

Good legislative practices for the green hydrogen industry

Key considerations

- Globally, few countries have established coherent legal frameworks to support and develop the production, distribution and storage of hydrogen, including green hydrogen. This paper provides an overview of the main issues which are required to be addressed within legislative frameworks and recommends best legislative practices to address those issues.
- To create an environment which encourages and promotes change, governments must establish legal frameworks that attract investment and promote development of the green hydrogen industry. This will require the formulation of supportive policies and clear and predictable laws that create certainty for investors and communities. This is particularly the case in the development of the hydrogen industry where large-scale investment is required and projects and concessions may last for decades.
- Whilst there are a myriad of issues for lawmakers to consider, this paper identifies key issues that governments should focus on when implementing their respective legislative frameworks, including administrative frameworks (e.g. permitting and certification), regulation and enforcement, standards, access to land, renewable energy requirements, access to water, environment and planning issues, access to infrastructure, fiscal regulatory regime and disclosures.
- Ultimately, the legislative frameworks will differ from one jurisdiction to the next since certain aspects of hydrogen's lifecycle may already be regulated under existing laws and certain practical considerations that are country-specific may need to be taken into account. As a result, a comprehensive analysis of existing laws will need to be undertaken before implementing any recommendations in this Paper.

This brief forms part of a set of guidance from the initiative on [Green Hydrogen Contracting – for People and Planet](#). The project supports governments, communities and companies in developing contracting practices for green hydrogen projects that ensure rapid expansion to everyone's benefit. The guidance has been developed by a working group consisting of governments, law firms, companies and civil society groups to draw lessons learned from emerging practices in the green hydrogen industry.

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1. Introduction

In order to limit global warming to 1.5°C above pre-industrial levels, bold and rapid change is required to change the ways we produce, transport and consume energy. Green hydrogen will play an important role in the global ambition to achieve net zero by 2050. Green hydrogen has the ability to transform our societies by decarbonizing carbon intensive sectors such as transport, production and manufacturing.

Despite the need for change, few countries have established coherent legal frameworks to support and regulate the production and distribution of hydrogen, including green hydrogen. Because the regulatory regimes which concern the production and distribution of clean hydrogen are generally in their formative stages, lawmakers currently have a unique opportunity to create legal frameworks which follow best international practice.

To create an environment which encourages and promotes change, governments must establish legal frameworks that attract investment and promote development of the green hydrogen industry. This will require the formulation of supportive policies and clear and predictable laws that create certainty for investors and communities. This is particularly the case in the development of the hydrogen industry where large-scale investment is required and projects and concessions may last for decades.

This paper recommends a "best practices" legislative framework that will effectively regulate the development of the green hydrogen industry. Whilst there are a myriad of issues for lawmakers to consider, this Paper identifies key issues that governments should focus on when implementing their respective legislative frameworks. This Paper does not seek to comment on bilateral investment treaties or other international law issues concerning the production, transportation and distribution of green hydrogen.

Ultimately, lawmakers will need to ensure that the legislative framework is attractive to investors in order to support the growth and development of the hydrogen industry. To this end, the legal framework must be fair, transparent, remove opportunities for corruption and governments must ensure the legislative frameworks are timely and efficiently administered. To achieve this, governments should seek to prescribe legal processes which:

- promote certainty by clearly stipulating which rights vest in and obligations are imposed on each stakeholder in the green hydrogen value chain;
- create legal mechanisms and processes that give rise to predictable outcomes; and
- limit the discretion that is afforded to administrators when they make decisions (such as granting or refusing applications).

The nature and extent to which the different stages of the green hydrogen value chain must be regulated will differ from one jurisdiction to the next. This is because parts of the value chain may already be considered under existing policies (such as a country's renewable energy strategy) or regulated under existing laws (existing gas and power laws). We also note that governments may enter into bi-lateral agreements with project developers. Whilst this paper recommends a best practices legislative framework, the concepts can be equally incorporated within a contractual arrangement.

2. Key issues

2.1 Administrative framework

An administrative framework which requires project proponents to obtain licenses from the government to produce and distribute hydrogen to end-users is strongly recommended to ensure that the green hydrogen industry is operated safely and responsibly.

A licensing regime will ensure that the state can manage and oversee the production and distribution of hydrogen. It will allow the state to allocate rights in a manner that can maximise the benefits to the state, particularly where a variety of potential land uses may exist on the same area of land.

In order to implement this administrative framework, governments will need to prohibit the production, distribution and storage of hydrogen for commercial purposes where the relevant person has not obtained either a hydrogen production licence, a hydrogen distribution licence or a hydrogen storage licence (as applicable). The framework will need to include a sufficiently broad definition of activities that concern the production, distribution and storage of hydrogen for commercial purposes to ensure the licensing regime is effective in applying to a broad range of industry participants.

Hydrogen Production Licences

The legislative regime for licencing the production of hydrogen should be granted at a project-level and include the following features:

- **Site specific:** Each licence should authorise the project proponent to establish and operate a site at a location specified in the licence for the purposes of producing gaseous hydrogen. The licence should require as a condition that each project proponent acquires an interest in the relevant land in which the licence applies (i.e. either through land purchase, lease, licence, etc.) and has received all necessary planning approvals to develop and operate the proposed facility (including environmental approvals).

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- **Prescribed commercial purpose:** In order to avoid the need to licence hydrogen produced at a domestic level or as part of research or the pilot testing of equipment or new technologies, licences should only be required for certain commercial purposes. The legislative regime will need to include the prescribed commercial purposes for which a licence is required. This could include producing gaseous hydrogen:
 - for wholesale distribution;
 - for use in industry or manufacturing, including the production of ammonia and other derivatives;
 - for the purpose of export; or
 - as part of a process of generating electricity for sale or supply to customers.
- **Incidental activities:** The licencing framework should ensure that project proponents are authorised to undertake any other activities that may be associated with, relevant or incidental to, producing gaseous hydrogen for a prescribed commercial purpose.
- **Classification of hydrogen:** The licensing framework should classify each hydrogen production licence as "brown", "blue", "grey" and "green". For more information on the standards that producers will need to comply with in order to produce hydrogen that is "green", please refer to section 2.3.

Hydrogen Distribution & Storage Licences

The legislative regime for licencing the distribution and storage of hydrogen should include the following features:

- **Authorised methods of distribution/transportation:** The chemical properties of hydrogen make it difficult to transport. It can be transported in different forms, including as a gas, liquid or solid; however, each form carries associated financial, safety and technical risks and challenges. The legislative framework should prescribe the authorised conditions in which hydrogen can be transported and the authorised method of distribution (e.g. via pipeline, high-pressure tube trailers, liquefied hydrogen tankers, etc.). The framework should prescribe the technical requirements for transporting hydrogen and the approved types of vehicles in order to ensure hydrogen is transported safely.
- **Authorised means of storage:** Similarly, hydrogen can be stored as a gas or liquid. Storage as a gas requires high pressure whilst storing hydrogen as a liquid requires cryogenic temperatures which carry financial, safety and technical risks and challenges. The legislative framework will need to prescribe the authorised conditions in which hydrogen can be stored (including technical requirements) and the approved means of storage (e.g. pressurised vessels, salt caverns, etc.).
- **Authorised capacity:** The framework should consider the size of the distribution infrastructure and/or storage facilities when approving the capacity of hydrogen that is permitted to be distributed and/or stored.

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- **Incidental activities:** The licensing regime should be broad enough to ensure that project proponents are authorised to undertake any other activities that may be associated with, relevant or incidental to, distributing hydrogen for a prescribed commercial purpose.

Administration

The licensing framework will need to include provisions which will assist the responsible government entity in administering the licensing framework. This includes:

- **Applications for licences:** The framework will need prescribe the process in which project proponents apply to the government for the relevant license and must prescribe the information required to be submitted by the applicant in order for the government to assess the application.
- **Consultation:** In order to maintain public trust and transparency, the government may wish to allow for applications for licenses to undergo a public consultation process whereby interested members of the community can provide submissions to the government with respect to the application which will be taken into consideration by the government when assessing the application.
- **Decision making:** The framework will need to include criteria which the relevant decision maker must consider when assessing an application. As such, the framework will need to provide the relevant decision maker with the power and discretion to either approve or deny the relevant application; however, such discretion must be limited to whether the applicant satisfies the prescribed criteria. Critical elements to consider when evaluating an application will include:
 - **Technical capacity**
 - Assessment of technical capacity should fall into three broad categories: (1) capacity to operate and manage the relevant business; (2) capacity to comply with the licence conditions; and (3) capacity to comply with the relevant regulatory obligations.
 - The applicant should be required to provide information that demonstrates that the applicant has the business skills, knowledge, personnel, systems and ability to operate the relevant business and it has the capacity to manage risk and to operate an effective and functional risk management and compliance system consistent with the relevant regulatory framework.

- **Financial capacity**
 - The applicant should be required to disclose various financial information (e.g. audited financial reports) to allow the decision maker to assess the financial position of the applicant and whether it has the financial capacity to comply with its obligations under the conditions of the licence and the legislative framework.
- **Fit and proper person test**
 - The licensing framework should also require the decision maker to assess whether each applicant is a fit and proper person.
 - This would involve requiring applicants to disclose information relating to insolvency, compliance with anti-bribery and corruption laws, prosecutions or enforcement action taken under relevant laws, disqualifications, refused licence applications or licences that have been restricted, suspended or revoked, material failures to comply with regulatory requirements or any current investigations by any other regulator.
- **Safety**
 - The licensing framework should require applicants to demonstrate that they comply with the applicable health and safety legislation and require applicants to identify risks associated with operations and prepare risk management strategies.
- **Timing for decision:** The framework should set mandatory maximum time limits for the decision maker to make a decision to provide predictability for investors.
- **Transfers/amendments/renewals/surrender:** The framework should allow the licensee to apply to the government for approval to either transfer, amend, renew or surrender any license granted.
- **Powers to revoke:** The framework should confer the power on the government to revoke a licence where the government considers that the licence is no longer being used for the purposes for which the licence was granted or the project proponent breaches any of the conditions of the licence.

- **Conditions:** Each licence should be subject to various conditions. This may include reporting requirements (see section 2.10 below), requirements to obtain the decision maker's consent before there is a change of control in the licence holder and may include an obligation on the licensee to comply with various laws (such as environmental laws). The conditions of each licence should also require the proponent to provide financial assurance (e.g. bonds, sinking funds, etc.) in order to effectively secure decommissioning and rehabilitation obligations and ongoing obligations during the life of the project. Financial assurance requirements must be clear and transparent from the outset so that project proponents can assess risks and costs early.

2.2 Regulation and enforcement

In order to ensure the industry is being operated safely and responsibly, industry participants must be subject to sufficient regulatory oversight.

