

Fuelling the future

The role of oil and gas in the
energy transition

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Chief Executive, APPEA
QUPEX 8 August 2023



About APPEA

- The Australian Petroleum Production & Exploration Association (APPEA) is the peak national body representing Australia's upstream oil and gas exploration and production industry
- 57 full members – explorers and producers active in Australia
- 120 associate members – provide goods and services to the upstream industry
- APPEA members provide about 95% of Australia's petroleum production



Our contribution

Gas is delivering for Australians...

Revenue



\$16B

to Federal, State and Territory
Governments in taxes and
royalties (2022-23)

Secure power



55%

increase in gas supply to
meet east coast demand
in May 2022

Enabling **\$470
billion in
economic
activity**



Employment

80,000 jobs

across the value
chain



27%

of Australia's
energy needs

Reducing emissions

**166 million tonnes
of CO₂**

emissions reductions in
our region each year

(LNG exports)



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...and Queenslanders

Royalties

\$2.6B

In royalties in 2022
\$1.4B avg per annum
2023 - 2030



Spent

\$3.8B

with 2,800 QLD
Businesses

Gas supports

32,000 QLD jobs

Direct and
indirect jobs



**354 cargoes
(\$9.5B) of LNG**

Left Curtis
Island in 2022

An important role in Queensland Energy



- Gas already used for power and there is a growing role for gas and hydrogen.
- 200 MW hydrogen-ready gas peaking power station at Kogan Creek + connect Bowen Basin to gas market
- 3GW of **new** low to zero emissions gas generation for peak demand periods and backup security in 2035.
- In addition to the 1745 MW of OCGT in QLD

2. **Storage, firming and dispatchable capacity:**

Queensland will need at least 6,000 MW of long duration storage¹ for a highly renewable system, complemented by approximately 3,000 MW of grid-scale storage and **up to 3,000 MW of new low-to-zero emission gas-fuelled plant²** to cover 'dunkelflaute'³ conditions.

Transforming to net zero

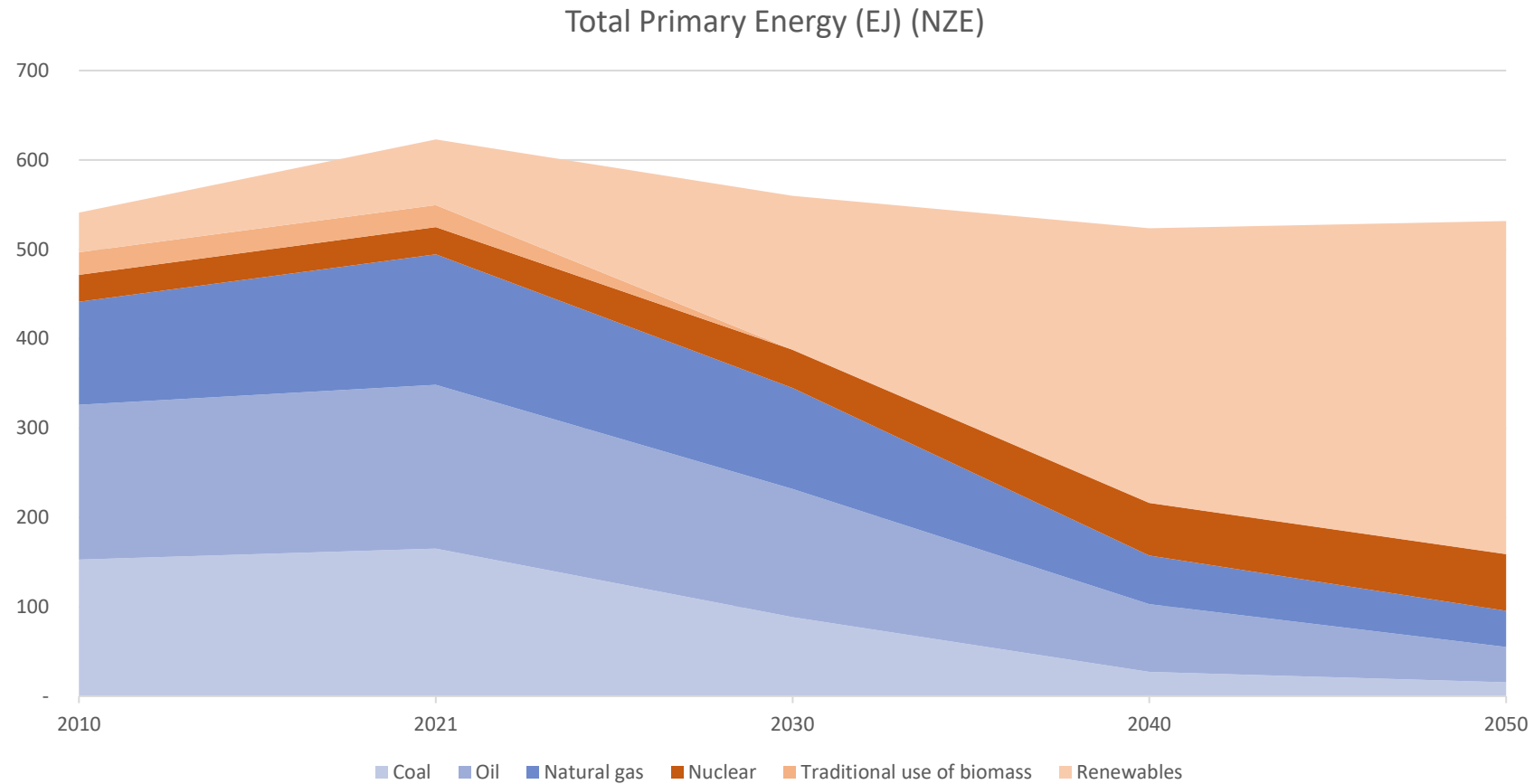
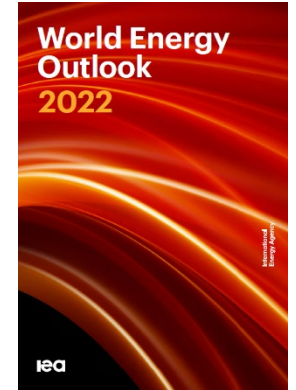


