# Liquefied Natural Gas

Company update

## Higher capacity at 8.8Mtpa, lower SPA pricing

Oil & gas

**The focus for Liquefied Natural Gas (LNGL) remains the signature of long-term offtake contracts for Magnolia LNG, the company's flagship LNG export terminal in Lake Charles, Louisiana. In March 2019, authorisation was received from the US Department of Energy (DOE) for expansion of export capacity to 8.8Mtpa (from 8.0Mtpa) to free trade agreement (FTA) countries. Management expects FERC approval and non-FTA consent from the DOE to follow shortly. Edison's valuation has been updated to reflect higher Magnolia export capacity, offset by our assumption of lower contract pricing. The net impact is a decrease in valuation from A$1.01/share to A$0.70/share. Key valuation drivers include sale and purchase agreement (SPA) pricing, cost of funding, timing of first gas exports and the risking we apply to Magnolia and Bear Head projects proceeding.**

| Year end | Revenue (A$m) | PBT* (A$m) | Cash from operations (A$m) | Net (debt)/ cash (A$m) | Capex (A$m) |
|---|---|---|---|---|---|
| 06/17 | 0.6 | (29.2) | (25.5) | 40.3 | (0.4) |
| 06/18 | 1.9 | (22.8) | (22.2) | 22.5 | 0.0 |
| 06/19e | 0.0 | (31.5) | (29.1) | 19.0 | 0.0 |
| 06/20e | 0.0 | (35.2) | (33.7) | (439.8) | (358.9) |

Note: *PBT is reported. We include all project debt on LNGL's balance sheet and assume FID in late 2018.

## Expansion provides greater offtake flexibility

Expansion of Magnolia to 8.8Mtpa is expected to provide greater flexibility when negotiating sale and purchase agreements with off-takers. A number of SPAs have been signed by competitors such as Venture Global in recent months; however, we believe that LNGL is holding out for offtake agreements that maximise shareholder value and investment returns. Typical US LNG SPA terms include a unit fixed charge and a contract sales price linked to Henry Hub. In our base case we assume a US$2.35/mmbtu fixed component and contract sales price at 1.13x Henry Hub. Edison had previously assumed a tolling fee arrangement priced at US$2.75/mmbtu.

## Short-term macro headwinds; a waiting game

LNG oversupply and weak spot pricing combined with a record number of US LNG projects receiving FERC approval in 2019 are likely to increase buyer power, at least in the short term. We believe the current market could present an opportunity for gas buyers looking to secure long-term contracts to meet a projected LNG supply deficit beyond 2025. LNGL is cognisant that SPA pricing needs to be sufficiently high to meet the needs of all stakeholders, including equity holders and project lenders.

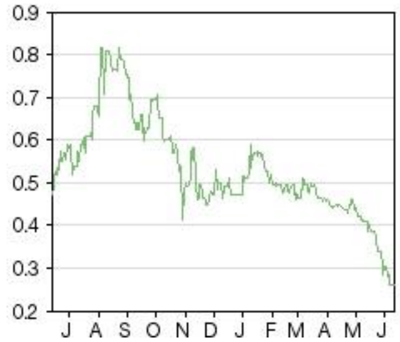
## Valuation: Risked NAV at A$0.70/share

Edison values LNGL at A$0.70/share (from A$1.01/share). Key risks and uncertainties relate to Magnolia LNG and include SPA pricing, FID timing and the cost of project-related debt.

**11 June 2019**

| | |
|---|---|
| **Price** | **A$0.27** |
| **Market cap** | **A$154m** |
| | A$1.32/US$ |
| Net cash (A$m) at 31 December 2018 | 33.2 |
| Shares in issue | 571.8m |
| Free float | 95% |
| Code | LNGL |
| Primary exchange | ASX |
| Secondary exchange | OTC |

### Share price performance




| % | 1m | 3m | 12m |
|---|---|---|---|
| Abs | (36.6) | (47.5) | (46.4) |
| Rel (local) | (37.9) | (49.4) | (49.4) |
| 52-week high/low | | A$0.82 | A$0.26 |

### Business description

Liquefied Natural Gas is an ASX-listed company devoted to the development of LNG export terminals in the US, Canada and other potential locations. It has traded ADRs.

