

A report scoping out legislation, regulations and standards relevant to the development of a national hydrogen industry in Australia.

# Hydrogen Industry Legislation

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the Department of Industry,  
Innovation and Science

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## Important

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## 1. Executive Summary

### 1.1 Purpose

In accordance with the terms of engagement provided by the National Hydrogen Strategy Taskforce (the **Taskforce**), represented by the Department, the purpose of this report is to:

- (a) provide a summary of the review of legislation, regulations and standards (**Law**) potentially relevant to the development of a hydrogen industry in Australia; and
- (b) provide initial recommendations to the Taskforce regarding the next stages in further developing Law required to facilitate a hydrogen industry in Australia, considering the issues identified in the review.

### 1.2 Summary of Advice

For the reasons discussed in section 4 of this report, we advise the matters listed in the table below be further considered:

| Items for further consideration (Items) |  |
|---|--|
| <b>1</b>                                | <p>Consider agreeing:</p> <ul style="list-style-type: none"> <li>• on priority criteria and regulatory objectives for the next stage of reviews of Law; and</li> <li>• to undertake the next stage of reviews of Law, in accordance with the agreed priority criteria and regulatory objectives, in respect of their own jurisdiction,</li> </ul> <p>to ensure that existing Law:</p> <ul style="list-style-type: none"> <li>• is not a barrier to investment in a potential hydrogen industry; and</li> <li>• supports the expected and future development of the industry.</li> </ul>  |
| <b>2</b>                                | <p>Consider the prioritisation of reviewing and developing Law in respect of safety in all parts of the proposed hydrogen industry - including:</p> <ul style="list-style-type: none"> <li>• continuing to support the development of national technical safety standards as a high priority;</li> <li>• adopting national technical safety standards wherever possible to ensure alignment of regulatory models (including safety standards) across Australia;</li> <li>• reviewing general work, health and safety obligations for application to the hydrogen industry; and</li> <li>• consideration of interstate connections, and technology and network requirements.</li> </ul>   |
| <b>3</b>                                | <p>Consider establishing a Project Group (reporting to the COAG Energy Council) to:</p> <ul style="list-style-type: none"> <li>• where practicable, coordinate and drive national consistency in the undertaking of reviews of Law in each jurisdiction (<i>See Items 1 and 2</i>); and</li> <li>• investigate and make recommendations regarding: <ul style="list-style-type: none"> <li>○ potential regulatory models for the hydrogen industry (<i>See Item 5</i>);</li> <li>○ whether regulatory responses developed in one jurisdiction are suitable for adoption in other jurisdictions, whether as developed in the original jurisdiction or with amendments for national application (<i>See Item 6</i>); and</li> </ul> </li> </ul> |

### Items for further consideration (Items)

|          |   |
|----------|---|
|          | <ul style="list-style-type: none"> <li>○ the requirement for further regulatory responses (if any) including in respect of access to infrastructure and competition within the hydrogen industry (See Item 7).</li> </ul>   |
| <b>4</b> | <p>Consider requiring the Project Group to prepare a Regulatory Development Timeline that:</p> <ul style="list-style-type: none"> <li>• where practicable and relevant, details the timing of the review of Law in each jurisdiction - including when each priority area of Law is expected to be reviewed;</li> <li>• contemplates the development of regulatory responses for the hydrogen industry in alignment with anticipated technological and commercial developments, subject to each jurisdiction's legislative development processes; and</li> <li>• contemplates development of regulatory responses (see previous point) in alignment with the expected development of national technical safety standards (in consultation with Standards Australia) as one means of developing aligned regulatory models.</li> </ul> |
| <b>5</b> | <p>Consider industry regulatory models and potentially commence development of a national regulatory framework for the hydrogen industry.</p>   |
| <b>6</b> | <p>Consider agreeing to develop regulatory responses for the hydrogen industry such that:</p> <ul style="list-style-type: none"> <li>• the regulatory responses (which may be in advance of the Regulatory Development Timeline are developed by the Project Group (See Item 4)) are coordinated by providing regular updates to the Project Group regarding the development and subsequent implementation of the regulatory responses; and</li> <li>• following implementation of each regulatory response, the Project Group discuss whether the regulatory response may be developed into a national regulatory response or other approaches to deliver nationally consistent outcomes.</li> </ul>   |
| <b>7</b> | <p>Consider whether new Law (or amendments to existing Law) is required for the hydrogen industry in respect of:</p> <ul style="list-style-type: none"> <li>• access to existing infrastructure required to develop the hydrogen industry; and</li> <li>• competition between existing and future participants in the hydrogen industry,</li> </ul> <p>to provide regulatory certainty to support the development of the hydrogen industry.</p>   |

## 2. Background

### 2.1 Potential scope and scale of a potential hydrogen industry

- (a) Hydrogen represents an emerging industry with vast potential for future opportunities. For Australia, an opportunity to turn fossil fuel – gas and coal – and renewable energy into a high demand low emission energy product - or as the CEO of the CSIRO said "*literally export Aussie sunshine*" around the world.<sup>1</sup>

<sup>1</sup> The CSIRO 'National Hydrogen Roadmap' Report is available at this link <https://www.csiro.au/en/Do-business/Futures/Reports/Hydrogen-Roadmap>.

- (b) In addition to a hydrogen industry being developed for production and export, there are a broad range of potential domestic uses for hydrogen including:
- (i) in hydrogen powered vehicles (i.e. hydrogen fuel cells) - which in turn would require a production, distribution and sale network applicable to the particular vehicles;
  - (ii) as an industrial feedstock to petrochemical, ammonia, methanol and other chemical process, glass manufacturing and metal processing;
  - (iii) supporting the existing electricity grid - whether in the form of electrolyzers varying output to support the grid or for large scale storage and generation to overcome seasonal intermittency or to manage peak grid needs;
  - (iv) full or partial replacement of natural gas for domestic heating and cooking - whether by injection of small amounts of hydrogen into existing natural gas networks or, in the longer term, full replacement of natural gas with hydrogen;
  - (v) liquefied, or converted to another chemical for use as a fuel for shipping and in the longer term, potentially aviation; and
  - (vi) Remote Area Power Systems - where hydrogen could be shipped to or produced on site at a remote location and then used in the applications discussed above (as applicable).<sup>2</sup>
- (c) In respect of all of these applications, the potential production of 'clean' hydrogen by using renewable energy or by linking fossil fuel based production to carbon capture and storage means that all of these applications could in the longer term support the decarbonisation of the energy, industrial and transport sectors.<sup>3</sup>
- (d) Given this potential scale and scope of a fully developed hydrogen industry, it will be a significant body of work to develop a regulatory framework that:
- (i) considers and addresses the many areas of Law that a fully developed hydrogen industry may potentially affect;
  - (ii) ensures the safety of the community and industry at all times;
  - (iii) contemplates and allows for the breadth and complexity of the activities that a hydrogen industry will undertake;
  - (iv) can respond to new technologies and commercial approaches as they develop;
  - (v) is developed having regard to the efficient use of resources required to develop such a framework given it would be impractical to attempt to review all potentially relevant Law at the same time; and
  - (vi) given that the sheer size of the potential industry will ultimately affect the regulatory framework adopted, considers whether there is a need for

<sup>2</sup> See the CSIRO 'National Hydrogen Roadmap' Report available at this link <https://www.csiro.au/en/Do-business/Futures/Reports/Hydrogen-Roadmap>.

<sup>3</sup> See National Hydrogen Strategy Discussion Paper available at this link [https://consult.industry.gov.au/national-hydrogen-strategy-taskforce/national-hydrogen-strategy-request-for-input/supporting\\_documents/nationalhydrogenstrategyrequestforinputdiscussionpaper.pdf](https://consult.industry.gov.au/national-hydrogen-strategy-taskforce/national-hydrogen-strategy-request-for-input/supporting_documents/nationalhydrogenstrategyrequestforinputdiscussionpaper.pdf) and the CSIRO 'National Hydrogen Roadmap' Report available at this link <https://www.csiro.au/en/Do-business/Futures/Reports/Hydrogen-Roadmap>.

overarching legislation or for aligned legislation to be enacted in all jurisdictions.

## 2.2 Background to this review

- (a) In August 2018, the COAG Energy Council considered the opportunities that the development of a hydrogen industry could provide to Australia (as discussed above) and that the Chief Scientist should bring to the COAG Energy Council a proposal to develop a national hydrogen strategy to support the development of a hydrogen industry.<sup>4</sup>
- (b) The resulting *Proposal for a national hydrogen strategy* was delivered to the COAG Energy Council in December 2018 and the key recommendations of the proposal were adopted by the COAG Energy Council. This included establishing a dedicated Working Group (the **Hydrogen Working Group**) chaired by the Chief Scientist and committing to working together to:
- (i) develop and implement a national strategy for hydrogen, in close consultation with industry and the community - to be delivered to the COAG Energy Council in December 2019;
  - (ii) build Australian export markets and attract foreign investment through coordinated outreach to our trading partners;
  - (iii) deliver two domestic 'kick start' projects, including investigating use of hydrogen in the gas networks, and scoping the need for hydrogen vehicle refuelling stations; and
  - (iv) make Australia a major player in a global hydrogen industry by 2030.<sup>5</sup>
- (c) This report builds on the work of the Hydrogen Working Group in the period of 2018 to 2019, including considering:
- (i) issues and comments in the responses to the discussion papers released by the Taskforce in March and July 2019 regarding the development of the hydrogen industry;<sup>6</sup> and
  - (ii) approaches proposed in the various strategies released by States and Territories for the development of a hydrogen industry.<sup>7</sup>
- (d) In this respect, this report is intended to scope out the Law that is potentially relevant to the hydrogen industry and the next stage of developing legislation and regulation for

<sup>4</sup> See the *Proposal for a national hydrogen strategy* available at this link <http://www.coagenergycouncil.gov.au/sites/prod.energycouncil/files/publications/documents/DIIS%20-%20Hydrogen%20Proposal%20-%2020181219.pdf>.

<sup>5</sup> See the *Joint Ministerial Statement: Hydrogen* dated 19 December 2018 available at this link <http://www.coagenergycouncil.gov.au/sites/prod.energycouncil/files/publications/documents/DIIS%20-%20Hydrogen%20Joint%20Ministerial%20Statement%20-%2020181219.pdf> and National Hydrogen Strategy Discussion Paper available at this link [https://consult.industry.gov.au/national-hydrogen-strategy-taskforce/national-hydrogen-strategy-request-for-input/supporting\\_documents/nationalhydrogenstrategyrequestforinputdiscussionpaper.pdf](https://consult.industry.gov.au/national-hydrogen-strategy-taskforce/national-hydrogen-strategy-request-for-input/supporting_documents/nationalhydrogenstrategyrequestforinputdiscussionpaper.pdf).