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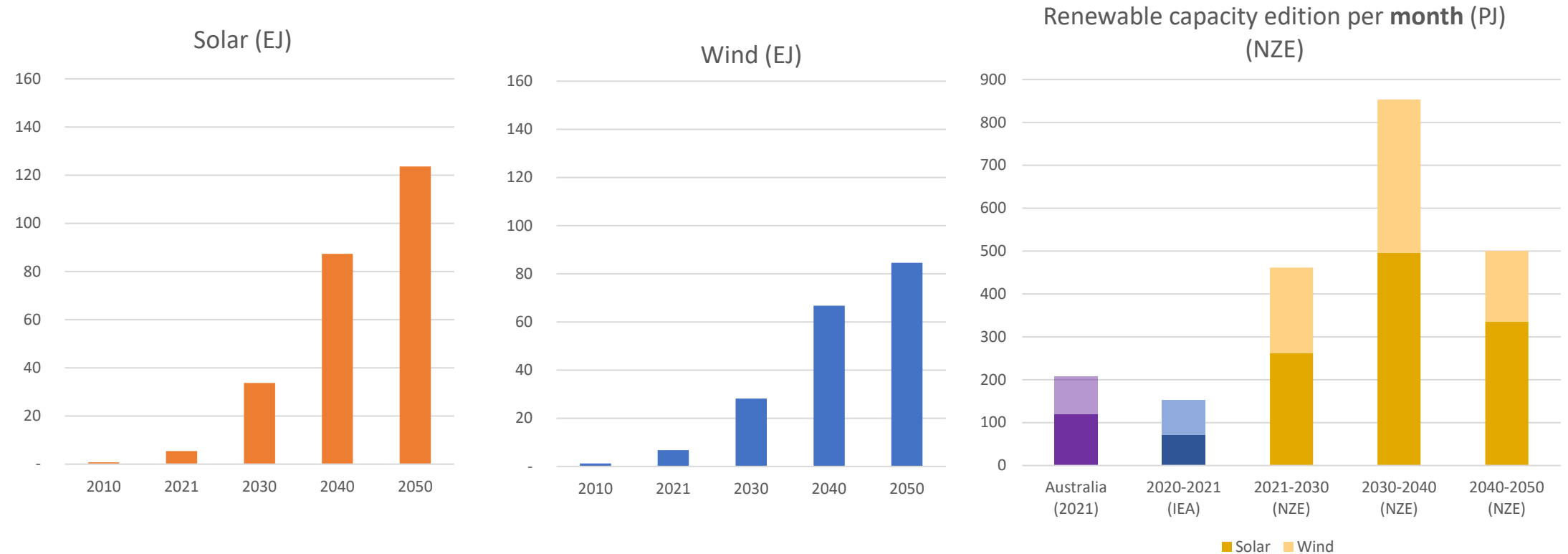
Net Zero Emissions Scenario

International Energy Agency



Net Zero Emissions Scenario | Renewable Energy

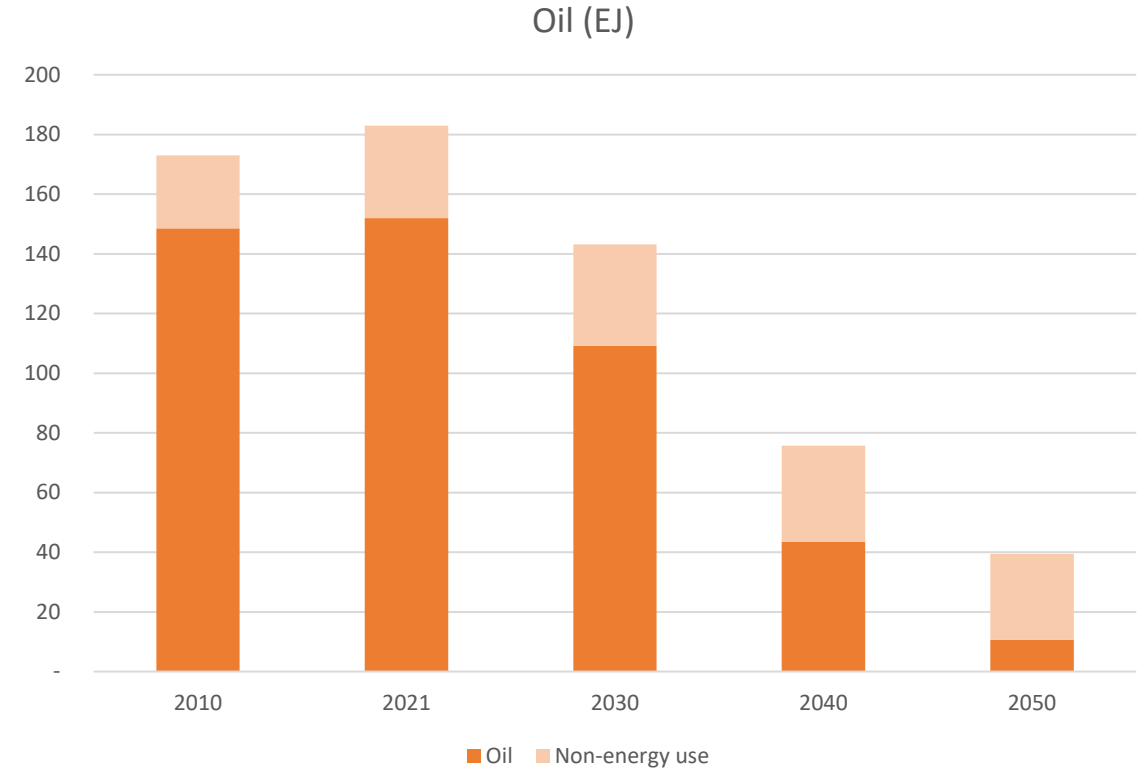
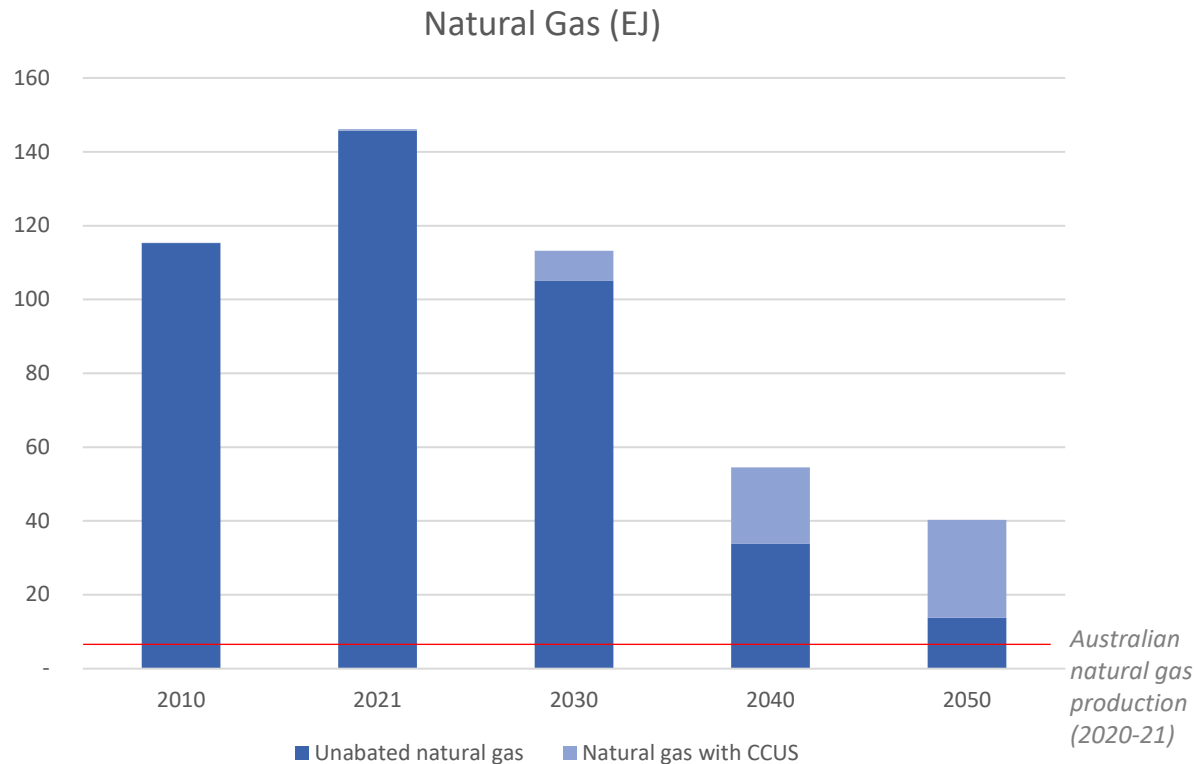
International Energy Agency



