OPPORTUNITY GREEN

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Consumer Protection Enforcement
Competition and Markets Authority
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By email only to: [REDACTED]

27 January 2026

Dear Sir / Madam

Complaint Regarding SGN's Breach of the Green Claims Code

Executive summary

1 We write to you to formally submit a complaint regarding potentially misleading green claims made to consumers by Scotland Gas Networks plc ("**SGN**"), a British gas distribution company, in relation to its hydrogen heating H100 Trial for the use of hydrogen in residential buildings in Fife, Scotland (the "**Trial**"). We understand that preparations are now underway for connecting homes participating in the Trial to the hydrogen gas network in 2026.

2 In relation to the Trial, SGN has made various environmental claims relating to hydrogen both on its websites and in promotional material directly issued to prospective and actual participants of the Trial and local residents. Such claims portray hydrogen as a 'clean' fuel, that will help 'move away from fossil fuels', provide 'green energy' to millions of homes, and is uniquely scalable and cost effective.

3 In the UK, misleading environmental claims to consumers are prohibited under the Consumer Protection from Unfair Trading Regulations 2008, as strengthened by the Digital Markets, Competition and Consumers Act 2024. A commercial practice is considered "misleading" if it contains false information, or its overall presentation deceives or is likely to deceive the average consumer about relevant features of the product or service and that deception is likely to cause the average consumer to take a different "transactional decision" than they otherwise would have made.

4 The Competition and Market Authority's Green Claims Code clarifies that environmental claims must be truthful and accurate; clear and ambiguous; substantiated by robust evidence; and must not omit or hide material information, including limitations, assumptions or the actual environmental impact across the product's lifecycle. Comparisons must be fair and meaningful. Claims relating to future or emerging technologies must be supported by credible evidence and not overstate environmental benefits or present speculative outcomes as established fact.

5 Opportunity Green considers that the environmental claims made by SGN relating to hydrogen may have misled and be misleading consumers into making a transactional decision that they may not have otherwise made (including participation in the Trial and/or buying or retaining a gas boiler rather than an electric heat pump) and therefore are in breach of the Green Claims Code. Opportunity Green considers that such claims risk consumers being 'locked-in' to technology that is more

environmentally damaging that they have been led to believe, and, indeed, may be more expensive than other available options on the market, with which no meaningful comparison has been presented.

6 Opportunity Green has engaged in written correspondence with SGN in relation to this matter to raise these concerns directly. SGN stated that it did not accept that the statements breached the Green Claims Code, but agreed to amend its online materials following our correspondence. However, in our view:

6.1 the original claims represent significant breaches of the Green Claims Code, and a significant number of Trial participants, potential consumers, and the general public may have been misled by those claims;

6.2 the changes made by SGN to its online materials following our correspondence are insufficient and still contain misleading claims that fail to comply with the Green Claims Code's principles of accuracy, clarity, and substantiation; and

6.3 in any event, even if those changes were sufficient, they have not been adequately communicated to consumers, and it is not clear if those consumers that received printed promotional material containing such claims were notified of the changes made to such claims.

7 Homes participating in the Trial are due to be connected to the hydrogen gas network in 2026, and the Government is still to take strategic decisions on the role of hydrogen in heat decarbonisation. There is therefore a continuing significant public interest in ensuring that consumers are not misled about the sustainability, viability, and environmental impact of hydrogen heating, and its role in reaching the Government's net zero target.

8 The claims are analysed in detail below, where we set out the specific Principles each claim breaches (see paragraphs 25-56, which cover six separate claims). Broadly, Opportunity Green submits that the claims mislead in three principal ways:

8.1 **Misleading claims as to the emissions produced when hydrogen is burned.** SGN claims that hydrogen gas '*releases only clean, water vapour*' (Claim 1) and is '*clean burning*' (Claim 3). Opportunity Green disputes this as factually incorrect: burning hydrogen emits nitrogen oxide (NOx), a greenhouse gas (**"GHG"**). Elsewhere, SGN acknowledges NOx emissions but makes unsubstantiated claims of lower NOx emissions from hydrogen than natural gas (Claim 2). Following the correspondence set out in Appendix 3, SGN has revised these claims online, but it is not clear to us whether claims made in printed promotional materials have been corrected.