Certain types of conduct by industry participants will need to be prescribed as prohibited under the legislative framework. In determining such conduct, regard should be had to ensuring that the hydrogen industry is operated with integrity and in a safe, fair and responsible manner. Examples of conduct that should be prohibited include distributing or producing hydrogen by means and methods that are not authorised by the legislation, or knowingly producing or distributing green hydrogen that has not been produced using renewable electricity in accordance with the prescribed standards.

Prohibited conduct should be classified under the legal framework as an offence and attract penalties in the event of a contravention. Serious contraventions may require criminal liability for senior business employees however any criminal liability should be strictly limited to egregious contraventions such as wilful misconduct and fraudulent behaviour. The quantum of the associated penalties should reflect the harm caused and the knowledge of the participant. The quantum should also serve as a deterrent so as to encourage compliance with the framework.

A regulator (the **Regulator**) should be established in order to oversee and ensure the hydrogen industry (including the production and distribution of hydrogen) is compliant with the legislative and regulatory framework established by the government. This will be critical to maintain integrity and public trust in the industry. We note that it may be preferable for certain countries that already have an existing regulator in the energy industry to assume additional functions to regulate the hydrogen industry rather than establish a new regulator.

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It is essential that the Regulator be independent and autonomous with little or no political interference. However, the Regulator should be able to co-ordinate and share information and resources with other government departments as required. The Regulator should have the following functions (among others):

- monitoring the hydrogen wholesale market to allow the Regulator to inform policy makers, participants and the community about wholesale market activity (including with respect to prices);
- monitoring market participants' compliance with the hydrogen legislative and regulatory framework (including in relation to both the production and distribution of hydrogen);
- validating producers' claims that hydrogen produced is green (see guarantee of origin mechanism at section 2.3 below);
- investigating breaches or possible breaches of provisions of the hydrogen legislative and regulatory framework; and
- instituting and conducting enforcement proceedings against relevant market participants.

The above list of functions is not intended to be a definitive or exhaustive list.

The regulations should limit excessive bureaucratic discretion afforded to the Regulator and must clearly define the Regulator's powers which allow it to perform its functions. By including provisions which limit administrative discretion, governments strengthen the rule of law, promote the predictability of the law and remove opportunities for impropriety. The regulations must also set out clear and practical processes for decision making by the Regulator and allow stakeholders to review and appeal decisions.

In order to maintain integrity, the Regulator should be required to disclose all licences, decisions and reports on a platform which is easily accessible to the public. The Regulator's constituent documents (e.g. constitution, terms of reference or other) should also be publicly available.

In countries where distributors of hydrogen hold a monopoly over critical distribution infrastructure (such as pipelines), economic regulation may be required to protect, strengthen and supplement competitive market processes. This could be achieved by establishing revenue caps which lock the revenue that can be received over a certain period in respect of provision of services. We note that host governments may wish to address issues associated with access to critical infrastructure once all elements of the green hydrogen value chain are established. Please see section 2.8 below for more commentary on the issues associated with access to infrastructure.

2.3 Green hydrogen standards

There are different views as to how to define "green hydrogen" and "renewable electricity", how to measure emissions, and how to verify hydrogen is "green". Governments will need to develop standards which clearly define the requirements that hydrogen must satisfy in order to be classified as "green".

Defining green hydrogen

Green hydrogen is sometimes characterised as having zero greenhouse gas emissions. However, in some circumstances, there may be some greenhouse gas emissions associated with electrolysis and associated processes. A key legal issue will be how to define "green hydrogen" by reference to the quantity and source of emissions in the legislative framework.

Governments will need to consider what threshold of emissions are permitted and are considered immaterial for the purposes of qualifying gaseous hydrogen as "green". Establishing such a threshold will reduce the participation burden by limiting excessive and pedantic emissions requirements. However, this may challenge the perceived integrity of the scheme, and therefore, governments must undertake thorough consultation before making such determinations. By way of example, following thorough industry consultation, GH2 determined that projects that operate at less than or equal to 1 kg of CO₂e per 1 kg of hydrogen produced (taken as an average over a 12-month period) were permitted to qualify the hydrogen produced as "green".

An emissions accounting methodology will also need to be designed by governments in order to determine whether gaseous hydrogen produced is "green". A list of material emissions sources associated with hydrogen's lifecycle will need to be clearly defined in the legislative framework. This could include a "well-to-user" model which captures emissions associated with the supply of raw materials, production, transport and storage to the point of consumption or international departure. At a minimum, all inputs in the production process must be captured in the accounting methodology such as emissions associated with water desalination (if applicable) and production of electricity.

It may be desirable for the carbon accounting framework to distinguish between emissions associated with the storage, conversion and delivery of hydrogen and those associated with production, particularly where governments wish to accredit green hydrogen producers and distributors separately. Noting that green hydrogen will be a globally traded commodity, it will be prudent to legislate carbon accounting methodologies which have been developed internationally (to the extent possible) to promote international harmonisation and trade.

In addition, governments may wish to consider whether production processes are prescribed/authorised for the purpose of producing green hydrogen as part of the legislative framework. For example, green hydrogen is currently produced through electrolysis. As such, green hydrogen may currently be defined as hydrogen produced through the electrolysis of water with 100% (or near 100%) renewable energy with close to zero greenhouse gas emissions. However, should technology and production methods advance

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in the future, green hydrogen may be produced using alternative methods. As a result, the definition of green hydrogen may need to remain flexible to account for these advances and prevent the need to amend the definition in the future.

Governments may also wish to consider emissions associated at the asset level such as emissions associated with materials (e.g. steel) used within the production facility or distribution infrastructure.

Finally, we note the European Commission has adopted the Additionality Delegated Act under the Renewable Energy Directive which specifies the conditions under which hydrogen or fuel produced from electricity – within or outside the EU – can qualify as renewable. Among other things, the Delegated Act introduces criteria aimed to ensure that renewable hydrogen is only produced when and where sufficient renewable energy is available (known as temporal and geographic correlation). These conditions will apply to both domestic producers as well as producers from third countries that want to export renewable hydrogen – or other hydrogen-based fuels, such as renewable ammonia or renewable methanol – to the EU to count towards the EU renewables targets.

Defining renewable energy

Governments will need to consider which electricity generation projects qualify as "renewable". The legislative framework will therefore need to define the types of renewable energy that may be used to produce green hydrogen. This could include hydropower, wind, solar (solar thermal and solar photovoltaic), geothermal energy, tide, wave and other ocean energy sources. Governments may wish to include nuclear in this definition, although environmental and safety issues associated with such technologies will need to be considered carefully. The legislation may also need to allow for other renewable energy projects to qualify, however this may need to be determined on a case-by-case basis.

The legislative framework will also need to consider the amount of renewable electricity required to be used in the production process in order for the hydrogen to qualify as "green hydrogen". In exceptional circumstances, the framework may give lenience to hydrogen producers to source electricity from other sources. For example, up to 5% of electricity from any source could be permitted to be consumed by electrolyzers in any given year if it can be reasonably demonstrated by the project proponents that there were technical or market constraints at play that meant such energy had to be consumed. Greenhouse gas emissions resulting from the use of this electricity consumption will need to be calculated according to official grid emission factors published by host country governments. However, the overall threshold for the greenhouse gas intensity of produced hydrogen should not exceed the legislated threshold in a given calendar year.

Guarantee of origin mechanisms

Another key issue the legislative framework will need to address is how to track and verify that gaseous hydrogen is "green" and produced in accordance with the legislative standards. Implementing a mechanism that can guarantee the origin of hydrogen will be critical to ensure integrity and trust within the industry.

Customers will seek to substantiate emissions claims associated with the products they use. Meanwhile, producers will want the emissions attributes of their outputs to be quantifiable and valued by markets. Consistent measurement and transparency of the carbon intensity of hydrogen will support sales nationally and internationally, and a government-backed scheme will provide trust, credibility and will reduce the due diligence required by investors, financiers and customers.

A legislated "Guarantee of Origin" (**GO**) mechanism should be implemented to enable industry participants to measure, track and verify the carbon intensity of hydrogen across its lifecycle (including its later use in hydrogen derivatives). The scheme would need to create certificates (**Hydrogen GOs**) for gaseous hydrogen that meets the legislated emissions standards. Each certificate should be provenance-based and follow the product itself, not the facility or company. A certificate should represent a standard unit of gaseous hydrogen that has been produced in accordance with the legislated emissions framework.

Given renewable electricity and green hydrogen are intrinsically linked, the guarantee of origin framework should similarly implement a certification system which tracks and verifies renewable electricity generation (**REGOs**) (to the extent such framework does not already exist). Among serving other purposes (including assisting emissions reduction initiatives in any given country), REGOs will assist claims from green hydrogen producers with respect to consumption of renewable energy, particularly where electricity consumed by electrolyzers is derived from the broader electricity network which pools generation. In order to claim zero emissions in the creation of green hydrogen, participants would need to surrender an equivalent volume of REGOs against an equivalent volume of electricity consumed in the production process. We note that REGOs will need to represent "net generation" by accounting for marginal loss factors (to capture energy losses due to electricity transmission) and auxiliary losses from onsite use of generation.

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Under the guarantee of origin scheme, there will be various roles for participation. Each participant should be required to register with an independent regulatory body that oversees the scheme. Participants could include:

- **Producer:** A participant with the ability to create hydrogen or renewable electricity certified under the scheme.
- **Intermediary:** A participant that neither creates nor uses hydrogen certified under the scheme (Hydrogen GOs only).
- **Agent:** A participant who may trade or consume certificates on behalf of other participants (REGOs only).
- **Consumer:** A participant who uses or consumes the certified hydrogen or electricity.

Eligibility to participate as a producer under the certification system should be closely regulated. In the case of hydrogen, eligibility should be limited to producers that have a green hydrogen production licence, an approved production process/facility and adequate accounting systems to track and measure emissions. In the case of electricity, eligibility should be restricted to power stations that generate electricity from a renewable energy source that meets the legislated standards.

Once a Hydrogen GO or REGO has been created by a producer, the products should be validated by an independent regulator. The validation process will require the producers to submit various data to allow the regulator to assess compliance with the standards. In order to promote transparency, certificates should be housed on a public register and include information regarding certain attributes associated with the product. In respect of renewable electricity, information on the register should include the certificate serial number, fuel source (or storage technology type) for electricity generation, electricity generation year, location of generation, certificate creation date, current owner of the certificate, current status of the certificate, creator of the certificate and the power station accreditation code.

Finally, we note that an independent regulatory body may need to have investigation powers (including rights to conduct audits) to ensure compliance with the standards and the scheme. This may need to be regulated by the body established pursuant to section 2.2.

2.4 Land access

Production and distribution of hydrogen is land intensive. In order to promote the growth of the hydrogen industry, it will be important for project developers to have the land tenure necessary to develop hydrogen projects.

