

# **THE FOSSIL FUEL INDUSTRY IS CO-OPTING THE IDEA OF “HYDROGEN”**

**15 June 2019**

**Tim Forcey**

**Presentation to Taranaki Community Conference**

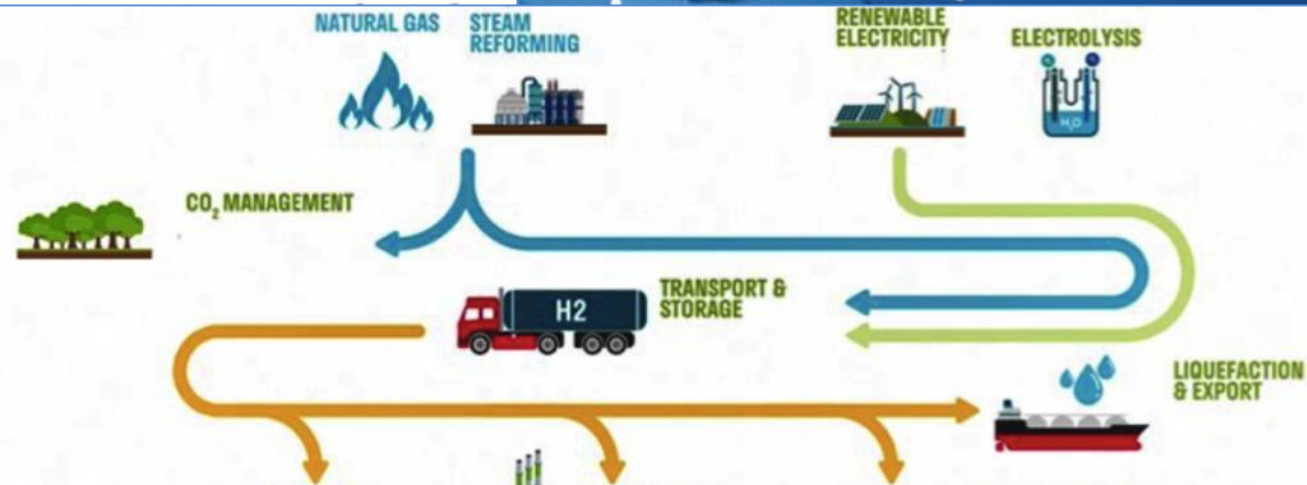
## Hydrogen blues: Is this the gas industry version of “clean coal”?

9 0 Comments

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## Beware fossil-gas suppliers bearing hydrogen gifts

Tim Forcey 26 October 2018 0 Comments



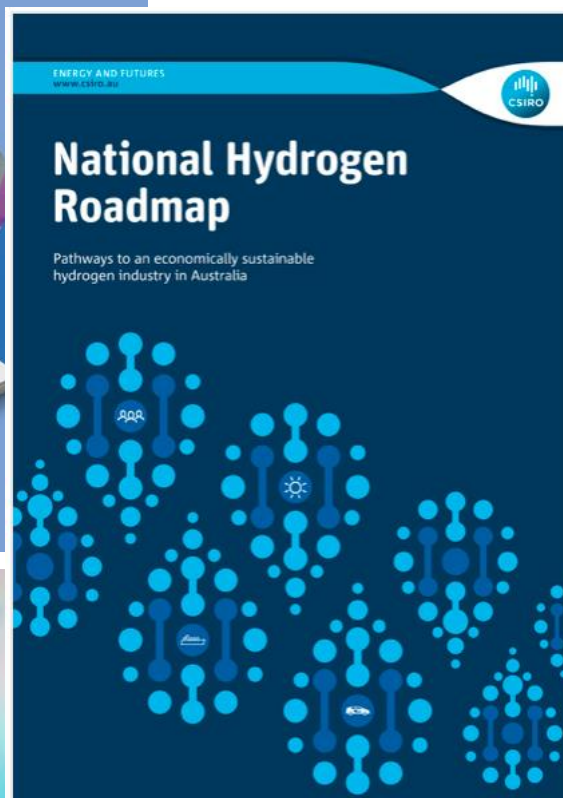
### THE TWO FACES OF HYDROGEN

Published on April 7, 2019 [Edit article](#) | [View stats](#)