8.2 **Claims which conflate different sources of hydrogen.** Whilst the Trial intends to use 'green hydrogen' most if not all of the time, SGN often refers to hydrogen generally in its claims, particularly when making claims about the scalability and cost of hydrogen (Claims 4, 5 and 6). Green hydrogen is expensive to produce and there are significant questions regarding its scalability.[1] Opportunity Green challenged SGN on whether these claims relate to green hydrogen and it is clear from SGN's response in the 7 February Letter (as defined in paragraph 17 below) that at least some of the claims actually relate to 'low-carbon' or 'blue' hydrogen, which is produced from fossil gas. None of the lifecycle impacts or emissions of blue hydrogen are explained to the consumer, either in the original claims or the revised claims. The UK's Climate Change Committee has found that blue hydrogen creates additional emissions, increases reliance on natural gas imports, and scaling it would delay the decarbonisation of home heating (see paragraph 15 below).

8.3 **Claims which omit the full impacts of using hydrogen as a home heating fuel.** Even if SGN's intention were to use green hydrogen for all of its gas supply (which it is evident from the 7 February Letter (as defined in paragraph 17 below) and the revised claims that it is not),

[1] See Appendix 1.

such an approach would vastly increase electricity demand compared to heating homes using electricity directly, to the potential detriment of the decarbonisation of other sectors of the economy. Scaling hydrogen would also delay decarbonisation of home heating, as noted by the UK's Climate Change Committee (see paragraph 15). No meaningful and accurate comparison with electric heat pumps is presented to consumers by SGN to substantiate its claims that hydrogen heating is a "*practical, scalable zero-carbon heating solution*" (Claim 4), that "*stands apart, unique in its…scalability*" and it the "*lowest cost*" way to heat homes (Claim 5), with the potential to provide "*green energy to millions of homes*" (Claim 6). These claims are not supported by the scientific evidence[2] and directly contradict the findings of the Climate Change Committee referred to in paragraph 15.

9 We therefore respectfully request that the Competition and Markets Authority ("**CMA**") investigate the claims made by SGN, require SGN to amend its materials to ensure compliance with the Green Claims Code and notify consumers of the corrections by the same medium used for the relevant claims, including dissemination of corrections in paper copies to consumers, and take appropriate enforcement action to prevent further dissemination of potentially misleading claims by SGN during the course of and subsequent to the Trial and in decision making over any future trials.

Parties to the complaint

10 This complaint (the "**Complaint**") is brought to the CMA by Opportunity Green against SGN. References to "we" or "our" in this letter refer to Opportunity Green.

11 We are a charity registered in the United Kingdom ("**UK**") (registered UK charity number: 1199413) that is dedicated to the promotion and advancement of the conservation, protection and enhancement of the environment.

12 SGN is a British gas distribution company managing gas distribution networks across Scotland and in the South of England. SGN is the brand name for Scotland Gas Networks plc (SC264065). We have engaged with this entity in relation to the alleged breaches, but note that the SGN group of companies also includes other entities that may be relevant to any investigation undertaken by the CMA, namely:

12.1 Scotia Gas Networks Limited (04958135);

12.2 Southern Gas Networks plc (05167021);

12.3 SGN Commercial Services Limited (05969465);

12.4 SGN Connections Limited (05618886);

12.5 SGN Contracting Limited (05372264); and

12.6 SGN Natural Gas Limited (08822715).

Background

13 SGN is currently preparing to run the Trial. A green hydrogen gas network is being purpose-built for the Trial, in which up to 300 households will participate. We understand that customer homes will be connected to the network on a rolling basis in 2026.

14 Hydrogen can be produced in various ways, which are generally defined by reference to different 'colours' of hydrogen. The different types of hydrogen are distinguished by their production methods and associated environmental impacts, with green hydrogen produced from renewable energy and water (resulting in minimal emissions), blue hydrogen produced from fossil gas with carbon capture (resulting in reduced but not eliminated emissions), and grey hydrogen produced from fossil gas

[2] See Appendix 1.

without carbon capture (resulting in high emissions). The differences between these methods is described in further detail in Appendix 1 (*Types of hydrogen production*).