There are various challenges to recommending a "one size fits all" legislative guidance to regulate access to land. This is due to the sheer diversity of land required to support green hydrogen projects. At one end of the spectrum, a straightforward addition of an electrolyser to an existing source of renewable electricity in order to displace existing "grey hydrogen"

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demand at a specific site may be required. At the other end is a much more complex multi-phase project on a remote greenfield site involving large tracts of land required to develop a renewable electricity generation project and infrastructure for the production, storage, transportation and conversion required for green hydrogen.

To add further complexity, legal frameworks that regulate land access differ in each host country. This will of course vary the way in which land tenure is dealt with in each jurisdiction. Governments will need to consider the most appropriate way to grant land rights to project developers and this will depend on the legal framework governing property rights that is applicable in the relevant host country.

In many jurisdictions, land rights will be privately negotiated between project proponents and private owners of freehold land. In this scenario, access will be granted pursuant to bilateral agreements entered into between the private actors. In other jurisdictions, land will be state-owned and rights to access land for the purposes of hydrogen will be granted by governments. In other jurisdictions, land access might involve a combination of the two.

For the purposes of this Paper, it is presumed that the host country will be responsible for granting land rights to the relevant project.

We note that most countries will already have existing laws in place which regulate access to land. Green hydrogen projects will likely be required to fit within existing legal frameworks although host governments may need to make certain amendments to ensure the frameworks are fit for green hydrogen purposes. We also note that legal instruments used by host governments to grant access to land may vary widely and may be influenced by the different stages of the projects.

Compulsory acquisition

Hydrogen production facilities have specific locational requirements. Key factors that make a location suitable for hydrogen production include water availability, availability of gas pipeline infrastructure, electricity grid connectivity, road, rail and port infrastructure and access to low-cost electricity over long time periods. Land identified as suitable for the development of the green hydrogen industry will inevitably overlap with land that belongs to, or is enjoyed by, private actors. The legal framework will need to provide governments with the right to compulsorily acquire such property in the public interest, subject to the payment of prompt, adequate, and effective compensation.¹ Any compensation payable by the government to affected private actors would form part of the overall fiscal regime / economic structure of a project.

When determining the level of compensation to be provided to displaced communities, the host government will need to find a balance between the compensation being just, fair and adequate (in accordance with national and international best practices), and between the overall economics of the green hydrogen project. Project sponsors will have a keen interest to ensure that the acquisition and compensation process has been transparent and fair, with

¹ Dr Caroline Breton and Mr Antolín Fernández Antuña [Compensation Standards](#) (19 May 2022).

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a view towards preventing future challenges to their legal title over the acquired land. This is, in part, because export credit agencies and certain commercial lenders will want to ensure that any resettlement processes have been undertaken (and compensated) to international standards and that appropriate livelihood restoration programmes (if relevant) have been implemented. Reputational risk may be particularly high in the latter scenario.

Granting access

The grant of a government issue ground lease by a host state will typically either be done on a tender/procurement basis or on the basis of a standalone private agreement between the host country and a project proponent. The government granted ground lease should consider the following:

1. Duration of lease

Governments will need to consider the duration of the lease arrangements. For certain projects, it may be appropriate to adopt a phased approach such as:

- an initial investigative/exploratory phase during which access to defined areas and preliminary analysis is undertaken in order to identify those specific areas (if any) where project sponsors wish to develop a project;
- an appraisal phase of adequate duration (at least 2 years) during which detailed analysis and project development work is undertaken in the lead up to a final investment decision. This phase is likely to involve the installation and operation of equipment to collect meteorological data and should enable proponents to address any issues with land rights prior to making a final investment decision; and
- an implementation phase following a final investment decision during which project development and operational activities take place. Such phase should be of flexible duration and be linked to the economic life of the asset.

Consideration will need to be had to the duration of each phase (including any extension rights), activities that may be undertaken, the obligations to be discharged, the ownership and transparency of site information developed during the term, the conditions to be satisfied to move from one phase to the next, the circumstances in which the government issued ground lease may be suspended or terminated prior to its expiry (including due to force majeure and/or breach) and site restoration obligations at the end of the term. The interests that will need to be considered are those of: (a) the host country in maximising the opportunities inherent in the state's natural resources and protecting the interests of local communities; and (b) investors in realising a return on their investment commensurate with the level of risk to which that investment is exposed. We note that the duration of the lease, as it applies to the development phases, may need to incentivise the efficient development of the sites to ensure that the value and opportunities from state-owned land is maximised.

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During the early stages of development of the industry, host governments may need to provide support for permitting and lease extensions and be flexible in removing constraints in leases in order to mitigate risks for investors during the early stages.

2. Exclusivity

A crucial issue to determine when structuring the government issued ground lease is the extent of exclusivity that will be granted to the sponsors in relation to the relevant site(s) and to what extent third parties (including other governmental agencies) will be prevented from pursuing competing activities: (a) on the relevant site(s); and (b) in the host country. This is likely to be a key early focus for project sponsors given the limited number of sites that may be suitable for the development of green hydrogen projects.

As green hydrogen projects (especially those involving the construction of greenfield renewable electricity facilities) will often require large tracts of land, host countries should consider how to ensure that lease arrangements achieve the appropriate balance between granting such rights to sponsors as are sufficient to attract and secure investment, while not unnecessarily foreclosing access to third parties. This might include, for example, fees being linked to the size of the area over which the lease applies, obliging or incentivising sponsors to surrender a portion of the lease area from time to time prior to final site selection as their investigations identify the potential site area(s), and ensuring that the duration of each phase of the lease is appropriate for the activities envisaged to be conducted during that phase.

3. Flexibility

It will be fundamental for government issued ground lease arrangements to afford sponsors with enough flexibility to allow for additional sponsors and to enable sponsors to raise finance. Lease holders will wish to retain the flexibility to introduce additional sponsors to the project in order to bring further technical, commercial, and/or financial support to the project as well as to share risk. Lease holders may also wish to be entitled to grant security rights over their lease interests in connection with third party debt financing arrangements, particularly any project financing of the green hydrogen project infrastructure to be developed under it. The extent to which such interests may be granted and enforced will be a key area of focus for third party financiers and thus for sponsors intending to raise such finance.

4. Payment terms

Payments for the rights granted under the government issued ground lease may take various forms and are likely to vary greatly depending on the characteristics of the applicable land and regulatory regime, as well as the broader economics of the project in question.

Payments from lease holders could include:

- a fee payable on award of the lease;
- a periodic fee payable by reference to the geographic area covered by the lease from time to time;
- a tiered approach to periodic fees (e.g. lower/no payments during investigative/appraisal phases and a higher periodic payment post FID);
- fees linked to production and/or sales and/or net profits; and/or
- direct equity participation rights for a nominee of the host country.

Governments must consider the bankability of projects in assessing the type, quantum and timing of payments. Incentives, subsidies, practical support and commitments to lenders should also be considered by host governments. For more information on fiscal recommendations to promote the industry, please refer to section 2.9 below.

Host countries will have to balance the desire to mobilise revenues from lease rights, with the need to incentivise project developers to invest in the research and pre-feasibility phase of a potential project within the land in question.

Dispute resolution

Disputes relating to land at any stage of a project have the potential to cause significant economic loss. Sponsors will require secure and long-term access to land that is free from third party claims. Whilst a number of steps can be taken to mitigate the risk of a dispute arising, disputes are inevitable. Hence, government should work with project sponsors and communities to create a grievance or bespoke dispute resolution process to address disputes arising from a project over time.

In order to mitigate land tenure risks associated with pre-existing claims, governments should establish public registers to record and document claims (including legal or informal/customary rights) to land. In addition, frameworks should be established to allow for legal claims to be made by community and indigenous groups and for such claims to be assessed by independent bodies. If claims are successful, the legislative framework will

need to ensure that any hydrogen projects located on such land enters into sufficient compensation and benefit sharing arrangements. Governments can further assist in reducing land tenure risks for project sponsors and mitigate adverse impacts on local communities and indigenous peoples through the planning approval processes discussed in section 2.7 below.

2.5 Renewable Energy

The production of green hydrogen will require access to vast amounts of renewable energy. Access to renewable energy can be obtained from either renewable energy projects co-located with production facilities (i.e. behind-the-meter) or through the grid. Host governments will need to enact legal frameworks to permit self-supply arrangements, access to grid supplied electricity and power purchase agreements (**PPAs**).

Behind-the-meter access

Noting that it is outside of the scope of this Paper to discuss licensing of electricity generation and associated distribution and transmission infrastructure, governments will need to ensure that the licensing framework encourages investment in behind-the-meter renewable energy projects to support hydrogen production. This could include legislating exemptions for licenses held for behind-the-meter projects that solely supply electricity to hydrogen production facilities or exemptions that apply to small scale generation facilities (e.g. less than 30 MW).

Access via the grid

On-grid connection to hydrogen projects will provide a more reliable and secure electricity supply. Governments will need to establish a framework that enables hydrogen production facilities to access electricity transmission or distribution infrastructure and access to the supply of electricity from energy retailers. This will include a process allowing for project proponents to request connection to the grid, requirements for the responsible network service providers to provide connection offers and a process for resolving disputes relating to the cost of connection or the terms and conditions associated with the connection. Where the relevant electricity distribution company is privately owned and is a monopoly, the costs associated with connection will need to be carefully regulated to ensure costs of the services are competitive and fair. Any ongoing costs relevant to the use of distribution and transmission infrastructure associated with the use of electricity from the grid should be closely regulated where there is a monopoly and any charges should be fair and reasonable.

Promoting renewable energy in the grid

Introduction of large-scale manufacturing of hydrogen will have load implications on the grid of the host country. Governments will need to undertake an evaluation of the green hydrogen industry's impact on the energy market, including network congestion and the amount and location of additional renewable energy projects required. In many jurisdictions,

significant investment in renewable energy and transmission infrastructure will be required. In order to encourage investment in renewable energy projects in a particular area, governments should consider establishing renewable energy zones (**REZs**). In essence, REZs are used as a planning tool to co-ordinate investment of new renewable projects by grouping them in locations where it can be efficiently stored and transmitted. REZs aim to reduce the costs and complexity in connecting renewable energy projects to the grid and ensure that the transmission network is capable of hosting the generation required. This ensures the grid is reliable, secure, and developed at the lowest possible cost. It also promotes investment in renewable energy projects by allowing projects to be connected in a timely manner and minimising the risks associated with connection (including negative revenue impacts as a result of network congestion).

If expansion or improvements are needed to increase the mix of renewables in the grid to enable production of green hydrogen, funding commitments will need to be clear if developers are expected to contribute to such capital investments beyond standard tariffs.

