

Australian Services Trade in the Global Economy

Excerpt: METS

Executive summary

The ongoing structural transformation towards a services economy, across all countries and at all levels of development, has immense potential to improve the well-being of Australians. Technology has reduced trade and transaction costs for both goods and services, thereby facilitating more complex and services-intensive production networks. Telecommunications, audio-visual and computer services constitute a digital network at the heart of the world trading system. Transportation, courier, logistics and distribution services form the backbone of global supply chains. Legal, accounting, insurance and banking services are essential enablers of trade and finance. Architectural, engineering, mining and constructions services are a fundamental foundation of physical infrastructure. Health, education and tourism services are at the heart of better lives.

Yet impediments to services trade remain pervasive, while trade and regulatory policy in these individual services sectors are often made with limited regard for economy-wide impacts. This report aims to provide a better understanding of Australia's services performance in the global economy, to inform trade and regulatory policy makers of the likely effects of unilateral or concerted reforms and to help prioritise policy action. Taken together, the main findings seek to contribute to a national strategy by which Australia can fully capitalize on the strength of its services sectors and exporters to ensure that services trade works for all Australians.

Main findings

Services are Australia's gateway to global markets

Australia's regional and global services trade and productivity performance is strong. Services exports, and services embedded in other exports such as food products, machinery and electronics, account for half of Australia's exported domestic value added. There is evidence, however, that Australian services suppliers face increasing competition. As such, a national services trade strategy can help sustain and strengthen Australia's comparative advantages.

Australia's services regulatory environment is a source of strength

Australians benefit from an open, efficient and generally pro-competitive regulatory environment that is favourable relative to many of its peers. Australia's domestic regulatory regime is more liberal than average in 21 of the 22 services sectors measured by OECD Services Trade Restrictiveness Indicators. There is scope for improvement in all sectors, however, and a targeted regulatory reform agenda can ensure that Australia's business environment remains a source of international competitiveness.

Global services sector growth is an opportunity for Australians

Technical progress, urbanisation and fast-growing markets are driving a rising share of services in consumption across the globe, and Australian exporters are well positioned to capitalize on these trends. Rapid change and dynamic demand factors, however, require adaptation and new approaches to maintain existing strongholds and gain ground in new and diversified markets, especially in strategic sectors such as education, travel and tourism services.

Ambitious services trade policy can transform bottlenecks into gateways

Services trade restrictions and regulatory heterogeneity impose costs on services and manufacturing sectors, with a disproportionate burden falling on small and medium sized enterprises (SMEs). Enhanced commercial opportunities for Australian exporters can be secured by concerted efforts to encourage behind-the-border regulatory reforms in key markets (through fora such as the G20 and APEC), coupled with an ambitious trade negotiating agenda to secure new market access and bind applied regulatory regimes.

Strategic national reforms can boost Australia's services trade competitiveness

Services generate more than two-thirds of global gross domestic product (GDP), attract over three-quarters of foreign direct investment (FDI) in advanced economies, employ the most workers, and create most new jobs globally. The OECD recommends that countries adopt a whole-of-government approach to co-ordinated services trade policy and regulatory reforms as a driver of inclusive economic growth and employment, and encourages Australia to seize this opportunity. Horizontal and sector-specific policy conclusions are presented in the final chapter of this report.

Whole-of-report policy conclusions

The analysis carried out in this report highlights the importance of services in the Australian economy. Evidence demonstrates the relative strength of Australia's services trade and productivity performance, and the opportunities arising from Australia's proximity to the world's most dynamic region. The report also highlights the challenges faced by Australian services exporting firms, including the risk of losing ground in stronghold sectors such as education and tourism. Furthermore, the empirical evidence included in the report highlights how services trade restrictions in foreign countries prevent Australia from exploiting its full export potential.

In this context, there is significant potential for services to sustain productivity and enhance the global competitiveness of Australian businesses. This section delineates key factors to be considered in response to the opportunities and challenges posed by a rising degree of globalisation and a growing tradability of services. On this basis, a strategic whole-of-government approach to the performance of Australian services in the global economy can help Australians fully capitalize on the strength of its services sectors and exporters to ensure that services trade works for all.