15 The UK's Climate Change Committee has recommended to the UK Government that there should be "**no role for hydrogen heating in residential buildings**".[3] The Climate Change Committee finds that (emphasis added):[4]

15.1 "hydrogen is not a viable fuel for widespread decarbonisation of home heating";

15.2 "[u]sing hydrogen for home heating would delay direct emissions reduction and **significantly increase indirect emissions from the sector**";

15.3 "meeting [the UK's home heating demand] using blue hydrogen would create **additional emissions and increase reliance on natural gas imports**"; and

15.4 "[s]caling up low-carbon hydrogen production to meet such demand would be unlikely to commence until the mid-2030s, **delaying decarbonisation of home heating**".

16 In connection with the Trial, SGN has made a number of claims and assertions relating to hydrogen heating, including on its website (www.SGN.co.uk) (the "**SGN Website**") and a separate website for the Trial (www.h100fife.co.uk/) (the "**Trial Website**"), as well as in direct promotional material issued to prospective and actual participants of the Trial and local residents. Copies of such material (obtained pursuant to the Environmental Information (Scotland) Regulations 2004) are appended to this letter at Appendix 2 (*Promotional material*).

17 On 17 December 2024, we wrote to SGN to set out various complaints in connection with misleading green claims made about the Trial and hydrogen heating generally (the "**17 December Letter**"). The 17 December Letter outlined our view that SGN's claims misrepresented to consumers:

17.1 the nature and extent of emissions from hydrogen heating;

17.2 the significance of the Trial for decarbonising home heating in the UK by conflating the benefits of green hydrogen and other types of hydrogen heating, including blue hydrogen; and

17.3 the comparison of hydrogen heating with the electrification of heating.

18 SGN responded to this letter on 7 February 2025 (the "**7 February Letter**"). In the 7 February Letter, SGN stated that, while it was of the firm view that none of the claims regarding the Trial were in breach of the CMA Green Claims Code, it would:

18.1 make various changes to its published material in response to the matters raised in our 17 December letter;

18.2 communicate such changes to its interested customers;

18.3 adapt customer and project literature going forward accordingly; and

18.4 issue a new 'FAQ' document to its customers to clarify certain issues, including information on nitrogen oxide ("**NOx**") emissions arising from the use of hydrogen gas for heating and the sources of hydrogen used in the Trial.

[3] Climate Change Committee, 'The Seventh Carbon Budget: Advice for the UK Government' (Climate Change Committee, 2025), online at: https://www.theccc.org.uk/publication/the-seventh-carbon-budget/ accessed 22 January 2026.
[4] Ibid.

19 Green hydrogen will be 'primarily used' for the Trial (see SGN's 7 February Letter, p. 2, at Appendix 3 to this letter). However, we consider that it is clear from the 7 February Letter that whilst the Trial is using green hydrogen, SGN is investing in blue hydrogen, and the updated online claims suggest that some of its claims about hydrogen actually relate to blue hydrogen (which SGN calls 'low-carbon' hydrogen) rather than green hydrogen. Other claims appear to be made in relation to hydrogen generally, without any clarification as to the production method and lifecycle impacts.

20 As set out in more detail below, we do not agree with the statement made by SGN in the 7 February Letter that "*none of the claims in our communications materials and websites regarding H100 Fife*" breach the CMA Green Claims Code. We also consider that it is clear from the 7 February Letter that in making claims about hydrogen heating, SGN is simultaneously relying on the environmental profile of green hydrogen and the scalability of hydrogen produced from fossil fuels, with the effect of misleading consumers as to the potential of hydrogen heating. Further, we consider that some of the amendments made are insufficient, and there still remains a significant risk that consumers will be misled for the reasons set out below.

21 Copies of the correspondence between Opportunity Green and SGN are appended to this letter at Appendix 3 (*Correspondence*).

Relevant law and guidance

22 This Complaint is made in respect of alleged breaches of the CMA Green Claims Code, which defines "green claims" as "claims that suggest a product, service, process, brand or business provides a benefit, or is less harmful to the environment". This includes claims that suggest or create the impression that a product or a service:

22.1 has a positive environmental impact or no impact on the environment;

22.2 is less damaging to the environment than a previous version; and/or

22.3 is less damaging to the environment than competing goods or services.

