Energy & Climate Change

Organizations around the world are collaborating to take action against climate change. Implementing the Paris Agreement — which commits governments around the world to keep global temperature rise well below 2 °C — requires firm commitment, concrete actions and joint mobilization of all stakeholders in public and economic life. In response to the Paris Agreement as well as the United Nations Sustainable Development Goal 13 on climate action, a number of major mining jurisdictions made climate change commitments and are reporting on their progress towards implementing them.[6]

Teck recognizes the need to take action on climate change and we are committed to reducing greenhouse gas (GHG) emissions by improving energy efficiency and implementing low-carbon technologies, as well as advocating for climate change policies that facilitate the transition to a low-carbon economy. The copper and steelmaking coal produced at our operations are among the lowest carbon intensity products in the world compared to our peers, and we are building on that track record in how we approach our oil sands developments. In 2018, our Fort Hills oil sands mining and processing operation, a long-life, high-quality asset located in the Athabasca region of Alberta, achieved full production with an oil sands product that has a lower carbon intensity than approximately half the oil currently refined in the U.S.

In early 2018, we released a Climate Action and Portfolio Resilience report that outlines Teck's Strategy for Climate Action, goals and performance; assesses key climate-related risks and opportunities for our businesses; and considers the potential implications for Teck of two commonly used climate change-related scenarios. This report aligns with recommendations from the Task Force on Climate-related Financial Disclosure, which we support.

6 Energy Efficiency: Aggregate Performance. Mining Association of Canada.

Our Performance in Energy and Climate Change in 2018

Our Targets and Commitments: We take action to reduce GHG emissions by improving our energy efficiency and implementing low-carbon technologies. The following table summarizes our performance against our targets and 2020 sustainability goals for energy and climate change.

2020 Sustainability Strategy Goal	Status	Summary of Progress in 2018
Implement projects that reduce energy consumption by 2,500 terajoules (TJ).	On track	Reduced 2,220 TJ of energy consumption since 2011 through projects implemented, with additional projects identified for early 2019.
Implement projects that reduce GHG emissions by 275 kilotonnes (kt) of CO_2-equivalent (CO_2e).	Achieved	This goal was completed in 2017.
Assess opportunities and identify potential project partners toward achieving our 2030 alternative energy goal.	On track	Pursuing the purchase of SunMine, a solar farm in Kimberley, B.C., and there is a current focus by our technology and innovation groups to align projects with our transition to a low-carbon economy.
Engage with governments to advocate for effective and efficient carbon pricing.	On track	Advancing advocacy efforts on carbon pricing through engagements with the British Columbia, Alberta and Canadian governments.

2018 Key Performance Indicators

2018: Reduced 68 TJ

2017: Reduced 582 TJ

Indicator
Energy consumption

Target
2,500 TJ reduction by 2020

2018: Reduced 8 kt

2017: Reduced 281 kt

Indicator
GHG emissions by direct CO_2e

Target
275 kt reduction by 2020

2018: 27%

2017: 27%

Indicator
Energy use from non-carbon-emitting sources

Pictured on page 41: Marcos Cid, Energy Manager, at Carmen de Andacollo Operations' solar field in Chile.

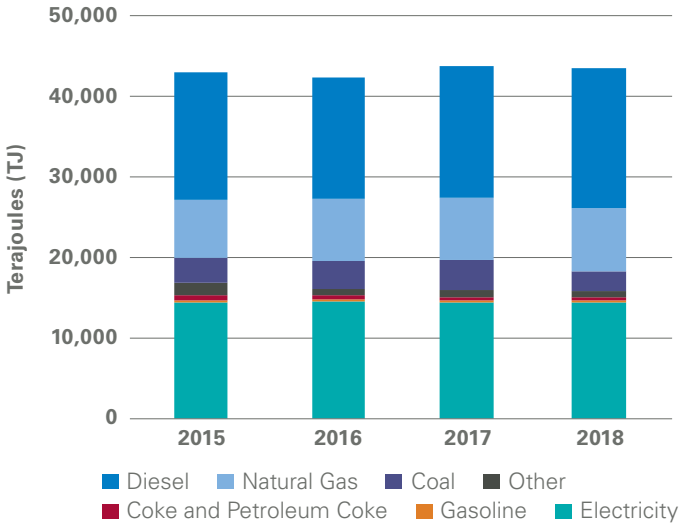
Positioning Teck to Thrive in the Low-Carbon Economy

Energy Use and Reduction

In 2018, we consumed a total of 43,722 TJ of energy (i.e., electricity and fuels), as compared to 43,899 TJ in 2017, as shown in Figure 12. In 2018, five of our operations reduced their absolute energy consumption from 2017.