General key findings

- It is important to continue to promote regulatory reforms and the reduction of services trade restrictions in the applied regimes of priority markets abroad by, inter alia, advocating the potential of services reforms to drive inclusive economic growth and employment, ensuring the effective implementation of the APEC Services Competitiveness Roadmap and encouraging national and collective actions consistent with the G20 Strategy for Global Trade Growth.
- In addition to existing FTAs, it would be beneficial to continue pursuing bilateral, plurilateral, regional and multilateral trade agreements with ambitious market access, national treatment and domestic regulation provisions for services. Besides maximising the economic benefits accruing to Australians, this would also lock applied regimes and thereby secure a predictable and rules-based environment for services trade and investment. OECD empirical analysis confirms that the legal bindings found in services trade agreements tend to have a positive effect on services trade by reducing uncertainty.
- Continued investment in an efficient and effective visa system is desirable. The envisaged streamlining of the current visa system would be beneficial to international visitors, international students, and domestic as well as foreign businesses.
- Consideration could be given to the relationship between the Temporary Skill Shortage (TSS) visa and the cost of recruiting highly qualified foreign workers, and the ability of some international students to apply for jobs on the list of skilled occupations (with concomitant implications for the education sector).
- Australia ensures that data can flow freely across borders, while respecting privacy and security considerations. It is important to continue facilitating an environment that enables digital trade, through free trade agreements, harmonisation of standards and implementation of trade facilitation measures.
- Despite efforts to improve coordination of government initiatives promoting export capability, innovation and growth, there is still some work to do to increase transparency and to improve the dialogue between the different level

of government agencies and transparency. Firms find it difficult to navigate through the different programmes available to them. Also, there is a lack of co-operation between businesses and other actors, such as universities or research institutes. Hence, as recommended in the OECD *Economic Surveys: Australia 2017*, there is a need to develop a more integrated, “whole-of-government” approach to science, research and innovation and consolidate innovation support programmes. This approach could help to reduce the number of support schemes for innovative SMEs and exporters, facilitating the management and efficiency of the different schemes, allowing for more generous programmes while keeping total expenditure constant.

- A review of the R&D Tax Incentive, a program supporting business innovation, found that smaller firms face compliance costs of up to 23% of the of the program benefits. The Government continued efforts, through the recently announced reforms of the R&D TI, to improve the integrity of the program, continue assist smaller companies and refocus support for larger companies undertaking higher intensity R&D, are commendable. However, in line with other recommendations (Ferris et al., 2016), it would be desirable to improve also the administration of the R&D TI program by reducing compliance costs. This would increase companies accessibility and ensure a more inclusive participation.
- Application processes for government support schemes, such as the Export Market Development Grant (EMDG) are often time consuming and unnecessarily burdensome. Many firms turn to professional consultants for these processes. Application and reporting could be simplified so that firms could reap the full amount of the incentives available.
- The paucity of official statistical trade data, including the lack of Foreign Affiliate Trade Statistics (FATS), complicates the understanding of Australia’s strength and weaknesses in services. Improving the statistical base would allow for a more robust analysis of services trade and investment. While efforts in this direction are underway, the timely implementation of an annual survey to collect on a regular basis information on inwards, but also outwards, foreign affiliate sales and a harmonisation of the disaggregation level for the collection of trade statistics and business statistics are essential for an accurate investigation of the benefits of FTAs.

Mining services

- Mining equipment, technology and services (METS) firms should be supported in partnering with technical institutes and universities, including in countries where they have operations. Some increased engagement is already underway through METS Ignited, which could represent a strong force for internationalization of the METS sector.
- Recent FTAs concluded by the Australian Government have been successful in providing access rights to Australian business of METS. For example, technical consulting and field services in coal bed methane and shale gas extraction, as well as mineral resources exploitation, can be provided to China via ChAFTA. Australia should continue its successful economic diplomacy with a focus on mining countries in order to help mining firms to succeed in international markets.