### Next events

| | |
|---|---|
| Offtake signed (management guidance) | 2019 |

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Edison profile page


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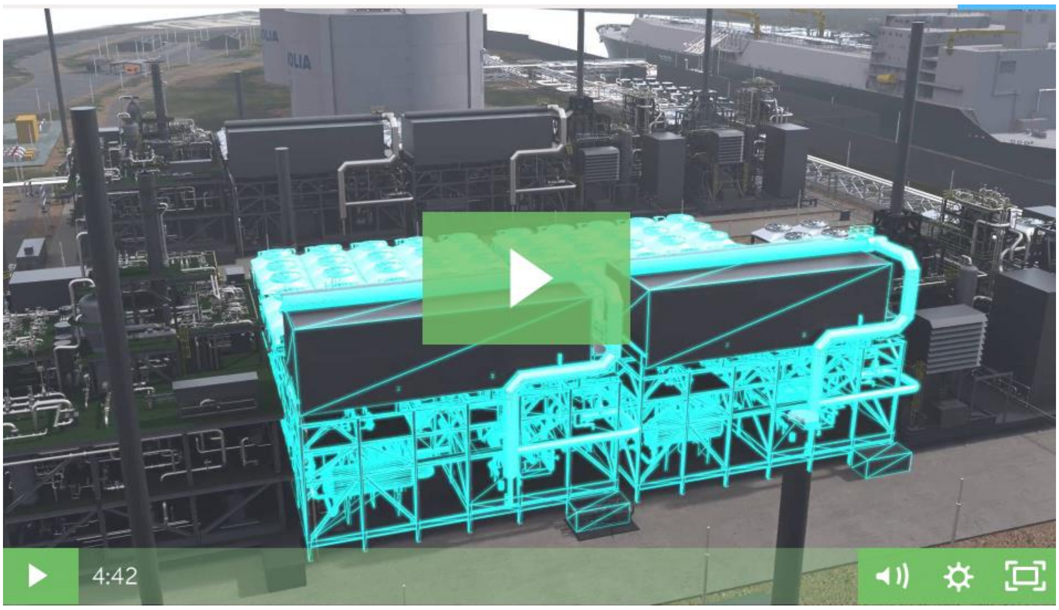
## Magnolia LNG export capacity expansion

Magnolia LNG currently has DOE approval to expand export capacity to 8.8Mtpa to countries with FTA agreements with the United Sates, a 0.8Mtpa increase from the DOE's initial FTA approval orders. Management expects FERC approval and non-FTA consent for 8.8Mtpa of export capacity to be received in the coming months.

Magnolia LNG has proposed to construct up to four liquefaction production trains, each with a capacity of 2.2Mtpa or greater using LNGL's patented OSMR process technology. Further details on plant location and OSMR can be found in the video embedded below.

**Exhibit 1: Magnolia LNG corporate video**




Source: LNGL

Based on latest released LNGL quarterly reports and company presentations we have updated our modelling of Magnolia LNG to reflect increased export capacity, plant efficiency of 8% (company guidance range 6–8%) and now base economics on a sale purchase agreement (SPA) rather than a tolling fee arrangement.

The SPA terms that drive our valuation model are outlined below:

- Unit fixed charge (UFC) – Edison assumes a base case UFC of $2.35/mmbtu but provides a valuation sensitivity to this key driver. In addition, we assume that a proportion of the UFC (c 15%) is inflation linked.
- Contract sales price (CSP) – In line with management guidance, we assume 1.13 times Henry Hub (HH) in our forecasts.

Based on the current spot HH price of US$2.50/mmbtu, this equates to a total fee net of gas cost and own use gas consumption of c US$2.50/mmbtu, which is marginally lower than the US$2.75/mmbtu we had previously modelled. Also under the terms of an SPA, LNGL will have the ability to secure favourable basis differentials increasing its net margin. We do not include potential 'trading' gains in our valuation.

