1.0 Introduction

1.1 Background

Around the globe hydrogen has a growing role in the drive to decarbonise energy markets and the demand for renewable hydrogen is growing rapidly. Hydrogen has many potential applications including providing emission-free fuel sources, electricity grid stabilisation and various industrial applications.

Already recognised as one of the world’s great energy commodity exporters, Queensland is well positioned for the production and export of hydrogen having access to significant renewable resources, land and established ports.

The Queensland Hydrogen Industry Strategy (QHIS) was released by the Queensland Government in May 2019. The objective of the strategy is to drive the development of an economically sustainable and competitive hydrogen industry that creates economic growth, opportunities for new export markets and generates the highly skilled jobs of the future, while supporting the transition to a low-emission economy.

The National Hydrogen Strategy was released by the COAG Energy Council in November 2019 and is available at www.industry.gov.au.

1.2 Purpose

The Queensland Hydrogen Investor Toolkit (the toolkit) responds to two actions from the QHIS:

- Action 2.1 of the QHIS is to ‘Prepare an investor toolkit to assist private sector proponents with information on developing projects in Queensland’ and
- Action 2.2 to ‘Provide project facilitation services, including investment facilitation and the application of the powers of the Coordinator-General, to eligible project proponents.’

The toolkit has been prepared to assist investors with project planning for hydrogen developments in Queensland. It provides an overview of the planning and other regulatory approvals information in Queensland. Application of this toolkit is most relevant during the feasibility phase of a project, prior to final site selection and design.

This toolkit focuses on ‘renewable hydrogen’ produced from renewable energy via electrolysis. Not all sections of this toolkit will be relevant to all proposals. It provides general information, contacts and references to seek further detailed assistance. It is advised to seek professional advice in relation to proposals.

It is important to note that this investor toolkit will not be a static document. It will be regularly updated as new information emerges from engagement with project proponents and direct experience with hydrogen projects.

For information on renewable hydrogen projects in Queensland that are public please refer to Queensland Hydrogen Projects and for coordinated projects under the State Development and Public Works Organisation Act 1971 (the State Development and Public Works Organisation Act)

2.0 Investor enquiries

The Department of State Development, Infrastructure, Local Government and Planning (DSDILGP) and other agencies actively engage with companies to attract investment. Proponents with proposals for hydrogen developments are encouraged in the first instance to contact the department at hydrogen@qld.gov.au for initial advice. Other facilitation services provided by DSDILGP include:

- Project facilitation to assist private proponents to deliver projects that generate jobs and boost economic growth, for example:
  - addressing issues and barriers that inhibit a project’s establishment or expansion

1 Queensland Hydrogen Industry Strategy | statedevelopment.qld.gov.au
ensuring a coordinated approach across government
- providing an exclusive mandate to develop a transaction with government for government assets such as land, information or networks.

• Coordination and filtering of ideas from industry, for prompt referral to appropriate government agencies and decision-makers.
• Pre-lodgement meetings to discuss and plan approval pathways for projects with (or enquiring about) state referral matters.
• For projects declared as Prescribed Projects the Coordinator-General can intervene in approvals processes to ensure they run on time.

The Coordinator-General is an authority to strengthen facilitation and expedite the delivery of large-scale and complex projects which will deliver new jobs and promote investment in Queensland. The Coordinator-General has a range of powers under the State Development and Public Works Organisation Act. The Office of the Coordinator-General works with private sector project proponents to facilitate, develop, assess and manage major project development across the State.

The Office of the Coordinator-General has experience in facilitating the establishment of new industry in Queensland and played an important role in the efficient establishment, assessment and development of the LNG industry in Queensland, through the use of a range of powers under the State Development and Public Works Organisation Act.

3.0 Key considerations in Queensland

The approvals pathways for hydrogen projects will vary significantly depending on the nature and scale of the proposal, the intended location and other factors such as storage options, transportation and use.

Some projects may be located and be of a nature and scale that will have minimal impacts and therefore require little assessment, while others may be complex and require detailed assessment through State and commonwealth processes. As a project proponent, you need to consider planning and environmental requirements under the relevant Australian, Queensland and local government legislation applying to the site.

Project proponents are encouraged to contact the Queensland Government as early as possible to discuss their proposal. There are a range of project facilitation services available that can assist a proponent with identifying the optimal location for a proposed development, advice on potential assessment and approval pathways and ensuring the proponent allows sufficient time in the project plan for the assessment and approval processes.

Initial inquiries can be directed to hydrogen@qld.gov.au. Contact details have been provided for inquiries specific to planning approvals, land tenure, safety and other relevant issues in Section 13 below.

