

# CURRENT STATUS OF CCS & HYDROGEN IN AUSTRALIA

Third CCUS & Hydrogen International Symposium  
25 – 26 August 2022

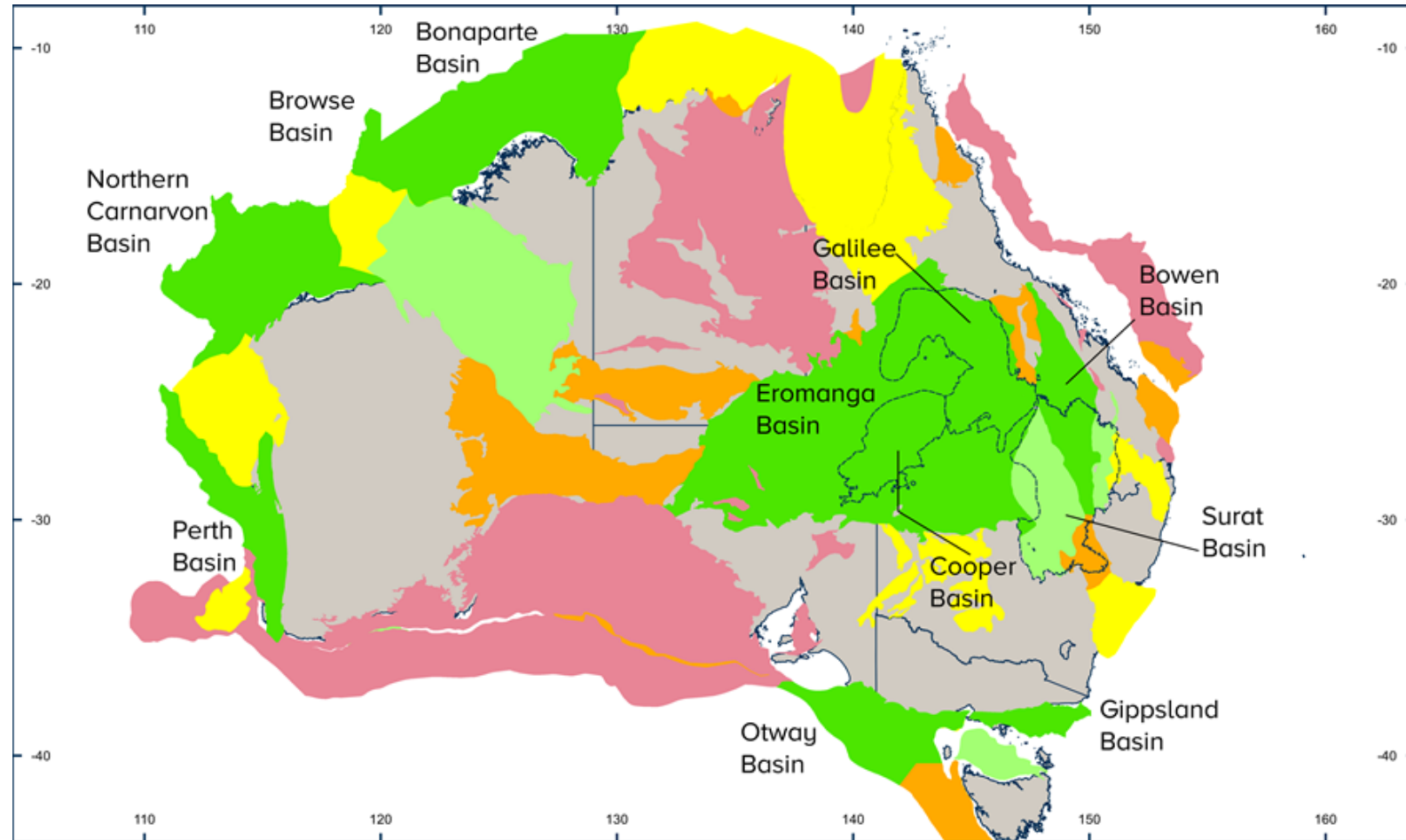
Alex Zapantis, General Manager Commercial