Around three times Australia's total renewable capacity needs to be installed globally per month to 2050

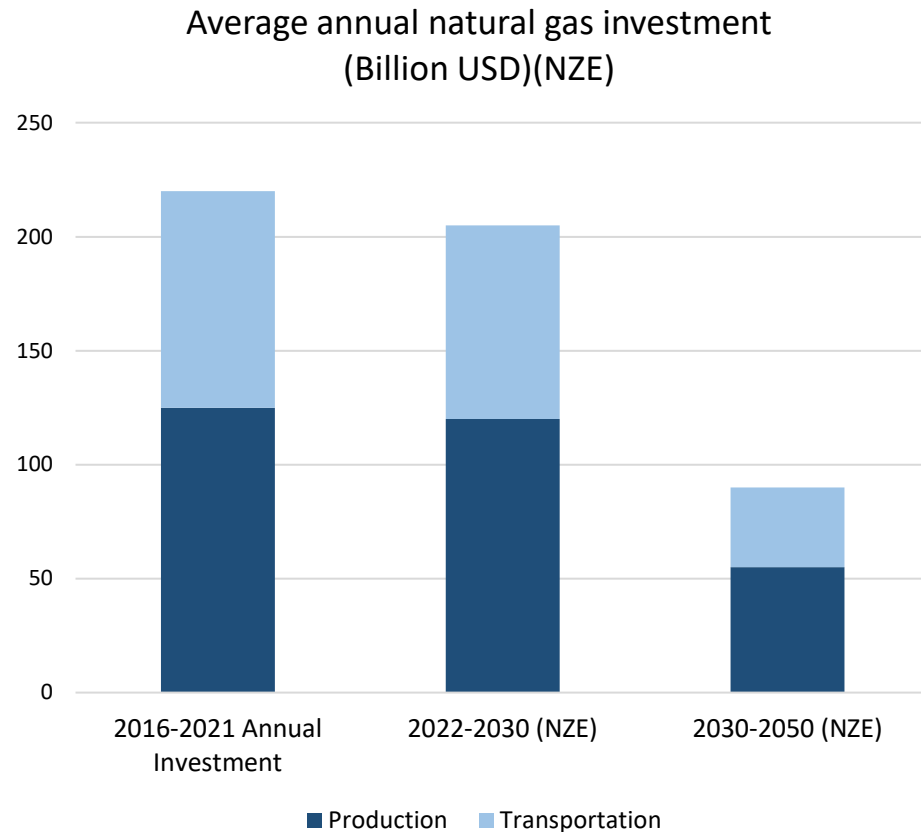
Net Zero Emissions Scenario | Oil & Natural Gas

International Energy Agency



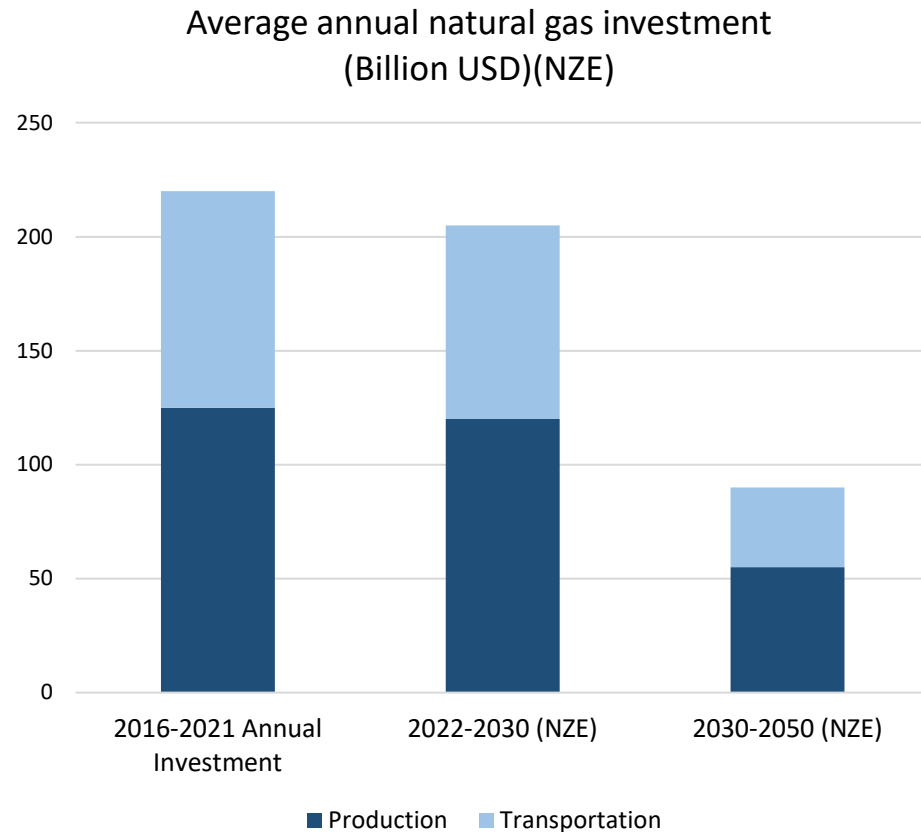
Over 40,000 PJ natural gas will be required in 2050 | Australia produces around 6,000 PJ today

No more oil and gas investment?



- The IEA Net Zero Scenario requires...
 - **Continued investment:** in existing and approved oil and gas fields.
 - **Demand for fossil fuels to fall away:** as a result of to massive renewable deployment and an “unwavering policy focus on climate change”.
 - **Unprecedented global cooperation:** “a world united in its determination to achieve 1.5°C...working consistently and cooperatively towards that goal”.
 - **Energy security concerns to take a backseat:** Supplies become increasingly concentrated in a small number of low-cost producers.

No more oil and gas investment?



