



July 2024

Josh Runciman || Lead Analyst, Australian Gas

# Declining LNG markets pose risks for Arrow's Surat Gas Project

Developers determined to press ahead amid mounting obstacles

- *Arrow Energy is progressing development of its A\$10 billion Surat Gas Project after a decade of financial losses.*
- *Declining LNG market prices, and the potential for lower domestic prices, threaten the financial returns for the project and create stranded asset risks.*
- *The coal seam gas development also poses risks for highly valuable agricultural areas in the Surat Basin, risks that have already been realised in some areas.*
- *Further development of gas reserves, particularly in priority agricultural areas, should be carefully weighed against the immediate and longer-term impacts to agricultural practices and output.*

## Introduction

After years of exploration and more than A\$10 billion in losses, Arrow Energy is progressing development of its Surat Gas Project in Queensland. However, declining international LNG prices could undermine the project's financial returns.

Arrow Energy, a 50:50 Joint Venture between Shell and PetroChina, holds significant gas reserves in the Surat and Bowen basins in Queensland, and as at June 2022 was the [second-largest holder](#) of proven and probable (2P) gas reserves on Australia's east coast. Despite this, Arrow has historically supplied relatively small volumes to the east coast gas market (in which the Surat Basin is located), in part due to delays to sanctioning of its Surat Gas Project. For example, in 2019, Arrow supplied about 10% of east coast gas supply.

In 2020, however, Shell [announced](#) it had taken a final investment decision (FID) to develop phase 1 of the project, with gas intended to be supplied into both the east coast and LNG markets. In the longer-term, continued development of the Surat Gas Project is contingent on Arrow Energy reaching FID for subsequent development phases.



While Arrow Energy is the operator of the project, in practice Shell is likely to market most of the gas from the project given it has contracted the [“bulk” of Arrow’s Surat reserves](#) and has [in place](#) “exclusivity arrangements ... with Arrow for the supply from the Surat Gas Project”. Under this arrangement, Shell will purchase gas from Arrow Energy to supply its QCLNG export facility at Curtis Island and onsell to other gas users. The Surat Gas Project was originally intended to [supply](#) Arrow Energy’s proposed export facility, underscoring the links between the project and LNG markets.

However, declining LNG market fundamentals, and the potential for demand in the east coast gas market to decline faster than anticipated, could lower LNG and gas prices, and diminish returns from the project. In practice, whether this risk is borne by Shell, Arrow Energy (or both) will depend on the pricing arrangements under their gas supply agreement (GSA). For instance, if the GSA specifies a fixed price (for gas sold by Arrow Energy to Shell), Shell will bear the price risk. Conversely, if the GSA contains a floating price, Arrow Energy will also be exposed. Regardless, declining gas and LNG prices pose a risk to the project’s financial returns.

Governments may also face revenue risks, with declining international LNG and oil prices likely to lower taxation revenue and potentially royalty payments (a possibility [acknowledged](#) by the Queensland government). The Surat Basin project, on priority agricultural land, could further affect government revenue from agricultural production in a region that is a significant contributor to Queensland’s gross state product and taxation revenue.

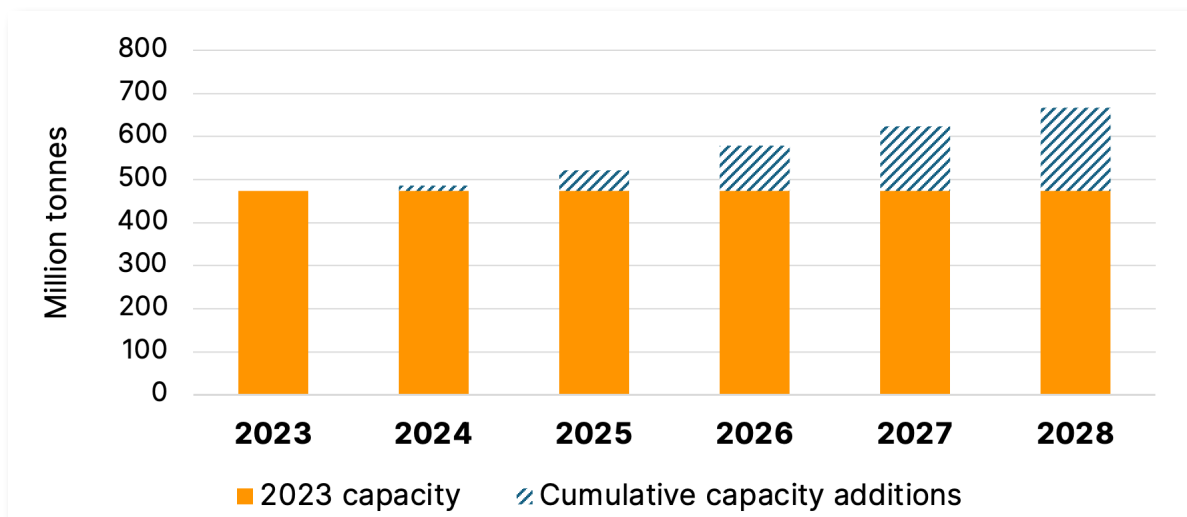
### Weak market conditions likely to drag down LNG and gas prices