<sup>6</sup> A copy of the discussion paper and the public responses is available at this link <https://consult.industry.gov.au/national-hydrogen-strategy-taskforce/national-hydrogen-strategy-request-for-input/> and a copy of the issues papers and the public responses is available at this link <https://consult.industry.gov.au/national-hydrogen-strategy-taskforce/national-hydrogen-strategy-issues-papers/>

<sup>7</sup> Including the Victorian Government's Request for Industry Submission, the Queensland Hydrogen Industry Strategy 2019-2024, Western Australia: Renewable Hydrogen Strategy and South Australia's Hydrogen Action Plan in September 2019.

the hydrogen industry, and is expected to support the development of the national hydrogen strategy which is proposed to be provided to COAG Energy Council in November 2019.

### 3. Legislative Review

This section provides an overview of the process that we undertook and work we performed to inform our advice.

#### 3.1 Scope and objective of work

- (a) We were engaged to conduct a high-level review of the legislative framework, regulatory environment, and standards relevant to a hydrogen industry in Australia.
- (b) The scope of this review was to:
  - (i) identify relevant Commonwealth, state and territory legislation and regulations that could be essential to the hydrogen value chain (including production, transport, storage, export, and domestic use of hydrogen); and
  - (ii) recommend a set of high-level priorities for legal and regulatory review and potential reform.
- (c) The deliverables for this work were as follows:
  - (i) **(Deliverable 1)**: to conduct an environmental scan and identify relevant Law that may be necessary for a large-scale Australian hydrogen industry;
  - (ii) **(Deliverable 2)**: to identify and establish priorities for a national hydrogen regulatory framework including by:
    - A. examining future areas and priorities for regulatory reform to support development of a large-scale Australian hydrogen industry;
    - B. identifying the relevant Commonwealth, state and territory legislation, regulations, and standards, that could be essential to the hydrogen value chain (including production, transport, storage, export, and domestic use of hydrogen); and
    - C. recommending a program for future legislative and regulatory review and reform consistent with the strategic direction of the Hydrogen Working Group; and
  - (iii) **(Deliverable 3)**: to draft a final report which will consolidate our analysis into a report to the hydrogen working group.
- (d) The overall purpose of these objectives is to assist in determining how Australian legal and regulatory frameworks may better support a large-scale Australian hydrogen industry.
- (e) This report is not intended to recommend a particular regulatory framework or approach but rather is intended to set out potential options for consideration for the further reviewing and developing of Law required to support a national large scale hydrogen industry in Australia.

### 3.2 Legislative Review Process

- (a) The legislative review for Deliverable 1 (the **Review**) involved a high level review of all Law that may be potentially relevant to the development of a national hydrogen industry. The process involved in undertaking the Review is detailed in Schedule 1.
- (b) The outcome of the review was that we identified an initial list of 1,255 pieces of Law potentially relevant to the development of the hydrogen industry comprising of:
  - (i) 1,136 pieces of legislation and regulations (including some bills, where relevant); and
  - (ii) 119 standards (including 71 Australian standards and 48 international standards, and noting that some of these standards appear to be under development).
- (c) The amount of potentially relevant legislation and regulations was then refined to 730 pieces of legislation and regulation as discussed further in Schedule 1.
- (d) The outcomes of the Review were provided to the Taskforce for consideration and review, and informed the development of criteria as further discussed below.

### 3.3 Development of criteria for prioritising legislation and regulations

- (a) As there was a large amount of legislation and regulation identified in the Review, and given that it would be impractical to review all such legislation and regulation at one time, in consultation with the Taskforce, we developed criteria that could be used to identify which legislation and regulations should be prioritised for further detailed review.
- (b) As well as being a practical requirement, developing criteria for prioritising legislation and potentially agreeing on these criteria between jurisdictions would assist in coordinating efforts. This is on the basis that each government can then readily ascertain whether a particular piece of legislation or regulation in its jurisdiction, whether identified by the Review or not, should be prioritised for further consideration, by subject area.
- (c) In the context of developing a national hydrogen industry, we deliberated on potential criteria that would be relevant to the industry as a whole rather than criteria that related to legislation and regulations that would affect only a smaller sub-set of the industry.
- (d) For example, criteria that would only be relevant to particular technologies was not further developed as this was not considered necessary to the development of the industry as whole. Although in this respect, we note that such legislation may need to be considered to support the development of that application of technology as discussed further in section 4.5.
- (e) In addition, we also took into consideration public submissions and input from relevant stakeholders, noting there appeared to be consistent issues in respect of legislation and regulations required for the development of a national hydrogen industry which are reflected in the criteria we developed.
- (f) The criteria that we ultimately developed are shown in the table below:

| Priority | Criteria  |
|----------|---|
| High     | Legislation and regulations that are required to ensure the safety of the hydrogen industry and the community. This is on the basis that: |



| Priority      | Criteria  |
|---------------|---|
|               | <ul style="list-style-type: none"> <li>• safety was identified by several state and territory Hydrogen Working Group members (and a number of submissions) as a key priority; and</li> <li>• safety is critical to the acceptance of a hydrogen industry by the community.</li> </ul> <p>Legislation and regulations that are directly applicable to the development and scaling up of the hydrogen industry. This is on the basis that it will of course be necessary to ensure that there is appropriate legislation and regulations for the development and operation of a national large scale hydrogen industry.</p>   |
| Medium - High | <p>Legislation and regulations in respect of potential environmental impacts. This is on the basis that:</p> <ul style="list-style-type: none"> <li>• environmental legislation and regulations are important for the protection of the environment;</li> <li>• requirements for the obtaining of environmental approvals must be considered in the context of the potential benefits of the hydrogen industry, including in respect of the environment; and</li> <li>• the need for approval requirements to not be so onerous that they are a barrier to the development of the industry.</li> </ul> <p>Infrastructure access and regulation, including in respect of the regulation of a potential hydrogen industry. This is on the basis that:</p> <ul style="list-style-type: none"> <li>• the hydrogen industry will need to access existing infrastructure - including in respect of electricity networks, gas networks, ports, road and rail;</li> <li>• the current regulatory frameworks for this infrastructure do not appear to contemplate a hydrogen industry; and</li> <li>• there are possible gaps in legislation and regulations that will need to be addressed to allow the industry to develop.</li> </ul> |

- (g) Based on these criteria and the Hydrogen Working Group feedback, we then assessed the legislation and regulations identified in the Excel based table and produced the list of potential priority legislation provided at Schedule 2.
- (h) While this identification of potential priority legislation has been high level given the timing, we expect that the prioritisation of Law for further review may be further developed in each jurisdiction. This may include, for example, prioritising Law applicable to particular hydrogen development scenarios for more immediate attention. This process would be informed by the development of overarching objectives and a timeline in respect of when potential hydrogen applications are expected to be developed and commercialised, as further discussed in sections 4.3 and 4.5 below.

### 3.4 Consideration of international approaches

- (a) In conducting our review, we briefly considered the approach taken by 18 European Union (EU) and associated countries<sup>8</sup> in the HyLAW project (HyLAW Project) and the

<sup>8</sup> Austria, Belgium, Bulgaria, Denmark, Finland, France, Germany, Hungary, Italy, Latvia, Norway, Poland, Romania, Spain, Sweden, Portugal, the Netherlands and United Kingdom.

issues identified by the HyLAW Project regarding cross-jurisdiction regulation of the hydrogen industry.<sup>9</sup>

- (b) We included the HyLAW Project in this international consideration because:
- (i) in adopting a best regulatory practice approach and consistent with Australian Government policy regarding adoption of international standards;<sup>10</sup> and
  - (ii) given the regulatory environments in the EU and associated countries and Australia both involve overlapping layers of international, regional, national and state Law,

we considered that there may be lessons that could be learnt from the HyLAW Project regarding their approach to undertaking a review of hydrogen Law and the issues that the HyLAW Project found (as background to potential issues that might be identified in our review).

- (c) At a high level, potential key lessons and issues identified by the HyLAW Project (which it should be noted are in the context of EU and associated countries) include:
- (i) widely varying safety approaches to managing safety between regions and different authorities which will need to be addressed to support the development of an EU (and associated countries) wide industry;<sup>11</sup>
  - (ii) regulatory responses to the hydrogen industry will need to respond to new technologies and approaches as the industry matures;<sup>12</sup>
  - (iii) while consistency of legislation and regulation is beneficial, there are reasons why legislation and regulation is not entirely consistent having regard to particular regional or local issues such as limitations on where hydrogen production may be permitted;<sup>13</sup> and
  - (iv) existing regulation is not consistent - for example in respect of gas blending - with such inconsistencies being potential barriers to the development of the hydrogen industry.<sup>14</sup>
- (d) Consistent with section 4 below, based on the Review, our preliminary view is that the matters identified in the HyLAW project are also likely to arise in respect of each jurisdiction developing regulatory responses to provide for a hydrogen industry in Australia.

<sup>9</sup> Deliverables 4.1 and 4.2 available at this link <https://www.hylaw.eu/info-centre>.

<sup>10</sup> See COAG Best Practice Regulation: A Guide for Ministerial Councils and National Standards Setting Bodies available at this link [https://www.pmc.gov.au/sites/default/files/publications/COAG\\_best\\_practice\\_guide\\_2007.pdf](https://www.pmc.gov.au/sites/default/files/publications/COAG_best_practice_guide_2007.pdf); *The Australian Government Guide to Regulation* available at this link [https://www.pmc.gov.au/sites/default/files/publications/Australian\\_Government\\_Guide\\_to\\_Regulation.pdf](https://www.pmc.gov.au/sites/default/files/publications/Australian_Government_Guide_to_Regulation.pdf); and *Best Practice Guide to Using standards and risk assessments in policy and regulation* available at this link <https://www.industry.gov.au/sites/default/files/2019-03/best-practice-guide-to-using-standards-and-risk-assessments-in-policy-and-regulation.pdf>.

<sup>11</sup> See for example section 7 of Deliverable 4.1.

<sup>12</sup> See for example section 3 and section 4.2 of Deliverable 4.1 and section 5 of Deliverable 4.2.

<sup>13</sup> See for example section 1.1 of Deliverable 4.1.

<sup>14</sup> See for example section 7.1.1 of Deliverable 4.1.

- (e) Given this, it is likely that lessons learnt from the HyLAW project may have application in respect of Australia and warrant further consideration in each jurisdiction.
- (f) For completeness, we note that Standards Australia's review of standards relevant to the hydrogen industry includes an assessment of international standards (including EU standards) that may be adopted in Australia.<sup>15</sup> This is not unexpected given Australian Government policy regarding development of Australian standards includes adoption of international standards (unless there are good reasons to the contrary).<sup>16</sup>

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## 4. Analysis

### 4.1 Considering and addressing the Law identified by the Review (*Item 1*)

- (a) As noted above, the Review identified approximately 730 pieces of legislation and regulations and 119 standards that may be of relevance to the development of a hydrogen industry.
- (b) This volume is not unexpected given the Review was intentionally broad to capture any potentially relevant Law.
- (c) While on its face, the volume appears unusually large, it should be noted that:
  - (i) some of the Law identified is:
    - A. general in nature;
    - B. of the kind that applies to all industries; and
    - C. has limited requirements that are specific to the hydrogen industry.

