



2 December 2025

To: ECONOMICS AND INDUSTRY STANDING COMMITTEE

**Re: Inquiry into the role of Western Australia in the global effort on decarbonisation –
Supplementary evidence**

Thank you for the opportunity for the Institute for Energy Economics and Financial Analysis (IEEFA) to provide supplementary evidence to the inquiry following my public hearing.

IEEFA is an independent energy finance think tank that 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.

In this supplementary evidence, we provide additional references and evidence supporting a range of points made during the hearing:

- Global LNG markets are heading towards a supply glut, based on an unprecedented addition of new capacity while demand growth is uncertain; this will be challenging for Australia's high-cost LNG.
- LNG does not support global decarbonisation: gas is no longer considered a transition fuel; a shift from coal to gas requires costs below LNG's cost of production; LNG could displace renewables more than it displaces coal; no new LNG capacity is required under Paris-aligned scenarios.
- Carbon capture and storage (CCS) presents high performance and cost risks.
- Green iron is often considered to be the largest economic opportunity for Australia in a decarbonising world; major opportunities are in clean heavy industry (especially metals and fuels) and minerals needed for the new energy economy.
- Recent insights from the Australian and global green iron and steel transition.

Kind regards,

Amandine Denis-Ryan
Chief executive, IEEFA Australia



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Global LNG markets outlook

Unprecedented supply increase

The International Energy Agency (IEA)'s [Global LNG Capacity Tracker](#) monitors final investment decisions (FIDs) for new LNG export projects. It provides data on liquefaction capacity additions to 2030, based on projects under construction and the latest production ramp-up schedules. As of 22 October, the IEA expects more than 220 million tonnes (Mtpa) (300bcm) of liquefaction capacity to come online by 2030. This represents a 50% increase in available global LNG supply, according to the IEA's latest [World Energy Outlook 2025](#).

Columbia University's [Center on Global Energy Policy](#) estimates more than 260Mtpa (360bcm) of LNG capacity is under construction or already committed, which would represent an increase in global capacity of more than 50%.

The International Gas Union's [2025 World LNG report](#) says an additional 1,121.9Mtpa of liquefaction capacity was in the pre-FID stage at the end of 2024.

Uncertain future demand

Asia is expected to be the main source of new demand for LNG. However, LNG demand from China, India and emerging Asian markets [declined](#) markedly in 2022 after prices spiked following Russia's expanded invasion of Ukraine. Last year's net growth was the first since 2021. However, China's LNG imports dropped again this year – [declining by 20% in the first half](#) and [continuing to fall](#) thereafter, due to reduced demand and an increase in domestic and pipeline supply. Imports to other Asian countries such as Korea also fell, so that total LNG imports to Asia dropped by 8% in the first half of 2025 compared with the same period in 2024 (unpublished IEEFA analysis based on Kpler data).

IEEFA has highlighted many factors that raise questions about the ability of Asian markets to absorb large amounts of additional LNG supply:

- [Global gas turbine shortages](#) are expected to limit the development of new gas generation in Vietnam and the Philippines, which have Asia's [largest pipelines of gas power projects](#).
- Competition from [domestic gas supply](#), with at least 19 new gas fields expected to reach FID in Southeast Asia between 2022 and 2025. China has also been growing its domestic gas supply, which now represents [about 60% of domestic use](#).
- Competition from pipeline gas: China recently made [a preliminary deal with Russia](#) to more than double its imports of pipeline gas, and it is expected to come at a lower price than its existing contract. If realised, this will bring Russian pipeline gas imports to about 100bcm a year, about one quarter of China's gas demand today.
- Competition from renewables: [In China](#), between 2015 and 2023, the share of gas-fired power generation in the country's electricity mix remained just 3% while wind and solar quadrupled to 16%. Despite recent policy changes, solar installations have [rebounded](#), and installations in 2025 could match last year's record.



- The recent boom in [LNG trucking in China](#), fuelled by domestic liquefaction capacity, is unlikely to be repeated in other countries and drive LNG imports. Electric truck sales have [recently outpaced](#) LNG truck sales in China.
- [LNG portfolio players](#) (intermediaries), which represent a large share of recent LNG offtake contracts, are committed to twice as much LNG from suppliers than end consumers. This indicates offtake volumes may exceed actual demand.
- LNG projects face [infrastructure and financing barriers](#) in Southeast Asia, often with extended development timelines and contract negotiations.

