7.1 Summary

- Average Asian LNG spot prices and oil-linked contract prices are expected to recover over the next two years, as the impacts of COVID-19 ease and growing demand catches up to global LNG supply capacity.
- Australian export volumes reached 79 million tonnes in 2019–20, but are forecast to decline to 75 million tonnes in 2020–21, reflecting the impacts of COVID-19 as well as technical issues at the Prelude and Gorgon LNG plants. Exports are forecast to recover to 80 million tonnes in 2021–22 (see Australia section).
- Australia’s LNG exports earnings are forecast to decline sharply, from $48 billion in 2019–20 to $31 billion in 2020–21, due to weak prices and export volumes, before a partial recovery to $37 billion in 2021–22.

7.2 Prices

The Asian LNG spot price has rallied strongly

The Asian LNG spot price recovered strongly in the December quarter 2020, more than tripling from the record lows seen in mid-2020 to reach a two-year (Figure 7.1). The spot price has averaged an estimated US$6.60 per mmBtu (A$8.70 per GJ) in the December quarter 2020, 88 per cent higher than in the September quarter, and 16 per cent higher year-on-year. Expectations for a colder-than-usual winter in the Northern Hemisphere has driven robust demand growth for gas and LNG. The global LNG market has also been tighter amidst supply disruptions from major exporters, including Australia, Qatar and the US, propelling prices higher.

The Asian LNG spot price is forecast to increase from an estimated average of US$4.00 per mmBtu (A$5.50 per GJ) in 2020 to US$5.70 per mmBtu (A$7.20 per GJ) in 2021 and US$6.40 per mmBtu (A$8.00 per GJ) in 2022 (Figure 7.2). Global demand for LNG is expected to strengthen, as the impacts of the COVID-19 pandemic ease, and demand from China and emerging Asian economies grows further. However, the global LNG market is also expected to remain well supplied — likely constraining any price rally — as US LNG exports ramp up further over the next two years.
Over the next few months, the key risk to the outlook for Asian LNG spot prices is whether the expected colder-than-average Northern Hemisphere winter materialises. In the longer term, the main uncertainties relate to the pace of the global economy recovery and COVID-19 developments (see the macroeconomic outlook chapter).

Weak oil prices expected to continue to weigh on LNG contract prices
Almost 70 per cent of the LNG traded in Asia is sold via long-term contracts, which link the price of LNG to the price of oil (commonly the Japanese customs-cleared crude, JCC) typically lagged by around three to six months, depending on contractual arrangements. Oil prices have been broadly stable since recovering from multi-year lows in the first half of 2020. Due to the several month lag, the mid-year recovery in oil prices is expected to be reflected in contract prices in the December quarter 2020.

While oil prices are expected to recover, global oil consumption is expected to continue to be constrained by the impacts of the COVID-19 pandemic (see the oil chapter). Consequently, while LNG contract prices are expected to gradually recover over 2021 and 2022, they are expected to remain relatively weak in historical terms.

7.3 World trade
In 2020, global LNG trade appears to have grown by 1.1 per cent to an estimated 349 million tonnes — a sharp deceleration compared to recent years of growth (Figure 7.3). The impacts of the COVID-19 pandemic on LNG demand have occurred amidst an existing global LNG supply glut. However, a recovery in the global LNG sector is underway, driven by structural factors (as the impacts of the COVID-19 pandemic ease and growth in emerging Asia resumes) and seasonal factors (with LNG imports showing strong growth as the Northern Hemisphere winter arrives).

Global LNG trade is expected to continue to recover in 2021 and 2022, growing by around 4 per cent a year. The global LNG market is expected to tighten, as demand recovers and absorbs the available supply capacity. However, given the large scale expansion of global LNG capacity in recent years, demand is expected to continue to fall short of total supply capacity.
7.4 World imports

Japan’s LNG imports expected to decline as nuclear power returns

Japan — the world’s largest LNG buyer — imported an estimated 74 million tonnes of LNG in 2020, 4.8 per cent lower than in 2019 (Figure 7.5). The impact of COVID-19-related demand weakness has been partially offset by several other factors: temporary coal-to-gas switching in the December quarter 2020, due to low LNG prices; stronger demand in the lead up to a colder-than-usual winter; and nuclear outages.

