



Future Hydrogen Regulatory Framework - HSE Call for Evidence

Start of Block: Introduction and respondent information

Thank you for visiting our survey on future regulation of hydrogen for heating

HSE has conducted initial and provisional analysis of the health and safety regulatory framework which will contribute to its assessment of the safety of using 100% hydrogen for heat across Great Britain. This analysis suggests that the following amendments could be considered to enable the effective regulation of 100% hydrogen heating:

- To extend the Gas Safety (Management) Regulations 1996 (GSMR) to include 100% hydrogen.
- To extend the scope of the Gas Safety (Installation and Use) Regulations 1998 (GSIUR) to include 100% hydrogen in non-domestic premises (for premises currently within scope of GSIUR for natural gas).

Some regulations are not expected to require a legislative change but may require consideration:

- For hydrogen storage under the Control of Major Accident Hazards Regulations (COMAH) 2015.
- For the long-term suitability of regulating hydrogen pipelines under the Pipelines Safety Regulations (PSR) 1996.

These do not represent formal proposals for regulatory reform. HSE does not intend to start the process of changing regulations prior to any government policy decision. Further evidence gathering, formal consultation and the development of relevant impact assessments would likely take place. At this stage of the review, we are inviting you to share your knowledge and views on potential impacts and health and safety regulatory considerations.



Participation in this survey is voluntary

- You can withdraw from the survey at any time.
- You can withdraw all of your responses or specific responses at any time during the process.

The survey will close at 23:59pm on Friday 13 October 2023

Protecting your data

- You only need to provide your contact details if you want us to be able to contact you to discuss your response. We only ask for role details for analytical purposes.
- Non-attributable comments may be published in reporting of the findings from this survey for the purposes of presenting evidence.
- Information from the survey is being collected for the purposes of this review only.
- HSE is working closely with the Department for Energy Security and Net Zero (DESNZ), data will be shared securely with DESNZ. If HSE is asked to share anonymised data from this work with government departments, other than those already stated, we would re-contact you to get your explicit consent to do this. Otherwise, the data will not be provided to external parties.
- Data collected will be securely stored and will be deleted upon completion of the post implementation review process.
- Any and all data is processed in line with HSE's privacy policy (www.hse.gov.uk/privacy.htm).
- No information you provide will be used for regulatory inspection purposes.

Thank you for your help.

If you have any problems or questions, please contact the research team at hhpevidence@hse.gov.uk

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About you or your organisation

In this section we ask for details about you or your organisation so that we can understand which part of industry or the wider system you represent.

Q1 Please provide the name of your organisation (If applicable)

Q2 Please select your / your organisation's **main activity** from the list below.

- Gas distributor
- Gas storage
- Gas provider
- Gas metering
- Gas interconnector
- Hydrogen storage (or intention to store)
- Hydrogen supplier (or intention to supply)
- Manufacturer / engineering of gas equipment / appliances
- Downstream gas engineer / business
- Landlord
- Industrial gas user
- Commercial gas user
- Standards setting body
- Professional body
- Public body
- Academic
- Other - please provide details _____

End of Block: Introduction and respondent information



Start of Block: GSMR

The Gas Safety (Management) Regulations 1996 (GSMR)

In this section we will ask questions about impacts of potential amendments to the GSMR. These potential amendments would apply to:

Regulation 2 - Specifically, the current definition of “gas” which means any substance in a gaseous state which consists wholly or mainly of methane.

Regulation 4 - The Safety Case review period. Currently the safety cases are reviewed every three years.

Q3 Do you have an interest in whether the Gas Safety (Management) Regulations 1996 (GSMR) should apply to a 100% hydrogen for heating?

- Yes
- No
- Unsure

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Q4 To what extent do you agree or disagree with the following statements about the current GSMR framework being extended to the regulation of 100% hydrogen for heating?

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The current GSMR framework would be suitable if extended to the regulation of 100% hydrogen heating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There would be regulatory gaps in the current GSMR framework which would need to be addressed to facilitate 100% hydrogen for heating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q5 Please provide brief details of why you agreed or disagreed with the statements in the previous question.



Please provide your answers against the related statements below.

The current GSMR framework would be suitable if extended to the regulation of 100% hydrogen for heating _____

There would be regulatory gaps in the current GSMR framework which would need to be addressed to facilitate 100% hydrogen for heating

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Q6 To what extent do you agree or disagree that the following amendments to GSMR would be required to **facilitate effective regulation** of 100% hydrogen for heating?

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
Regulation 2: Amend the current 'Gas' definition so it includes hydrogen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regulation 4: Consider appropriateness of review period if hydrogen safety cases are required, especially while new technology is established	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q7 Please provide brief details of why you agreed or disagreed with the statements in the previous question in relation to **facilitating effective regulation** of 100% hydrogen for heating.