The IEA's [World Energy Outlook 2025](#) highlighted the price dependency of new demand, as well as the likely infrastructure constraints:

- “The critical variable affecting the scale of demand growth is price. In the STEPS [2.5°C-aligned scenario], weighted average gas import prices in emerging markets and developing countries in Asia are around USD 7.5 per million British thermal units (MBtu) in the 2030-2035 period, around 40% lower than today. This underpins significant LNG demand growth, especially in energy-hungry price-sensitive markets.”
- “Even at prices near to the short-run marginal cost of supply, LNG remains a premium fuel in a number of markets in Asia. [...] the economics of LNG make it difficult to penetrate these markets as a baseload fuel in the long run.”
- “[...] this growth depends on overcoming infrastructure constraints: in Southeast Asia, several regasification projects remain in the planning stages; in India, downstream infrastructure is insufficient to fully utilise some of its LNG terminals.”

The International Gas Union also flagged infrastructure delays in its [2025 World LNG Report](#), noting, “in South and Southeast Asia, several planned [LNG] terminals face delays due to uncertain demand, limited infrastructure, and high price sensitivity”.

The International Group of Liquefied Natural Gas Importers highlighted in its [2025 annual report](#) that “the trajectory of demand remains deeply uncertain”.

A looming global LNG glut

IEEFA has pointed to the upcoming supply glut in global LNG markets for several years (see [Global LNG outlook 2023-2027](#) and [Global LNG outlook 2024-2028](#)).

Many other analysts have reached the same conclusion: that global LNG markets face an extended period of oversupply:

- [IEA](#) (November 2025): Based on projects under construction only: “In the STEPS [2.5°C-aligned scenario], LNG demand increases by 200 bcm between 2024 and 2030. This is smaller than the change in available LNG export capacity, and puts downward pressure on LNG prices, bringing them close to short-run marginal costs. [...] This results in an overhang of available LNG capacity of around 65 bcm in 2030.”
- [London Stock Exchange Group](#) (September 2025): “The rapid build-out of American gas liquefaction capacity in recent years is poised to create a huge global supply glut, possibly comparable to last decade’s surge in U.S. shale oil output, which led to one



of the biggest downturns in the sector's history. [...] the market is expected to tip into an oversupply of nearly 50 bcm in 2026 and as much as 200 bcm in 2030, based on current LSEG projections."

- [Royal Bank of Canada](#) (October 2024): "The expansion is likely to lead to a state of oversupply by the end of 2026, which will remain until 2030, with prices possibly moving below double digits, analysts such as RBC's Anan Dhanani have projected."
- [Morgan Stanley](#) (April 2024): "We expect gas market oversupply to reach multi-decade highs over the coming years," Morgan Stanley's commodity strategists said.
- [S&P Global](#) (April 2024): "The long-term pricing for liquefied natural gas (LNG) contracts is likely to experience a downward trend due to an oversupply in the market and a prevailing over-investment cycle, according to Chong Zhi Xin, Senior Director at S&P Global Commodity Insights."
- [Bernstein Research](#) (January 2024): "A wave of new supply of liquefied natural gas is set to hit global markets late this year, making 2024 potentially the last year of robust prices in one of Australia's major export earners before a glut causes them to dive."

In the past year, industry leaders have become increasingly concerned about the upcoming glut:

- [Shell](#) (October 2025): "Wael Sawan, chief executive of Shell, which runs the world's largest LNG portfolio, said this week that the build-out was 'not economically fully rational', given the high cost of building new terminals, and that he was 'surprised' at how many had been greenlighted. He told the Economic Club of New York that Shell would reassess the market before deciding whether to expand its recently started LNG Canada facility."
- [TotalEnergies](#) (September 2025): "We are building too much," CEO Patrick Pouyanne said during a panel on LNG at the GasTech conference in Milan. "We are facing many U.S. projects. We will face oversupply ... for some years if all these projects come onstream."
- [Gulfstream LNG](#) (September 2025): CEO Vivek Chandra said, "I think we are kind of losing sight of the plot here. The industry is actually growing too fast. There is a huge sense of FOMO, fear of missing out. Everybody is trying to get their projects across to FID. There's 50, 60, 70 million tonnes of new LNG capacity trying to FID. And that just is way too much. I see this as a recipe for disaster."

The supply surge is expected to start [in 2026](#), putting downward pressure on prices: "Global supply of the super-chilled fuel is expected to rise to 475 million metric tons in 2026, according to data from commodity analysts at Kpler, a 10.2% gain over the 431 million tons forecast for 2025. [...] Such a jump in supply is likely to weigh on prices, with Kpler forecasting that benchmark Asian spot prices will average \$10 per million British thermal units (mmBtu) in 2026, down from about \$12 in 2025."