# POTENTIAL FOR CCS IN AUSTRALIA

## Determining Factors

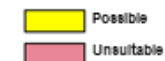
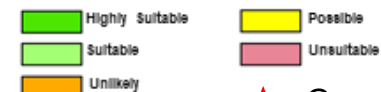
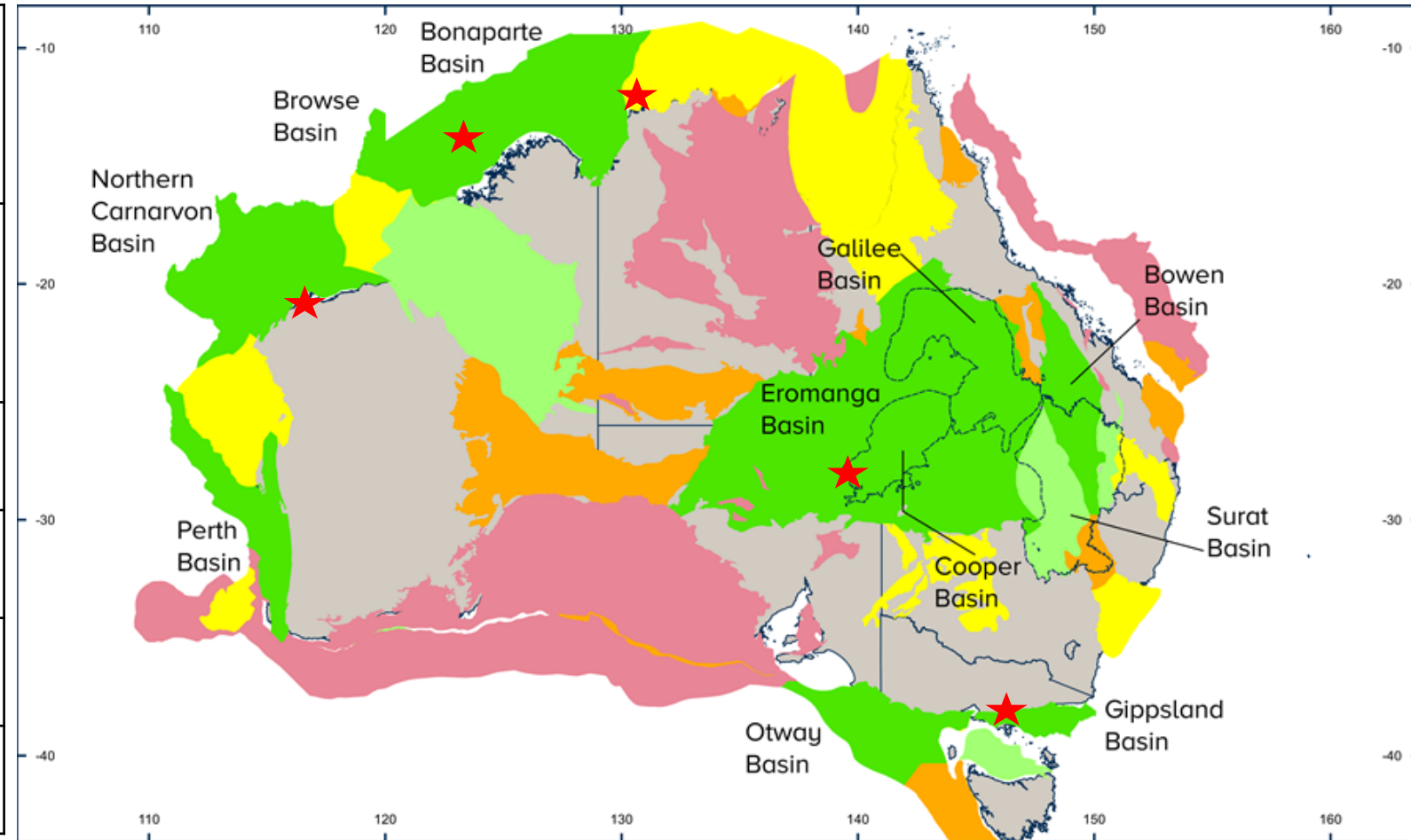
1. Geological Storage Resources
  - Australia: ~200-800 GtCO<sub>2</sub>
2. Access to large volumes of CO<sub>2</sub> at relatively low cost
  - >1Mtpa
  - Preferably high concentration and/or high pressure
3. Access to market and factors of production
  - Port, rail
  - Labour
  - Industrial feedstocks
  - Power, water etc...