“Cutting investment in fossil fuels ahead of scaling up investment in clean energy pushes up prices but does not necessarily advance secure transitions”

IEA World Energy Outlook 2022

Technologies for net zero: *CCUS and low-carbon hydrogen*



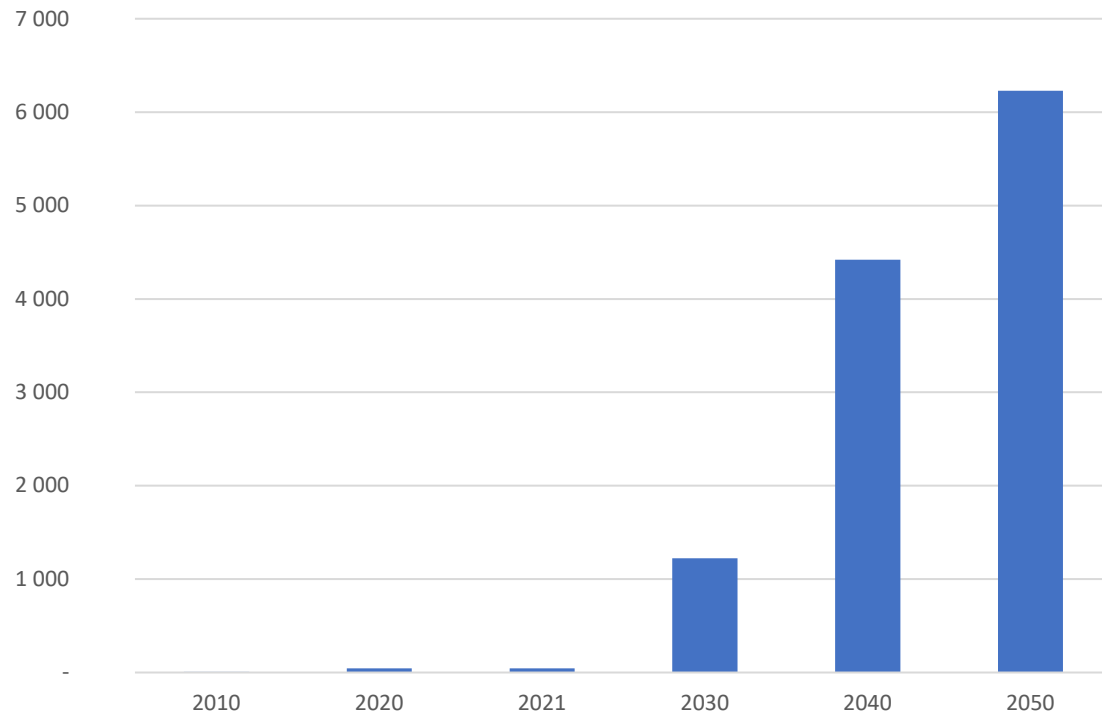
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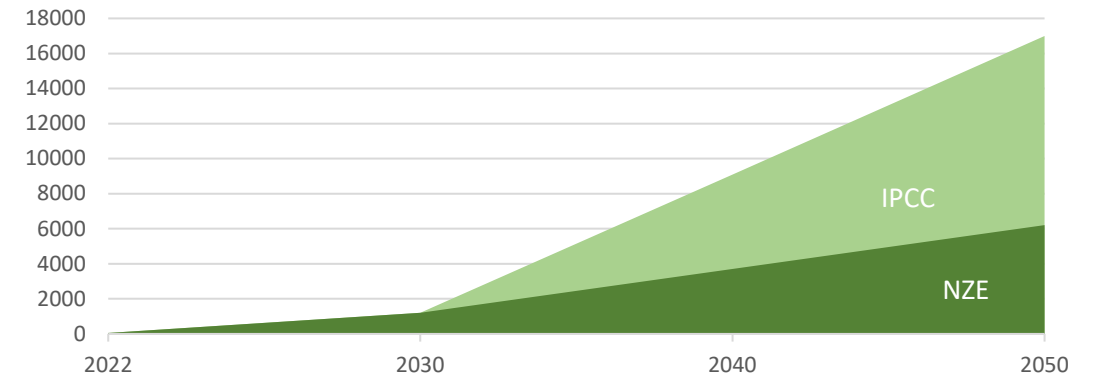
Net Zero Emissions Scenario | CCUS

International Energy Agency

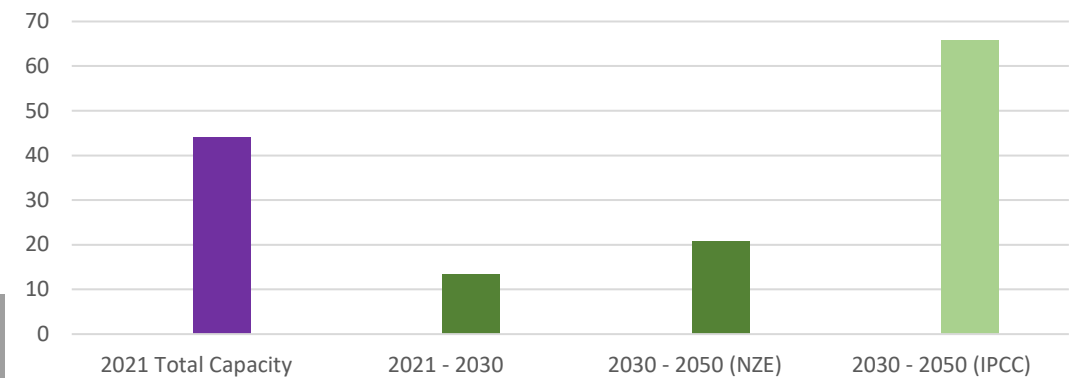
Annual CO₂ captured (MtCO₂) (NZE)



Annual CO₂ captured (MtCO₂) (NZE)

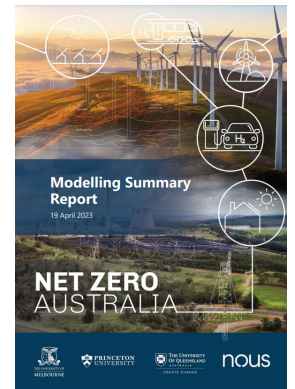


Project capacity addition per month (MtCO₂)

