment needed to develop and adopt the needed new technological breakthroughs dictate that the steel sector cannot do it alone. There is a need for strong and unique partnerships (government, industry, educational institutions, etc.) to overcome the significant technological, economic, and business risks associated with this transformation.

We need a strong innovation system to drive ideation and creativity. The steel sector hopes to inspire more Canadian academics to this immense challenge. We hope to spawn new research areas driving toward our emission reduction goals. We hope to work with Canada's academic research councils including the National Sciences and Engineering Council of Canada (NSERC) to identify ways the steel sector can attract academics to this challenge. The steel sector will support partnerships focused on developing solutions. Supporting capital renewal is required so that Canada can move quickly on funding research, pilots, and commercialization.

We cannot rest on our laurels. There is an urgent need to build on the early success of Canada's steel sector's collaborative efforts.

Canada's steel sector has demonstrated its ability to embrace collaboration. A key example includes its decarbonization collaboration efforts through the Canadian Carbonization Research Association (CCRA). The CCRA is undertaking early research into a handful of promising technologies and is comprised of Canada's integrated steel producers, its existing metallurgical coal suppliers, and the Canadian Centre for Mineral and Energy Technology (CANMET), the federal government's research lab.

It is clear the industry has made significant moves in environmental stewardship. Yet we cannot rest on our laurels when there is more that can be done. There is an urgent need to build on the early success of Canada's steel sector's collaborative efforts.

DEVELOPING & ADOPTING BREAKTHROUGH TECHNOLOGIES AND NOVEL PRODUCTS

In order to drastically reduce the overall greenhouse gas emissions from the production of steel, the development of breakthrough technologies is crucial.

According to worldsteel, promising new technologies are being explored around the world. Some projects are in the early research stage while others are in pilot or demonstration phase and none are currently commercially viable.

- **Hydrogen as a reducing agent for iron ore and a fuel to replace fossil based carbon.**
- **Carbon capture and storage, as well as carbon capture and utilization.**
- **Electrification of fossil fuel processes such as reheat furnaces, stoves, ladle preheat furnaces, boilers, and building heat.**
- **Biomass and other wood residues as reducing agents to replace coal.**
- **Iron ore reduction by electrolysis.**

It will be very important to have low carbon production of electricity, hydrogen, and oxygen inputs to these new processes to ensure a net reduction in global carbon emissions.

Furthermore, in many applications, steel has a very long service life and as a result the contribution of modern steels in improving the energy efficiency of buildings, plants, machinery and transportation is very important.

Additionally, while steel already has a long service life, innovation in high strength and novel so-called modern steels improves the energy efficiency of buildings, plants, machinery, and transportation.

These modern steels also yield a significant reduction in weight, energy use, and overall greenhouse gas emissions.

According to worldsteel* avoided greenhouse gas emissions from the use of high-grade applications are on average six times higher than the greenhouse gas emissions from the production of these advanced steels.

A key contribution of the steel industry is to continue to work closely with its customers to optimize the design and use of steel as Canada transitions into a low-carbon economy. These are some examples of steel advantages that should be recognized and applied to the aspirational goal.

** worldsteel represents steel producers, national and regional steel industry associations, and steel research institutes. Members represent around 85% of global steel production.*

DRIVING OPERATIONAL EXCELLENCE

The steel industry has made significant reductions in greenhouse gas emissions in the past decades by improving energy efficiency, and deploying operational technologies and practices resulting in benefits to the environment and economy.

We have also adopted process control technology and other innovative technologies, such as robotics, to improve our process reliability, production yields, and overall production efficiencies to reduce losses and the amount of energy used to produce each tonne of steel. However, there is limited room for further improvement based on existing technology.

The adoption of new technologies to further advance and optimize steel manufacturing software control systems will continue to drive improvements in our sector.

Continued improvements in the steel supply chain, particularly through continued evolution of manufacturing technologies, will drive continued yield improvement from steel production to final steel in products, equipment, buildings, and infrastructure.