Global LNG markets have experienced unprecedented disruptions in recent years, following Russia’s invasion of Ukraine in 2022 and corresponding fall in Russian gas supply to Europe, which sent LNG prices to record levels.

This spurred a number of companies to reach FID on new LNG projects while several countries implemented policies to limit gas consumption and exposure to LNG markets (particularly in Europe).

IEEFA estimates that global LNG liquefaction capacity will increase by an unprecedented 40% from 2024 to 2028 (Figure 1). Much of this new supply will come online from Qatar and the US, both considered low-cost LNG suppliers.

**Figure 1: Global LNG liquefaction capacity, million tonnes (Mt)**



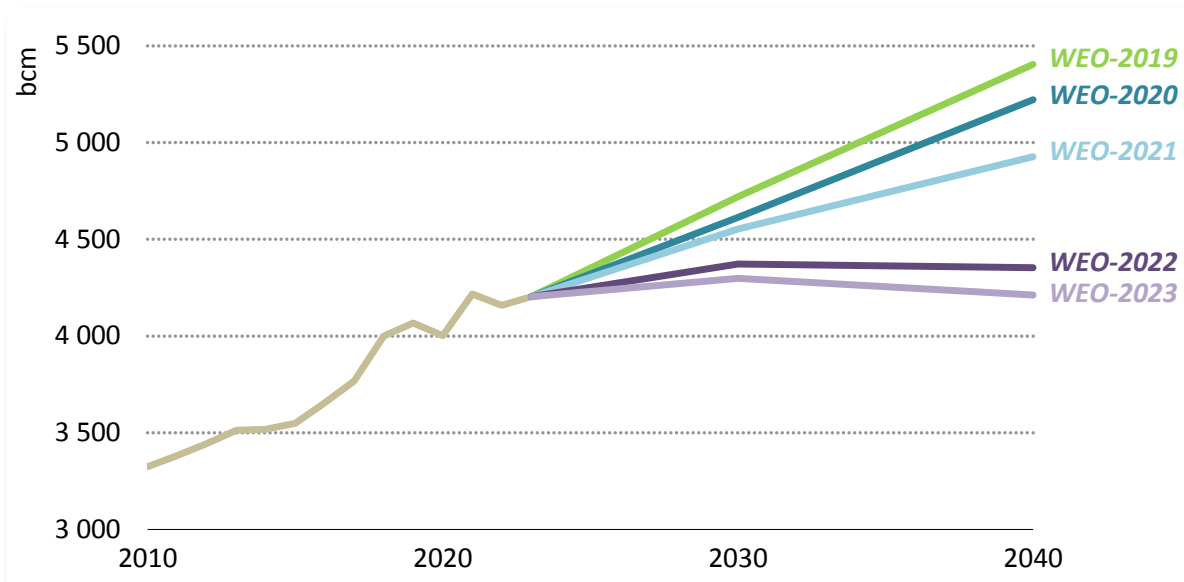
Source: IEEFA [The Future of Australian LNG](#)



This additional LNG supply will reach the market when the International Energy Agency (IEA) anticipates gas demand will peak. Specifically, under all scenarios modelled by the IEA, gas demand peaks by 2030. Under the Announced Pledges Scenario, intended to illustrate likely consumption if countries meet their announced net zero commitments, global gas demand is expected to fall quickly from 2030 onwards.