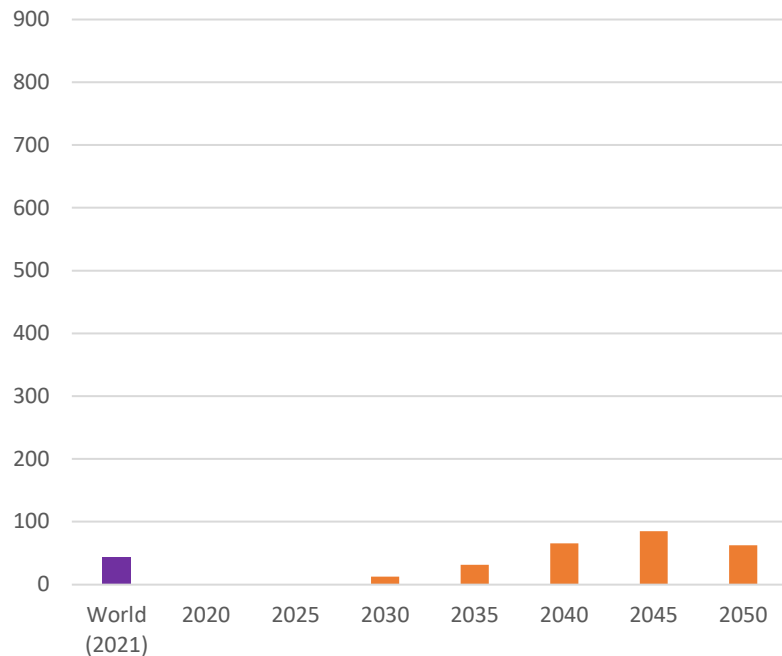


Six to twelve Moomba CCS projects to start operation every month

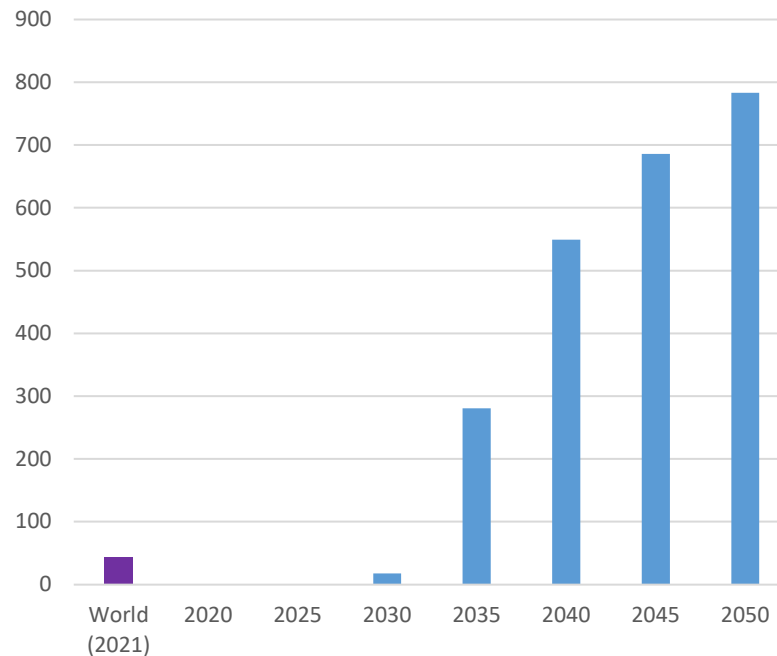
Net Zero Australia | CCUS



Annual CO₂ captured in Australia (MtCO₂)
(Unconstrained Renewables Scenario)



Annual CO₂ captured in Australia (MtCO₂)
(Constrained Renewables Scenario)



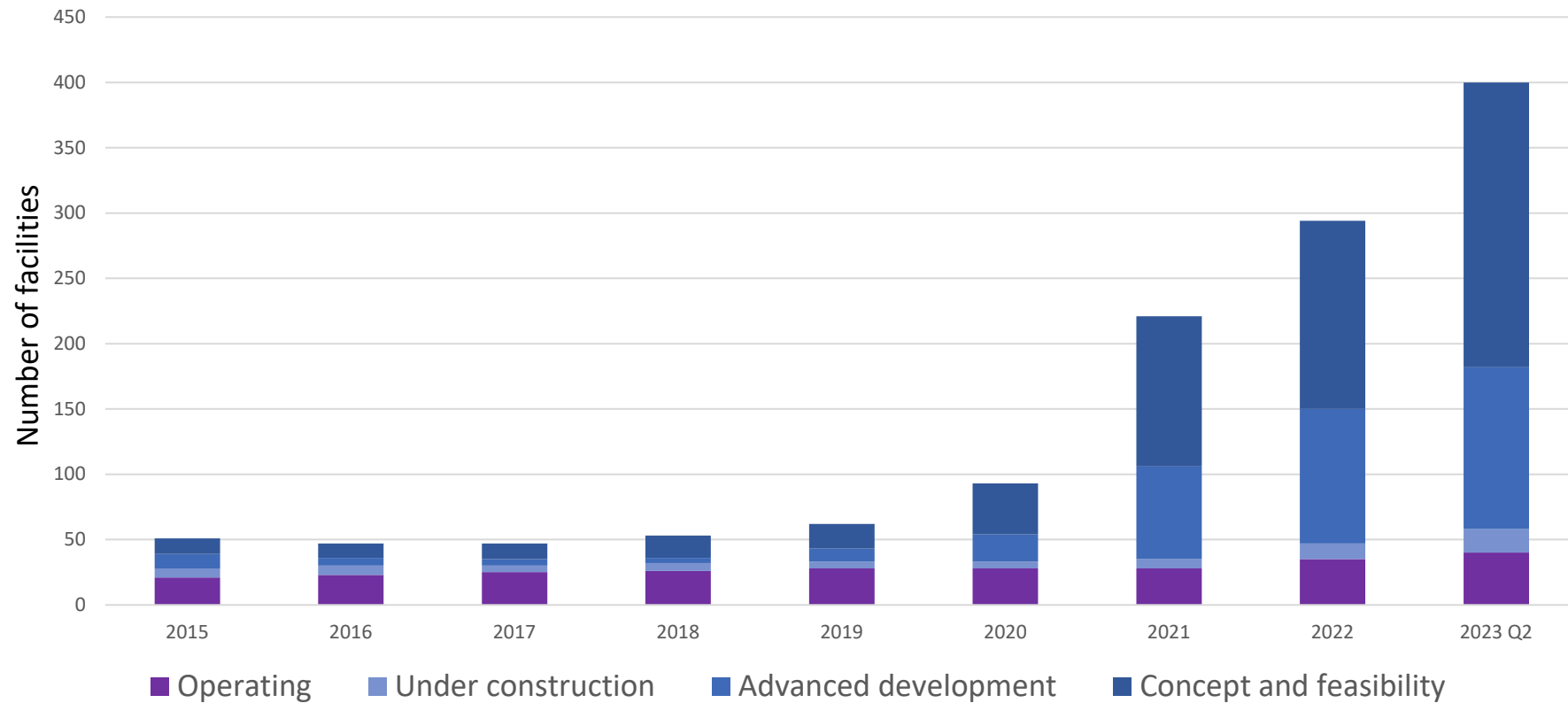
The role of CCUS in Australia

- Natural gas production and processing
- Hard-to-abate industry
- Low-carbon hydrogen
- Negative emissions
- Regional decarbonisation