LEVEL THE PLAYING FIELD & SUPPORT CANADIAN STEEL'S CARBON ADVANTAGE

Global steel markets continue to evolve at a rapid pace and the competition for steel is exacerbated by a global overcapacity of roughly 440M tonnes according to the OECD.

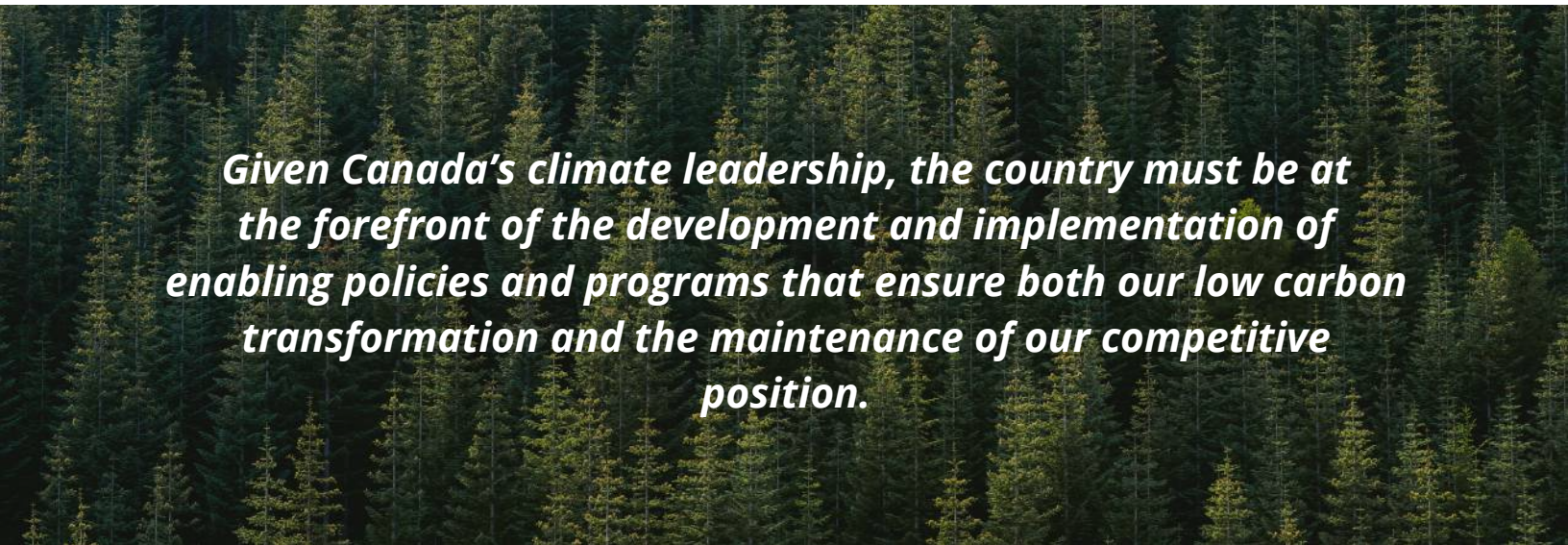
The need has never been greater for the sector to ensure a strong domestic marketplace, to evolve sustainably through innovation, and to ensure competitive advantages are built and protected in the face of these changing dynamics.

We are unlikely to see a level playing field on carbon reduction requirements across the world in the near term.

As a global climate leader, Canada has an opportunity and, indeed, an obligation to ensure climate considerations are embedded in a wide array of policies and programs that reward climate movers and support the low carbon transition of its domestic industry and economy.

To this end, the Canadian steel producers believe that procurement policies and trade measures such as carbon border adjustments must be reviewed to ensure that carbon leakage is prevented.

Simply placing carbon burden on Canada's domestic steel industry without recognizing the lack of carbon burden on our competition would place us at a significant competitive disadvantage.



Given Canada's climate leadership, the country must be at the forefront of the development and implementation of enabling policies and programs that ensure both our low carbon transformation and the maintenance of our competitive position.

