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# JAPAN-AUSTRALIA INVESTMENT REPORT 2022: DECARBONISATION AND ENERGY SECURITY

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# Japan-Australia Investment Report 2022: Decarbonisation and Energy Security

MARCH 2023

## Chikihouyu: Japan-Australia relationship (知己朋友)

The Japanese idiom, *Chikihouyu* describes a deep friendship between parties that understand and respect each other's strengths, values and characteristics. It is an apt characterisation of the Japan-Australia relationship.

**Japan and Australia's relationship has never been stronger. They have enjoyed a stable and reliable trade and investment relationship for more than 50 years. In the last 12-18 months, there has been a step change in the relationship as a result of the changes in the global geopolitical environment. It is now a closely aligned partnership with greater government and business collaboration, and more cooperation than ever before.**

The countries share a commitment to democratic and liberal values, including the rule of law and a rules-based multilateral system. In 2022, countries responded to the compounding effects of the COVID-19 pandemic and the Russian invasion of Ukraine by securing supply chains and countering regional geopolitical risks. Australia and Japan deepened ties amid this increasing isolationism in the global economy.

Trade and foreign policy, which have historically been seen as having distinct drivers and objectives, are now inextricably linked. Australia and Japan are now engaging in more joint thinking and alignment on important geopolitical and economic issues. The two countries rely on investments from/with trusted partners to achieve energy security and supply chain resilience and robustness. Australia is particularly enthusiastic about investments from Japan in critical minerals, energy and critical infrastructure given the increasing weight placed on national security in the foreign investment screening process.

Japanese investors are likewise comfortable with Australia as a stable and reliable destination for their capital. This has provided a powerful foundation for partnerships to flourish between industry, government and research institutions within the two countries.

In 2022, there were 13 publicised ministerial level meetings or calls between Australia and Japan (and numerous other State level visits). In addition, there has been a significant number of interactions between senior bureaucrats of both countries, including Department of Foreign Affairs and Trade, Treasury, Department of Climate Change, Energy, the Environment and Water and the Department of Industry, Science and Resources.

Notably, Australian Prime Minister Anthony Albanese and Foreign Minister Penny Wong attended the Quadrilateral Security Dialogue (**Quad**) meetings in Tokyo within 48 hours of being elected in May 2022; followed three weeks later by Deputy Prime Minister and Defence Minister Richard Marles attending the Australia-Japan Foreign Minister and Defence Ministerial Consultations. The Quad provides a very important framework under which the respective governments and bureaucracies have been able to cooperate on:

- cybersecurity;
- defence and defence materiel industries; and
- artificial intelligence and technology.

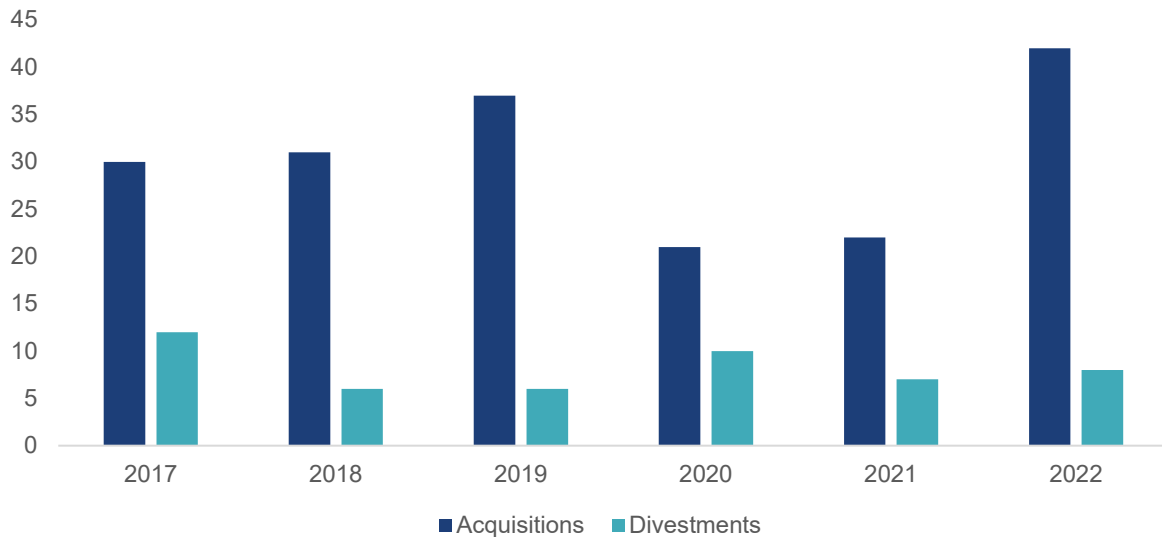
In October 2022, Japanese Prime Minister Kishida visited Perth, where the two prime ministers issued a joint statement reaffirming the bilateral trade and investment relationship. Pertinently, the statement further "recognised [that] climate change is a major security and economic challenge for the region, as well as a source of economic opportunity in new clean energy industries and trade and committed to deepen cooperation on climate as a priority". The leaders also renewed their commitment to bilateral defence, and economic security cooperation.

A further sign of the commonality of purpose that currently exists between Australia and Japan, is the sheer number of regional multilateral agreements and forums to which both countries are party. As the only two countries that are party to all six major multilateral agreements / forums in the Asia-Pacific region (some of which include the US and/or China),<sup>1</sup> Australia and Japan form the core of an influential bloc in regional dialogues and negotiations.

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<sup>1</sup> See the table in Schedule 3 to this Report for a list of the agreements and forums.

### Japan-Australia M&A transactions by acquisitions and divestments between 2017-2022



### The investment environment

Japan continues to rank second only to the United States in terms of cumulative foreign direct investment (FDI) into Australia (A\$133.8 billion)<sup>2</sup> and fourth in combined FDI plus portfolio investment (A\$258.7 billion)<sup>3</sup>. Two-way trade between Australia and Japan was valued at A\$117.3 billion in Australian FY2021-2022, making Japan Australia's second-largest trading partner and second-largest export destination at A\$92.9 billion. This amounted to a 75% increase in two-way trade compared to Australian FY2020-2021.<sup>4</sup>

Japanese activity in Australia was significantly higher in 2022 than 2021, notwithstanding the uncertainty in global markets. International travel between the countries recommenced in October 2022, which served as a turning point for investment activity as site inspections and face to face meetings could resume. Many Japanese companies have internal rules which prevent investment without physical due diligence being undertaken.

In 2022, there were 50 M&A deals and 51 new partnerships. The most notable transactions were:

- The highest value transaction was **Tokyo Gas'** US\$2.15 billion (A\$3.3 billion) sale of its interest in four LNG projects (Woodside's Pluto LNG, Chevron's Gorgon LNG, QGC's Queensland Curtis LNG and **INPEX's** Ichthys LNG) to MidOcean Energy, an LNG-portfolio focused subsidiary of institutional investor EIG. The proceeds of the sale are to be redirected to renewable energy and hydrogen production.
- **TAL Dai-ichi Life Australia** completed a A\$900 million acquisition of Westpac Life Insurance Services from Westpac.
- **Mitsui** and **Nomura** acquired 67.02% of New Forests, an Australian agricultural asset management company (**Mitsui** increased its shareholding from 22.98% to 49% and **Nomura** acquired 41%).
- **Sumitomo Chemical** sold its 15.9% shareholding in ASX-listed Nufarm for A\$323 million.

<sup>2</sup> As at 31 December 2021, Australian Bureau of Statistics

<sup>3</sup> As at 31 December 2021, Australian Bureau of Statistics

<sup>4</sup> Much of the increase in the value of trade stemmed from an increase in the value of coal exports.

## Review of transactions

Decarbonisation and technology were the themes that emerged from the transactions we reviewed in 2022. Of the 50 Japanese M&A deals in Australia we reviewed (45 of which were publicly announced), there were:

- 42 acquisitions and 8 divestments;
- 4 of the 8 divestments were of thermal coal or coal-related infrastructure assets;
- 15 transactions in mining (including critical minerals), traditional energy (such as LNG), or renewable energy (including hydrogen);
- 12 transactions related to companies with software IP or technology know-how; and
- the remaining 23 transactions included a mix of financial services, real estate, consumer, infrastructure, construction/housing and services.

The three paradigms identified in our reports of the last 5 years continue to describe the investment structures primarily used by Japanese companies in Australia:

- First, Japanese companies prefer to participate as minority interest holders in joint ventures, particularly in the mineral resources and energy sectors.
- Second, and more recently, Japanese companies use 100% or majority acquisitions to achieve growth – notable applications of this approach in 2022 were the acquisition of businesses in the supply chain or in adjacent markets to achieve market expansion.
- Third, since about 2019, memoranda of understanding (MOUs) and joint feasibility studies related to new energy partnerships are now progressing towards proof of concept and pilot plant development.

Additionally, in the deals and partnerships we reviewed from 2022, we identified an increasing number of large Japanese corporations acquiring small to medium Australian start-up enterprises that have developed unique technologies, for the purpose of harnessing those technologies at scale.

The importance of government policy and funding in developing new areas for cooperation between Japanese and Australian industries is also of note. Of the 51 new partnerships announced in 2022, 12 involved some form of government, government agency or university research funding.

## Everyone is talking about energy

Energy (together with iron ore) has always been the centrepiece of the Japan-Australia trade relationship. Japan is now focussing on how Australia can be a partner in decarbonisation and energy security. This new focus is driven by the surrounding macroeconomic context, such as climate change and the energy disruption caused by the Russian invasion of Ukraine. Japan is now developing its national energy strategy over a 30-40-year horizon with a target of achieving net zero carbon emissions by 2050. Its strategy encompasses energy and supply-chain security, cost, decarbonisation, an orderly transition from traditional fossil fuels, nuclear, green energy (hydrogen and ammonia), renewable energy, critical minerals and battery raw materials.

As at March 2023, the CSIRO lists 119 hydrogen/ammonia/methanol projects in Australia, of which approximately 50% have Japanese involvement.<sup>5</sup> The map in Schedule 4 provides a snapshot of the Australian hydrogen projects with Japanese participation.

Australia currently supplies Japan with approximately 75% of its thermal coal and 43% of its LNG (as well as 60% of its iron ore). While these traditional energy sources will continue to play a part in Japan's energy strategy in the short to medium term, the long-term energy transition to net zero will have serious implications for the Australian economy. With coal and LNG currently the second and third largest Australian exports, a significant portion of revenue is derived from income tax (paid to the Federal Government) and royalties (paid to State Governments) produced by these industries.

### Natural partners in the energy transition

The challenge for Australia is to leverage its natural resources advantage through the development of export technologies for sustainable fuels such as hydrogen, ammonia and methanol. Fortunately, the desire in Japan to continue to source its energy needs from Australia is strong. For example, it is promising that three Japanese mega-banks (**Mitsubishi UFJ Financial Group (MUFG)**, **Sumitomo Mitsui Banking Corporation (SMBC)** and **Mizuho Corporate Bank (Mizuho)**) and **Japan Bank for International Cooperation (JBIC)** have been very active in supporting both Japanese and Australian companies with energy transition projects.

**JBIC** signed an MOU in October 2022 with the US International Development Finance Corporation, the Department of Foreign Affairs and Trade and Export Finance Australia to further strengthen cooperation between the three countries on financing important energy and infrastructure projects in the Indo-Pacific.

The strong geopolitical alignment has assisted these developments and there is recognition that the partnership can assist the wider Asian region with its economic development and decarbonisation in parallel.

### The Energy “Quadrilemma”

Japan's recent energy strategy is defined by a “*quadrilemma*” facing Japanese companies:

- 1 economics (customer affordability);
- 2 politics (secure and reliable energy supply);
- 3 environment (decarbonisation, climate change and sustainability); and
- 4 profitability (disposing of profitable fossil fuel assets and replacing with decarbonisation investments, which may be profitable in the future).

There is a seeming contradiction in Japanese companies selling their Australian fossil fuel assets at a stage when energy prices are at historic highs and energy security is a priority for Japan as a country.

While the sale of fossil fuel assets by Japanese companies is welcomed by activist stakeholders, it reduces dividends for shareholders in the short-term. The timing of this inevitable progression of the energy transition is particularly difficult for a number of the leading trading houses with energy and minerals divisions which have financially outperformed the other parts of their business.

While Japanese companies continued to divest from coal and coal infrastructure assets in 2022, Japan purchased a record number of tonnes of Australian coal. As thermal coal prices reached historic highs and the price caps on electricity applied domestically in Japan, Japanese power companies incurred losses in the Apr-Sep 2022 half-year.

<sup>5</sup> <https://research.csiro.au/hyresource/projects/facilities/>.



The Japanese Government and industry view is pragmatic; a stable energy supply is essential to the stability of the economy and a smooth energy transition. They are therefore realistic about:

- the challenge of energy transition and are supporting blue hydrogen until green hydrogen has attained large scale production at commercially viable prices.
- LNG being an important transition fuel – Japanese power companies and trading houses continued to aggressively pursue LNG opportunities both in the form of new projects (**JERA** in relation to the Barossa project; **Mitsui** in relation to the Waitsia Gas Plant project), expansions (**MIMI** in relation to the Browse project) and acquisitions of joint venture interests. Australian Prime Minister Albanese in March 2023 emphasised the importance of gas in Australia's energy transition and helping guarantee energy security both for Australia and its partners in the region.
- technology solutions such as carbon capture and storage (**CCS**) and carbon capture, utilisation and storage (**CCUS**) as being integral to the transition. This reflects the International Energy Agency's view of CCS and CCUS technologies as essential to meet decarbonisation targets.

### Decarbonisation driving Japanese investments

Japan is determined to be at the technological forefront of the energy transition. Japan has therefore been proactive in driving regional and broader collaborations on new energy technology and has been exploring new energy projects in Brunei, Indonesia, Malaysia, Singapore, Saudi Arabia, Russia, the United Arab Emirates, and the United States. Japanese companies are investing and investigating opportunities in:

- Hydrogen, ammonia and methanol projects;
- Renewable energy projects (wind, solar, pumped hydro);
- Energy storage solutions;
- Smart grids and grid management;
- Domestic batteries;
- Carbon reduction technology;
- Aggregating demand from offtakers to underpin green energy projects and then investing as a joint venture partner;
- Carbon credit creation;
- Critical minerals;
- Battery raw materials;
- Repurposing / rehabilitating coal mines to acquire carbon credits; and
- Sustainable aviation fuel.

