



**Economic contribution of the mining and METS sector
Australian estimates**

The mining and METS sector makes a significant contribution to the Australian economy



\$241.9bn
Gross value added

TOTAL CONTRIBUTION

Australia's Mining and METS sector contributed approximately **\$241.9 billion in value added to the national economy in 2019-20**, representing approximately **12.4% of the value of the Australian economy**.

1,131,450
FTE jobs supported

In the same year, the Mining and METS sector supported an estimated **1,131,450 FTE jobs in Australia**, representing approximately **10.8% of total FTE employment**.

DIRECT CONTRIBUTION

- The direct contribution of the mining and METS sector measures the direct value created by the sector in the form of the gross operating surplus of its production activities. This represents the returns to labour in the form of wages and salaries, and the returns to capital.
- In 2019-20, the mining and METS sector *directly* contributed **\$145.3 billion in value added** to the Australian economy.
- The mining and METS sector also *directly* supported **483,499 FTE jobs** in Australia in 2019-20.

INDIRECT CONTRIBUTION*

- Indirect contribution measures the flow-on impacts of the sector, which are generated when the mining and METS sector purchases intermediate inputs from other sectors.
- In 2019-20, the mining and METS sector outlaid around **\$110.0 billion** in intermediate expenditures, generating an indirect economic contribution to the national economy of **\$96.6 billion in value added**.
- **Approximately 647,950 FTE jobs** outside the mining and METS sector were supported through these flow-on linkages.

What does this mean?

- **Value added** measures the value of output generated by an entity's factors of production (i.e. labour and capital), measured in the income paid to those factors of production.
- **Employment** measures the number of full-time equivalent (FTE) workers employed as a result of the economic contribution.
- **These measures of contribution consist of a direct and indirect component.**

*The indirect contribution does not include induced effects (also known as Type-II consumption effects), such as household consumption by employees in the mining and METS sector.

Methodology

Input-Output modelling

Modelling framework

An economic contribution study estimates the impact of an industry (or firm) on the economy, both directly through the operations of the industry itself, and indirectly as the impact of its activities filter through the broader Australian economy. More specifically, our economic contribution analysis includes estimates of:

- the **direct contribution** of the mining and METS sector – calculated using the income approach to Gross Domestic Product (GDP) as the returns to labour in the form of wages and salaries, and the returns to capital in the form of gross operating surplus from the sector's activities; and
- the **indirect contribution** or flow-on impacts of the sector – generated by the industry-specific inputs required to support activity in the mining and METS sector, which considers demand for upstream inputs and further interlinkages with other sectors of the Australian economy.

The economic contribution of the mining and METS sector is estimated using Input-Output (IO) modelling. Our overall approach to economic contribution modelling is consistent with the framework used by the Australian Bureau of Statistics (ABS) in compiling the Australian National Accounts.

Defining the Mining and METS sector

The mining sector has been defined by Deloitte and the MCA to capture the activities of mining companies operating in Australia. This includes minerals extraction industries (i.e. excludes oil and gas), exploration activities and metal processing to a primary product (i.e. in refined metal form).

Defining the Australian METS sector is a more complex task, as there is no widely agreed or accepted definition of what activities are included in "METS", and the breadth of industries that supply specialised inputs to the mining sector is wide.

This means that the scope of the METS sector is somewhat ambiguous, particularly in the context of applying standard ABS industry definitions.

A principles-based approach was used to define industries that are heavily focused on supplying the mining industry:

- **Mining equipment** includes manufactured items (plant, machinery, equipment) that contribute to the capital stock of the mining industry; parts for machinery and equipment; industry-specific supplies such as chemicals and explosives (i.e. excluding multi-purpose generic supplies such as food, fuel and furniture); and construction and civil engineering.
- **Mining technology** includes engineering design; information and communications technology (such as data analytics, real-time monitoring and sensors); and scientific research into geoscience, mine engineering, mineral processing or other mining industries.
- **Mining services** include applied sciences such as laboratory work, environmental sciences, geospatial data processing; equipment maintenance and repairs; specialised mining consulting; and transportation.

Measuring the economic contribution

The economic contribution is a measure of the value added to the economy by economic activity associated with the mining and METS sectors; and the employment supported by that activity.