Insights into strategic sectors: Mining equipment, technology and services (METS)

Mining represents about 57% of Australia's exports and 8% of GDP, and rents from its mineral extraction are estimated at 5% of its GDP (ICMM, 2016). The Mining Contribution Index (MCI) ranks Australia 11th out of 183 countries in terms of the contribution of mining to its economy.ⁱ The only other OECD country with a similar profile for mining is Chile (24th in the MCI in 2016). All other OECD countries produce and export a wider variety of goods, and mineral rents represent a smaller percentage of their GDP.

Not only is the mining sector the largest indirect exporter of services, but also most of these services are sourced domestically. Currently, only about 5% of services inputs into mining are imported, expressed in terms of value added of final demand, for different types of mining outputs. The stability over time of the ratio of imported to domestically sourced services input in mining sector was largely unaffected by the economic crisis in most segments of Australia's mining sector in Australia. There has been a very slight rise in the ratio in the post-crisis period.

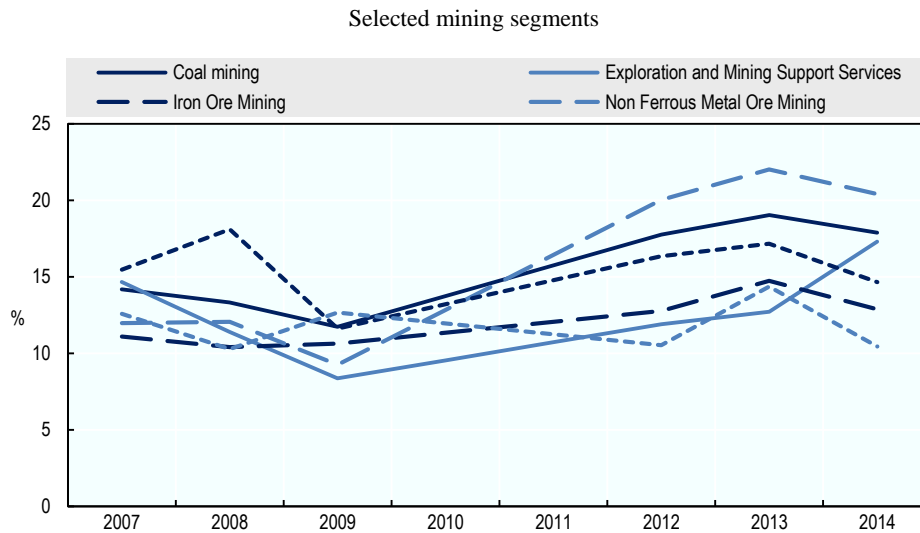
The impact of the economic crisis on the mining sector is seen to have been stronger when inputs of goods are also considered. Imported inputs (goods and services) accounted for 9-22% of total inputs, depending on the segment of the mining sector. The share of imported inputs fell sharply with the onset of the crisis, suggesting that trade in inputs into the mining sector was less resilient to random shocks than trade in services (Figure **Error! No text of specified style in document..1**).ⁱⁱ

A breakdown of the substantial share of the services value added embedded in mining exports shows that exploration and mining supportive services are the largest input into mining exports, other than the mining sector itself, accounting for 7% of the value added embodied in mining exports (Table **Error! No text of specified style in document..1**). These services represent the first stage of the mining value chain and so understandably account for an important portion of value-added in mining exports. Professional and technical services is the second most important input at 6%, followed by finance and insurance (4%), construction (4%), and wholesale and retail (3%).

In fact, the seven most important inputs into the mining sector, after those from the sector itself, are services. They include both specialised services to the mining sector (e.g. exploration and mining support services, specialised engineering and technical

services) and non-specialised services (e.g. financial services, construction, wholesale and retail trade, real estate and other supporting services). The breakdown in a dynamic context suggests that, among the various mining services industries, growth areas during periods of increasing services demand are mostly professional, scientific and administrative services. These include both specialised mining services like mining engineering and non-specialised services such as accounting and legal services. Financial services and wholesale and retail services also increase strongly when mining firms increase spending on services.

Figure Error! No text of specified style in document..1. Share of imported inputs in domestic production



Note: ABS I-O data for 2010 and 2011 are missing hence ratios for these two years are interpolated.

Source: Own calculations on ABS, Australian National Accounts: Input-Output Tables, selected years, catalogue no. 5209.0.55.001.