**Tim Forcey**

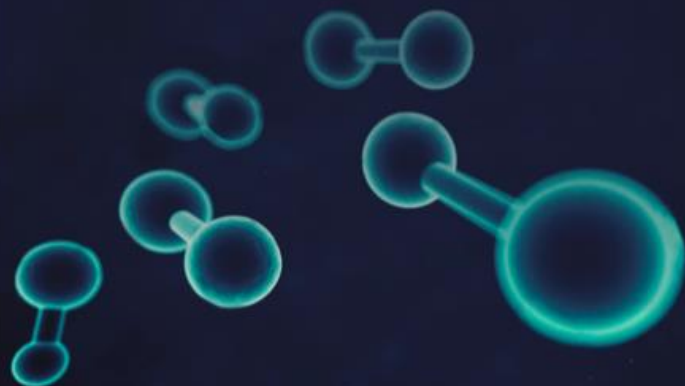
Energy advisor, researcher, engineer

9 articles



# Hydrogen for Australia's future

A briefing paper for the COAG Energy Council  
Prepared by the Hydrogen Strategy Group  
August 2018



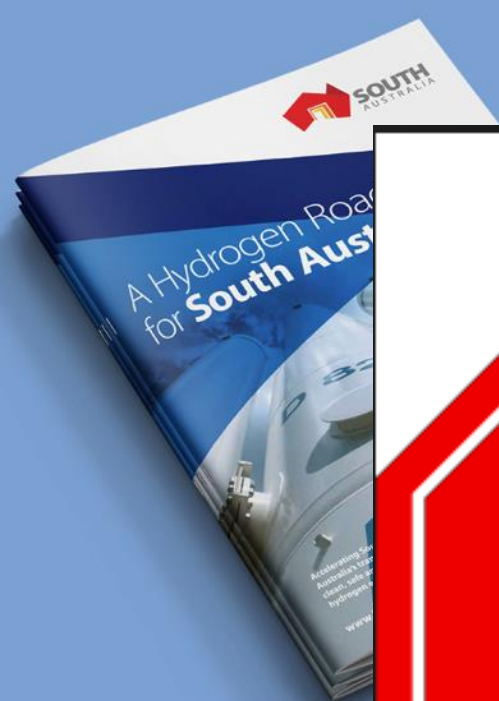
## H2 TARANAKI ROADMAP

### SUMMARY

HOW HYDROGEN WILL PLAY A KEY ROLE IN OUR  
NEW ENERGY FUTURE



Zero Carbon Industry Plan  
**Electrifying Industry**





## Meeting the future needs of Australia's energy customers with renewable energy chemicals

By **TIM FORCEY**

BUSINESS SPECTATOR  
8:26PM JUNE 4, 2015

Meeting the future needs of Australia's energy customers with renewable energy chemicals

Recently, when presenting the concept of a new export industry for Australia, I was asked to pause and take this question: "You mentioned an investment figure of

## Australia's 2018 gas shortage will not eventuate, report shows

**Predicted shortfall no longer on horizon - and opening up new coal seam gas fields will not bring down prices, researchers say**



▲ Australia is no longer predicted to run out of gas from 2018. 'That gap everyone got excited about is already gone,' says researcher Tim Forcey. Photograph: Alamy Stock Photo

*A review of current and future methane emissions from Australian unconventional oil and gas production*

October 2016

Dimitri Lafleur - PhD student, Australian-German Climate and Energy College<sup>1</sup>  
Tim Forcey - Energy Advisor, Melbourne Energy Institute<sup>1</sup>  
Hugh Saddler - Hon. Assoc. Professor, Crawford School<sup>2</sup>  
Mike Sandiford - Professor of Geology, School of Earth Sciences<sup>1</sup>

### Cutting the gas: Has the all-electric home's time finally arrived?



Tim Forcey | 19 October 2017

Down the road, there is likely to be an electric vehicle in your future. From many angles, whether it is comfort, convenience, saving money or high-tech whiz-bangery, millions of drivers around the world are switching on.

My Efficient Electric Home

Public group

About

Discussion

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My Efficient Electric Home! Switching off fossil fuels.