23 In order to comply with the Code, businesses making such environmental claims must follow the following principles (the "**Principles**"):

23.1 Claims must be truthful and accurate (Principle 1).

23.2 Claims must be clear and unambiguous (Principle 2).

23.3 Claims must not omit or hide important information (Principle 3).

23.4 Comparisons must be fair and meaningful (Principle 4).

23.5 Claims must consider the full life cycle of the product or service (Principle 5).

23.6 Claims must be substantiated with robust evidence (Principle 6).

24 Under the Digital Markets, Competition and Consumers Act 2024 ("**DMCCA**"), the CMA has the statutory power to investigate green claims, and take enforcement action against businesses making misleading claims to customers, including imposing fines of up to 10% of annual group turnover for misleading practices without court involvement.

Potential breaches by SGN

25 We submit that SGN has made a number of misleading green claims on its website and in marketing materials about the Trial, which give the impression that the heating method employed in the Trial is the best method of home heating for the environment and that it is less environmentally damaging than

alternative solutions. For the reasons set out below, we submit that SGN has breached multiple Principles of the Green Claims Code.

26 Indeed, while some of the statements originally complained of have since been amended and SGN has created a FAQ section on their website, we believe the claims are still misleading in accordance with the reasons set out below. Furthermore, it is not clear to us whether the changes that SGN made to their website have been communicated to its interested customers, as a number of these misleading claims were contained in printed promotional material distributed to prospective (and actual) participants, as well as residents of the Buckhaven and Denbeath areas.

27 As supporting evidence, we enclose a detailed table which sets out six specific statements by SGN that we consider to be misleading, the relevant Principles that those statements breach, and our detailed analysis of the potential breaches (Appendix 5 (*Breakdown of potentially misleading statements, SGN's responses, and our comments on SGN's responses*)). This analysis is summarised below.

Claim 1

(a) Original claim: *"Hydrogen gas releases only clean, water vapour – so no more poisonous carbon monoxide*!"

28 Claim 1(a) appeared on the Trial Website. Similar claims also appeared in promotional material distributed to prospective (and actual) Trial participants and local residents, titled 'H100 Fife Brochure April2024'; and 'SGN Customer Leaflet Buckhaven and Denbeath Areas Levenmouth' (see Appendix 2 (*Promotional material*)).

29 We submit that Claim 1(a) breaches Principles 1 and 3 of the Green Claims Code. The statement is factually incorrect: hydrogen combustion emits NOx, which has environmental and human health impacts. These emissions were known to SGN at the time of making the claim and details of them appear elsewhere on the SGN website, however, this important information was omitted from the claim (or the vicinity of the claim).

(b) Revised claim: *"Hydrogen gas produced by electrolysis is green hydrogen. If renewable electricity is used to produce the green hydrogen, then there are zero carbon emissions involved in its production or use in homes. When burned hydrogen gas releases water vapour and NOx but unlike natural gas it does not release carbon or carbon monoxide."*[5]

30 The revised claim is accurate as to the carbon emissions of green hydrogen (albeit it creates ambiguity through the conditional phrasing ("*if renewable electricity is used*")). The claim does, however, omit that hydrogen emissions throughout the supply chain will also cause climate impacts.[6] It also omits that NOx itself is a GHG with a significant warming potential.[7] It is not clear to us whether this updated version has been communicated to consumers that received Claim 1(a) in printed promotional material.

Claim 2

(a) Original claim: *"We're all increasingly concerned about breathing in gases like nitrogen oxides (NOx) which can be harmful to our health. NOx is formed when you burn any fuel and sources include cars, buses, planes, trains and gas boilers. The good news is that hydrogen boilers, developed by leading manufacturers, are showing NOx levels of less than half that of natural gas."*

31 Claim 2(a) appeared on the SGN website (see Appendix 2 (*Promotional material*)).

32 We submit that Claim 2(a) breaches Principles 1 and 6 of the Green Claims Code. Research into hydrogen heating and its associated emissions is in its infancy, and the existing evidence base is