### Opportunities for Australia

In March 2023, Tokyo hosted the Asia Zero Emission Community Ministerial Meeting, which was attended by Ministers from Australia, Brunei, Cambodia, Indonesia, Japan, Laos, Malaysia, the Philippines, Singapore, Thailand and Vietnam. The Meeting issued a joint statement committing to cooperation on achieving carbon neutrality in the Asian region.

As part of the Meeting, 28 MOUs were announced between governments and companies in the participating countries, including an MOU between CS Energy, **Toyo Engineering** and **Sojitz** on establishing an e-fuel/SAF value chain in Queensland, Australia.

Japan's proactive approach to the energy transition presents significant opportunities for Australia. Australia has the advantage of strong sun, a large land mass and strong winds conducive to large-scale solar and wind projects. Japan, by contrast, has limited land availability (due to being mountainous) and is limited in developing large-scale offshore wind projects due to typhoons and deep seabeds. However, while Australia possesses many advantages, factors influencing competitiveness in renewable energy trade are complex, and establishing competitive advantage will require significant early up-front effort. There is little room for complacency.

For example, President Biden's new Inflation Reduction Act of 2022 (**IRA**) is a "gamechanger" for the United States, as it makes the country extremely attractive to investors in the renewable energy sector. This has significant competitive implications for Australia. Australia may need to revise its policy settings to remain competitive with the United States as an investment destination.

## Blue Hydrogen vs Green Hydrogen

In relation to the production of blue hydrogen from fossil fuels, Australia has an obvious advantage with its coal and LNG assets, as well as substantial geological formations which are suitable for carbon storage. Interestingly, Japanese companies have been discussing carbon-intensity (g/tonne) as a metric rather than in terms of the environmental superiority of green hydrogen versus blue hydrogen. While green hydrogen is seen as being commercially viable in the long-term, blue hydrogen is viewed as an important transition energy source over the next 10 years if the technical issues around CCS can be suitably resolved.

The blue hydrogen projects in Victoria using brown coal (lignite) are particularly attractive to Japanese investors as brown coal is a relatively cheap feedstock (given there are no alternative uses now that the Victorian coal-fired power stations are being phased-out).

In March 2023, the **Japanese Government's Green Innovation Fund** selected **Japan Suiso Energy** (a joint venture between **Kawasaki Heavy Industries** (66.6%) and **Iwatani** (33.4%)) and **ENEOS** to lead a project to export blue hydrogen in the Latrobe Valley in Victoria to Japan through the Port of Hastings. Under this project, a joint venture between **J-Power** and **Sumitomo Corporation** will supply 30,000 tonnes of hydrogen a year.

This project is a direct commercialisation of the Hydrogen Energy Supply Chain (**HESC**) Pilot Project, which transported the first shipment of liquid hydrogen on the *Suiso Frontier* tanker from the Port of Hastings to Kobe in January-February 2022 and finished on 31 December 2022. The commercialisation of the hydrogen project, if successful, will be a watershed moment in the sector. Its success will depend in part on the ability of the project to demonstrate a reliable CCS process.

## Partnerships continue to flourish

In 2022, we reported on partnerships as a new, third paradigm for Japanese investment in Australia (after minority joint venture participation started in the 1960s and expanded to include direct 100% and majority acquisitions from 2007). The partnership model is here to stay and will form the basis of significant new investment over the next 5-10 years, as projects are commercialised. New energy partnerships are continuing to form, driven by Japan's need to ensure a secure source of imported energy in a decarbonising world.

New energy-related MOUs and joint feasibility studies that were signed in 2019-2021 are now progressing to proof of concept and implementation phases as the projects aim for commercialisation by 2030. This has meant refining and allocating roles and responsibilities within consortia and the incurring of more substantial costs.

For example, the **Japanese Government's Green Innovation Fund** has already provided funds for approximately 18 projects globally, and we expect further funds will be provided as the project progresses to commercialisation.<sup>6</sup> This includes the A\$2.35 billion commitment to Japan Suiso Energy as part of the blue hydrogen project in the Latrobe Valley.

Japanese-Australian partnerships continued to focus on commercial feasibility or technological research in the production and transport of hydrogen and ammonia for both the domestic market and export. Critical minerals, renewable energy and carbon capture and storage were also key areas of cooperation. Compared to the 25 partnerships announced in 2021, a further 51 partnerships were announced in 2022. 39 of the 51 partnerships were related to energy transition or energy security. The Japan Suiso Energy / HESC Pilot Project in Victoria has received the most publicity of these new energy partnerships.

Partnerships are a useful tool for Japanese companies to test and understand complex and unknown technologies without taking on medium to long-term liabilities. Further, Japanese companies are adopting a portfolio approach to their investment in Australian-based new energy projects as a means of diversification, given the uncertainty of which projects will reach commercialisation.

This has also made critical minerals (which are necessary for nuclear or battery technologies) a highly attractive target, given Australia's existing expertise in mining – Austrade's *Critical Minerals Prospectus 2022* was downloaded more in Japan than in any other country. Following Prime Minister Kishida's visit to Perth in October 2022, the Australian Department of Industry, Science and Resources, Department of Foreign Affairs and Trade and the Japanese Ministry of Economy, Trade and Industry entered a partnership to enhance critical mineral supply chains between the two countries. A A\$200 million investment by **Japan Australia Rare Earths (JARE)** (co-owned by **Sojitz** and **Japan Organization for Metals and Energy Security (JOGMEC)**) into Lynas Rare Earths Limited in March 2023 to expand its production of light and heavy rare earths for exporting to the Japanese market is a further testament to the scope for growth in investments in this area.

Most of Japan's largest energy companies are participating in multiple partnerships/projects across different Australian States, with different counterparties, technologies, and even differing products. This has the consequence of heralding a much more people-intensive era in the bilateral relationship that places a premium on Australia's ability to do business with Japan and the extent of cross-cultural skills in both workforces. Given the important people element, as well as the benefit of site visits when understanding new technologies, the resumption of international travel in October 2022 between Australia and Japan no doubt played a part in the increased uptake of partnerships.

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<sup>6</sup> <https://green-innovation.nedo.go.jp/project/>.



## Potential headwinds

Four Australian political developments during 2022 caused concern among the Japanese Government and Japanese companies, given energy security is a highly sensitive area (as Japan is dependent on energy imports and Australia plays an important role as a long-term reliable supplier of coal and LNG to Japan):

- in June 2022, the Queensland Government announced that it would significantly increase coal royalties. The announcement surprised Japanese companies and some commentators expressed concern that it affected the trust that Australia had built up with Japanese investors.
- in July 2022, the ACCC recommended that the Federal Government exercise the Australian Domestic Security Gas Mechanism because of a potential domestic gas shortfall. Under the mechanism, which was introduced in 2017, the Federal Government can make a volume restriction determination on LNG producers exporting more gas than they are supplying domestically. The determination can only be made following consultation with industry. (Western Australia already has a domestic gas reservation policy of reserving 15% of Australian gas production for domestic supply). Ministers and bureaucrats in the Federal Government have repeatedly issued reassurances that any consideration of such action would fully consider the importance of protecting long-term contracts.
- in October 2022, the Federal Government's budget revealed a A\$250 million cut to funding for carbon capture and storage (and utilisation) projects and other new energy technology projects. Given Japan's pragmatic approach, with a strong commitment to technology solutions for decarbonisation, the funding cuts raised concerns. Fortunately, the availability of Australian Carbon Credit Units (**ACCUs**) for CCS projects provides confidence that CCS will continue to be supported in Australia.
- in December 2022, the New South Wales Government introduced a price cap on coal to combat domestic energy price rises, and in February 2023, a domestic coal reservation policy.

Concerns have been expressed that these sudden changes in policies reflected Australian Federal and State Government unpredictability and, in the future, similar sudden changes could be applied to new energy exports and critical minerals. Any increase in the risk profile will increase the rate of return required for Japanese companies to pursue an investment and potentially reduce Australia's competitiveness relative to other investment destinations.

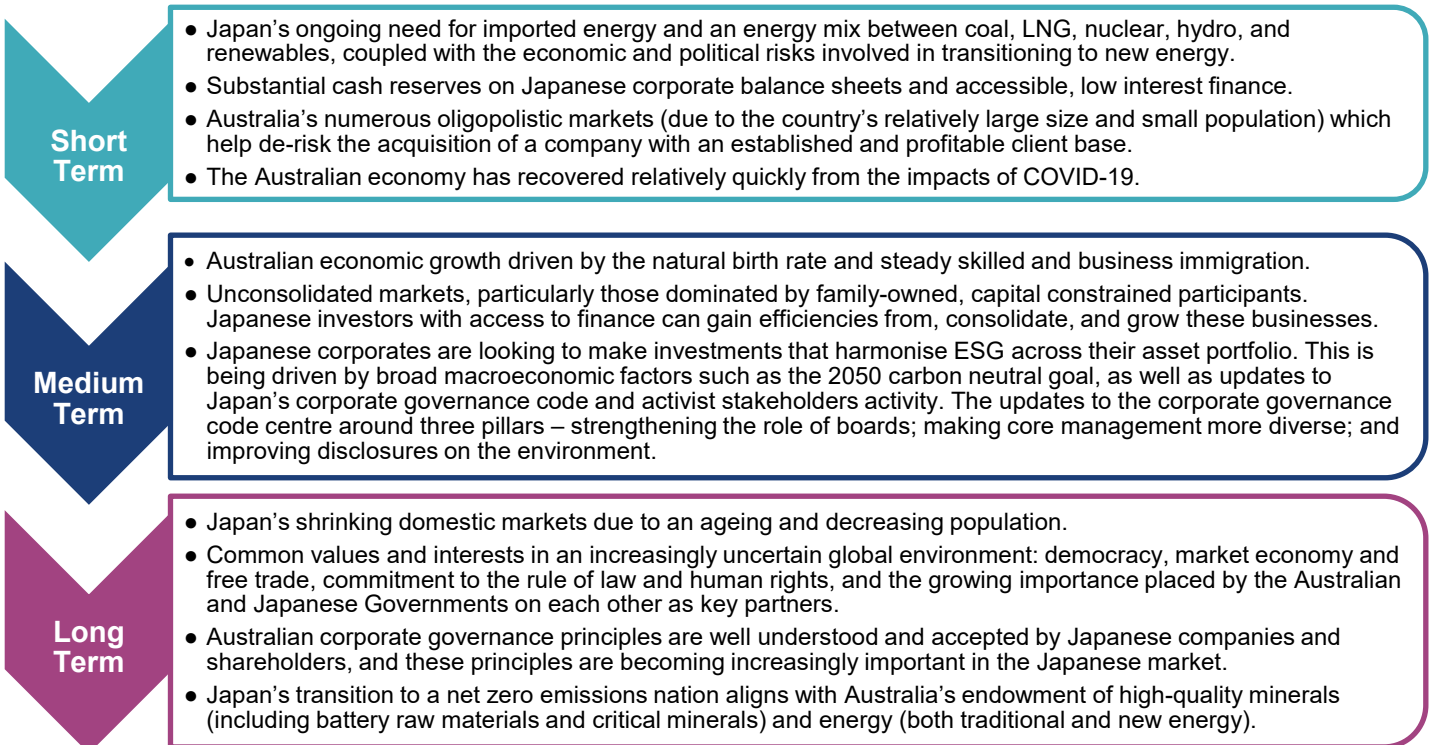
## Predictions

- A large number of senior-level international meetings and visits in the first half of 2023 will likely encourage new partnerships in government and defence industries, with a number of conferences and diplomatic forums planned, including APEC, the G20, the G7 being held in Hiroshima (where Australia is likely to be invited), the Quad in New Delhi and then Sydney in mid-2023.
- Visits to Australia in 2022 by the chair or CEO of major Japanese corporations (in alphabetical order): **All Nippon Airways, Dai-ichi Life, INPEX, ITOCHU, Marubeni, Mitsubishi, Mitsui, Mizuho Bank and Sumitomo Corporation** will likely result in further investment.
- As was seen in 2022, partnerships will continue to evolve from 'agreements to agree' through the feasibility, design and ultimately to the execution stage. The timeline for each partnership will depend on the familiarity of the parties with each other and the extent to which the proof of concept can mitigate concerns about commercial feasibility.
- The key areas of focus for Japan and Australia in 2022, which will continue in 2023, were "energy security, food security and defence security".
- Japan is likely to leverage its alignment with Australia, the US and the UK on geopolitical strategy, and its involvement in the Quad, to collaborate with the AUKUS partnership and develop greater investment and technological cooperation with Australia.
- Critical minerals will be a key focus for Japanese investors, supported by **JBIC** and **JOGMEC**, as Japanese government agencies seek to maintain stable supply chains. JOGMEC has recently changed its mandate to include critical minerals and hydrogen.
- Likely to be increased collaboration between Australia and Japan to drive decarbonisation projects in third party regional countries, with the support of Japanese Government institutions like **JBIC**.
- Increasing sector diversity with investments in consumer products, retail, real estate and services. Japanese trading houses in particular have continued to divest from carbon-intensive assets which they no longer consider strategic and reinvest in tertiary industries. Sydney and Melbourne are increasingly seen as luxury markets in the same mould as Singapore or Hong Kong where there is demand for high value products and services.

## Observations on Japan-Australia M&A and Investment for 2023

- No change to the underlying macro-economic factors that have previously driven investment (stable government, population growth, economic strength, rule of law) and a significant lift in the profile of bilateral co-operation at government-to-government level and in the context of other multilateral geopolitical relationships.
- 2022 saw the end to COVID-19 travel restrictions. The restrictions had led to short-term absence of new entrants to the Australian market as well as lower levels of activity overall, given the difficulty of undertaking due diligence and negotiations without being able to physically visit Australia.
- A mixture of divestments in traditional areas and an increased focus on investment in new emerging sectors was evident even in the smaller deal numbers and should continue in 2023 as companies accelerate mid-term business plans and respond to Government policy settings on decarbonisation.
- ESG considerations are the fundamental threshold criterion in investment decisions, especially for listed Japanese corporations driven by greater scrutiny of decisions by activist stakeholders and independent non-executive directors.
- “New Energy” continues to be strongly supported by Japanese and Australian Governments, financiers, credit agencies, energy companies, engineering firms, port owners, trading houses and funds.
- Australia is increasingly recognised for its innovation, technology and R&D opportunities.

### The underlying drivers of Japanese investment into Australia in the short, medium and long-term are:



## Key Trends for 2022 and beyond



## 2022 review in detail

The increased number of M&A transactions and partnerships that proceeded in 2022 offer plenty of insights into the depth and strength of the relationship. We assessed each of the deals to identify the following 18 trends.