Collectively, projects implemented in 2018 have reduced annual energy consumption at our operations by 68 TJ — enough to power 631 homes for a year. Since 2011, our efforts have resulted in reduction projects totalling 2,220 TJ of savings.

Figure 12: Energy Consumption by Type[1]



(1) Other includes propane, waste oil, fuel oils and other process fuels.

In 2018, approximately 27% of our energy requirements (i.e., electricity and fuels) were supplied by non-carbon-emitting sources, primarily hydroelectricity, compared to 27% in 2017.

Of our total electricity consumption in 2018, 81%, or 11,754 TJ, was from renewable energy sources, the majority of which is hydroelectricity.

In Figures 13 to 15, we outline our energy intensity, or the amount of energy used per tonne of product.

Figure 13: Steelmaking Coal Production Intensity

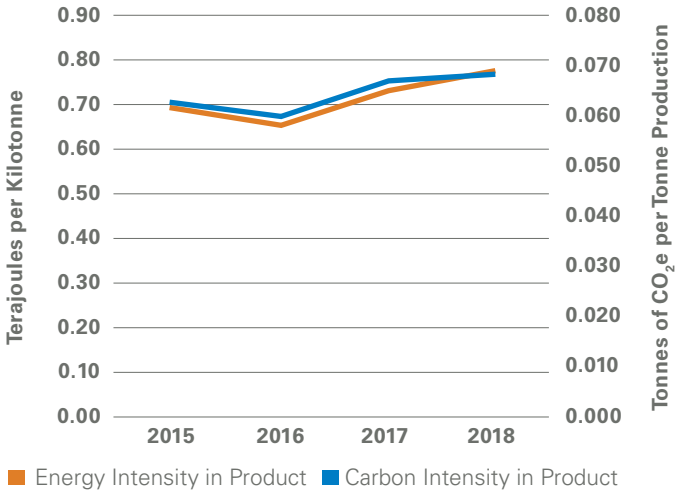


Figure 14: Zinc and Lead Production Intensity

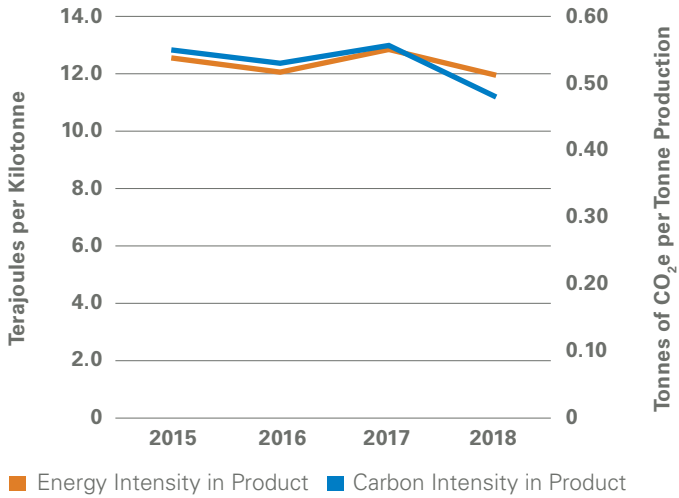
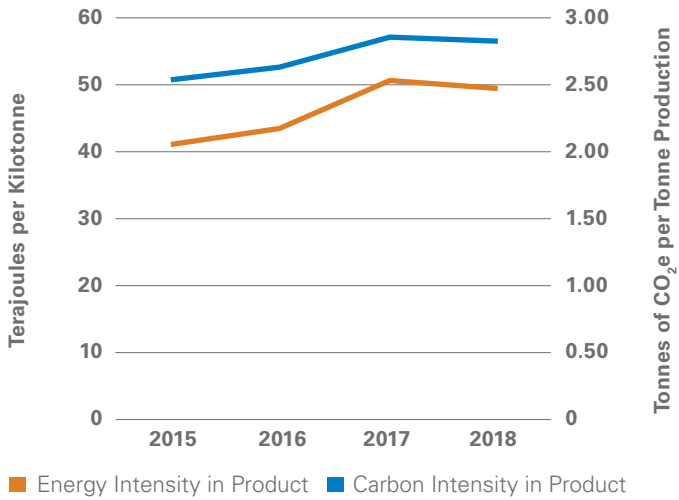