Other initial considerations for hydrogen proposals may include:
- surrounding sensitive land uses
- the zoning of the site (industrial, rural, strategic port land etc)
- existing approvals and constraints over the site
- access to appropriate transport infrastructure
- access to existing gas pipeline network
- proximity to ports for export opportunities
- capacity of surrounding area to accommodate new pipelines (if proposed)
- access to other services such as water, sewerage etc.
- access to skilled workforce
- risk factors and mitigation tactics
- potential for co-location with proposed renewable energy projects.
4.0 Choosing a site

4.1 Land tenure

The tenure of land in Queensland may be defined under two broad headings—freehold and non-freehold. Land tenure can be searched under the Queensland Globe mapping system (under the layer planning cadastre).

4.2 Freehold land

Approximately 28 per cent of the total land area in Queensland is freehold land. Freehold land can be owned outright with no time limit. However, minerals or petroleum in Queensland are generally reserved to the State and the use of the land may be controlled by further legislation.

Freehold land is recorded in the Freehold Land Register and not ordinarily subject to native title considerations, however advice on native title should be sought. In general, it is viewed that freehold land provides the greatest security of tenure for investors.

4.3 Non-freehold land

Non-freehold land is land under the control of the State of Queensland, but may be subject to a lease, license or permit, reserved for a community purpose, dedicated as a road or subject to no tenure at all. The Land Act 1994 (the Land Act) applies to non-freehold land and is administered by the Department of Resources (DR).

A term lease, perpetual lease or freehold lease may be granted over State land. A road license and a permit to occupy are available for shorter term, specific occupation. A term lease is granted for a set period of time (between 1–100 years) while perpetual leases have no fixed term and are issued for a specific purpose such as grazing. A freeholding lease is where the landholder previously held a grazing homestead perpetual lease, special lease or a non-competitive lease and agrees to purchase the land and pay the State via instalments over a number of years.

4.4 Unallocated state land

Under Schedule 6 of the Land Act unallocated state land is all land that is not:

a) freehold land, or land contracted to be granted in fee simple by the State; or

b) a road or a reserve, or a national park, conservation park, State forest or timber reserve; or

c) subject to a lease, license or permit issued by or for the State, other than a permit to occupy under the Land Act issued by the chief executive.

There are a number of criteria to convert unallocated state land to freehold or to grant a lease over unallocated state land. In general land cannot be converted without competition or undertaking a ‘most appropriate use assessment’ and native title must also be considered.

5.0 State Development Areas

State Development Areas (SDAs) are clearly defined areas of land planned and managed by Queensland’s Office of Coordinator-General to promote economic development in Queensland. SDAs are established by regulation. A number of these are established to support major industrial developments in close proximity to trading ports e.g. Gladstone, Townsville, Abbot Point.

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SDAs are typically one of the following:

- industrial hubs for large-scale, heavy industry - mainly located on the coast of Queensland, close to ports, rail and major road networks
- multi-user infrastructure corridors - for the co-location of infrastructure such as rail lines, water and gas pipelines, and electricity transmission lines
- major public infrastructure sites - for example, the Queensland Children’s Hospital.

Each SDA is subject to a development scheme which is a regulatory document that controls the planning and development in an SDA. Where the development scheme is silent on matters, other planning instruments (such as local planning schemes and other State legislation) are applicable. There are currently 12 SDAs in Queensland.

The Coordinator-General can acquire land within an SDA to provide for the establishment of industry. For example, the LNG industry in Queensland was established with assistance of the Coordinator-General’s powers to acquire land in the Gladstone SDA and the Callide Infrastructure Corridor SDA.

For further information on State Development Areas contact:
Email: sdainfo@coordinatorgeneral.qld.gov.au
Phone: 1800 001 048 (business hours 8.30 am to 5.00 pm Monday to Friday).

6.0 Economic Development Queensland

Economic Development Queensland (EDQ) is the Queensland Government’s specialist land use planning and property development unit. They work with local governments, industry and the community to identify growth opportunities and deliver infrastructure and property projects for Queensland’s economic benefit. EDQ operates under the Economic Development Act 2012 (The Economic Development Act) and is a commercial business unit within DSDILGP.

The EDQ property portfolio includes almost 20,000 hectares of industrial land which they develop, sell and manage. This includes land located within SDAs across Queensland. EDQ also manages development projects in some Priority Development Areas (PDAs). PDAs are declared by the Minister for Economic Development Queensland and are parcels of land identified for development to deliver significant benefits to the community.

For further information on Economic Development Queensland contact:
Email: industrial@dsdilgp.qld.gov.au
Phone: 07 3452 7880 (business hours 8.30 am to 5.00 pm Monday to Friday)
www.industrial.edq.com.au
and/or

7.0 Renewable energy

The QHIS focuses on renewable hydrogen production to meet both domestic demand and international customers.

Information on renewable energy resources is available through the Australian Renewable Energy Mapping Infrastructure.

