

# Hydrogen Competence Framework Engineer Entry Criteria Proposal

## Executive Summary

The UK Hydrogen Strategy states that low carbon hydrogen will be essential for achieving net zero and set the ambition of 5GW of production capacity by 2030. As the gas industry prepares for delivering a future hydrogen economy in the UK, safety will remain paramount.

One of the essential factors that will help to ensure the safe installation of appliances that are fuelled by 100% hydrogen, is the competence of all those engineers involved in that work. To ensure that existing Gas Safe Registered (GSR) engineers receive appropriate hydrogen training, and are able to demonstrate additional competence, a national [Hydrogen Competence Framework](#) is being developed.

This Framework will be available for engineers supporting community trials of hydrogen for heat. The first of these trials will be the neighbourhood-size H100 project in Fife, Scotland which is scheduled to commence in 2023. A larger village-size trial is planned for 2025.

The knowledge and experience gained in delivering community trials of hydrogen heating will inform Government decisions in 2026 on the role of hydrogen in decarbonising heat.

An important consideration for the roll out of the Framework is to establish entry criteria for existing GSR engineers wishing to extend their registration to include work on hydrogen installations. This proposal explains the background and context to this and suggests how this entry and eligibility criteria may be determined.

As part of a [project commissioned by the Department for Business, Energy & Industrial Strategy](#) (BEIS), Energy & Utility Skills are consulting with the gas industry on the proposed entry criteria for engineers wishing to extend their registration to include work on the safe installation of hydrogen fuelled appliances.

Interested stakeholders are invited to feedback by completing [this short survey](#) by **21 January 2022**.

## 1. Introduction

Commissioned by the Department for Business, Energy & Industrial Strategy (BEIS), Energy & Utility Skills continue work to develop a [Hydrogen Competence Framework](#) that will enable personnel to carry out installation work for trialling 100% hydrogen as a replacement for natural gas in heating appliances. This paper seeks to propose how it should be implemented to ensure that community trials are delivered safely by competent engineers.

During 2020, good progress was made to develop a Hydrogen Competence Framework that incorporated a Hydrogen Transition [Training Specification](#) and [Assessment Module](#). Working closely with IGEM on these essential components, the need for further research on some aspects was identified; one example being safe purging work practices for hydrogen.

BEIS is in the process of commissioning this additional research work and, once outcomes are known and accepted, the relevant Technical Standards may be amended. This will then facilitate updating of both the Training Specification and the Assessment module. Once complete, these documents will be ready for use by training providers, enabling them to develop courses. Assessment centres will also be able to develop assessments in time for delivery, prior to the initial trial.

## 2. Importance of Gas Safe Registration

The first community trial of hydrogen heating is the H100 “neighbourhood trial” which is scheduled to begin in 2023. All hydrogen installation work inside a property must be carried out by an appropriately recognised Gas Safe Registered engineer. To achieve this, each engineer will need additional hydrogen specific training (via a Training Provider delivering a recognised course that meets the Hydrogen Transition Training Specification).

The engineer will then need to be formally assessed and certificated as competent (via a recognised assessment centre and Certification Body). Finally, the engineer’s categories of competence on the Gas Safe Register will be extended to include the hydrogen category achieved.

This process is referred to as the Hydrogen Training Pathway and is a mandatory requirement for existing engineers intending to carry out work on appliances that are fuelled solely by hydrogen.

## 3. Need for Engineer Entry Criteria

Recognising that all hydrogen installation work must be carried out by a Gas Safe Registered engineer is a reasonable starting point. The Register is structured to facilitate specialisation by employers and engineers as necessary and enables engineers to demonstrate and maintain competence, and therefore be registered, only in the categories of work that they carry out.

There are currently over 80 categories on the register, covering a wide range of gas work activities from appliances in the standard domestic arena, through non-domestic categories, LPG, and even specialist applications such as fish and chip ranges and swimming pool heaters.

In this situation, using the simple criteria that, to be able to add the hydrogen competence category, an engineer must be Gas Safe Registered is insufficient and could lead to engineers being tempted to work “outside” their existing categories if appliances are fuelled by hydrogen. This must be avoided as it poses a clear safety risk.

**For the community trials of hydrogen heating, three “groups” of Gas Safe Registered engineers will be required. These are:**

- Engineers competent to carry out work on domestic installations and appliances,
- Engineers able to install and exchange domestic meters

- Engineers who respond to reported gas escapes (often known as First call Operatives [FCO]).

Some engineers may already be registered, and able to carry out work, in all these categories when fuelled by natural gas, but the majority will not. It will therefore be necessary to establish entry criteria that enables a sufficient number of engineers, who hold the specific existing categories of registration on natural gas, to complete the hydrogen training pathway and add that category of competence to their record.