As discussed in section 2.3, green hydrogen producers should be entitled to count electricity taken from the grid as fully renewable if they have concluded one or more PPAs with operators producing renewable electricity, in one or more installations, generating renewable electricity for an amount that is at least equivalent to the amount of electricity claimed as fully renewable. These PPAs should make use of credible guarantee of origin certification schemes (or similar proofs) where available. In order to encourage investment of renewable energy projects locally, governments should ensure that in order to qualify for Hydrogen GOs (see section 2.3), any renewable PPAs/REGOs (see section 2.3) claimed in the production of green hydrogen must have a temporal correlation (ensuring that the electrolyser's demand matches the renewable power generation) as well as a geographical correlation (ensuring that the electrolyser and the renewable power generation covered by the PPA are located in the same power market).

2.6 Water

Water is an essential ingredient in the production of green hydrogen. Currently, the electrolysis process (currently the principal method for producing green hydrogen) needs significant water input, requiring approximately 9 litres of water for every 1 kilogram of hydrogen produced. Access to and availability of water resources will therefore be a critical issue that governments will need to address in order to develop and promote a domestic green hydrogen industry.

Secure, long term access to water is key to the long-term success of the hydrogen industry. In order to encourage large-scale uptake of hydrogen projects, it will be vital for governments to implement a regulatory regime to manage and allocate access to water resources amongst various competing activities such as agriculture, industry, mining, domestic use and environmental flows.

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The regulatory regime should address the following features:

- **Water licence:** A licence should be required to be obtained by project proponents seeking to take water from a dedicated water resource on an ongoing basis. Before granting a licence, governments should consider the availability of the water resource, the impacts on end-users and the environment by approving the licence.
- **Conditions:** The licence may be subject to conditions as to when, where and how much water can be taken, how it can be used, and the extent (if any) to which it is transferrable to another entity.
- **Variable allocations:** The regime will need to allow for the entitlement to a particular number of shares or units in water to vary from time to time to account for changes to climactic conditions. Entitlements will depend on the amount of water available in the system and the number of other users. Host governments may also require curtailment rights during emergencies.
- **Approved purpose:** Licences should be granted for a specified purpose, such as the production of hydrogen at a particular facility; however, the use of water for ancillary activities at the facility may also be permitted. To promote the hydrogen industry, the framework should allow existing industrial water rights to be re-purposed. For example, operators seeking to add hydrogen plants to existing infrastructure or to convert existing facilities into a hydrogen plant should be entitled to amend their licence or apply for a new one, to expand the approved uses of water to include hydrogen production.
- **Ancillary works:** The licensing regime should allow project proponents to construct and operate any works or infrastructure necessary to extract or convey the water, and to use the water for a particular purpose. Detailed plans will need to be submitted before approvals are granted.
- **Transfers:** It may be the case that a number of water sources in an area are overallocated and new water licences are unavailable. In this case, water entitlements may only be obtained by purchasing entitlements from existing licence holders. As a result, the legislative framework must allow for water entitlements to be traded (in whole or in part) between entitlement holders, either permanently or for a specified term, with each transfer subject to government approval.

We note that access to affordable water will be key to the viability of a commercial-scale hydrogen project. The cost of securing licenses from the state and the amount paid for the number of shares or units in a water source will depend on the availability of the resource and the number of competing activities vying for entitlements. Consideration will also need to be given on whether water entitlements are charged on a take-or-pay basis or whether licence holders pay amounts on volumes of water actually consumed. Pricing will need to be carefully managed by governments and it may be necessary for governments to implement additional measures such as subsidies to the water entitlements to promote the

industry. In addition, during the early stages of the green hydrogen industry, it may be necessary for government to provide compensation in circumstances where there is a failure to meet the water demands of green hydrogen producers.

A key challenge of hydrogen production will be sourcing and securing a sufficient volume of quality water. Countries that are adversely impacted by climactic factors such as increased frequency of drought and variable rainfall will see competition for existing water sources intensify through the introduction of the green hydrogen industry and this could be further exacerbated by the impacts of climate change in the future. In addition, countries may have water sources that are currently overallocated and the introduction of the green hydrogen industry could place additional pressure on those resources. As a result, more complex regulatory frameworks may be required for these countries. Governments will need to consider the following when implementing the regulatory framework:

- **Priority entitlements:** Consideration should be had as to whether hydrogen projects should receive priority access to water resources. Any such arrangements will need to strike the right balance between competing needs of the production of hydrogen and downstream water users.
- **Planning:** Projects that introduce new demand on water resources, or involve diversion away from agriculture and other existing activities, can be controversial and affect a project's support by the community. It will be critical for governments to plan ahead and identify and encourage the development of hydrogen projects in areas with sufficient freshwater to meet the industry's needs. This could be addressed in environment and planning regulatory frameworks (e.g. via zoning and within the planning approval stages).
- **Alternative sources of water:** Governments may need to consider incentivising investment in alternative sources of water such as desalination, recycled wastewater and stormwater to supply the green hydrogen industry. Alternative sources of water such as recycled wastewater have the potential to provide the hydrogen industry with many benefits, including access to cheaper water and a secure supply, given the water is less likely to be impacted by prolonged drought periods where other sources of water would be prioritised for domestic uses.
- **Compliance and enforcement:** Disputes have been known to arise between water license holders during periods of prolonged drought. We recommend governments be transparent with respect to water licensing and make information concerning licensing, entitlements and price for shares or units of water available to the public. Governments should consider establishing an independent regulatory body that manages licensing and has investigation and enforcement powers to ensure that license holders are compliant with the conditions of their licenses and do not extract more water than their allocation.

2.7 Environment and Planning

Development of green hydrogen projects will require substantial development of land which could have adverse environmental and social implications. Governments will need to ensure there is a rigorous framework requiring project sponsors to assess the implications associated with the proposed development and obtain approval from the government before commencing any works. This will be required to ensure the social and economic welfare of the community and that the state's natural and other resources are properly managed and, where applicable, conserved.

We note that many countries will have existing legal frameworks that govern environment and planning matters in respect of major projects. Amendments may be required to ensure such frameworks are fit for green hydrogen purposes. To this end, certain hydrogen specific issues will need to be assessed and included within existing environment and planning frameworks. These issues include laws relating to hazards and risks (noting hydrogen's flammable nature), site selection, water management, biodiversity, air quality and noise, waste and contamination.

Site selection

In order to ensure the hydrogen industry is developed in suitable areas to minimise environmental and societal impacts, it will be important for governments to plan and indicate (e.g. through zoning laws) which areas are permitted to be used by the hydrogen industry. A zoning system would recognise areas that are suitable for green hydrogen projects generally, but more specifically which activities within the green hydrogen process are permissible on the land, which processes will be permissible only with permission and those which are prohibited entirely. There are many technical, commercial and social factors that will need to be considered when selecting sites suitable for hydrogen development including (i) proximity to sensitive land uses such as residential; (ii) proximity to infrastructure; and (iii) proximity to water and renewable energy resources.

In addition, governments could identify and establish zones to concentrate the development of hydrogen production facilities (similarly to REZs discussed at section 2.5 above). These zones would be identified by governments as "optimal", having regard to the availability of energy, water and distribution infrastructure. This would enable the government to manage and oversee the location of the industry and reduce infrastructure costs associated with energy, water and distribution. Beyond identifying areas of suitability, there is also an opportunity for governments to identify existing hydrogen projects or infrastructure with the potential to be re-purposed to produce/support green hydrogen.

Planning approval process

Broadly speaking, the proposed regulatory regime will need to include a development approval process whereby following the submission of detailed information with respect to the proposed project, an independent body assesses the application and determines whether the project is either approved, denied or varied. Safeguards should be implemented

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within the development approval process to ensure that any adverse implications are mitigated to the largest degree possible. The planning approval process should consist of the following components:

- **Environmental & Social Impact Assessment:** As part of the development application process, the applicant should be required to submit an environmental and social impact assessment. This would identify risks posed by developing the project to the natural environment and social outcomes. To ensure consistency in this process, mandatory assessment guidelines should be established. These guidelines would establish a process for identifying the potential risks associated with a project and consider responses to those risks. Some of the risks to be evaluated could include:
 - **Biodiversity loss:** The environmental assessment should be critical of the real impact of the green hydrogen project on the surrounding environment. This includes consideration of whether the development is likely to affect threatened species, populations or ecological communities, or their habitats.
 - **Risks to indigenous and/or other local communities:** It is important to recognise that land is central to the cultural and spiritual identity of many indigenous peoples and local communities. As a result, the social impact assessment will need to consider the impact of the development on these interests, including whether development will impact on culturally significant sites.
 - **Risks of pollution:** The impact assessments will need to consider the likelihood of pollution and waste being generated from the facilities (e.g. brine water as a by-product of hydrogen production) and the associated impact on environmental and social outcomes.

The World Bank has established a series of [Environmental and Social Standards](#) and the International Finance Corporation has similarly created a document to assist in the [Assessment and Management of Environmental and Social Risks and Impacts](#). These documents provide an in-depth analysis of how to approach both environmental and social risks.

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- **Public Consultation:** Once a project has applied for development approval, the regulatory regime should allow for a process of public consultation. The public consultation should make the development application available and invite submissions from interested members of the community. Any submissions made should be taken into account by decision makers when assessing whether to approve the application. There are various benefits in this process:
 - it allows the local community to voice their opinions and concerns related to the project;
 - it creates a forum through which various stakeholders are able to engage with the project and any contentious matters can be discussed in order to reach a mutual understanding. This can prevent future disputes from arising;
 - it provides an opportunity for project developers to gather information; and
 - it promotes transparency which will assist in securing public support which is required to establish and maintain a social licence to operate.

- **Planning consent and conditions:** The legislative framework will need to confer power onto a decision maker to evaluate and determine development applications following submission of detailed plans, environmental and social impact assessments and following public consultation. The decision will need to take into account the social and environmental impacts identified and balance those with: (i) measures that can be undertaken to mitigate or minimise those impacts; and (ii) the benefits of approving the development. Any consent issued can be subject to certain conditions, which could include:
 - **Minimising impacts:** The consent could require that a project developer undertake certain obligations to mitigate or minimise certain social or environmental impacts.
 - **Reporting:** Depending on the circumstances, it may be prudent to require project developers to monitor and report on the ongoing impacts of the development on certain social or environmental outcomes (e.g. monitoring population of threatened species).
 - **Decommissioning and rehabilitation:** The approval of a project should always be subject to the condition that the project developer will see to the decommissioning of the facility/infrastructure once the project reaches end-of-life and arrange for the land to be rehabilitated and remediated. Financial security should be provided by project proponents to secure these obligations.

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The regulatory regime should also provide the regulator with the power to request information and documents, enter onto the site and conduct compliance inspections, as well as any other relevant powers required to ensure compliance with the regime.