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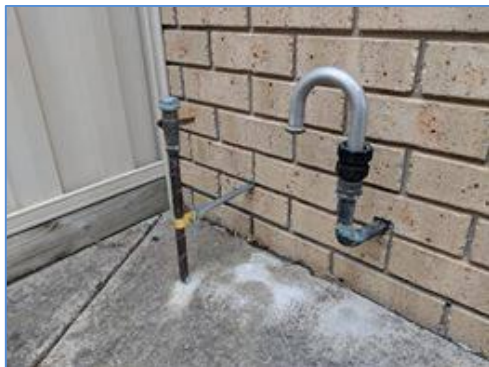
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NATIONAL VICTORIA

## 'Heat pump' tech could save Victorian homes up to \$658 a year on gas: report

By [Tom Arup](#)

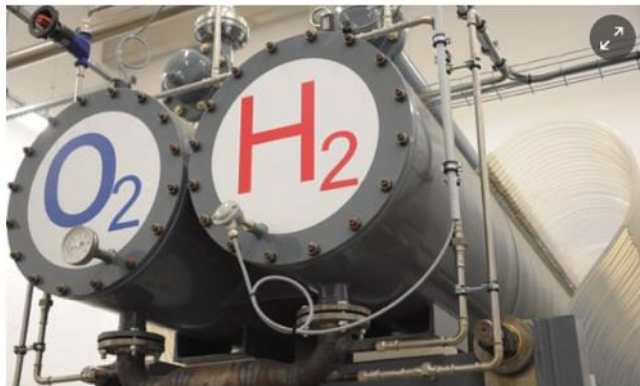
**Updated** August 26, 2015 — 1.27pm, first published August 25, 2015 — 5.06pm



Thousands of Victorian households are missing out on cheaper bills because they are not using their already installed reverse cycle air conditioners to heat their homes as an alternative to gas systems.

## Hydrogen cars and electrolyzers: the dawn of Australia's hydrogen economy?

Two large-scale hydrogen facilities in the ACT could mark a turning point in the use of clean tech for transport and heating



▲ Tanks marked with O2 for oxygen and H2 for hydrogen, part of the electrolysis installations, at a hybrid power plant in Germany. Photograph: Bernd Settnik/EPA

he hydrogen economy has been a long time coming. The use of

## Renewable hydrogen to be trialled in Sydney gas network

Sophie Vorrath 22 October 2018 0 Comments

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An Australian-first project that will demonstrate the potential for green hydrogen to be stored and transported for use via Australia's existing gas networks has won the backing of the Australian Renewable Energy Agency.

## Canadians join WA hydrogen race

Daniel Mercer | The West Australian  
Tuesday, 4 September 2018 9:39AM



ATCO is looking at 'blending' hydrogen with natural gas to supplement the State's network.



Canadian utility ATCO has likened the development of a hydrogen industry in WA to the uptake of rooftop solar panels, predicting an inevitable fall in costs would ultimately make it competitive.

## Australian-first, \$11.4 million hydrogen demonstration plant to be built in Adelaide

An Australian-first, \$11.4 million demonstration plant that will produce hydrogen from renewable energy will be built in Adelaide.

Adelaide-based Australian Gas Infrastructure Group (AGIG) – the country's largest gas distribution business – will construct and operate the state-of-the-art plant at Tonsley Innovation District, in Adelaide's southern suburbs.