At the same time, LNG demand is [declining in the mature markets](#) of Japan, Europe and South Korea due to government emissions policies and competition from renewables and nuclear generation. Demand is shifting, at least to some extent, to more price-sensitive emerging economies, with future LNG demand growth anticipated to come from emerging markets (particularly China). [Industry proponents](#) continue to forecast bullish LNG demand that does not align with [IEA forecasts](#). In addition, the IEA has consistently lowered its global gas demand forecasts (Figure 2) due to the growing impact of renewable generation, which is pushing gas out of the energy mix in many countries (including emerging markets).

**Figure 2: Gas demand projections in the IEA’s STEPS to 2040 (billion cubic metres)**



Source: [IEA World Energy Outlooks 2019-2023](#)

Continued [strong investment](#) in clean energy, particularly in China, means LNG is unlikely to play a large role in the energy mix. A recent IEEFA [report](#) found that gas and LNG are likely to play only a minimal role in China’s clean energy transition, with the share of gas-fired electricity in the power mix remaining flat at just 3% over the past decade. The report further found that renewables are displacing coal generation in China, not gas or LNG.

Outside China, there are barriers that could limit structural demand growth in emerging markets (as outlined in IEEFA’s [Global LNG Outlook 2024-28](#)). These include high LNG costs, pressure on governments to explore alternative energy sources, and delays to LNG projects and power purchase agreements for gas-fired generation. More generally, LNG faces competition from renewables and other energy sources, primarily coal, reflecting LNG’s relative lack of competitiveness.

IEEFA anticipates strong supply and weak, uncertain demand will cause a [supply glut](#) in coming years, a view shared by other [analysts](#). The possibility of a glut is placing downward pressure on [LNG prices](#) under long-term sales and purchase agreements (SPAs), and is expected to lead to lower LNG spot prices in coming years, according to S&P Global Commodity Insights.



The [IEA](#) also recently forecast a possible global oil glut before the end of the decade, which could materially lower oil prices. Given the prevalence of oil linkages in many LNG contracts, falling oil prices could also affect Shell's LNG sales. Shell's subsidiary QGC is particularly exposed given it typically sells LNG either priced against oil or through its [Singapore marketing arm](#) (with pricing based on a "pass through" of the price received for the final LNG sale).

This poses a clear price risk for Shell given the stated intent to sell at least some of the gas from the Surat Gas Project into LNG markets. Beyond 2030, weaker than anticipated LNG demand growth, as well as the potential for [significant volumes of uncontracted LNG](#) looking for buyers, may mean there are longer-term price risks.

Falling LNG market prices could also affect prices on Australia's east coast given the [influence of LNG netback prices on domestic prices](#). Further, current high gas prices could destroy industrial demand, posing further longer-term downside demand and price risks in the domestic market.

## Fall in LNG prices could erode Surat Gas Project's returns

Declining LNG prices, and potentially domestic prices, are likely to reduce returns from the Surat Gas Project, adding to Arrow Energy's poor financial performance in the Surat and Bowen basins.

**“ Declining LNG prices, and potentially domestic prices, are likely to reduce returns from the Surat Gas Project.”**

While Arrow Energy is one of the largest holders of 2P reserves in Queensland, it has downgraded significant volumes of its reserves. In the year to 30 June 2018, Arrow Energy [downgraded](#) 2933 petajoules (PJ) of 2P reserves to contingent resources (2C), mostly in the Bowen Basin, followed by a net [downgrade](#) of 747PJ of its Surat Basin 2P reserves the following year. In discussing the broader trend of reserve writedowns in Queensland, the Australian Competition and Consumer Commission (ACCC) [noted](#) the technical challenges gas producers face in commercially developing contingent resources. However, the ACCC also noted that such writedowns could also reflect "decisions on the part of some LNG producers and their affiliates to 'bank' or 'warehouse' gas by delaying the development of some fields to meet their own commercial priorities". This may also explain why the Surat Gas Project has had significant delays.

Arrow Energy's reserve writedowns have contributed to its significant financial losses during its time in the east coast gas market. By 2023, it had [incurred losses](#) of more than A\$10 billion, rising to more than A\$14 billion when accounting for acquisition costs (including the costs to Shell and PetroChina of acquiring Arrow Energy).

Arrow Energy's run of financial losses has persisted, with a ["\\$307m loss in 2022 despite booming oil and gas prices"](#). This is remarkable given record high gas prices on the east coast during 2022, and may suggest that the price received by Arrow Energy for its gas sales to Shell is fixed under their existing GSA. (This may also suggest that Shell bears all or most of the price risk discussed earlier.)