Detailed information on electricity generation in Queensland (including proposed, under construction or existing generation) is available here.

When planning or commencing a renewable energy project, you must obtain access to suitable and available land and follow the relevant development assessment processes. Detailed information is available here. This covers the assessment process for both wind farms and large-scale solar projects.

Your project may also require a connection to the energy network. Depending on the project’s size and energy demands your connection will be managed by either an electricity distributer such as Energy Queensland (Ergon
Energy, Energex) or Essential Energy (<50MW) or, for larger projects (>50MW), through Powerlink who manage Queensland’s transmission network. See this link for information about the process of connecting to the transmission network.

8.0 Regulatory processes for development in Queensland

There are various development assessment pathways in Queensland depending on the scale, complexity and location of a project. Essentially, development applications are assessed by the local Council while projects requiring multiple complex approvals may be eligible for management and assessment by the Coordinator-General. Development applications in SDAs are assessed by the Coordinator-General.

8.1 Development assessment

A planning approval is required when undertaking ‘assessable development’. Development is not limited to just construction and can also occur when changing the use of the land, even if the use is located within the confines of existing built structures (constituting a material change of use).

The main types of development (further defined in the Planning Act 2016 - the Planning Act) include:

- making a material change of use — a new use of a building, structure or land, or intensifying an existing use (e.g. expanding a service station, or developing a new industrial use on land that was previously a house on a rural lot)
- carrying out building work — includes building, repairing, altering, underpinning and some excavation
- carrying out operational work — making other changes to the land itself (e.g. earthworks, vegetation clearing etc)
- reconfiguring a lot — subdividing land, or carrying out other actions such as amalgamating lots or rearranging boundaries
- carrying out plumbing and drainage work.

Development applications are made by the ‘applicant’ and are assessed by an ‘assessment manager’. Most commonly the assessment manager is the local council however there are instances where the assessment manager is not the local council. Schedule 8 of the Planning Regulation 2017 (the Planning Regulation) identifies the assessment manager for different types of development.

All development applications go through a process of assessment (the ‘DA process’) resulting in a decision. The DA process is outlined by the Development Assessment Rules (statutory instrument). The application may also be assessed by a referral agency for specific matters and this process is further described below.

There are three categories of development applied by local governments through their planning schemes. Local governments may apply different levels of assessment to development types in their local area.

The three categories (or levels) of development are:

- prohibited — applications for these circumstances cannot be made as these types of developments are not permitted.
- accepted — does not require an application to be made, including if it meets certain conditions
- assessable — requires an application to be made and a development decision to be issued. There are two types of assessable development:
  - code assessable — no public consultation required
  - impact assessable — public consultation required.

8.2 State Development Areas
Development Schemes regulate planning and development within a State Development Area (SDA) and:

- specify the development assessment process for SDA applications, change applications and requests
- specify development outcomes to be achieved
- outline a range of administrative matters relative to development in an SDA.

An SDA development scheme overrides local and State government planning instruments for development that is regulated by the scheme. Development not regulated by a development scheme is currently regulated under the Planning Act 2016 (Planning Act) or in cases where Strategic Port Land applies, under a Land Use Plan prepared in accordance with the Transport Infrastructure Act 1994. In some instances (where a proposal has the potential to impact on matters of national environmental significance) Commonwealth assessment may also be required.

All SDA development schemes regulate material changes of use (MCU) however some development schemes also regulate other processes relative to MCUs such as operational works (OWs) and reconfiguring a lot (RaL). Development schemes also contain processes for change applications for SDA approvals, requests to state a later currency period, requests to change an SDA application, and requests for prior affected development. More on state development areas is at this link.

8.3 Local government planning schemes

Local governments prepare planning schemes to advance State and regional policies through more detailed local responses (in addition to other requirements under the Planning Act).

Planning schemes set out zones, tables of assessment and codes which outline the criteria which development applications are assessed against (in the ‘DA Process’).

Generally, an impact assessable application will take more time (sometimes significantly more time) to assess than a code assessable application. Public notification calls for the public to make submissions relating to the proposal which are then considered as part of the decision-making process. Submitters, who have made a properly made submission on impact assessable development applications also have the right to appeal to the court about the decision.

It is recommended that applicants take advantage of councils’ pre-lodgement services to gain an understanding of the requirements and assessments related to their proposals that is specific to the local government area it is to be located in.

The Department of State Development, Infrastructure, Local Government and Planning has issued guidance for local government in plan drafting for hydrogen developments.

More on the development application processes can be found at https://planning.stat.development.qld.gov.au/

8.4 State Assessment Referral Agency

The Planning Regulation prescribes when certain types of development require referral to the State for assessment (e.g. development in proximity to state controlled roads, clearing of certain vegetation, development affecting waterways etc). The State Assessment and Referral Agency (SARA) provides a whole-of-government approach to this assessment, by facilitating specialised technical input from a range of state agencies. There are some limited circumstances where SARA may also be the assessment manager for an application and in these cases the application is made directly to SARA. Referral of development applications to SARA must be made through its electronic lodgement system MyDAS.