[5] https://www.h100fife.co.uk/about-h100/.
[6] See Appendix 1.
[7] Scottish Government, 'Nitrogen Use efficiency in Scotland: annual report 2025' (2025) https://www.gov.scot/publications/nitrogen-use-efficiency-scotland-annual-report-2025/pages/7/ accessed 22 January 2026.

inconclusive regarding the level of emissions, particularly NOx emissions, from hydrogen heating, as well as the environmental and human health impacts of such.[8] Internal correspondence disclosed to Opportunity Green by SGN under the Environmental Information (Scotland) Regulations 2004 demonstrates SGN's awareness of uncertainty regarding NOx emissions from hydrogen appliances (see Appendix 4 (*SGN's internal correspondence regarding NOx emissions from hydrogen appliances*)).[9]

33 In November 2024, the UK Government's Air Quality Expert Group wrote that "*NOx emissions from pure hydrogen burning boilers should be assumed at this stage of technical development to be broadly similar to current natural gas appliances.*"[10] We submit that SGN did not reference any robust evidence to substantiate its claim that, contrary to the findings of the UK Government's Air Quality Expert Group, NOx levels from hydrogen boilers are '*less than half that of natural gas*'. Further, no such evidence was provided in the 7 February Letter.

(b) Revised claim: *"NOx refers to nitrogen oxides, a group of gases primarily composed of nitric oxide (NO) and nitrogen dioxide (NO2). The burning of any fuel, including hydrogen can produce NOx. Sources of NOx include buses, planes, trains, gas boilers and gas hobs and cookers.*

The latest testing has shown that hydrogen boilers, developed by leading manufacturers, produce NOx levels less than that of natural gas boilers. This includes the hydrogen boilers developed by Baxi and Worcester Bosch as part of the UK Government backed Hy4Heat study. These are same boiler manufacturers we're using for H100 Fife and you can find out more information, including on NOx testing as part of Hy4Heat, here..."[11]

34 Notwithstanding the change in quantification of the amount of NOx emissions, we submit that Claim 2(b) breaches Principles 1 and 6 of the Green Claims Code. As noted in paragraph 33, in November 2024, the UK Government's Air Quality Expert Group wrote that '*NOx emissions from pure hydrogen burning boilers should be assumed at this stage of technical development to be broadly similar to current natural gas appliances.*'[12] This suggests that SGN's generalised statement that '*hydrogen boilers... produce NOx levels less than that of natural gas boilers*' does not reflect current scientific understanding.

35 We submit that the two documents that SGN uses to support its revised claim do not substantiate the generalised claim that hydrogen boilers "*produce NOx levels less than that of natural gas boilers"*.

36 One document (related to Baxi boilers) states that NOx emissions are "*very low*", without providing any quantification against which natural gas boilers can be compared. The other document (related to Worcester Bosch boilers) states that "*Hydrogen-burning boilers have been measured to produce very low levels of NOx. Two demonstration appliances have been independently tested to verify NOx emissions*" and indicates that NOx emissions are less than 25 mg/KWh. While these emission levels are lower than those stated by manufacturers for some natural gas boilers, including those offered by Worcester Bosch, there are examples of natural gas boilers available on the market whose manufacturers claim have NOx emissions which are also less than 25 mg/KWh (Intergas Xtreme and

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[8] Madeleine L. Wright, Alastair C. Lewis, 'Emissions of NOx from blending of hydrogen and natural gas in space heating boilers' (University of California Press, 2022) https://doi.org/10.1525/elementa.2021.00114;
Paul Martin, Ilissa B. Ocko, Sofia Esquivel-Elizondo, Roland Kupers, David Cebon, Tom Baxter, Steven P. Hamburg, 'A review of challenges with using the natural gas system for hydrogen' (Energy Science and Engineering, 18 August 2024) https://doi.org/10.1002/ese3.1861.

[9] Documents titled 'Comms Strategy – Hydrogen hob NOx testing v5'; 'DESNZ Ofgem – Appliance Update & NOx Approach'; and 'Accompanying note – Cadent Gas – NOx Paper, Domestic Cooking (re: E4819).

[10] Air Quality Expert Group, 'Air pollution arising from hydrogen combustion' (Department for Environment, Food and Rural Affairs, 2023), https://uk-air.defra.gov.uk/assets/documents/reports/cat05/2411071337_H2_combustion_note_proof.pdf accessed 22 January 2026.