Value added measures the value of output (i.e. goods and services) generated by the entity's factors of production (i.e. labour and capital) as measured in the income to those factors of production. The sum of value added across all entities in the economy equals gross domestic product. Given the relationship to GDP, the value added measure can be thought of as the increased contribution to welfare. Value added is the sum of:

- **Gross operating surplus (GOS)**. GOS represents the value of income generated by the entity's direct capital inputs, generally measured as the earnings before interest, tax, depreciation and amortisation (EBITDA)

- **Tax on production less subsidy provided for production**. This generally includes company taxes and taxes on employment. Given that the returns to capital before tax (EBITDA) are calculated as part of the modelling, company tax is not included as this would double-count that component of tax

- **Labour income**. Usually measured in terms of wages, labour income is a subcomponent of value added. It represents the value of output generated by the entity's direct labour inputs, as measured by the income to labour.

Employment is a fundamentally different measure of activity from those above. It measures the number of workers employed by the industry or entity, rather than the value of workers' output. Direct employment measures the total number of full-time equivalent (FTE) employees directly employed in the mining and METS sector, whereas indirect employment measures the total number of FTE workers employed in other sectors as a result of the demand generated from the mining and METS sector.

The economic contribution of Mining and METS to the Australian economy includes 'ACT' and 'Other Territories' (excluded in the individual State and Territory analyses).

Input-Output analysis

The economic contribution was estimated using the Deloitte Access Economics Regional Input-Output Model (DAE-RIOM). The model uses input-output tables, which are required to account for the intermediate flows between sectors. These tables measure the direct economic activity of every sector in the economy at the national level. Importantly, these tables allow intermediate inputs to be further broken down by source. These detailed intermediate flows can be used to derive the total change in economic activity associated with a given direct change in activity for a given sector.

The input-output matrix used for Australia is derived from the 2018-19 Australian Bureau of Statistics Input-Output Tables. The industry classification used for input-output tables is based on ANZSIC, with 114 sectors in the modelling framework.



Limitation of our work

General use restriction

This report is prepared solely for the use of Minerals Council of Australia. While Deloitte acknowledges that the report is public and may be used by other stakeholders, it is not intended to and should not be relied upon by anyone else and we accept no duty of care to any other person or entity. The report has been prepared for the purpose of understanding the economic contribution of the mining and METS sectors in Australia. You should not refer to or use our name or the advice for any other purpose.

Deloitte Access Economics is Australia's pre-eminent economics advisory practice and a member of Deloitte's global economics group. For more information, please visit our website: www.deloitte.com/au/deloitte-access-economics

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited ("DTTL"), its global network of member firms, and their related entities (collectively, the "Deloitte organisation"). DTTL (also referred to as "Deloitte Global") and each of its member firms and related entities are legally separate and independent entities, which cannot obligate or bind each other in respect of third parties. DTTL and each DTTL member firm and related entity is liable only for its own acts and omissions, and not those of each other. DTTL does not provide services to clients. Please see www.deloitte.com/about to learn more.

Deloitte is a leading global provider of audit and assurance, consulting, financial advisory, risk advisory, tax and related services. Our global network of member firms and related entities in more than 150 countries and territories (collectively, the "Deloitte organisation" serves four out of five Fortune Global 500® companies. Learn how Deloitte's approximately 312,000 people make an impact that matters at www.deloitte.com.

Deloitte Asia Pacific

Deloitte Asia Pacific Limited is a company limited by guarantee and a member firm of DTTL. Members of Deloitte Asia Pacific Limited and their related entities, each of which are separate and independent legal entities, provide services from more than 100 cities across the region, including Auckland, Bangkok, Beijing, Hanoi, Hong Kong, Jakarta, Kuala Lumpur, Manila, Melbourne, Osaka, Seoul, Shanghai, Singapore, Sydney, Taipei and Tokyo.

Deloitte Australia

The Australian partnership of Deloitte Touche Tohmatsu is a member of Deloitte Asia Pacific Limited and the Deloitte organisation. As one of Australia's leading professional services firms, Deloitte Touche Tohmatsu and its affiliates provide audit, tax, consulting, risk advisory, and financial advisory services through approximately 8000 people across the country. Focused on the creation of value and growth, and known as an employer of choice for innovative human resources programs, we are dedicated to helping our clients and our people excel. For more information, please visit our web site at <https://www2.deloitte.com/au/en.html>.

Liability limited by a scheme approved under Professional Standards Legislation.
Member of Deloitte Asia Pacific Limited and the Deloitte organisation.