



# CO<sub>2</sub>-capture from air – an Australian perspective

International Conference on Carbon  
Recycling 2021

Paul Feron | 04 October 2021

Australia's National Science Agency

Acoha



CarbonAssist



Airthena

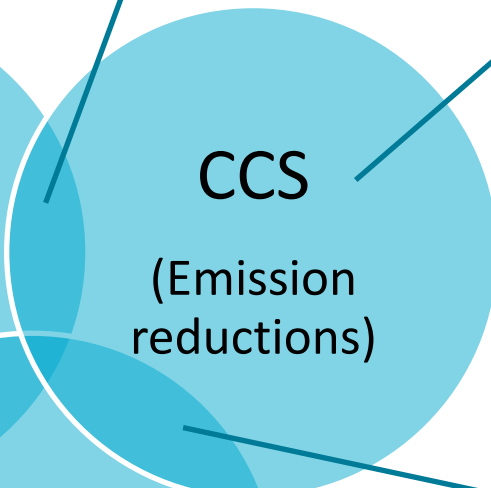
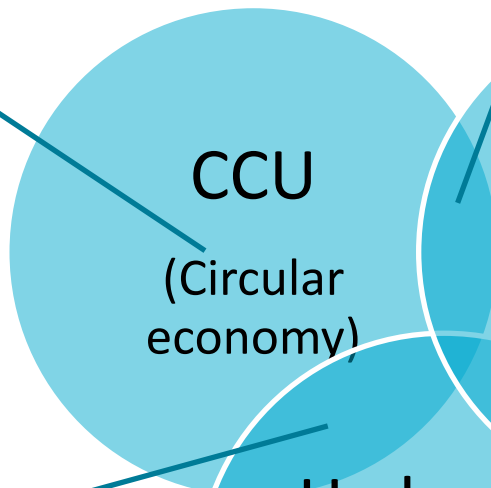


### CSIRO CO<sub>2</sub> utilisation roadmap - 2021

EOR, EGR, ECBM

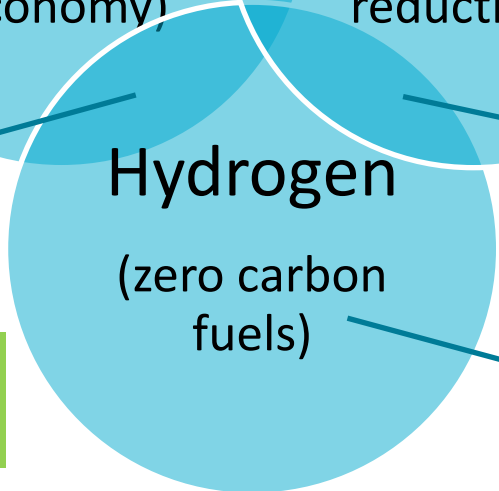
CO<sub>2</sub> capture and storage in aquifers

CO<sub>2</sub> capture and conversion to minerals, concrete, aggregates, bio-products



### ANLEC R&D CCS Roadmap for Australia - 2017

Renewable gas  
E-fuels  
Chemicals  
Plastics



Blue hydrogen

### CSIRO National Hydrogen roadmap - 2018

Green steel  
Transport fuel  
Heating



# CO<sub>2</sub>-utilisation Roadmap



Australia's National Science Agency

## CO<sub>2</sub> Utilisation Roadmap



### Direct use



### Mineral carbonation



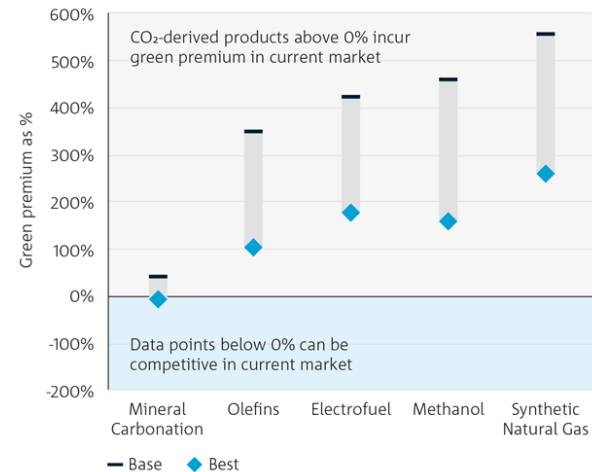
### Chemicals and fuels



### Biological conversion



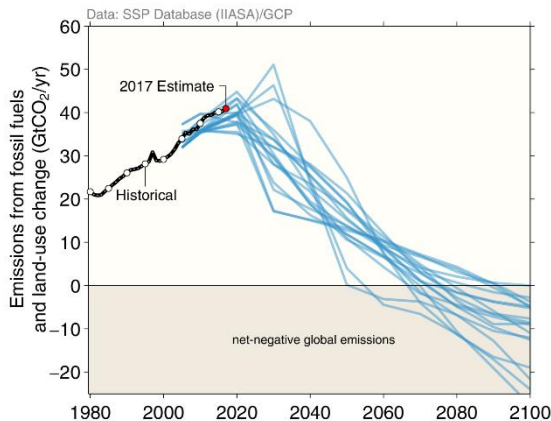
Green premium (or additional cost) of products synthesised from CO<sub>2</sub> compared to current market prices





# The case for direct air capture

- Negative emissions needed to stay on “carbon” budget
- BECCS opportunity might be constrained
- Abatement cost curves indicate economic opportunity
- Opportunity for carbon neutral products through CO<sub>2</sub>-utilisation



Source: Global Carbon Project





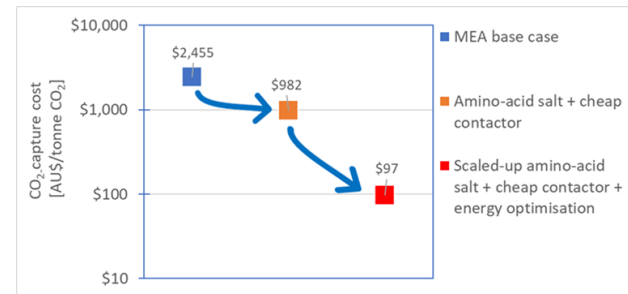
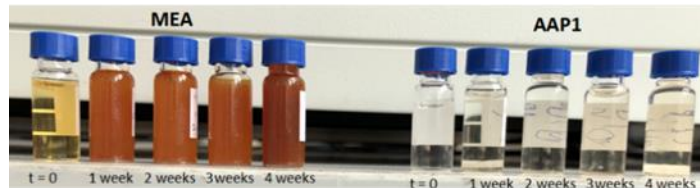
# Ambient CO<sub>2</sub>-Harvester (ACOHA)

## ✓ Technology aspects Ambient CO<sub>2</sub>- Harvester

- Use of robust amino-acid salt based liquid formulations
- Hygroscopicity tuneable for water balance
- Cheap gas/liquid contactors e.g. cooling towers
- Dedicated process & equipment designs
- Regeneration process fully thermal ↔ fully electrical
- IP under development/registration
- Integrated technology demonstrator is required to achieve TRL of 5/6



4t/a unit





# Thank you

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