Arrow Energy owes its shareholders [more than A\\$3 billion](#) due to these losses and loans provided by Shell and PetroChina.

It is not uncommon for gas producers to incur losses as they seek to develop commercial gas reserves, given the need for significant upfront investment. Nonetheless, the scale of losses



incurred by Arrow Energy reportedly led to PetroChina considering selling its stake in the joint venture. As [reported](#) in 2022: “Australian gas assets – both Arrow Energy and Browse – are considered among the top ‘negative assets’ in PetroChina’s global portfolio”.

Approval of the Surat Gas Project was delayed due to [disagreements](#) between Shell and PetroChina over the sales price of the gas to Shell. While IEEFA is not aware of the final gas price agreed under the GSA between Arrow Energy and Shell, it may suggest that Shell stands to benefit disproportionately from the development of the project through beneficial pricing arrangements (regardless of whether the agreed price is fixed or tied to prevailing LNG or gas prices).

Shell also faces further oil price exposure under its [long-term GSA](#) with Australia Pacific LNG, under which the Shell-owned QCLNG will supply up to 350PJ at an oil-linked price.

However, as noted earlier, a looming LNG supply glut is set to push down LNG spot prices, with a potential oil glut creating downside price risks for LNG sales under long-term contracts (with many of Australia’s LNG exports subject to oil price linkage). This could also affect domestic prices (including if an LNG import terminal begins operating on the east coast).

After years of delay, gas from the project is likely to come to market at a time when future demand is uncertain and the world is awash with excess LNG supply (including excess supply held by LNG portfolio traders such as Shell).

These factors point to the downside price risk faced by the Surat Gas Project proponents, regardless of whether the project’s gas is sold into domestic or export markets, which is likely to affect the project’s financial returns.

## **Flow-on effects for government royalties and tax take**

Declining LNG and gas prices could affect government taxation revenue and royalty payments, although the latter will ultimately depend on whether Arrow Energy and Shell are considered to be “independent entities” under Queensland royalty payments legislation. (If they are considered to not be independent, Arrow Energy’s royalty obligations for sales to QCLNG will ultimately be tied to LNG prices; otherwise they will be based on the existing GSA.)

In practice, declining LNG and gas prices will likely lower Shell’s revenue and therefore taxable income, which in turn is likely to reduce its tax obligations.

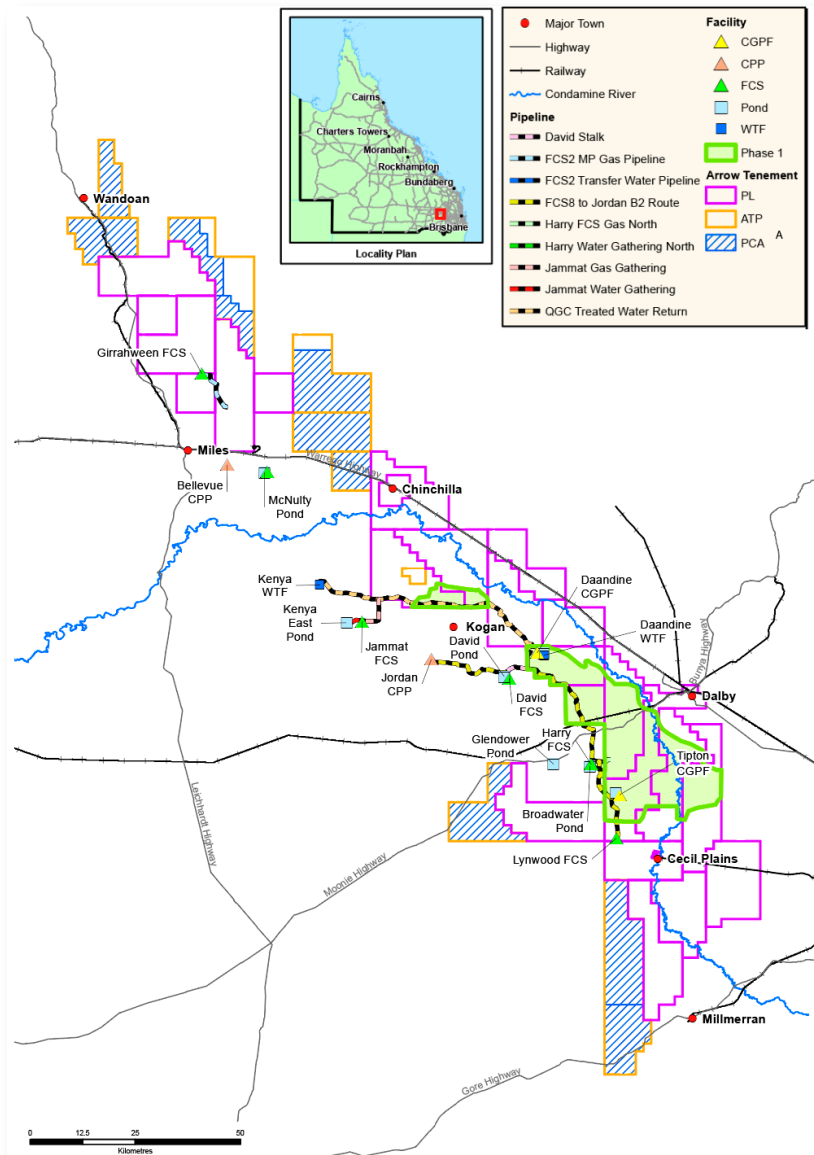
Arrow Energy may also be able to offset some future tax obligations due to carrying forward previous significant losses, as noted by Arrow Energy in its [2022 Tax Transparency report](#).