If renewables and CCUS are constrained, Australia cannot reach net zero

CCUS is gaining momentum globally

Global pipeline of commercial CCUS facilities | operating and in development



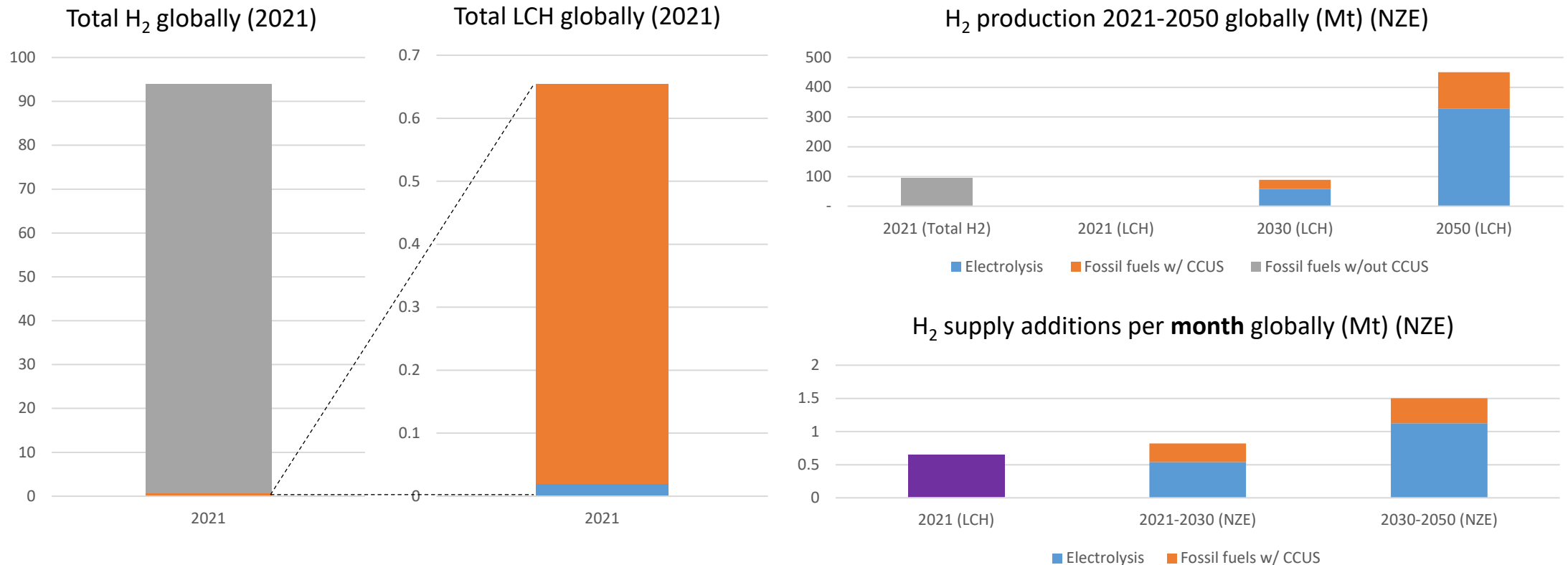


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Net Zero Emissions Scenario | Low-carbon hydrogen

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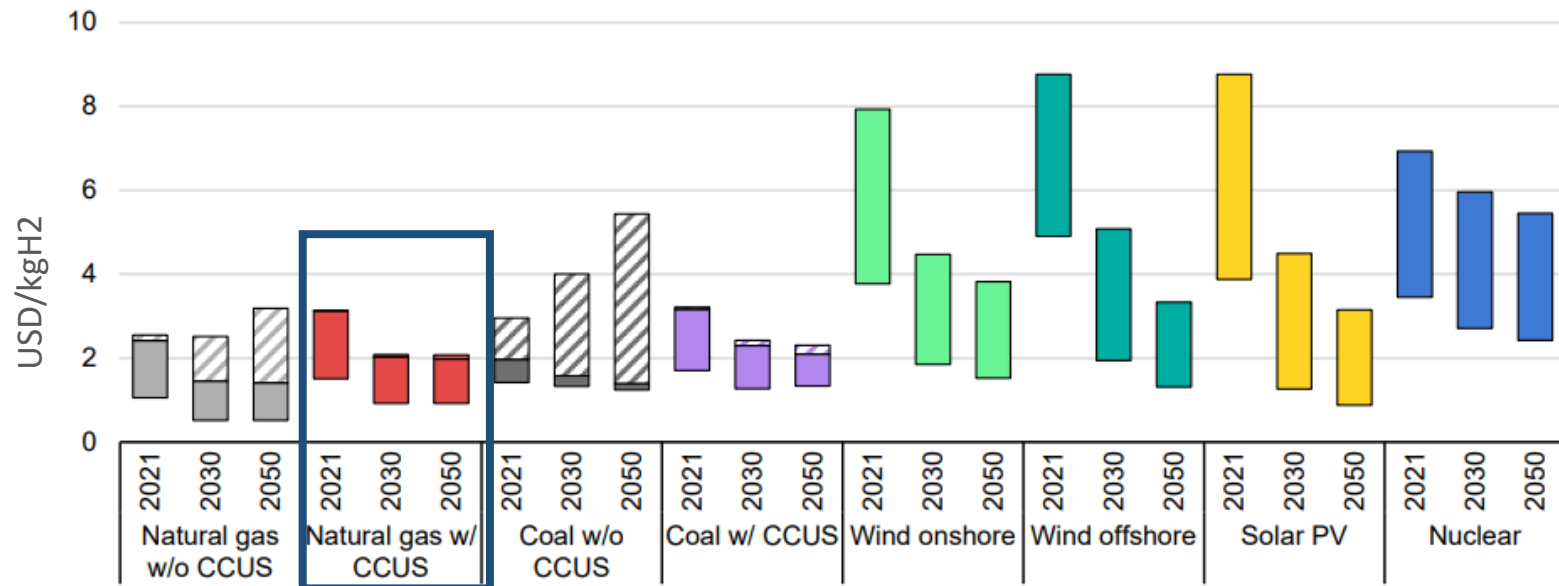


Less than one percent of hydrogen produced today is low-carbon

Net Zero Emissions Scenario | Low-Carbon Hydrogen

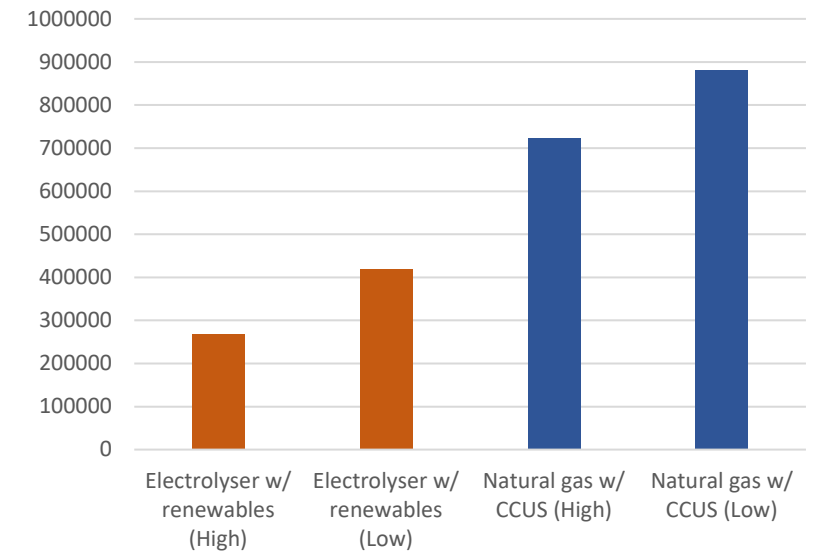
International Energy Agency

Levelised cost of H₂ by technology over time (NZE)



IEA. All rights reserved.