Solar PV inverters

Space-heating  
heat pump 1

Water-heating heat pump

Space-heating heat pump 2

The

# UNDERBELLY OF THE ELECTRIC HOME

Published on March 1, 2019

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Tim Forcey

Energy advisor, researcher, engineer

9 articles



92



3



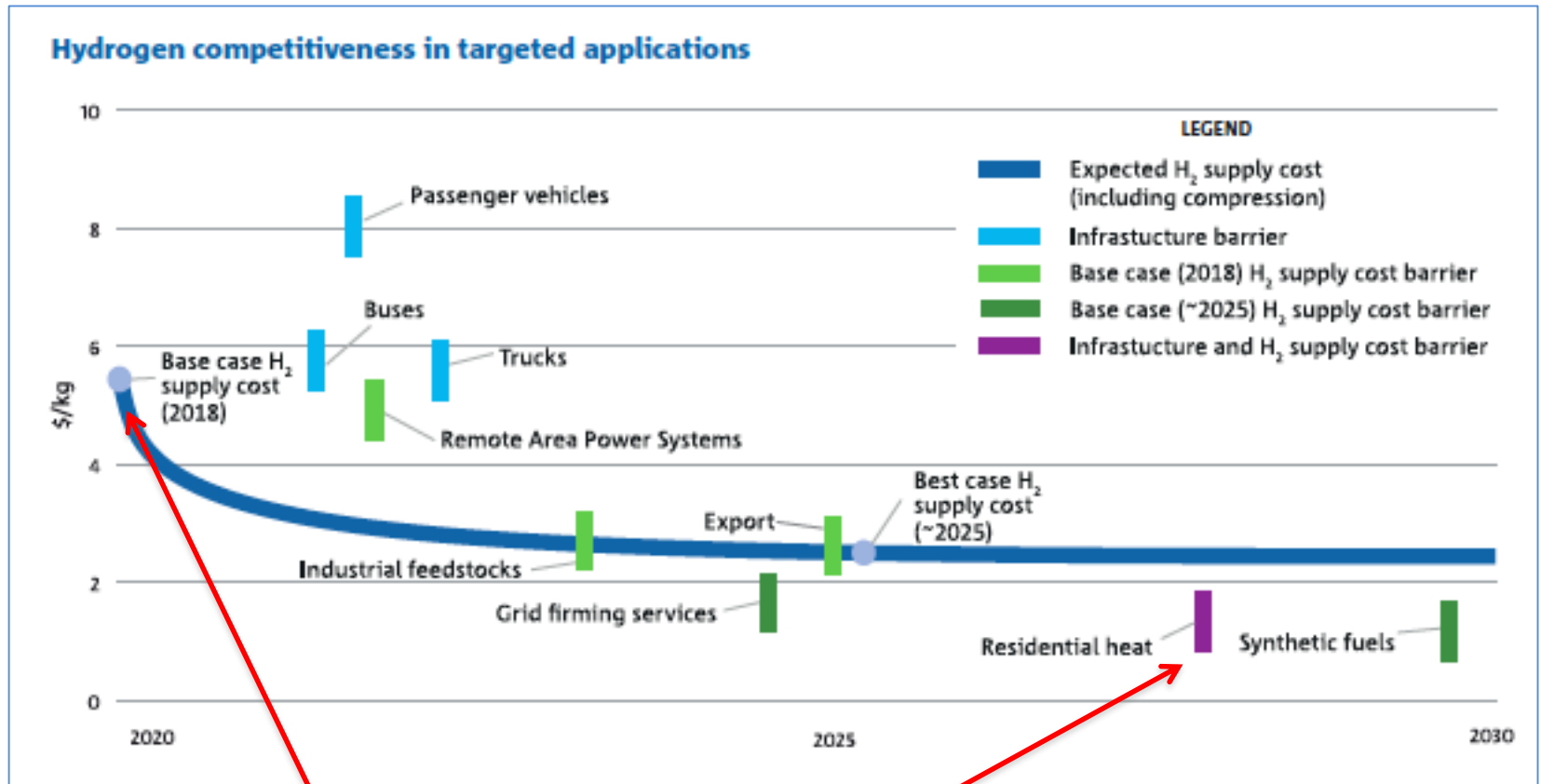
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Should I expose my home's darkest underbelly on Linked In? Why not, we are all friends!



