

Hy4Heat Engagement Event 16 March Q&A



Contents

Questions asked	Page Number
The discussion on boilers focused on domestic gas boilers – are industrial boilers also being considered?	
How will the coordination between Work Package 2, Definition of Hydrogen Quality Standards, and Work Packages 4 – 6, Development of Appliances, be managed?	
Is Hy4Heat considering 100% hydrogen, or blending?	
We understand that half of the Hy4Heat budget will cover developing appliances, and that it can take between 3 – 4 million to develop to Stage 3. Where does the rest of the funding comes from?	
Is the consumer considers throughout all the Work Packages – or is this focused on Work Package 9, Preparation for Community Trial?	
What is the opportunity for universities to take part in Hy4Heat?	
Work Package 7, Assessment of Suitability of Existing Buildings, the dialogue seems to have moved to Health and Safety – is this a change in scope?	
The timeline leading to trials is ambitious – can you tell us more about what’s driving the date and, related to this, what the scale of the trials are?	
We must also factor in the industry and training for engineers if Hydrogen appliances are to be installed.	
How is the balance being managed between providing something that is similar to existing appliances and considering new technological advances (e.g. smart meters)?	
Work Package 8, Trialing Hydrogen Appliances in Unoccupied Buildings, and 9, Preparation for Community Trials, will require a link to the gas network - How are you interacting with the gas networks?	
Work Package 7, Assessment of Suitability of Existing Buildings, is about safety and risk – does this also include risk perception?	
When the community trials start, will any changes to planning be required?	
What is the scale of roll-out for the trials, what types of appliances will be required?	
What’s likely to be involved in Work Package 5, Understanding Commercial Hydrogen Appliances, and 6, Understanding Industrial Hydrogen Appliances?	

Question and Answer

The discussion on boilers focused on domestic gas boilers – are industrial boilers also being considered?

The intended initial focus is on domestic gas boilers. Work Package 5 and 6 will take a fuller assessment of the market, moving forward with appliances in commercial and industrial aspects depending on this. We understand that there are at least 3 existing burner manufacturers in the industrial space, so to an extent this is already understood.

How will the coordination between Work Package 2, Definition of Hydrogen Quality Standards, and Work Packages 4 – 6, Development of Appliances, be managed?

Yes, there should be coordination between these Work Packages, which is managed to some extent by Work Package 1, Programme Management. Due to the tight timescales, some assumptions may need to be made regarding Work Package 2 in order to commence the tender process for Work Package 3 and 4. We do understand that gas passing through the pipe network will not be pure, so need to understand what tolerance is built into the Quality Standards. Currently ISO14687 Type A looks promising.

Is Hy4Heat considering 100% hydrogen, or blending?

Will Hy4Heat be focusing on 100% Hydrogen? For example, when test a burner, I'm concerned about what mix of gas is going in. If you're going to do research you need to put different mixes through the burner to get to the result. Is hydrogen the final gas that we'll use and should we carry out tests to see what the best mix is.

[Addresses the two questions above] Hy4Heat is looking at 100% hydrogen, or near enough – around >98%. If the gas is 20% blended, there is only a 7% carbon saving, so does not contribute as strongly to our 80% reduction in CO2 by 2050. BEIS have supported some programmes involving blended hydrogen gas as a way of 'getting started'.

We understand that half of the Hy4Heat budget will cover developing appliances, and that it can take between 3 – 4 million to develop to Stage 3. Where does the rest of the funding comes from?

We are looking at this carefully. Is it appropriate for BEIS to fund 100% of development, especially if organisations have already put funding in to the R&D? We're looking at the funding profile through the duration of the Programme. For example more funding up-front, reducing over time, or using a matched funding model.

Question and Answer

Is the consumer considered throughout all the Work Packages – or is this focused on Work Package 9, Preparation for a Community Trial?

All Work Packages will need to be cognisant of this. We have established it as a separate Work Package because we recognise the need for an organisation who has particularly skills and experience in doing this. This Work Package will need to work closely with the others. This theme also runs through BEIS wider portfolio, Hy4Heat is not working on this in isolation.

What is the opportunity for universities to take part in Hy4Heat?

Universities are a key part in generating the innovation required in this type of arena. We are looking at some potentially significant advancements in green energy, so will need a robust underpinning for this. A lot of research has already taken place regarding hydrogen, which Hy4Heat would look to validate and build on. There will be some key questions where Universities' input is useful, ranging from technical questions regarding hydrogen (for example, what different flame pictures can be created?) to social (for example, how might consumers react to using hydrogen gas for heat?). Collaboration between multiple different types of organisations will create the best opportunities to address these questions innovatively.

Work Package 7, Assessment of Suitability of Existing Buildings, the dialogue seems to have moved to Health and Safety – is this a change in scope?

This is not a change in scope; it is intended as clarification. For example, we will need to consider ventilation and how hydrogen would move around in the building. This work package is likely to include both experimental testing and modelling, and may also look at CFD modelling of how hydrogen performs and moves around in buildings.

Question and Answer

The timeline leading to trials is ambitious – can you tell us more about what’s driving the date and, related to this, what the scale of the trials are?

We recognise that the timescales are challenging, but we also believe they are achievable. It is a delicate balance between the time it takes to create a product and remaining a forerunner in this area.

Regarding scale, we do not yet know for certain. A community of 300 may be convenient from the view of the gas network. We are not looking to test a representative sample across the UK at this point.

We must also factor in the industry and training for engineers if Hydrogen appliances are to be installed.

It does need to be factored in, it is currently included in BEIS’ key strategic options programme.

How is the balance being managed between providing something that is similar to existing appliances and considering new technological advances (e.g. smart meters)?

We need to consider this carefully moving forward. Our starting point has been providing appliances that at as ‘like for like’, however the potential is open to look different ways of replacing appliances. If we decide to change to something new, such as using hydrogen gas, it may be logical to incorporate this with advances in technology.

Work Package 8, Trialing Hydrogen Appliances in Unoccupied Buildings, and 9, Preparation for Community Trials, will require a link to the gas network - How are you interacting with the gas networks?

We will collaborate with other organisations that are looking at hydrogen in the gas network as needed. Through working together we can reach the best outcome.

Work Package 7, Assessment of Suitability of Existing Buildings, is about safety and risk – does this also include risk perception?

This work package would look at what interventions are required regarding safety, their potential costs, and to what extent these are safety considerations, or perception considerations.

With Work Package 4 – 6, Understanding [various] Hydrogen Appliances, the scope would be to deliver example products that are as fully qualified as possible, to the relevant design standards. We would want to be able to share the risk and reward during this process.

Question and Answer

When the community trials start, will any changes to planning be required?

There may be some adjustment to the EPC. This is on the list of considerations.

What is the scale of roll out for the trials, what types of appliances will be required?

There are a number of scenarios for high and low level plans.

What's likely to be involved in Work Package 5, Understanding Commercial Hydrogen Appliances, and 6, Understanding Industrial Hydrogen Appliances?

This could potentially be a study that looks at the total number of appliance types, what they are and how these can be categorised. The volume of appliances used and implications in transferring them to hydrogen would also be of interest. We are looking at a smaller scale, there is another programme in the BEIS portfolio looking at 7 Bar and above.