Figure 15: Copper Production Intensity



Energy and carbon intensity for the production of steelmaking coal increased in 2018 (Figure 13). This change is attributed to longer haul distances as well as our Coal Mountain Operations transitioning to approaching closure. According to data from the International Council of Mining and Metals (ICMM), at 67 kilograms of CO_2-equivalent per tonne of steelmaking coal produced, the emissions intensity of our steelmaking coal is less than half the industry average of more than 150 kilograms. Similarly, our copper production averages 2.6 tonnes of CO_2-equivalent per tonne of copper produced, which is 35% below the industry average of 4 tonnes. Our goal is to continue to improve the carbon intensity of our operations and future projects.

Investing in Alternative Energy

Teck is exploring opportunities for solar, wind and other low-carbon technologies. We are prioritizing these opportunities based on proximity to areas where we operate or have operated, opportunities where we may be able to gain expertise in renewables, opportunities to further explore specific technologies of interest to Teck, and the ability of projects to provide other sustainability benefits, such as for local communities.

Investing in our Energy Business Unit

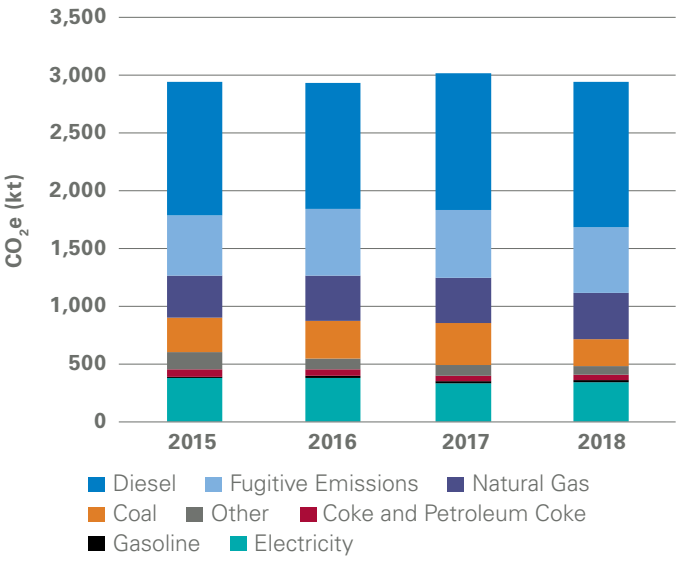
As the International Energy Agency (IEA) has articulated in looking at all future energy use scenarios, oil and gas will continue to be an important part of the world's energy mix for the foreseeable future, even in the transition to a low-carbon economy. Our focus is on helping to meet that need and on developing Canada's oil sands resources in the most sustainable way possible for people, for communities and for the environment.

We have a strong track record of taking steps to improve energy efficiency, reduce GHGs and lower the carbon intensity of our products. Both our steelmaking coal and copper production are among the lowest carbon intensity in the world, and we are building on that track record in how we approach our oil sands development. In 2018, our Fort Hills oil sands mining and processing operation, a long-life, high-quality asset located in the Athabasca region of Alberta, achieved full production with an oil sands product that has a lower carbon intensity than approximately half the oil currently refined in the U.S.

Reducing Our Carbon Footprint[7]

Throughout our business units, operations and project planning stages, a full spectrum of environmental risks are assessed, including those associated with energy use and GHG emissions.

Figure 16: Scope 1 and Scope 2 GHG Emissions by Fuel Type[(1)(2)]



(1) For electricity emissions in Canada, the emission factors use 2010 as a base year and are based on the 2012 Canadian National Inventory Report.
(2) Fugitive emissions from our coal operations (i.e., estimated methane release) are captured as direct emissions. For fugitive emissions, the emission factors use 2010 as a base year and are based on the 2010 Canadian National Inventory Report.