Nuclear generation is expected to hit a three-year low during the 2020–21 winter period. At the time of writing, only nine of Japan’s 42 nuclear reactors have gained approval to restart since Fukushima in 2011, and most of these are currently idled to undergo anti-terrorism upgrades, maintenance or safety testing. Most of the nine nuclear reactors are expected to be back online by early to mid-2021. Another four reactors are currently seeking approval for restart, and could be online by 2022.

Japan’s LNG imports are forecast to decline marginally in 2021 and 2022, with the impacts of an expected economic recovery expected to be offset by the return of nuclear power generation from both the recent temporary shut downs, as well as the longer term return of nuclear power following Fukushima. However, there are significant risks of delays and slippages in nuclear restarts, which remains the key uncertainty affecting the outlook for Japan’s LNG imports. Beyond the two year outlook period, there is uncertainty over the extent to which LNG will be affected by Japan’s recent pledge to achieve net-zero emissions by 2050.

China to remain a key driver of LNG demand growth

China’s LNG imports are expected to grow by 8.8 per cent, to reach an estimated 65 million tonnes in 2020 — making it the world’s second largest LNG importer. China’s gas consumption has been resilient in 2020, driven by robust demand from the industrial and residential sectors, and ongoing coal-to-gas switching. LNG has accounted for a slightly larger share of China’s gas demand in 2020, supported by cheap LNG (Figure 7.6).
Australia has accounted for the largest share of China’s LNG imports in 2020, at about 45 per cent. Imports from Australia grew by 5.0 per cent year-on-year in the ten months to October. China’s imports of US LNG restarted in April 2020, supported by the US-China Phase One trade deal, and grew by 1.7 million tonnes between April and October. This follows a year of virtually no LNG imports from the US, due to Chinese tariffs, imposed amidst escalating trade tensions. These tariffs are now being waived, in a bid to raise imports from the US as part of the US-China deal.

China is expected to be a key driver of near term global LNG demand growth, growing by around 11 per cent annually over the next two years, and overtaking Japan as the world’s largest importer by 2022. Despite China’s recent net-zero by 2060 pledge, gas is expected to play an important role in the country’s energy transition.

Ongoing growth in gas use is expected to be supported by a policy-driven expansion of gas use in the industrial and residential sectors, as well as by gas market reforms. The creation of PipeChina — a national midstream company that operates pipelines, terminals and storage facilities — is expected to improve third party access and support growth in LNG imports.

While China’s LNG demand is set grow in the coming years, it is expected to face intensifying competition from domestic sources and pipeline imports. While China has faced challenges in tapping into its extensive gas reserves — due to challenging geology — supportive government policies are expected to drive up domestic gas output in the longer term. Pipeline imports are also expected to grow — the Power of Siberia pipeline opened in December 2019, and is expected to ramp up over the next five years. The pipeline has nameplate capacity of 38 billion cubic metres of gas per year — equivalent to around 28 million tonnes of LNG.

South Korea’s LNG demand to be supported by government policies
South Korea’s LNG imports are expected to have picked up in the last few months of 2020, supported by temporary nuclear outages — caused by typhoons — and strong buying ahead of winter. This marks a rebound from a year of otherwise weak LNG imports, weighed down by both the impacts of the COVID-19 pandemic on power demand, as well as the restart of nuclear power plants — closed in 2019 for extended maintenance. South Korea’s LNG imports are expected to decline by 3.4 per cent to an estimated 38 million tonnes in 2020.

South Korea’s LNG imports are forecast to stage a modest recovery in 2021 and 2022, rising by around 2.1 per cent a year (Figure 7.5). While growing nuclear capacity is expected to weigh heavily on gas demand, this is expected to be offset by government policies favouring gas usage over coal. According to a draft proposal, seasonal restrictions on coal-fired power generation are expected from December 2020 to March 2021, in order to control fine dust. This is expected to buoy winter gas demand. In the longer term, gas is expected to benefit from a move away from coal, including plans to convert a quarter of coal-fired capacity to gas by 2031. It is uncertain how South Korea’s recent ‘net-zero’ pledge will affect the role of gas in the nation’s energy mix in the coming decades.

Taiwan’s LNG demand has held steady
Taiwan’s LNG demand has been relatively resilient to the impacts of COVID-19 in 2020, supported by growing gas-fired power generation. The country is aiming to increase the share of gas-fired power generation in its electricity mix, from around 35 per cent currently to 50 per cent by 2025. Taiwan’s LNG imports are forecast to grow by around 2.4 per cent a year to reach 18 million tonnes by 2022.