# GAS PROCESSING – CURRENT OPPORTUNITIES

Basin Facilities	Approximate near-pure CO <sub>2</sub> emissions amenable to capture (Mtpa)
<b>Carnarvon*</b> NW Shelf, Pluto & Wheatstone gas processing	3
<b>Browse</b> Shell FLNG	1
<b>Bonaparte</b> Ichthys & Darwin LNG	5
<b>Cooper</b> Moomba	2
<b>Gippsland</b> Longford	1

\*in addition to Gorgon which is operating



★ Gas processing facilities



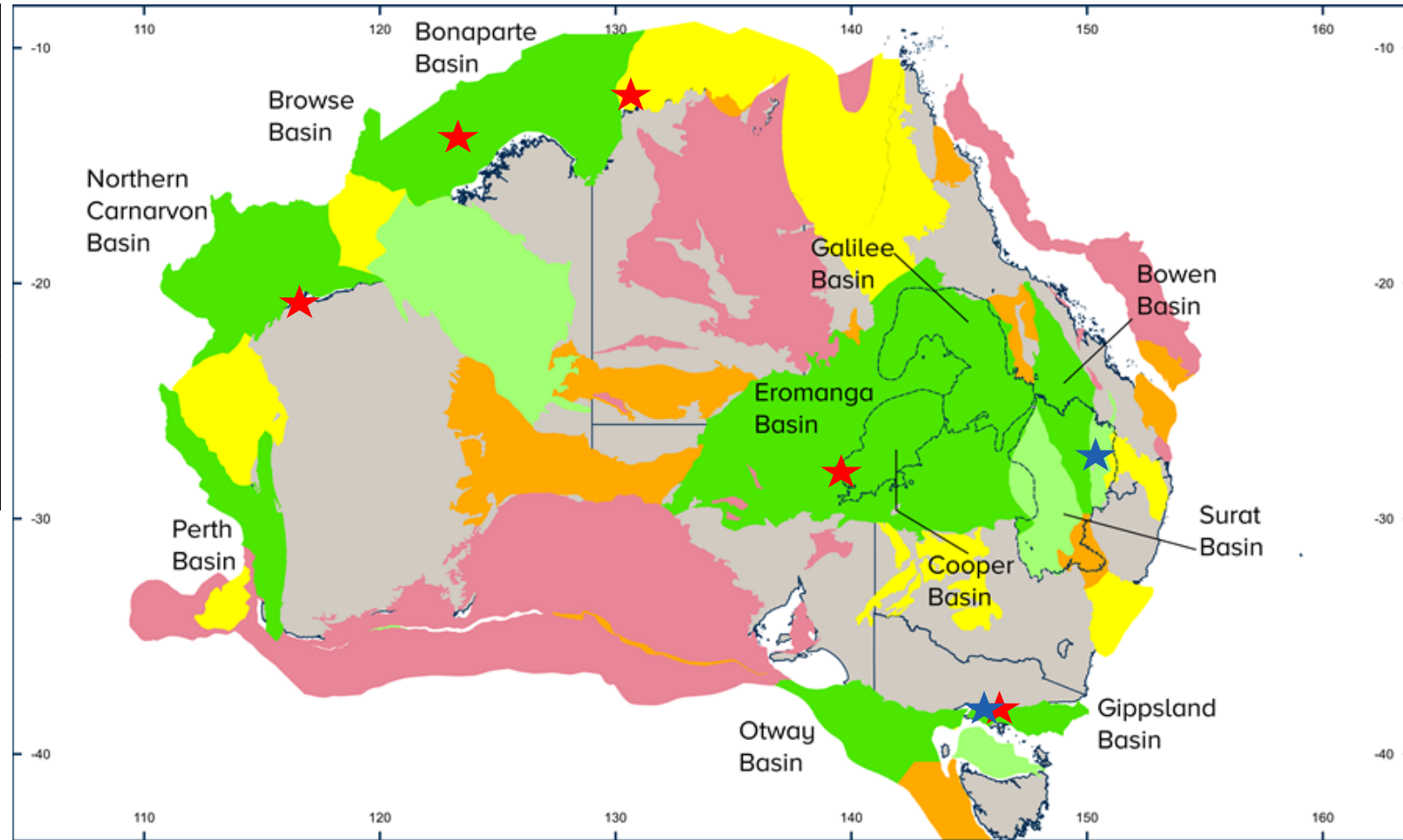
Dashed lines represent underlying basins. Note: Cooper, Galilee and Surat Basin shown above the overlying Basins for the illustrative purposes only.