Key drivers of Edison's Magnolia LNG valuation are described in the table below:

**Exhibit 2: Magnolia valuation key drivers**

| | | |
|---|---:|---:|
| Magnolia LNG plant capacity | 8.8 | Mtpa |
| Plant Cost under lump sum contract | 4354 | US$m |
| Other costs | 675 | US$m |
| Magnolia LNG plant annual opex (2019 money) | 0.5 | US$/mmbtu |
| Plant utilisation | 96 | % |
| Plant efficiency | 8 | % |
| SPA (fixed fee) | 2.35 | US$/mmbtu |
| SPA Contract sale price | 1.13x HH | US$/mmbtu |
| KBR success fee | 0.07 | US$/mmbtu |
| Cost of equity | 10 | % |
| Funding debt to equity ratio | 70 | % |
| Cost of debt (pre-tax) | 6.5 | % |
| Implied cost of Stone peak financing | 11 | % |

Source: Edison Investment Research

## Valuation implications of capacity expansion

Changes to Edison's valuation from our last published note are highlighted below:

- Increase in Magnolia LNG liquification capacity to 8.8Mtpa. At this stage, our understanding is that construction costs under the lump sum contract at US$4.35bn remain unchanged and are fixed through to June 2019.
- We model Magnolia using an SPA agreement, with terms as highlighted in Exhibit 2. This is relative to our prior valuation, which was based on a tolling fee structure at $2.75/mmbtu. This has a material impact on the valuation and is a key equity investment consideration.
- We roll forward out NAV discount date to 1 January 2019. Timing for Magnolia is pushed back by a year with financial close now expected during FY20 (July 2019 to July 2020).
- Our point forward A$/US$ fx rate assumption moves from 1.27 to 1.32.
- We have included outstanding preferred shares in our diluted per share valuation.

We value both the Magnolia and Bear Head LNG projects on a leveraged basis, assuming that project debt financing, in addition to Stonepeak's US$1.5bn preferred equity commitment, is priced at 6.5%. We discount leveraged free cash flows at a project level using a 10% cost of equity. In order to account for corporate costs not included in our LNG asset models we make deductions for SG&A and project overheads netted against existing cash available to fund pre-FID costs.

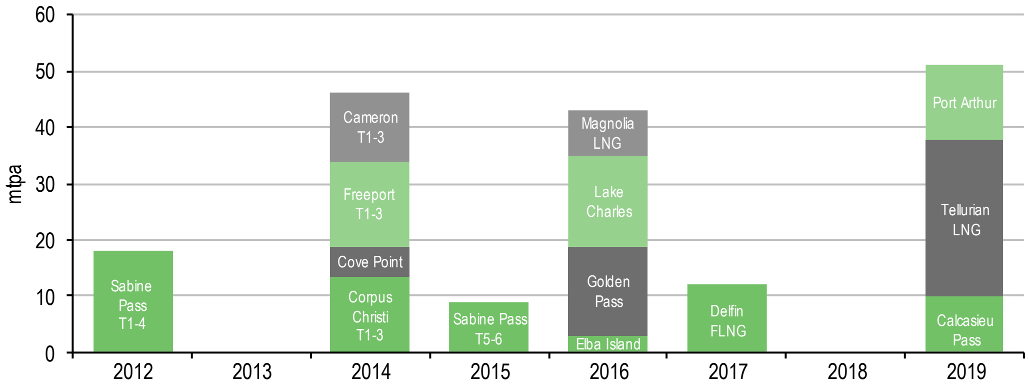
**Exhibit 3: LNG limited NAV breakdown**

| Asset<br>NOSH 589.9m inc preferred shares | Country<br>Year end - June | WI<br>% | CoS<br>% | Net value<br>Absolute<br>US$m | Risked<br>A$/share | Unrisked<br>A$/share |
|---|---:|---:|---:|---:|---:|---:|
| Net (debt)/cash (December 2018) to fund overheads | | | | 26 | 0.06 | 0.06 |
| G&A (includes share based payments) | | | | (35) | (0.08) | (0.08) |
| Project overheads December 2018 - December 2019e | | | | (13) | (0.03) | (0.03) |
| Magnolia Trains 1-4 (equity valuation) | United States | 100% | 60% | 268 | 0.64 | 1.06 |
| Bear Head Trains 1-4 (equity valuation) | United States | 100% | 15% | 49 | 0.12 | 0.78 |
| **Risked NAV** | | | | **295** | **0.70** | **1.78** |
| Magnolia only | | | | | 0.58 | 1.01 |