India is expected to be a major source of LNG demand growth
India’s LNG imports have been volatile in 2020, with lockdowns weighing on demand earlier in the year before opportunistic buying of cheap LNG buoyed imports (Figure 7.5). India is an extremely price sensitive buyer of LNG, and the recent rally in LNG spot prices is expected to weigh on demand in the last few months of 2020. India’s LNG imports are expected to be broadly flat at an estimated 23 million tonnes in 2020.

India is expected to be a major source of LNG demand growth over the outlook period, with LNG imports forecast to grow by around 15 per cent annually over the next two years. However, the extent and pace of this
growth is subject to considerable uncertainty. While the Indian government is aiming to lift the share of gas in its energy mix from about 6 per cent now to 15 per cent in 2030, this is considered ambitious. Its achievement depends on a range of factors, including domestic gas market reforms, the pace of infrastructure development, and growth in domestic gas output.

Emerging Asia to shape future developments in global LNG markets
Other south and southeast Asian economies are also expected to be major sources of demand growth, driven by declining domestic production, the expansion of gas-fired power generation and new LNG infrastructure developments. While these countries are relatively small importers of LNG individually, collectively they are expected to account for a growing share of global LNG demand, and help absorb excess LNG supply in the coming years (Figure 7.7). The region (including India) is forecast to import 71 million tonnes of LNG by 2022, 42 per cent higher than 2019 volumes.

The impacts of the COVID-19 pandemic have not significantly impacted the growth trajectory of the region. According to shipping data, Pakistan’s LNG imports grew by 22 per cent year-on-year, in the four months to November, Bangladesh’s by 166 per cent, and Thailand’s by 41 per cent.

Figure 7.7: LNG imports from emerging Asian countries

Europe’s LNG imports have slowed
In recent years, Europe has played an important role in absorbing large volumes of LNG and balancing the global LNG market, due to its extensive storage capacity and liquid gas hubs. In recent months, the region has not been required to absorb as many LNG cargoes, due to stronger Asian demand and weaker US exports. Europe’s LNG imports have declined sharply, falling by 36 per cent year-on-year in the four months to November.

Europe’s LNG imports are forecast to decline over the next two years, as the global LNG market tightens (Figure 7.5). The ramp up of two new gas pipelines are also expected to place downward pressure on LNG imports. The Trans Adriatic Pipeline began commercial operations in November, and has an annual nameplate capacity of 10 billion cubic metres (equal to about 7.4 million tonnes of LNG). However, Nord Stream 2, which was expected to begin production by 2021, could now face delays amidst geopolitical pressures. Nord Stream 2 is a 55 billion cubic metre pipeline (40 million tonnes) which will transport gas from Russia to Germany.

7.5 World exports
Weak economic conditions have resulted in project FIDs deferrals
At the end of 2019, global LNG capacity was estimated at close to 400 million tonnes per annum (mtpa), with another 125 mtpa of capacity under construction or sanctioned for development. These new projects will contribute to significant growth in global LNG capacity over the next few years, albeit at a slower pace than in recent years.

There is over 900 mtpa of proposed LNG capacity in the pre-FID stage, though much of this is not likely to proceed. There were pre-COVID-19 pandemic expectations that about 50 mtpa of new LNG capacity would be approved in 2020. However, weak spot LNG and oil prices have since resulted in the deferral of most of these FIDs. At the time of writing, only one liquefaction project has been approved in 2020 — Sempra Energy’s 2.5 mtpa Costa Azul project in Mexico. FID deferrals could impact on the
timing of the next wave of LNG capacity additions, which could result in a
tighter global LNG market towards the end of this decade.

**US to be a key driver of export growth**

The US is leading the global recovery in LNG exports: following sharp falls
from June to September 2020, US LNG exports have rebounded (Figure
7.8). Earlier in the year, weak global gas prices relative to the Henry Hub
price reduced the competitiveness of US LNG exports to Asia and Europe,
leading to cargo cancellations. Hurricanes in September 2020 also
resulted in outages at several US facilities. Stronger global gas and LNG
prices have since driven a rebound in US exports to Asia and Europe,
ahead of the Northern Hemisphere winter. In October/November, US LNG
shipments were 34 per cent higher year-on-year, returning to pre-COVID-19
pandemic levels.

Overall, US LNG exports are expected to grow by 26 per cent in 2020 to
reach an estimated 49 million tonnes, with strong growth at the start and
end of the year offsetting the mid-year declines.