Examples of this kind of Law include Law in respect of planning and environmental matters. While such Law is relevant to the development of a hydrogen industry, this Law is unlikely to require amendments specifically for the hydrogen industry. Nevertheless, the application and operation of such Law in respect of the hydrogen industry will still need to be reviewed and considered in detail. This is to avoid existing Laws either being insurmountable barriers to the development of a hydrogen industry or giving rise to regulatory compliance costs of such significance that there is a disincentive to invest in the industry; and

- (ii) some Law may only apply to discrete aspects of the hydrogen industry and not the industry as a whole. For example, Laws in relation to transportation of hydrogen and particular end uses such as refuelling stations will only be relevant to those aspects of the potential broader hydrogen industry. While not necessary for the hydrogen industry as a whole, it will be necessary to consider this kind of Law to ensure that these activities are appropriately and consistently regulated to allow the hydrogen industry to undertake these activities.

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<sup>15</sup> See *Hydrogen Technology Standards Discussion Paper* available at this link <https://www.standards.org.au/getmedia/98dfe8c9-4d35-4b14-bcf3-1bfef35e935f/SG-007-Adoption-of-International-Standards.pdf.aspx>.

<sup>16</sup> See *Standards Development – SG-007: Adoption of International Standards* available at this link <https://www.standards.org.au/getmedia/98dfe8c9-4d35-4b14-bcf3-1bfef35e935f/SG-007-Adoption-of-International-Standards.pdf.aspx>.

- (d) Despite the challenge that reviewing such a large body of Law presents, in our view, achievement of regulatory best practice in respect of Law to support a national hydrogen industry may require a thorough and detailed review (a **Hydrogen Law Review**) to identify and confirm:
- (i) how each piece of existing Law operates in respect of a hydrogen industry;
  - (ii) whether there are regulatory gaps in Law that have not yet been identified;
  - (iii) whether there are potential differences in how each jurisdiction regulates matters relevant to the development of a hydrogen industry; and
  - (iv) that existing Laws do not give rise to unintended barriers or disincentives to the development of a national hydrogen industry.
- (e) Given the amount of Law is too large to review at the same time, a critical first question to address is likely to be how to arrange the Law in a priority order for review under the Hydrogen Law Review.
- (f) In our view, this may be achieved by agreeing and applying certain criteria against which each Law can be assessed for priority and scheduled for review under the Hydrogen Law Review accordingly.
- (g) By agreeing to criteria to assess the relative priority of Laws in each respective jurisdiction for review under the Hydrogen Law Review:
- (i) while it is not always easy to identify 'like for like' Laws across jurisdictions, it would nevertheless be possible to identify Laws across jurisdictions that relate to the same priority area - meaning that if, for example, safety and technical Laws were an agreed priority, it would be possible for each jurisdiction to:
    - A. identify the relevant safety and technical Laws in their jurisdiction; and
    - B. given these Laws are the same priority as all other jurisdictions, undertake a review of that Law in parallel with each jurisdiction reviewing their own safety and technical Laws,

which will result in a coordinated approach to developing regulatory responses for the hydrogen industry;
  - (ii) the limited resources of each jurisdiction would be applied to the priority areas of Law required for the hydrogen industry - ensuring resources are used effectively and efficiently;
  - (iii) having applied the same criteria to prioritise Law for review it would be possible to coordinate each jurisdiction's review as part of a national Hydrogen Law Review; and
  - (iv) there would be a general benefit arising from the sharing of information, expertise and lessons learnt across jurisdictions as each jurisdiction undertakes a review of the priority Laws.
- (h) For completeness, we acknowledge that reviewing and amending Laws is ultimately a matter for each jurisdiction and would of course be subject to the usual legislative development processes in that jurisdiction. However, given the intention to develop a national industry, agreeing on the prioritisation of Law to be reviewed would be a possible means to cooperatively develop a regulatory environment across all jurisdictions that encourages a national hydrogen industry.

**4.2 Consider agreeing on regulatory objectives for the hydrogen legislation review and regulatory responses (Item 1)**

- (a) In our view, the Hydrogen Law Review discussed in section 4.1 above would be further improved if there were agreed regulatory objectives that may be considered for application in each jurisdiction in respect of a potential hydrogen industry.
- (b) In undertaking the Review, we considered potential issues that may arise if each jurisdiction were to conduct a detailed and thorough review of Law as contemplated by the Hydrogen Law Review.
- (c) In this respect, a likely key issue that would need to be addressed early on is what the Hydrogen Law Review is seeking to achieve.
- (d) At a superficial level, the question can be answered by stating that the intended outcome of the Hydrogen Law review is better regulation of the hydrogen industry through the identification of Laws suitable for a potential hydrogen industry.
- (e) However, we believe that the better approach is to develop and agree overarching regulatory objectives for how the hydrogen industry to be regulated.
- (f) Developing and agreeing on regulatory objectives would likely improve the effectiveness of each jurisdiction's review of priority areas of Law given each jurisdiction would be able to assess existing Law and any proposed regulatory responses against the regulatory objectives.
- (g) In addition to the above, agreeing on regulatory objectives would also simplify coordination of regulatory responses across jurisdictions given the overarching objective would be consistency across all jurisdictions.
- (h) As a side benefit, agreeing to regulatory objectives would provide greater transparency to the Hydrogen Law Review given it would be possible to later determine whether the regulatory objectives were achieved or if further reforms are needed.
- (i) This approach is also consistent with the approach to the development of the national hydrogen strategy which is itself being guided by eight principles set out by the COAG Energy Council.
- (j) As examples of possible regulatory objectives for consideration, we developed the following regulatory objectives, having regard to the eight principles set out by the COAG Energy Council, as shown in the table below:

| # | Objective: that Laws in respect of the hydrogen industry should:  |
|---|---|
| 1 | <p>Be in alignment across jurisdictions, wherever possible, so that to the extent possible, all Law in respect of the hydrogen industry should be consistent across jurisdictions, particularly in respect of technical requirements. If achieved, national consistency in the regulatory framework governing hydrogen would mean that:</p> <ul style="list-style-type: none"> <li>• compliance with the requirements of one jurisdiction would also mean compliance with other jurisdictions' requirements; and</li> <li>• the hydrogen industry could more easily develop nation-wide and with lower overall compliance costs.</li> </ul> |
| 2 | <p>Be developed in advance of or in line with expected technological and commercial developments so that Law developed for the hydrogen industry should:</p>  |

| # | Objective: that Laws in respect of the hydrogen industry should:   |
|---|--|
|   | <ul style="list-style-type: none"> <li>contemplate future technological and commercial developments wherever possible; and</li> <li>be developed to maximise consistency across the entire hydrogen industry even if the entire industry is not yet in operation.</li> </ul> |
| 3 | Ensure consistent safety requirements are included from the outset by adopting nationally developed technical safety standards into each jurisdiction's Laws developed for a potential hydrogen industry.  |
| 4 | Contemplate and address cross border issues. Laws in respect of a potential hydrogen industry should always consider the hydrogen industry as a national activity and be drafted in contemplation of the industry operating all around Australia.                            |

### 4.3 Potential areas of Law for the Hydrogen Law Review to consider (*Item 2*)

- (a) Based on the work we did in preparing the criteria discussed in section 3.3, including in respect of identifying potential priority Laws to be reviewed in detail, and the objectives discussed in section 4.2 above, we formed the view that there are potentially three key areas of Law of immediate significance to the development of the hydrogen industry:
- (i) Development of Technical Safety Standards - development and implementation of technical standards for the hydrogen industry is critical to ensuring safety and consistency in the hydrogen industry and public confidence in the hydrogen industry;
  - (ii) Streamlining Interstate Connections and Interfaces - noting historical inconsistencies in certain industries (e.g. rail, road and traffic requirements), matters that require national consistency should be prioritised so that there are no unintended barriers or disincentives to the development of a national hydrogen industry. For example gas distribution networks that operate across borders, and rail/heavy vehicle safety requirements (in respect of both transport and fuel cell requirements) should be considered so that a national system is contemplated at the outset and problems 'at the border' are avoided. This would be consistent with the objectives discussed in section 4.2 above; and
  - (iii) Prioritisation of technology and network – consideration should be given to which technologies are closer to full scale commercialisation and/or which potential applications or approaches are likely to be adopted by the hydrogen industry and prioritise regulatory responses to those technologies or approaches. This would ensure that regulatory efforts are aligned to and support the implementation of these technologies and approaches.
- (b) During the course of our review we received feedback the Taskforce and reviewed public submissions. Based on the feedback and submissions, safety appears to be:
- (i) a key concern for stakeholders, including industry and the public;
  - (ii) an area which requires significant work to develop national technical safety standards, including in respect of new technologies and processes; and
  - (iii) critical to public acceptance of a hydrogen industry, including in respect of new applications such as a hydrogen fuel cell cars.

- (c) Given this, of the three key areas discussed above, we recommend that, in the context of the Hydrogen Law Review, particular attention and priority is given at the working level, including additional resources if necessary, to:
- (i) support Standards Australia in developing technical standards (including technical safety standards) in respect of hydrogen and the hydrogen industry - with a likely focus initially on interactions with the gas network, hydrogen safety requirements, and adoption of hydrogen fuel cell technology (vehicles, heavy vehicles and stationary applications); and
  - (ii) reviewing, considering and adopting those standards into their jurisdictions in respect of the hydrogen industry.
- (d) By prioritising and developing technical standards in advance of regulatory responses being developed, the technical standards can be 'built into' Law in respect of the hydrogen industry. For instance, each State could implement legislation or regulations that adopts the same technical standard as a compliance requirement for their jurisdiction. This will mean that compliance requirements will be consistent across each jurisdiction with such consistency minimising what might otherwise be a potential barrier to investment and supporting the development of the hydrogen industry nationally.
- (e) This approach would also be consistent with regulatory objective 3 as proposed in section 4.2 above.
- (f) As a separate exercise, we recommend that existing Laws in each jurisdiction in respect of work, health and safety obligations that may apply to the hydrogen industry. This is needed to confirm whether these general duties require compliance with technical safety standards (as they are developed) and whether amendments are required to expressly provide for the safety of the hydrogen industry.
- (g) In addition to safety, Laws in respect of interstate connections and interfaces with infrastructure and particular technologies are significant as discussed above. We expect that these significant areas of Law will likely be addressed:
- (i) by implementing the regulatory objectives discussed section 4.2 above, in particular objectives 2 and 4; and
  - (ii) that the development of the Regulatory Development Timeline as discussed in section 4.5 below would assist in ensuring that cross border and technological development are considered in the context of the Hydrogen Law Review.

#### 4.4 Consider forming a Project Group to coordinate efforts (*Item 3*)

- (a) The successful undertaking of the Hydrogen Law Review requires a high level of coordination and cooperation between jurisdictions over a long period of time.
- (b) While we acknowledge that there are already a number of working level and technical committees at various levels of government reviewing and developing Law in respect of the hydrogen industry,<sup>17</sup> we consider that there may need to be a centralised and nationally focussed body of working level representatives from each Australian government (a **Project Group**) to coordinate the Hydrogen Law Review.
- (c) If agreed to, the primary purpose of the Project Group would be to coordinate and report on the progress of the Hydrogen Law Review.

<sup>17</sup> Such as the Gas Technical Regulators Committee which includes technical regulators from all States and Territories and the Electrical Regulatory Authority Council.

