



Innovation at work at Goldcorp Inc.'s all electric Borden Mine. Photo courtesy of the Mining Association of Canada.

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## Industry Sector Snapshot

### Mining and Metals

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This snapshot examines the challenges faced by the mining and metals industry and describes how it is contributing to global climate action.

#### Background

The mining and metals industry covers the extraction, processing and refining of raw materials, which are used in almost every aspect of modern society, from transport to housing, healthcare to food production and technology. It provides essential inputs for a low carbon economy, such as copper for electric components, lithium for batteries and iron for steel production.

At the same time, the sector is also largely energy intensive, can have long-lasting impacts on the environment and depends on the exploitation of finite resources. A 2010 estimation of the mining industry's contribution to global emissions calculated it to be close to 1Gt carbon dioxide equivalent (CO<sub>2</sub>e) per year, corresponding to about 2 per cent of total global emissions.<sup>a</sup>

#### Challenges

Approximately half of the sector's emissions derive from the use of fuel in mining and processing operations and from fugitive methane (CH<sub>4</sub>) emissions at coal mines, while the other half comes from electricity use, primarily in refining and smelting operations (ICMM 2011). Opportunities for reducing emissions are therefore intrinsically linked with opportunities to reduce energy costs.

Coal provides a particular challenge for the industry. It is one of the main sources of emissions in extraction and its use is also highly emissions-intensive. Carbon emissions from coal use are a leading contributor to climate change and air pollution from the burning of coal causes severe respiratory diseases. Studies suggest that over 80 per cent of current coal reserves should remain in the ground if the Paris Agreement goals are to be met.

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a. Scope included mining, smelting and refining of 17 major commodity groups and accounted for both direct emissions and indirect emissions from electricity use. Source: ICMM (2011) 'Measurement, reporting and verification and the mining and metals industry'. Available at: <http://www.icmm.com/website/publications/pdfs/climate-change/measurement-reporting-verification>

## Industry Sector Snapshot – Mining and Metals

Phasing out coal production and consumption brings with it major economic, social and political challenges for some countries. This is being addressed in projects such as [Coal Transitions](#), an international research project aimed at developing credible and feasible trajectories and policy guidance for deep transitions in the coal sector in six major coal using countries. There are also governmental efforts aimed at addressing these challenges, such as the [Task Force on Just Transition for Canadian Coal Power Workers and Communities](#) and the European Commission's [Coal Regions in Transition Platform](#). The multi-stakeholder approach implicit in most initiatives may be a useful way to address this challenge more widely.

Further, twenty-eight countries and nineteen subnational governments have joined the [Powering Past Coal Alliance](#) and have committed to phasing out existing traditional coal power and place a moratorium on any new coal power stations without operational carbon capture and storage, and a wide range of businesses, industries and organizations made commitments to focus on powering their operations without coal.

The mining industry is also particularly vulnerable to the physical impacts of climate change because of the location and types of operations, which often include logistics such as ports and railroads. Changes in temperature and precipitation, rising sea levels and the increased frequency and/ or intensity of extreme events can result in damages to infrastructure and equipment, disruptions to supply chains and increased competition for climate-sensitive resources. Water security is a particularly critical operational issue<sup>b</sup> which can potentially be affected by climate change. An example of how the sector is already being impacted is the unusual levels of rainfall in Australia early in 2011. The resulting floods affected much of Queensland coal region, which supplies almost a third of the world's coking coal. Damages were estimated in billions, with most of the major coal producers forced to declare force majeure.

### Industry approach to climate change

A number of countries with significant mining operations are now under carbon pricing schemes, including South Africa, Canada and Chile. China's national emissions trading scheme may also have an indirect impact on mining companies, through significant consumption from industry of high emitting commodities (CDP 2017). The five largest diversified mining companies all publicly support carbon pricing and at least four have reported implementing an internal price on carbon. Two of these – along with other three mining and metals companies – are also taking part in the [Carbon Pricing Leadership Coalition](#).

The five major mining companies have dedicated public climate change policies or statements, in which they commit to work on both mitigation and adaptation strategies. These companies, along with others in the sector, have also established emission reduction targets, at various degrees of ambition.<sup>c</sup> Among the ten largest publicly listed diversified mining companies, one has already committed to reducing its net operational emissions to zero by 2050 (CDP 2017). Establishing targets which are in line with the Paris Agreement goals is one of industry's major challenges, but there are currently seven mining and metals companies committed to implementing [science-based targets](#) – five of which in the global South –, and one has already set targets compatible with the initiative. There are also ten mining and metals companies publicly supporting the [Task Force on Climate-related Financial Disclosures'](#) (TCFD) recommendations to ensure transparency around climate-related risks and opportunities.

In addition to climate action at the individual level, there are also a number of mitigation and adaptation initiatives being carried out by sectoral associations. Collective action under the umbrella of an association can be particularly useful for smaller companies, which may not have the resources to implement low carbon and climate resilient strategies on their own.

The Mining Association of Canada (MAC), for example, established a programme in 2004 called [Towards Sustainable Mining](#) (TSM), whose primary objective is 'to meet society's needs for minerals, metals and energy products in the most socially, economically and environmentally responsible way'. The programme consists of a set of tools and indicators to drive performance and ensure that key mining risks are managed responsibly at participating mining and metallurgical facilities. The programme is mandatory for MAC member mines in Canada.

TSM's 2017 Progress Report shows that, out of 65 facilities from the 22 member companies, 56 per cent have established and met energy and GHG emissions performance targets in 2016, compared to 44 per cent in 2015. Additionally, 76 per cent have comprehensive energy use and GHG emissions management systems in place, and 92 per cent have implemented energy use and GHG emissions management reporting systems.

TSM is overseen by an independent multi-stakeholder panel which includes representatives from Indigenous groups and communities where the industry is active, environmental and social NGOs, and labour and financial organizations. The panel recommendations for climate change considerations to be integrated into other workstreams informed the review of a number of protocols, such as the one addressing community outreach, as well as the development of a new Water Stewardship Protocol.

b. CDP (2017): Digging deep: which miners are facing up to the low-carbon challenge? Available at: <https://www.cdp.net/en/investor/sector-research/mining-report>

c. Details on these targets can usually be found in the companies' annual sustainability reports. If they respond to CDP questionnaires, they are also strongly encouraged to include information on the progression of the companies' efforts towards achieving them.