Source: Edison Investment Research

As discussed earlier in this note, the positive valuation impact of increasing Magnolia capacity to 8.8Mtpa is offset by our assumption of lower SPA pricing. A key component of negotiated offtake SPAs will be the UFC that LNGL is able to command. Increasing competition from projects within the US LNG pipeline and those receiving FERC approval is likely to put pressure on this price component.

**Exhibit 4: FERC LNG project approvals break records in 2019**




Source: FERC, Edison Investment Research

We provide a sensitivity to this key driver in the table below. As would be expected, a small absolute change in UFC has a material impact on Magnolia leveraged NPV and IRR (we use a 10% cost of equity).

**Exhibit 5: Magnolia un-risked NPV sensitivity to UFC (base case US$2.35/mmbtu)**

| Sensitivity to headline SPA fixed fee US$/mmbtu | 2.05 | 2.15 | 2.25 | 2.35 | 2.45 | 2.55 |
|---|---|---|---|---|---|---|
| Unrisked leveraged $NPV_{10}$ net to LNGL (US$m) | -16 | 140 | 294 | 446 | 597 | 746 |
| Unrisked leveraged IRR to LNGL | 9% | 14% | 22% | 31% | 37% | 42% |

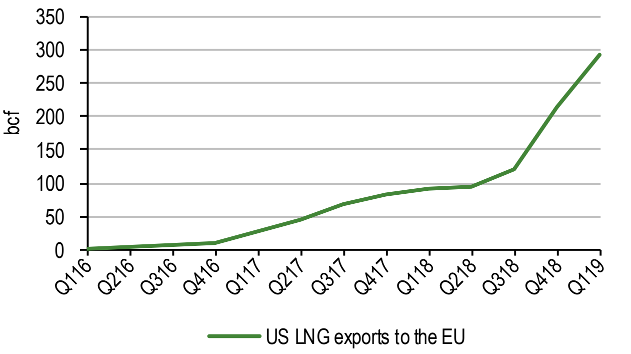
Source: Edison Investment Research

# Evolving global LNG markets

US LNG trade is starting to have a marked impact on global gas pricing, with the US share of European LNG imports rising from 0% in 2015 to over 10% in 2019 (12.6% to March 2019). Growth in LNG spot volumes combined with warmer usual temperatures in the Northern Hemisphere led 2019 winter spot LNG prices to fall to multi-year lows. Low prices were also supported by a build in Chinese volumes in storage ahead of winter and strong Norwegian flows as well as a higher than average wind power contribution in to Europe.

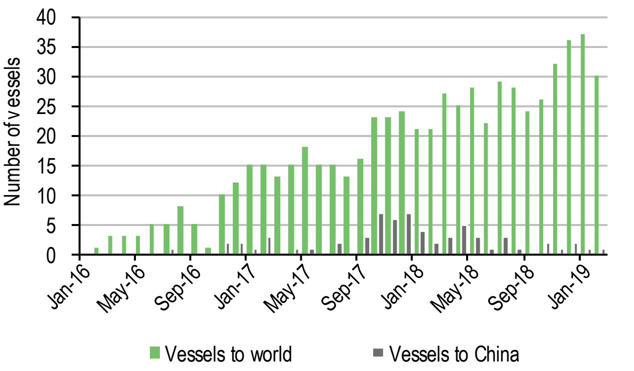
Exhibits 6 and 7 illustrates growth in US exports directed to the EU as the Asian spot price premium was insufficient to support the freight cost delta between the EU and Asia, and the impact of a China-imposed 10% tariff on US LNG imports, recently upgraded to 25%. In the longer term, Asian LNG demand growth expectations remain robust with Chinese LNG imports expected to grow from c 54Mtpa in 2018 to over 90Mtpa by 2025 in support of the state's mandated plan to replace coal power generation with gas in a drive to improve air quality. Uncertainty around the duration and magnitude of Chinese import tariffs remains an uncertainty.