Table Error! No text of specified style in document..1. Sectoral decomposition of value added in mining exports

Value added (in %)

Sector	2014
Mining and quarrying	54.8
Exploration and mining support services	6.9
Professional, scientific and technical services	5.6
Finance and insurance	4.4
Construction	3.5
Wholesale and retail trade	2.9
Building cleaning, pest control, administrative and other support services	1.7
Non-residential property operators and real estate services	1.5

Source: Own calculations on ABS, Australian National Accounts: Input-Output Tables, selected years, catalogue no. 5209.0.55.001.

Providers of non-specialised services to the mining sector were able to increase their activity outside mining when commodity prices plummeted in 2014. Conversely, after the economic and financial crisis hit in 2008-09, and mining was less affected than many other sectors, some services firms diversified into mining. For example, some engineering and construction firms switched from non-residential commercial building into mining-related work, and some legal, accounting and financial firms moved resources into servicing the mining industry. This means that mining support services are less likely to move in a cyclical pattern with other services, and that mining support services may be more resilient to the inevitable downturns in the highly cyclical mining sector activity. In fact, the data confirm that demand for mining services is on average quite resilient to downturns – the negative growth rates during downturns are substantially smaller than the positive ones during boom years. It also suggests that certain services inputs into mining are increasing over time in the aggregate in Australia.

International growth and domestic competition

The mining sector is the largest indirect exporter of services, and most of those services are sourced domestically. Nonetheless, there is no specific classification of mining services that is internationally comparable. Services to the mining sector include sector-specific services like some engineering and geological services, digital mining, drilling, and exploration, and others that are non-specific to the sector like construction, transport and logistics, catering, machinery and equipment repairs. METS firms also export their goods and services directly, but this is a small fraction of their domestic consumption (about 1% in 2014). Therefore, the potential for export is substantial.

Australian METS firms (Box 5.1) have named three areas where the biggest opportunities exist: diversification (“expanding into new market segments and industries”, mentioned by 55% of all firms), trade (“international growth and export expansion”, 42%) and innovation (“development of new technologies and products”, 37%) (Austmine, 2015). Ensuring that METS firms are able and encouraged to export and expand to new markets is therefore highly relevant to their growth potential.

Australia has engaged in active economic diplomacy, signing preferential trade agreements with ASEAN, Chile, China, Japan, Malaysia, New Zealand, Singapore, Korea, Thailand and the United States (**Error! Reference source not found.**). Many of these economies are important markets for METS firms. For example, in the ChAFTA (2015) China allows Australian services suppliers to provide technical consulting and field services in coal bed methane and shale gas extraction. Consistent with its most liberal FTAs to date, China also guarantees access for Australian suppliers to provide a range of services related to exploiting oil and gas, iron, copper and manganese resources in cooperation with Chinese partners. Australian suppliers may also provide mineral

resources exploitation services in the central and western regions of China. Under ChAFTA, market access is guaranteed to Australian companies established in the Shanghai Free Trade Zone that are undertaking joint construction projects with Chinese counterparts in Shanghai. These companies are exempt from business scope restrictions, allowing them to undertake a wider range of commercially meaningful projects.ⁱⁱⁱ

The most recent addition to the set of Australian FTAs, the Australia-Peru FTA (PAFTA), signed on 12 February 2018, has not yet entered into force. Its focus is on mining services, with guaranteed access on non-discriminatory terms for Australian suppliers of mining-related consultancy, research and development, engineering, environmental, mining and technical testing and analysis services. PAFTA also improves access for Australian suppliers to government procurement in Peru and foreign direct investment is liberalised by raising investment protection and introducing streamlined processes.

