

Gas Supply and Other Legislation (Hydrogen Industry Development) Amendment Bill 2023

Explanatory Notes

Short title

The short title of the Bill is the Gas Supply and Other Legislation (Hydrogen Industry Development) Amendment Bill 2023.

Policy objectives and the reasons for them

The growing global interest in renewable hydrogen highlights its increasing potential for use as a future energy and fuel source to support decarbonisation and climate commitments. Many of Queensland's major trading partners such as Japan, South Korea and Singapore have made commitments to net zero emissions and are looking to renewable hydrogen to meet their ambitious decarbonisation targets.

Queensland has the opportunity to build on its long history as a major energy exporter and position itself as a global supplier of choice for renewable or 'green' hydrogen. Independent modelling that informed the Queensland Energy and Jobs Plan estimates that Queensland's renewable hydrogen industry could be worth over \$33 billion by 2040.

Queensland's renewable hydrogen industry also has the potential to play a key role in providing Queenslanders with clean, reliable and affordable power, in line with the government's commitment in the Queensland Energy and Jobs Plan. With over 50 projects underway within the state and several with major international proponents, Queensland is well positioned to secure the opportunities from this emerging industry to provide benefits for all Queenslanders.

An efficient and effective regulatory framework to underpin renewable hydrogen developments is critical to enabling the growth of a world-leading hydrogen industry that supports major investment and opens new export opportunities for Queensland. These developments will support regional economies and jobs.

Pipelines will be essential for hydrogen production and export and will be critical infrastructure needed to facilitate the transportation of hydrogen and other gases to markets or large facilities. For example, transporting hydrogen from a production facility to an export terminal.

The Gas Supply and Other Legislation (Hydrogen Industry Development) Amendment Bill 2023 aims to provide a clear regulatory assessment pathway to authorise the construction and operation of pipelines for hydrogen and hydrogen carriers in Queensland. Hydrogen carriers could include ammonia, methanol, methyl-cyclohexane (MCH), dimethyl-ether and toluene in pipelines.

On 28 October 2022, Energy Ministers agreed to extend the National Gas Law and the National Energy Retail Law to hydrogen and other renewable gases. The Bill is intended to provide consistency with these national gas regulatory reforms.

Achievement of policy objectives

To achieve its objectives, the Gas Supply and Other Legislation (Hydrogen Industry Development) Amendment Bill 2023 proposes to amend:

- the *Gas Supply Act 2003* to expand its jurisdiction to hydrogen, hydrogen blends, biomethane and other gases; and
- the *Petroleum and Gas (Production and Safety) Act 2004* to provide a clear and effective regulatory pathway for a proponent to apply for a pipeline licence for the transmission of hydrogen and hydrogen carriers.

Gas Supply Act 2003

The *Gas Supply Act 2003* currently provides for efficient and economical processed natural gas supply and protecting the interests of customers, including through the granting of distribution authorities for the supply of reticulated processed natural gas to customers.

The proposed amendments to the *Gas Supply Act 2003* achieve their objective by expanding the Act's remit from processed natural gas to include hydrogen, hydrogen blends, biomethane and other 'covered gases'.

'Covered gases' are defined in the Bill as a primary gas, or gas blend. A 'primary gas' is processed natural gas, hydrogen, biomethane, synthetic methane or a substance prescribed by regulation. The term 'gas blend' is defined in the Bill as meaning primary gases that have been blended together to be suitable for consumption.

The existing term of processed natural gas in the *Gas Supply Act 2003* is retained and is defined as a gas consisting of naturally occurring hydrocarbons and other substances, where more than half its volume is methane and has been processed to be suitable for consumption.

Hydrogen is not defined in the Bill and therefore has its ordinary meaning.

Biomethane is defined in the Bill as a gas which has been produced from refining biogas, which is a gas made from organic matter other than fossilised organic matter. Synthetic methane is a gas produced by the methanation of carbon dioxide – this industrial process combines hydrogen with carbon dioxide to create methane. Biomethane and synthetic methane must be suitable for consumption.

The requirements to be suitable for consumption are necessary to ensure that processing requirements for end use are met.

The amendments to the *Gas Supply Act 2003* will also provide consistency with changes being progressed nationally to the National Gas Law and the National Energy Retail Law.