### 1. Decarbonisation – aspirations remain high

Japan's current policy settings, as elaborated on in its 2021 Basic Energy Strategy, seek to achieve carbon neutrality by 2050 by balancing energy security, economic efficiency and environmental sustainability and safety.

As reported last year, Australia fits squarely within Japan's decarbonisation strategy, which has provided a strong foundation for partnerships to emerge organically between government, research institutions and industry. The appetite for partnering has been supported by the government-to-government framework partnerships, including the Japan-Australia Partnership on Decarbonisation through Technology which was announced in mid-2021.

#### Partnerships bear fruit to investments

Our report last year remarked on the use of partnerships by Japanese companies to investigate the commercial or technological feasibility of novel approaches to decarbonisation. Partnerships provide an avenue for Japanese companies, many of which operate in the energy and manufacturing industries, to gain insight into technologies and business models that are still unfamiliar. In 2022, we again saw the popularity of partnerships, as described below. However, there was also an uptick in direct investment in assets and projects.

- **Eurus Energy** signed an agreement with Energy Estate for an undisclosed investment in the A\$2 billion Hunter Hydrogen Network.
- **Marubeni** and **J-Power** each funded A\$10 million into Glencore's Carbon Transport & Storage Corporation's carbon capture and storage project in Queensland.

- **Mitsui** acquired a 28% interest in the Yuri project, a large-scale renewable hydrogen and ammonia project in Western Australia. Mitsui is partnering with Yara International and ENGIE and the Yuri project being financially supported by the Australian Government's Renewable Hydrogen Deployment Funding Round and the WA Government's Renewable Hydrogen Fund.
- **Marubeni** has started construction on a green hydrogen production and battery energy storage project in South Australia, which will export to Indonesia.

#### New Energy – Hydrogen, Ammonia and Methanol

Driven by Japanese and Australian Government support and commercial imperatives, hydrogen, ammonia and methanol related partnerships continued to experience a boom in 2022. Blue hydrogen is considered an essential part of the energy transition, and this provides an advantage to Australia's coal resource abundance.

At the beginning of 2022, the Australian Prime Minister announced a \$150 million investment into clean hydrogen energy supply chain projects under the Japan Australian Partnership on Decarbonisation through Technology. The Federal Government committed a further A\$526 million in supporting the development of regional hydrogen hubs through Regional Hydrogen Hubs Program, which was announced in October 2022. Grants were made to 16 hubs across Australia (half of which have Japanese participation).<sup>7</sup>

In January 2022, the first shipment of liquid hydrogen was transported on the *Suiso Frontier* tanker from the Port of Hastings in Victoria and arrived in Kobe on 25 February 2022. This marked a key milestone in the HESC Pilot Project, signifying the start of a potentially major new energy export industry in Australia. The HESC consortium of industry partners from Japan and Australia included **Kawasaki Heavy Industries, J-Power, Iwatani, Marubeni, Sumitomo** and AGL Energy and was supported by the Victorian, Australian and Japanese Governments. The HESC Pilot Project officially ended on 31 December 2022 and was replaced with two joint ventures: **Japan Suiso Energy (Kawasaki Heavy Industries and**

<sup>7</sup> <https://research.csiro.au/hyresource/regional-hydrogen-hubs-program/>.

There is publicly available information of Japanese participation in: the Central Queensland Hydrogen Hub (**Iwatani, Kawasaki Heavy Industries, Marubeni, Kansai Electric Power Company**), Hunter Energy Hub (**INPEX, Osaka Gas**), Port Bonython Hydrogen Hub (**Chiyoda, ENEOS, Mitsubishi**), MCH Gladstone Project (**ENEOS**), Pilbara Green Hydrogen Hub (**Mitsui**), Origin Green Hydrogen and Ammonia Project (**Mitsui OSK**), Darwin Clean Hydrogen Hub (**INPEX**), Moomba Clean Hydrogen FEED (**Osaka Gas**).



**Iwatani**) and **ENEOS** for transportation and a joint venture between **J-Power** and **Sumitomo** for hydrogen production and CCS.

The development of a hydrogen export industry is significant because it provides an avenue for continuity of Australia's existing critical infrastructure. For example, port infrastructure in Australia that have an established and skilled labour force and appropriate transmission infrastructure will be comparatively faster in their transition towards hydrogen. The current partnership process will assist in identifying suitable locations to begin developing export capability in the near term. It will be supported by government programs such as the Australian Clean Hydrogen Trade Program, the first round of which will allocate A\$150 million to attract foreign investment in Australia's hydrogen exports and which will focus on growing a supply chain with Japan.

Significant partnerships that were announced in 2022 included the following:

- **Sojitz** partnered with Queensland Government-owned CS Energy and **Nippon Engineering Consultants** to carry out a demonstration project of transporting renewable hydrogen produced in Australia to the Republic of Palau in the Pacific. The project is being partly funded by the Japanese Environment Ministry's hydrogen subsidies program and will be carried out between FY2021 and FY2023.
- **ITOCHU** signed an MOU with LAVO, an Australian clean energy storage and technology company, to explore collaboration opportunities in energy and power.
- **Osaka Gas** agreed with Aqua Aerem to jointly develop the latter's Desert Bloom Hydrogen project in the Northern Territory. The project involves construction of a renewable hydrogen production site that will use off-grid renewable energy and its own water source (through atmospheric water).
- **JBIC** signed an MOU with Yara International to strengthen cooperation in the field of developing clean ammonia.
- **INPEX** and **Osaka Gas** each signed MOUs with AGL Energy, Australia's largest integrated energy provider to conduct feasibility studies for the development of green energy hubs in South Australia (Torrens Island Hydrogen Hub) and New South Wales (Hunter Energy Hub).
- **SB Energy** (a subsidiary of **SoftBank Group Corp**) signed an MOU with Australian energy company Elixir Energy to assess the feasibility of a green hydrogen production plant at Elixir's Mongolian Nomgon IX project.

- **JOGMEC, Marubeni, Hokuriku Electric, Kansai Electric, Tohoku Electric** and **Hokkaido Electric** signed a joint research agreement with Woodside Energy under which they will jointly conduct a phase 2 feasibility study on the establishment of a lower-emissions fuel ammonia supply chain between Australia and Japan. This follows from a phase one study conducted last year.
- **Mitsubishi Heavy Industries** signed a Statement of Cooperation with the South Australian Government to explore avenues for facilitating the State's transition to clean energy (including hydrogen production).
- **Idemitsu** began a joint study into the production and export of green ammonia at Abbot Point Port in Queensland, as part of a consortium that includes Energy Estate and Queensland Government-owned CS Energy.
- **Panasonic Australia** and Canadian-owned ATCO Australia entered into a partnership to trial a hydrogen fuel cell built to be suitable for harsh conditions experienced in Australia.
- **Iwatani** and Queensland Government-owned Stanwell have completed their feasibility study into the CQ-H2 project (a hydrogen production project in Queensland) and have commenced preparations for a Front-End Engineering Design study in early 2023.
- **NYK Line** has signed a MOU with BHP to jointly study zero-greenhouse gas emission ships which would be fuelled by green or blue ammonia, with the objective of meeting long term emissions reduction targets for shipping.
- **Advanced Energy Group** (a joint venture founded by Australian and Japanese partners) announced in July 2022 that it would be acquiring the Maryborough Sugar Mill from MSF Sugar. AEG intends to invest A\$100 million to convert the closed sugar mill into a bioenergy hub which uses cane to make renewable fuels.

### Carbon technologies and carbon credits

Some of Japan's major energy players have continued to see merit in directing resources towards studying CCS and CCUS methods as well as other technologies aimed at reducing carbon emissions. For example, **INPEX** has announced it will spearhead the construction of one of the world's largest carbon capture facilities in Darwin as part of efforts to introduce carbon capture to natural gas development. This facility is intended to capture and store carbon dioxide produced by the Ichthys gas project.

Australia also has a natural comparative advantage when it comes to implementing CCS technologies, as some methods of storage require large empty gas fields, of which Australia has many.

Japan considers a technology solution to be critical to achieving carbon neutrality. Australia is seen as a first-choice destination in this area, due to its stable investment and supportive regulatory environments. Partnerships in CCS are therefore worth monitoring as successful collaborations are expected to evolve into significant long-term investments. The partnerships we reviewed in 2022 included the following:

- **Japan Australia LNG** (owned jointly by **Mitsubishi Corporation** and **Mitsui**), Woodside and BP, announced a feasibility study on a CCS project off the coast of Western Australia, with a view to 2030 operations.
- **Nippon Steel** and **Kansai Electric** each signed a separate joint study agreement with deepC Store Ltd to evaluate the commercial feasibility of capturing and transporting liquefied carbon dioxide from their production facilities in Japan to Cstore1 (an offshore floating CCS hub project in Australia).
- **ENEOS**, through its subsidiary **JX Nippon Oil & Gas**, signed a Joint Bidding Agreement, also with deepC Store, to bid for a Greenhouse Gas Assessment Permit for an offshore Greenhouse Gas Storage Acreage Release Area in Australia.
- **INPEX** signed a MOU with ANZ and Qantas to conduct a feasibility study for a carbon farming project in Western Australia, which involves harvesting and processing native biomass crops and agricultural waste residues to produce low-carbon renewable biofuels. The MOU expects the first planting of native trees to take place in mid-2023.
- **Nippon Steel** signed a MOU with the University of Queensland and Urban Utilities to study the feasibility of converting carbon dioxide into valuable chemicals. The research proposal was funded by the Australian Research Council.
- **JBIC** signed separate MOUs with Santos and Woodside Energy respectively to promote cooperation in securing a stable supply of energy and decarbonisation.
- **JBIC** also signed a MOU with the Western Australian Government to strengthen the cooperation between JBIC and Western Australia to further promote investment in the State. Western Australia is seen as an important partner for supply chain resilience in iron ore, natural gas, critical minerals, hydrogen, ammonia and CCUS.
- **Mitsubishi Gas Chemical (MGC)** signed a MOU with Cement Australia to study the manufacture and sale of green methanol made from carbon dioxide captured at Cement Australia's Gladstone plant and green hydrogen using **MGC's** green methanol production technology.

- **JERA** has signed a joint study agreement with Chevron to conduct a feasibility study into co-developing lower carbon fuel, leveraging Chevron's LNG and CCS knowledge and experience. They have also both invested in hydrogen transport technology, through an investment in Hydrogenious LOHC Technologies.
- **Mitsui O.S.K. Lines** signed a joint study agreement with Chevron to investigate the feasibility of transporting liquified carbon dioxide from Singapore to permanent storage locations offshore in Australia by 2030.
- **JOGMEC** and **INPEX** signed a joint research agreement to evaluate the potential of the Bonaparte Basin in the Northern Territory to become a world-scale, carbon storage location. INPEX is the operator for the Bonaparte CCS JV.
- **Mitsui** signed an MOU with Hazer Group to jointly investigate potential market applications of Hazer's low emissions graphite in steel making and chemical industries.

There were also reports that **JERA**, **Tokyo Gas** and **INPEX** were planning to join a Santos-led project to develop the world's largest CCS project, with total investments estimated to be as much as US\$748 million.

Separately, trading houses (and, more recently, energy companies) have started 'carbon farming' by investing in companies and funds that generate ACCUs (which represent one tonne of carbon dioxide equivalent net abatement):

- **Mitsui** acquired a 33.7% shareholding in Climate Friendly, a company that works with farmers, Traditional Custodians and conservation organisations to generate land sector carbon credits. This follows Mitsui and New Forests jointly creating a forestry carbon offset fund with an initial investment of A\$50 million in 2021 to generate carbon credits through plantation activities.
- **Osaka Gas** acquired a 16.7% shareholding in Australian Integrated Carbon, a company engaged in obtaining and selling carbon credits from regeneration of native woodlands in Australia.
- **Mitsubishi Corporation** (in a JV with **NYK Line**) made a similar investment in 2021, as reported in last year's report, when they acquired a 40% shareholding in Australian Integrated Carbon.

### Continuing exit from thermal coal but maintaining or expanding coking coal assets

While Japanese corporates invest in measures to reduce carbon footprints, they continue their orderly exit from thermal coal whilst maintaining or expanding coking coal assets (used for production of steel), in

order to align their portfolios with the net zero carbon emissions target for 2050.

Divestments included:

- **Mitsui** selling its 20% shareholding in BHP Mitsui Coal (the owner of the Poitrel and South Walker Creek coal mines) to Indonesian controlled ASX-listed Stanmore Resources.
- **ENEOS** selling its shareholding in coal producer Oakbridge to Glencore.
- **ITOCHU** selling its interest in the Ravensworth North and Wandoan coal mine projects to Glencore.

## 2. Critical Minerals<sup>8</sup> and Battery Raw Materials are increasingly important

For major Japanese energy companies, investment in critical minerals can be accomplished through minority interests in joint ventures in order to secure supply of production, which is a familiar form of investment (being the first paradigm). It is also an area that is well-supported by government – in September 2021, the Australian Government established a A\$2 billion loan facility for Australian critical minerals projects, to assist with some of the financial hurdles associated with development projects. In October 2022, a joint partnership was announced between the trade and industry ministries of the two countries to develop and promote a critical minerals supply chain.

Australia is a leading producer of many of the minerals critical for technology products and high-tech applications, and it can be expected that Japan will continue to invest in these products – particularly battery materials and high-powered magnets, which are essential to energy storage in the New Energy transition.

Japanese companies are therefore continuing to identify opportunities in this area. Recent examples include:

- **JARE** (a company co-owned by **Sojitz** and **JOGMEC**) contributed approximately A\$13 million in additional equity to Lynas Rare Earths in 2022, to be applied to the rare earth exploration project at Mt Weld. JARE announced in March 2023 that it would make an additional A\$200 million investment in Lynas Rare Earths, to be used for Lynas' mid-term growth plan (including expanding light rare earths production and commencing heavy rare earth separation). 65% of the heavy rare earth produced at Mt Weld will be exported to the Japanese market. This additional investment is a significant indicator of the potential for increased Australian participation in the critical minerals market in Japan.
- **Idemitsu** reinvested funds from its divestments from carbon-intensive assets into a strategic A\$5 million investment in leading West Australia-based lithium exploration company Red Dirt Metals.
- **Idemitsu** also invested in Vecco Group, which is developing a vanadium mine and an electrolyte plant in Queensland (thereby establishing strong foundation for a local supply chain), and its A\$2.8 million acquisition of a 32% shareholding in Critical Minerals Group, which is currently exploring its Lindfield vanadium project in Queensland.
- **Mitsui** signed an MOU with Metallica Minerals to evaluate the feasibility of an offtake agreement for silica sand products produced by Metallica Minerals.