The State Development Assessment Provisions (SDAP) provides assessment benchmarks to assess applications where the State is the referral agency (or assessment manager). For example, the relevant SDAP code detailing assessment benchmarks for the development of ‘hazardous chemical facilities’ is State code 21: Hazardous chemical facilities (see Table 1 below for further information).

SARA also offers a free pre-lodgement service to provide advice about elements of the proposal that will trigger state assessment and how proposals are assessed against the relevant performance benchmarks, prior to submitting an application. SARA is positioned within the Department of State Development, Infrastructure, Local Government and Planning (DSDILGP).

More information on SARA’s role in the development assessment process can be found here.
### 8.5 Coordinated projects

The Office of the Coordinator-General uses powers under the State Development and Public Works Organisation Act to evaluate large scale, regionally significant and complex projects, which are declared a coordinated project. The Coordinator-General ensures that environmental, social and economic impacts of coordinated projects are properly managed.

Coordinated projects play a key role in the minerals, energy, manufacturing, transport, tourism, agricultural and infrastructure sectors. Coordinated projects are typically large and complex with the potential to generate significant impacts and benefits that require a comprehensive and coordinated whole-of-government assessment. Declaration of a coordinated project also allows for a more efficient and effective assessment of Commonwealth matters, via the bilateral agreement between the Queensland and Australian Governments.

A proponent of a project with one or more of the following characteristics may apply to have it declared a 'coordinated project' under the State Development and Public Works Organisation Act:

- complex approval requirements, involving local, state and or federal governments
- significant environmental effects
- strategic significance to the locality, region or state, including for the infrastructure, economic and social benefits, capital investment or employment opportunities it may provide
- significant infrastructure requirements.

The proponent of a coordinated project must prepare an environmental impact statement (EIS) or impact assessment report (IAR). The Office of the Coordinator General is available to meet with proponents to discuss proposals, the approvals pathways and the process of assessment. Further information about coordinated projects and the Office of the Coordinator General is available [here](#).

The coordinated project assessment pathway sets clear expectations for environmental assessment. For coordinated projects requiring an EIS, project-specific Terms of Reference, outlining assessment requirements, are developed. Amongst other things, Terms of Reference may adopt international standards where there is no relevant State or National standards (e.g. hydrogen technologies and/or standards). Terms of Reference are developed in conjunction with proponents and may include public consultation before finalisation by the Office of the Coordinator-General.

Importantly, in evaluating the impacts of coordinated projects, the Office of the Coordinator-General may set conditions to be included in subsequent local, state and commonwealth approvals.

### 8.6 Prescribed projects

The Minister responsible for administering the State Development and Public Works Act may, by Gazette Notice, declare a project to be a 'prescribed project'. A prescribed project is one which is of significance, particularly economically and socially, to Queensland or a region.

The types of projects that may be declared prescribed projects include:

- a project in a state development area
- an infrastructure facility (as defined in the State Development and Public Works Organisation Act)
- a project declared a 'coordinated project'
- another project the minister considers is economically or socially significant to Queensland or the region in which the project is to be undertaken, or affects an environmental interest of Queensland or a region.

A prescribed project declaration enables the Coordinator-General, if necessary, to intervene in state and local government approval processes to ensure timely decision-making for the prescribed project.

The Coordinator-General may give notices to a decision-maker for making a decision on the development of a prescribed project to ensure that the assessment process proceeds without undue delay.
This decision-maker may be a state government agency, local government or a government-owned corporation responsible for providing approvals, permits or authorities. The Coordinator-General cannot issue a notice relating to a decision to be made by the Governor in Council or a minister, or decisions outside Queensland.

For prescribed projects, the Coordinator-General can issue a:

- progression notice, which requires the decision-maker to 'progress' the administrative processes necessary to complete the assessment process
- notice to decide, which requires the decision-maker to make the relevant decision within a specified timeframe
- step in notice, which allows the Coordinator-General (with the Minister's approval) to 'step in' and assume responsibility for assessing and deciding on a project, in place of the decision-maker.

### 9.0 Safety and Environmental Regulation

#### 9.1 Environmental Regulation and Thresholds

Environmentally Relevant Activities (ERAs) are outlined in the *Environmental Protection Regulation 2019* (the Environmental Protection Regulation) and where forming part of a development application are made through SARA. Standalone ERAs can be applied for directly to the Department of Environment and Science (DES). Where hydrogen production or storage is proposed as part of an existing development (with current ERAs), it is possible that this new activity may fit into existing approvals. It is recommended that this be determined through a pre-lodgement meeting with SARA.