Protection of the environment

Once a project has received development approval, governments will need to ensure there is a comprehensive framework to protect the environment from contamination and pollution whilst projects are operational. A regulator will need to be established with sufficient investigative and enforcement powers to ensure compliance. The framework should include duties on project operators to self-report instances of pollution/contamination and operators that breach environmental laws should be liable to civil penalties under the regime. Laws will also need to be enacted to ensure project operators decommission and rehabilitate sites once the project has reached end-of-life. As such, the licensing regime discussed at section 2.1 above should require project developers to provide financial guarantee sufficient to secure their rehabilitation and remediation obligations. Companies should be also liable to civil penalties to the extent these obligations are not fulfilled to ensure governments are not left to pick up the pieces.

2.8 Access to existing infrastructure

The key to reducing the cost of the production and distribution of hydrogen will be to facilitate access to green hydrogen-ready infrastructure already in place. This includes (among other things) access to pipelines, storage facilities and ports. Facilitating access to critical infrastructure to support the production and distribution of green hydrogen will be critical to ensure the industry remains economically viable.

Significant infrastructure is often monopolised as it requires large capital investments. Prior to investment, sponsors are likely to seek assurances that they will have access (whether on an exclusive, priority or shared basis) to critical infrastructure, particularly in circumstances where competing projects start to emerge. Regulation is therefore required to ensure participants have access to infrastructure on terms that are fair and reasonable and to avoid "take it or leave it" outcomes.

Access to infrastructure may arise in three scenarios: (1) access to existing infrastructure (which may need to be re-purposed for use by the hydrogen industry); (2) new hydrogen infrastructure is built and many industry participants require access; and (3) new hydrogen infrastructure is built but only limited industry participants require access. In order to deal with scenario 1 and 2, we recommend implementing a shared access regime described below. We recommend that access to infrastructure in scenario 3 be dealt with privately through bi-lateral negotiations and agreements.

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Independent regulatory body

As a starting point, an independent regulatory body should be established to oversee and ensure compliance with the legislative framework relating to access to critical infrastructure.

We recommend the functions of the independent regulator include:

- oversight and (where applicable) determination of prices and terms and conditions of access to prescribed infrastructure services;
- monitoring and enforcing compliance with laws associated with access to shared infrastructure;
- tracking and reporting on the prices and quality of infrastructure services in order to provide information about the effects of market conditions and to inform policy and law makers;
- assisting stakeholders understand regulation structures and how infrastructure markets operate; and
- providing advice when requested by governments and policy agencies on regulation. This will include advice on how efficient regulatory outcomes and competitive, well-functioning markets can be achieved.

Shared access regime

Governments should implement an access regime which prescribes the legal rights for third parties to gain access to existing infrastructure on terms and conditions that are fair and reasonable. We propose a shared access regime.

As a general principle, the access regime should be limited to services associated with significant infrastructure where, broadly:

- it would not be economic to develop another facility to provide the services; and
- access would promote competition in the market and ensure the hydrogen industry can operate in an economically efficient and competitive manner.

The regime should be flexible in its application and should not be limited to a particular industry or facility (e.g. pipelines or ports).

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We recommend that the terms and conditions of access by third parties to existing infrastructure be modelled in the following manner:

1. Access by declarations

The relevant regulatory body may declare a service a "declared service" if it meets certain criteria. Such criteria should include consideration of whether access would promote a material increase in competition in at least one market, whether the facility could meet the total foreseeable demand in the market, whether the facility is significant (both physically and economically) and whether access would promote the public interest. A party wanting access to a particular service may apply to the relevant regulatory body or minister to have the service "declared".

Once a service is declared by the regulator, third parties will be given a legal right to negotiate terms and conditions of access with the provider of a declared service. If an agreement cannot be reached on the terms and conditions of access, either party should have the right to refer the dispute to the relevant regulatory body for dispute resolution via arbitration.

The regulatory body should decide the dispute having regard to certain matters which promote fair and reasonable outcomes for the service provider and the third party seeking access. Such matters may include consideration of the legitimate business interests of the provider, the public interest in having competition in markets, the interests of third parties who may want access to the service, direct costs of providing access to the service and the operational and technical requirements necessary for safe and reliable operation of the facility.

In addition, the regulator will need to have regard to certain principles when determining the price for access to the services. Principles include:

- that the pricing should be at least sufficient to meet the efficient costs of providing access to the services and should include a return on investment commensurate with the regulatory and commercial risks involved in providing the services;
- the pricing should not allow a vertically integrated access provider to set terms and conditions that discriminate in favour of its downstream operations (except to the extent that the cost of providing access to other operators is higher); and
- the pricing should provide incentives to reduce costs or otherwise improve productivity on the part of the service provider.

2. Access through undertakings

Owners and operators of significant infrastructure should be given the option to provide third parties access to their services on a voluntary basis via an undertaking to the relevant regulatory body. If an undertaking is submitted and accepted by the regulator, the service cannot be declared, and in return, the access provider will be required to provide access to third parties in accordance with the undertaking. Said undertakings are recommended to be legally binding and enforceable in a court of law.

An access undertaking may cover a range of matters about access to a particular service, including: the terms and conditions under which the provider is willing to offer access; the price for the service; and a dispute resolution processes if parties can't agree. In deciding whether to accept the undertaking, the regulator will need to balance the interests of the service provider, third party seeking access and the public interest. Such matters that may be taken into consideration when assessing an undertaking include whether the undertaking is consistent with the desired pricing principles described above, the legitimate business interests of the provider, the public interest in having competition in markets and the interests of third parties who may want access to the service.

2.9 Fiscal Regulatory Regime

Producing hydrogen is an expensive exercise, requiring large-scale public and private investment to both maximise production and ensure fair pricing for consumers. The relative infancy of the green hydrogen industry also means it is relying on the development, implementation, and scaling up of new technology. An effective fiscal regulatory regime is therefore imperative for promoting the development of green hydrogen industries. Broadly, governments should consider a combination of state funding, tax incentives and disincentives, subsidies and concessions to both encourage green hydrogen production and discourage carbon intensive energy production.

To ensure the effective monitoring and administration of fiscal policy, clarity and transparency must be prioritised as the fiscal tools will target both governments/companies as well as citizens.

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Broadly, governments should consider the following mechanisms to incentivise green hydrogen when implementing their fiscal regulatory regime:

Upstream (production) phase	Downstream (supply) phase
<ul style="list-style-type: none">• Higher taxes on carbon energy production, including "brown" and "grey" hydrogen.• Accelerated depreciation.• Public subsidies, funds, or grants offered by governments to incentivise electrolyser manufacturing and infrastructure (e.g. electrolysers & pipelines).• Waiving of state charges to facilitate access to renewable energy (e.g. transport and/or transmission charges).	<ul style="list-style-type: none">• Legislating an increased use of green hydrogen in industries. For example, Spain has legislated a 25% minimum contribution of green hydrogen (both as a raw material and energy source) with respect to total hydrogen consumption for 2030.• Subsidies and/or tax exemptions for green hydrogen as transport fuel. For example, in Belgium no excise tax is paid and in Japan fuel cell hydrogen electric vehicles are subsidised.

Outlined below are specific fiscal strategies which governments may adopt in their regulatory regimes:

Grants, loans and government supported offtakes

1. Cash grants

Cash grants capture a broad body of financing which can take different forms, be for a variety of purposes, and be given by all levels of governments and development finance institutions.

Whilst most will be outright cash grants, these government payments may also take the form of refundable tax credits. The OECD has recognised this form of disguised grant as a "qualified refundable tax credit", relevant for the purposes of considering the proposed global minimum tax.

2. Credit guarantees

Credit guarantees can take on different forms and be a traditional financial guarantee of a debt obligation, a debt service undertaking, or a debt buy-down guarantee.

Another option is a convertible debt instrument, where low interest rates are offered under the condition of an equity interest for lenders upon project completion/success. Some issues arise here regarding the accurate valuation of an equity interest in non-publicly traded companies; however, a dispute resolution mechanism in production contracts may remedy this issue.

3. Government supported offtakes

Since offtake agreements secure future revenue for projects, offtake agreements are key to enable developers to secure project finance to support future construction, expansion or the acquisition of new equipment. Governments can assist the development of the hydrogen industry by entering into offtake agreements with project proponents to ensure these projects can be financed, and ultimately, developed.

Tax incentives and disincentives

Meaningfully incentivising green hydrogen through tax systems relies on the ability to tax multinational enterprises, an objective severely hampered by clever tax minimisation planning/techniques. In an attempt to alter these economic conditions, the OECD has put forth two proposals (Pillar 1 and Pillar 2) as a part of their *Inclusive Framework*. Governments should refer to these proposals when drafting their regime. Their broad considerations are summarised below.

1. Corporate income taxes

As green hydrogen companies are unlikely to be profitable in their infancy, tax incentives surrounding corporate income tax may not be viable. As such, other methods will need to be considered.

These may include allowing tax losses to be carried forward or used against the income of related companies engaged in business in the same jurisdiction. Another would be a provision that allows for the accelerated depreciation of the capital equipment used in the production of the green hydrogen.

Moreover, in order to attract foreign direct investment, governments may seek to reduce the tax load of a green hydrogen producer over a significant number of years, either through legislation or the terms of the investment agreement (between the company and host government). For example, a tax holiday could be included in an investment agreement with a stand still clause that freezes this in place so that no subsequent tax increases can be imposed.

When formulating these investment agreements, the principles outlined in the OECD's *Guiding Principles for Durable Extractive Contracts* should be considered during contract negotiation; in particular, prioritising transparency to maintain public trust, and ensuring the purpose of the agreement aligns with the host government's long term vision on the renewable transition and fiscal objectives.

2. Tax rebate programs

The implementation of programs whereby indirect taxes on green energy are rebated in whole or in part is a useful mechanism to incentivise the use of renewable energy.

3. Tax equalization measures

Many tax measures, not just fuel excise and carbon taxes, can be used to equalize the market cost of energy between producers of green hydrogen and producers of carbon intensive energy.

Most prominently, carbon taxes on fossil fuel producing companies and their products (in an attempt to cover the cost imposed on the climate and environment) have been, and should continue to be, used to offset the market imbalance.

Sharing the upside

1. Royalties

Within the mining and petroleum industries, host country rewards have traditionally been achieved through royalty payments. However, in our view the hydrogen industry cannot be analogised to these industries as the production of hydrogen does not involve the consumption of an exhaustible resource although we note some jurisdictions have included a royalty regime for the production of hydrogen.