Australia's cost competitiveness

The federal government's [Future Gas Strategy Analytical Report](#) included a comparison of Australian production costs with a selection of other producers, and found that Australia was the highest cost: "Over 90% of global LNG production in 2022 was sourced from seven



major producing countries: Qatar, Australia, USA, Russia, Malaysia, Nigeria and Indonesia. Australia's average production cost (at USD10.28/MMBtu in real 2020 USD) is higher than other major producers (Figure 4.15), largely reflecting higher capital costs."

Figure 4.15: Production cost curve of select LNG exporters



Notes: Full lifecycle costs including upstream production and liquefaction cost. Variable costs represent the priced-in short run marginal cost of production.

Source: NexantECA (2023)

The report also noted: "Importantly, the high costs for Australian production stem predominantly from fixed (establishment) costs. Australian variable costs (which are more relevant for established projects that are beyond their capital-recovery phase) are closer to the international community. This suggests that established Australian production is able to be more competitive than prospective new sites."

IEEFA recently completed a detailed analysis of the expected cost of production from the [Browse project](#), and found that its LNG is unlikely to be competitive in the context of the global glut: "Browse LNG may struggle to find buyers in an oversupplied global market. Potentially 60% more expensive than Qatar's LNG, it is likely twice the price needed to unlock new demand in Asia through coal-to-gas switching."

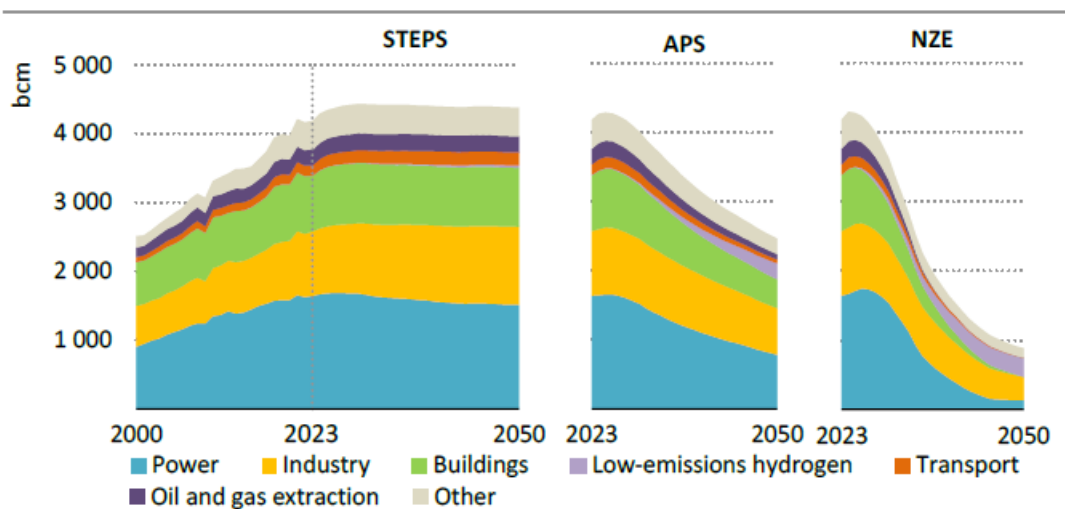


LNG's contribution to global decarbonisation

Gas as a transition fuel

The IEA's [World Energy Outlook 2024](#) (which includes a broader range of decarbonisation scenarios than the 2025 edition) clearly shows that gas is not a transition fuel in a decarbonising world. In Paris-aligned scenarios (APS is 1.7°C-aligned, NZE is 1.5°C-aligned), gas demand declines rapidly from 2025 onwards. In the STEPS scenario (2.4°C aligned), gas demand plateaus.

Figure 3.35 ▶ Natural gas demand by sector and scenario, 2000-2050



IEA. CC BY 4.0.