Thresholds are also prescribed under other acts and regulations. Note that typically fees are associated with applications, permits and licenses and cost is often determined by the scale of proposal.

ERAs that may be triggered are outlined in the following table. It should be noted that this list has been developed based on ‘typical’ investment leads to date and is not intended to be exhaustive. Proponents are encouraged to contact SARA as early as possible and seek advice on potential ERAs that may apply.

<table>
<thead>
<tr>
<th>Table 1 – Potential hydrogen ERA triggers and thresholds</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organic</strong> <strong>chemicals:</strong></td>
</tr>
<tr>
<td><strong>Threshold</strong></td>
</tr>
<tr>
<td>200t to 1,000t</td>
</tr>
<tr>
<td>More than 1,000t to 10,000t</td>
</tr>
<tr>
<td>More than 10,000t to 100,000t</td>
</tr>
<tr>
<td>More than 100,000</td>
</tr>
</tbody>
</table>

---

For instances where multiple chemicals are manufactured a cumulative threshold may

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Queensland Hydrogen Investor Toolkit
apply. Pre-lodgement meetings with SARA are encouraged to determine if an ERA is applicable.

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**ERA 8 Chemical storage**  
(part 2 of schedule 2, Environmental Protection Regulation)

‘Chemical storage’ is defined as storing (in containers of at least $10m^3$) 200t or more of solids or gases or/and 200$m^3$ of liquids.

Note: The Environmental Protection Regulation points to the Australian Dangerous Goods Code to define the ‘class’ of chemical. Hydrogen (compressed, refrigerated liquid and fuel cell cartridges containing hydrogen in metal hydride) are defined as Class 2, division 2.1.

For instances where multiple chemicals are stored a cumulative threshold may apply. Pre-lodgement meetings with SARA are encouraged to determine if an ERA is applicable.

<table>
<thead>
<tr>
<th>Threshold</th>
<th>Aggregate Environmental Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storing 200t or more of chemicals that are solids or gases, other than chemicals mentioned in items 1 to 3, under subsection (1)(d)</td>
<td>31</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Threshold</th>
<th>Aggregate Environmental Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storing 200t or more of chemicals that are liquids, other than chemicals mentioned in items 1 to 3, under subsection (1)(d)</td>
<td>31</td>
</tr>
</tbody>
</table>

---

**9.2 Safety Regulation and Thresholds**

*Petroleum and Gas (Production and Safety) Act 2004*

Operations where hydrogen is used or intended to be used as a fuel source to generate heat, light or power (including vehicles) are regulated by the *Petroleum and Gas (Production and Safety) Act 2004* (the Petroleum and Gas Act). The Petroleum and Gas Act is administered by Resources Safety and Health Queensland (RSHQ).

RSHQ regulates gas safety for:
- pipelines and distribution of hydrogen for use as a fuel
- hydrogen refuelling stations
- hydrogen gas appliances (using hydrogen blends or pure hydrogen)
- fuel cells in hydrogen vehicles and other applications
RSHQ is developing a Hydrogen Safety Code of Practice to inform industry of specific safety approvals and requirements for hydrogen fuel gas when it is supplied, stored, transported, and for devices and systems using hydrogen as a fuel. The Code will also inform proponents about what they need to do to comply with safety requirements.

Table 2 below outlines Petroleum and Gas Act requirements for hydrogen applications.

**Table 2 – Petroleum and Gas Act**

<table>
<thead>
<tr>
<th>Potential Application</th>
<th>Petroleum and Gas Act Provision</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pipelines and fuel gas distribution:</strong></td>
<td>Distribution of hydrogen as a fuel gas (including fuel stations) and in pipelines triggers ‘operating plant’ obligations including:</td>
</tr>
<tr>
<td>• blending hydrogen into a natural gas network¹</td>
<td>• Information notices (safety executives, plant commissioning) – section 694A</td>
</tr>
<tr>
<td>• pure hydrogen pipelines</td>
<td>• a safety management system - section 674</td>
</tr>
<tr>
<td>• pure hydrogen gas systems</td>
<td>• keeping risk to an acceptable level – section 699</td>
</tr>
<tr>
<td>• hydrogen fuel stations</td>
<td>• compliance with relevant safety requirements – section 669 and section 708A</td>
</tr>
<tr>
<td></td>
<td>• incident reporting – section 706</td>
</tr>
<tr>
<td>¹ Hydrogen blended in the gas network at up to 10% is not likely to require any change to appliances or requirements for current users of the gas network. 10% hydrogen is within allowances of current Australian standards.</td>
<td></td>
</tr>
</tbody>
</table>

**Hydrogen refuelers**

Hydrogen fuel stations are ‘operating plant’ and require a Safety Management System as outlined in s675 of the Petroleum and Gas Act.