Petroleum and Gas (Production and Safety) Act 2004

Currently, the *Petroleum and Gas (Production and Safety) Act 2004* provides a regulatory framework for the petroleum and gas industry in Queensland, including a licencing regime for the construction and operation of pipelines. It also addresses safety and technical issues related

to the production, transportation and use of petroleum, natural gas and fuel gas. However, hydrogen, while prescribed as a fuel gas, is not expressly listed as a substance that can be transported under a pipeline licence.

The proposed amendments to the *Petroleum and Gas (Production and Safety) Act 2004* achieve their objective by enabling the licencing and operation of transmission pipelines to transport hydrogen and hydrogen carriers.

To achieve the objective of ensuring safe and competent management in relation to the location, design, construction and operation of pipelines for all regulated substances, the proposed amendments to the *Petroleum and Gas (Production and Safety) Act 2004* will provide for safety considerations, including the requirement for safety to be a mandatory consideration when deciding whether to grant a pipeline licence.

Alternative ways of achieving policy objectives

There are no alternative ways of achieving the policy objectives.

The *Gas Supply Act 2003* only authorises processed natural gas and liquid petroleum gas (LPG) as substances that can be transported in a distribution pipeline under a distribution authority. Similarly, the *Petroleum and Gas (Production and Safety) Act 2004* does not expressly list hydrogen or hydrogen carriers as substances that can be transported under a pipeline licence.

The proposed amendments are necessary to remove these regulatory barriers and expressly authorise hydrogen and other renewable gases to be transported under a *Gas Supply Act 2003* distribution pipeline and provide for hydrogen and hydrogen carriers to be transported under a *Petroleum and Gas (Production and Safety) Act 2004* pipeline.

Estimated cost for government implementation

It is expected that costs from the Bill will be minimal and will form part of existing assessment and compliance processes. Any implementation costs to government will be met from existing agency budget allocations.

Consistency with fundamental legislative principles

The Bill has been drafted having regard to the fundamental legislative principles in the *Legislative Standards Act 1992* and is generally consistent with these principles. Potential breaches of the fundamental legislative principles are addressed below.

The new term ‘covered gas’ in new subsection 9(1) of the *Gas Supply Act 2003* will provide the ability for an additional gas to be prescribed through regulation. Similarly, the new term ‘regulated hydrogen’ in new subsection 11A(c) of the *Petroleum and Gas (Production and Safety) Act 2004* will provide flexibility for substances involved in, or produced for, a process related to the storage or transport of hydrogen to be prescribed via regulation. These amendments potentially limit the principle in section 4 of the *Legislative Standards Act 1992* that legislation should have sufficient regard to the institution of Parliament. This is because the provisions delegate legislative power to regulations that may be made by the Governor in Council, as opposed to by Parliament.

However, any potential infringement is justified because new gases may become suitable for distribution due to continuing developments in research, science, technology and supply chains. Similarly, other substances may be identified as being suitable for the storage or transport of hydrogen as technology and industry knowledge develops.

The *Gas Supply Act 2003*, together with the *Petroleum and Gas (Production and Safety) Act 2004*, establish State-wide regulatory frameworks for the transportation of petroleum and gas in pipelines, which are being extended by the Bill to hydrogen and other renewable gases. These frameworks will remain unchanged by the addition of a new covered gas or regulated hydrogen substance. Providing for the addition of new gases as ‘covered gases’ and additional hydrogen substances as regulated hydrogen by regulation reduces the possibility of requiring successive amendments to the *Gas Supply Act 2003* and *Petroleum and Gas (Production and Safety) Act 2004*, which would increase administrative burden on the executive government and industry.

The new section 410(1)(a)(iii) provides for safety to be a mandatory consideration when granting a licence. The provision provides that the Minister cannot grant a pipeline licence unless the Minister is satisfied that the applicant is able to competently and safely manage, for each pipeline the subject of the licence, matters related to the location, design, construction and operation of the pipeline.

Providing for safety as a mandatory consideration when granting a licence may engage the fundamental legislative principle relating to whether the proposal has sufficient regard to rights and liberties of individuals, in particular whether the proposed legislation makes rights and liberties, or obligations, dependent on administrative power only if the power is sufficiently defined and subject to appropriate review (section 4(3)(a) of the *Legislative Standards Act 1992*); and is consistent with principles of natural justice (section 4(3)(b) of the *Legislative Standards Act 1992*). The amendment is not considered to be inconsistent with fundamental legislative principles as natural justice principles and a right of review will apply.