2. Corporate income tax

The default fiscal instrument is likely to be corporate income tax. However, corporate income tax is not effective in capturing significant upside. Income tax is assessed on net income (income after costs), and therefore, no payments are expected from billion-dollar investments for many years. While corporate income tax is responsive to profitability, the government loses revenue if operators perform inefficiently (e.g., cost overruns, plant shut-ins, inability to meet contractual commitments, etc.). Furthermore, complex energy projects create opportunities for companies to optimise their taxes both by under-reporting revenues and over-reporting costs. If corporate income tax is part of the mix, accelerated depreciation and investment tax credits could be used to incentivise good company performance.

2.10 Reporting and disclosure

It is critical that the green hydrogen industry is operated transparently in order to support bankability of projects, to ensure equal terms apply for all developers and to provide certainty for investors. Transparency will also help to maintain public trust and support for the industry and ensure that the industry has an ongoing social licence to operate within the host country.

Community engagement is important to the long-term sustainability of the green hydrogen industry. Hydrogen producers should be transparent in their operations and be responsive to demands for information from local communities, shareholders, employees and government. The need for transparency is often associated with the early stages of a project's lifecycle such as during the project approval phases which often involve rounds of public consultation. However, true transparency requires timely and accurate information that is released regularly throughout a project's lifecycle.

Consequently, governments should implement a reporting and disclosure regime that ensures timely and accurate information is disclosed on material matters relating to the production of hydrogen. This disclosure framework should include the following components:

- **Public access:** Release of information to the public will be critical to ensure public trust in both industry and government; however, commercial interests of industry participants will need to be considered. As a result, non-market sensitive information should be made available to the government and the public under the regime, and developers should not be obliged to disclose any market sensitive information or intellectual property.
- **Operational disclosures:** A producer should disclose various material information relating to operations within a prescribed reporting period (recommended to be monthly). Such operational reporting should include the following information:
 - amount of hydrogen produced/distributed;
 - amount of hydrogen produced which was reserved for domestic consumption within the host country;
 - source and amount of water consumed in the production of hydrogen;
 - source and amount of renewable energy consumed in the production of hydrogen;
 - number of employees from local communities;

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- operational and corporate governance policies implemented by the producer including with respect to codes of conduct and anti-corruption standards; and
- any technical reports prepared in connection with an activity.
- **Contract transparency:** A project operator should be required to disclose certain basic information in respect of arrangements entered into by project operators for the utilisation of electricity and water and any production sharing arrangements of green hydrogen. However, project operators should not be obliged to disclose any specific detail concerning project specific arrangements.
- **Financial disclosures:** A producer should disclose its annual financial results relating to its local manufacturing activities. In addition, as discussed in section 2.9 above, there may be payments to and from governments to either assist in the establishment of the industry or to allow governments to extract value from the industry once established. Financial reporting should include details in respect of these payments. This is important to ensure that payments to governments are adequately communicated to local communities so that they understand the direct economic value generated by the projects. In addition, insufficient transparency of payments to and from the government can impede the detection of misallocation of revenues and corruption.
- **Health and safety:** Communities are likely to be concerned with the volatility and flammable nature of hydrogen gas. Hydrogen producers and distributors should be required to self-report on their performance and compliance with applicable health and safety regulations and should be subject to independent audits. Reporting to the government should be undertaken on a quarterly basis and self-reporting of serious breaches or serious incidents should occur as soon as possible.
- **Environment:** Producers should be required to report (on a monthly basis) the amount of waste products produced from production processes and the manner in which such waste was disposed. In addition, producers and distributors should be required to self-report to the government any serious breaches of the environmental legislative framework or serious incidents as soon as possible.

For more information on recommended reporting and disclosures by project proponents, please refer to GH2's [Green Hydrogen Standard](#).

3. Model legislation and contractual terms

This section of the paper provides model legislative provisions and model contractual terms as a guide for governments to implement within legislative frameworks or bilateral agreements with project proponents (as applicable) to address some of the key issues discussed in section 2.

The model provisions are not intended to be an exhaustive and comprehensive recommendation and are intended as a guide. Consideration of existing legal frameworks within each country will be critical to implement effective legislation or bilateral contracts with project proponents.

3.1 Key issue - Administrative Framework

i. Model legislative provisions

1. Definitions

For the purposes of the model legislative provisions below:

commercial purpose means:

- wholesale distribution of hydrogen;
- the sale of hydrogen;
- the supply of hydrogen for commercial or industrial purposes;
- the export of hydrogen to overseas markets; or
- supply of hydrogen to produce electricity.

change of control means the occurrence of an event under which one or more persons (an original controller) cease to control the licence holder.

control means the ability to, either directly or indirectly, control the composition of the board of directors or having, either directly or indirectly, more than 50% of the shares giving the right to vote at general meetings.

Regulator means the body established to administer the Act.

2. Prohibition

- (1) A person must not engage in the production, distribution, supply or sale of hydrogen for a commercial purpose unless the person is the holder of a licence authorising the relevant activity at the relevant site.

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- (2) A person who contravenes subsection (1) commits an offence against that subsection and is liable to a penalty not exceeding [·] penalty units and [·] penalty units for each day after the day on which a notice of contravention of that subsection is served on the person by the Regulator.

3. Application for licence

- (1) A person may apply to the Regulator for the issue of a licence authorising one or more of the following activities:
 - (a) production of hydrogen
 - (b) distribution of hydrogen;
 - (c) sale of hydrogen; or
 - (d) supply of hydrogen,for a commercial purpose.
- (2) An application must be in a form approved by the Regulator and accompanied by such documents as may be required by the Regulator.
- (3) An application must be accompanied by the application fee (if any) fixed by the Regulator.

4. Grant or refusal of application

- (1) The Regulator must not grant an application for the issue of a licence unless the Regulator is satisfied that:
 - (a) the applicant has the financial and technical capability to perform the proposed activity and discharge all of the obligations imposed by any legislative instrument or condition of the licence as determined by the Regulator; and
 - (b) the applicant passes the fit and proper person test.
- (2) The Regulator may request information from an applicant that it reasonably requires for determining an application pursuant to section 4(1).
- (3) For the purposes of this Act, an individual passes the **fit and proper person test** if:
 - (a) the individual is a fit and proper person, having regard to:
 - (i) whether the applicant or any of its directors have been prosecuted for any offences or had any enforcement action taken by a regulator under any law;
 - (ii) whether the applicant or any of its directors have breached any material obligations regulated by the Regulator or any other regulator;
 - (iii) whether the applicant or any of its directors have been refused a licence or authorisation or had a licence or authorisation revoked in any jurisdiction; and
 - (iv) the solvency of the applicant or any of its directors.

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5. Licence conditions

- (1) A licence is to be issued for such term (if any) as is decided by the Regulator and is specified in the licence.
- (2) A licence is subject to such conditions as are decided by the Regulator.

6. Specific licence conditions

- (1) Without limiting the generality of section 5, the conditions on a licence may include provisions:
 - (a) requiring the licensee to pay specified fees and charges in respect of the licence to the Regulator;
 - (b) requiring the licensee to maintain specified accounting records and to prepare accounts according to specified principles;
 - (c) specifying requirements about the ownership of real or personal property used in or in connection with the carrying on of the activities authorised by the licence;
 - (d) preventing the licensee from engaging in or undertaking specified business activities;
 - (e) requiring the licensee to provide, in the manner and form specified by the Regulator, such information as the Regulator may from time to time require; and
 - (f) requiring the licensee to provide financial surety to the Regulator to secure its decommissioning and rehabilitation obligations under this Act.

7. Decision

- (1) Before deciding whether to approve an application, the Regulator may consult with one or more governmental agency.
- (2) The Regulator must, by written notice given to the applicant, notify the applicant of the Regulator's decision within 30 days of receiving an application unless the Regulator requires the applicant to provide additional information in which case the Regulator must make a decision within 30 days of receiving the additional information.
- (3) If the Regulator refuses to approve the transfer, the Regulator must provide the applicant with reasons for its decision.

8. Transfer of licence

- (1) A transfer of a title is of no force until it has been approved by the Regulator.

9. Application for approval of transfer

- (1) The transferor to a proposed transfer of a title may apply to the Regulator for approval of the transfer.
- (2) An application must be made in a manner approved by the Regulator.

10. Documents to accompany application

- (1) An application for approval of a transfer must:
 - (a) be in the approved form; and
 - (b) be accompanied by an instrument of transfer executed by:
 - (i) the registered holder or, if there are 2 or more registered holders, by each registered holder; and
 - (ii) the transferee or, if there are 2 or more transferees, by each transferee; and
 - (c) be accompanied by any other information or documents required by the form.

11. Decision by Regulator

- (1) The Regulator must:
 - (a) approve the transfer; or
 - (b) refuse to approve the transfer.
- (2) Before deciding whether to approve a transfer of a title, the Regulator may consult with one or more governmental agency.
- (3) In deciding whether to approve a transfer of a title, the Regulator:
 - (a) must have regard to the matters specified in section 4; and
 - (b) may have regard to any other matters the Regulator considers relevant.
- (4) The Regulator must, by written notice given to the applicant, notify the applicant of the Regulator's decision.
- (5) If the Regulator refuses to approve the transfer, the Regulator must provide the applicant with reasons for its decision.

12. Change of control of licensee

- (1) A person who:
 - (a) proposes to begin to control a registered holder of a title; or
 - (b) proposes to cease to control a registered holder of a title;must apply to the Regulator for approval of a change in control of the registered holder of the title.
- (2) A person who begins to control, or ceases to control, and does not obtain approval from the Regulator of the change of control commits an offence and is liable to a penalty not exceeding [.] penalty units.

13. Application for approval of change of control

- (1) An application for approval to a change of control of the licensee must:
 - (a) be in the approved form; and
 - (b) be accompanied by any information or documents required by the form.

14. Decision by Regulator

- (1) The Regulator must:
 - (a) approve the change of control of the licensee; or
 - (b) refuse to approve the change of control of the licensee.
- (2) Before deciding whether to approve the change of control of the licensee, the Regulator may consult with one or more governmental agency.
- (3) In deciding whether to approve a transfer of a title, the Regulator:
 - (a) must have regard to whether the matters specified in section 4 are affected by the change of control of the licensee; and
 - (b) may have regard to any other matters the Regulator considers relevant.
- (4) The Regulator must, by written notice given to the applicant, notify the applicant of the Regulator's decision.
- (5) If the Regulator refuses to approve the transfer, the Regulator must provide the applicant with reasons for its decision.

ii. Model contractual terms

1 Definitions

- 1.1 For the purpose of these model provisions, capitalised terms have the following meanings:

Change of Control means any change in Control of a party (or holding company or holding trust of any party), including, without limitation, any transfer of shares, units or other equity interests in a company, or in any entity that directly or indirectly Controls that Party, if after such transaction, there would be a change in the person or entity having the power to control the entity, or if no single person or entity has such power, a change in the majority of persons and/or entities having such power.