- (d) Suggestions for the key features of the Project Group are that it could include:
- (i) representatives from each jurisdiction, with representatives to have suitable technical and policy experience;
  - (ii) additional representatives from key regulatory bodies, including Standards Australia;
  - (iii) regular meetings, most likely quarterly or as otherwise agreed by the Project Group;
  - (iv) meetings chaired by one government representative, where the position of chair is rotated between jurisdictions;
  - (v) the capacity to receive and share information from each jurisdiction (in addition to the responsibilities discussed in section 4.4(e) below); and
  - (vi) a secretariat function provided by one jurisdiction.
- (e) In addition to the features above, we propose that the Project Group be given the following responsibilities:
- (i) provide regular reports to the COAG Energy Council on the progress of the Hydrogen Law Review;
  - (ii) receive regular reports or updates regarding the undertaking of reviews of priority Law so as to coordinate the undertaking of Hydrogen Law Review;
  - (iii) ongoing liaison with Standards Australia regarding development of new standards;<sup>18</sup>
  - (iv) prepare the Regulatory Development Timeline discussed in section 4.5 below;
  - (v) discuss proposals to develop regulatory responses and provide feedback on proposed regulatory responses as contemplated in section 4.7 below;
  - (vi) investigate and make recommendations regarding:
    - A. regulatory models for the hydrogen industry as discussed in section 4.6 below;
    - B. whether regulatory responses developed in one jurisdiction may be adopted in other jurisdictions as discussed in section 4.7 below; and
    - C. the requirement for further regulatory responses (if any) in respect of access to infrastructure and competition within the hydrogen industry as discussed in section 4.8; and
  - (vii) such other responsibilities as may be added from time to time.
- (f) While the Project Group would not be a formal decision making body, it would nevertheless be a valuable forum for sharing information and coordinating the reviews

<sup>18</sup> In this respect, we understand that Standards Australia has established a technical committee that includes government representatives and that potentially those same representatives would likely be involved in this Project Group. Nevertheless, we consider it may be helpful for formally include coordination with Standards Australia as a responsibility of the Project Group.



of Law as a part of the Hydrogen Law Review and any regulatory responses being developed.

#### 4.5 Consider developing a Regulatory Development Timeline for review and reform of Law (*Item 4*)

- (a) Given the volume of Law potentially relevant to the hydrogen industry (as discussed in section 4.1), we expect that the undertaking of the Hydrogen Law Review will take a significant time to complete.
- (b) To assist in addressing this challenge, we propose the potential development of a timeline for regulatory development and the Hydrogen Law Review (**Regulatory Development Timeline**). If developed, such a Regulatory Development Timeline may outline the potential development of Law in respect of the hydrogen industry.
- (c) The Regulatory Development Timeline may also help ensure that:
  - (i) the development of Law in respect of new technologies or applications of hydrogen happens early enough to support commercialisation of that technology or application as and when that happens;
  - (ii) commercial decisions about whether to invest in new hydrogen technologies and applications in Australia may be aligned to the proposed development of relevant Law, although this would depend on the particular company and technology being proposed; and
  - (iii) early regulatory responses do not adversely impact later developments.
- (d) For these reasons, and on the assumption that *Items 1 and 3* (see sections 1.2 and 5) are implemented, the Regulatory Development Timeline may contemplate the period 2020 to 2030.<sup>19</sup>
- (e) Such a Regulatory Development Timeline may, where practicable, include:
  - (i) at a high level, general information about the undertaking of the Hydrogen Law Review, including:
    - A. each area of Law that is intended to be reviewed;
    - B. the proposed timing for each jurisdiction to undertake its review of each priority area of Law - and potentially the specific Law within each priority area (as these are identified);<sup>20</sup> and
    - C. the extent to which each jurisdiction's review is aligned;
  - (ii) timing of any reviews of regulation already underway and any proposed amendments to relevant legislation;
  - (iii) the process and timing of the development of technical safety standards that are expected to be developed; and

<sup>19</sup> This timeline was identified to align with the COAG Energy Council's ambition for Australia to be a major hydrogen global player by 2030.

<sup>20</sup> Noting that development of legislation and regulations will of course be subject to parliamentary processes within each jurisdiction.

- (iv) expected timing of technological and commercial developments - including when the public and industry can expect to see these technologies become available to them.
- (f) Developing the Regulatory Development Timeline would be a significant regulatory project and in this respect is consistent with the COAG Energy Council's principles regarding the National Hydrogen Strategy. In addition, collating all of this information will require public and private input given it brings together expected regulatory developments and commercial activities.
- (g) However, we consider that if achieved, and where practicable, a Regulatory Development Timeline would likely support coordination of regulatory efforts across jurisdictions and the intention for Australia to be a global hydrogen player. This is because the Regulatory Development Timeline is expected to:
  - (i) provide clear guidance to industry on how Australia proposes to develop the Law needed to commercialise new hydrogen technology and applications in Australia (this being a key commercial consideration for decisions about investment in commercialisation);
  - (ii) bring together information about all of the work already done as existing reviews and regulatory developments will likely be continuing in parallel and linking in with further reviews and regulatory responses contemplated by the Hydrogen Law Review;
  - (iii) demonstrate alignment of regulatory efforts towards the same goal and accordingly reflect intentions to support the development of a national hydrogen industry;
  - (iv) be a valuable way to shape industry and community feedback on how they want regulatory responses for the hydrogen industry to be developed, which may include whether industry or community consider that there are areas of Law that should be given higher priority;
  - (v) given that technological developments will occur over a longer period, show how future regulatory responses are aligned to these technological developments by demonstrating that:
    - A. current resources are being used effectively in dealing with the immediate expected technological developments; and
    - B. future developments are already being considered so that regulatory responses can be developed in time for the commercialisation of those technological developments;
  - (vi) encourage the development of short term regulatory responses in respect of immediate problems to be developed in the context of a longer term future development of Law in respect of the hydrogen industry; and
  - (vii) be a bold and ambitious statement about what is to be achieved in the next 10 years.
- (h) In our view, the work required to develop the Regulatory Development Timeline would be well suited to the Project Group given its composition and responsibilities as discussed in section 4.4. As such, if implemented, the development of a Regulatory Development Timeline may be a key early deliverable for the Project Group to provide to the COAG Energy Council.

#### 4.6 Consider potential regulatory models for the hydrogen industry (*Item 5*)

- (a) Given that the hydrogen industry is a new industry and one that is intended to operate in all jurisdictions, another area for further consideration is whether there are regulatory models that could be adopted nationally to support the hydrogen industry.
- (b) If developed, a national regulatory model would mean that:
- (i) there would likely be consistent application of technical and safety requirements;
  - (ii) compliance with the technical and safety requirements in one jurisdiction would mean that the requirements in every other jurisdiction would also be met;
  - (iii) compliance requirements could be streamlined, compliance costs reduced and the hydrogen industry more readily able to develop nationally.
- (c) While the scope of the regulatory model will require detailed consideration, consultation and discussion with industry, a national regulatory model for the hydrogen industry may initially focus on technical and safety requirements given the importance of safety in the hydrogen industry (see section 4.3).
- (d) Regulatory models that could be further considered include:<sup>21</sup>
- (i) the Rail Safety National Law (regulated by the Office of the National Rail Safety Regulator (see Schedule 3) - being an example of a national safety regulator with consistent legislation across jurisdictions;
  - (ii) National Gas Law and Rules (see Schedule 4) - being an example of one state enacting legislation for the benefit of all other jurisdictions; and
  - (iii) the Utilities Technical Regulator framework (as in the Australian Capital Territory) - being an example of one regulator approving 'Technical Codes' that must be complied with by relevant utilities (see Schedule 5 for more information). If implemented in respect of hydrogen, this regulatory framework would likely involve:
    - A. each jurisdiction enacting legislation that provides for the adoption of codes and requires relevant hydrogen industries to comply with those codes;
    - B. codes then being developed and/or amended over time:
      - 1) with input from a technical body to ensure required safety standards are met; and
      - 2) incorporating or referring to national technical safety standards where practicable; and
    - C. establishing a specialised national technical regulator to monitor and enforce compliance with the relevant codes.

<sup>21</sup> Of course, it is open to consider entirely new regulatory models given the breadth of activities that a potential hydrogen industry may undertake. As such, these regulatory models are provided as examples only of models for further consideration and discussion.

- (e) Given that the scoping of a potential national regulatory model is likely to be a longer term project, we recommend that the Project Group investigate and make recommendations regarding potential regulatory models for the hydrogen industry.
- (f) In addition, by tasking this work to the Project Group, the Project Group could be considering the development of a national regulatory model as the Hydrogen Law Review is undertaken. This would likely mean that any issues identified in the Hydrogen Law Review would be known to the Project Group and could immediately feed into their consideration of potential regulatory models for the hydrogen industry.

#### **4.7 Consider a flexible but coordinated approach to regulatory responses (Item 6)**

- (a) Notwithstanding the proposed Regulatory Development Timeline, each jurisdiction is of course free to develop regulatory responses in respect of the hydrogen industry in relation to their own respective jurisdictions.
- (b) As such, it may be beneficial to adopt a coordinated approach to developing regulatory responses. Under this approach, a jurisdiction proposing to develop a regulatory response consults the other jurisdictions and, where practicable, coordinates that regulatory response with the other jurisdictions. This is to minimise the possibility of differences between regulatory responses in each jurisdiction to the same issues.
- (c) The key features of such a consultative and coordinated approach are that:
  - (i) if a regulatory response (which may be in advance of that contemplated in the Regulatory Development Timeline) is being proposed, the Project Group is advised and provided with information regarding the proposal;
  - (ii) the Project Group may provide feedback on:
    - A. how the regulatory response can be aligned with the Regulatory Development Timeline and/or regulatory responses being planned in other jurisdictions (if practicable); and
    - B. what changes (if any) to the regulatory response would allow each regulatory proposal to be adopted nationally;
  - (iii) as the regulatory responses are developed, regular updates are provided to the Project Group; and
  - (iv) once the regulatory response has been implemented, the Project Group can consider whether the regulatory response is suitable for national adoption.
- (d) While the approach requires a high level of engagement, adopting this flexible yet coordinated approach in the development of regulatory responses will assist in minimising differences between jurisdictions and promote a national approach to the regulation of the hydrogen industry.
- (e) In addition, by adopting this approach, where a regulatory response is developed ahead of the Regulatory Development Timeline, each other jurisdiction may then consider adopting that same regulatory response. This may lead to a higher level of consistency in regulatory responses across jurisdictions.