There is already a significant Australian investment presence in Peru, and in particular in Peru's mining sector, with over ninety Australian businesses currently located there, up from ten in 2003. Australia has also become an associate member of the Pacific Alliance of Chile, Peru, Colombia and Mexico, all of which have important extractive sectors.^{iv}

In 2015, METS firms reported that their most important challenge in starting or expanding an export business was “lack of internal resources, including international marketing capabilities” (Austmine, 2015). Among the main reasons were “inability to find suitable partners/distributors”, “difficulty accessing supply chains”, “lack of information on local culture, business practice, language of potential export market” and “limited export procedures knowledge”. This is not surprising as many mining services firms are small and SMEs do not always export easily. Further assistance helping mining services firms navigate foreign environments, facilitating contacts, and helping to promote their services, are all within the mandate of export promotion agencies. Austrade provides this function in Australia, with an annual budget of AUD 424 million in 2016-17 for an average staff of 1 036 in ten Australian regions and 29 foreign offices.^v See Chapter 6 for an overview of Austrade's initiatives in export promotion and those of some of its competitors.

The growth of the METS sector, including its international expansion, requires a highly skilled work force. However, many firms in Australia experience finding and keeping professional and skilled employees as a major challenge. An actively outward-looking approach may help to address the scarcity of such professionals. METS firms may need to partner with foreign engineering and professional schools in countries where they operate. Partnering of research facilities abroad, such as CSIRO Chile, could help to ensure Australian METS firms access the best global talent.^{vi}

Within Australia, METS firms have developed a strong knowledge base about their clients and form relationships that are close to their comparative advantage: 80% of firms work directly with mining companies, 65% saying that their *relationship with customers* is their “key competitive advantage” and for 81%, *working closely with customers* is how competitive advantage is maintained (Austmine, 2013).

Box Error! No text of specified style in document..1. Characterisation of METS firms

Austmine, the Australian agency for mining equipment, technology and services (METS), undertook two in-depth surveys of the METS sector, covering 860 firms (2013) and 432 firms (2015) providing “specialised support and solutions to global miners” and having “a specialist knowledge and core competency in the mining and minerals industry”. The sector comprises between 1 200 and 1 500 companies in Australia; the large sample size indicates a fairly comprehensive picture.

Manufacturers dominate the METS sector and represent 38% of its firms and 41% of the sector’s gross revenue. Engineering, procurement and construction management firms (EPCM) are 15.2% in number, and represent 22% in value, respectively. Contract mining firms are very large, accounting for 18% of sector revenue, but only 6.4% of companies. Conversely, firms providing consulting, information technology, technology developers and other professional services (CITP) are much greater in number (27%) than they are in overall revenue (8%). Around three-quarters of these firms have less than 100 employees. In total, gross revenue of specialised mining services firms represent around 41% of the METS sector or AUD 37 billion in 2012. Contract mining is not considered a specialised mining service in this study, as it represents outsourcing of the mining activity itself.

Australian METS firms have a diversified customer base: while close to 25% of firms work exclusively in the mining sector, 39% of METS firms obtain less than half their revenue from the mining sector. In general, smaller firms in the CITP sector were the least diversified. Australian-owned firms represent 84% of all firms in the sector, with foreign-owned firms tending to be larger. By order of frequency, foreign-owned firms are from United States, United Kingdom, Germany, France, Switzerland, Japan, South Africa, Sweden, Canada, China and New Zealand. The median age of a METS firm is 20 years. Australian-owned METS firms tend to be younger than their foreign counterparts.

Most METS firms export, especially those that rely on innovation and technologies. These firms are also smaller and younger so are genuinely “born global”. Top export destinations include New Zealand, Indonesia and Papua New Guinea. A high percentage of firms also export to the United States, Chile, Malaysia, Canada and Thailand. In 2014, 52% of exporters had offices or operations offshore, signalling a committed approach to growing their international business.

Table Error! No text of specified style in document..2. Share of METS firms that export, by activity

Business activity	Share of firms that export
EPCM / Engineering / Construction	50.4%
Consulting	66.3%
Contract mining	23.6%
IT developer or equipment provider	71.7%
Technology development/application	81.8%
Other professional services	38.0%

Source: Austmine (2013, 2015).

Documentary evidence and consensus opinion in the sector suggest that these relationships have developed organically. However, there are also domestic policies that encourage national value chains in mining. For example, the *Australian Jobs Act 2013* requires public and private major projects in Australia, with a capital expenditure of AUD 500 million or more, to prepare and implement a plan according to the Australian Industry Participation National Framework (AIP).^{vii} The Act requires firms to have a

broad understanding of the capacity and ability of Australian entities to supply goods and services and to conduct awareness campaigns about key procurement opportunities for Australian suppliers. Australian firms must regularly report on the value of procurement done locally and in the country. There is, however, no requirement to procure any share of goods and services in country.