Tonnes of H₂ produced for \$2 billion



Natural gas with CCUS is the lowest cost pathway to low-carbon hydrogen today



KEY

Net Zero Energy and Industrial Zone (NZZ)

CLEAN ENERGY REGULATOR DATASETS

NGER safeguard facility

NGER large power generation facility

EMISSIONS TPA CO₂

100,000–250,000

250,000–500,000

500,000–1,000,000

1,000,000–5,000,000

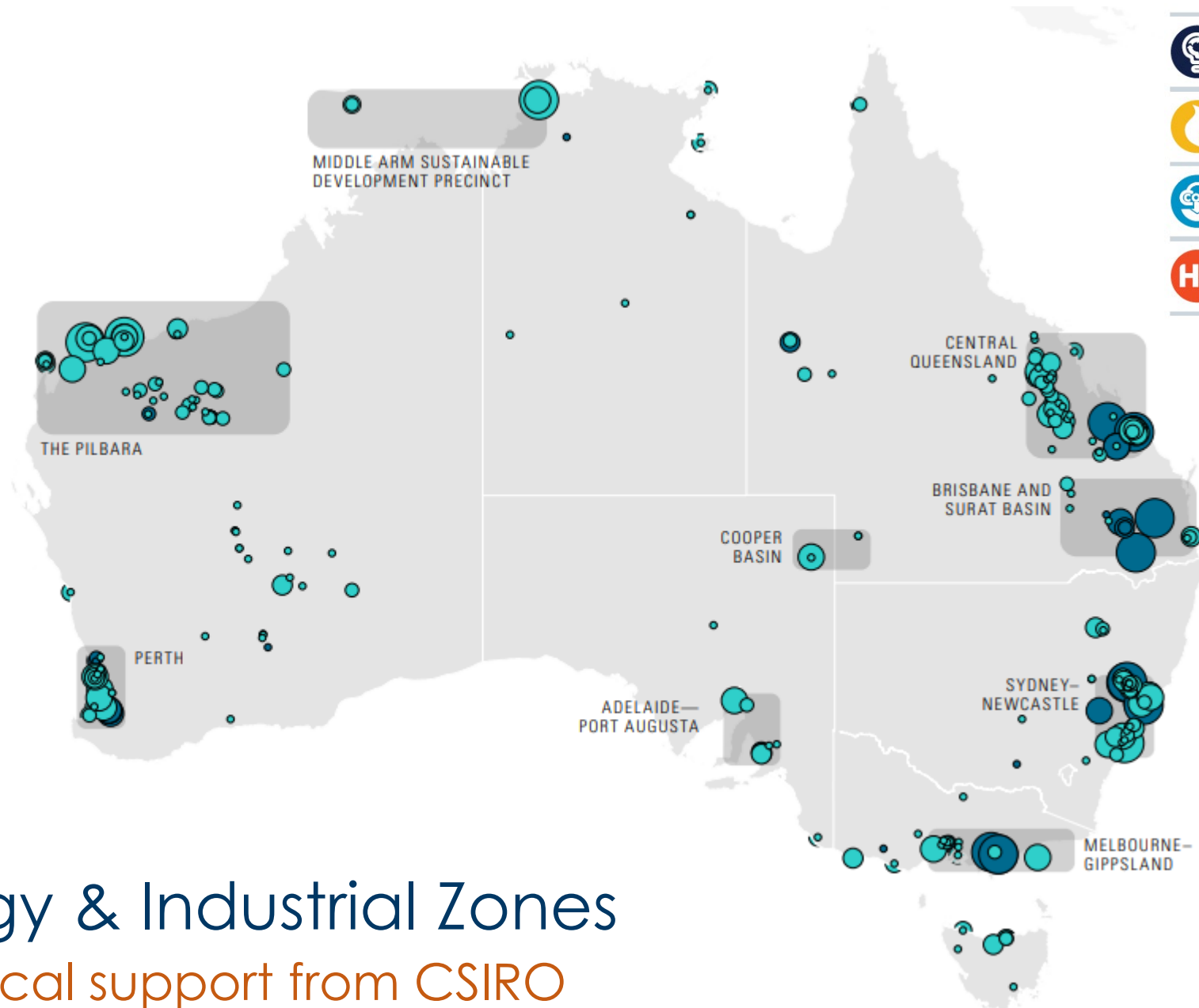
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Renewable energy

Natural gas

Carbon capture, utilisation and storage

H₂ Low-carbon hydrogen



Net Zero Energy & Industrial Zones

APPEA with technical support from CSIRO



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Domestic policy:

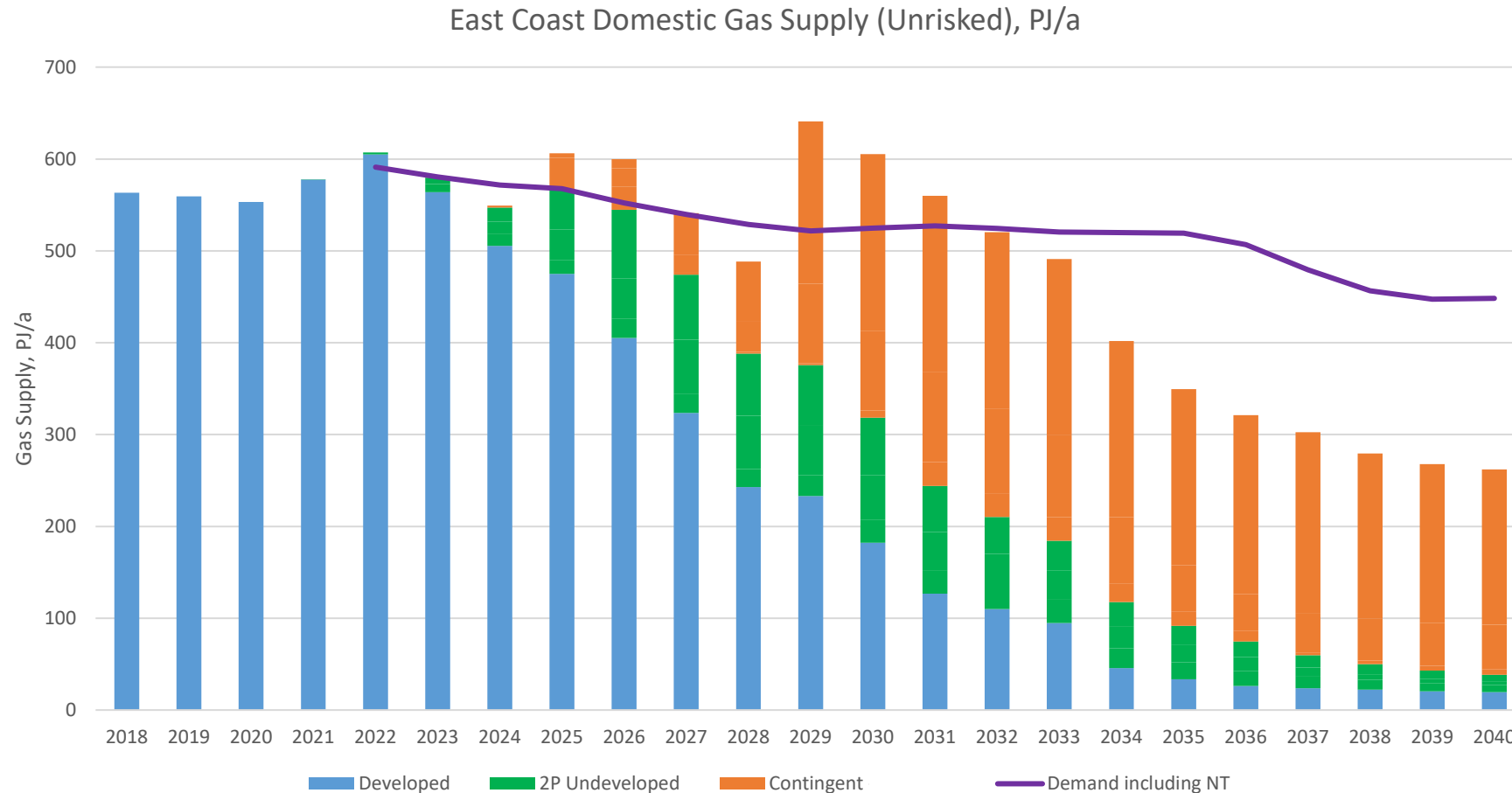
Australia's missed opportunity

Regulatory intervention is undermining investor confidence

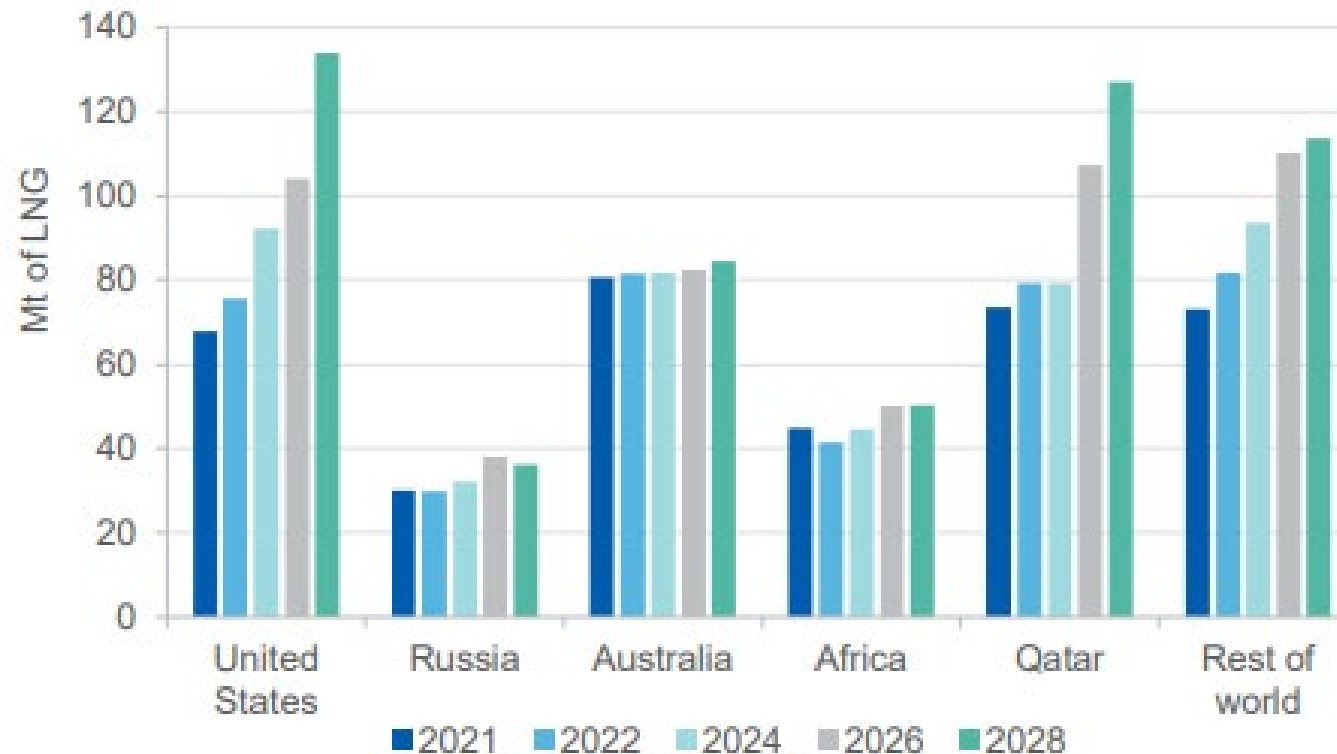
- East Coast Gas Market:
 - Gas price cap of \$12/GJ on wholesale market for 2023
 - Mandatory Code of Conduct
 - Australian Domestic Gas Security Mechanism (ADGSM)
 - Expanded AEMO Powers
- Safeguard Mechanism reforms
- Environmental approvals
 - EPBC Act reform; Independent EPA
 - Expanded offshore consultation requirements



No policy response to east coast gas shortages



USA and Qatar to overtake Australia in LNG exports

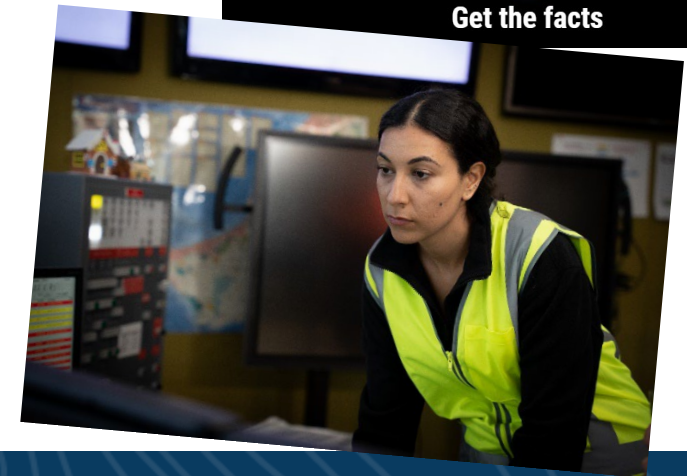


Telling our story

Natural Gas: Keeping the Country Running

National public awareness campaign

- Highlights important role natural gas plays in the everyday lives of all Australians:
 - How gas benefits our economy, energy security and net zero pathway
 - Major energy source for manufacturing, as a vital source of electricity that complements renewables, and as a key driver of lower emissions
- ~35 million impressions across all channels since June 2023 launch





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Thank you