#### 4.8 Consider requirements for regulatory responses to allow the hydrogen industry to access existing infrastructure and ensure competition within the hydrogen industry (*Item 7*)

- (a) In reviewing the Law identified in the Review, a final issue that we considered was whether the existing Law in respect of infrastructure contemplates a new industry, such as the development of a hydrogen industry, entering existing markets.
- (b) Examples of this may include in respect of how a potential hydrogen industry would:
  - (i) access existing infrastructure (gas pipes, ports, rail, electricity supply, electricity infrastructure and water);
  - (ii) be regulated under existing Law in respect of that existing infrastructure; and
  - (iii) require Law in respect of the hydrogen industry itself (or particular parts) to:
    - A. ensure competition within the industry; and
    - B. facilitate public access to the benefits of the hydrogen industry.
- (c) Based on a high level assessment of existing Law, we consider that there are potential gaps or risks in respect of the examples above that will likely need to be considered and addressed in the course of undertaking the Hydrogen Law Review. This includes whether:
  - (i) the existing regulation of infrastructure (whether Commonwealth or State) contemplates the activities that a hydrogen industry may undertake, including division of responsibilities when accessing gas and electricity networks and ports;
  - (ii) Law in respect of commercial arrangements is needed to expressly provide for the hydrogen industry. This includes, for example, commercial arrangements for gas currently contemplating natural gas as the basis for pricing;
  - (iii) the hydrogen industry would fall within existing regulation of infrastructure including in respect of utilities, assets, distribution, contracting and pricing; or
  - (iv) new Law is required to regulate access to the hydrogen industry, in a similar way as access to certain utilities is regulated.
- (d) How these issues and risks will be dealt with will depend largely on the policies adopted and as such we cannot advise on potential regulatory responses to these issues at this time.
- (e) However, so that responses to these issues are considered on a whole of hydrogen industry basis, we propose that consideration be given to having the Project Group discuss these issues with a view to possible alignment of regulatory responses to these issues.

## 5. Summary of Advice

Based on the analysis in section 4 above, we provide the advice in the table below for further consideration and review. This table also includes cross references to the relevant sections of this report.

| Items for further consideration (Items)  | Report References           |
|--|-----------------------------|
| <p><b>1</b> Consider agreeing:</p> <ul style="list-style-type: none"> <li>• on priority criteria and regulatory objectives for the next stage of reviews of Law; and</li> <li>• to undertake the next stage of reviews of Law, in accordance with the agreed priority criteria and regulatory objectives, in respect of their own jurisdiction,</li> </ul> <p>to ensure that existing Law:</p> <ul style="list-style-type: none"> <li>• is not a barrier to investment in a potential hydrogen industry; and</li> <li>• supports the expected and future development of the industry.</li> </ul>   | <p>Sections 4.1 and 4.2</p> |
| <p><b>2</b> Consider the prioritisation of reviewing and developing Law in respect of safety in all parts of the proposed hydrogen industry - including:</p> <ul style="list-style-type: none"> <li>• continuing to support the development of national technical safety standards as a high priority;</li> <li>• adopting national technical safety standards wherever possible to ensure alignment of regulatory models (including safety standards) across Australia;</li> <li>• reviewing general work, health and safety obligations for application to the hydrogen industry; and consideration of interstate connections, and technology and network requirements.</li> </ul> | <p>Section 4.3</p>          |
| <p><b>3</b> Consider establishing a Project Group (reporting to the COAG Energy Council) to:</p> <ul style="list-style-type: none"> <li>• where practicable, coordinate and drive national consistency in the undertaking of reviews of Law in each jurisdiction (<i>See Items 1 and 2</i>); and</li> <li>• investigate and make recommendations regarding:</li> </ul>   | <p>Section 4.4</p>          |

| Items for further consideration (Items)   | Report References |
|---|-------------------|
| <ul style="list-style-type: none"> <li>○ potential regulatory models for the hydrogen industry (See <i>Item 5</i>);</li> <li>○ whether regulatory responses developed in one jurisdiction are suitable for adoption in other jurisdictions, whether as developed in the original jurisdiction or with amendments for national application (See <i>Item 6</i>); and</li> <li>○ the requirement for further regulatory responses (if any) including in respect of access to infrastructure and competition within the hydrogen industry (See <i>Item 7</i>).</li> </ul>   |                   |
| <p><b>4</b> Consider requiring the Project Group to prepare a Regulatory Development Timeline that:</p> <ul style="list-style-type: none"> <li>• where practicable and relevant, details the timing of the review of Law in each jurisdiction - including when each priority area of Law is expected to be reviewed;</li> <li>• contemplates the development of regulatory responses for the hydrogen industry in alignment with anticipated technological and commercial developments, subject to each jurisdiction's legislative development processes; and contemplates development of regulatory responses (see previous point) in alignment with the expected development of national technical safety standards (in consultation with Standards Australia) as one means of developing aligned regulatory models.</li> </ul> | Section 4.5       |
| <p><b>5</b> Consider industry regulatory models and potentially commence development of a national regulatory framework for the hydrogen industry.</p>  | Section 4.6       |
| <p><b>6</b> Consider agreeing to develop regulatory responses for the hydrogen industry such that:</p> <ul style="list-style-type: none"> <li>• the regulatory responses (which may be in advance of the Regulatory</li> </ul>  | Section 4.7       |

| Items for further consideration (Items)   | Report References  |
|---|--------------------|
| <p>Development Timeline are developed by the Project Group (<i>See Item 4</i>) are coordinated by providing regular updates to the Project Group regarding the development and subsequent implementation of the regulatory responses; and</p> <ul style="list-style-type: none"> <li>• following implementation of each regulatory response, the Project Group discuss whether the regulatory response may be developed into a national regulatory response or other approaches to deliver nationally consistent outcomes.</li> </ul> |                    |
| <p><b>7</b> Consider whether new Law (or amendments to existing Law) is required for the hydrogen industry in respect of:</p> <ul style="list-style-type: none"> <li>• access to existing infrastructure required to develop the hydrogen industry; and</li> <li>• competition between existing and future participants in the hydrogen industry,</li> </ul> <p>to provide regulatory certainty to support the development of the hydrogen industry.</p>  | <p>Section 4.8</p> |



## Schedule 1 - Detailed Review Process

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### 1. Review Process

In undertaking the Review, we:

- (a) prepared a high level framework for the undertaking of the Review;
- (b) provided the high level framework to the Taskforce;
- (c) discussed with the Taskforce:
  - (i) what potential parts of the hydrogen industry the Review should include for consideration given the potential scope of the activities of a hydrogen industry (as described in section 2.1 above); and
  - (ii) the potential categorisation of Law identified by the Review (being a method to identify potential areas that require reform or amendment);
- (d) commenced identification of relevant Law by:
  - (i) searching the Commonwealth and each State and Territory's legislation registers for key words including "gas", "electricity", "fuel", "transport" and "environment" and collating the results;
  - (ii) removing legislation and regulations found in the searches above that were irrelevant;
  - (iii) cross referencing the results from the searches above with similar searches on legal databases including Lexis Advance;
  - (iv) reviewing relevant Commonwealth, State and Territory department and agency websites for legislation managed by that department or agency;
  - (v) perusing administrative arrangements orders for certain jurisdictions;
  - (vi) reviewing (at a high level):
    - A. key submissions to the Taskforce in response to the issues papers - including specific submissions brought to our attention by the Taskforce; and
    - B. the discussion paper and issues papers;<sup>22</sup> and
  - (vii) locating and reviewing publications by Standards Australia on their ongoing progress regarding development of standards for the hydrogen industry; and<sup>23</sup>
- (e) placed the Law identified using the process above into tables based on the categories discussed with the Taskforce by jurisdiction; and

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<sup>22</sup> See links in section **Error! Reference source not found.** of this report.

<sup>23</sup> See *Hydrogen Technology Standards Discussion Paper* available at this link <https://www.standards.org.au/getmedia/2d89a05c-9dd0-4878-90f8-d1c228306d5b/D-1368-Hydrogen-discussion-paper.pdf.aspx>.

- (f) considered (for a second time) all legislation and regulations included in the tables for relevance and categorisation and added a short description of each piece of legislation or regulation.

## 2. Documents produced following the Review

- (a) Based on the Review described above, we prepared a word document that initially listed 1,255 pieces of Law potentially relevant to the development of the hydrogen industry comprising of:
  - (i) 1,136 pieces of legislation and regulations (including some bills, where relevant);<sup>24</sup> and
  - (ii) 119 standards (including 71 Australian standards and 48 international standards, and noting that some of these standards appear to be under development).
- (b) This word document organised the legislation and regulations into a table based on certain categories so that:
  - (i) the identified legislation and regulations could be grouped together by category across jurisdictions - for example legislation and regulations relevant to transportation of hydrogen could be identified across all jurisdictions;
  - (ii) legislation and regulations that cut across multiple parts of a potential hydrogen industry to be identified; and
  - (iii) we had a basis to start the process of analysing the volume of legislation and regulations in respect of what might be priority areas for the hydrogen industry.
- (c) The categories and sub-categories of legislation and regulations are listed in table below:

| Category   | Sub-Category                  |
|------------|-------------------------------|
| Production | Planning                      |
|            | Environment                   |
| Transport  | Transportation (Road)         |
|            | Transportation (Rail)         |
|            | Transportation (Gas networks) |
|            | Shipping                      |
|            | Ports                         |
| Storage    | Construction of facilities    |

<sup>24</sup> The number of legislation and regulations reflects the presentation of the legislation and regulations in different tables organised by category. This meant that some legislation or standards appeared more than once across the document. When duplicates were removed, the number reduces to 730. Please see sections 2(d) and 2(e) of Schedule 1 for details.

| Category | Sub-Category               |
|----------|----------------------------|
|          | Carbon Capture and Storage |
|          | Chemical / Gas             |
| Use      | Exports                    |
|          | Industrial feedstock       |
|          | Vehicles                   |
|          | Gas supply replacement     |
|          | Electricity generation     |

- (d) Following feedback from the Taskforce on the initial word document, we converted that document to an Excel based table that:
- (i) included all legislation and regulations from the initial word document;
  - (ii) sorted the legislation and regulations into a single list (rather than tables by jurisdiction);
  - (iii) removed duplicates (which had been listed in different tables in the original word document); and
  - (iv) added pivot tables that allowed us to analyse the legislation and regulations by reference to jurisdiction and category.
- (e) By developing the Excel based table described above, we found that:
- (i) we could identify and remove duplicate entries of legislation and standards. As a result, the number of legislation and regulations potentially relevant to the hydrogen industry reduced to 730 pieces of legislation and regulation;<sup>25</sup>
  - (ii) Western Australia (WA) and Queensland had the highest number of potentially relevant legislation and regulations;
  - (iii) the categories of environment, industrial feedstock, safety, electricity generation and planning had the highest number of potentially relevant legislation and regulations; and
  - (iv) Western Australia and Victoria had the highest number of potentially relevant legislation and regulations that appeared to be relevant to more than one category, and Commonwealth the lowest.
- (f) The Excel based table was provided to relevant stakeholders for discussion and feedback and that feedback was used to inform the development of the criteria discussed in section 3.3.

<sup>25</sup> Given this, for the purpose of this report, 730 is considered the number of legislation and regulations potentially relevant to the hydrogen industry.