**Exhibit 6: US LNG exports to the EU**




Source: EIA, Edison Investment Research

**Exhibit 7: US LNG vessels exports**

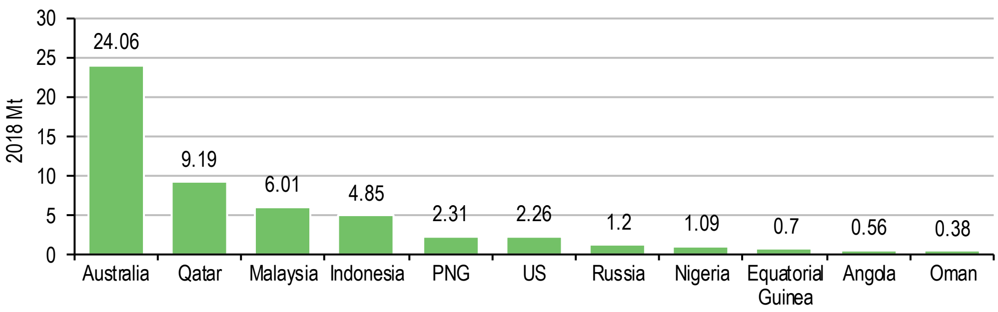



Source: EIA, Edison Investment Research

This demand is to be met through a variety of sources, with the Chinese state recognising the value of diversification given the backdrop of lingering US trade talks. In May 2019, two state-owned Chinese companies (CNPC and CNOOC) signed agreements to participate in Artic LNG2, acquiring a 10% stake. Chinese LNG imports by source are shown in Exhibit 8, showing current diversity in the LNG supply mix; in addition to LNG, piped gas supply to China is dominated by Turkmenistan, Uzbekistan and Russia.

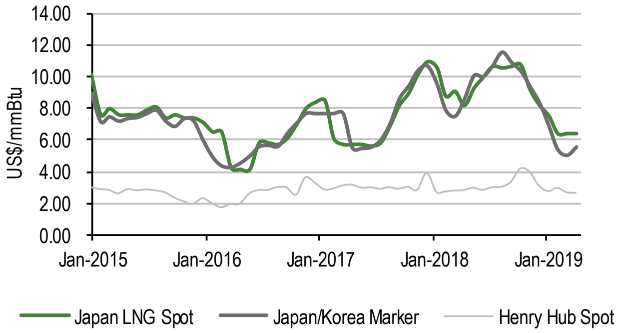
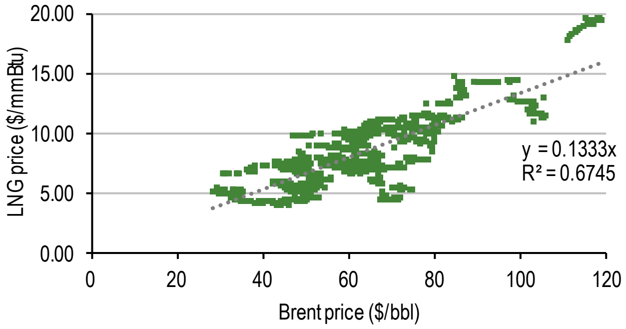
We continue to believe that LNGL's major shareholder IDC Energy (a 9.9% shareholder in LNGL) should provide LNGL with valuable financing and customer relations in the Chinese market.