Control means the ability to, either directly or indirectly, control the composition of the board of directors or having, either directly or indirectly, more than 50% of the shares giving the right to vote at general meetings.

Government means the government contracting entity.

Government Approval means any acknowledgement approval, authorisation, consent, concession, exemption, licence, permit, privilege, and waiver from, or filing with, or notice to or from, any Relevant Authority required for all or any of the Proponent, the Proponent's contractors and their respective employees, agents, representatives or contractors, in relation to the Project.

Project means [insert details of hydrogen project] located at [:].

Proponent means the project proponent.

Relevant Authority means the Government, any ministry, department, political subdivision, instrumentality, agency, authority, commune, provincial authority or other relevant entity from which a Governmental Approval is to be obtained from time to time and any authority, body or other person having jurisdiction with respect to the Proponent or the Project.

Term means the term of this agreement commencing on the date of this Agreement and ending on [·].

2 The Project

Right to Develop

- 2.1 On and from the date of this Agreement, the Government hereby grants to the Proponent for the duration of the Term the exclusive right to develop, design, finance, construct, own, operate, maintain and manage the Project on the terms and conditions of this Agreement.

3 Obligations of the Government

Government Approvals

- 3.1 The Government must:
- (a) ensure that in a timely manner, all Relevant Authorities grant to the Proponent (or its agents, representatives or contractors as may be reasonably necessary) all Governmental Approvals in respect of which applications in accordance with clause 5 have been made;
 - (b) ensure that no Relevant Authority attaches, at any time during the Term, any term or condition to the Governmental Approvals which materially and adversely affects the Proponent or the Project;
 - (c) ensure that all Governmental Approvals are, upon their expiry, renewed on substantially similar terms or on terms no less favourable;
 - (d) ensure that no Relevant Authority revokes any Governmental Approval without cause; and
 - (e) in the event that a Governmental Approval has been revoked for cause, procure the grant by the Relevant Authority of a further Governmental Approval if the Proponent has provided to the Relevant Authority reasonable evidence to demonstrate that the failure to comply with the Governmental Approval has been rectified and all fines have been paid.

Support to Obtain Consents

- 3.2 Without limiting the obligations of the Government pursuant to Clause 3.1, upon request by the Proponent, the Government shall support, use and cause to be used all reasonable efforts to expedite consideration of the application for each Governmental Approval or renewal thereof made by the Proponent as required by clause 5.
- 3.3 Any request for support under clause 3.2 shall be accompanied with copies of the application for the Governmental Approval, and clear evidence that the issuance or renewal of the Governmental Approval was denied, deferred or was not processed in a timely manner.

4 Obligations of the Proponent

- 4.1 The Proponent shall make (or cause to be made) and diligently pursue an application that complies with the necessary legal, regulatory and procedural requirements for each Governmental Approval necessary for the Proponent to design, develop, construct, finance, insure, own, operate and maintain the Project as contemplated in this Agreement.

5 Assignment and Novation

Consent Required

- 5.1 The Parties are not permitted to assign or novate their interests in this Agreement without the consent of the other Party (which must not be unreasonably withheld).

Consequences of Sale, Transfer, Novation or Assignment without Consent

- 5.2 Any sale, transfer, novation, or assignment of any interest in the Project or in this Agreement made without fulfilling the requirements of clause 5.1 is null and void.

Change of Control

- 5.3 Any direct or indirect Change of Control of the Proponent, whether voluntary or by operation of law, shall require the prior consent of the Government (which must not be unreasonably withheld).

Binding Agreement

- 5.4 This Agreement, as it may be amended from time to time, shall be binding upon and inure to the benefit of the Parties to it and their respective successors, legal representatives, and assigns permitted under this Agreement.

3.2 Key issue - Regulation & Enforcement

i. Model legislative provisions

1. Establishment of the Regulator

- (1) The purpose of this Division is to establish and enable the Regulator to perform the regulatory, administrative and advisory functions that are conferred on the Regulator by this Act.
- (2) There is established a body corporate called the [Regulator].
- (3) The Regulator:
 - (a) is a body corporate with perpetual succession; and
 - (b) must have a common seal; and
 - (c) may acquire, hold and dispose of real and personal property; and
 - (d) may sue and be sued in its corporate name.

2. Objective of the Regulator

- (1) In performing its functions and exercising its powers, the objectives of the Regulator are:
 - (a) to foster social and economic benefits that result from the development of the commercial hydrogen industry; and
 - (b) to ensure the commercial hydrogen industry is operated safely, efficiently, competitively, reliably, and responsibly.

3. Functions of the Regulator

- (1) The functions of the Regulator are:
 - (a) to perform such functions as are conferred by this Act;
 - (b) to administer this Act;
 - (c) to monitor and report on compliance by persons with this Act, relevant legislation in respect of which the Regulator has powers or functions and civil penalty requirements;
 - (d) to investigate contraventions or possible contraventions by persons of this Act, relevant legislation in respect of which the Regulator has powers or functions and civil penalty requirements;
 - (e) to commence and conduct proceedings in relation to contraventions by persons of this Act, relevant legislation in respect of which the Regulator has powers or functions and civil penalty requirements;
 - (f) to develop and implement effective monitoring and enforcement strategies to secure compliance by persons with their occupational health and safety obligations under this Act and the regulations;
 - (g) to develop and implement effective monitoring and enforcement strategies to ensure compliance by persons with their obligations under an environmental management law;

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- (h) to make, amend and revoke Codes of Practice;
- (i) to conduct public education programs:
 - (i) for the purpose of promoting its objectives under this Act and the relevant legislation; and
 - (ii) in relation to significant changes in the regulation of a regulated industry;
- (j) to advise the responsible Minister in relation to any other matter referred to the Regulator by the responsible Minister;
- (k) to provide information, assessments, analysis, reports, advice and recommendations to the responsible Minister in relation to any matter referred to the Regulator by the Responsible minister; and
- (l) to cooperate with other governmental agencies or authorities having functions relating to regulated operations.

4. Monitoring and investigation powers

- (1) The Regulator may appoint inspectors to exercise powers of entry, monitoring and investigation for the purposes of this Act.
- (2) An authorised person may enter any premises and exercise any monitoring or investigation powers conferred by this Act for either or both of the following purposes:
 - (a) determining whether an obligation under this Act has been, or is being, complied with; and
 - (b) determining whether any information provided to the Regulator or other governmental agency is correct.
- (3) An authorised person is not authorised to enter the premises unless:
 - (a) the occupier of the premises has consented to the entry; or
 - (b) the entry is made under a warrant.
- (4) The following are powers that an authorised person may exercise:
 - (a) the power to enter the premises;
 - (b) the power to search the premises and any thing on the premises;
 - (c) the power to examine or observe any activity conducted on the premises;
 - (d) the power to inspect, examine, take measurements of or conduct tests on any thing on the premises;
 - (e) the power to make any still or moving image or any recording of the premises or any thing on the premises;
 - (f) the power to inspect any document on the premises;
 - (g) the power to take extracts from, or make copies of, any such document; and
 - (h) the power to take onto the premises such equipment and materials as the authorised person requires for the purpose of exercising powers in relation to the premises.

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- (5) The authorised person may require any person on the premises to answer any questions, and produce any document relating to:
 - (a) determining whether an obligation under this Act has been, or is being, complied with; and
 - (b) determining whether any information provided to the Regulator or other governmental agency is correct.
- (6) A person commits an offence if the person fails to comply with the requirement in paragraph (5).

5. Rehabilitation

- (1) The Regulator may, by written notice, direct a current or former license holder to do any or all of the following things:
 - (a) carry out activities or not to carry out activities in order to protect, prevent, control or mitigate harm to the environment;
 - (b) rehabilitate land or water that is or may be affected by activities under the authorisation;
 - (c) following expiry of a license, to decommission any infrastructure built by the license holder for the purposes of its operations authorised by the licence;
 - (d) following expiry of a license, to make good, to the satisfaction of the Regulator, any damage to the environment caused by the operations authorised by the licence including, without limitation, removal of infrastructure, remediation of contamination and revegetation.
- (2) A person commits an offence if the person fails to comply with a direction issued under paragraph (1) and is liable for a penalty not exceeding [·] penalty units and [·] penalty units for each day after the day on which a notice of contravention of that subsection is served on the person by the Regulator.

ii. Model contractual terms

1 Definitions

- 1.1 For the purpose of these model provisions, capitalised terms have the following meanings:

Business Day means any day that is not a weekend, public holiday or bank holiday in [insert location].

Construction Phase Security means an unconditional and irrevocable undertaking which complies with the Security Requirements equal to [\$] [·].

Government means the government contracting entity.

Project means [insert details of hydrogen project] located at [·].

Proponent means the project proponent.

Proponent Event of Default has the meaning given in clause 3.1.

Operational Phase Security means an unconditional and irrevocable undertaking which complies with the Security Requirements equal to [\$] [·].

Securities means both the Operational Phase Security and Construction Phase Security.

Security Requirements means that a security is an unconditional and irrevocable undertaking to pay on demand which:

- (a) is issued by an issuer acceptable to the Government (acting reasonably);
- (b) does not have a specified expiry date;
- (c) specifies a location within [insert location of Project] where demand may be given and where payment will be made by the issuer on receipt of the demand; and
- (d) is substantially in a form acceptable to the Government.

Term means the term of this agreement commencing on the date of this Agreement and ending on [·].

2 Security

Construction Phase Security

- 2.1 Within 14 Business Days after the date of this Agreement, the Proponent must procure and provide to the Government the Construction Phase Security.

Operational Phase Security

- 2.2 Upon commissioning of the Project, the Proponent must procure and provide to the Government the Operational Phase Security.

Purpose of Securities

- 2.3 The Securities required under this clause 2 are to be provided and maintained by the Proponent for the purpose of ensuring the due and proper performance by the Proponent of all of its obligations under this Agreement.

Replacement of Security

- 2.4 If the Government draws on any Security, the Proponent must, within 5 Business Days after the Security being drawn upon, provide a replacement security so that the total value of the Securities held by the Government is equal to the amount required by this Agreement.

Return of Securities

- 2.5 The Government must return:
- (a) the Construction Phase Security to the Proponent (or, at the nomination of the Proponent, to the issuer) if the Government has been provided with the Operational Phase Security in accordance with clause 2.2, provided that the Government is not required to return the Construction Phase Security if it is enforcing its rights under the Construction Phase Security or intends to do so; and
 - (b) the Operational Phase Security to the Proponent (or, at the nomination of the Proponent, to the issuer), within 30 Business Days after the expiry of the Term, unless the Government is enforcing its rights under the Operational Phase Security or intends to do so.