**Gas appliances using hydrogen as a fuel:**

- a combustion engine or another gas fired appliance
- fuel cells in a vehicle or a drone and other applications

Section 731AA requires approval of gas devices for supply, installation or use, including gas devices using hydrogen as a fuel.

Use of hydrogen as a fuel in a gas appliance requires the installer to have a gas work licence (gas device type A) or a gas work authorisation (gas device type B) – section 726 and section 727.

Please contact the Petroleum & Gas Inspectorate to discuss requirements specific to a proposed project at:

HydrogenSafety@rshq.qld.gov.au.

Workplace Health and Safety Act 2011
The Work Health and Safety Act (WHS Act) outlines duties for all workplaces. There are requirements that apply to hydrogen regardless of the lead regulator. These include: hazardous chemical requirements, pressure vessel requirements, duty of care requirements etc.

In addition, Workplace Health and Safety are the lead regulator for all major hazard facilities in Queensland. A hydrogen site with 10% or more of the threshold may be determined as a major hazard facility. For more information contact the Office of Industrial Relations (OIR) at hicb@oir.qld.gov.au.

Table 3 below outlines storage thresholds and workplace health and safety requirements for hydrogen applications.

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen</td>
<td>50t</td>
</tr>
</tbody>
</table>

Table 3 – Hydrogen storage safety thresholds

Major hazard facilities
Schedule 15 of the Workplace Health and Safety Regulation

Proposed facilities exceeding the threshold (eg > 50 t of hydrogen) will be major hazard facilities.

Note:
Aggregation of numerous chemicals stored in one location in addition to hydrogen may trigger the aggregate threshold.

Major hazard facilities are managed by the Office of Industrial Relations (OIR) within Queensland Workplace Health and Safety. Projects determined as Major Hazard Facilities must comply with all parts of chapter 7 Hazardous Chemicals of the Workplace Health and Safety Regulation, and part 9.3 Duties of operators of determined Major Hazard Facilities while preparing a safety case and licence application.

State code 21: Hazardous chemical facilities of the SDAP outlines the assessment benchmarks for design, siting and risk mitigation for proposed facilities.

Please contact OIR for advice.

Hazardous chemical facilities
Schedule 10, Part 7, Division 1 Planning Regulation.

‘Hazardous chemical facility’ means the use of premises for a facility at which a prescribed hazardous chemical is present or likely to be present in a quantity that exceeds 10% of the chemical’s threshold quantity under schedule 15 of the Work Health and Safety Regulation (WHSR).

The threshold quantity for hydrogen is 50t which means facilities storing greater than 5 t of hydrogen, but less than 50t may be subject to an inquiry to determine if they should be a major hazard facility.

State code 21: Hazardous chemical facilities of the SDAP outlines the assessment benchmarks for design, siting and risk mitigation for proposed facilities.

Hazardous chemical facilities are managed by the Office of Industrial Relations (OIR) within Queensland Workplace Health and Safety

OIR considers the maximum storage quantity, the proposed location and proposed design to decide if an inquiry is necessary. An inquiry will be held concurrently with the development assessment process.

Facilities determined as a major hazard facility on inquiry must
prepare a safety case and be licenced (see above).

Please contact OIR for advice.

**Australian Standards**

Australian Standards specific to hydrogen use are being developed and adopted by the ME-093 Hydrogen Technologies Committee, in alignment with international standards (see [www.standards.org.au](http://www.standards.org.au)).

Below is a list of published standards as at September 2021.

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AS 62282.3.300:2021</td>
<td>Fuel cell technologies, Part 3.300: Stationary fuel cell power systems - Installation (IEC 62282-3-300:2012 (ED.1.0), MOD)</td>
</tr>
<tr>
<td>AS ISO 19880.5:2021</td>
<td>Gaseous hydrogen - Fuelling stations, Part 5: Dispenser hoses and hose assemblies</td>
</tr>
<tr>
<td>AS ISO 19881:2020</td>
<td>Gaseous hydrogen - Land vehicle fuel containers</td>
</tr>
<tr>
<td>AS 22734:2020</td>
<td>Hydrogen generators using water electrolysis - Industrial, commercial, and residential applications (ISO 22734:2019, MOD)</td>
</tr>
<tr>
<td>AS ISO 19880.8:2021</td>
<td>Gaseous hydrogen - Fuelling stations, Part 8: Fuel quality control</td>
</tr>
<tr>
<td>AS 26142:2020</td>
<td>Hydrogen detection apparatus - Stationary applications (ISO 26142:2010 (ED 1.0) MOD)</td>
</tr>
<tr>
<td>AS ISO 14687:2020</td>
<td>Hydrogen fuel quality - Product specification</td>
</tr>
<tr>
<td>AS 62282.3.100:2021</td>
<td>Fuel cell technologies, Part 3.100: Stationary fuel cell power systems - Safety (IEC 62282-3-100:2019 (ED.2.0), MOD)</td>
</tr>
<tr>
<td>SA TR 15916:2021</td>
<td>Basic considerations for the safety of hydrogen systems (ISO TR 15916:2015, MOD)</td>
</tr>
</tbody>
</table>

**Electrical Safety Act 2002**

Refer to the *Electrical Safety Act 2002* (the Electrical Safety Act) for the application of the Act to a hydrogen plant.

