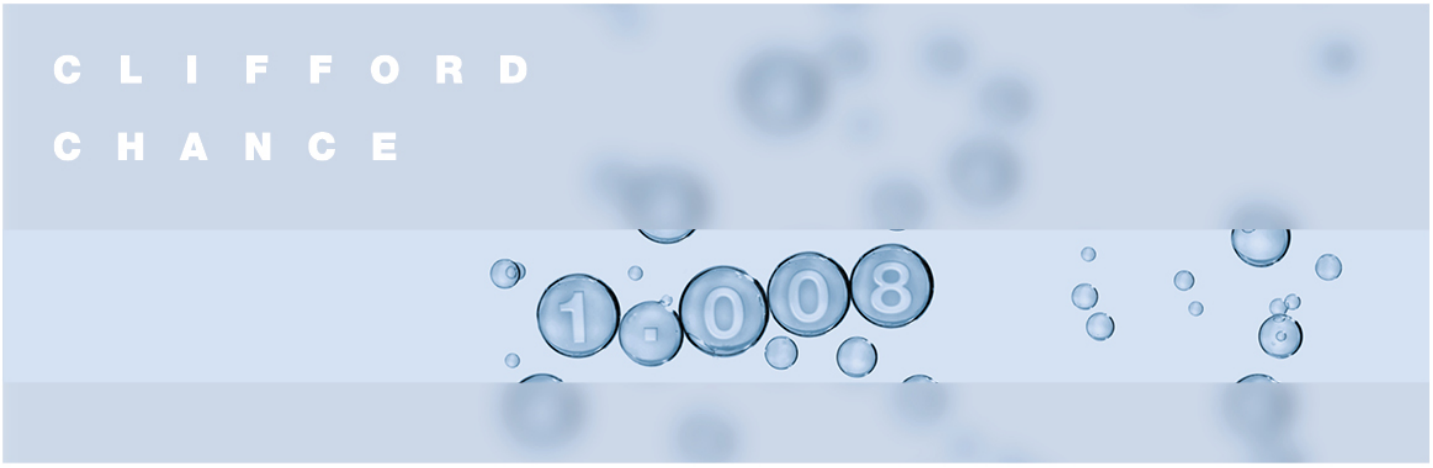

CLEAN HYDROGEN IN AUSTRALIA – A NEW EXPORT OPPORTUNITY

The Council of Australian Governments Energy Council agreed to a National Hydrogen Strategy on 22 November 2019, which outlines an export-oriented approach to clean hydrogen in Australia. This briefing highlights the key aspects of the National Hydrogen Strategy and identifies a number of actions that will be required to facilitate a clean hydrogen[1] industry in Australia – including responsive regulation and community confidence.

BACKGROUND

The Council of Australia Governments Energy Council ("**COAG Energy Council**") is a Ministerial forum for the Commonwealth, states and territories and New Zealand to work together in the pursuit of national energy reforms.[2]

A proposal for a national hydrogen strategy was delivered to the COAG Energy Council in December 2018.

Key recommendations of the proposal were adopted at the COAG Energy Council's meeting on 19 December 2018, including a commitment to work together to:

- develop and implement a national strategy for clean hydrogen, in close consultation with industry and the community;
- build export markets and attract foreign investment through co-ordinated outreach to Australia's trading partners;
- deliver domestic projects, including investigating use of clean hydrogen in the gas networks, and scoping the need for clean hydrogen vehicle refuelling stations; and
- realise a vision to make Australia a major player in a global hydrogen industry by 2030.

Key issues

- The National Hydrogen Strategy was agreed on 22 November 2019.
- Australian governments are coordinating a review of existing legislation to regulate clean hydrogen.
- Existing legislation may be deficient so regulatory reform will be needed.
- Lessons may be learned from Australia's experience regulating its rapidly scaled-up onshore gas and renewable energy industries. However, a preferred regulatory model has not yet emerged.
- Australian governments are also consulting on the design of an international certification scheme for clean hydrogen.
- A range of government funding initiatives have been established to support the emerging clean hydrogen industry.

[1] References to "hydrogen" in this briefing are references to clean hydrogen.
[2] On 29 May 2020, the Australian Prime Minister announced that the Council of Australian Government would cease and a new National Federation Reform Council would be formed.

NATIONAL HYDROGEN STRATEGY

Overview

On 22 November 2019 the COAG Energy Council agreed to the National Hydrogen Strategy which broadly covers the following topics:

- **Australia's clean hydrogen potential** – Australia is well placed to make clean hydrogen its next big export because (amongst other things) it has the natural resources needed to produce it, a track record in building large-scale energy industries and a reputation as a proven partner to Asia's biggest energy importers;
- **making and taking Australia's opportunity** – the National Hydrogen Strategy supports an adaptive approach to the development of a clean hydrogen industry which is guided by four principles:
  - a nationally coordinated approach with regular reviews;
  - regulatory consistency and coordinated approach to project approvals;
  - support for partnerships to activate the market; and
  - safety, environmental sustainability and benefits to Australians to be prioritised;
- **the journey to becoming a hydrogen powerhouse** – the first step in the adaptive approach is to build a large-scale clean hydrogen industry in Australia, including by creating hydrogen hubs (being regions where users of hydrogen are co-located) to (amongst other things) increase efficiencies and facilitate the sharing of expertise and sector coupling. There are many lessons that may be learned in this regard including from:
  - the onshore gas industry in Queensland (e.g. collaboration and shared infrastructure between proponents); and
  - the renewable energy industry in Australia (e.g. renewable energy zones proposed by the COGATI transmission access reforms);
- **enabling industry growth** – a common vision is required between governments, industry and the community to realise the vision of Australia becoming a global leader in clean hydrogen by 2030 including:
  - implementing better and more consistent regulation;
  - building relationships with future country markets; and
  - supporting early stage technology development and then letting the market take over as the industry matures;
- **building benefits for the Australian community** – in realising the vision of Australia becoming a global leader in clean hydrogen by 2030 the industry will need the public trust and confidence of the Australian people, and this may be achieved by (amongst other things) ensuring the benefits and impacts are shared fairly and community concerns are heard and responded to;
- **tracking progress** – a set of industry development signals have been developed together with 15 measures of success to facilitate the monitoring of global hydrogen industry development and make judgements based on how the industry evolves; and

- **beyond 2030** – looking beyond 2030, the cost of clean hydrogen is likely to become increasingly competitive with other fuels and help facilitate global decarbonisation.

The COAG Energy Council established the Hydrogen Project Team in March 2020 to implement the National Hydrogen Strategy, with Australia's Chief Scientist, Dr Alan Finkel, providing additional support as the government's hydrogen adviser.

Government funding initiatives

Australian governments have made specific grant funding available to support the acceleration of a clean hydrogen industry in Australia.

By way of example:

- the Commonwealth government established the AUD 300 million Advancing Hydrogen Fund in May 2020 to support hydrogen-powered projects, to be administered by administered by the Clean Energy Finance Corporation;
- the Australian Renewable Energy Agency (ARENA) announced its AUD 70 million Renewable Hydrogen Deployment Funding Round in November 2019 to provide grant funding to hydrogen projects. ARENA had already committed more than AUD 44 million towards hydrogen development through pre-existing grant programs; and
- many states and territories have their own funding programs targeted at hydrogen specifically or renewable technologies generally, such as South Australia's AUD 50 million Grid Scale Storage Fund, Queensland's AUD 15 million Hydrogen Industry Development Fund and Western Australia's AUD 10 million Renewable Hydrogen Fund.

ACTIONS – RESPONSIVE REGULATION

Overview

The National Hydrogen Strategy identifies a number of actions required to implement the vision to make Australia a major player in the global hydrogen industry by 2030, one of which is the development of a responsive regulatory regime.

It is expected that this will be achieved by:

- reviewing existing Commonwealth and state/territory legislation, regulations and standards as needed to determine whether the existing legal frameworks can support clean hydrogen industry development and safety – with an immediate focus on:
  - development of technical safety standards;
  - streamlining interstate connections and interfaces to achieve consistency; and
  - prioritising regulatory responses to technologies that are closer to commercialisation and/or which are more likely to be adopted by the clean hydrogen industry;
- coordinating reviews of legal frameworks where practical, and working together to:

- support the development of standards for the clean hydrogen industry, including technical safety standards, noting the role of Standards Australia; and
- consider and evaluate regulatory models to address and support clean hydrogen safety and clean hydrogen industry development with the aim of developing a nationally consistent approach as far as practicable; and
- where necessary, amending existing legislation and regulations or drafting new legislation to address clean hydrogen safety and support clean hydrogen industry development.

Existing regulatory models

The development of a nationally adopted regulatory model in Australia is not a new phenomenon, and we expect that as part of the review process described above, consideration may be given to existing regulatory models such as:

- the national gas regulatory model – the National Gas Law and Rules are contained in the Schedule to the *National Gas (South Australia) Act 2008* (SA). The National Gas Law and Rules are applied as law in each participating jurisdiction of the National Electricity Market in Australia by applicable enacting legislation; and
- the national rail safety regulatory model – the Rail Safety National Law is contained in the *Rail Safety National Law (South Australia) Act 2012* (SA). This Law is applied as law in each state/territory by applicable enacting legislation. The Law also establishes the Officer of the National Rail Safety Regulator as the national body responsible for rail safety regulation.

Key challenges with existing legislation

We expect there may be some challenges identified with respect to injecting hydrogen into existing networks in the context of the existing gas legislation in Australia. This is because the majority of existing gas legislation in Australia does not recognise hydrogen as a gas.