## Schedule 2 - Priority legislation identified from review

This schedule provides a table for each jurisdiction which shows the relevant legislation and regulations arranged according to the criteria discussed in section 3.3(f) of the report.

| Commonwealth  |  |
|---|--|
| Legislation and standards that are directly applicable to the development of the hydrogen industry  | Legislation and standards in respect of potential environmental impacts  |
| <ul style="list-style-type: none"> <li>• <i>Australian Energy Market Act 2004</i></li> <li>• <i>Fuel Quality Standards Act 2000</i></li> <li>• <i>Greenhouse and Energy Minimum Standards (Registration Fees) Act 2012</i></li> <li>• <i>Greenhouse and Energy Minimum Standards Act 2012</i></li> <li>• <i>Greenhouse and Energy Minimum Standards Regulation 2012</i></li> <li>• <i>Marine Order 17 (Chemical tankers and gas carriers) 2016</i></li> <li>• <i>Marine Safety (Domestic Commercial Vessel National Law) Act 2012</i></li> <li>• <i>National Construction Code 2019</i></li> <li>• <i>Renewable Energy (Electricity) (Large-scale Generation Shortfall Charge) Act 2000</i></li> <li>• <i>Renewable Energy (Electricity) Act</i></li> <li>• <i>Renewable Energy (Small-scale Technology Shortfall Charge) Act 2010</i></li> <li>• <i>Road Vehicle Standards Act 2018</i></li> </ul> | <ul style="list-style-type: none"> <li>• <i>Building Energy Efficiency Disclosure Act 2010</i></li> <li>• <i>Building Energy Efficiency Disclosure Regulation 2010</i></li> <li>• <i>Environment Protection and Biodiversity Conservation Act 1999</i></li> <li>• <i>Environment Protection and Biodiversity Conservation Regulations 2000</i></li> <li>• <i>Navigation Act 2012</i></li> <li>• <i>Navigation Regulation 2013</i></li> <li>• <i>Offshore and Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009</i></li> <li>• <i>Product Emissions Standards Act 2017</i></li> <li>• <i>Protection of the Sea (Prevention of Pollution from Ships) Act 1983</i></li> <li>• <i>Protection of the Sea (Prevention of Pollution from Ships) Regulations 1994</i></li> </ul> |
| Legislation and standards that are required to ensure the safety of the hydrogen industry   | Economic effects and access  |
| <ul style="list-style-type: none"> <li>• <i>Australian Dangerous Goods Code</i></li> <li>• <i>Carriage of Goods by Sea Act 1991</i></li> <li>• <i>Industrial Chemicals (Notification and Assessment) Act 1989</i></li> <li>• <i>National Greenhouse and Energy Reporting Act 2007</i></li> <li>• <i>National Greenhouse and Energy Reporting Regulations 2008</i></li> </ul>  | <ul style="list-style-type: none"> <li>• <i>Australian Energy Market Act 2004</i></li> <li>• <i>Australian Transport Assessment and Planning Guidelines</i></li> <li>• <i>Competition and Consumer Act 2010</i></li> <li>• <i>Excise Act 1901</i></li> <li>• <i>Excise Tariff Act 1921</i></li> <li>• <i>Fuel Tax Act 2006</i></li> <li>• <i>Industry Research and Development Act 1986</i></li> </ul>   |

| Commonwealth  |  |
|---|--|
| <ul style="list-style-type: none"> <li>• <i>Offshore and Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009</i></li> <li>• <i>Work Health and Safety Act 2011 (and various associated Codes of Practice)</i></li> <li>• <i>Work Health and Safety Regulations 2011</i></li> </ul> | <ul style="list-style-type: none"> <li>• <i>Industry Research and Development Regulations 2011</i></li> <li>• <i>Offshore and Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011</i></li> <li>• <i>Offshore Petroleum and Greenhouse Gas Storage Act 2006</i></li> <li>• <i>Patents Act 1990</i></li> <li>• <i>Primary Industries Research and Development Act 1989</i></li> <li>• <i>Shipping Reform (Tax Incentives) Act 2012</i></li> <li>• <i>Treasury Laws Amendment (Prohibiting Energy Market Misconduct) Bill 2019</i></li> <li>• <i>Urban and Regional Development (Financial Assistance) Act 1974</i></li> </ul> |

| South Australia   |  |
|---|--|
| Legislation and standards that are directly applicable to the development of the hydrogen industry  | Legislation and standards in respect of potential environmental impacts  |
| <ul style="list-style-type: none"> <li>• <i>Electricity (General) Regulations 2012</i></li> <li>• <i>Gas Act 1997</i></li> <li>• <i>Gas Regulations 2012</i></li> <li>• <i>Heavy Vehicle National Law (South Australia) Act 2013</i></li> <li>• <i>National Energy Retail Law (South Australia) Act 2011</i></li> <li>• <i>National Gas (South Australia) Act 2008</i></li> <li>• <i>National Gas (South Australia) Regulations</i></li> <li>• <i>Natural Gas Authority Act 1967</i></li> <li>• <i>Plumbers, Gas Fitters and Electricians Act 1995</i></li> <li>• <i>Rail Safety National Law (South Australia) Act 2012</i></li> </ul> | <ul style="list-style-type: none"> <li>• <i>Environment Protection Act 1993</i></li> <li>• <i>Environment Protection Regulations 2009</i></li> <li>• <i>Protection of Marine Waters (Prevention of Pollution from Ships) Act 1987</i></li> </ul> |

| South Australia   |   |
|---|---|
| Legislation and standards that are required to ensure the safety of the hydrogen industry   | Economic effects and access   |
| <ul style="list-style-type: none"> <li>• <i>Dangerous Substances (General) Regulations 2017 (note legislative amendments expected in mid-2020)</i></li> <li>• <i>Dangerous Substances Act 1979</i></li> <li>• <i>Development Act 1993 (note legislative amendments expected in mid-2020)</i></li> <li>• <i>Energy Products (Safety and Efficiency) Act 2000</i></li> <li>• <i>Marine Safety (Domestic Commercial Vessel) National Law (Application) Act 2013</i></li> <li>• <i>Petroleum and Geothermal Energy Act 2000</i></li> <li>• <i>Petroleum and Geothermal Energy Regulations 2013</i></li> <li>• <i>Plumbers, Gas Fitters and Electricians Act 1995</i></li> <li>• <i>Work Health and Safety Act 2012</i></li> <li>• <i>Work Health and Safety Regulations 2012</i></li> </ul> | <ul style="list-style-type: none"> <li>• <i>Australian Energy Market Commission Establishment Act 2004</i></li> <li>• <i>Building Work Contractors Act 1995</i></li> <li>• <i>Economic Development Act 1993</i></li> <li>• <i>Electricity Act 1996</i></li> <li>• <i>Fair Trading Act 1987</i></li> <li>• <i>Maritime Services (Access) Act 2000</i></li> <li>• <i>Planning, Development and Infrastructure (Fees, Charges and Contributions) Regulations 2019</i></li> <li>• <i>Planning, Development and Infrastructure (General) Regulations 2017</i></li> <li>• <i>Planning, Development and Infrastructure Act 2016</i></li> </ul> |

| Queensland  |   |
|---|---|
| Legislation and standards that are directly applicable to the development of the hydrogen industry  | Legislation and standards in respect of potential environmental impacts   |
| <ul style="list-style-type: none"> <li>• <i>Gas Supply Act 2003</i></li> <li>• <i>Gas Supply Regulation 2007</i></li> <li>• <i>Greenhouse Gas Storage Act 2009</i></li> <li>• <i>Greenhouse Gas Storage Regulation 2010</i></li> <li>• <i>Heavy Vehicle National Law Act 2012</i></li> <li>• <i>National Gas (Queensland) Act 2008</i></li> <li>• <i>National Gas (Queensland) Law</i></li> <li>• <i>National Gas (Queensland) Regulation 2014</i></li> </ul> | <ul style="list-style-type: none"> <li>• <i>Environmental Offsets Act 2014</i></li> <li>• <i>Environmental Offsets Regulation 2014</i></li> <li>• <i>Environmental Protection Act 1994</i></li> <li>• <i>Environmental Protection Regulation 2019</i></li> <li>• <i>Transport Operations (Marine Pollution) Act 1995</i></li> <li>• <i>Transport Operations (Marine Pollution) Regulation 2018</i></li> </ul> |

| Queensland  |  |
|---|--|
| <ul style="list-style-type: none"> <li>• <i>Petroleum and Gas (General Provisions) Regulation 2017</i></li> <li>• <i>Petroleum and Gas (Production and Safety) Act 2004</i></li> <li>• <i>Petroleum and Gas (Safety) Regulation 2018</i></li> <li>• <i>Rail Safety National Law (Queensland) Act 2017</i></li> <li>• <i>Rail Safety National Law (Queensland) Regulation 2017</i></li> </ul>  |  |
| Legislation and standards that are required to ensure the safety of the hydrogen industry   | Economic effects and access  |
| <ul style="list-style-type: none"> <li>• <i>Building Act 1975</i></li> <li>• <i>Building Fire Safety Regulation 2008</i></li> <li>• <i>Building Regulation 2006</i></li> <li>• <i>Electrical Safety Act 2002</i></li> <li>• <i>Electrical Safety Regulation 2002</i></li> <li>• <i>Fire &amp; Emergency Services Act 1990</i></li> <li>• <i>Land, Explosives and Other Legislation Amendment Act 2019</i></li> <li>• <i>Transport Operations (Marine Safety) Act 1994</i></li> <li>• <i>Transport Operations (Marine Safety) Regulation 2016</i></li> <li>• <i>Work Health and Safety Act 2011</i></li> <li>• <i>Work Health and Safety Regulations 2011</i></li> </ul> | <ul style="list-style-type: none"> <li>• <i>Economic Development Act 2012</i></li> <li>• <i>Economic Development Regulation 2013</i></li> <li>• <i>Electricity— National Scheme (Queensland) Act 1997</i></li> <li>• <i>Electricity—National Scheme (Queensland) Regulation 2014</i></li> <li>• <i>State Development and Public Works Organisation Act 1971</i></li> <li>• <i>Strong and Sustainable Resource Communities Act 2017</i></li> <li>• <i>Transport Infrastructure (Ports) Regulation 2016</i></li> </ul> |

| Victoria   |   |
|--|---|
| Legislation and standards that are directly applicable to the development of the hydrogen industry   | Legislation and standards in respect of potential environmental impacts   |
| <ul style="list-style-type: none"> <li>• <i>Dangerous Goods Act 1985</i></li> <li>• <i>Gas Industry (Residual Provisions) Act 1994</i></li> <li>• <i>Gas Industry Act 2001</i></li> <li>• <i>Gas Pipelines Access (Victoria) Act 1998</i></li> </ul> | <ul style="list-style-type: none"> <li>• <i>Building Act 1993</i></li> <li>• <i>Building Regulations 2018</i></li> <li>• <i>Climate Change Act 2017</i></li> <li>• <i>Environment Effects Act 1978</i></li> <li>• <i>Environment Protection Act 1970</i></li> <li>• <i>Environment Protection Act 2017</i></li> </ul> |