The hydrogen transition training itself will be generic and relevant to all engineers, irrespective of their existing natural gas categories of competence. The training is not a “changeover” course and following the hydrogen transition training, engineers will remain restricted to work on the aspects they were registered for prior to the hydrogen training. However, they will be able to carry out work in those categories when fuelled either solely by natural gas or hydrogen.

## 4. Proposal for Engineer Entry Criteria

### a) **Engineers Entering the Hydrogen Pathway are currently Gas Safe Registered in standard domestic appliance categories.**

Planning is now underway for the H100 neighbourhood trial of hydrogen heating which will be limited to domestic properties and a relatively limited range of appliances developed to operate with hydrogen as the sole fuel. Subject to successful outcomes, later trials are likely to expand in both size and scope, with some non-domestic appliances expected to be included.

Therefore, it is proposed that engineers entering the hydrogen pathway are currently Gas Safe Registered in at least the standard domestic appliance categories.

To be eligible for entry to the hydrogen transition training therefore, a person must either:

- Hold current Gas Safe Registration in at least the categories CCN1, CENWAT, CKR1 and HTR1, or
  - Hold current Gas Safe Registration in at least the categories CMA1 or CMA3 and MET1,
- or
- Hold current Gas Safe Registration in at least the category CESP1; AND
  - Have held those categories for a minimum qualifying period (see proposal (c))

### b) **Engineers may only work on appliance categories they are registered for.**

It must remain the case that engineers may only work on appliance categories they are registered for. As additional appliance categories are included, it is expected that additional entry criteria will be developed to align with the categories required.

### c) **Requiring minimum experience before entering the hydrogen training pathway**

Engineer experience is also a valuable commodity. While it may be possible, through intensive training, practice and application, to achieve an assessment pass in a subject, true competence may only be achieved over time, through experience. The experienced gas engineer will undoubtedly have encountered a whole range of scenarios and circumstances that required careful thought and a degree of problem solving. For this reason, it may be sensible to also require a minimum amount of Gas Safe Registered natural gas field experience before entering the hydrogen training pathway.

**d) The process will be administered by Assessment Centres who will confirm, prior to assessment, that conditions for assessment have been met**

Once the entry criteria have been established and agreed, the administration requirements will be incorporated within the Training Provider and Assessment Centre scheme documentation. In the first instance it will be a requirement for the Training Provider to check that engineers wishing to enter the hydrogen pathway meet the criteria in full.

Engineers that do not meet the entry criteria must not enter the hydrogen pathway and it will be a requirement for Assessment Centres to confirm, prior to assessment, that the conditions for assessment have been met. These conditions will be that (i) the engineer met the hydrogen pathway entry criteria prior to training and (ii) that the hydrogen training provided met the IGEM/IG/1 requirements and was delivered by a recognised Training Provider. Should either of these conditions not be satisfied, assessment may not be carried out.

## 5. Conclusion

The drive to end the use of high carbon fuels for heating buildings means that the gas industry needs to evolve and embrace new technologies and sources, which could include low carbon hydrogen. Safe delivery of trials is paramount and cannot be overstated. Ensuring that only hydrogen competent engineers are involved in these trials offers the highest level of assurance in terms of performance outcomes.

Creating a Hydrogen Competence Framework is an essential step but rolling it out in an effective and efficient manner, to deliver the safe outcome needed is equally important. The processes for developing robust training provision, assessment and certification are all part of the Competence Framework and will be the subject of further consultation.

Training personnel intending to deliver the Hydrogen Transition Pathway Training, as well as Assessors intending to assess engineers using the hydrogen module (ACoP or ACS) will also need to meet the established entry criteria and successfully complete a recognised hydrogen transition course themselves.

Establishing clear, straightforward and well understood criteria for entry into the hydrogen pathway is an important early step that will enable further detailed planning to take place.

## 6. Consultation Questions

All stakeholder comments are important and will be considered carefully in order to finalise the engineer Entry Criteria. The transition to hydrogen is a major step for the gas industry

and it is essential that all work is carried out safely. Ensuring that only competent engineers carry out this work is therefore essential.

Your views are welcome on all aspects of this paper, but answers to the following questions will be particularly useful.

**Q1. Do you agree with the entry criteria as proposed?**

**Q2. Do you agree that experience should be considered as a criterion?**

**Q3. Do you consider the administration process by Assessment Centres, as described to be robust?**

## **7. How to respond to this Consultation**

It would be much appreciated if you would consider the proposal and offer answers to the questions posed, together with any other comments you may have, by completing [this short survey](#), though further comments and feedback are also welcome. This consultation is open for responses until **5pm 21 January 2022**.

For any questions regarding this consultation, or to arrange a call with us to discuss, please contact Lucy Ritchie, Senior Client Manager (Energy), [Lucy.Ritchie@euskills.co.uk](mailto:Lucy.Ritchie@euskills.co.uk).