Some Japanese companies are finding it difficult to commit to making long-term investments in critical minerals due to uncertainty over the future technologies that will use critical minerals. There is a risk that this will lead to Japanese investors being overtaken by more aggressive investors from other countries.

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<sup>8</sup> Critical minerals include: rare-earth elements (REE), gallium (Ga), indium (In), tungsten (W), platinum-group elements (PGE) including platinum (Pt) and palladium (Pd), cobalt (Co), niobium (Nb), magnesium (Mg), molybdenum (Mo), antimony (Sb), lithium (Li), vanadium (V), nickel (Ni), tantalum (Ta), tellurium (Te), chromium (Cr) and manganese (Mn).

### 3. Tourism

Tourism remained low on the radar in 2022, with no significant investment activities. However, with international travel between Australia and Japan resuming in the middle of the year, there has been a slow recovery in airline activities in the second half of 2022:

- **All Nippon Airlines** has announced the planned future resumption of its direct flight between Perth and Japan.
- **Japan Airlines** has resumed and begun to increase the frequency of Melbourne to Tokyo flights.
- In addition to the Japanese carriers, Qantas, Jetstar and Virgin Australia have reopened routes to Japan, and have discounted fares, funded by the Queensland Government's Attracting Aviation Investment Fund.

With flights resuming, we would expect to see a number of positive downstream effects in 2023, including a renewed interest in the tourism sector (such as hotels), a recovery in the export of education to Japanese students and a general increase in investment activity as in-person meetings and networking becomes possible again. In October 2022, for example, **Staywell Hospitality** announced that it would bring the *Prince Akatoki* luxury hotel brand to Sydney and Melbourne as part of its plans to fill a gap in the Australian market for recognisable Japanese hotel brands. Staywell was purchased by **Seibu Holdings**-subsidiary **Prince Hotels** in 2017.

### 4. Technologies – digital transformation (DX), start-ups / VC and innovation

#### Digital transformation

Digital transformation has been a significant focus in the Japanese economy as it adapted to and recovered from the COVID-19 pandemic.

For example, **JETRO** established **J-Bridge**, a business platform to connect Japanese corporations and innovative Australian companies. J-Bridge aims to accelerate DX across six sectors: (a) carbon neutrality, (b) mobility, (c) retail, (d) healthcare, (e) agriculture, and (f) smart cities, with a focus on JVs, technology transfers and other forms of partnerships. Through the platform, key players such as **KDDI** have expressed interest in investing in Australian start-ups.

#### Start-ups and venture capital

Investment in Australian technologies more broadly has generally occurred in the background in the past 5 years, with deal values being small and aimed at incorporating bespoke know-how or processes into an established wider system. However, in 2022, there

were 12 transactions involving some form of technology, with disclosed deal values ranging from A\$770,000 to A\$220 million.

The success of Australian software companies such as Atlassian, WiseTech and Acconex and unicorns such as Afterpay, Linktree, Canva, Airwallex, Realestate.com.au, Seek, Carsales and MYOB may have played a part in building credibility in the Australian technology market. Global technology firms such as Alibaba, Slack, Square and GoPro have recently set up operations in Australia as well.

The StartupBlink "Global Startup Ecosystem Report 2022" ranks Australia as the 8<sup>th</sup> best country (with Sydney ranked 38<sup>th</sup> and Melbourne 42<sup>nd</sup> among cities), and Japan is ranked 20<sup>th</sup> (with Tokyo/Yokohama ranked 15<sup>th</sup>).

Japanese companies are actively researching and identifying suitable technologies and technology companies. Given the appetite for innovation exists, greater promotion of Australia's start-up ecosystem will encourage increased investment activity in this area. This is particularly so in sectors where there is mutual interest between the countries, such as AgTech, FoodTech, MedTech, AI and robotics.

**MUFG** established a Business Alliance with Artesian (Alternative Investments) (the largest Australian fund supporting start-ups / venture capital) to enable MUFG to provide its corporate customers with opportunities to collaborate with, and invest in, Australian early-stage start-ups. The partnership attracted a feature article in the Australian Financial Review in February 2023, which has undoubtedly created interest in the Australian venture capital sector as well, as we foreshadowed in last year's report.

#### Innovation and technology partnerships

Japanese companies have adopted a co-creation mindset to innovation, looking to establish cross-border relationships. Australia is not yet seen by Japan as a natural technology collaboration partner, but work is being done to change this perception. Australia is already considered a producer of technology talent and is in an advantageous location for technology collaboration due to its close access to new Asian markets. Australia is looking to become a technology partner of choice, building on our strength in energy and resources.

In 2021, **NYK Line, Mitsubishi Corporation** and **Startupbootcamp Australia** launched a global start-up accelerator program designed to promote efforts to decarbonize. The program focused on scouting and supporting promising start-ups with disruptive technologies and business ideas to solve problems, particularly in the energy and resource sectors. This program continued in 2022.



In October 2022, the AJBCC / JABCC sponsored the inaugural “Australia-Japan Innovation Alliance” forum in Tokyo. The forum was attended by representatives from the Australian and Japanese start-up communities, Venture Capital companies, universities and governments.

At the Federal Government level, the Department of Industry, Science, Energy and Resources is promoting Australia’s technology capabilities, through initiatives such as the National Quantum Strategy.

Notable transactions in these sectors from 2022 included the following:

- **Fujitsu Australia** acquired Canberra-based Oobe. Oobe is a leading Microsoft cloud, modern workplace, and security provider which provides a holistic service and product portfolio spanning end-user computing, applications, data, cloud and cyber security. The acquisition will allow Fujitsu to accelerate its customers’ digital transformation journeys.
- **Fujitsu Australia** also acquired Enable Professional Services, a specialist service provider that uses the ServiceNow software. The acquisition formed part of Fujitsu’s approach to use M&A to support its growth ambitions, following earlier acquisitions of AI-consultancy Versor and Oobe. Enable Professional Services has ServiceNow capabilities and digital transformation specialist skills that will assist Fujitsu in developing a service offering for businesses.
- **Komatsu** acquired Mine Site Technologies, a provider of operational optimisation platforms for underground mining. This follows a similar technology-focussed acquisition in 2017 of MineWare, a specialist company in the monitoring of draglines, mining shovels and excavators that uses advanced technology to improve the loading process.
- **Nomura Research Institute**, through its subsidiary ASG Group, acquired 100% of Veralda, Microsoft’s largest Australian implementation partner.
- **Fujifilm** acquired Intelli Messaging Services, a software company engaged in providing messaging technology and applications.
- **Softbank Vision Fund 2**, as part of a consortium of investors, invested a further US\$100 million in Go1, an Australia-based software e-commerce company engaged in operating an online education platform.
- **MegaChips Corp**, a Japan-based holding company for chip manufacturers, led a group of investors in acquiring an undisclosed shareholding in Morse Micro, a manufacturer of WiFi HaLow chips for the Internet of Things (IoT) market.
- **Suzuki Motors** invested A\$20 million in Applied Electric Vehicles. Applied Electric Vehicles has developed a software which reduces the number of electrical components in motor vehicles and has potential applications for autonomous driving.
- **Optimus Group** acquired a further 20% shareholding in Blue Flag, raising its shareholding to 60%. Blue Flag has developed a vehicle data platform that provides efficient and simple access to automotive data.
- **Macnica Inc** acquired a 14% shareholding in iCetana, an artificial intelligence software developer. Macnica will become the exclusive distributor for iCetana in Japan.
- **MUFG** through **MUFG Innovation Partners Co**, and other investors invested US\$20 million into Sydney-based e-bike company Zoomo.



## 5. Circular economy

The Australian Government is driving transformation in the circular economy through the introduction of new technologies and expertise, including by granting priority business migration visas. Japanese companies are looking closely at opportunities in innovative waste management solutions (e.g., waste-to-energy), product re-use and recycling. Austrade has identified the circular economy as one of its top priority areas.

- **ITOCHU** signed a MOU with **Taisei** and Mineral Carbonation International (**MCI**), an Australia-based company which possesses mineral carbonation technologies. MCI's technologies produce low carbon embodied materials by carbonating by-products from steelmaking, coal ash and other industrial waste. The MOU will investigate the commercialisation of the carbonate material that is produced from waste through this process. The MOU follows from ITOCHU's decision to invest in MCI in mid-2021 and illustrates the continuing interest of Japanese trading houses in identifying and investing in potential new technologies developed in Australia.
- **ITOCHU** is partnering with Veolia on an NSW Government tender process for the construction of a materials recovery facility and an energy from waste facility in the Parkes Special Activation Precinct.
- **Hitachi Zosen Inova** partnered with Masdar Tribe Energy, John Laing Group and Acciona Concesiones to develop the East Rockingham Waste to Energy Facility in Western Australia, which is set to be commissioned in 2023. It will be operated by Suez.

## 6. LNG still going strong

LNG is considered essential to a balanced energy mix for Japan in the medium-term. Japan remains the largest importer of LNG from Australia at 43% of total production. Although ESG remains a core threshold for investment decisions, the 'quadrilemma' will undoubtedly apply counterpressure on energy companies to maintain interests in LNG and to a lesser extent oil (given the stability and reliability of these sources of energy).

- **JERA** acquired a 12.5% interest in the Barossa gas field project from Santos for A\$327 million.
- **MIMI** (which is 50% owned by each of **Mitsui** and **Mitsubishi Corporation**) has a 16.67% interest in the North West Shelf Project and is strongly supporting the development of the Browse Project (in which they hold a 14.4% interest and have an offtake agreement).

- **Marubeni** signed a MOU with Venice Energy to join its A\$260 million LNG import project in the Port of Adelaide.
- **Mitsui** (and its joint venture partner, Beach Energy) are constructing the Waitsia Gas Plant in Western Australia, with completion scheduled for later in 2023. The gas processed will support the domestic Western Australian market, with some to be processed into LNG at the North West Shelf Project for export.

## 7. Iron Ore expansions will continue

Although there were no new acquisitions there were continued expansions of iron ore mines in which **ITOCHU**, **Mitsui** and **Marubeni** hold interests. The fundamentals of the iron ore market remain strong.

**Mitsui** generated record profits in the year to 31 March 2022, surging 173% from the previous year with a strong contribution from its iron ore investments. **ITOCHU** similarly enjoyed significant profits on the back of strong iron ore prices. The Roy Hill Project between **Marubeni** (15% interest), Hancock Prospecting and POSCO announced a A\$3.2 billion net profit for the 2022 financial year, lower than the previous year profit of A\$4.4 billion but still a strong result.

**ITOCHU** and **Mitsui**, in their JV with BHP, have increased the annual production target at the new South Flank iron ore mine to 80 million tonnes. Expansions in iron ore projects will continue to be supported by Japanese joint venturers, although these would not be captured as M&A or new investments.

## 8. Defence, space and aviation industries

Defence has become a new and developing area of cooperation between Japan and Australia. Japan has committed to increasing its defence budget to 2% of its GDP, which would make it the 8<sup>th</sup> largest in the world. Australia has similarly increased its defence spending. Defence-related opportunities are therefore expected to expand both in hardware and technology.

In June 2022, the Japanese Minister of Defence Kishi Nobuo and Australia Deputy Prime Minister and Minister for Defence Richard Marles met in Tokyo and produced a Joint Statement on Advancing Defence Cooperation. The Statement sets out an ambition for increased defence cooperation, building on the Japan-Australia Reciprocal Access Agreement which had been signed in January 2022. It commits to increasing cooperation in the areas of space and cyber and to strengthen each country's industrial base through supply chain collaboration. In October 2022, Australia and Japan entered into a partnership for a new mission to Mars. The partnership was

announced jointly by the Australian and Japanese Prime Ministers and will see cooperation between the **Japanese Aerospace Exploration Agency** and the **Australian Space Agency**.

Cooperation in aviation was also notable in 2022. The **Japan Civil Aviation Bureau (JCAB)** and Australia's Civil Aviation Safety Authority signed a technical arrangement on aviation maintenance in March 2022, which grants reciprocal acceptance of approvals for maintenance, repair and overhaul of aircraft equipment and components. The arrangement will permit maintenance organisations approved in one country to perform MRO works in the other. Australia was the third country to conclude such an arrangement with Japan, after Canada and Singapore. Flight Training Adelaide delivered commercial airline pilot training to Japanese airline **J-AIR's** aviation cadets as part of an ongoing **JCAB** certification program.

## 9. Expansions

One of the new paradigms of Japanese investment in Australia in 2022 has been the appetite for "expansion" beyond the immediate market within which the business operates. Japanese companies sought to achieve this through either vertical or horizontal integrations, or through non-M&A capital investments to increase output. Some of the major activities in 2022 included the following:

- **Frucor Suntory** invested A\$400 million into the construction of a beverage manufacturing facility in Queensland, which will process, package, store and distribute its products. It is expected to be operational in mid-2024.
- **Asahi Group** invested an additional A\$55 million in upgrading its manufacturing plant in Queensland, bringing its total investment in the plant in the past 5 years to approximately A\$100 million. The upgrade doubled the plant's capacity for production.
- **Nippon Paper** (through Australian subsidiary **Opal**) is investing A\$140 million to construct a new high speed regional manufacturing facility for cardboard packaging.

## 10. Consumer

Australia is seen as a profitable market to enter due to its growing population and the increasing recognition of Sydney and Melbourne as high-end consumer cities. Japanese beverage companies already have a strong presence in Australia; 9 out of the top 10 beers in Australia by volume are owned or distributed by **Asahi Group** or **Kirin**. Well-known Japanese brands, such as BOSS coffee (owned by **Suntory**), Sakata, **UNIQLO** and **MUJI** have seen success in recent years.

- **UCC Holdings** acquired Suntory Coffee Australia for A\$229 million in order to enter the Australian and New Zealand markets.
- **Takara Holdings** acquired the remaining 49% shareholding in **Nippon Food Supplies Company**, the Australia based Japanese alcoholic beverage, seasoning and other groceries wholesaler.
- **Asahi Beverages**, which owns Carlton & United Breweries, acquired premium low-calorie soft drinks and mixers group StrangeLove.

## 11. Recruitment

There has been a continuation of acquisitions in the recruitment industry, following **Recruit's** acquisition of ASX-listed Chandler McLeod in 2014, **Persol's** acquisition of Programmed Maintenance in 2017 and **Will Group's** acquisition of a majority shareholding in DFP Recruitment, Quay Appointments and Ethos BeathChapman Australia in 2018.