Natural justice will be afforded to applicants when deciding whether or not to grant a licence. Applicants are given the opportunity to respond to any adverse information, and to any potential adverse finding as part of the application process. Any relevant information provided by an applicant as part of this process is considered by the decision maker prior to making a final decision on an application. Ultimately, if a decision is made to not grant a licence, a decision to refuse a pipeline licence may be appealed to the land court in accordance with section 823(3) of the *Petroleum and Gas (Production and Safety) Act 2004*.

Consultation

An exposure draft of the Bill was released on the Department of Energy and Public Works’ website for consultation on the 6 March 2023 for a four-week period. Submissions closed on 3 April 2023.

More than 125 stakeholders from industry, local government, the agricultural sector, resource sector, environmental groups, First Nations stakeholder groups, government owned corporations and distribution authority holders were also targeted for feedback by the Department of Energy and Public Works. Online and in person briefing sessions were held with stakeholders including with the Central Queensland Hydrogen Alliance; Australian

Hydrogen Council; H2Q; Queensland Hydrogen Industry Cluster; Queensland Resources Council; WWF; Australian Conservation Foundation; Queensland Conservation Council; AgForce; Queensland Farmers Federation; Stanwell and Australian Gas Infrastructure Group.

Ten written submissions were received from industry proponents, peak organisations, the agricultural sector and the Queensland Law Society.

Key feedback indicated broad support for the provisions of the Bill with minor points of feedback and clarification provided. Where appropriate, the Bill has been amended to address stakeholder feedback.

Consistency with legislation of other jurisdictions

Queensland is a participating jurisdiction under the National Gas Law and National Energy Retail Law, and subordinate instruments. On 28 October 2022, Energy Ministers agreed to extend the National Gas Law and the National Energy Retail Law to hydrogen and other renewable gases.

The Bill proposes to add hydrogen, other renewable gases and other substances to the Gas Supply Act 2003 and Petroleum and Gas (Production and Safety) Act 2004, and creates a mechanism to add additional gases or hydrogen substances by regulation. These amendments will ensure that Queensland's pipeline framework remains consistent with proposed amendments to the national framework.

Notes on provisions

Part 1 Preliminary

Short title

Clause 1 states that, when enacted, the Bill will be cited as the *Gas Supply and Other Legislation (Hydrogen Industry Development) Amendment Act 2023*.

Commencement

Clause 2 states that the Bill is intended to commence on a day fixed by proclamation.

Part 2 Amendment of Gas Supply Act 2003

Act Amended

Clause 3 provides that this part of the Bill amends the *Gas Supply Act 2003*.

Amendment of long title

Clause 4 amends the long title to the *Gas Supply Act 2003* to reflect the expansion of its remit from ‘processed natural gas’ to ‘covered gases’.

Amendment of s 3 (Main purposes of Act)

Clause 5 amends section 3 of the *Gas Supply Act 2003* to extend the main purposes from regulation of the distribution of processed natural gas to regulation of covered gases. The term ‘covered gas’ is defined in clause 7. This change reflects the intention for the Act to apply to hydrogen and other renewable gases, in addition to processed natural gas.

Amendment of s 4 (Gas-related matters to which Act does not apply)

Clause 6 amends section 4 of the *Gas Supply Act 2003* to ensure the scope of this section is expanded from ‘processed natural gas’ to include ‘covered gases’. A ‘covered gas’ is defined in clause 7. Section 4 provides clear limits on the scope of the *Gas Supply Act 2003*, for example by expressly excluding matters such as safety and quality from the Act’s jurisdiction. The amendment to section 4 is necessary to ensure these excluded matters remain unaffected by the addition of covered gases in the Act.

Replacement of ch 1, pt 3, div 2, sdiv 2 (Processed natural gas)

Clause 7 amends section 9 of the *Gas Supply Act 2003* to introduce the key definition ‘covered gas’ into the Act. A ‘covered gas’ is defined in the Bill as a primary gas or gas blend.

A ‘primary gas’ is processed natural gas as well as hydrogen, biomethane, synthetic methane or a substance prescribed by regulation that is suitable for consumption. The term ‘gas blend’ is defined in the Bill as meaning primary gases that have been blended together and is suitable for consumption.