During the building construction phase of a hydrogen plant and prior to commencing hydrogen production:

- a high voltage installations accredited auditor is required to inspect high voltage electrical installations prior to connection to an electricity source
- Hazardous area accredited auditors are required to inspect workplaces prior to connection of electrical equipment located in a classified hazardous area to an electricity source.

10.0 Examples of other approvals that may be required

Table 3 – Other potential hydrogen approvals

<table>
<thead>
<tr>
<th>Approval</th>
<th>Regulator/Authority</th>
<th>Relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other potential ERAs may include:</td>
<td>Queensland Department of Environment and Science (DES)</td>
<td>Thresholds and details for all ERAs are listed in schedule 2 of the Environmental Protection Regulation.</td>
</tr>
<tr>
<td>- 14 - Electricity generation</td>
<td>ERAs 14, 53, 55, 61 and 64 are concurrence ERAs.</td>
<td></td>
</tr>
<tr>
<td>- 53 – Organic material processing</td>
<td></td>
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<tr>
<td>- 55 - Other waste reprocessing or treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 61 – Thermal waste reprocessing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 64 - Water treatment.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generation authority (when connecting to a transmission network)</td>
<td>Department of Energy and Public Works</td>
<td>A generation authority application may be required as set out in the Electricity Act 1994. A generation authority is required before connecting to the transmission grid or distribution network. DEPW seeks public submissions during the approval process for a generation authority as well as considering any development approval associated with the project. Note: if you operate a generating plant with a capacity of 30 megawatts or less you have special approval (under section 130 of the Electricity Regulation 2006) to connect the generating plant to a transmission grid or supply network. In this case, you would not need to hold a generation authority but may rely on the special approval given by regulation.</td>
</tr>
<tr>
<td>Retail authority (when selling energy)</td>
<td>Australian Energy Regulator (AER)</td>
<td>As of 1 July 2015 and the commencement of the National Energy Customer Framework</td>
</tr>
<tr>
<td>Native title</td>
<td>DR</td>
<td>The <em>Native Title Act 1993</em> provides for the recognition and protection of native title and establishes the processes in which future dealings affecting native title may proceed such as through Indigenous Land Use Agreements. This may be particularly relevant to proposals in remote or off-grid locations.</td>
</tr>
<tr>
<td>Cultural heritage management plan</td>
<td>DR</td>
<td>The <em>Aboriginal Cultural Heritage Act 2003</em> and the <em>Torres Strait Islander Cultural Heritage Act 2003</em> seek to provide effective recognition, protection and conservation of Aboriginal cultural heritage, including a significant Aboriginal area, object or archaeology. In some cases (including when an Environmental Impact Statement is prepared) a Cultural Heritage Management Plan (CHMP) may be required.</td>
</tr>
<tr>
<td>Permits required under the <em>Environmental Protection and Biodiversity Conservation Act 1999</em> (Environmental Protection and Biodiversity Conservation Act)</td>
<td>DR</td>
<td>Under the Environmental Protection and Biodiversity Conservation Act, actions that have, or are likely to have, a significant impact on a matter of national environmental significance require approval from the Australian Government Minister for the Environment.</td>
</tr>
<tr>
<td>Other secondary approvals for operational work may be required (i.e. building works, plumbing approvals etc)</td>
<td>DR</td>
<td>A building development approval (or building permit) is needed from the relevant local government before construction can start. The building approval sets out the mandatory inspections required at various stages in the construction process. The <em>Plumbing and Drainage Act 2018</em> governs the approvals for plumbing works and introduced final inspection certificates. A Form 19—Final inspection certificate is used by local government or a public sector entity to certify that the permit work is compliant, operational, and fit for use.</td>
</tr>
</tbody>
</table>
11.0 Water

A water authorisation may be required before taking or interfering with water. An authorisation may be in the form of a water allocation, water license or water permit. A development application may also be required for associated works such as pumps and bores.

Water allocations authorise the holder to take a certain volume of water from a particular source, such as a watercourse or aquifer. Allocations have a separate title, similar to a land title, and can be bought and sold on the water trading market. A water license is an authority granted under the Water Act 2000 (the Water Act).

Water licenses are issued for long-term activities for taking water and are usually attached to land. In some parts of Queensland, water licenses to take water can be relocated permanently or seasonally.