In 2022, **Geechs Inc**, an IT staffing business, acquired 70% of Launch Recruitment, a recruitment services company which operates an IT human resource service using casual and freelance employment in order to expand its technical resource sharing in the Asia-Pacific.

## 12. Commercial Real Estate poised to boom

Australian commercial real estate continued to be a prime target for Japanese investors looking for growth opportunities. The opportunity to diversify income streams in a market where there is population growth, political stability and a strong economy makes the investment overall low risk. Japanese power utilities and railway companies have been active real estate developers in Japan, with their focus on urban development, but some gas utilities have now entered this market.

One of the key difficulties faced by Japanese investors in this sector is the limited number of major real estate developers in Australia – Lendlease, Stockland, Charter Hall, Mirvac – compared to the number of companies looking for opportunities. This

may lead to club deals where multiple Japanese investors participate in a single development.

Interestingly, there is an increasing appetite for bringing the “urban development” style that integrates commercial and residential real estate with transport solutions, which is very common in large Japanese cities, to Australia. Sydney and Melbourne in particular are seen as “premium” international cities where this style of development will prove profitable.

Companies active in Australia include:

- **Mitsubishi Estate** and Lendlease acquired the One Circular Quay development in Sydney for A\$800 million. The development comprises a luxury residential tower and a second tower to be developed as a luxury Waldorf Astoria hotel.
- **Sumitomo Forestry**, **NTT Urban Development** and US developer Hines are developing a “net zero” building in Melbourne.
- **NTT Urban Development** acquired a 50% interest in “53 Albert Street” in Brisbane, Australia, making this its third commercial real estate investment in Australia.
- **Kanden Realty & Development (Kanden)** (a subsidiary of Kansai Electric) announced in March 2022 its Rouse Hill Sydney land development project in Australia (Kanden's first overseas project).
- **Sekisui House** has undertaken six major community developments combining residential and commercial properties.
- **Mitsui Fudosan** made its first entry into the Australian real estate market with its participation in the MAC Residences condominium housing project in Macquarie Park, Sydney. It is partnering with Frasers Property Australia. Mitsui Fudosan established an Australian subsidiary as part of its long-term management goal to seek growth overseas in 2019.
- **Tokyo Gas**, through its subsidiary Tokyo Gas Real Estate, made its first investment in Australia in February 2023, taking part in the development of a condominium in Adelaide, South Australia.
- **Tokyu Corporation** has been involved in the massive Yanchep development in Western Australia since the early 1990s. **Odakyu Electric Railway**, which partnered with **Daiwa House** in the Box Hill Sydney land development in 2018 development is actively pursuing opportunities.
- **Obayashi** entered a joint venture with Australian construction group Built to construct the flagship Atlassian Australia headquarters in Sydney.

- **Kajima** (through subsidiary Icon Developments) had an A\$500 million development pipeline in 2022, consisting largely of inner city residential and office building projects.

Australian developers also showed initiative in Japan: Lendlease has continued to grow in Japan with major projects including data centres and office value add initiatives, but also internationally with Japanese partners in the United Kingdom and the United States. Goodman Group is another Australian company which has been successful in Japan with its strategy of focusing on e-commerce (such as logistics and distribution facilities).

### 13. Residential Home Builders continue to grow

Japanese expansion in the residential housing market has continued with both **Asahi Kasei Homes** (trading as NXT Building Group under the brand names McDonald Jones, MOJO, Brighton Homes, Weeks, Wilsons, Akora and Arden) and **Sumitomo Forestry** (under the brand names Henley Properties, Wisdom and ScottPark) increasing their market shares to be ranked as Australia's second and sixth largest residential home builders. As Australian residential home building companies continue to suffer from fixed-price contracts, delayed construction times and increasing building materials costs, there are likely to be further acquisitions of brand-name builders.

**Sumitomo Forestry** also acquired 51% of the shares in landscaping company Regal Innovations, which is known for its projects in the Barangaroo district and Darling Harbour. This marks the first time that Sumitomo Forestry has entered the landscaping business in public spaces overseas.

On the supply side **Bunka Shutter** followed its initial acquisition of Steel-Line and ArcPac Garage Doors in 2018 with the acquisition of Max Door Solutions in 2022. The **Nippon Paint**-owned Dulux remains Australia's largest paint manufacturer.

### 14. Infrastructure

Japanese trading houses have continued to view Australian economic and social infrastructure as attractive as the Federal and State Governments have committed to further metro rail projects. One difficulty is the continued trend towards collaborative procurement rather than pure PPP/PFI which advantages domestic contractors over Japanese equity participants. The expansion of the three Japanese mega-banks into project finance and project bonds locally in Australia has meant that the ability of Japanese investors to bring finance to consortium is now no longer exclusive.

- **Marubeni** is participating in the equity financing of Sydney Metro expansions and Stage 3 of the Gold Coast Light Rail project, which achieved financial close in March 2022.
- **ITOCHU** is a member of the consortium supplying the New Generation Rollingstock to Queensland.
- **Mitsui** acquired additional shares in Position Partners, a system integrator for construction and civil engineering work in Australia, taking its shareholding from 20% to 50%+1.
- **Hitachi Rail** was selected for an A\$107 million contract to install automatic train operation technology for the signalling for the New Generation Rollingstock in Queensland. **Hitachi Rail** was also awarded an A\$65 million contract to maintain the fleet through to 2046.
- The Western Parkland City Authority (**WPCA**) is actively engaging with the Japanese business community to develop the Western Parkland City, including the proposed Aerotropolis near the new Nancy Bird Walton Airport. Cornerstone MOU partners **Mitsubishi Heavy Industries, Sumitomo Mitsui Financial Group, Hitachi and Urban Renaissance Agency, NEC and Daikin** continue to support WPCA as Foundation Partners. The WPCA is progressing slowly and steadily, and Japanese MOU partners and other companies continue to monitor the opportunities.
- The High-Speed Rail Authority was established in Australia at the end of 2022, which will open the door for much anticipated collaboration with Japan as it demonstrates Australia's clear commitment to building a High-Speed Rail (HSR) network along the east coast of Australia (backed by A\$500 million in Federal Government funding). Australia has long recognised the contribution of Japan's world class bullet train (*Shinkansen*) network to its successful economic and social development. **JR Tokai**, through its Sydney office, continues to strongly advocate for HSR. There is a continuing need for infrastructure, especially in major cities. However, there has been a slowdown in construction due to the shortage in labour and the rising cost of materials.
- In 2023, there is likely to be renewed interest in largescale infrastructure projects coordinated by Federal and State governments. In its October 2022 budget, the Federal Government announced the National Reconstruction Fund, which will provide finance for projects in 7 priority funding areas:
  - renewables and low emissions technologies;
  - medical science;
  - transport;



- value-add in the agriculture, forestry and fisheries sectors;
- value-add in resources;
- defence capability; and
- enabling capabilities.

## 15. Research and innovation

Australia's education and research institutions are held in high regard by Japan. New research partnerships are being developed between Australian universities and Japanese companies, and commercialisation of this research is progressing.

- **NTT** and University of Technology Sydney entered into a strategic partnership in November 2021, with the objective of developing technologies for smarter, safer and more secure cities.
- **IDOM Innovations** (a subsidiary of Japanese auto retailer **IDOM**) opened its global headquarters in Melbourne in August 2022, with support from the Victorian Government. **IDOM** has a partnership with Royal Melbourne Institute of Technology (RMIT University) to focus on critical future technologies (such as AI, IoT, blockchain, augmented and virtual reality, user experience and circular economy).
- **Nippon Steel's** MOU with the University of Queensland and Urban Utilities is researching how carbon dioxide can be converted into valuable chemicals, with funding from the Australian Research Council under the Linkage Projects scheme.
- **EX-Fusion**, Japan's first-ever laser fusion company, has partnered with Thales Group, the University of Adelaide, Osaka University, BECA and Southern Photonics to develop new capabilities in laser technology for clean fusion energy generation.
- **Lexus Australia** (owned by **Toyota Motors**) has been partnering with the University of Melbourne's Australian Integrated Multimodal EcoSystem since July 2021 to collaborate on Cooperative Intelligent Transport Systems technology research.

This trend has developed as a result of the majority of R&D being undertaken by universities and CSIRO in Australia (often industry-led and with government funding), whereas in Japan, it is mostly undertaken by corporations. CSIRO has been collaborating with Japan since the mid-1980s working with Japanese universities, research organisations and commercial businesses on science impact projects. Recently CSIRO has been working with **IHI** and **Kawasaki Heavy Industries** on technology development and improvement initiatives.

We expect this area of partnership to continue to grow strongly as Australian universities seek

overseas partners with the capital and know-how to commercialise R&D and Japanese corporations, pushed by government initiatives, move beyond their traditional sources of innovation, explore technology which can "go global" or be used in third markets. Japanese Prime Minister Kishida's "New Capitalism" agenda places a heavy focus on innovation by start-ups, in addition to the large size companies where innovation in Japan has traditionally taken place. At the same time, Australian innovators and institutions are looking for new sources of capital and commercialisation skills, and Japan presents as a reliable and trustworthy partner.

## 16. Healthcare

Japanese companies are continuing to look at healthcare opportunities following **Marubeni's** infrastructure fund, **MM Capital Partners'** investment in Royal Adelaide Hospital, **Sojitz's** investment in the Plenary Group-led A\$1.5 billion Footscray Hospital public private partnership (PPP) and **Mitsui's** indirect investment through its 32.9% shareholding in Singapore-based healthcare provider IHH, which has operations in Australia. The acquisitions and roll-ups of healthcare businesses by private equity are now coming up for a liquidity event which could be by way of a dual-track IPO and trade sale process.

- In 2022, **Sojitz** signed a MOU with Plenary Group to expand collaboration opportunities in PPPs and infrastructure businesses in Australia, Asia and the Middle East.
- **JBIC** is actively supporting opportunities in social infrastructure in Australia, including hospital PPPs, as part of its ESG initiatives, to support the development of knowledge and experience in the sector that can then be applied in developing economies.
- The **Nichigo Health** (a consortium led by **Hitachi Corporation**) is progressing its unsolicited proposal with the NSW Government to develop a proton beam therapy centre research facility at Westmead Hospital for cancer treatment.

## 17. Financial Services

Japanese interest in Australian financial services continues to grow, with both existing and new investors expanding their presence in Australia.

- **TAL Dai-ichi Life Australia** acquired the life insurance business of Westpac and entered an exclusive 20-year strategic alliance to provide life insurance products to Westpac's Australian customers. **Dai-ichi Life Australia** is the market leader with a 33% market share in the life insurance market (based on premium income).



- **Mitsui and Nomura** increased their combined shareholding in New Forests, an Australia-based agricultural asset management company, to 90%.
- **Mizuho Leasing** acquired 50% of Affordable Car Leasing from **Marubeni**.
- **Shinsei Bank** increased its shareholding in Latitude Financial from 9.95% in 2021 to 14.97% as of December 2022.
- **MS&AD** has a 15% shareholding and a director on the board of ASX-listed Challenger and an annuity relationship through its subsidiary Mitsui Sumitomo Primary Life Insurance Company.
- **Daido Life** continues to hold a cornerstone shareholding in unlisted life insurance company Integrity Life.
- **Oval Ventures**, a Japan and Australia based start-up venture capital fund, established Blackship Capital, a buyout arm to promote the succession of Japanese companies by Australian entrepreneurs and capital.

## 18. Japanese financing

The three Japanese mega-banks (**MUFG**, **SMBC** and **Mizuho**) have grown their presence in Australia 20 times since the bank mergers of the early 2000s. It is hard to remember that prior to the Bubble economy in Japan bursting in 1992 there were 14 city banks, 6 trust banks and 3 long-term credit banks. MUFG, SMBC and Mizuho all have 200-400 employees in Australia and are continuing to attract capable, experienced, and successful bankers. They are very much “part of the furniture” in Australia’s financial markets these days.

The three Japanese mega-banks are now the leading project finance (including project bonds) arrangers in the Australian market, which is impressive given the relative size and scale of the four large domestic banks. Australia has consistently been in the top three project finance markets in the world for the last decade. The strong growth in Japanese banks financing Australian economic and social infrastructure and renewables projects continues, in both initial loans arrangements and syndication markets. Projects have also been increasingly supported by non-bank lenders such as Japanese insurance companies.

The contribution of Japanese finance to the growth of the Australian economy is one of the great untold stories. The three Japanese mega-banks and **Norinchukin** (which celebrated in February 2023 its 6-year anniversary since the Sydney office was established) based in Australia have been very busy over the last 18 months in the financing and refinancing of traditional infrastructure assets as well as M&A transactions in the renewable energy and

digital infrastructure space. Japanese lenders in general continue to be actively involved in a wide variety of infrastructure transactions in Australia, including PPPs, regulated and lightly regulated infrastructure assets, digital infrastructures and renewable energy projects.

- **Nomura** established a “Green Tech Industrials and Infrastructure” advisory team in Sydney during 2022 which is looking at carbon neutral opportunities. The New Forests acquisition was on behalf of an alternative asset fund managed by **Nomura Asset Management**. Nomura is continuing to focus on capital raising, M&A, financing and the alliance with Jarden is working well for both companies.
- **MUFG** signed Sydney Airport as its first client for the launch of its Green Deposits product in Australia. Green Deposits allow customers to place term deposits with MUFG, which are in turn used to fund qualifying Green Loans for projects that have an ESG component.
- **JBIC**, having re-established a Sydney office in 2022 after an absence of 9 years, has been very active in supporting Japanese companies and projects which are vital to Japan’s strategic needs. Australia is one of the priority countries that JBIC supports projects in. JBIC has recently provided loans for projects by **JERA** (Barossa gas project) and **Sojitz** (Gregory Crinum coal mine and Edenvale solar park project).

Australia, a fiscally sound market with an AAA credit rating, will continue to be a popular destination for Japanese lenders to commit funds.