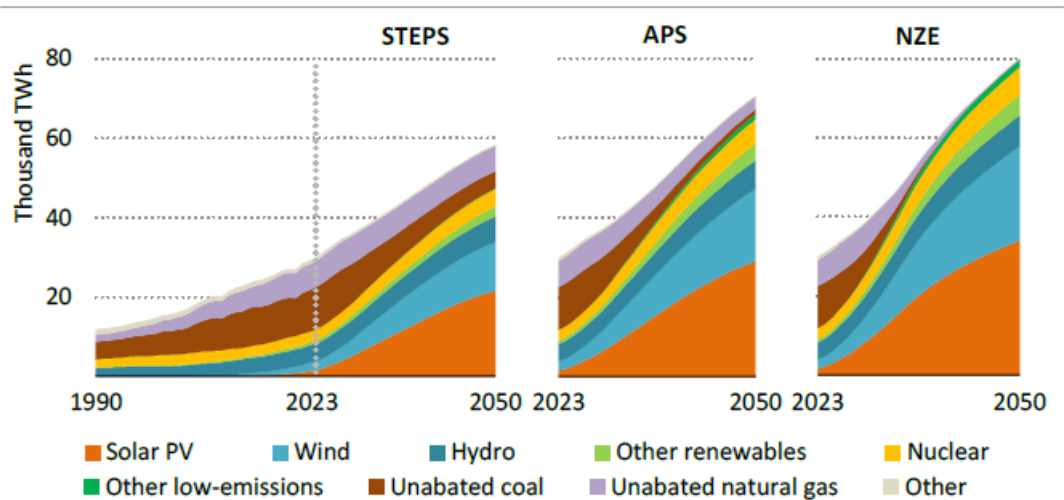
After decades of growth, natural gas demand is set to plateau by 2030 under current policy settings; demand falls 40% in the APS by 2050 and 80% in the NZE Scenario

In electricity generation, while gas plays an important role, the IEA doesn't see it increasing materially:

- IEA [World Energy Outlook 2025](#):
 - STEPS (2.5°C-aligned) scenario: "Natural gas maintains a central role in the electricity generation mix: its use increases by over 15% to 2035 before gradually decreasing, and it continues to provide critical system flexibility and backup capacity."
 - NZE (1.5°C-aligned) scenario: according to the [data tables](#), compared with 2024 levels, electricity generation from gas (total, including unabated and with CCUS) declines by 57% by 2035, by 77% by 2040 and by 92% by 2050.
- IEA [World Energy Outlook 2024](#): shows a declining role for gas generation in Paris-aligned scenarios.



Figure 3.21 ▶ Global electricity generation by source and scenario, 1990-2050

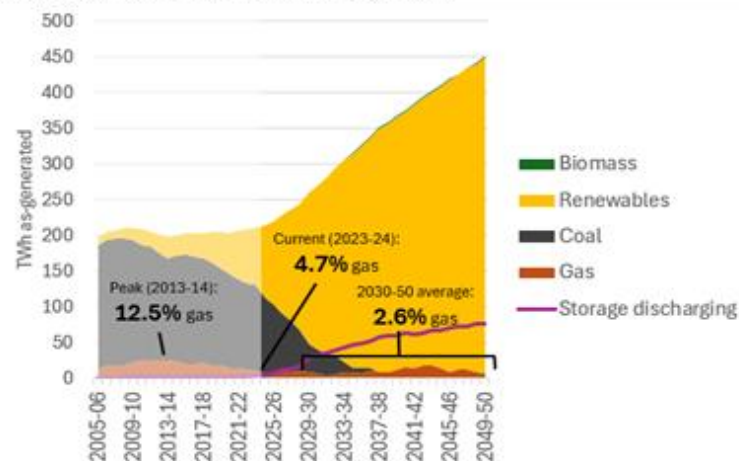


IEA. CC BY 4.0.

*After decades of fossil fuels generating most of the world's electricity,
renewables are set to become the main pillar of electricity supply*

In Australia, in the Australian Energy Market Operator (AEMO)'s 2024 Integrated System Plan, [gas generation](#) represents 2.6% of electricity generation on average between 2030 and 2050 (see Figure 2 below). Other scenarios, for example by [S&P Global](#), suggest that gas capacity expansion could be much lower than in AEMO's scenario.