# CSIRO AUSTRALIA HYDROGEN ROADMAP



Where the cost of renewable / low-emission hydrogen is today. (> \$40/GJ)

Where it needs to get to to beat a heat pump. (< 5 to 10 \$/GJ)

## Hydrogen from fossil gas



## Hydrogen from coal



## Renewable (green) hydrogen



## Blue hydrogen?

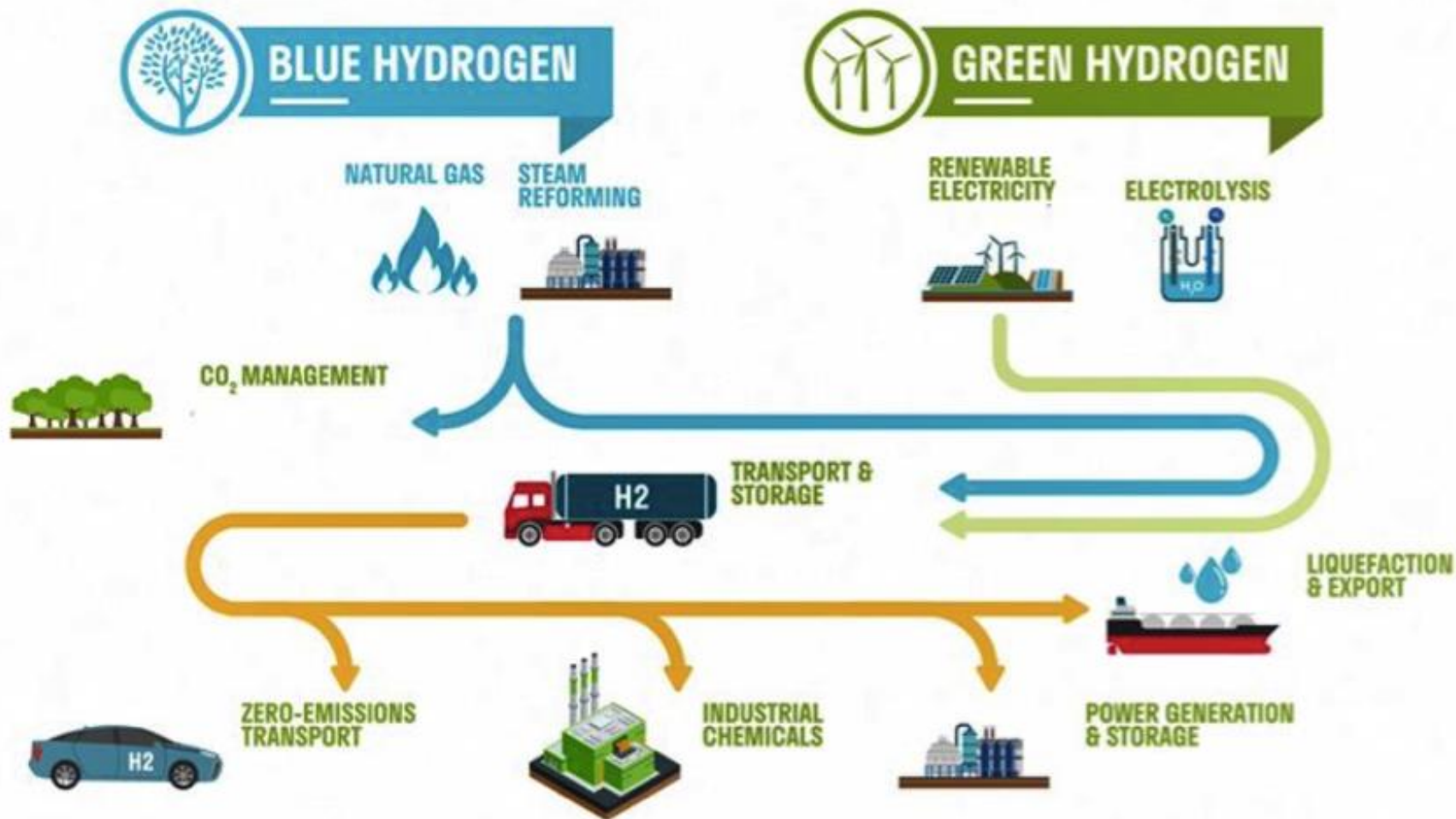


Image from <https://www.woodside.com.au>



# CARBON CAPTURE AND STORAGE (CCS)

## 2004 - 2019 OBJECTIVES

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- 1). Use the idea of “clean coal” to prolong coal mining & burning business-as-usual ✓
- 2). Provide cheap CO<sub>2</sub> to the oil industry for enhanced oil recovery ✓
- 3). Provide clean energy ✗ Fail
- 4). Use the idea of “blue hydrogen” to prolong fossil-gas mining & burning business-as-usual ?