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# Herbert Smith Freehills

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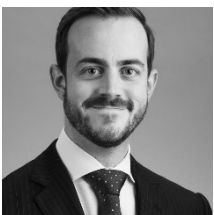
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## Schedule 1: Details of M&A transactions surveyed in 2022

No	Buyer	Target/Seller	Description of Transaction	Deal Value (A\$m)	Industry	Date Announced / Completed
1.	<b>Mizuho Leasing Company, Limited</b>	<b>Affordable Car Leasing Pty Ltd</b>	<b>Mizuho Leasing</b> acquired a 50% shareholding of Affordable Car Leasing from <b>Marubeni</b> .	Undisclosed	Financial services	12 January 2022
2.	<b>Nomura Holdings, Inc</b>	<b>Grow Finance Group Pty Ltd</b>	Small business finance company <b>Grow Finance</b> has closed a A\$35 million equity raise led by Japanese financial services group <b>Nomura</b> .	\$35	Financial services	18 January 2022
3.	<b>Centuria Capital Group and GIC Pte Ltd</b>	<b>West Village retail precinct</b>	Centuria Capital Group and GIC secured an off-market purchase of a daily needs retail precinct within <b>Sekisui House's</b> \$1.1 billion master-planned mixed-use development, West Village in Brisbane.	\$202	Housing	27 January 2022
4.	<b>Fujitsu Australia Ltd</b>	<b>Oobe Pty Ltd</b>	<b>Fujitsu Australia</b> acquired Oobe. Oobe is a leading Microsoft cloud, modern workplace, and security provider which provides a holistic service and product portfolio spanning end-user computing, applications, data, cloud and cyber security.	Undisclosed	IT	1 February 2022
5.	<b>Mitsubishi UFJ Financial Group, Inc</b>	<b>Whitehaven HoldCo Pty Ltd</b>	<b>Mitsubishi UFJ Financial Group</b> , through its subsidiary First Sentier Investors, acquired a 100% shareholding in Whitehaven HoldCo, a holding company of solar farm projects, from BlackRock and Edify.	Undisclosed	Energy	15 February 2022
6.	<b>MUFG Innovation Partners Co Ltd with other investors</b>	<b>Zoomo Holdings Pty Ltd</b>	<b>MUFG Innovation Partners</b> , together with other investors, invested US\$20 million into e-bike company Zoomo.	\$27	Consumer	21 February 2022
7.	<b>Nomura Research Institute, Ltd</b>	<b>Velrada</b>	<b>Nomura Research Institute</b> , through its subsidiary ASG Group, acquired a 100% shareholding in Velrada, Microsoft's largest Australian implementation partner.	\$50	IT	3 March 2022
8.	<b>Sekisui House</b>	<b>Norwest master-planned estate</b>	<b>Sekisui House Australia</b> acquired the Norwest master-planned estate in Sydney from developer Aqualand.	\$104	Housing	23 March 2022
9.	<b>UCC Holdings</b>	<b>Suntory Coffee Australia Limited</b>	<b>UCC</b> acquired a 100% shareholding in Suntory Coffee Australia from <b>Suntory Beverage &amp; Food</b> in order to enter the Australia and New Zealand coffee market.	\$229	Consumer; Foods	1 April 2022



No	Buyer	Target/Seller	Description of Transaction	Deal Value (A\$m)	Industry	Date Announced / Completed
10.	Swift Holdings Investments Pty Ltd	Gulliver Australia Holdings Pty Ltd; IDOM Automotive Group Pty Ltd	Swift Holdings Investments acquired IDOM Automotive Group and Gulliver Australia from <b>IDOM Inc</b> , the Japan based seller of used cars.	\$150	Consumer; Retail	14 April 2022
11.	Mitsubishi UFJ Financial Group, Inc	Elliott Green Power Ltd	<b>Mitsubishi UFJ Financial Group</b> , through its subsidiary First Sentier Investors, acquired EGP Services, an Australia-based renewable energy asset owner and solar power plant operator, from Elliott Management Corp.	Undisclosed	Energy	25 April 2022
12.	JERA	Barossa gas field project	<b>JERA</b> acquired a 12.5% interest in the Barossa gas field project from Santos.	\$327	Energy	29 April 2022
13.	Eurus Energy	Hunter Hydrogen Network scheme	<b>Eurus Energy</b> agreed to invest in Energy Estate's A\$2 billion Hunter Hydrogen Network (H2N).	Undisclosed	Hydrogen	4 May 2022
14.	Mitsui & Co, Ltd	Climate Friendly Pty Ltd	<b>Mitsui</b> acquired a 33.7% shareholding in Climate Friendly, a company that works with farmers, Traditional Custodians and conservation organisations to generate land sector carbon credits through the regeneration of native vegetation, improvement of soil health and implementation of sustainable agriculture in Australia.	Undisclosed	Decarbonisation	12 May 2022
15.	Sumitomo Forestry Australia Pty Ltd	Regal Innovations Pty Ltd	<b>Sumitomo Forestry</b> acquired 51% of the shares in landscaping company Regal Innovations, which is known for its projects in the Barangaroo district and Darling Harbour.	Undisclosed	Construction	17 May 2022
16.	Mitsui & Co, Ltd; Nomura Holdings, Inc	New Forests Pty Limited	<b>Mitsui</b> and <b>Nomura Holdings</b> acquired 67.02% of the shares in New Forests, an Australia-based agricultural asset management company. Mitsui acquired an additional 26.02% (to its existing 29.08% shareholding) and Nomura Holdings acquired a 41% shareholding.	Undisclosed	Financial Services	20 May 2022
17.	Block trade	Nufarm Limited	<b>Sumitomo Chemical Company</b> sold its 15.9% shareholding in Nufarm at \$5.38 to \$5.61 per share, in a block trade run by Citi.	approx. \$324	Chemicals	23 May 2022
18.	Fujifilm Data Management Solutions Pty Ltd	Smart Messaging Services Pty Ltd	<b>Fujifilm</b> acquired Smart Messaging Services, an Australia-based software company engaged in providing messaging technology and applications to businesses, from Mobility Group Holdings Pty Ltd.	Undisclosed	IT	31 May 2022

No	Buyer	Target/Seller	Description of Transaction	Deal Value (A\$m)	Industry	Date Announced / Completed
19.	<b>SoftBank Vision Fund 2 with other investors</b>	<b>Go1 Pty Ltd</b>	<b>SoftBank Vision Fund 2</b> , together with other investors, further invested in Go1, an Australia-based software e-commerce company engaged in operating an online education platform.	US\$100	Technology	6 June 2022
20.	<b>Marubeni Corporation</b>	<b>Carbon Transport &amp; Storage Corp Pty Ltd</b>	<b>Marubeni</b> invested A\$10 million into Glencore-owned Carbon Transport & Storage's Carbon Capture and Storage (CCS) Project in Queensland.	\$10	Carbon capture and storage	8 June 2022
21.	<b>Electric Power Development Company Limited (J-Power)</b>	<b>Carbon Transport &amp; Storage Corp Pty Ltd</b>	<b>J-Power</b> also invested \$10 million in Glencore-owned Carbon Transport & Storage's Queensland CCS Project.	\$10	Carbon capture and storage	8 June 2022
22.	<b>Osaka Gas Co, Ltd</b>	<b>Australian Integrated Carbon Pty Ltd</b>	<b>Osaka Gas</b> , through its subsidiary Osaka Gas Energy Oceania Pty Ltd, acquired a 16.7% shareholding in Australian Integrated Carbon Pty Ltd, a company engaged in obtaining and selling carbon credits from regeneration of native woodlands in Australia.	Undisclosed	Carbon credits	9 June 2022
23.	<b>Komatsu Ltd</b>	<b>Mine Site Technologies Pty Ltd</b>	<b>Komatsu</b> acquired Mine Site Technologies, an Australia-based provider of operational optimization platforms for underground mining.	Undisclosed	Mining; Technology	15 June 2022
24.	<b>Mitsui &amp; Co, Ltd</b>	<b>Position Partners Pty Ltd</b>	<b>Mitsui</b> acquired additional shares in Position Partners, a system integrator for construction and civil engineering work in Australia, making it a consolidated subsidiary (increasing its shareholding from 20% to 50% plus one share).	Undisclosed	Construction	30 June 2022
25.	<b>Bunka Shutter</b>	<b>Max Door Solutions</b>	<b>Bunka Shutter</b> acquired Max Door Solutions, its third acquisition in the Australian commercial and industrial door market.	Undisclosed	Housing	1 July 2022
26.	<b>Mitsubishi Estate Asia</b>	<b>One Circular Quay project</b>	<b>Mitsubishi Estate</b> and Lendlease formed a joint venture to acquire a two-thirds interest in the One Circular Quay development in Sydney.	\$800	Real estate	13 July 2022
27.	<b>TAL Dai-Ichi Life Australia Pty Ltd</b>	<b>Westpac Life Insurance Services Limited</b>	<b>TAL Dai-Ichi Life Australia</b> completed its acquisition of Westpac Life Insurance Services and entered an exclusive 20-year strategic alliance for the provision of life insurance products to Westpac's Australian customers.	\$900	Financial Services	1 August 2022

No	Buyer	Target/Seller	Description of Transaction	Deal Value (A\$m)	Industry	Date Announced / Completed
28.	<b>Fujitsu Limited</b>	<b>Enable Professional Services</b>	<b>Fujitsu</b> acquired Enable Professional Services, an Australia-based a specialist service provider that uses the ServiceNow software, following earlier acquisitions of AI-consultancy Versor and Oobe.	Undisclosed	Technology	2 August 2022
29.	<b>MegaChips Corporation with other investors (including Clean Energy Finance Corporation)</b>	<b>Morse Micro Pty Ltd</b>	An investor group led by <b>MegaChips</b> , a Japan-based holding company for chip manufacturers, acquired an undisclosed stake in Morse Micro, an Australia-based manufacturer of Wi-Fi HaLow chips for Internet of Things market.	\$140	Technology	7 September 2022
30.	<b>Mitsui &amp; Co., Ltd</b>	<b>Yuri Project</b>	<b>Mitsui</b> acquired a 28% interest in the Yuri project, a large-scale renewable hydrogen project in the Pilbara region of Western Australia, from an Australian subsidiary of Engie S.A.	Undisclosed	Hydrogen	7 September 2022
31.	<b>Japan Australia Rare Earths (co-owned by Sojitz and JOGMEC)</b>	<b>Lynas Rare Earths Limited</b>	<b>Japan Australia Rare Earths</b> contributed an additional US\$9 million in equity to Lynas Rare Earths, an Australian rare earths company, to be applied to the exploration project at Mt Weld.	\$13.5	Minerals	19 September 2022
32.	<b>Takara Holdings Inc.</b>	<b>Nippon Food Supplies Company Pty Ltd</b>	<b>Takara Holdings</b> acquired the remaining 49% shareholding in Nippon Food Supplies Company, an Australia-based wholesaler of Japanese alcoholic beverage, seasoning and other groceries.	Undisclosed	Consumer/ Foods	26 September 2022
33.	<b>Idemitsu Minerals Australia Pty Ltd.</b>	<b>Critical Minerals Group</b>	<b>Idemitsu Kosan</b> acquired 32.22% of the IPO shares of Critical Minerals Group Limited, with a view to participating in the Lindfield Project, a vanadium exploration project in Australia.	\$3	Minerals	27 September 2022
34.	<b>Optimus Group Co, Ltd</b>	<b>Blue Flag Pty Ltd</b>	<b>Optimus Group</b> acquired an additional 20% shareholding in Blue Flag, an automotive data provider, increasing their shareholding to 60%.	Undisclosed	Industrials; Technology	1 October 2022
35.	<b>Asahi Group Holdings, Ltd</b>	<b>StrangeLove</b>	<b>Asahi Beverages</b> acquired premium low-calorie soft drinks and mixers group StrangeLove.	Undisclosed	Consumer	4 October 2022
36.	<b>Stanmore Resources Limited</b>	<b>Mitsui &amp; Co, Ltd</b>	Stanmore Resources Ltd, the Australia based coal mining company acquired 20% of BHP Mitsui Coal Pty Ltd from <b>Mitsui</b> .	\$270	Mining	7 October 2022

No	Buyer	Target/Seller	Description of Transaction	Deal Value (A\$m)	Industry	Date Announced / Completed
37.	<b>Suzuki Motors Corporation</b>	<b>Applied Electric Vehicles Ltd</b>	<b>Suzuki Motors</b> invested in Applied Electric Vehicles Ltd, an Australian technology company with strengths in software for electrification and autonomous driving applications, to accelerate software development of next generation mobility.	\$20	Technology; Consumer	7 October 2022
38.	<b>MidOcean Energy Holdings</b>	<b>Tokyo Gas Co, Ltd</b>	MidOcean Energy Holdings, an Australia based company engaged in distribution, storage and delivery of oil and gas, acquired the Australian oil and gas assets of <b>Tokyo Gas</b> .  <b>Tokyo Gas</b> sold: its 5% stake in Woodside's Pluto LNG project; 1% interest in Chevron's (CVX.N) Gorgon LNG; 1.25% interest in QGC's Queensland Curtis LNG; and 1.575% interest in <b>INPEX's</b> Ichthys LNG. Tokyo Gas will retain its 3.07% interest in Santos's Darwin LNG.	\$3,361	Energy	7 October 2022
39.	<b>Macnica, Inc</b>	<b>iCetana Limited</b>	<b>Macnica</b> acquired a 14% shareholding in iCetana, an Australian AI software company. As part of the transaction, Macnica became the exclusive distributor of iCetana's software in Japan and Brazil as well as a preferred distributor in other territories.	\$0.77	IT	14 October 2022
40.	<b>Idemitsu Minerals Australia Pty Ltd.</b>	<b>Vecco Group Pty Ltd</b>	<b>Idemitsu</b> has invested an undisclosed amount in Vecco, which is developing a vanadium mine project in Australia.	Undisclosed	Minerals	26 October 2022
41.	<b>Geechs inc.</b>	<b>Launch Recruitment Pty Ltd</b>	<b>Geechs</b> , a Japan-based software company which provides an operating platform for IT employment services, acquired a 70% shareholding in Launch Recruitment, an Australia-based recruitment services company, from Wallace Group Pty Ltd.	\$18.9	Recruitment	10 November 2022
42.	<b>NTT Urban Development Corporation</b>	<b>53 Albert Street, Brisbane</b>	<b>NTT Urban Development</b> acquired a 50% interest in the "53 Albert Street" office building in Brisbane, Australia, through its subsidiary NTT UD Australia Pty Limited. This acquisition marks NTT UDA's third office building in Australia, following those in Melbourne and Canberra.	Undisclosed	Real estate	18 November 2022
43.	<b>NTT Urban Development; Sumitomo Forestry</b>	<b>Clean Energy Finance Corporation (CEFC)</b>	<b>Sumitomo Forestry</b> , <b>NTT Urban Development</b> and US developer Hines are developing an A\$200 million "net zero" building in Melbourne, with A\$70 million in financing from the CEFC.	\$200	Construction	27 November 2022
44.	<b>Shinsei Bank</b>	<b>Latitude Financial</b>	<b>Shinsei Bank</b> increased its shareholding in Latitude Financial from 9.95% in 2021 to 14.97%.	Undisclosed	Financial Services	December 2022

No	Buyer	Target/Seller	Description of Transaction	Deal Value (A\$m)	Industry	Date Announced / Completed
45.	Dentsu Group, Inc	Aware Services	Dentsu Group acquired Aware Services, an Australia-based Salesforce, MuleSoft and Tableau software consultancy business.	Undisclosed	IT	14 December 2022

In addition, there were 5 confidential transactions which were not publicly announced.