Figure 2: Generation mix in the NEM, Step Change



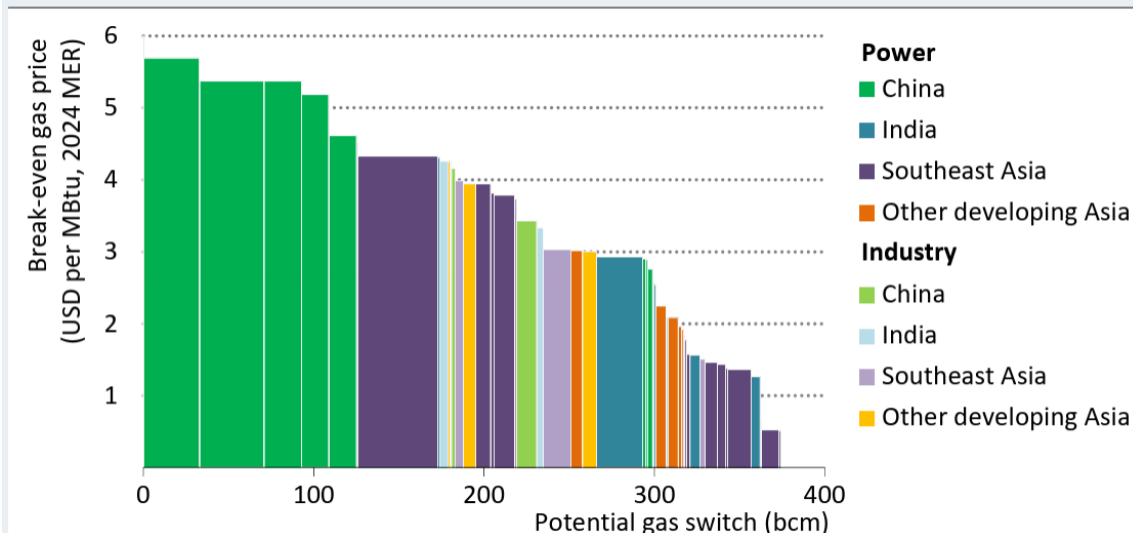
Source: [AEMO](#). Note: Renewables includes solar (utility-scale and rooftop), wind and hydro.



Is LNG displacing coal?

The [IEA](#) finds that prices of USD5/MBtu or below are needed to unlock additional coal to gas switching: “If delivered LNG prices were to fall to USD 5/MBtu, this would unlock an additional 100 bcm of short term coal-to-gas switching, mainly in China’s power sector. Further switching could occur if prices were to remain at this level for an extended period as this may encourage long-term decisions to replace existing or planned coal units with gas units instead, for example in power, steel or chemicals. However, the long-run marginal cost of global LNG supply is well above USD 5/MBtu and so it is unlikely that prices could remain around this level for a prolonged period.”

Figure 1.30 ▶ Additional coal-to-gas switching potential in emerging market and developing economies in Asia in 2030



IEA. CC BY 4.0.

Nearly 400 bcm of coal-to-gas switching potential exists in emerging market and developing economies in Asia, but would require gas prices to fall to very low levels

The IEA’s analysis is generally supported by [data on electricity generation trends from a wide range of countries in Asia](#) (where virtually all Australian LNG is sold):

- In countries with larger and faster growing renewable generation, the share of coal generation has fallen, with those countries also either reducing the share of gas in their electricity systems or maintaining it at low levels (particularly China).
 - China’s coal generation fell from 72% to 58% from 2014 to 2024, driven by renewables. Renewable generation quadrupled from 4% to 16% in the eight years to 2023. Meanwhile, the share of gas generation has largely stagnated, remaining below 3%.



- In India, solar and wind energy has more than quadrupled, rising to 14% between 2010 and FY2025, displacing most gas generation out and offsetting a declining share of hydro power. This year, India also started reducing coal generation: for the first time there was a [net decline](#) in fossil fuel capacity and fossil-fired power generation fell 4% in the first half of the year relative to 2024. This resulted in a material drop in the share of fossil fuels in India's generation mix.
- [In Australia](#), the rising renewable share has coincided with a declining share for coal and gas. Coal generation fell from 83% in 2001 to 43% in 2024, while gas generation fell from almost 22% in 2014 to 17% in 2024. Meanwhile, solar and wind generation grew from less than 1% in 2004 to 29% in 2024. Hydro and bioenergy added a further 6% to the generation share that year.
- Few countries with a large or increasing share of gas generation rely on LNG imports. South Korea, Singapore and Taiwan are high-income countries with relatively high population densities and small shares of renewable energy generation (about 5% in 2024).
- Japan, which also relies on LNG imports, still has a relatively large share of gas in its mix, but gas generation fell from 43% in 2016 to 34% in 2024, coinciding with a doubling in renewable energy generation.
- Declining domestic gas production in several countries has coincided with a reduced share of gas generation and increasing coal generation. In India, the world's second-largest coal consumer, the share of gas generation fell from more than 11% in 2011 to less than 3% in 2024 on declining production of cheaper domestic gas. This is despite India having LNG import infrastructure and ready access to LNG supply.
- This pattern is being replicated in other lower-income countries that are increasing coal generation as their own gas production falls. This is despite most of these countries having access to LNG supply, which may reflect the IEA's finding that LNG prices will need to be very low to compete with coal generation. Many of these countries also have lower renewable energy penetration.