As shown in Figure 16, Scope 1 (direct) GHG emissions are those that occur from energy sources that are owned or controlled by the company. Scope 2 (indirect) GHG emissions are those that occur from the generation of purchased electricity consumed by the company, and physically occur at the facility where electricity is generated.

In 2018, our total GHG emissions (Scope 1 and Scope 2), as CO_2e, were 2,939 kilotonnes (kt), compared to 3,010 kt in 2017. Of those totals, our direct (Scope 1) GHG emissions were 2,598 kt in 2018, compared to 2,682 kt in 2017. We estimate our indirect (Scope 2) GHG emissions associated with electricity use for 2018 to be 341 kt, or approximately 12% of our total emissions. These emissions are associated primarily with our Cardinal River, Carmen de Andacollo and Quebrada Blanca operations, as their electricity power grids are based heavily on fossil fuels. Elsewhere, our indirect emissions were relatively small, as operations in B.C. and Washington state obtain a significant proportion of their electricity from hydroelectric generation.

Scope 3 emissions are other emissions that arise from sources owned or controlled by other entities within our value chain, such as those arising from business travel by employees, the use of our products, and the transportation of materials that we purchase and sell. Our most material Scope 3 emissions are from the use of our steelmaking coal product by our customers.

7 In 2016, we updated the Global Warming Potential values for all of our GHG accounting to align with regulatory requirements; therefore, historical values have been restated. Global Warming Potentials are the factors that convert greenhouse gases — like methane (CH_4) — to a carbon dioxide equivalent (CO_2e), thereby standardizing the quantification of GHG emissions.

Table 14: Total Emissions (kilotonnes CO_2e)[1]

	2018	2017	2016	2015
Total emissions — direct (Scope 1)	**2,598**	2,682	2,552	2,551
Total emissions — indirect (Scope 2)	**341**	328	379	373
Total emissions (Scope 1 + Scope 2)	**2,939**	3,010	2,931	2,934
Total emissions — Scope 3	**76,000**	78,438	79,053	76,000

(1) Teck's quantification methodology for our Scope 1 and Scope 2 emissions is aligned with The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard.

Innovation Highlight — Building a Smarter Shovel

Most people think of a shovel as a pretty basic tool — you use it to move stuff from one place to another. But what if the shovel was smart? What if it could analyze and know exactly what it was carrying? That's the idea behind a new mining technology Teck is pioneering to improve productivity and sustainability at our operations.

To make a shovel smart, sensors are mounted on the shovel bucket and use X-rays to tell the difference between waste rock and valuable ore, one shovel load at a time. The sensors, combined with analytics, provide real-time information to determine whether the load is worth sending to the mill for processing, or for handling as waste rock. Decisions that were once a matter of informed estimates can instead be based on real-time data, leading to improved mill productivity, reduced energy use and less water consumption.

Learn more about our approach to innovation and technology.

Uniting Thought Leaders

Climate change impacts every part of the world, every community and every person. The sheer scale of the challenges makes it too big and too complex to tackle alone. That's why, in 2017, Teck began working with a unique group of organizations — industry, environmental groups and academia — to accomplish a shared goal: finding real, effective solutions to climate policy challenges for the extractives industry.

This collaboration, including Teck, Pembina Institute, Clean Energy Canada, academia and members of the resource industry, were first brought together for an informal discussion over dinner hosted by Marcia Smith, Teck's Senior Vice President of Sustainability and External Affairs, and Merran Smith, Executive Director of Clean Energy Canada. They quickly discovered that, despite their diverse backgrounds, they all had a common desire to ensure that the carbon pricing system in B.C. delivered on its intended objective: to reduce industrial emissions without having having unintended negative economic impacts.

In particular, the group focused on the value of carbon taxes as an effective way to reduce carbon emissions when coupled with measures to prevent carbon leakage for emissions-intensive trade-exposed (EITE) industries. Carbon leakage occurs when industry activities and associated emissions shift from one jurisdiction to another because of a difference in the stringency of climate policies, resulting in no net reduction to global greenhouse gas (GHG) emissions, or even a potential increase.