| Victoria   |   |
|--|---|
| <ul style="list-style-type: none"> <li>• <i>Gas Safety (Gas Installation) Regulations 2018</i></li> <li>• <i>Gas Safety (Gas Quality) Regulations 2017</i></li> <li>• <i>Gas Safety (Safety Case) Regulations 2018</i></li> <li>• <i>Gas Safety Act 1997</i></li> <li>• <i>Heavy Vehicle National Law (Victoria)</i></li> <li>• <i>Heavy Vehicle National Law Application Act 2013</i></li> <li>• <i>National Electricity (Victoria) Act 2005</i></li> <li>• <i>National Gas (Victoria) Act 2008</i></li> <li>• <i>Pipelines Act 2005</i></li> <li>• <i>Pipelines Regulations 2017</i></li> <li>• <i>Rail Management Act 1996</i></li> <li>• <i>Rail Safety (Local Operations) (Accreditation and Safety) Regulations 2017</i></li> <li>• <i>Rail Safety (Local Operations) Act 2006</i></li> <li>• <i>Rail Safety National Law Application Act 2013</i></li> <li>• <i>Safety (Gas Installation) Regulations 2018</i></li> </ul> | <ul style="list-style-type: none"> <li>• <i>Greenhouse Gas Geological Sequestration Act 2008</i></li> <li>• <i>National Environment Protection Council (Victoria) Act 1995</i></li> <li>• <i>Planning and Environment Act 1987</i></li> <li>• <i>Planning and Environment Regulations 2015</i></li> <li>• <i>Victorian Environmental Assessment Council Act 2001</i></li> </ul>   |
| Legislation and standards that are required to ensure the safety of the hydrogen industry  | Economic effects and access   |
| <ul style="list-style-type: none"> <li>• <i>Occupational Health and Safety Act 2004</i></li> <li>• <i>Occupational Health and Safety Regulations 2017</i></li> <li>• <i>Transport (Safety Schemes Compliance and Enforcement) Act 2014</i></li> </ul>  | <ul style="list-style-type: none"> <li>• <i>Electricity Industry (Residual Provisions) Act 1993</i></li> <li>• <i>Energy Retail Code</i></li> <li>• <i>Fair Trading Act 1999</i></li> <li>• <i>Local Jobs First Act 2003</i></li> <li>• <i>Mineral Resources (Sustainable Development) Act 1990</i></li> <li>• <i>Offshore Petroleum and Greenhouse Gas Storage Act 2010</i></li> <li>• <i>Planning and Environment (Planning Schemes) Act 1996</i></li> <li>• <i>Port Management (Local Ports) Regulations 2004</i></li> </ul> |



| Victoria |  |
|----------|--|
|          | <ul style="list-style-type: none"> <li>• <i>Port Management (Local Ports) Regulations 2015</i></li> <li>• <i>Project Development and Construction Management Act 1994</i></li> <li>• <i>Renewable Energy (Jobs and Investment) Act 2017</i></li> <li>• <i>Sustainability Victoria Act 2005</i></li> <li>• <i>Victorian Energy Efficiency Target (Project-Based Activities) Regulations 2017</i></li> <li>• <i>Victorian Energy Efficiency Target Act 2007</i></li> </ul> |

| New South Wales  |   |
|--|---|
| Legislation and standards that are directly applicable to the development of the hydrogen industry   | Legislation and standards in respect of potential environmental impacts   |
| <ul style="list-style-type: none"> <li>• <i>Dangerous Goods (Road and Rail Transport) Act 2008</i></li> <li>• <i>Gas Supply (Natural Gas Retail) Regulation 2014</i></li> <li>• <i>Gas Supply (Safety and Network Management) Regulation 2013</i></li> <li>• <i>Gas Supply Act 1996</i></li> <li>• <i>Heavy Vehicle (Adoption of National Law) Act 2013 (Heavy Vehicles)</i></li> <li>• <i>Heavy Vehicle National Law</i></li> <li>• <i>National Gas (New South Wales) Act 2008</i></li> <li>• <i>National Gas (NSW) Law</i></li> <li>• <i>Pipelines Act 1967</i></li> <li>• <i>Pipelines Regulation 2013</i></li> <li>• <i>Rail Safety (Adoption of National Law) Act 2012</i></li> </ul> | <ul style="list-style-type: none"> <li>• <i>Biodiversity Conservation Act 2016</i></li> <li>• <i>Biodiversity Conservation Regulation 2017</i></li> <li>• <i>Environmental Planning and Assessment Act 1979</i></li> <li>• <i>Environmental Planning and Assessment Regulation 2000</i></li> <li>• <i>Environmentally Hazardous Chemicals Act 1985</i></li> <li>• <i>Marine Pollution Act 2012</i></li> <li>• <i>Protection of the Environment Administration Act 1991</i></li> <li>• <i>Protection of the Environment Operations Act 1997</i></li> </ul> |
| Legislation and standards that are required to ensure the safety of the hydrogen industry  | Economic effects and access   |
| <ul style="list-style-type: none"> <li>• <i>Gas and Electricity (Consumer Safety) Act 2017</i></li> <li>• <i>Gas and Electricity (Consumer Safety) Regulation 2018</i></li> </ul>  | <ul style="list-style-type: none"> <li>• <i>Energy and Utilities Administration Act 1987</i></li> <li>• <i>Jobs for NSW Act 2015</i></li> </ul>   |

| New South Wales   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• <i>Marine Safety Act 1998</i></li> <li>• <i>Marine Safety Regulation 2016</i></li> <li>• <i>Work Health and Safety (Mines and Petroleum Sites) Act 2013</i></li> <li>• <i>Work Health and Safety (Mines and Petroleum Sites) Regulation 2014</i></li> <li>• <i>Work Health and Safety Act 2011</i></li> <li>• <i>Work Health and Safety Regulation 2017</i></li> </ul> | <ul style="list-style-type: none"> <li>• <i>Transport Administration Act 1988</i></li> </ul> |

| Western Australia  |  |
|--|--|
| Legislation and standards that are directly applicable to the development of the hydrogen industry   | Legislation and standards in respect of potential environmental impacts  |
| <ul style="list-style-type: none"> <li>• <i>Gas Corporation (Business Disposal) (Gas Tariffs) Regulations 2000</i></li> <li>• <i>Gas Marketing Code of Conduct 2017</i></li> <li>• <i>Gas Services Information Act 2012</i></li> <li>• <i>Gas Services Information Regulations 2012</i></li> <li>• <i>Gas Standards (Gas Supply and System Safety) Regulations 2000</i></li> <li>• <i>Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999</i></li> <li>• <i>Gas Standards (Infringement Notices) Regulations 2007</i></li> <li>• <i>Gas Standards Act 1972</i></li> <li>• <i>Gas Supply (Gas Quality Specifications) Act 2009</i></li> <li>• <i>Gas Supply (Gas Quality Specifications) Regulations 2010</i></li> <li>• <i>National Gas Access (WA) (Local Provisions) Regulations 2009</i></li> <li>• <i>National Gas Access (WA) (Part 3) Regulations 2009</i></li> <li>• <i>National Gas Access (WA) Act 2009</i></li> <li>• <i>National Third Party Access Code for Natural Gas Pipeline Systems</i></li> <li>• <i>Rail Safety National Law Act 2015</i></li> </ul> | <ul style="list-style-type: none"> <li>• <i>Environment Protection Act 1986</i></li> <li>• <i>Environment Protection Regulations 1987</i></li> </ul> |

| Western Australia   |   |
|---|---|
| Legislation and standards that are required to ensure the safety of the hydrogen industry   | Economic effects and access   |
| <ul style="list-style-type: none"> <li>• <i>Electricity (Network Safety) Regulations 2015</i></li> <li>• <i>Electricity Industry Safety and Administration Act 1997</i></li> <li>• <i>Energy Safety Act 2006</i></li> <li>• <i>Energy Safety Levy Act 2006</i></li> <li>• <i>Energy Safety Regulations 2006</i></li> <li>• <i>Occupational Safety and Health Act 1984</i></li> <li>• <i>Occupational Safety and Health Regulations 1996</i></li> <li>• <i>Petroleum and Geothermal Energy Resources (Management of Safety) Regulations 2010</i></li> <li>• <i>Petroleum and Geothermal Energy Resources (Occupational Safety and Health) Regulations 2010</i></li> <li>• <i>Pollution of Waters by Oil and Noxious Substances Act 1987</i></li> <li>• <i>Prevention of Collisions at Sea Regulations 1983</i></li> <li>• <i>Work Health and Safety Bill 2018</i></li> </ul> | <ul style="list-style-type: none"> <li>• <i>Building Act 2011</i></li> <li>• <i>Building Regulations 2012</i></li> <li>• <i>Electricity Distribution Regulations 1997</i></li> <li>• <i>Electricity Industry (Access Code Enforcement) Regulations 2005</i></li> <li>• <i>Energy Coordination Act 1994</i></li> <li>• <i>Energy Operators (Powers) Act 1979</i></li> <li>• <i>Energy Operators (Powers) Regulations 2016</i></li> <li>• <i>Fair Trading Act 2010</i></li> <li>• <i>Fuel, Energy and Power Resources Act 1972</i></li> <li>• <i>Mining Act 1978</i></li> <li>• <i>Planning and Development (Local Planning Schemes) Regulations 2015</i></li> <li>• <i>Planning and Development Act 2005</i></li> <li>• <i>Western Australian Jobs Act 2017</i></li> </ul> |

| Tasmania   |   |
|--|---|
| Legislation and standards that are directly applicable to the development of the hydrogen industry   | Legislation and standards in respect of potential environmental impacts   |
| <ul style="list-style-type: none"> <li>• <i>Dangerous Goods (Road and Rail Transport) Act 2010</i></li> <li>• <i>Electricity Supply Industry Act 1995</i></li> <li>• <i>Energy Co-ordination and Planning Act 1995</i></li> <li>• <i>Gas Act 2000</i></li> <li>• <i>Gas Industry Act 2019 (not yet proclaimed)</i></li> <li>• <i>Gas Infrastructure (Planning Permit Exemption) Regulations 2014</i></li> <li>• <i>Gas Pipelines Act 2000</i></li> </ul> | <ul style="list-style-type: none"> <li>• <i>Environmental Management and Pollution Control (General) Regulations 2017</i></li> <li>• <i>Environmental Management and Pollution Control Act 1994</i></li> <li>• <i>Natural Resource Management Act 2002</i></li> <li>• <i>Nature Conservation Act 2002</i></li> <li>• <i>Pollution of Waters by Oil and Noxious Substances Act 1987</i></li> </ul> |