Some agreements at sub-national level grant explicit preferences to Australian suppliers. For example, the 2001 *McArthur River Project Agreement-Ratification Act* specifies that preference should be given to local professional services, labour and materials by the mining firm extracting materials and by all its sub-contractors (Northern Territory of Australia, 2007). This must be seen in the light of Australia's commitments to the GATS regarding national treatment. Australia has bound Mode 3 (commercial presence) for services incidental to mining in relation to consultancy on a fee or contract basis relating to mining and oil field development, except for preferences given to indigenous or Aboriginal people (GATS, 1994).^{viii} However, Australia is not the only country to apply such policies (for an overview, see OECD, 2017b).

Mining is Australia's largest indirect exporter of services, exporting mostly exploration and mining support services, specialised engineering and technical services, but also financial services, construction, wholesale and retail trade, real estate and other supporting services. In comparison with the mining sector itself, one important characteristic of these services is a lower degree of cyclicity, creating employment that is relatively stable and resilient.

Compared to services embodied in mining exports, direct exports of mining services are of relatively low importance for the Australian economy, indicating a huge potential for future growth. Australia has engaged in active economic diplomacy, signing preferential trade agreements with various countries in order to facilitate such direct exports in the METS sector. While market access is an important first step, further assistance is vital, helping METS firms navigate foreign environments, facilitating contacts, and helping to promote their services.

Innovation

Many mining firms have difficulty-accessing funding. In other sectors where innovation is key to survival and competitiveness, such as IT or biotechnology, venture capital firms provide financing for start-ups and small, young firms. Given the specialised nature of mining innovation, non-specialised venture capital firms like those investing in the information technology space are unlikely to invest in mining services. There are few private equity funds specialising in mining innovations. Jolimont Global and Aurus are two such funds with a METS focus.

Some innovation is financed through large firms in the supply chain. Heavy machinery and mining equipment producers like Caterpillar and Komatsu have their own financing departments offering various funding options, including for developing innovation. Some finance firms have dedicated corporate financing divisions for mining; examples are Resource Capital Funds (RCF), a private equity fund focused on mining in over 51 countries, and GE Capital and Balboa Capital. In 2016, the Canadian company Red Cloud Klondike launched the first regulated online equity crowdfunding platform for the mining sector.

Due to the cyclical nature of the mining industry, innovation in mining services is prone to a misallocation of capital, leading to funding shortages when prices for natural resources are low. Chapter 6 analyses different government programs in Australia and other countries related to the promotion of R&D, including the Innovation and Science Agenda (NISA), as well as funding for start-ups and other small companies, and evaluates their performance in a comparative perspective with similar programs in other major economies.

Energy consumption by the mining sector is an area that might benefit from R&D spillovers and innovation from other sectors. Such spillovers can be very relevant due to the large share of energy costs in the sector's total expenditure. Energy-related innovation may not only help to reduce the cost of energy consumption, but also to reduce emissions of greenhouse gases and air pollution. In recent years, Chile has attempted to transform its mining sector into a frontrunner in the renewable energy segment. Information on Chile's strategy and its lessons for Australia are summarised in Box **Error! No text of specified style in document..2**.

Box Error! No text of specified style in document..2. Renewable energy for mining services

Energy is a major input into the mining sector. Energy generation requires the procurement of many ancillary services necessary to support the reliable transmission of electric power from seller to purchaser. Energy consumption is generally between 15% and 40% of the operating budget of a mine (Ernst and Young, 2016). The mining sector uses more energy than all Australian residential uses combined, and five times more than the agriculture sector. Renewable energy has an insignificant share in the Australian mining sector's energy mix, even though the price of renewable energy has fallen substantially and has become a strongly viable choice, particularly in remote, sunny areas.