**Exhibit 8: 2018 China LNG imports (Mt)**




Source: International Gas Union (IGU), Edison Investment Research

Exhibits 8 and 9 show recent evolution in spot LNG pricing; under the SPA terms assumed in our base case valuation, a purchaser would be paying c US$5.3/mcf (free on board) at current spot Henry Hub. This is US$4.8/mcf below the 2018 average Northeast Asian spot price and US$9.6/mcf Brent indexed pricing (13% slope). Current Asian spot pricing is close to the long-run marginal cost of US LNG, suggesting that the market was oversupplied over the 2019 winter.

| Exhibit 9: Spot LNG pricing vs HH | Exhibit 10: LNG indexation to Brent |
|---|---|
|  |  |
| Source: Bloomberg, Edison Investment Research | Source: Bloomberg, Edison Investment Research |

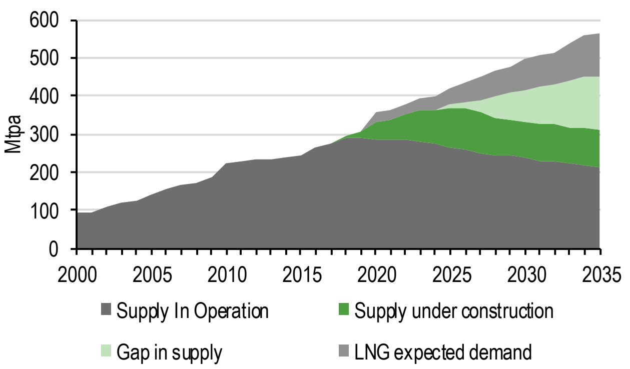
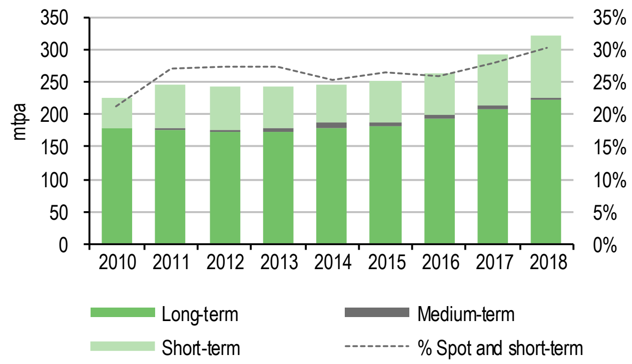




We recognise that weakness in current spot markets, and a material increase in the US LNG FERC approvals are likely to increase buyer power when negotiating SPA commercial terms.

### Management prioritising equity returns over project timetable

Industry forecasts of global LNG supply and demand indicate a potential supply shortage in the mid part of the next decade, a gap Magnolia and Bear Head LNG could look to fill. In the short term, oversupply and a pipeline of US LNG projects moving towards sanction are likely to put pressure on LNGL's negotiating power; investors will need to take a view on the pros and cons of accepting lower SPA pricing or waiting for market conditions to improve. Given the sensitivity of equity returns to SPA terms, we believe a patient approach to SPA negotiation is prudent, but project delays increase the pre-FID overhead burden and potential dilution if equity investors do not participate in equity placings required to cover pre-FID costs.

| Exhibit 11: LNG supply and demand forecast | Exhibit 12: Spot LNG cargo volumes evolution |
|---|---|
|  |  |
| Source: Royal Dutch Shell, Edison Investment Research | Source: International Gas Union (IGU) |





US-China trade talks have added an element of uncertainty to the signature of offtake agreements for Magnolia. China's decision to increase import tariffs on US LNG from 10% to 25% will probably have minimal impact in the short term, other than being negative for investor sentiment. We believe that China's retaliatory increase in LNG import tariff announced in May 2019 is likely to be temporary, as it will ultimately lead to higher gas prices for Chinese domestic consumers as the global LNG market swings towards a supply deficit.

As shown in Exhibit 7, the 10% tariff put in place last year has led to a significant reduction in US LNG trade with China. China received 18 LNG vessels from the US in H118, decreasing to nine vessels in H218 and only two in H119. In the short term, China's move to further increase tariffs is likely to have little impact on inter-country energy trade.