[11] https://www.h100fife.co.uk/faqs/.

[12] (n10).

Xclusive, for example[13]). As such, we do not consider that SGN has substantiated this claim with robust evidence, particularly in light of the UK government's Air Quality Expert Group finding mentioned above.

Claim 3

(a) Original claim: *"Hydrogen is a clean burning alternative to fossil fuels which has a wide range of applications across energy sectors, including heat, power and transport."*

37 Claim 3(a) appeared on the SGN website. Similar claims also appeared in promotional material distributed to prospective (and actual) Trial participants, as well as to local residents, including documents titled 'H100 Fife postcard One'; 'H100 Fife postcard Two'; 'SGN Customer Leaflet Buckhaven and Denbeath Areas Levenmouth'; 'H100 Fife infographic Feb2024'; and 'H100 Fife Private landlord outreach letter' (see Appendix 2 (*Promotional material*)).

38 We submit that Claim 3(a) breaches Principles 1, 2, 3 and 6 of the Green Claims Code. This claim represents to consumers that hydrogen is a "*clean burning alternative to fossil fuels*". As set out above at paragraph 29, burning hydrogen produces NOx emissions, so is not 'clean burning'. Further, the statement omits that hydrogen can also be produced from fossil fuels and so therefore is not necessarily an "alternative to fossil fuels". This creates ambiguity and risks misleading consumers.

39 Claim 3(a) also omits the full lifecycle impacts of using hydrogen as a heating fuel[14] and is unsubstantiated.

(b) Revised claim: "*Hydrogen can be a carbon free alternative to fossil fuels which has the potential to be used in a wide range of applications across energy sectors, including heat, power and transport. Green hydrogen can be created using clean energy like wind power, meaning there are no harmful carbon emissions involved*."[15]

40 We submit that Claim 3(b) breaches Principles 1, 2, 3 and 6 of the Green Claims Code. The term "*carbon-free*" is misleading as it applies only to green hydrogen (i.e. hydrogen produced using renewable energy). The statement omits to mention that hydrogen can also be produced from fossil fuels, which are not carbon-free. This creates ambiguity and risks misleading consumers.

41 We submit that SGN's 7 February Letter shows that SGN is not investing solely in green hydrogen, but also in "low carbon" hydrogen (i.e., blue hydrogen). This is produced from fossil fuels and produces CO_2 and is therefore self-evidently not "*a carbon free alternative to fossil fuels*". The claim omits important information about the environmental impacts of using hydrogen as a heating fuel, as well as the potential climate impacts of hydrogen emissions throughout the supply chain[16].

Claim 4

(a) Original claim: *"Heating accounts for about 37% of all UK carbon emissions. That's a huge challenge as we aim for net zero. Investing in a practical, scalable zero-carbon heating solution, like hydrogen, can help cut UK emissions by over a third."*

42 Claim 4(a) appeared on the Trial Website. Similar claims also appeared in SGN's promotional material distributed to prospective (and actual) participants, as well as residents of the Buckhaven and Denbeath areas ('H100 Postcard One'; 'Printed Newsletter - April 2024'; 'H100 Fife Brochure Oct2024'; 'H100 Fife welcome letter Redacted'; 'H100 Fife Flyer Sept2022'; 'H100 Fife - Roadworks notification Letter April 2024'; 'SGN Customer Leaflet Buckhaven and Denbeath Areas Levenmouth') (see Appendix 2 (*Promotional material*)).

43 We submit that Claim 4(a) breaches Principles 1, 2, 3 and 6 of the Green Claims Code. The statement conflates green hydrogen with other types of hydrogen and uses 'hydrogen' without differentiation. As

[13] https://www.intergasheating.co.uk/homeowner/products/.
[14] See Appendix 1.
[15] https://www.sgn.co.uk/about-us/future-of-gas.
[16] See Appendix 1.

set out in Appendix 1, whilst green hydrogen is zero carbon it is not currently scalable. As such, it appears SGN is referring to two different types of hydrogen in one claim.