## Schedule 2: Details of partnerships surveyed in 2022

No	Party A	Party B	Details of partnership	Industry	Date
1.	<b>Sojitz Corporation</b>	<b>CS Energy;</b> <b>Nippon Engineering Consultants Co, Ltd</b>	<b>Sojitz Corporation</b> will begin a demonstration project together with CS Energy Ltd and <b>Nippon Engineering Consultants Co, Ltd</b> to transport renewable hydrogen produced in Australia to the Republic of Palau for utilization in fuel cells and hydrogen fuel cell vessels.  The project has received a grant from the Ministry of the Environment of Japan. Sojitz and its partners are scheduled to carry out this demonstration project over the course of three years, from FY2021 to FY2023.	Hydrogen	12 January 2022
2.	<b>ITOCHU Corporation</b>	<b>Lavo</b>	LAVO, an Australian clean energy storage and technology company powered by hydrogen, and <b>ITOCHU Corporation</b> signed a Memorandum of Understanding to explore collaboration opportunities in the energy and power, mineral and metal industries.	Hydrogen	25 January 2022
3.	<b>Mitsubishi Corporation and Mitsui &amp; Co, Ltd (through MIMI JV)</b>	<b>BP;</b> <b>Woodside</b>	<b>Mitsubishi and Mitsui</b> (through the <b>MIMI JV</b> ), BP and Woodside Petroleum agreed to conduct a joint survey to explore carbon capture and storage potential off the coast of Australia. The study will investigate the feasibility of transporting and storing captured CO2 emissions in depleted gas fields off the Australian coast.	Carbon offset/capture	3 February 2022
4.	<b>Nippon Steel</b>	<b>deepC Store Limited</b>	<b>Nippon Steel</b> signed a Joint Study Agreement to evaluate the commercial feasibility for deepC Store to capture and transport between 1m and 5m tonnes p.a. of liquefied CO2 from Nippon Steel to Cstore1, deepC Store's flagship offshore floating CCS hub project.  CSIRO, JX Nippon Oil & Gas Exploration Corporation, Kyushu Electric Power, Mitsui OSK Lines, Osaka Gas and Osaka Gas Australia, Technip Energies and Toho Gas will also collaborate on this study.  This project received a A\$5 million grant from the Australian government.	Carbon offset/capture	14 February 2022
5.	<b>Sekisui House</b>	<b>Stockland</b>	<b>Sekisui House</b> entered into an agreement with Stockland, which will allow Sekisui House to grow its home building business at Stockland's master-planned communities in north-west Sydney. The agreement will also see Stockland develop the Lakeside precinct at Sekisui House's residential community in Gledswood Hills.	Real estate	16 February 2022
6.	<b>JX Nippon Oil &amp; Gas Exploration Corporation</b>	<b>deepC Store Limited</b>	<b>JX Nippon Oil &amp; Gas Exploration Corporation</b> signed a Joint Bidding Agreement with deepC Store for a Greenhouse Gas Assessment Permit for a Greenhouse Gas Storage Acreage Release Area in Australia.  The Greenhouse Gas Storage Acreage Release Area will be used for storage of carbon dioxide to be captured from industrial sources in Australia, Japan and the Asia-Pacific region.	Carbon offset/capture	16 March 2022

No	Party A	Party B	Details of partnership	Industry	Date
7.	<b>Japan Civil Aviation Bureau</b>	<b>Civil Aviation Safety Authority</b>	<p><b>Japan Civil Aviation Bureau (JCAB)</b> and Australia's Civil Aviation Safety Authority (<b>CASA</b>) signed a technical arrangement on aviation maintenance on 25 March 2022.</p> <p>The arrangement grants reciprocal acceptance of approvals for maintenance, repair and overhaul of aircraft equipment and components between JCAB and CASA, effective from 24 May 2022. Australia is the third country to conclude a technical arrangement on aviation maintenance with Japan, following Canada and Singapore.</p>	Aviation	25 March 2022
8.	<b>Unitika Group</b>	<b>Makers Shirt Kamakura Co</b>	Unitika Trading has developed a fine count yarn spun from Australian cotton and has entered an agreement with <b>Makers Shirt Kamakura</b> for its adoption in the latter's "Premium Pure White Shirt".	Materials	28 March 2022
9.	<b>Hanwa Co, Ltd</b>	<b>Lake Resources</b>	Lake Resources signed a Memorandum of Understanding with <b>Hanwa</b> to provide for an offtake of up to 25,000 tonnes per annum (tpa) lithium carbonate over 10 years (with an extended additional 10 years) from the Kachi Project.	Energy	29 March 2022
10.	<b>INPEX Corporation</b>	<b>ANZ; Qantas</b>	<p><b>INPEX</b>, ANZ and Qantas have entered a Memorandum of Understanding to progress the evaluation of a project which brings together carbon farming and renewable biofuels in the Wheatbelt region of Western Australia. The project will support reforestation and decarbonisation using drought-resilient native tree crops, integrated with existing farming systems.</p> <p>The parties will undertake a more detailed feasibility study into the harvesting and processing of native biomass crops and selected agricultural waste residues, to produce low-carbon renewable biofuels. The first planting of native trees is expected to take place in the winter of 2023.</p>	Carbon offset/capture	31 March 2022
11.	<b>NTT</b>	<b>Macquarie Asset Management Partners</b>	<b>NTT</b> and Macquarie have agreed to enter into a strategic real estate partnership covering NTT's wholesale facilities across Europe and North America.	Property	1 April 2022
12.	<b>Fujitsu Australia</b>	<b>CWP Renewables' Sapphire Wind Farm</b>	<b>Fujitsu Australia</b> signed a power purchase agreement (PPA) for a term of 10 years sourcing renewable energy through CWP Renewables' Sapphire Wind Farm. This agreement marks a key step for Fujitsu Australia in decarbonising its operations and providing lower-emissions services to its customers.	Renewables	7 April 2022
13.	<b>Osaka Gas Co, Ltd</b>	<b>Aqua Aerem</b>	<b>Osaka Gas</b> and Aqua Aerem agreed to jointly develop the Desert Bloom Hydrogen project. The project will produce renewable hydrogen for the domestic market in Australia and export markets using only off grid renewable energy and its own atmospheric water source. It is hoped that the project will produce about 400,000 metric tonnes of green hydrogen per year.	Hydrogen	12 April 2022

No	Party A	Party B	Details of partnership	Industry	Date
14.	<b>NEC Corporation;</b> <b>NEC Australia</b>	<b>Northern Territory Government</b>	The Northern Territory Government, <b>NEC Australia</b> and <b>NEC Corporation</b> signed a Memorandum of Understanding to develop a sustainable innovation ecosystem and grow the Northern Territory's digital capabilities.  The agreement will allow NEC to explore the use of its technologies, such as submarine cable systems, Open-RAN 5G, and artificial intelligence in the Northern Territory, as well as building industry training opportunities for Territorians.	Digitisation	12 April 2022
15.	<b>Softbank Group Corp (through its subsidiary HAPSMobile Inc.)</b>	<b>Lendlease</b>	A joint venture between <b>Softbank Group Corp</b> , through its subsidiary HAPSMobile, and Lendlease will explore the deployment of HAPS (High Altitude Platform Station) technology in Australia.	Telecommunications	10 May 2022
16.	<b>IHI Engineering Australia</b>	<b>Renova, Inc</b>	<b>IHI Engineering Australia Pty Ltd</b> will collaborate with <b>Renova</b> on a feasibility study for microgrid decarbonization projects in Bamaga and Thursday Island in the far north of Queensland. The study has been commissioned by Ergon Energy Network. The study will evaluate solar and wind power facilities and storage battery systems, which are key decarbonized power distribution components.	Decarbonisation	13 May 2022
17.	<b>J-Air</b>	<b>Flight Training Adelaide</b>	Flight Training Adelaide is delivering the first of two 'beta' courses for Japanese airline <b>J-AIR</b> at its Parafield Airport training facility in preparation for full <b>JCAB</b> approval to deliver Commercial Pilot Licence Program and Instrument Rating Program qualifications to Japanese pilot cadets	Aviation	31 May 2022
18.	<b>NYK Line</b>	<b>BHP</b>	<b>BHP</b> and <b>NYK Line</b> signed a Memorandum of Understanding to support the decarbonisation of ocean transportation across their shared supply chain. The two companies will jointly study the next-generation of zero-GHG emission ships fuelled by green or blue ammonia.	Carbon offset/capture	9 June 2022
19.	<b>JERA;</b> <b>Tokyo Gas;</b> <b>INPEX Corporation</b>	<b>Santos</b>	<b>JERA</b> , <b>Tokyo Gas</b> and <b>INPEX</b> will join a project led by Santos in a large carbon dioxide capture and storage project in Australia, with their total investment expected to reach as much as 100 billion yen (US\$748 million).	Carbon offset/capture	9 June 2022
20.	<b>Yara International ASA</b>	<b>Japan Bank for International Cooperation</b>	Yara International, a global ammonia player, and <b>Japan Bank for International Cooperation (JBIC)</b> have signed a Memorandum of Understanding to strengthen cooperation in the field of clean ammonia to support Japanese companies' decarbonisation strategies.	Hydrogen	15 June 2022
21.	<b>INPEX Corporation</b>	<b>AGL Energy Limited</b>	<b>INPEX</b> signed a Memorandum of Understanding with AGL Energy to conduct a feasibility study for AGL's Torrens Island Hydrogen Hub in South Australia.	Hydrogen	17 June 2022

No	Party A	Party B	Details of partnership	Industry	Date
22.	<b>Osaka Gas Australia Pty Ltd</b>	<b>AGL Energy Limited</b>	<b>Osaka Gas</b> , through its Australian subsidiary, also signed a Memorandum of Understanding with AGL Energy to join AGL and its partners in feasibility studies into the development of green energy hubs in South Australia (Torrens Island Hydrogen Hub) and New South Wales (Hunter Energy Hub).	Hydrogen	17 June 2022
23.	<b>Elixir Energy</b>	<b>SB Energy</b>	Elixir Energy signed a Memorandum of Understanding with <b>SB Energy</b> to assess the feasibility of a green hydrogen production plant at Elixir's Mongolian Nomgon IX project.	Hydrogen	22 June 2022
24.	<b>Marubeni Corporation</b>	<b>Venice Energy</b>	<b>Marubeni</b> signed a Memorandum of Understanding with Venice Energy to join the latter's FSRU-based LNG import project in the Port of Adelaide, South Australia, in the form of a joint venture.	Infrastructure	1 July 2022
25.	<b>INPEX Corporation</b>	<b>Northern Territory Government</b>	<b>INPEX</b> signed a statement of commitment to a net zero emissions future with the Northern Territory Government. The Ichthys LNG Project onshore gas liquefaction plant is located in the Northern Territory.	Decarbonisation	21 July 2022
26.	<b>Nippon Steel</b>	<b>University of Queensland; Urban Utilities</b>	<b>Nippon Steel</b> signed a Memorandum of Understanding with the University of Queensland and Urban Utilities to convert carbon dioxide into valuable chemicals, using a combination of microbial and electrochemical processes. The research proposal is being funded by the Australian Research Council under the Linkage Projects scheme.	Carbon offset/capture	22 July 2022
27.	<b>Prime Planet Energy &amp; Solutions (JV between Toyota Motor Corporation and Panasonic Corporation)</b>	<b>ioneer Ltd</b>	ioneer Ltd, an Australia-based lithium-boron supplier, signed a binding offtake supply agreement with the <b>Prime Planet Energy &amp; Solutions</b> joint venture between <b>Toyota</b> and <b>Panasonic</b> , as part of which ioneer will supply lithium carbonate from its Rhyolite Ridge Lithium-Boron Project in Nevada.	Critical minerals	1 August 2022
28.	<b>INPEX Corporation</b>	<b>AGL Energy Limited</b>	<b>INPEX</b> signed a Memorandum of Understanding with AGL Energy to conduct a feasibility study for AGL's Hunter Energy Hub in New South Wales. Hunter Energy Hub is the second hydrogen hub study that INPEX is pursuing with AGL, following the partnership on the Torrens Hydrogen Hub in South Australia announced on June 17, 2022.  Hunter Energy Hub seeks to introduce a hydrogen industry to the Hunter region by utilising the site of the AGL-owned Liddell power station as well as existing infrastructure located in its vicinity. The Port of Newcastle has been identified as a potential offloading location, raising possibilities for the hub to facilitate hydrogen exports to Japan and other countries in the future, given Newcastle's relative proximity to key markets.	Hydrogen	9 August 2022

No	Party A	Party B	Details of partnership	Industry	Date
29.	<b>ITOCHU Corporation;</b> <b>Taisei Corporation Company, Ltd</b>	<b>Mineral Carbonation International</b>	<b>ITOCHU</b> signed a memorandum of collaboration with <b>Taisei Corporation</b> and Australia-based Mineral Carbonation International ( <b>MCI</b> ), which possesses mineral carbonation technologies. Under the agreement, the parties will investigate the possibilities of using MCI's carbonates to commercialise a T-eConcrete®/Carbon-Recycle product.  <b>ITOCHU</b> signed an earlier memorandum in March 2021 with MCI to develop the mineral carbonation technology within Japan. ITOCHU then invested in MCI in July 2021. Following this investment, ITOCHU agreed to independently pursue the business development of MCI's technology for the Japanese market.	Carbon offset/capture	15 August 2022
30.	<b>Mitsui &amp; Co., Limited</b>	<b>Metallica Minerals Limited</b>	<b>Mitsui</b> signed a Memorandum of Understanding with Metallica Minerals, a silica sand developer. Under the agreement, the parties will consider the feasibility and possibility of an off-take agreement of all or specific portions of Metallica Minerals' silica sand products.	Minerals	30 August 2022
31.	<b>Muswellbrook Pumped Hydro Pty Ltd</b>	<b>Energy Corporation of NSW</b>	<b>Idemitsu</b> and AGL Energy's joint venture, Muswellbrook Pumped Hydro Pty Ltd, signed an agreement with Energy Corporation of NSW which provides the joint venture with funding to build on feasibility work already undertaken for the proposed Muswellbrook Pumped Hydro Project in the Hunter region.  The proposed 250MW Muswellbrook pumped hydro project would provide eight hours of energy storage and has been awarded \$9.45 million funding under the NSW Government's Pumped Hydro Recoverable Grants Program.	Renewables	2 September 2022
32.	<b>MegaChips Corporation</b>	<b>Morse Micro Pty. Ltd</b>	<b>MegaChips</b> invested in Morse Micro to form a strategic partnership for the supply and sales activities of semiconductor and module products.	Industrials	7 September 2022
33.	<b>Japan Organization for Metals and Energy Security;</b> <b>Marubeni Corporation;</b> <b>Hokuriku Electric Power Company;</b> <b>Kansai Electric Power Co, Inc.;</b> <b>Tohoku Electric;</b> <b>Hokkaido Electric Power Co., Inc.</b>	<b>Woodside Energy Ltd</b>	Woodside, <b>JOGMEC</b> , <b>Marubeni</b> , <b>Hokuriku Electric</b> , <b>Kansai Electric</b> , <b>Tohoku Electric</b> , and <b>Hokkaido Electric</b> have signed a joint research agreement under which they will jointly conduct a feasibility study (Phase 2) on the establishment of a lower-emissions fuel ammonia supply chain from Australia to Japan. This follows a Phase 1 feasibility study on the supply chain (from ammonia production to carbon capture and storage) conducted by the same parties in 2021.	Energy / Ammonia	15 September 2022
34.	<b>Japan Bank for International Cooperation</b>	<b>Santos Limited</b>	<b>Japan Bank for International Cooperation</b> signed a Memorandum of Understanding with Santos to promote cooperation in securing a stable supply of energy and in decarbonization.	Energy / Decarbonisation	4 October 2022