While the current trade war increases uncertainty around Chinese demand for US LNG, offtakers may use this backdrop as an opportunity to secure long-term SPAs at discounted prices. China is rapidly increasing its LNG imports and will soon become the world's biggest LNG importer, overtaking Japan. Ultimately, we expect China to source gas from a wide range of sources, including the US once an amicable trade solution is reached. Given that the US is the greatest component of global LNG supply growth and China the greatest component of global LNG demand over the next decade, we feel amicable trade is in the interests of both parties.

## Financials

As of 31 December 2018, LNGL had A$33.2m of cash, and enough capital to support ongoing SG&A and pre-FID engineering costs for an estimated nine to 12 months. The last 12-month (LTM) cash SG&A expense stood at A$14.5m (including share-based payments) and project development overheads (not included in Edison asset models for Magnolia and Bear Head) stood at A$14.5m. We believe further delays to Magnolia FID could drive LNGL to raise further capital in order to cover pre-construction costs.

### Magnolia capital costs secured through to June 2019

In 2015, LNGL secured a binding engineering, procurement and construction (EPC) contract with KBR for Magnolia LNG at a fixed capex of US$4.4bn for the first four operational trains. The EPC contract has a six-month pricing adjustment mechanism, which is due to be re-evaluated in June 2019. We note that recent re-evaluations (last September 2018) have not led to an increase in project capex.

Under the current agreement, Stonepeak is to provide equity funding of up to US$1.5bn for the project in return for a preferred interest in Magnolia with a fixed coupon with pay-in-kind provisions during construction. The tenor is set at 12 years and is redeemable at Magnolia's discretion after three years of operation (there are no equity conversion features). Debt funding for Magnolia is still to be secured; we currently assume a 70:30 debt to equity funding ratio with debt priced at 6.5%. Our Magnolia funding assumptions remain unchanged from our last publication.