ENSURING GLOBAL LEADERSHIP IN SUSTAINABILITY, ENERGY MANAGEMENT AND ENVIRONMENTAL BEST PRACTICES

Energy management and efficiency practices are a fundamental aspect of ongoing improvements to the sector's greenhouse gas emission profile. We have placed significant effort on improving operational and energy efficiency, resulting in a dramatic improvement over the years.

Moreover, ongoing efforts with the federal government continue to provide updated tools in support of the adoption of energy best practices and the implementation of technologies that maximize the benefits of Canada's ever-greening electricity grid.

As part of our climate strategy, it is critical that we have access to energy for our operations across Canada at a cost that allows us to compete. Access to renewable energy serves as a dual opportunity for our sector with anticipated greenhouse gas reductions given our high energy demand, as well as our unique role as a key supplier to the renewable energy market.

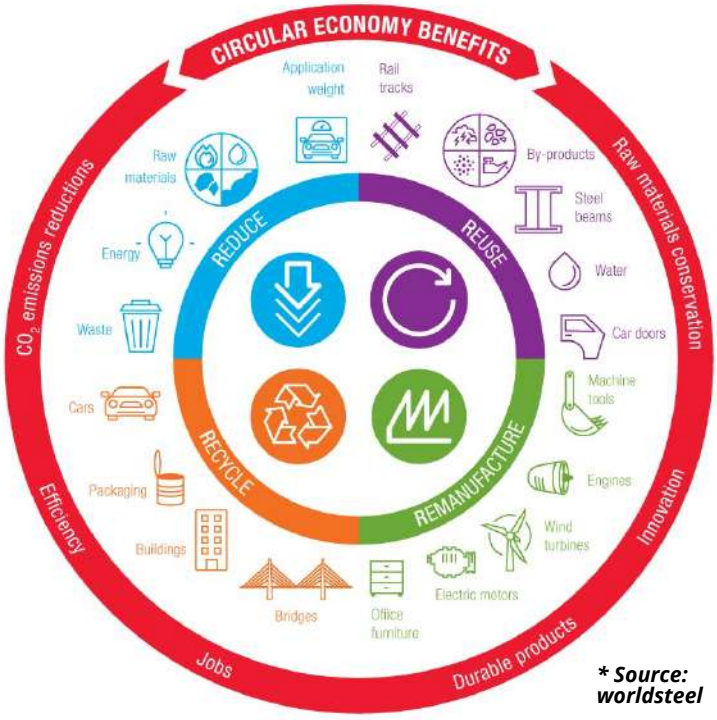
Renewable and non-fossil energy solutions, such as nuclear and hydro-electric, require steel for foundations, buildings, mounting racks, and, importantly, the transmission grid to connect it all. With the low CO_2 footprint of domestic steel, policies that consider the lifecycle costs of all components will be a win-win for the environment and the economy.

STEEL AND THE CIRCULAR ECONOMY

As a permanent material that can be recycled over and over again without losing its properties, steel is fundamental to the circular economy. The industry has continued to expand its offer of advanced, high-strength steels, which reduce the weight of applications and encourage circular economy practices.

For society, the benefits include reduced emissions, durable products that simply last a long time, and the conservation of raw materials for future generations. Steel is essential to our evolving world. It is essential to the technologies and solutions that meet society's needs today – and will continue to do so into the future.