# GAS PROCESSING & POTENTIAL NEW BLUE H<sub>2</sub> HUBS

Potential coal-based Blue H <sub>2</sub> production hubs	Potential Blue H <sub>2</sub> production & CO <sub>2</sub> storage
South East Qld CO <sub>2</sub> storage in the Southern Bowen Basin	1400tpd H <sub>2</sub> 11Mtpa CO <sub>2</sub>
Latrobe Valley CO <sub>2</sub> storage in Gippsland Basin	2000tpd H <sub>2</sub> 15Mtpa CO <sub>2</sub>

SE Qld hub assumes coal currently burned in Tarong, Millmerran and Kogan Ck power stations is instead gasified.

Latrobe hub assumes CO<sub>2</sub> transport/storage infrastructure with capacity of 15Mtpa CO<sub>2</sub>



Highly Suitable  
Suitable  
Unlikely

Possible  
Unsuitable

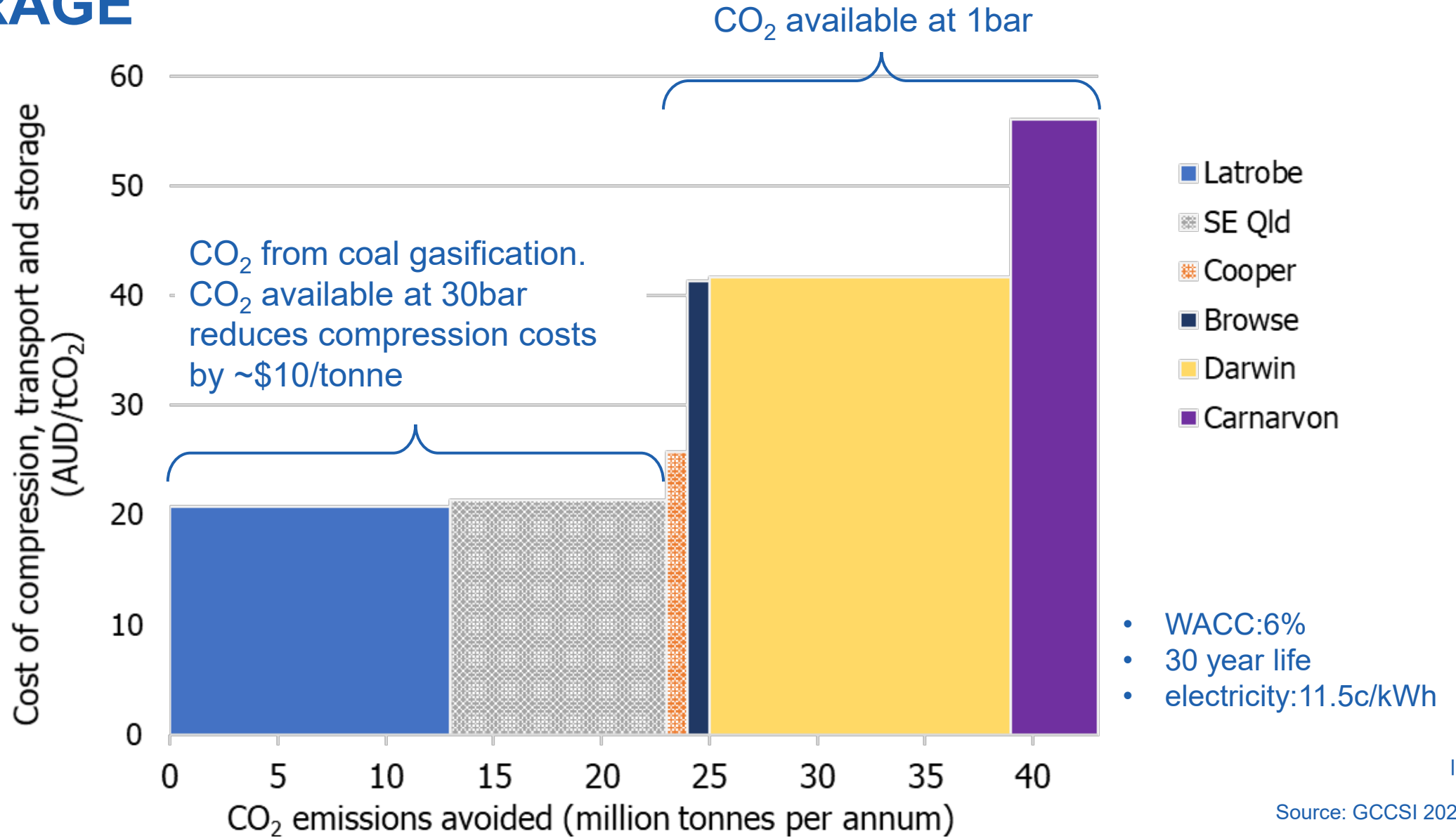
★ Potential coal-based blue H<sub>2</sub> hubs