By contrast, other countries have been more active in promoting solar energy generation in mining-intensive areas. For example, in Chile a roadmap with targets of renewable energy aims for at least 20% of energy used for mining coming from renewable sources by 2020. Various initiatives and policies have been put in place to this end, making it likely that the objective will be achieved earlier than expected. *Law 20257* of 2008 established a quota for the generation of renewable energy. This quota is gradually increasing. From 5% in 2010, the quota will reach 10% by 2024. Energy producing companies can buy their required quotas from other companies or invest in infrastructure to generate it themselves. Chile enacted a carbon tax (*Law 20571*) in 2014 imposing a levy of USD 5 on each metric ton of carbon dioxide emitted by fixed sources with a generation capacity of at least 50 MW, except biomass.

Since 2005, Chile has required distribution companies to run tender processes for securing energy supply to those with an energy demand of up to two MWs. In 2015 the tender process was amended (*Law 20805*) by introducing different sized hourly blocks of energy supply (spanning day, peak times, night and also 24 hour options). This led to a much greater participation in tenders from the renewables sector, which was no longer restricted to offer energy continuously. Supply periods were also lengthened to 20 years attracting long-term investment. Moreover, the Chilean energy sector allows producers to sell freely the electricity they produce back to the grid through power purchase agreements (PPA).

Law 19940 of 2004 opened up the spot market and guaranteed connection to the country's power grids for small renewable generating plants. The reform exempted projects using renewables from paying all or lower transmission fees and encouraged SMEs (the lowest tier including plants generating up to 9 MW). A bill of 2016 pushed the cost of transmission tolls onto the final client, further reducing entrance barriers for SMEs, encouraging transparency and avoiding congestion.

Australia has made strong commitments on combatting climate change in various international agreements including the Paris Agreement (ratified by Australia on 9 November 2016 and entering into force on 9 December 2016). Promoting the use of renewable energy, particularly solar power, in mining and mining services, can make a substantial contribution to achieving Australia's targeted reduction of CO₂ emissions by 26-28% (on 2005 levels) by 2030.

In summary, mining is Australia's largest indirect exporter of services, exporting mostly exploration and mining support services, specialised engineering and technical services, but also financial services, construction, wholesale and retail trade, real estate and other

supporting services. In comparison with the mining sector itself, one important characteristic of these services is a lower degree of cyclicity, creating employment that is relatively stable and resilient.

Compared to services embodied in mining exports, direct exports of mining services are of relatively low importance for the Australian economy, indicating a huge potential for future growth. Australia has engaged in active economic diplomacy, signing preferential trade agreements with various countries in order to facilitate such direct exports in the METS sector. While market access is an important first step, further assistance is vital, helping METS firms navigate foreign environments, facilitating contacts, and helping to promote their services.

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- i. The Mining Contribution Index (MCI), a composite indicator including one on mineral rents as a percentage of GDP, summarises in a single number the mining and metals sector's contribution to over 180 national economies. Mineral rents are defined as production values minus "normal costs" so they loosely approximate the sum of tax and profit above "normal" profits from mining. For more information see ICMM (2016).
 - ii. A caveat is that part of this drop may also be explained by a reduction in the price of intermediate goods relative to final output. An additional explanation might be that intermediate goods are used directly in the production process, while services are provided on a contractual basis with contract duration of several years.
 - iii. For more information see: <http://dfat.gov.au/trade/agreements/chafta/fact-sheets/Documents/fact-sheet-trade-in-services.pdf>
 - iv. <http://www.ictsd.org/bridges-news/bridges/news/pacific-alliance-eyes-new-trade-deals-with-creation-of-associate-member>
 - v. <https://www.austrade.gov.au/About/about>. The figure of AUD 424 million includes both administered (EMDG) and departmental funds. Austrade's departmental appropriation was AUD 198.4 million in 2016-17.
 - vi. For more information, see: <https://www.csiro.au/en/Research/Mining-manufacturing>.
 - vii. <https://industry.gov.au/industry/IndustryInitiatives/AustralianIndustryParticipation/Pages/default.aspx>.
 - viii. It should be noted that no known dispute settlement case has been brought before WTO dispute settlement tribunals concerning national treatment measures regarding mining or mining services (OECD, 2017a).