The group collaboratively developed and endorsed a policy based on GHG emissions output that featured a pricing incentive to reduce GHG emissions from industrial activities while also preventing carbon leakage. They took this proposal to the B.C. and Canadian governments, who have both subsequently used this work as a foundation for their respective carbon pricing policies.

"Canada and B.C. have the opportunity to act as leaders in the world's transition to a low-carbon economy while also continuing to strengthen our economy and support healthy communities," said Marcia Smith." We believe that the broad-based pricing of carbon is one of the most effective ways to incentivize real reductions in GHG emissions by ensuring that all emitters contribute to the solution. An appropriately developed output-based carbon pricing solution provides an effective incentive for big emitters to reduce emissions while also ensuring they stay competitive with jurisdictions that have less progressive climate policies."

Following this success, six members of the group (pictured above) were appointed to British Columbia's Climate Solutions and Clean Growth Advisory Council, with Marcia Smith of Teck and Merran Smith of Clean Energy Canada appointed as council chairs.

For more information, visit Teck's Taking Action on Climate Change web page.

Carbon Pricing and Advocating for Climate Action

We believe that broad-based pricing of carbon is one of the most effective ways to incentivize real reductions in GHG emissions by ensuring that all emitters contribute to the solution. In 2018, we continued to advocate for carbon pricing policies that maintain the global competitiveness of trade-exposed industries to prevent carbon leakage, which is when GHG emissions move from one jurisdiction to another as a result of differences in carbon prices. Currently, all of our steelmaking coal operations are covered by carbon pricing, as is half of our copper business, our Fort Hills oil sands mine and all of our metals refining business.

We continue to see a trend among governments to pursue climate change policies. The most significant action has taken place in Canada, where the majority of our operations are located, and Canada has some of the highest carbon prices in the world.[8] In 2018, the Province of B.C. increased the carbon tax by $5 per tonne of CO_2e from $30 to $35. This price is expected to increase by $5 per tonne of CO_2e per year until reaching $50 per tonne of CO_2e. The B.C. Government also made a commitment to address impacts on emissions-intensive, trade-exposed industries to ensure that B.C. operations maintain their competitiveness and to minimize carbon leakage. In 2018, the Province of Alberta transitioned to the Carbon Competitiveness Incentive Regulation, the industry-specific carbon pricing policy set to replace the previous Specified Gas Emitters Regulation, which concluded in 2017. We will continue to assess the potential implications of the updated policies on our operations and projects.

Adapting to Physical Impacts

We are taking steps to guard against the future impacts of climate change, as we recognize that ongoing changes to climate could pose a potential physical risk to our mining operations and to related infrastructure.

In 2018, we hosted a workshop with Acclimatise on physical climate risks and opportunities, and new methods of climate adaptation planning. The workshop gathered people from across Teck to discuss the steps involved in assessing physical climate risks and opportunities for our operations, supporting infrastructure, local communities and environments, and broader stakeholders. Participants also began to identify climate risk management (adaptation) actions, and explored how a changing climate interfaces with existing Teck processes, standards, practices and guidelines.

Outlook for Energy and Climate Change

In 2019, Teck will continue to incorporate planning regarding climate change risks into our business strategy and decision-making. We will also continue to track and refine indicators that influence the strength and resilience of our assets in a low-carbon world, such as the electric vehicle market, growth in renewables, and global carbon prices. As in previous years, we will advance the four pillars of our Strategy for Climate Action — reducing our carbon footprint, positioning Teck for the low-carbon economy, advocating for climate action and adapting to the physical impacts — and work to achieve our 2020 goals for Energy and Climate Change within our sustainability strategy.

GRI Indicators and Topic Boundary

302-103, 302-1, 302-3, 302-4, 305-103, 305-1, 305-2, 305-3, 305-4, 305-5, 305-7

This topic is considered most material by our shareholders, local communities, regulators and society in the context of Teck's sites, power providers, service providers and customers.

How Does Teck Manage This Topic?

Information about how we manage energy and greenhouse gas emissions, including relevant policies, management practices and systems is available for download on our website.

8 Mapped: The countries with the highest carbon price. Carbon Brief.