3 Termination

Proponent Events of Default

- 3.1 Each of the following events shall be an event of default by the Proponent (each, a **Proponent Event of Default**):
- (a) the assignment or transfer of the Proponent's rights or obligations in this Agreement to any person or any direct or indirect Change of Control of the Proponent without the prior written consent of the Government;
 - (b) the merger, consolidation, amalgamation or reconstruction of the Proponent without the prior consent of the Government (such consent not to be unreasonably withheld where the Proponent can reasonably demonstrate that the Proponent (or any successor entity) shall continue to be able to meet the Proponent's obligations under this Agreement);
 - (c) the Proponent having been wound up, been placed into receivership or a liquidator being appointed to it;
 - (d) the Proponent filing of a winding-up petition in respect of itself;
 - (e) the filing of a winding up petition against the Proponent as debtor that could materially impact upon the Proponent's ability to perform its obligations under this Agreement provided, however, that the Proponent does not obtain a stay or dismissal of the filing within [-] days;
 - (f) the Proponent fails to pay an amount when due under this Agreement and does not remedy the failure within [-] days after receipt of a notice from the Government specifying the failure and requiring that it be remedied;
 - (g) any material breach by the Proponent of this Agreement and, if capable of remedy, is not remedied within [-] days after receipt of notice from the Government specifying the failure and requiring the breach be remedied; or
 - (h) any representation or warranty made by the Proponent in this Agreement proving to have been false or misleading in any material respect when made if such circumstance results in a material adverse impact on the Government.

Termination by Government

- 3.2 Upon the occurrence of a Proponent Event of Default which has not been remedied within the applicable remedy period set out in clause 3.1, the Government may terminate this agreement within [-] days of providing the Proponent with written notice of its intention to do so.

Other Remedies

- 3.3 The exercise of the right of a Party to terminate this Agreement does not preclude such Party from exercising other remedies that are available to such Party under this Agreement or, subject to this Agreement, otherwise available at law.

3.3 Key issue - Water

i. Model legislative provisions

1. Access licences

- (1) An access licence entitles its holder:
 - (a) to specified shares in the available water within a specified water management area or from a specified water source (the share component); and
 - (b) to take water:
 - (i) at specified times, at specified rates or in specified circumstances, or in any combination of these; and
 - (ii) in specified areas or from specified locations, (the **extraction component**).
- (2) Without limiting subsection (1)(a), the share component of an access licence may be expressed:
 - (a) as a specified maximum volume over a specified period;
 - (b) as a specified proportion of the available water;
 - (c) as a specified proportion of the storage capacity of a specified dam or other storage work and a specified proportion of the inflow to that dam or work; or
 - (d) as a specified number of units.
- (3) Shares in available water may be assigned generally or to specified categories of access licence.

2. Categories of licence

- (1) There are the following categories of access licences:
 - (a) river access licences;
 - (b) aquifer access licences;
 - (c) estuarine water access licences;
 - (d) coastal water access licences;
 - (e) supplementary water access licences;
 - (f) major utility access licences; and
 - (g) local water utility access licences.

3. Priorities between different categories of licence

- (1) The Regulator may determine whether certain categories of licence or licence holders are given priority over other categories of licence or specific access licences.
- (2) If one access licence (the **higher priority licence**) has priority over another access licence (the **lower priority licence**), then if the water allocations under them have to be diminished, the water allocations of the higher priority licence are to be diminished at a lesser rate than the water allocations of the lower priority licence.

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4. Available water determinations

- (1) From time to time, the Minister may, by order in writing, make a determination as to the availability of water for one or more categories or subcategories of access licences in relation to one or more water sources.
- (2) An available water determination that is made in relation to a particular category of access licence applies to all subcategories of that category except to the extent to which it otherwise provides.

5. Taking water without, or otherwise than authorised by, an access licence

- (1) A person:
 - (a) who takes water from a water source to which this Act applies; and
 - (b) who does not hold an access licence for that water source,is guilty of an offence and is liable for a Tier 2 penalty.
- (2) A person:
 - (a) who takes water from a water source to which this Act applies;
 - (b) who does not hold an access licence for that water source; and
 - (c) who intentionally or negligently takes that water without obtaining an access licence for that water source,is guilty of an offence and is liable for a Tier 1 penalty.

6. Taking water for which there is no, or insufficient, water allocation

- (1) A person who takes water from a water source to which this Act applies otherwise than in accordance with the water allocation for the access licence by which the taking of water from that water source is authorised is guilty of an offence and is liable for a Tier 2 penalty.
- (2) A person who takes water from a water source to which this Act applies otherwise than in accordance with the water allocation for the access licence by which the taking of water from that water source is authorised and:
 - (a) who intentionally or negligently fails to ascertain whether the taking of water is in accordance with the water allocation; or
 - (b) who knows or has reasonable cause to believe that the taking of the water is not in accordance with the water allocation,is guilty of an offence and is liable for a Tier 1 penalty.

7. Penalties

(1) For the purposes of this Act:

(a) a Tier 1 penalty corresponds to a maximum penalty of:

- (i) in the case of a corporation, [·] penalty units and, in the case of a continuing offence, a further penalty of [·] penalty units for each day the offence continues, or
- (ii) in any other case, imprisonment for [·] years or [·] penalty units, or both, and, in the case of a continuing offence, a further penalty of [·] penalty units for each day the offence continues; and

(b) a Tier 2 penalty corresponds to a maximum penalty of:

- (i) in the case of a corporation, [·] penalty units and, in the case of a continuing offence, a further penalty of [·] penalty units for each day the offence continues, or
- (ii) in any other case, [·] penalty units and, in the case of a continuing offence, a further penalty of [·] penalty units for each day the offence continues.

ii. Model contractual terms

1 Definitions

1.1 For the purpose of these model provisions, capitalised terms have the following meanings:

Government means the government contracting entity.

Project means [insert details of hydrogen project] located at [·].

Proponent means the project proponent.

Water Licence has the meaning given in clause 2.1.

2 Rights to access and extract water

2.1 Subject to clause 2.4, the Government hereby grants [or agrees to procure the grant by the [Utility] of] the right for the Proponent to extract and consume [insert unit] of water per annum from [insert water source] for the purpose of producing green hydrogen and any other ancillary activities at the Project (**Water Licence**).

2.2 The Proponent is authorised to build any necessary infrastructure to enable the Proponent to extract water in accordance with the Water Licence provided that the Proponent complies with all obligations imposed by any Law in respect of the operation, maintenance and decommissioning of such infrastructure.

2.3 The Proponent must not extract water in any given year that exceeds the maximum entitlement under the Water Licence.

2.4 The Government may, by written direction to the Proponent, amend the maximum volume of water that may be extracted pursuant the Water Licence as a result of the occurrence of any external event or circumstance occurs which materially affects the amount of water available at [insert water source]. Any direction issued by the

Government pursuant to this clause must be made in good faith having regard to the commercial consequences such direction may have on the Proponent's operations at the Project.

- 2.5 If the Government issues a notice under clause 2.4 reducing the maximum volume of water that may be extracted under the Water Licence, the Government must, by written direction to the Proponent, reinstate the maximum volume of water that may be extracted under the Water Licence if the external event or circumstance ceases.

3.4 Key issue - Access to infrastructure

i. Model legislative provisions

1. Definitions

For the purposes of the model legislative provisions below:

Council means an independent council established to provide advice and recommendations to relevant Ministers regarding operation of, use of and investment in monopoly infrastructure.

2. Person may request recommendation

- (1) The designated Minister, or any other person, may make a written application to the Council asking the Council to recommend that a particular service be declared.
- (2) After receiving the application, the Council:
 - (a) must tell the provider of the service that the Council has received the application; and
 - (b) must recommend to the designated Minister:
 - (i) that the service be declared, with the expiry date specified in the recommendation; or
 - (ii) that the service not be declared.
- (3) If the applicant is a person other than the designated Minister, the Council may recommend that the service not be declared if the Council thinks that the application was not made in good faith. This subsection does not limit the grounds on which the Council may decide to recommend that the service not be declared.
- (4) In deciding what recommendation to make, the Council must consider whether it would be economical for anyone to develop another facility that could provide part of the service. This subsection does not limit the grounds on which the Council may decide to recommend that the service be declared or not be declared.
- (5) The applicant may withdraw the application at any time before the Council makes a recommendation relating to it.
- (6) The applicant may request, in writing, the Council to vary the application at any time before the Council makes a recommendation relating to it.

3. Limits on the Council recommending declaration of a service

- (1) The Council cannot recommend declaration of a service that is the subject of an access undertaking.
- (2) The Council cannot recommend that a service be declared unless it is satisfied of all of the following matters:
 - (a) that access (or increased access) to the service would promote a material increase in competition in at least one market, other than the market for the service;
 - (b) that it would be uneconomical for anyone to develop another facility to provide the service;
 - (c) that the facility is of national significance, having regard to:
 - (i) the size of the facility; or
 - (ii) the importance of the facility to constitutional trade or commerce; or
 - (iii) the importance of the facility to the national economy; and
 - (d) that access (or increased access) to the service would not be contrary to the public interest.

4. Notification of access disputes

- (1) If a third party is unable to agree with the provider on one or more aspects of access to a declared service, either the provider or the third party may notify the Council in writing that an access dispute exists, but only to the extent that those aspects of access are not the subject of an access undertaking that is in operation in relation to the service.
- (2) If an access dispute is referred to the Council, the Council must, following an arbitration process:
 - (a) make a written final determination; or
 - (b) make a written interim determination.
- (3) A determination may deal with any matter relating to access by the third party to the service, including matters that were not the basis for notification of the dispute. By way of example, the determination may:
 - (a) require the provider to provide access to the service by the third party;
 - (b) require the third party to accept, and pay for, access to the service;
 - (c) specify the terms and conditions of the third party's access to the service;
 - (d) require the provider to extend the facility;
 - (e) require the provider to permit interconnection to the facility by the third party; or
 - (f) specify the extent to which the determination overrides an earlier determination relating to access to the service by the third party.

ii. Model contractual terms

1 Definitions

- 1.1 For the purpose of these model provisions, capitalised terms have the following meanings:

Government means the government contracting entity.

Project means [insert details of hydrogen project] located at [·].

Proponent means the project proponent.

Term means the term of this agreement commencing on the date of this Agreement and ending on [·].

2 Rights to access infrastructure

- 2.1 The Government hereby grants [or agrees to procure the grant by the [Utility] of] all necessary rights to access and obtain services from [insert critical infrastructure e.g. distribution pipelines, electricity distribution network, etc.] for the purpose of [distributing/producing] green hydrogen at the Project throughout the Term of this Agreement.
- 2.2 The Government must ensure that any access to and use of [insert critical infrastructure] by the Project Proponent pursuant to clause 2.1 must be on reasonable and non-discriminatory terms and conditions including with respect to the fees payable by the Proponent in respect of those services.