## ***Coal seam gas development poses long-term risks for agriculture***

Coal seam gas (CSG) projects pose a range of risks for agriculture in Queensland. While this is generally the case for unconventional gas projects, the impacts from the Surat Gas Project could be particularly acute given its location on highly productive land in the Darling Downs (Figure 3).



Figure 3: Surat Gas Project, development areas (phase 1)



Source: [Arrow Energy](#)

Many of these risks are related the level of gas development, processing and transporting infrastructure. The project will involve [significant new infrastructure](#), including up to 2,500 new wells, gas processing and transportation infrastructure, and water treatment facilities.

The [risks](#) to the agricultural industry include groundwater depletion, land subsidence (which can affect water distribution and runoff) and contamination. While gas producers are required to implement management plans to manage these risks, it is unlikely they can be fully eliminated.

For example, the Queensland government [acknowledged](#) in 2021 that subsidence has occurred due to CSG development in Queensland, and this may have an impact on farming practices and environmental values. The Queensland GasFields Commission further [acknowledged](#) that subsidence caused by CSG development is permanent and that, “even minor subsidence could have consequential impact on farming operations and productivity”.

CSG development has contaminated water resources in Queensland. In 2022, [Origin Energy was fined](#) following admissions that it had released nearly 800,000 litres of contaminated CSG water into a local waterway near Wandoan. Origin Energy also [reported](#) to the Queensland



government that some of its CSG wells had integrity issues due to unanticipated corrosion of well casings. This has [raised concerns](#) about the longer-term risks from these wells given they are relatively new.

At least one Queensland CSG well has [“an unknown leak”](#) due to casing corrosion, which [appears](#) to be a systemic issue likely to affect wells across the region.

These risks are also magnified as the project is on the Condamine Alluvium, a key underground water resources vital for the region’s agriculture. This value is reflected in the market prices for traded water, with contemporary [prices](#) of \$10,000 per megalitre. Methane leakage is a key risk given the alluvium feeds more than [3000 bores](#) across the region, with the [CSIRO](#) finding that, “Methane gas in water bores is an issue of increasing concern in areas of coal seam gas development in Queensland.” Methane leakages can cause issues with water quality, including toxicity, and the performance of pumps used to draw water from bores.

The risks associated with CSG wells are likely to increase over time due to the potential for well corrosion and degradation of concrete used to case and cap wells. Indeed, these risks may persist well beyond the productive life of existing CSG fields.

Whether Queensland’s regulatory frameworks can manage the risks associated with CSG development has been [questioned](#). Arrow Energy [drilled 48 deviated wells](#) below land held by 13 different landowners despite not having any access arrangements. At least one landowner reported drainage issues due to CSG-induced subsidence. While Arrow Energy was fined a record A\$1 million, it’s not clear that affected farmers have adequate recourse to compensation.

More generally, farmers have [raised concerns](#) about the utility of government regulations to protect their interests. The Queensland government is [progressing reforms](#) to better manage the risks of CSG-induced subsidence, which include compensation requirements in instances of “compensatable effects”. These reforms represent an additional regulatory risk for CSG field developers in Queensland, and for Arrow Energy in particular given its tenure includes prime agricultural land on the Condamine Floodplain (which is particularly vulnerable to subsidence due to coal-seam gas development).