Processed natural gas is defined as a substance that in its natural state is in a gas form. It consists of naturally occurring hydrocarbons, with more than half its volume methane and has been processed to be suitable for consumption.

Hydrogen is not defined in the Bill and therefore has its ordinary meaning.

Biomethane is defined as a substance that in its natural state is a gas that has been produced from refining biogas, the principal constituent of which is methane and that is suitable for consumption. Biogas is a gas made from organic matter other than fossilised organic matter.

Synthetic methane is also defined as a substance that in its natural state is a gas, the principal constituent of which is methane produced by the methanation of carbon dioxide. It must also be suitable for consumption.

The requirements to be suitable for consumption are necessary to ensure that processing requirements for end use are met.

Amendment of s 28 (Requirements for application)

Clause 8 amends section 28 of the *Gas Supply Act 2003* to ensure applications for a distribution authority will include the type of covered gas to be authorised. This ensures there is transparency over what type of covered gas is being transported within a distribution authority, and is a necessary change given the Act will now apply to hydrogen and other renewable gases in addition to processed natural gas.

Amendment of s 29 (Public notice by regulator and submissions)

Clause 9 amends section 29(2)(a) of the *Gas Supply Act 2003* to add a further requirement to the notice the regulator must publish before deciding an application for a distribution authority. In particular, the regulator must publish details about the type of covered gas for the distribution authority prior to the regulator considering submissions and making a decision about the application.

Insertion of new ch 7, pt 4

Clause 10 amends chapter 7 of *Gas Supply Act 2003* to insert new Part 4 to provide transitional provisions for the Bill.

New section 342 contains definitions for Part 4.

New section 343 ensures existing distribution authority holders remain authorised with respect to processed natural gas and will be automatically authorised with respect to biomethane and synthetic methane. The intention is that a distribution authority holder will only need to apply for authorisation with respect to the use of hydrogen, which does not already fall within the definition of processed natural gas.

This provision means that if a distribution authority holder commenced a pilot project to blend small amounts of hydrogen prior to the commencement of the Bill, the project will continue to

be authorised under the existing authority. This is because the definition of processed natural gas allows for the blending of small amounts of hydrogen, provided it is suitable for consumption.

New section 344 ensures that any insufficiency of supply declarations made by the Minister continue in effect.

New section 345 ensures that any insufficiency of supply directions made by the Minister continue in effect.

Part 3 Amendment of Petroleum and Gas (Production and Safety) Act 2004

Act amended

Clause 11 provides that this part amends the *Petroleum and Gas (Production and Safety) Act 2004*.

Amendment of s 3A (Secondary purpose—facilitation of Geothermal Energy Act 2010 and Greenhouse Gas Storage Act 2009)

Clause 12 amends section 3A of the *Petroleum and Gas (Production and Safety) Act 2004*. The amendment broadens the existing secondary purposes of the Act to include the construction and operation of pipelines for regulated hydrogen. The amendment provides certainty to industry and community stakeholders that there is a framework in place that will regulate hydrogen and hydrogen carriers in pipelines in a way that is safe, effective and efficient.

Amendment of s 11 (Meaning of LPG and fuel gas)

Clause 13 amends the meaning of fuel gas in section 11 to include hydrogen, or a hydrogen gas blend, used or intended to be used as a fuel to produce heat, light or power. A hydrogen gas blend is processed natural gas and hydrogen that have been blended together. Hydrogen used or intended to be used as a fuel is already included as a fuel gas under the Petroleum and Gas (General Provisions) Regulation 2017, and it is being elevated to the Act to provide visibility and clarity for the regulation of hydrogen in Queensland. The clause also makes a minor amendment to the definition of processed natural gas for consistency with the *Gas Supply Act 2003*.

Insertion of new s 11A

Clause 14 inserts a new section that includes a new defined term for regulated hydrogen. Regulated hydrogen is hydrogen, or a hydrogen gas blend, or another substance prescribed by regulation that is involved in, or produced for, a process related to the storage or transport of hydrogen.

Regulated hydrogen is not petroleum and its potential uses extend beyond what is permitted under the term fuel gas. Inserting a new defined term clarifies that substances which are regulated hydrogen can be licenced under the *Petroleum and Gas (Production and Safety) Act*

2004 and fall within the established safety pipeline framework and jurisdiction of Resources Safety and Health Queensland.