Partial list of cancelled projects

Cancelled and Inactive Projects							
USA							
Project Name	Leader	Location	Feedstock	Size	Capture Process	CO2 Fate	Status
FutureGen	FutureGen Alliance	Illinois	Coal	200 MW	Oxy	Saline	Cancelled
HECA	SCS	California	Petcoke	400	Pre	EOR/ Saline	Cancelled
Lake Charles	Leucadia Energy	Louisiana	Methanol Production	4.5 MW	EOR	Planning	Cancelled
Kimberlina	Clean Energy Systems	California	Coal	50 MW	Oxy	Saline	Cancelled
Carson	BP	California	Coal	500 MW	Post	Saline	Replaced with HECA
Taylorville	Tenaska	Illinois	Coal	330 MW	Pre	Saline	Cancelled
Indiana Gasification	Leucadia	Indiana	Coal	250 MW	Pre	Saline	Cancelled
Antelope Valley	Basin Electric	North Dakota	Coal	330 MW	Pre	Saline	Cancelled
Sweeny Gasification	ConocoPhillips	Texas	Coal	330 MW	Pre	Saline	Cancelled
Trailblazer	Tenaska	Texas	Coal	330 MW	Pre	Saline	Cancelled
ZENG Worsham-Steed	Worsham-Steed	Texas	Coal	330 MW	Pre	Saline	Cancelled
Wallula	Wallula Resource	Washington	Coal	330 MW	Pre	Saline	Cancelled
AEP Mountaineer	AEP	West Virginia	Coal	235 MW	Post	Saline	Cancelled
Big Bend Station	Siemens	FL, USA	Coal	1 MW	Post	Vented	Cancelled
Appalachian Power	AEP	West Virginia	Coal	629 MW	Pre	Saline	Cancelled
Canada							
Project Name	Leader	Location	Feedstock	Size	Capture Process	CO2 Fate	Status
Swan Hills	Swan Hills Synfuels	Alberta	In situ Coal Gasification	1.3 MT/Yr	Pre	Saline	Cancelled
Bow City	BCPL	Alberta	Coal	1000	Post	Saline	Cancelled
Belle Plaine	TransCanada	Saskatchewan	Petcoke	500 MW	Pre	Saline	Cancelled

NEWS

# Clean coal shambles as ZeroGen project collapses

Patrick Lion, DailyTelegraph  
October 28, 2011 12:00am



## CARBON CAPTURE FutureGen Alliance tosses in the towel

Christa Marshall, E&E News reporter  
Published: Friday, January 22, 2016

The FutureGen Alliance is formally ending all efforts to revive a high-profile carbon capture project in Illinois that lost its Department of Energy financing last year.

## Santos suspends Moomba carbon storage project

By ANGELA MACDONALD-SMITH AND TODD WHITE

THEAUSTRALIAN  
11:00PM MARCH 3, 2009

SANTOS, Australia's third-biggest oil and gas producer, has suspended its Moomba carbon storage project - a victim of weak government support and plunging prices for permits to release greenhouse gases.

Credit prices to emit carbon dioxide into the atmosphere were too low to underpin the investment planned for central Australia's Cooper Basin. Santos spokesman

# Chevron delays underground storage of carbon dioxide for Gorgon




Peter Milne | The West Australian  
Wednesday, 6 March 2019 10:42AM

NATIONAL WA GAS

## Doctors 'very worried' at Chevron venting toxic chemicals at Gorgon



The Gorgon LNG project's domestic gas plant on Barrow Island.

   Chevron has further delayed the underground storage of carbon dioxide from the Gorgon LNG project in the Pilbara by up to nine months because of continuing technical problems.

## Half of Australia's emissions increase linked to WA's Gorgon LNG plant

Carbon emissions from nation's largest LNG development were meant to be captured. More than two years on, the storage still hasn't started



NATIONAL GAS

## 'Too big to fail, too arrogant to care': Gorgon gas venting provokes union attack

## How the Gorgon gas plant could wipe out a year's worth of Australia's solar emissions savings

By Kathryn Diss  
Updated 21 Jun 2018, 1:32pm