Could LNG increase global emissions?

Several organisations have flagged that LNG could displace more renewables than coal, and that new LNG supply is not needed under Paris-aligned scenarios.

In its [World Energy Outlook 2024](#), the IEA warned that the LNG supply glut could slow the global energy transition:

- “If gas markets are to absorb all the prospective new LNG supply and to continue to grow past 2030, this would require some combination of even lower clearing prices, higher electricity demand and slower energy transitions – with less wind and solar, lower rates of building efficiency improvements, and fewer heat pumps – than projected in the STEPS [2.4°C aligned-scenario].”



- “Accelerated climate action – as seen in the APS [1.7°C-aligned] and NZE [1.5°C-aligned] Scenario – would also create an even larger surplus of LNG in the coming years. In the APS, LNG export plant utilisation rates fall to 70% in 2030, and existing LNG projects together with those under construction are able to fulfil LNG demand all the way through to 2050. In the NZE Scenario, utilisation rates fall to less than 60% in 2030 and LNG demand through to 2050 can be met entirely by projects existing today. In this latter scenario, we estimate that the sponsors of around 70% of LNG export projects currently under construction would struggle to recover their invested capital.”

The [World Energy Outlook 2025](#) only includes the NZE scenario, not the APS scenario. It also found that: “In the NZE Scenario, the sharp decrease in global natural gas demand means that many of the LNG projects currently under construction are no longer necessary. If they were to go ahead, aggregate capacity utilisation would fall to 75% in 2030 and 50% in 2035, and several plants that found themselves unable to compete in a supply glut would be likely to end up closing or being repurposed to trade hydrogen-based fuels such as ammonia or methanol.”

The [US Department of Energy](#) (December 2024) found that increases in US LNG exports could increase global emissions by displacing renewables:

- “In the Defined Policies: Model Resolved scenario, U.S. LNG exports increase by 15 Bcf/d in 2040 and 32.6 Bcf/d in 2050, relative to existing and FID levels. [...] The largest share of this increase in exports, 37% of the total, displaces gas production in the rest of the world (ROW). Another 25% of the increase in U.S. LNG exports relative to existing and FID levels displaces renewables in the ROW, which puts upward pressure on global GHG emissions. At the same time, 19% of this increase displaces oil and coal, which puts downward pressure on global GHG emissions. [...] the net effect of increased U.S. LNG exports in the Defined Policies: Model Resolved is an increase in cumulative emissions of 708 MMTCO₂e (0.05% of cumulative global GHG emissions).”
- “Across scenarios in which U.S. LNG exports are assumed to exceed Model Resolved levels (up to +20 Bcf/d by 2050, corresponding to the High Exports assumption for U.S. LNG exports), global cumulative GHG emissions (2020-2050) are 324 MMT CO₂e to 1,452 MMT CO₂e higher than their counterparts with Model Resolved levels of U.S. LNG exports.”

Researchers have also questioned the purported emissions benefits of LNG, with a [Cornell University study](#) on the emissions intensity of LNG from the US finding: “Overall, the greenhouse gas footprint for LNG as a fuel source is 33% greater than that for coal when analyzed using GWP₂₀ (160 g CO₂-equivalent/MJ vs. 120 g CO₂-equivalent/MJ). Even considered on the time frame of 100 years after emission (GWP₁₀₀), which severely understates the climatic damage of methane, the LNG footprint equals or exceeds that of coal.” This is based on the significant emissions across the value chain, in particular upstream methane emissions.



Risks and costs of CCS

IEEFA has done substantial research on the performance and cost risks associated with carbon capture and storage (CCS):

- A [global review of 13 flagship CCS projects](#) representing half of global CCS capacity found that failed and underperforming projects outnumbered successful experiences: two projects failed, one was suspended for many years, five underperformed by ~20-50%, two provided no data, and only three performed close to capacity.
- A [detailed review of two of the three successful projects](#) found they both faced significant challenges: in one project the CO₂ rose into a previously unidentified shallow layer, which fortunately was bounded; in the other, a storage site that was thought to have 18 years of storage capacity had less than two years.
- An analysis of data reported by the [Gorgon CCS project](#) in Australia found that the project only stored about a third of the CO₂ it captured in recent years, with realised costs of capture exceeding AU\$200/tCO₂. The project's [latest performance report](#) shows the CO₂ capture rate decreased again in 2024-25 to just 25%.
- A review of [CCS use in IEA scenarios](#) found a strong decline in projected use over time, driven by growing competition from alternative technologies in energy sectors.
- Analysis of the whole [carbon dioxide disposal chain](#) found that each step of the chain held its own set of challenges and risks.