44 Claim 4(a) is unsubstantiated. It makes claims that are directly contrary to the UK Climate Change Committee's findings mentioned at paragraph 15 that, *inter alia*, (i) hydrogen is not a viable fuel for widespread decarbonisation of home heating, (ii) using hydrogen for heating would significantly increase indirect emissions, and (iii) hydrogen should therefore have '*no role*' in heating decarbonisation. It also omits important information that using electricity to produce hydrogen is inefficient where such electricity can be used directly for heating, and the use of hydrogen may therefore delay decarbonisation of the home heating sector (and other sectors).

(b) Revised claim: *"Heating accounts for about 37% of all UK carbon emissions. This presents a significant challenge as we strive for net zero. We believe that investing in low and zero-carbon heating solutions, including hydrogen, can help reduce UK carbon emissions by decarbonising heating."*[17]

45 The amended claim shows that SGN was indeed referring to two different types of hydrogen in Claim 4(a). However, we consider that the amended claim still breaches Principles 1, 2, 3 and 6 of the Green Claims Code. As set out in Appendix 1 'low carbon' hydrogen or blue hydrogen still has significant environmental impacts which are omitted from the revised statement in Claim 4(b). These include CO_2 and methane emissions. The claim is contrary to the UK Climate Change Committee's finding that using blue hydrogen for home heating would (i) create additional emissions, (ii) increase reliance on natural gas imports, and (iii) delay decarbonisation of home heating (due to the time taken to scale).

46 The claim also omits important information about the potential inefficiency and impracticality of using green or blue hydrogen for heating at scale.

Claim 5

(a) Original claim: *"Hydrogen has a critical role to play in our net zero future. It's just one of the emerging technologies that can help the UK move away from fossil fuels to a greener economy. But hydrogen stands apart, unique in its versatility and scalability. It will make the most of our existing natural gas infrastructure, making the transition to net zero faster and more affordable than other low-carbon solutions. [...] All of the UK's gas networks are working hard to transition the gas in our pipes from carbon-emitting natural gas to hydrogen gas. We believe it's the lowest-cost, least disruptive way to heat the 83% of homes in Britain that currently use natural gas appliances. So, by helping the transition to a hydrogen economy, we're helping build a greener, more prosperous future for generations to come."*

47 Claim 5(a) appeared on the Trial Website (see Appendix 2 (*Promotional material*)).

48 We submit that Claim 5(a) breaches Principles 1, 2, 3 and 6 of the Green Claims Code. This claim does not present a fair or meaningful comparison between hydrogen heating and alternative solutions, such as heat pumps. The use of the absolute word 'unique' requires a high level of substantiation. However, there is evidence which suggests that heating with hydrogen is not practical or scalable,[18] and SGN's statement in this regard is not substantiated. There is evidence from studies directly comparing hydrogen heating and electric heating, which suggests that heat pumps are more feasible, efficient, and cost-beneficial than hydrogen heating.[19]

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[17] https://www.h100fife.co.uk/.

[18] Jan Rosenow, 'A meta-review of 54 studies on hydrogen heating' (Cell Press, 2024) https://doi.org/10.1016/j.crsus.2023.100010;
Paul Martin, Ilissa B. Ocko, Sofia Esquivel-Elizondo, Roland Kupers, David Cebon, Tom Baxter, Steven P. Hamburg, 'A review of challenges with using the natural gas system for hydrogen' (Energy Science and Engineering, 18 August 2024) https://doi.org/10.1002/ese3.1861.

[19] Andrei David Korberg, Jakob Zinck Thellufsen, Iva Ridjan Skov, Miguel Chang, Susana Paardekooper, Henrik Lund, Brian Vad Mathiesen, 'On the feasibility of direct hydrogen utilisation in a fossil-free Europe' (International Journal of Hydrogen Energy, 26 January 2023), https://doi.org/10.1016/j.ijhydene.2022.10.170;

49 We also consider Claim 5(a) to be misleading as it conflates hydrogen and green hydrogen, and it is inherently inaccurate to say that hydrogen produced from fossil fuels can "*help the UK move away from fossil fuels"*. We dispute that a hydrogen economy based on blue or grey hydrogen can be considered 'greener' than using electricity directly in heat pumps. At the same time, we dispute that it can be stated with certainty that green hydrogen heating is practical or scalable. There is significant evidence to suggest that using green hydrogen for heating is inefficient and impractical.[20]

50 We consider these claims to be contrary to the aforementioned findings of the UK's Climate Change Committee that scaling blue hydrogen will delay the decarbonisation of home heating (rather than get there faster as claimed) and is not a viable fuel for widespread decarbonisation of home heating (rather than being "*unique…in its scalability*").