★ Gas processing facilities

0 500 1,000 km

Dashed lines represent underlying basins. Note: Cooper, Galilee and Surat Basin shown above the overlying Basins for the illustrative purposes only.

# INDICATIVE COST OF COMPRESSION, TRANSPORT & STORAGE



# POTENTIAL NEAR-FUTURE ROLE OF CCS IN AUSTRALIA

## Darwin Low Emissions Industry Hub

Gas Processing: 10Mtpa CO<sub>2</sub>

Future low emissions industries utilising CH<sub>4</sub> (H<sub>2</sub>, NH<sub>3</sub>, CH<sub>3</sub>OH, C<sub>2</sub>H<sub>4</sub>): 5Mtpa CO<sub>2</sub>

## Browse

Gas Processing  
1Mtpa CO<sub>2</sub>

## Carnarvon

Gas Processing  
7Mtpa CO<sub>2</sub>  
(includes Gorgon)

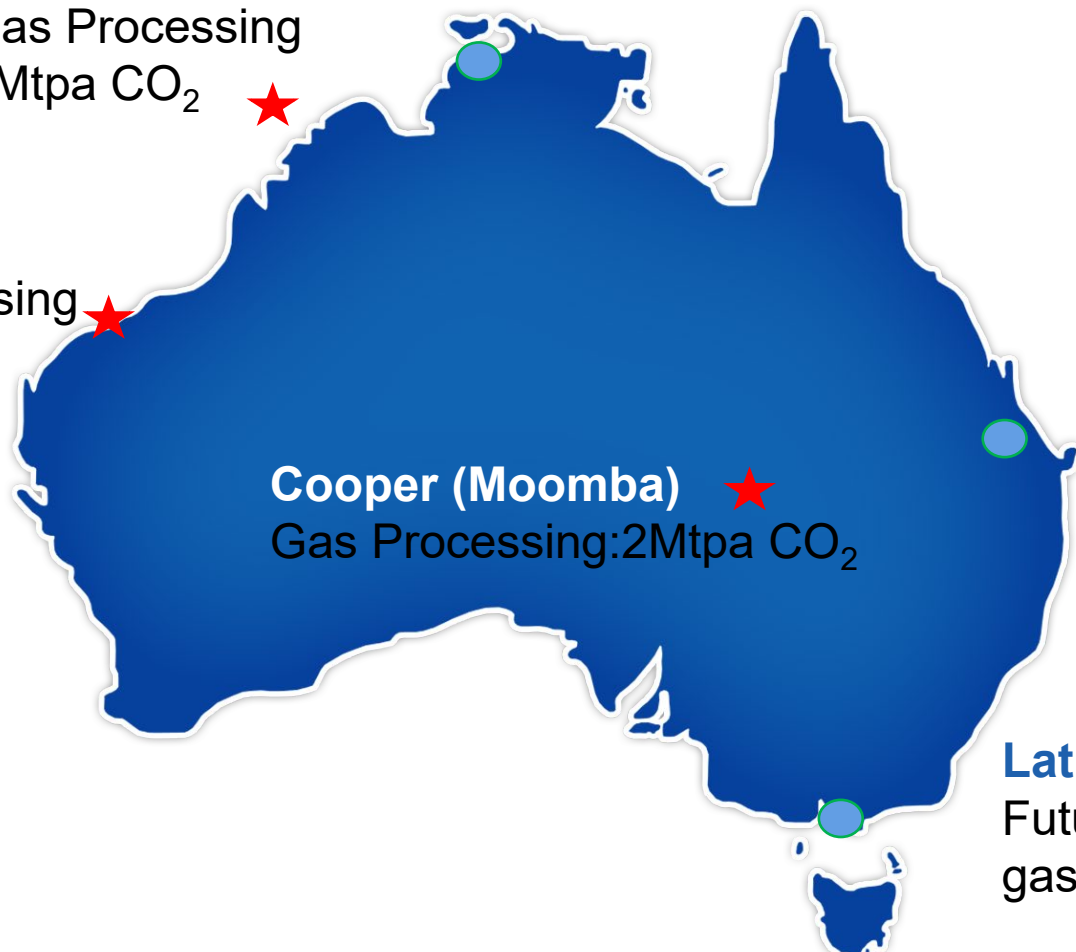
Cooper (Moomba)  
Gas Processing: 2Mtpa CO<sub>2</sub>