## Exhibit 13: Financial summary

| Accounts: IFRS; year end 30 June; A$m | 2015 | 2016 | 2017 | 2018 | 2019e | 2020e |
|---|---|---|---|---|---|---|
| **Profit & loss** | | | | | | |
| Total revenues | 7.9 | 7.3 | 0.6 | 1.9 | 0.0 | 0.0 |
| Cost of sales | 0.0 | 0.0 | (0.2) | (0.1) | (0.1) | (3.0) |
| Gross profit | 7.9 | 7.3 | 0.3 | 1.7 | (0.1) | (3.0) |
| SG&A (expenses) | (8.1) | (19.1) | (13.4) | (12.1) | (12.4) | (12.8) |
| R&D costs | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Other income/(expense) | (71.9) | (89.3) | (14.0) | (11.4) | (18.2) | (18.2) |
| Exceptionals and adjustments | (14.8) | (14.3) | (2.5) | (1.2) | (1.2) | (1.2) |
| Depreciation and amortisation | (0.1) | (0.2) | (0.2) | (0.1) | (0.1) | (0.2) |
| Reported EBIT | (86.9) | (115.7) | (29.6) | (23.1) | (32.0) | (35.3) |
| Finance income/(expense) | 0.6 | 0.6 | 0.4 | 0.3 | 0.5 | 0.0 |
| Other income/(expense) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Exceptionals and adjustments | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Reported PBT | (86.3) | (115.1) | (29.2) | (22.8) | (31.5) | (35.2) |
| Income tax expense (includes exceptionals) | (0.1) | 0.0 | (0.1) | (0.0) | 0.0 | 0.0 |
| Reported net income | (86.3) | (115.1) | (29.3) | (22.8) | (30.8) | (35.2) |
| Basic average number of shares, m | 464.4 | 503.2 | 513.0 | 570.1 | 571.8 | 571.8 |
| Basic EPS (c) | (0.2) | (0.2) | (0.1) | (0.0) | (0.1) | (0.1) |
| | | | | | | |
| Adjusted EBITDA | (72.0) | (101.1) | (26.8) | (21.7) | (30.7) | (33.8) |
| Adjusted EBIT | (72.1) | (101.4) | (27.0) | (21.9) | (30.8) | (34.0) |
| Adjusted PBT | (71.5) | (100.8) | (26.7) | (21.5) | (30.3) | (34.0) |
| Adjusted EPS (c) | (0.2) | (0.2) | (0.1) | (0.0) | (0.1) | (0.1) |
| Adjusted diluted EPS (c) | (0.2) | (0.2) | (0.1) | (0.0) | (0.1) | (0.1) |
| | | | | | | |
| **Balance sheet** | | | | | | |
| Property, plant and equipment | 12.1 | 12.0 | 12.0 | 11.9 | 11.8 | 352.5 |
| Goodwill | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Intangible assets | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.9 |
| Other non-current assets | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total non-current assets | 12.1 | 12.0 | 12.0 | 11.9 | 11.8 | 370.4 |
| Cash and equivalents | 47.0 | 67.2 | 40.3 | 22.5 | 19.0 | 19.0 |
| Inventories | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Trade and other receivables | 2.5 | 0.7 | 0.1 | 0.1 | 0.1 | 0.1 |
| Other current assets | 135.2 | 4.6 | 4.6 | 28.8 | 4.1 | 4.1 |
| Total current assets | 184.6 | 72.6 | 45.0 | 51.3 | 23.1 | 23.1 |
| Non-current loans and borrowings | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 458.8 |
| Other non-current liabilities | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total non-current liabilities | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 458.8 |
| Trade and other payables | 13.9 | 2.6 | 2.2 | 2.4 | 2.4 | 2.4 |
| Current loans and borrowings | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Other current liabilities | 1.0 | 0.9 | 0.4 | 0.4 | 0.4 | 0.4 |
| Total current liabilities | 14.9 | 3.5 | 2.5 | 2.8 | 2.8 | 2.8 |
| Equity attributable to company | 181.7 | 81.1 | 54.6 | 60.5 | 31.7 | (68.4) |
| Non-controlling interest | (0.1) | (0.1) | (0.1) | (0.1) | (0.1) | (0.1) |
| | | | | | | |
| **Cash flow statement** | | | | | | |
| Profit for the year | (86.3) | (115.1) | (29.3) | (22.8) | (30.8) | (35.2) |
| Taxation expenses | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Net finance expenses | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Depreciation and amortisation | 0.1 | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 |
| Share based payments | 14.8 | 14.3 | 2.5 | 1.2 | 1.2 | 1.2 |
| Other adjustments | (7.4) | (6.8) | 1.5 | (0.4) | 0.4 | 0.0 |
| Movements in working capital | 8.9 | (9.8) | (0.4) | (0.3) | 0.0 | 0.0 |
| Interest paid / received | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Income taxes paid | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Cash from operations (CFO) | (70.0) | (117.1) | (25.5) | (22.2) | (29.1) | (33.7) |
| Capex | (11.6) | (0.1) | (0.4) | 0.0 | 0.0 | (358.9)* |
| Acquisitions & disposals net | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Other investing activities | (131.7) | 130.6 | 0.0 | (23.7) | 25.0 | 0.0 |
| Cash used in investing activities (CFIA) | (143.3) | 130.5 | (0.4) | (23.7) | 25.0 | (358.9) |
| Net proceeds from issue of shares | 205.0 | 0.2 | 0.7 | 27.2 | 0.0 | 0.0 |
| Movements in debt | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 458.8 |
| Other financing activities | (0.0) | (0.0) | (0.0) | 0.0 | 0.0 | (66.2) |
| Cash from financing activities (CFF) | 205.0 | 0.2 | 0.7 | 27.2 | 0.0 | 392.6 |
| Increase/(decrease) in cash and equivalents | (8.3) | 13.5 | (25.3) | (18.6) | (4.1) | 0.0 |
| Currency translation differences and other | 7.5 | 6.7 | (1.6) | 0.8 | 0.6 | 0.0 |
| Cash and equivalents at end of period | 47.0 | 67.2 | 40.3 | 22.5 | 19.0 | 19.0 |
| Net (debt) cash | 47.0 | 67.2 | 40.3 | 22.5 | 19.0 | (439.8) |

Source: Edison Investment Research, Liquefied Natural Gas accounts. Note: *Assumes start of Magnolia construction in FY20.

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