Please provide your answers against the related statements below.

Regulation 2: Amend the current 'Gas' definition so it includes hydrogen

Regulation 4: Consider appropriateness of review period if hydrogen safety cases are required, especially while new technology is established

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Q8 Would you, your organisation or your members need to make **any changes** if the following amendments to GSMR were made?

	Definitely would	Probably would	Unsure	Probably would not	Definitely would not
Regulation 2: Amend the current 'Gas' definition so it includes hydrogen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regulation 4: Make the review period more frequent until hydrogen conveyance becomes well established	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q9 Please provide brief details of **changes** you, your organisation or your members would need to make in relation to the statements in the previous question.

Please provide your answers against the related statements below.

Regulation 2: Amend the current 'Gas' definition so it includes hydrogen

Regulation 4: Make the review period more frequent until hydrogen conveyance becomes well established _____

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Q10 If GSMR were extended to include 100% hydrogen, would you, your organisation or your members require any of the **support** listed below?

- Guidance
- Externally procured / contracted expertise
- Training
- Conference / webinar
- Industry forum / knowledge sharing
- No support needed
- Time to prepare for change (Please provide indicative timing and reason)

- Other (Please specify) _____
- Unsure

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Q11 Would you, your organisation or your members expect to see any **benefits** if the following amendments to GSMR were made?

	Definitely would	Probably would	Unsure	Probably would not	Definitely would not
Regulation 2: Amend the current 'Gas' definition so it includes hydrogen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regulation 4: Make the review period more frequent until hydrogen conveyance becomes well established	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q12 Please provide examples of the **benefits** that you, your organisation or your members would expect to see if amendments were made to facilitate effective regulation of 100% hydrogen for heating.

Please provide your answers against the related statements below.

Regulation 2: Amend the current 'Gas' definition so it includes hydrogen

Regulation 4: Make the review period more frequent until hydrogen conveyance becomes well established

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Q13 Would you, your organisation or your members expect to incur any significant **costs** if the following amendments to GSMR were made?

	None expected	Some costs - not expected to be burdensome	Significant costs - expected to be fairly burdensome	Significant costs - expected to be extremely burdensome	Unsure
Regulation 2: Amend the current 'Gas' definition so it includes hydrogen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regulation 4: Make the review period more frequent until hydrogen conveyance becomes well established	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q14 Please provide examples, if applicable, of the most burdensome **costs** that you, your organisation or your members would expect to incur if the following amendments to were made to GSMR to facilitate effective regulation of 100% hydrogen for heating.

Please provide your answers against the related statements below.

Regulation 2: Amend the current 'Gas' definition so it includes hydrogen

Regulation 4: Make the review period more frequent until hydrogen conveyance becomes well established

End of Block: GSMR

Start of Block: GSIUR



Gas Safety (Installation and Use) Regulations 1998 (GSIUR)

The Gas Safety (Installation and Use) Regulations 1998 (GSIUR) deal with the safe installation, maintenance and use of gas systems downstream of the Emergency Control Valves (ECVs), including gas fittings, appliances and flues, mainly in domestic and commercial premises.

In this section we will ask questions about the impacts of potential amendments to the GSIUR. These potential amendments would apply to:

Regulation 2(1) – Specifically, the definition of “gas” which means any substance which is or (if it were in a gaseous state) would be gas within the meaning of the Gas Act 1986(1) except that it does not include gas consisting wholly or mainly of hydrogen when used in non-domestic premises.

Regulation 6(10) – Specifically, that no person shall store or keep gas consisting wholly or mainly of methane on domestic premises, and, for the purpose of this paragraph, such gas from time to time present in pipes or in the fuel tank of any vehicle propelled by gas shall be deemed not to be so stored or kept.

Q15 Do you, your organisation or your members have an interest in the Gas Safety (Installation and Use) Regulations 1998 (GSIUR)?

- Yes
 - No
 - Unsure
-



Q16 To what extent do you agree or disagree that the following amendments to GSIUR would be required to **facilitate effective regulation** of 100% hydrogen for heating?

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
Regulation 2(1): amending the definition of 'gas' such that the use of 100% hydrogen on non-domestic premises currently within the scope of GSIUR will be covered	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regulation 6(10): expanding the scope to cover storage of hydrogen on domestic premises	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q17 Please provide brief details of why you agreed or disagreed with the statements in the previous question.

Please provide your answers against the related statements below.

Regulation 2(1): amending the definition of 'gas' such that the use of 100% hydrogen on non-domestic premises currently within the scope of GSIUR will be covered

Regulation 6(10): expanding the scope to cover storage of hydrogen on domestic premises

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Q18 Would you, your organisation or your members be required to make any **changes** if the following amendments to GSIUR were made?