Carbon Capture and Storage (CCS) projects' poor report card

	Project	Capacity (MtCO ₂ p.a.)	Performance
	Natural Gas processing		
	1986 Shute Creek	7	Lifetime under-performance of 36%
	1996 Sleipner	0.9	Performing close to the capture capacity
	2004 In Salah	1.1	Failed after 7 years of operation
	2007 Snøhvit	0.7	Performing close to the capture capacity
	2019 Gorgon	4	Lifetime under-performance of ~50%
	Industrial sector		
	2000 Great Plains	3	Lifetime under-performance of 20-30%
	2013 Coffeyville	0.9	No public data was found on the lifetime performance.
	2015 Quest	1.1	Performing close to the capture capacity
	2016 Abu Dhabi	0.8	No public data was found on the lifetime performance.
	2017 Illinois Industrial (IL-CCS)	1	Lifetime under-performance of 45-50%
	Power sector		
	2014 Kemper	3	Failed to be started
	2014 Boundary Dam	1	Lifetime under-performance of ~50%
	2017 Petra Nova	1.4	Suspended after 4 years of operation

Source: IEEFA. *The Carbon Capture Cruc: Lessons learned*. September 2022.



Economic opportunities as the world decarbonises

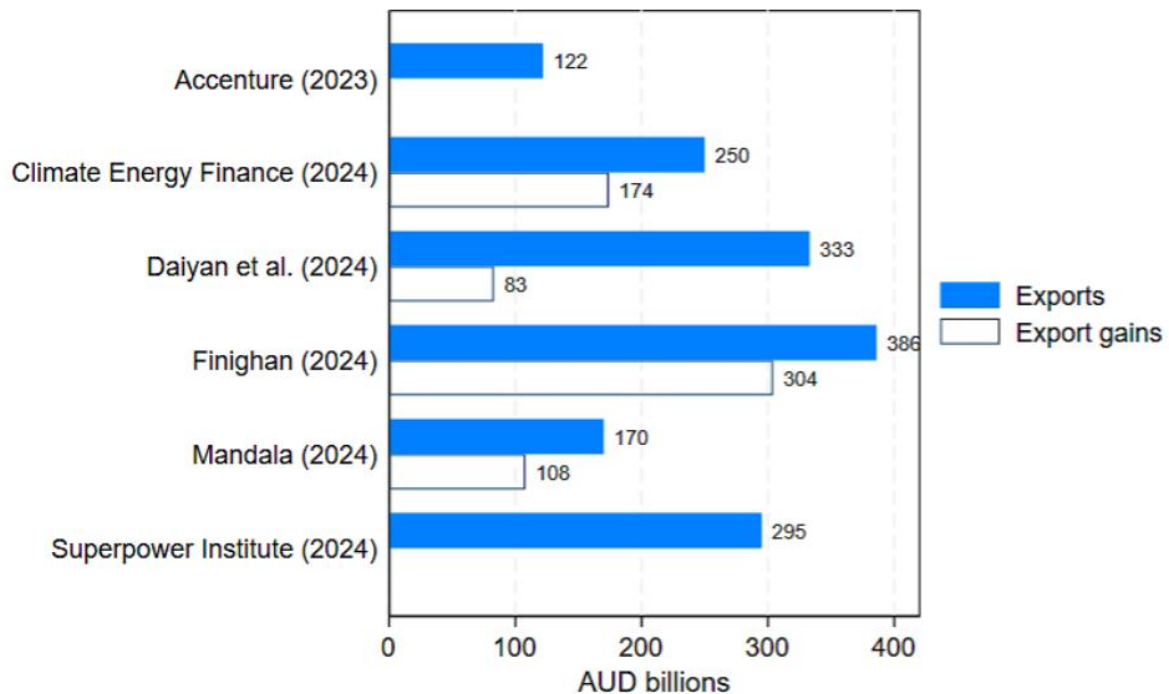
Reviews of the major economic opportunities created in Australia by global decarbonisation have found that the largest opportunities are in heavy industry (in particular renewables- and green hydrogen-based metal and fuels production) and in “new economy” minerals such as lithium, copper and nickel. Many analyses found that green iron was likely the largest opportunity for Australia. For example:

- EY’s [The energy superpower opportunity](#) report identified three highly prospective scenarios:
 - Clean, low-carbon heavy industry, including first stage iron processing for use as an input to electric arc furnace (EAF) steel production.
 - Lithium, copper, nickel and other critical minerals, metals or rare earths, including initial processing opportunities.
 - Hydrogen for use within Australia, including as an input to other exports.
 - Green iron was singled out as a key opportunity: “Australia is well positioned to grow its share of clean energy-intensive global value chains, particularly through supply of green iron.”
- The Superpower Institute’s [The New Energy Trade](#) reviewed Australia’s export revenue potential from eight potential “superpower” industries: iron, aluminium, silicon and polysilicon, ammonia and urea, methanol (industrial), and transport fuels for shipping, aviation and road transport. It found iron had the largest revenue potential.
- Federal Treasury’s [Australia’s Net Zero Transformation](#) modelling found that: “Leveraging Australia’s comparative advantages in renewable energy will deliver broad-based benefits to Australians and help grow our exports. The Renewable Exports Upside Scenario projects Australia’s green exports could be \$68 billion higher in 2050 than in the Baseline Scenario, including critical minerals, renewable hydrogen and green metals exports.”
- Deloitte’s [All systems go: Powering ahead](#) found that, “Renewable energy, green hydrogen, critical minerals and metals manufacturing define Australia’s green industrial potential.”
- Beyond Zero Emissions’ [Export Powerhouse: Australia’s \\$333 billion opportunity](#) identified six large opportunities: nickel, lithium, other critical minerals, green steel, green aluminium, bauxite and alumina and renewable hydrogen. The biggest opportunities were in green steel and nickel.

Estimates of the economic potential of green iron production in Australia were summarised in the OECD’s [Green Iron opportunities in Australia](#): “Summing up the estimates from multiple sources (Accenture, Climate Energy Finance, Daiyan et al, Finighan, Mandala and the Superpower Institute), in the long term the export gain produced by transitioning to green iron in Australia is expected to be valued between AUD 83 billion and AUD 304 billion.”



Figure 4. Estimates of Australia's green iron export opportunity



Green iron progress and lessons learnt

IEEFA has been monitoring global progress in green iron and steel. Our [recent report](#) on the lessons learnt from overseas for Australia's green iron ambitions (based on a small sample of projects) found:

- Projects with a “gas first, green hydrogen later” approach struggled, as gas-based direct-reduced iron (DRI) did not command a premium and failed to secure offtakes.
- In contrast, hydrogen-based DRI was able to secure offtakes at a 20-30% premium, and projects focused on procuring sufficient clean firm power to optimise electrolyzers utilisation were more successful.
- Many of the US and EU projects were unable to secure affordable supplies of hydrogen (despite separate government support for hydrogen developers) but integrated projects (producing onsite hydrogen for ironmaking) had more success.

In terms of lessons for governments, we found that:

- A joined-up approach across government support was critical, for example combining grants and loan guarantees, and linked support for all supply chain elements (renewables, hydrogen, ironmaking).
- Financial support should prioritise projects: with secured offtakes, with long-term (contracted or owned) supplies of low-cost energy and with a business model based on current technology (particularly electrolyser) costs.



IEEFA has also published several reports on progress in the Middle East-North Africa (MENA) region, which is leading in green iron project development, including:

- [MENA's competitive advantages](#) in the green iron and steel transition.
- [Oman's progress](#) as an emerging global green iron and steel hub. In particular, Oman is setting a global benchmark for early use of green hydrogen in new projects. It has a clear plan to reduce its reliance on gas, and the evidence suggests the new DRI facilities will not remain gas-based for long.

IEEFA has also highlighted the opportunities in the earlier stages of the value chain for Australia, and has developed the [Australian Green Iron Tracker](#), which monitors progress along the nation's green iron value chain. Key findings include:

- None of the large-scale initiatives across the ironmaking value chain have reached FID; most remain in scoping or pre-feasibility study.
- Smaller pilot-scale facilities are advancing more rapidly than commercial-scale ventures, often based on novel technologies. Australia should also look at [developing commercial-scale projects](#) based on the mature DRI-EAF pathway.
- Although Australia holds vast magnetite resources, project development has been sluggish and far from operational readiness (which requires a decade). Australia could leverage its magnetite deposits to [supply higher-grade iron ore, concentrates and pellets](#) to help unlock the first wave of green iron production.
- [New technologies](#) that make Pilbara iron ore suitable for low-emissions ironmaking are essential for the wider decarbonisation of the global steel industry.