The ability to prescribe another substance by regulation as regulated hydrogen provides the flexibility to add other carrier substances that may be required as technology and industry knowledge develops.

Amendment of s 16 (What is a *pipeline*)

Clause 15 amends the definition of pipeline in section 16 to add regulated hydrogen as a substance that may be transported through a pipe or systems of pipes. The intent of this amendment is to provide clarity to industry and community stakeholders about substances that are authorised to be transported in pipelines.

Amendment of s 16A (What is a *distribution pipeline*)

Clause 16 amends the definition of a distribution pipeline in section 16A to clarify the distinction between distribution pipelines and transmission pipelines for fuel gas.

This clause also broadens the definition of major user facility to include:

- A facility operated as a place of export for fuel gas, including, for example, a port; and
- A facility operated for the liquefaction of fuel gas before it is transported to a facility operating as a place of export for fuel gas.

Without these changes, a pipeline transporting fuel gas that consists of hydrogen will be considered a distribution pipeline under the *Petroleum and Gas (Production and Safety) Act 2004* and cannot be licenced.

These definitional changes do not apply to regulated hydrogen which is not fuel gas.

Amendment of s 399 (What is *pipeline land* for a pipeline licence)

Clause 17 amends section 399 to remove the reference to petroleum in relation to pipelines. The effect of this amendment is to broaden the provision to include other substances licenced under the *Petroleum and Gas (Production and Safety) Act 2004* such as regulated hydrogen.

Amendment of s 409 (Requirements for making application)

Clause 18 amends section 409 to provide that an application for a pipeline licence must be accompanied by information, prescribed by regulation, that is relevant to the matters related to the location, design, construction and operation of the pipeline. This information will support the consideration of a pipeline licence application to determine whether an applicant is able to competently and safely manage the location, design, construction and operation of the pipeline.

Amendment of s 410 (Deciding whether to grant licence)

Clause 19 amends section 410 to provide that Minister cannot grant a pipeline licence unless the Minister is satisfied that the applicant is able to competently and safely manage, for each pipeline the subject of the licence, matters related to the location, design, construction and

operation of the pipeline. The effect of this amendment is to make safety a mandatory consideration prior to the granting of a pipeline licence.

Amendment of s 411 (Public notice requirement)

Clause 20 amends section 411 to require that a public notice state each substance proposed to be transported through the pipeline. The intent of this amendment is to require the applicant to be transparent about the substances proposed to be transported in the pipeline the subject of the licence application.

Amendment of s 412 (Provisions of licence)

Clause 21 amends section 412 to require that each pipeline licence state the substance that is to be transported through a pipeline. This information will be displayed on the Department of Resource's public facing electronic register MyMinesOnline. The intent of this amendment is to provide transparency about substances that are authorised to be transported in pipelines.

Amendment of s 415 (Criteria for decisions)

Clause 22 amends section 415 to remove the criteria relating to safety, which will be included as a mandatory requirement under section 410.

Insertion of new s 418

Clause 23 inserts new section 418 to require a pipeline licence holder to give notice to the chief inspector prior to starting the safety management study for the pipeline. This requirement will be a key mandatory condition for a pipeline licence. The notice period will be at least 20 business days before the start of the safety management study. A safety management study is the process that is carried out before construction of the pipeline starts to identify, and apply controls to, threats to the safety and integrity of the pipeline. Where the licence is an area pipeline licence, the requirement to give notice will only apply to each initial pipeline mentioned in the licence. The new section will not apply to pipeline licences constructed for pipelines transporting produced water. An applicant for a pipeline licence may also give notice under this section.

This clause imposes an obligation on a pipeline licence holder to comply with any requirements prescribed by regulation about keeping a record relating to the safety management study. This will enable requirements to be prescribed by regulation, for example in relation to timeframes for keeping records.

The intent of this new section is to enable an assessment to be undertaken of the matters being considered in the safety management study to ensure appropriate safety measures are being applied prior to construction.

Amendment of s 422 (Obligations in operating pipeline)

Clause 24 amends section 422 to add regulated hydrogen and prescribed storage gas to the list of substances that must be safely and reliably transported by the holder under a pipeline licence. There has always been an obligation for holders to transport prescribed storage gas safely and

reliably, and this amendment to add a reference to prescribed storage gas merely clarifies this existing requirement.