### ***Surat Basin agriculture important to Queensland’s prosperity***

The risks posed by the development of CSG fields in the Surat Basin creates flow-on risks for Queensland’s economy given agriculture is a significant contributor to the state’s economic output. The [Queensland government estimated](#) the gross value of production (GVP) from key areas of the Darling Downs at more than \$1.5 billion in the 2023-24 financial year, or more than 8% of the state’s total agricultural GVP (Table 1).

**Table 1: Estimated GVP of selected prime agricultural areas in Queensland**

Region	Estimated Gross Value of Production (\$)
Wambo	435,518,133
Millmerran	418,038,722
Pittsworth	328,260,090
Jondaryan	251,613,801
Chinchilla	93,258,464
<b>Total</b>	<b>1,526,689,210</b>



In addition to its economic value, the agricultural industry in Queensland, including Surat Basin areas, are significant contributors to employment in Queensland. According to the Queensland government's 2020-21 [AgTrends report](#), "in 2017-18, there were approximately 334,000 people employed along the food and agribusiness supply chain, equating to approximately 13% of the total number of jobs in the state".

The importance of agriculture to Queensland's economy, particularly in priority agricultural areas, is reflected in the additional approvals (specifically [Regional Interests Development Approvals](#)) required for gas projects in these areas, which includes [areas](#) covered by the Surat Gas Project.

## Conclusion

The development of the Surat Gas Project follows a decade of financial losses and reserve writedowns for Arrow Energy and its shareholders. However, declining LNG market prices, and the potential for further price decreases on the east coast, present ongoing risks to the financial returns from the project.

The project, however, also poses broader risks to agricultural activity in priority agriculture areas, with flow-on risks for employment and government revenue.

Recurrent losses mean that the project is likely to be able to minimise at least some of its future tax obligations (by offsetting future income), as noted by Arrow Energy. The risks to agricultural activity could also affect government revenue to the extent that CSG leads to lower agricultural output (and therefore lower tax receipts).

These risks mean that any further development of CSG fields should be carefully considered, particularly for those projects that require additional Regional Interest Development Approvals (RIDAs). This specifically includes Arrow Energy's Surat Gas Project, which IEEFA understands may require additional approvals (specifically RIDAs).

In considering such applications, appropriate weight should be given the longer-term tradeoffs of additional gas development that could materially affect agricultural output over a long period of time while not contributing sufficient value to offset these impacts.

The gas industry faces a limited future due to the transition to clean energy, whereas agriculture is set to play a vital role in Australia's economy over the foreseeable future. It is vital that a focus on short-term gas development does not harm our longer-term economic prosperity.





## About IEEFA

The Institute for Energy Economics and Financial Analysis (IEEFA) examines issues related to energy markets, trends and policies. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy. [www.ieefa.org](http://www.ieefa.org)

## About the Author

### Josh Runciman

Josh Runciman is IEEFA's Lead Analyst for Australian Gas. His work focuses on key issues in Australia's gas and LNG sector, including gas market policy. Prior to joining IEEFA, Josh was a director on the Australian Competition and Consumer Commission's Gas Inquiry 2017-2030, where he worked on a range of issues, including supply adequacy, gas commodity and pipeline pricing, LNG netback pricing and retailer behaviour. [jrunciman@ieefa.org](mailto:jrunciman@ieefa.org)

## Disclaimer

This report is for information and educational purposes only. The Institute for Energy Economics and Financial Analysis ("IEEFA") does not provide tax, legal, investment, financial product or accounting advice. This report is not intended to provide, and should not be relied on for, tax, legal, investment, financial product or accounting advice. Nothing in this report is intended as investment or financial product advice, as an offer or solicitation of an offer to buy or sell, or as a recommendation, opinion, endorsement, or sponsorship of any financial product, class of financial products, security, company, or fund. IEEFA is not responsible for any investment or other decision made by you. You are responsible for your own investment research and investment decisions. This report is not meant as a general guide to investing, nor as a source of any specific or general recommendation or opinion in relation to any financial products. Unless attributed to others, any opinions expressed are our current opinions only. Certain information presented may have been provided by third parties. IEEFA believes that such third-party information is reliable, and has checked public records to verify it where possible, but does not guarantee its accuracy, timeliness or completeness; and it is subject to change without notice.