	Definitely would	Probably would	Unsure	Probably would not	Definitely would not
Regulation 2(1): amending the definition of 'gas' such that the use of 100% hydrogen on non-domestic premises currently within the scope of GSIUR will be covered	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regulation 6(10): expanding the scope to cover storage of hydrogen on domestic premises	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q19 Please provide brief details of **changes** you, your organisation or your members would need to make in relation to the statements in the previous question.



Please provide your answers against the related statements below.

Regulation 2(1): amending the definition of 'gas' such that the use of 100% hydrogen on non-domestic premises currently within the scope of GSIUR will be covered

Regulation 6(10): expanding the scope to cover storage of hydrogen on domestic premises

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Q20 If these amendments were to be made to the GSIUR, would you, your organisation or your members require any of the **support** below?

- Guidance
- Externally procured / contracted expertise
- Training
- Conference / webinar
- Industry forum / knowledge sharing
- No support needed
- Time to prepare for change (Please provide indicative timing and reason)

- Other (Please specify) _____
- Unsure

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Q21 Would you, your organisation or your members expect to see any **benefits** if the following amendments to GSIUR were made?

	Definitely would	Probably would	Unsure	Probably would not	Definitely would not
Regulation 2(1): amending the definition of 'gas' such that the use of 100% hydrogen on non-domestic premises currently within the scope of GSIUR will be covered	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regulation 6(10): expanding the scope to cover storage of hydrogen on domestic premises	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q22 Please provide examples of the **benefits** that you, your organisation or your members would expect to see if potential amendments were made to facilitate effective regulation of 100% hydrogen for heating.



Please provide your answers against the related statements below.

Regulation 2(1): amending the definition of 'gas' such that the use of 100% hydrogen on non-domestic premises currently within the scope of GSIUR will be covered

Regulation 6(10): expanding the scope to cover storage of hydrogen on domestic premises

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Q23 Would you, your organisation or your members expect to incur any **costs** if the following amendments to GSIUR were made?

	None expected	Some costs - not expected to be burdensome	Significant costs - expected to be fairly burdensome	Significant costs - expected to be extremely burdensome	Unsure
Regulation 2(1): amending the definition of 'gas' such that the use of 100% hydrogen on non-domestic premises currently within the scope of GSIUR will be covered	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regulation 6(10): expanding the scope to cover storage of hydrogen on domestic premises	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q24 Please provide examples, if applicable, of the most burdensome **costs** that you, your organisation or your members would expect to incur if the following amendments were made to GSIUR to facilitate regulation of 100% hydrogen for heating.



Please provide your answers against the related statements below.

Regulation 2(1): amending the definition of 'gas' such that the use of 100% hydrogen on non-domestic premises currently within the scope of GSIUR will be covered

Regulation 6(10): expanding the scope to cover storage of hydrogen on domestic premises

End of Block: GSIUR

Start of Block: COMAH

The Control of Major Accident Hazard (COMAH) Regulations

COMAH specifies threshold quantities for dangerous substances above which the requirements for the regulations apply. There are two thresholds, known as lower tier and upper tier. The Regulations define dangerous substances using the Classification, Labelling and Packaging Regulations which is based on a global classification system for chemicals. Hydrogen is a named substances in the COMAH Regulations and has qualifying quantities of 5 tonnes for Lower Tier and 50 tonnes for Upper Tier establishments. Below 5 tonnes the requirements of COMAH would not apply, however general health and safety regulations would apply to ensure the safe storage of hydrogen.

Under the Planning (Hazardous Substances) Regulations, hazardous substances consent (HSC) is required to store two or more tonnes of hydrogen. Hazardous Substances Authorities (usually the local planning authority) are required to consult statutory consultees, including HSE, on applications for HSC. This call for evidence is not seeking views on the Planning (Hazardous Substances) Regulations.

HSE is seeking views on whether the current COMAH regime and associated thresholds may have any potential impact on industry plans for the roll out of a 100% hydrogen heating network. HSE would welcome evidence on the type/scale of storage planned to support a roll out of 100% hydrogen heating.



Q25 Does the Control of Major Accident Hazards 2015 (COMAH) regime apply to your organisation?

- Yes
 - No
 - Unsure
-

Q26 To what extent do you agree or disagree that current **COMAH hydrogen thresholds** are suitable for 100% hydrogen for heating?

- Strongly agree
 - Somewhat agree
 - Neither agree nor disagree
 - Somewhat disagree
 - Strongly disagree
-

Q27 Please provide brief details of why you agreed or disagreed with the appropriateness of current **COMAH hydrogen thresholds** for 100% hydrogen for heating?