This clause also imposes an obligation on pipeline licence holders to only transport substances that are stated in the licence. This amendment relates to the amendment to section 412 of the *Petroleum and Gas (Production and Safety) Act 2004* that requires each pipeline licence state the substance that is to be transported through a pipeline.

Amendment of s 437 (Limitation of pipeline licence holder's liability)

Clause 25 amends section 437 to provide that the section also applies if a person incurs a cost, damage or loss because of the partial or total failure of a pipeline licence holder to transport regulated hydrogen through a pipeline.

Amendment of s 577 (Notice of application required for particular pipeline licences)

Clause 26 amends section 577 to require a notice to surrender for all pipeline licences rather than just pipeline licences through which fuel gas is transported. No other substantive requirements are changing, and a surrender application is still required to be made at least three months after the surrender notice has been lodged.

Amendment of s 670 (What is an operating plant)

Clause 27 amends section 670 to allow for regulated hydrogen substances to be excluded from being operating plant where the substance is prescribed as an 'excluded compound'. This will allow Resources Safety and Health Queensland to independently determine if the operating plant safety framework is the most suitable safety framework for regulated hydrogen substances prescribed in section 11A. Where a substance is prescribed as an 'excluded compound' and therefore not operating plant, the safety framework under the *Work Health and Safety Act 2011* will apply.

Amendment of s 809 (Unlawful taking of petroleum or fuel gas prohibited)

Clause 28 amends section 809 to apply the provision to all substances regulated under the *Petroleum and Gas (Production and Safety) Act 2004*.

Replacement of s 815 (Fuel gas suppliers must not use other supplier's containers)

Clause 29 amends section 815 to apply the provision to all fuel gas supplied in containers. Currently, the provision only applies to LPG supplied in containers. With the emerging hydrogen market, other fuel gases will more commonly be supplied in containers and it is important to ensure fuel gas suppliers have this protection to ensure the safety and integrity of their assets.

Insertion of new ch 15, pt 30

Clause 30 inserts a new part 30 into chapter 15 of the *Petroleum and Gas (Production and Safety) Act 2004* to provide transitional provisions for the Bill.

New section 1035 introduces definitions for new part 30.

New section 1036 provides that any petroleum pipeline licence applications made before the commencement and which remain undecided after the commencement, will be decided under the Act as in force immediately before commencement.

New section 1037 is a savings provision which provides that the *Petroleum and Gas (Production and Safety) Act 2004* in force immediately before commencement continues to apply to existing pipeline licences for a period of one year. It also provides that holders of existing pipeline licences cannot transport regulated hydrogen unless their licence is amended to include regulated hydrogen as a substance that can be transported in the pipeline. If a pipeline licence is amended during the one year period, the Act as amended then applies.

New section 1038 requires existing pipeline licence holders to give notice to the chief executive about the existing substances being transported in pipelines, within one year of commencement. These substances will be taken to be substances that can be transported in the pipeline for the purpose of new section 422(2). If a notice is given under this provision, the transitional period of one year ceases to apply and the amended Act then applies to the licence. Failure to provide a notice to the chief executive could result in the pipeline licence holder being in breach of the new requirement under section 422(2) after the transitional period ends.

New section 1039 provides that any pipe or systems of pipes, that was transporting a substance that becomes regulated hydrogen on commencement because of new section 11A, remain under their existing regulatory arrangements and are not a pipeline or an operating plant under the *Petroleum and Gas (Production and Safety) Act 2004*. This section effectively maintains the regulatory and safety arrangements for some existing ammonia pipelines.

Part 4 Other Amendments

Legislation amended

Clause 31 provides that Schedule 1 amends the legislation it mentions.

Schedule 1 Other amendments

Schedule 1 of the Bill makes minor and consequential amendments to legislation listed in the schedule. These amendments:

- replace the term ‘processed natural gas’ with the new term ‘covered gas’ throughout the *Gas Supply Act 2003* and make a minor amendment to the definition of ‘corresponding authority’ in the dictionary; and
- insert definitions for the terms ‘hydrogen gas blend’ and ‘regulated hydrogen’ in the dictionary of the *Petroleum and Gas (Production and Safety) Act 2004* and make other minor updates to the dictionary, including updated section references.