US LNG exports are forecast to reach 64 million tonnes by 2022 as new
LNG projects continue to ramp up (Figure 7.9). There is 15 mtpa of US
LNG capacity expected to commence operations by the end of 2021, and
another 30 mtpa of LNG capacity expected to commence operations
between 2023 and 2025.

**Qatar’s exports have been resilient**

Qatar’s LNG exports have been largely resilient in 2020 (Figure 7.8).
Shipping data indicates that Qatar could reclaim the title of the world’s
largest LNG exporter from Australia in 2020. However, given the marginal
difference between the two country’s exports and uncertainty surrounding
the precise level of Qatar’s LNG exports, this is far from certain.

Qatar’s LNG exports are forecast to be broadly steady over the outlook
period, at around 76 million tonnes (Figure 7.9). Beyond the outlook
period, Qatar has reaffirmed its intention to increase its LNG capacity
beyond the 126 mtpa target by 2027.
7.6 Australia

Australia’s export earnings fell sharply in the September quarter

In the September quarter 2020, Australia’s LNG export earnings declined by 51 per cent year-on-year and 39 per cent quarter-on-quarter to $6.3 billion. Export values were weighed down by weak spot and oil-linked contract prices, as well as by weaker export volumes.

Almost three-quarters of Australian LNG is sold via long-term contracts that link the price of LNG to the price of oil with a lag of around three to six months, depending on contractual arrangements. The lag between oil price movements and its impact on LNG prices means that the sharp decline in oil prices which occurred between March and May has been mostly reflected in September quarter 2020 export earnings, and to a lesser extent, will also be reflected in December quarter export earnings.

Australia’s LNG exports volumes are showing signs of recovery

LNG export volumes declined by 8.7 per cent year-on-year and 3.1 per cent quarter-on-quarter in the September quarter 2020. Cargoes were delayed or deferred, due to the impacts of the COVID-19 pandemic on demand, several plants underwent maintenance, and the Prelude and Gorgon operations faced technical issues. Shipping data for more recent months are showing signs of recovery, supported by strong Asian demand ahead of the Northern Hemisphere winter. October/November exports were up 5.0 per cent year-on-year (Figure 7.10).

However, outages at Prelude and Gorgon are expected to weigh on export volumes in the December quarter. The Prelude FLNG project has been temporarily shut since February 2020, due to technical issues. At the time of writing, Shell has indicated that Prelude will not ship any LNG before 2021. While the forecasts contained in the December 2020 Resources and Energy Quarterly assume that Prelude will resume shipping LNG in the March quarter 2021, Shell has not yet announced an official restart date, and further delays remain a risk to the outlook. The Prelude FLNG project shipped its first cargo in June 2019, but had not yet produced at its full annual nameplate capacity of 3.6 million tonnes.

Gorgon’s production has also been disrupted, with the shutdown of Train 2 initially extended to October, and then to 23 November, after cracks were discovered in its heat exchangers. After a period of uncertainty, a shutdown of the whole plant was avoided, with phased shutdowns instead. Preparations are underway to take Train 1 offline for inspections, and Train 3 will be taken offline after Train 1 comes back online. There is a risk of extended shutdowns if further cracks are discovered in these trains.

LNG export volumes forecast to return to above pre-COVID-19 levels

Australia’s LNG exports are forecast to decline from 79 million tonnes in 2019–20 to 75 million tonnes in 2020–21, reflecting the impacts of the COVID-19 pandemic on demand, as well as technical issues at the Prelude and Gorgon LNG plants (Figure 7.11). A gas processing unit was shut at Wheatstone in early December after an anomaly was detected during routine inspections. At the time of writing, it remains unclear whether LNG production has been affected, presenting a downside risk to the forecast. LNG exports are forecast to rebound to around 80 million tonnes in 2021–22. The rebound reflects a recovery in demand (as economies return to growth), an assumed resolution of technical issues and Prelude ramping up towards its nameplate capacity.
In 2022, an expected production halt at Darwin LNG is expected to weigh on export volumes, as gas from the Bayu-Undan field is exhausted. However, Santos is progressing plans for an infill drilling program which, if approved, could extend the life of the field and narrow the time between its depletion and start-up of the Barossa backfill project. In early December, for the second time this year, Santos deferred the FID for the Barossa project to 2021, citing a preference to first finalise offtake agreements.