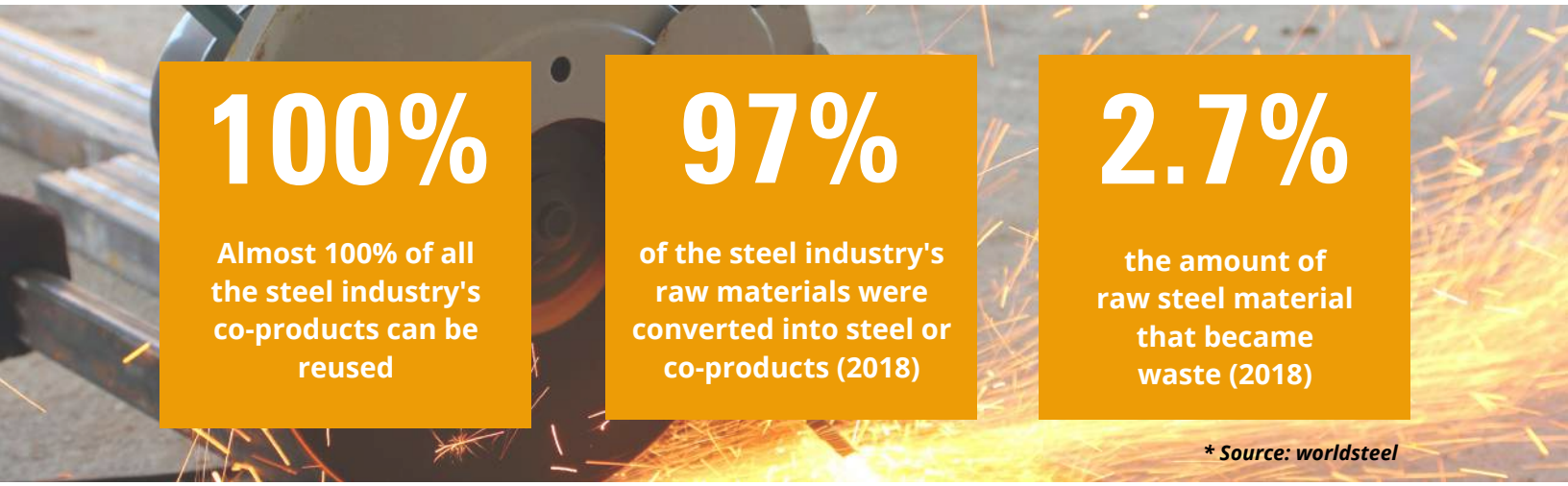
"Steel is essential to our evolving world."



** Source: worldsteel*

The Canadian steel sector is a key contributor to the circular economy through our significant capacity to infinitely recycle steel into new products. Today, material efficiency is an integral part of the modern steelmaking process.

Our goal is to use all raw materials to their full capacity, ensuring minimal waste and guaranteeing that almost every co-product formed during steelmaking is used in new products. In addition, many of our co-products are utilized for other applications in commerce and industries. This approach minimizes the amount of waste sent to landfill, reduces emissions, and preserves raw materials.



In a truly circular economy, products that stop working are restored to “as new” conditions in a process known as remanufacturing. Steel is 100% recyclable, easily recoverable from waste streams, and can be repurposed infinitely. This, in combination with a long history of significant efforts to increase recycling rates, has resulted in steel’s place as a leader in the circular economy as well as leading the country’s and the world’s recycling statistics.

In Canada today, an important proportion of our production is based on recycled scrap feedstock. The use of steel scrap reduces carbon emissions from the steel life cycle and should serve as an offset. Only truly recycled materials, which are never downgraded but are used again and again with no loss of properties, can enable a sustainable future. The non-renewable resources used to make steel, like minerals and fossil fuels, are not wasted because the steel will be used forever. It is also a material that will be essential in the strategies for climate change adaptation and resilience.

Over the past 50 years, the steel industry has invested in research and technology to create grades of advanced steels. For example, by reducing the weight, the amount of raw materials and energy used to create the product is decreased, reducing pressure on raw materials. Lighter weight applications which take advantage of high-strength steels, such as vehicles, also produce fewer emissions during the “use” phase of their life.

Whether it is a wind turbine, construction panel, vehicle, or steel can, the application of high-strength steels means that less steel is required to provide the same strength and functionality. Steel’s durability also enables many products to be reused at the end of their life. As well as extending the product’s life cycle, reuse avoids the need to transport and re-melt the steel and to create new products. This has significant advantages for the environment and maximizes the use of resources.

We are excited about the monumental benefits our climate aspiration has the potential to deliver, and we look forward to taking this challenge forward, in collaboration with all of our partners, including government.

CSPA ACPA

Contact Us

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