Under the National Gas Law and Rules, the term "natural gas" is defined as follows:

> ***natural gas*** *means a substance that— (a) is in a gaseous state at standard temperature and pressure; and (b) consists of naturally occurring hydrocarbons, or a naturally occurring mixture of hydrocarbons and non-hydrocarbons, the principal constituent of which is methane; and (c) is suitable for consumption.*

Hydrogen is not a hydrocarbon, which means that in the context of:

- a 100% hydrogen network, it is unlikely to fall within the definition of "natural gas" and therefore be regulated by the National Gas Law and Rules; and
- a blended network with hydrogen and natural gas (particularly during a transition period towards 100% hydrogen networks), it may fall within the definition of "natural gas" and therefore be regulated by the National Gas Law and Rules if:
  - the principal constituent is methane (which is a technical question); and
  - the hydrocarbons and non-hydrocarbons are a "naturally occurring mixture" (which is also a technical question).

Further, certain state/territory gas legislation[3] provides a range of statutory rights and protections to "natural gas" network operators such as:

- rights to access land for installation and maintenance of pipelines;
- compulsory acquisition powers; and
- protections for gas infrastructure, including from theft and tampering.

By way of example, the main purposes of the *Gas Supply Act 2003* (Qld) are to promote efficient and economical processed natural gas supply and to ensure the interests of customers are protected by regulating the distribution services for reticulated processed natural gas and providing for the making of relevant distribution network codes.

The Act expressly provides that it does not regulate gases other than LPG (in relation to LPG distribution pipelines and LPG distribution systems) or processed natural gas.

The definition of "LPG" under the Act will not capture hydrogen because (amongst other things) hydrogen is not more than half propane, propylene or butane in any combination.

The definition of "processed natural gas" under the Act (extracted below) may not capture hydrogen for similar reasons to those set out above in respect of the definition of "natural gas" under the National Gas Law and Rules:

> ***processed natural gas*** *is a substance that—*
>
> *(a) is in a gaseous state at standard temperature and pressure; and*
>
> *(b) consists of naturally occurring hydrocarbons and other substances; and*
>
> *(c) is more than half methane; and*
>
> *(d) has been processed to be suitable for consumption.*

This means that the statutory rights and protections afforded by such legislation may be lost in hydrogen only, or hydrogen blended, networks with significant practical consequences.

In light of the above, we expect that governments may, as part of their review of existing legislation, regulations and standards, consider:

- the application of the National Gas Law and relevant jurisdictional laws and regulations to hydrogen and advise the Council of recommended options to best address regulatory ambiguity, remove unnecessary regulatory barriers and improve the consistency of laws across jurisdictions; and
- the economics of blending and of eventual use of 100% hydrogen in Australian gas networks.

Looking to the international hydrogen market

The National Hydrogen Strategy outlines an export oriented approach to clean hydrogen – an opportunity to ship sunshine into the Asia Pacific and beyond. This means that Australia's hydrogen policy is likely to be heavily influenced by key import markets such as Japan, China, South Korea (and potentially Europe).

[3] For example, *Utilities Act* (ACT); *Gas Supply Act 1996* (NSW); *Gas Supply Act 2003* (Qld); *Gas Act 1997* (SA).

A critical piece of the international policy landscape will be the adoption of an international hydrogen certification scheme – a standardised process of tracing and certifying where and how hydrogen is made and the associated environmental impacts. This will be key for hydrogen exporters such as Australia to understand how their hydrogen will be classified in import markets.

Australia is likely to seek to play a lead role in designing and developing an international hydrogen certification scheme, and the government's Hydrogen Project Team has commenced industry consultation on the high-level aspects of such a scheme.

ACTIONS – COMMUNITY CONFIDENCE

Given the increasing importance of environment, social and governance (ESG) considerations for public and private sector investors, the pace of development of a clean hydrogen industry in Australia may depend in part on successful community confidence in the technology and its benefits.

As part of research that informed the Government's National Hydrogen Strategy, the importance of community and stakeholder engagement was highlighted including the need to (amongst other things):

- manage expectations and communicate realistic timeframes with interested communities;
- be sensitive to community concerns regarding the safety and sustainability of the hydrogen industry, in particular with respect to water usage;
- ensure hydrogen is made available for domestic use without a premium to preserve community support; and
- develop a standard framework for benefit sharing that will ensure benefits are fairly distributed and includes Indigenous groups.

There are a number of lessons that may be learned from the government's experience in engaging with community stakeholders on other rapidly scaled-up industries in Australia including the onshore gas industry in Queensland.

KEY DATES

22 June 2020: The Hydrogen Project Team's consultation with industry on a hydrogen certification scheme closes. This is expected to be followed up with a mid-year workshop.

June–July 2020: The Department of Industry, Science, Energy and Resources will lead targeted consultation processes with specific sectors (including the hydrogen sector).

Q3 2020: The first annual Low Emissions Technology Statement to be delivered to parliament outlining the government's technology investment priorities and progress towards them. It is expected include a focus on hydrogen.

Before COP26: Australia's technology-focussed Long Term Emissions Reduction Strategy to be released, with an expected focus on hydrogen.

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ABOUT

Focus on Hydrogen is a Clifford Chance briefing series covering hydrogen-related developments globally. 1.008 is the standard atomic mass of hydrogen.

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