|   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• <i>Gas Pipelines Regulations 2014</i></li> <li>• <i>Gas Safety Act 2019 (not yet proclaimed)</i></li> <li>• <i>Gas Safety Regulations 2014</i></li> <li>• <i>Gas Safety Regulations 2019 (not yet proclaimed)</i></li> <li>• <i>Heavy Vehicle National Law (Tasmania) Act 2013</i></li> <li>• <i>National Gas (Tasmania) Act 2008</i></li> <li>• <i>National Gas (Tasmania) Law</i></li> <li>• <i>Rail Safety National Law (Tasmania) Act 2012</i></li> </ul>  | <ul style="list-style-type: none"> <li>• <i>Pollution of Waters by Oil and Noxious Substances Regulations 2017</i></li> </ul>   |
| <p><b>Legislation and standards that are required to ensure the safety of the hydrogen industry</b></p>   | <p><b>Economic effects and access</b></p>   |
| <ul style="list-style-type: none"> <li>• <i>Electricity Industry Safety and Administration Act 1997</i></li> <li>• <i>Occupational Licensing Act 2005</i></li> <li>• <i>Work Health and Safety Act 2012</i></li> <li>• <i>Work Health and Safety Regulations 2012</i></li> </ul>  | <ul style="list-style-type: none"> <li>• <i>Building Act 2016</i></li> <li>• <i>Building Regulations 2016</i></li> <li>• <i>Electricity - National Scheme (Tasmania) Act 1999</i></li> <li>• <i>Gas Infrastructure (Planning Permit Exemption) Regulations 2014</i></li> <li>• <i>Public Works Construction Act 1880</i></li> </ul> |
| <p><b>Australian Capital Territory</b></p>  |   |
| <p><b>Legislation and standards that are directly applicable to the development of the hydrogen industry</b></p>  | <p><b>Legislation and standards in respect of potential environmental impacts</b></p>   |
| <ul style="list-style-type: none"> <li>• <i>Dangerous Goods (Road Transport) Act 2009</i></li> <li>• <i>Dangerous Substances Act 2004</i></li> <li>• <i>Fuels Control Act 1979</i></li> <li>• <i>Gas Safety Act 2000</i></li> <li>• <i>Gas Safety Regulation 2001</i></li> <li>• <i>Heavy Vehicle National Law (ACT) Act 2013</i></li> <li>• <i>National Gas (ACT) Act 2008</i></li> <li>• <i>Rail Safety National Law Act 2014</i></li> <li>• <i>Utilities (Gas Restrictions) Regulation 2005</i></li> <li>• <i>Utilities (Network Facilities Tax) Act 2006</i></li> </ul> | <ul style="list-style-type: none"> <li>• <i>Climate Change and Greenhouse Gas Reduction Act 2010</i></li> <li>• <i>Climate Change and Greenhouse Gas Reduction Regulation 2011</i></li> <li>• <i>Environment Protection Act 1997</i></li> <li>• <i>Environment Protection Regulation 2005</i></li> </ul>                            |

| Legislation and standards that are required to ensure the safety of the hydrogen industry   | Economic effects and access   |
|---|---|
| <ul style="list-style-type: none"> <li>• <i>Construction Occupations (Licensing) Act 2004</i></li> <li>• <i>Construction Occupations (Licensing) Regulation 2004</i></li> <li>• <i>Utilities (Technical Regulation) Act 2014</i></li> <li>• <i>Utility Networks (Public Safety) Regulation 2001</i></li> <li>• <i>Work Health and Safety Act 2011</i></li> <li>• <i>Work Health and Safety Regulation 2011</i></li> </ul>   | <ul style="list-style-type: none"> <li>• <i>Building (General) Regulation 2008</i></li> <li>• <i>Building Act 2004</i></li> <li>• <i>Electricity Feed-in (Large-scale Renewable Energy Generation) Act 2011</i></li> <li>• <i>Electricity Feed-in (Renewable Energy Premium) Act 2008</i></li> <li>• <i>Fair Trading Act 1992</i></li> <li>• <i>Utilities Act 2000</i></li> </ul> |
| <b>Northern Territory</b>   |   |
| Legislation and standards that are directly applicable to the development of the hydrogen industry  | Legislation and standards in respect of potential environmental impacts   |
| <ul style="list-style-type: none"> <li>• <i>Dangerous Goods Act 1998</i></li> <li>• <i>Dangerous Goods Regulations 1985</i></li> <li>• <i>Energy Pipelines Act 1981</i></li> <li>• <i>Energy Pipelines Regulations 2001</i></li> <li>• <i>National Gas (Northern Territory) Act 2008</i></li> <li>• <i>Rail Safety (Adoption of National Law) Regulation 2018</i></li> <li>• <i>Rail Safety (National Uniform Legislation) Act 2012</i></li> <li>• <i>Rail Safety (National Uniform Legislation) Regulations 2013</i></li> <li>• <i>Road Transport Reform (Vehicles and Traffic) (Northern Territory) Act 1995</i></li> <li>• <i>Transport of Dangerous Goods by Road and Rail (National Uniform Legislation) Act 2010</i></li> <li>• <i>Transport of Dangerous Goods by Road and Rail (National Uniform Legislation) Regulations 2011</i></li> </ul> | <ul style="list-style-type: none"> <li>• <i>Environment Assessment Act 1982</i></li> <li>• <i>Environmental Offences and Penalties Act 1996</i></li> <li>• <i>Environmental Offences and Penalties Regulations 2011</i></li> </ul>  |

| Legislation and standards that are required to ensure the safety of the hydrogen industry   | Economic effects and access  |
|---|--|
| <ul style="list-style-type: none"> <li>• <i>Electrical Workers and Contractors Act 1978</i></li> <li>• <i>Electrical Workers and Contractors Regulations 1984</i></li> <li>• <i>Work Health and Safety (National Uniform Legislation) Act 2011</i></li> <li>• <i>Work Health and Safety (National Uniform Legislation) Regulations 2011</i></li> <li>• <i>Work Health Court Rules 1999</i></li> </ul> | <ul style="list-style-type: none"> <li>• <i>Building Act 1993</i></li> <li>• <i>Building Regulations 1993</i></li> <li>• <i>Consumer Affairs and Fair Trading Act 1990</i></li> <li>• <i>Marine Act 1981</i></li> <li>• <i>Marine Safety (Domestic Commercial Vessel) (National Uniform Legislation) Act 2014</i></li> <li>• <i>Mineral Titles Act 2010</i></li> <li>• <i>Utilities Commission Act 2000</i></li> <li>• <i>Utilities Commission Regulations 2001</i></li> </ul> |

- (a) Regarding the legislation and regulations identified in the table above, it should be noted that:
- (i) the assessment we undertook was high level and did not include a detailed review each piece of legislation or regulation;
  - (ii) as there are differences in how jurisdictions have implemented national regulatory frameworks (such as those in respect of gas, electricity and heavy vehicles), the tables include selected legislative instruments where those instruments are relevant to the implementation of the regulatory framework. On the basis that the Hydrogen Law Review would be conducted by each jurisdiction, we would expect that each jurisdiction will ensure that the relevant instruments (and, where relevant, policy) are considered as part of their review;
  - (iii) not all legislation or regulations listed above will necessarily require amendment (however, we consider amendments to be likely); and
  - (iv) this prioritisation is based on subjective assumptions about the kinds of technology expected to be adopted by the hydrogen industry. Given this, additional legislation or regulations may need to be prioritised for particular technologies not covered by the legislation and regulations identified above.
- (b) On the understanding that Standards Australia is currently undertaking a review of standards relevant to the hydrogen industry from a technical perspective, we did not seek to identify and prioritise standards.<sup>26</sup>

<sup>26</sup> See *Hydrogen Technology Standards Discussion Paper* available at this link <https://www.standards.org.au/getmedia/2d89a05c-9dd0-4878-90f8-d1c228306d5b/D-1368-Hydrogen-discussion-paper.pdf.aspx>.

## Schedule 3 - Summary of Rail Safety Regulatory Framework

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### 1. Key Features

- (a) National system was agreed by COAG under the *Intergovernmental Agreement on Rail Safety Regulation and Investigation Reform* to improve rail safety and ensure seamless national safety regulation of rail operations.
- (b) Framework consists of:
  - (i) one State, South Australia (**SA**), enacting the Rail Safety National Law;
  - (ii) each other State and Territory enacting legislation in their jurisdiction that adopts the Rail Safety National Law (as enacted in SA);
  - (iii) a national regulator, the Office of the National Rail Safety Regulator (**ONRSR**), whose roles include:
    - A. administering the Rail Safety National Law;
    - B. undertaking compliance and enforcement measures;
    - C. promoting improvements in safety, including ensuring railway operators manage risks associated with their railway operations;
    - D. consulting with the Australian Transport Safety Bureau (**ATSB**).
  - (iv) a national 'no blame' investigator in the ATSB established under the *National Rail Safety Investigation Law* and administered by the Commonwealth;
  - (v) changes or additions to the Rail Safety National Law being approved by the relevant COAG Energy Council and then enacted in SA only (which has effect nationally due to each jurisdiction adopting the SA Rail Safety National Law in their own jurisdiction); and
  - (vi) each jurisdiction agreeing not to enact legislation or regulations that would be inconsistent with, or alter the effect of, the national rail safety system without prior agreement.

## Schedule 4 - Summary of Gas Regulatory Framework

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### 1. Key Regulatory Features

- (a) National system was agreed by COAG under the *Australian Energy Market Agreement 2004*.
- (b) Framework consists of:
  - (i) one State, South Australia (**SA**), enacting the National Gas Law (**NGL**);
  - (ii) other State and Territory enacting legislation in their jurisdiction that adopts the NGL (as enacted in SA but may be subject to modifications or derogations in certain jurisdictions);
  - (iii) the NGL is supplemented by National Gas Rules (**NGR**) - which are administered by the Australian Energy Market Commission (**AEMC**);
  - (iv) the NGL and NGR address, amongst other things, requirements and duties of covered pipeline service providers, gas transmission and distribution, access arrangements including price and revenue regulation, and the gas pipeline register;
  - (v) in addition to the AEMC, the NGL also establishes the Australian Energy Regulator (**AER**) as the primary regulator, including in respect of compliance with the NGL (with the exception of WA where the primary regulator is the Economic Regulation Authority);
  - (vi) changes or additions to the NGL are approved by the COAG Energy Council and then enacted in SA only (which has effect nationally due to each jurisdiction adopting the NGL in their own jurisdiction); and
  - (vii) the NGL regulates access to 'covered' pipelines in accordance with NGL criteria (as determined by the National Competition Council). Where a prospective user is unable to agree with a pipeline service provider they may notify the dispute resolution body under NGL.



## Schedule 5 - Summary of UTR Regulatory Framework

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### 1. Key Regulatory Features

- (a) Utilities legislation, including the *Utilities (Technical Regulation) Act 2014* (ACT) (**UTR Act**), establishes a regime for the technical regulation of utility services, networks and certain infrastructure in the ACT by way of "**Technical Codes**" and a "**Technical Regulator**".
- (b) Technical Codes can be drafted by the Technical Regulator or provided to the Technical Regulator by utilities.
- (c) Following a statutory review and consultation process, Technical Codes may be approved by the relevant Minister.
- (d) Once approved, utilities subject to the utilities legislation must comply with the Technical Code(s).
- (e) Current codes contemplate:
  - (i) interfaces and boundaries between utility networks and consumers;
  - (ii) dispute resolution mechanisms;
  - (iii) gas installations, gas pressure, gas connections to consumers;
  - (iv) metering of gas connections;
  - (v) labelling of electrical installations;
  - (vi) use of common (electrical) trenches;
  - (vii) development of rules by utilities;
  - (viii) fault conditions; and
  - (ix) other technical requirements.
- (f) The Technical Regulator is located within the relevant ACT Government directorate and is responsible for reviewing, monitoring and enforcing compliance with the Technical Codes.