Permits are issued for temporary activities with a foreseeable end date. Permits cannot be relocated, traded, amended, renewed or suspended. Permits specify the location of take, an expiration date and the conditions attached to the permit.

The Department of Regional Development, Manufacturing and Water is available to provide advice on water availability to support the development of the Hydrogen sector in Queensland. To obtain support and advice on the development of Hydrogen opportunities please provide details of your project or query to water.investor.hotline@dnrme.qld.gov.au or call 13 QGOV (13 74 68).

12.0 Vehicles

Before a new vehicle can be registered for the first time in Australia, it must meet the requirements of the Motor Vehicle Standards Act 1989 (the Act). Under the Act, new vehicles are required to be fitted with an identification plate (formerly known as a compliance plate). The identification plate provides a clear indication to the state or territory registering authority – and to the owner and the general public – that the vehicle is ready for use in transport on public roads in Australia.

The Australian Government maintains jurisdiction over road vehicles up to the point of first supply to the Australian market. State and territory governments are responsible for continued regulation after this point (e.g. vehicle registration, roadworthiness, the approval of modifications to vehicles in-service).

Table 4 below outlines options for import approvals and registration of HFCEV’s in Australia.

<table>
<thead>
<tr>
<th>Type Approval</th>
<th>Type Approval of a Variant Vehicle</th>
<th>Alternate International Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>If the manufacturer holds Identification Plate Approval from the Department of Infrastructure, Transport, Regional Development and Communications (DITRDC), and the vehicle is fitted with an identification plate, then the access to the road network is available as a matter of right. The manufacturer can obtain an Identification Plate Approval by demonstrating the vehicle type complies with the Australian Design Rules (ADR).</td>
<td>In some cases, vehicle types can include known combinations or “variants”. For example, a vehicle model with a HFC variant requires the manufacturer to demonstrate the hydrogen fuel system only. Manufacturers may apply to import and register variant models for test and evaluation, through the Evaluation Vehicle Option. State and Territory registering authorities have agreed on arrangements that apply for the registration of test and evaluation vehicles and their use on public roads. A permit from Vehicle Standards, Queensland Department of Transport</td>
<td>In making an application for a type approval (IPA), manufacturers may be able to provide evidence of compliance with United Nations Economic Commission for Europe (UNECE) Regulations where they are referenced as an alternative standard in the ADR. This streamlines the approval process for manufacturers that already meet UN standards. Currently 34 UN regulations are applied in the ADR.</td>
</tr>
</tbody>
</table>
Vehicles will need to be registered with a state authority. and Main Roads (DTMR) will be required providing an exemption from the requirement to fit an identification plate (as the hydrogen fuelled vehicle won’t be fitted with one). After the approved time, the vehicle must either fit a vehicle identification plate (i.e. demonstrate that it complies with the ADR) or be re-exported.

**Gas System and Device Approval**

Fuel cells are Type B gas devices under Petroleum and Gas legislation and require approval prior to use in Queensland.

Device approval is separate to vehicle approval.

For more information contact Resources Safety and Health Queensland.

**Gas System and Device Approval of a Variant Vehicle**

The same approval requirements apply for new and variant vehicles.

Once approved a vehicle may be sold in Queensland.

**International Standards**

In making an application for a device approval, manufacturers may be able to provide evidence of compliance with United Nations Economic Commission for Europe (UNECE) Regulations and other recognised international standards for fuel cells used in vehicles.

For more information contact Resources Safety and Health Queensland.

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### 13.0 Useful resources and contacts

**Department of State Development, Infrastructure, Local Government and Planning**

For general hydrogen project information/facilitation enquires:

Email: hydrogen@qld.gov.au

**State Assessment and Referral Agency (SARA)**

Email: DApolicy@dsdmp.qld.gov.au

**Office of the Coordinator General**

Coordinated Project Delivery

Email: cpdinfo@coordinatorgenral.qld.gov.au

**Land Acquisition and Project Delivery**

Email: PrescribedProjects@coordinatorgenral.qld.gov.au

**State Development Areas**

Email: sdainfo@coordinatorgenral.qld.gov.au

**Economic Development Queensland**

For State-owned industrial land enquiries

Email: industrial@dsdilgp.qld.gov.au

**Resources Safety & Health Queensland**

Petroleum and Gas Inspectorate

Email: hydrogensafety@rshq.qld.gov.au

Phone: (07) 3199 8027

**Office of Industrial Relations**

Workplace Health and Safety Queensland

Major Hazard Facilities

Email: hicb@oir.qld.gov.au

Phone: (07) 37385010

**Department of Transport and Main Roads**

Standards and Accreditation

Email: vehiclestandards@tmr.qld.gov.au

**Department of Regional Development, Manufacturing and Water**
Water
Email: water.investor.hotline@dnrme.qld.gov.au