## SE Queensland Low Emissions Industry Hub

Future low emissions industries based on coal gasification (H<sub>2</sub>, NH<sub>3</sub>, fertiliser, e<sup>-</sup>): 11Mtpa CO<sub>2</sub>

## Latrobe Low Emissions Industry Hub

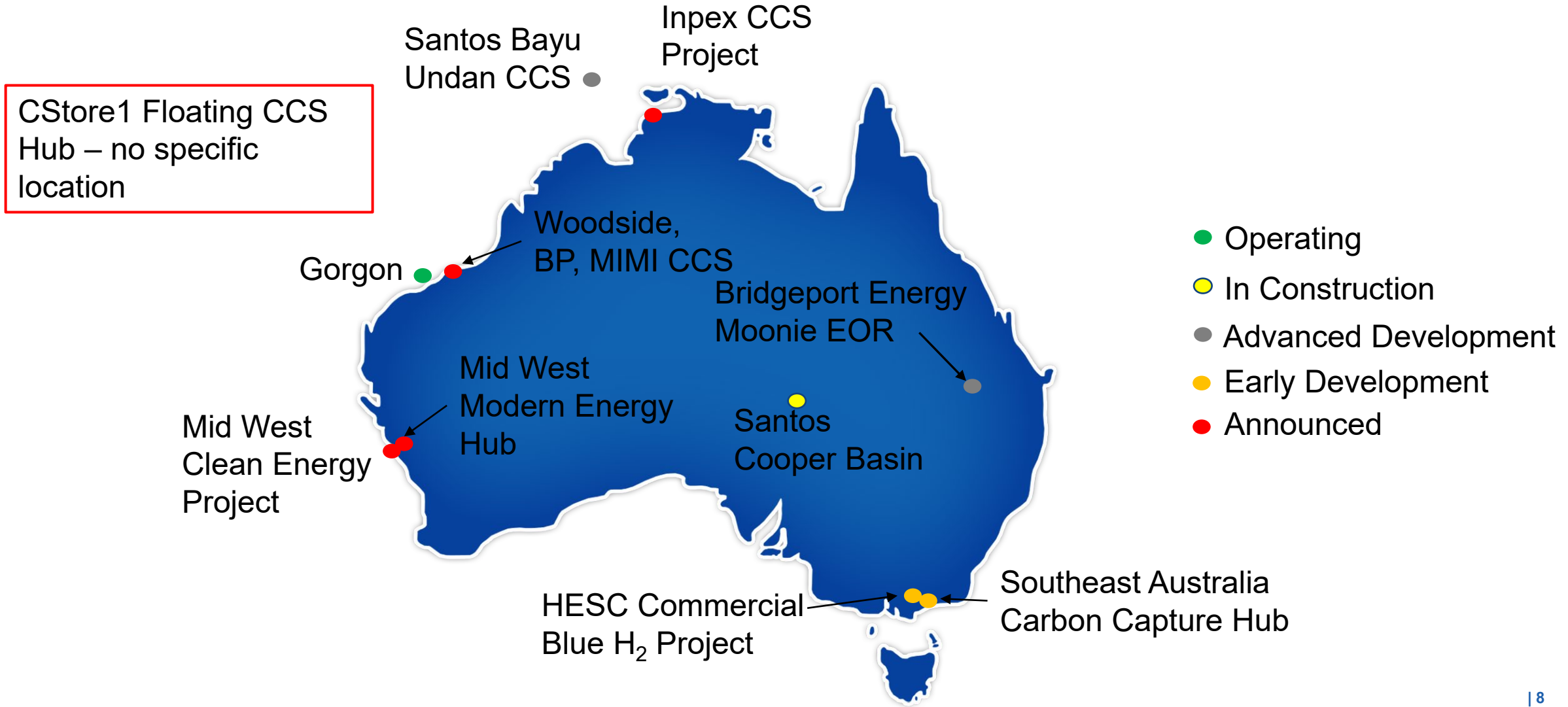
Future low emissions industries based on coal gasification (H<sub>2</sub>, NH<sub>3</sub>, fertiliser, e<sup>-</sup>): 15Mtpa CO<sub>2</sub>