Production capacity at North West Shelf (NWS) is expected to open up from the early 2020s as gas from existing fields are depleted. NWS will require backfill from smaller projects with shorter lead times, such as Waitsia and Pluto, as well as larger scale resources for the longer term. Given complex commercial arrangements associated with the NWS, there is potential for backfill project delays. Browse and Scarborough are two possible backfill options for the longer term, but both have faced FIDs deferrals in 2020 due to weak market conditions.

**Australia’s LNG export earnings forecast to decline from record highs**

Australia’s LNG export earnings are forecast to fall sharply in 2020–21, to $31 billion from $48 billion in 2019–20 (Figure 7.11). The decline in export earnings is expected to be primarily driven by weak contract prices and, to a lesser extent, lower export volumes (Figure 7.12). Export earnings are forecast to partially recover to $37 billion in 2021–22, tracking an expected rise in contract and spot prices, as well as increased export volumes. The forecast for Australian LNG export earnings is broadly unchanged from the September 2020 Resources and Energy Quarterly.

**Uncertainty surrounds the next wave of investment**

The outlook for the next wave of investment in Australian LNG projects is shrouded by considerable uncertainty, with weak market conditions resulting in FID deferrals (see the Resources and Energy Major Projects 2020 publication). Most of the LNG projects in the investment pipeline are backfill projects required to support the ongoing operation of existing LNG facilities. The proposed Scarborough to Pluto LNG expansion (where a 5 mtpa train would be added to Pluto) is the only substantial expansion to Australia’s LNG capacity currently in the investment pipeline.
### Table 7.1: World gas outlook

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<th></th>
<th>Unit</th>
<th>2019</th>
<th>2020&lt;sup&gt;a&lt;/sup&gt;</th>
<th>2021&lt;sup&gt;f&lt;/sup&gt;</th>
<th>2022&lt;sup&gt;f&lt;/sup&gt;</th>
<th>Annual percentage change</th>
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<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>2020&lt;sup&gt;s&lt;/sup&gt;</td>
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<td><strong>JCC oil price&lt;sup&gt;a&lt;/sup&gt;</strong></td>
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<tr>
<td>– nominal</td>
<td>US$/bbl</td>
<td>66.4</td>
<td>45.4</td>
<td>48.9</td>
<td>55.3</td>
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<td>– real&lt;sup&gt;h&lt;/sup&gt;</td>
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<td>45.4</td>
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<td>53.1</td>
<td>-32.6</td>
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<tr>
<td>– nominal</td>
<td>US$/MMbtu</td>
<td>5.4</td>
<td>4.0</td>
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<td>6.4</td>
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<td>363</td>
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<td>3,919</td>
<td>4,024</td>
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<td><strong>Gas consumption</strong></td>
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<td>3,895</td>
<td>4,037</td>
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Notes: <sup>a</sup> JCC stands for Japan Customs-cleared Crude; <sup>b</sup> Historical data is the Argus North East Asia spot price; <sup>c</sup> 1 million tonnes of LNG is equivalent to approximately 1.36 billion cubic metres (bcm) of gas; <sup>f</sup> Forecast; <sup>g</sup> 1 MMBtu is equivalent to 1.055 GJ; <sup>h</sup> In 2020 US dollars; <sup>s</sup> estimate

Source: ABS (2020) International Trade in Goods and Services, Australia, 5368.0; Department of Industry, Science, Energy and Resources (2020); Company reports; Nexant World Gas Model (2020)
### Table 7.2: Australian gas outlook

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<td></td>
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</tr>
<tr>
<td>Nominal value</td>
<td>A$/GJ</td>
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<td>-16.5</td>
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Notes: c 1 million tonnes of LNG is equivalent to approximately 1.36 billion cubic metres (bcm) of gas; d Production includes both sales gas and gas used in the production process (i.e. plant use) and ethane. Historical gas production data was revised in the June quarter 2017 to align with Australian Petroleum Statistics; e In 2020–21 Australian dollars; f Forecast; g 1 MMBtu is equivalent to 1.055 GJ; h In 2020 US dollars; k Gas production from Bayu-Undan Joint Production Development Area is not included in Australian production. Browse basin production associated with the Ichthys project is classified as Northern market.

Source: ABS (2020) International Trade in Goods and Services, Australia, 5368.0; Department of Industry, Science, Energy and Resources (2020); Company reports; Nexant World Gas Model (2020)