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Q28 Is there any **safety evidence** available to support revision of the current COMAH hydrogen thresholds for 100% hydrogen for heating?

Yes (Please provide brief details)

No

Unsure

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Q29 Does your organisation have any **plans** to:

	Definitely would	Probably would	Unsure	Probably would not	Definitely would not
Store hydrogen to support 100% hydrogen demand on an existing COMAH site?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Store hydrogen at below COMAH thresholds to support 100% hydrogen demand?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Store hydrogen to support 100% hydrogen demand which will have an impact on the COMAH status of your operations?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q30 Please provide brief details of your organisation's **plans** to store hydrogen to support 100% hydrogen demand.



End of Block: COMAH

Start of Block: Pipelines

The Pipelines Safety Regulations 1996 (PSR)

PSR currently applies to the natural gas network alongside other pipelines.

HSE would like to understand whether PSR would enable the long-term use of hydrogen more widely and within the current natural gas network.

PSR already places general duties on hydrogen pipelines and specific duties on some hydrogen pipelines classed as Major Accident Hazard pipelines. These are defined as those transmitting 'a fluid which is flammable in air and is or is to be conveyed in the pipeline as a gas at above 8 bar absolute' (Regulation 18, Schedule 2).

Major Accident Hazard pipelines are required to submit a notification to HSE at least 6 months before the operation of the pipeline.

Q31 Do the Pipelines Safety Regulations 1996 (PSR) apply to your organisation?

- Yes
 - No
 - Unsure
-



Q32 To what extent do you agree or disagree with the following statements relating to The Pipelines Safety Regulations 1996 (PSR) **facilitating effective regulation** of 100% hydrogen for heating?

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
Current general duties for hydrogen pipelines set out in PSR will be suitable for an increased transmission of hydrogen within the pipeline	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Current specific duties for major hazard hydrogen pipelines set out in PSR will be suitable for an increased transmission of hydrogen within the pipeline	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q33 Please provide brief details of why you agreed or disagreed with the statements in the previous question in relation to **facilitating effective regulation** of 100% hydrogen for heating.

Please provide your answers against the related statements below.

The suitability of general duties relating to hydrogen pipelines in the event of an increased transmission of hydrogen within the pipeline

The suitability of specific duties relating to major hazard hydrogen pipelines in the event of an increased transmission of hydrogen within the pipeline

End of Block: Pipelines

Start of Block: Industrial end users

Industrial end users

Industrial premises that use gas for heating, cooking, lighting and industrial processes may be affected by a change to the gas distribution network to 100% hydrogen. These premises are outside of the scope of the Gas Safety (Installation and Use) Regulations 1998, but as employers, dutyholders are responsible for managing health and safety risks in their businesses and must comply with relevant legislation.

Duties captured in wider health and safety legislation will require dutyholders to consider and mitigate against risk relating to 100% hydrogen.

Q34 Is your organisation an industrial end user of the gas supply network?

- Yes
- No
- Unsure
-



Q35 As an industrial end user organisation, how likely is it that you will be impacted by a roll out of 100% hydrogen for heating in terms of compliance with health and safety regulations?

- Extremely unlikely
- Somewhat unlikely
- Unsure
- Somewhat likely
- Extremely likely

Q36 Please provide brief details of the expected impacts on your organisation, in terms of compliance with health and safety regulations, if 100% hydrogen for heating were introduced.

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Q37 Please select from below any **support** your organisation might require in relation to potential impacts of 100% hydrogen for heating. *Please select all that apply.*

- Guidance
- Externally procured / contracted expertise
- Training
- Conference / webinar
- Industry forum / knowledge sharing
- No support needed
- Time to prepare for change (Please provide indicative timing and reason)

- Other (Please specify) _____
- Unsure

End of Block: Industrial end users

Start of Block: Final questions



Q38 Are there any other regulatory amendments that HSE should be considering for the regulation of 100% hydrogen heating?

Yes (Please provide brief details including the specific regulation you're referring to)

No

Don't know

Q39 Do you have any other points you wish to raise or tell us about HSE's regulation of 100% hydrogen under the Health and Safety at Work Act?

Yes (Please give brief details) _____

No

Q40 Do you have any proposals for any non-regulatory approaches in relation to 100% hydrogen for heating?

Yes (Please give brief details) _____

No

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Q41 As part of this research the Health and Safety Executive may want to contact you to clarify, or get further information, on the responses you provided.

If you are happy for us to re-contact you, please provide your **work email address**:

Q42 Do you consent to HSE contacting you to invite you to further research into future health and safety regulation of hydrogen for heating?

Yes (Please provide your name and work contact details)

No

End of Block: Final questions