No	Party A	Party B	Details of partnership	Industry	Date
35.	<b>Mitsubishi Heavy Industries, Ltd</b>	<b>South Australia Government</b>	<b>Mitsubishi Heavy Industries</b> signed a Statement of Cooperation with the South Australia Government aimed at accelerating development of the local hydrogen industry.	Hydrogen	10 October 2022
36.	<b>Government of Japan</b>	<b>Government of Australia</b>	<p>Australia and <b>Japan</b> have signed a new Critical Minerals Partnership to help build secure supply chains for critical minerals, which are crucial elements of clean energy technologies needed to help both countries meet net-zero commitments.</p> <p>The document was signed by Australia's Minister for Resources and Minister for Northern Australia and Japan's Vice Minister for International Affairs, Ministry of Economy, Trade and Industry during the October 2022 visit to Australia of Japanese Prime Minister Kishida.</p> <p>The partnership will establish a framework for building secure critical minerals supply chains between Australia and Japan, and promote opportunities for information sharing and collaboration, including research, investment and commercial arrangements between Japan and Australian projects.</p>	Critical minerals	22 October 2022
37.	<b>Mitsubishi Gas Chemical Company, Ltd</b>	<b>Cement Australia</b>	Cement Australia and <b>Mitsubishi Gas Chemical Company</b> have signed a Memorandum of Understanding to study the manufacture and sale of green methanol made from carbon dioxide captured at Cement Australia's Gladstone plant and green hydrogen using MGC's newly developed green methanol production technology.	Carbon offset/capture	28 October 2022
38.	<b>Japan Bank for International Cooperation</b>	<b>Woodside Energy Group Ltd</b>	<b>JBIC</b> signed a Memorandum of Understanding for a comprehensive strategic partnership with Woodside Energy. The partnership will aim to secure a stable supply of energy and strengthen collaboration and promote cooperation in decarbonisation. This follows a similar strategic agreement signed in October 2012. The new agreement promotes collaboration in new energy products and lower-carbon services such as hydrogen and ammonia production, CCUS, as well as cooperation in the LNG sector.	Carbon offset/capture	1 November 2022
39.	<b>Japanese Aerospace Exploration Agency</b>	<b>Australian Space Agency</b>	Australia has entered into a partnership with <b>Japan</b> for a new mission to Mars. The partnership was announced jointly by the Australian and Japanese Prime Ministers.	Aerospace	3 November 2022
40.	<b>JERA</b>	<b>Chevron Corporation</b>	<b>JERA</b> and Chevron have signed a Joint Study Agreement to explore the potential co-development of lower carbon fuel in Australia and will conduct a feasibility study expected to be completed in 2023.	Carbon offset/capture	8 November 2022
41.	<b>Mitsui O.S.K. Lines, Ltd</b>	<b>Chevron Corporation</b>	<b>Mitsui O.S.K. Lines</b> and signed a Joint Study Agreement on the feasibility of transporting liquified carbon dioxide from Singapore to permanent storage locations offshore Australia.	Carbon offset/capture	10 November 2022

No	Party A	Party B	Details of partnership	Industry	Date
42.	<b>Mitsui &amp; Co, Ltd</b>	<b>Hazer Group Limited</b>	<b>Mitsui</b> and Hazer Group signed a Memorandum of Understanding to jointly investigate the potential markets for the application of Hazer's graphitic carbon. Under the agreement, Hazer and Mitsui have agreed to conduct an initial marketing survey of applications of Hazer's low emissions graphite in the steel making and chemicals industries, utilising Mitsui's global network.	Minerals / Decarbonisation	16 November 2022
43.	<b>Fintech Association of Japan</b>	<b>Fintech Australia</b>	<b>The Fintech Association of Japan</b> signed a Memorandum of Understanding with Fintech Australia which will offer mutual support for the improvement of the fintech ecosystem.	Fintech	21 November 2022
44.	<b>Kansai Electric Power Co, Inc</b>	<b>deepC Store</b>	<b>Kansai Electric Power</b> and deepC Store executed a Joint Study Agreement to consider the commercial feasibility of a supply chain for capturing and transporting between 1 and 10 million tonnes per annum of liquefied CO2 from KEPCO's power station in Japan to CStore1, deepC Store's flagship offshore floating CCS hub project.	Carbon offset/capture	30 November 2022
45.	<b>Idemitsu Kosan Co, Ltd</b>	<b>Energy Estate Pty Ltd; CS Energy</b>	<b>Idemitsu</b> , as part of a consortium that includes Energy Estate Pty Ltd and Queensland Government-owned CS Energy, has begun a joint study for the production and export of green ammonia at Abbot Point Port in Queensland, Australia.	Ammonia	30 November 2022
46.	<b>Panasonic Corporation</b>	<b>ATCO Australia</b>	<b>Panasonic</b> and Canada's ATCO (through its Australian subsidiary) have partnered to trial a hydrogen fuel cell built for harsh Australian conditions as part of its strategy to cover all bases on sources of renewable energy.	Hydrogen	1 December 2022
47.	<b>INPEX</b>	<b>Japan Organization for Metals and Energy Security</b>	<b>INPEX</b> and <b>JOGMEC</b> signed a Joint Research Agreement to evaluate the potential of the Bonaparte Basin to become a world-scale, carbon storage location. The research will support INPEX as it assesses the feasibility of using GHG Permit G-7-AP for long-term geological storage of carbon dioxide. Success in this venture will provide for storage of carbon dioxide from the Ichthys LNG Project and support the realisation of the Darwin-based, low-emissions carbon dioxide capture, utilization and storage hub being proposed by the Northern Territory Government.	Carbon offset/capture	6 December 2022
48.	<b>Japan Organization for Metals and Energy Security</b>	<b>Western Australia Government</b>	<b>JOGMEC</b> and the Western Australia Government signed a Memorandum of Understanding, expanding cooperation to new and renewable energies. The agreement follows another Memorandum of Understanding signed between the parties in 2020 aimed at strengthening collaboration in metal and mineral resources.	Energy	7 December 2022
49.	<b>Sojitz Corporation</b>	<b>Plenary Group</b>	<b>Sojitz</b> and Plenary Group, a major Australian infrastructure development and investment company, signed a Memorandum of Understanding to jointly investigate strategies and feasible studies to expand collaboration opportunities in PPP and infrastructure businesses in Australia, Asia and the Middle East.	Infrastructure	8 December 2022

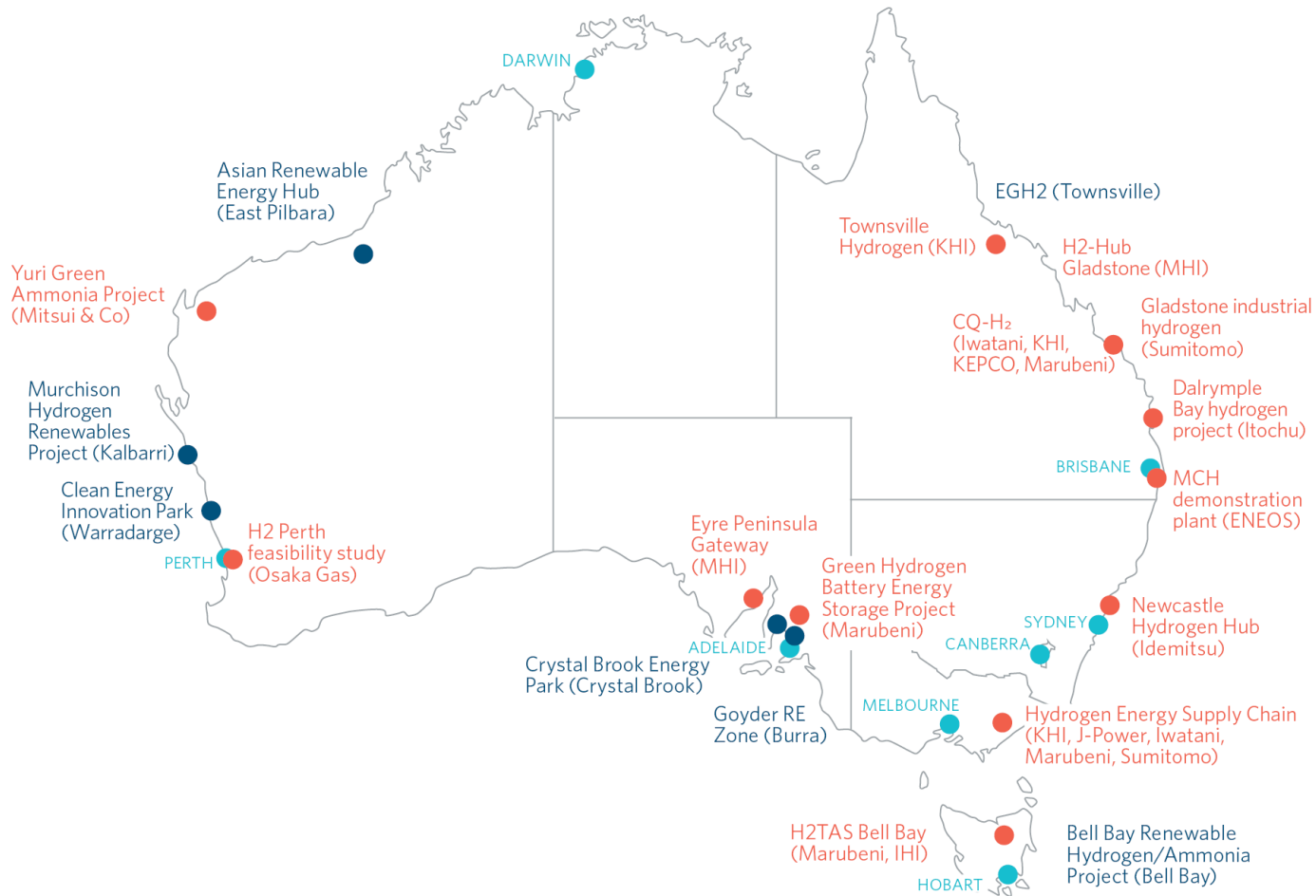
No	Party A	Party B	Details of partnership	Industry	Date
50.	<b>University of Adelaide</b>	<b>Thales Group;</b> <b>BECA;</b> <b>Institute of Laser Engineering Osaka University;</b> <b>EX-Fusion;</b> <b>Southern Photonics</b>	University of Adelaide has entered a research partnership with industry partners, including Japan's first-ever laser fusion company <b>EX-Fusion</b> and the <b>Institute of Laser Engineering Osaka University</b> , to develop sovereign capability in many new areas of technology, including laser technology for clean fusion energy generation.	Energy	14 December 2022
51.	<b>Iwatani Corporation</b>	<b>Stanwell</b>	<b>Iwatani</b> and Queensland Government-owned Stanwell have completed their feasibility study into the CQ-H2 project (a hydrogen production project in Queensland) and have commenced preparations for a Front-End Engineering Design study in early 2023.	Hydrogen	14 December 2022

## Schedule 3: Regional multilateral agreements and forums

Agreement or Forum	Description
<b>Asia-Pacific Economic Cooperation (APEC)</b>	APEC predates any free trade agreements in Asia and was created to project the multilateral interests of Asia in the WTO (e.g. initiatives such as the embryonic International Technology Agreement). APEC served a useful role for many years in facilitating and promoting cooperation between the United States, Japan and China in the Asia-Pacific region.
<b>East Asia Summit (EAS)</b>	Over the last 10-15 years, the EAS has established itself at the peak of ASEAN-led regional architecture, although it has suffered in recent years from a lack of clear purpose and member disappointment with its default leader-level ‘talk shop’ mode.
<b>Cooperation on the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)</b>	The CPTPP emanated from the defunct TPP and is intended to provide members with a more liberalised and predictable regime for the regulation of foreign investment (including a quota for the Japanese purchase of Australian rice).
<b>Quadrilateral Security Dialogue (the Quad)</b>	A strategic security dialogue between Australia, Japan, India and the United States established in March 2021.
<b>Regional Comprehensive Economic Partnership (RCEP)</b>	RCEP covers nearly a third of global output and links ASEAN with Japan, China and South Korea – as well as Australia and New Zealand (but not including India). RCEP brings Japan into a modern trade agreement with South Korea and China for the first time.
<b>Indo-Pacific Economic Framework for Prosperity (IPEF)</b>	Introduced in May 2022 with 13 initial participants which together represent 40 per cent of global GDP. Particularly significant for re-engagement of the United States in the Asia region after former President Trump withdrew the United States from the Trans-Pacific Partnership (TPP) in 2017. The IPEF has its limitations, but Australia and Japan were instrumental in shaping it and therefore keeping the United States engaged in the Asia region. It is not a free trade agreement in the traditional sense (as it does not include mutual commitments to expand market access) but provides a framework – a rule book of sorts – for members to follow internationally accepted rules and norms of four pillars of economic policies and practices.

## Schedule 4: Map of Hydrogen Projects in Australia

Examples of Australian hydrogen projects with Japanese participation (publicly reported) in red.



Source: Australian Trade and Investment Commission