# POTENTIAL CLEAN H<sub>2</sub> HUBS...



# AUSTRALIAN COMMERCIAL CCS PROJECTS





# RECENT POLICY DEVELOPMENTS

## Australian Hydrogen Strategy

- Pilot & demo
- Infrastructure
- Establish H<sub>2</sub> hubs

Nov  
2019

**AUD264M**  
announced  
for CCS  
projects &  
clean H<sub>2</sub>  
hubs.

Sep  
2020

## Development of a H<sub>2</sub> Guarantee of Origin Scheme announced.

- Working with International Partnership for Hydrogen & Fuel Cells in the Economy

Jun  
2021

## CCS Methodology to create ACCU's approved

Sep  
2021

## Low Emissions Technology Statement 2021

- Funding increased to AUD464M for 7 H<sub>2</sub> hubs
- AUD250M CCUS tech and hubs
- MOU/Partnerships with Germany, Japan, ROK, Singapore, UK re clean H<sub>2</sub> or CCS

Nov  
2021

10 Apr  
2022

## Low Emissions Technology Statement 2020

- CleanH<sub>2</sub> <AUD2/kg
- CO<sub>2</sub> compression, transport, storage <AUD20/tonne

## AUD50M awarded to 6 CCUS projects

- Santos Moomba
- Mineral Carbonation International demonstration plant
- Energy Developments – CO<sub>2</sub> capture from biomethane
- CTSCo coal power demonstration
- Corporate Carbon Advisory – DAC demonstration
- Boral – CCUS storage in recycled concrete

**Federal Election Called** – Caretaker Period commences



# RECENT POLICY DEVELOPMENTS

## AUD 70M each announced for two hydrogen hubs

- BP Kwinana Renewable H<sub>2</sub> hub
- Pilbara Renewable H<sub>2</sub> Hub

↓  
20 Apr  
2022

21 May  
2022

↓  
Jul  
2022

↓  
Aug  
2022

↑  
Labor Party Elected  
to National  
Government

↑  
CCS & Soil Carbon  
Removed from scope of  
activities that may be  
supported by the  
Australian Renewable  
Energy Agency to (July  
2022)

↑  
Emissions Reduction to be  
added to the National  
Electricity Objectives

- Objectives will now include price, quality, safety, reliability, security of supply and emission reduction

## Review of integrity of Australian Carbon Credit Units commenced.

- Includes the CCS method
- Due 31 December 2022

## Climate Change Bill introduced into Parliament

- 43% reduction by 2030, net zero by 2050, negotiated with the Green Party



# THANK YOU



GLOBAL CCS  
INSTITUTE