(b) Revised claim: *"We believe that hydrogen has a critical role to play in our net zero future. It's just one of the emerging technologies that can help the UK move away from fossil fuels to a greener economy. But hydrogen stands apart, unique in its versatility and scalability.*

It will make the most of our existing natural gas infrastructure, making the transition to net zero faster and more affordable than other low-carbon solutions…

All of the UK's gas networks are working hard to transition the gas in our pipes from carbon-emitting natural gas to hydrogen gas. We believe it's the lowest-cost, least disruptive way to heat the 83% of homes in Britain that currently use natural gas appliances.

So, by helping the transition to a hydrogen economy, we're helping build a greener, more prosperous future for generations to come."[21]

51 We submit that Claim 5(b) breaches Principles 1, 2, 3 and 6 of the Green Claims Code. Paragraphs 48 to 50 inclusive are repeated *mutatis mutandis*.

Claim 6

(a) Original claim: *"[Hydrogen] has the potential to provide green energy to millions of homes and businesses, power our heavy industry and transport sectors, and create up to 100,000 skilled jobs"*

52 Claim 6(a) appeared on the Trial Website (see Appendix 2 (*Promotional material*)).

53 We submit that Claim 6(a) breaches Principles 1, 3 and 6 of the Green Claims Code. This claim does not differentiate between different types of hydrogen and again conflates green hydrogen with other types of hydrogen by referring to the environmental profile of green hydrogen ('green energy') alongside the scalability of fossil-fuel based hydrogen ('millions of homes and businesses'). Claim 6(a) is unsubstantiated and omits important information about the environmental impacts and costs and scalability of using hydrogen as a fuel for home heating.

(b) Revised claim: *"Green and/or low carbon hydrogen has the potential to provide cleaner energy to millions of homes and businesses, power our heavy industry and transport sectors, and create up to 100,000 skilled jobs."*[22]

Till Weidner , Gonzalo Guillén-Gosálbez, Planetary boundaries assessment of deep decarbonisation options for building heating in the European Union (Energy Conversion and Management, 15 February 2023), https://doi.org/10.1016/j.enconman.2022.116602;
Johannes Giehl, Jeremias Hollnagel, Joachim Müller-Kirchenbauer, 'Assessment of using hydrogen in gas distribution grids' (International Journal of Hydrogen Energy, 15 May 2023) https://api-depositonce.tu-berlin.de/server/api/core/bitstreams/4c6b38f5-6600-463c-a244-d8c6d4f2e95d/content accessed 22 January 2026.

[20] (n18); Adrian Odenweller, Falko Ueckerdt, Gregory F. Nemet, Miha Jensterle & Gunnar Luderer, 'Probabilistic feasibility space of scaling up green hydrogen supply' (Nature Energy, 8 September 2022) https://doi.org/10.1038/s41560-022-01097-4.

[21] https://www.h100fife.co.uk/.

[22] https://www.h100fife.co.uk/.

54 In our view, the amended claim shows that SGN was indeed referring to two different types of hydrogen in Claim 6(a).

55 We submit that Claim 6(b) breaches Principles 1, 3, 5 and 6 of the Green Claims Code. The term "low-carbon hydrogen" is not defined, and the claim lacks evidence to substantiate its environmental and economic benefits. The statement omits to mention that "low-carbon hydrogen" is produced from fossil fuels, relies on CCS which cannot capture all of the CO_2 produced and produces methane.[23] The life cycle emissions of the product are omitted.

56 There are significant questions over the scalability even of blue hydrogen, with the UK's Climate Change Committee finding that scaling blue hydrogen will delay the decarbonisation of home heating. We consider that SGN has failed to substantiate its claims about the potential of blue hydrogen to provide '*cleaner*' energy to '*millions of homes and businesses*' and omitted important information about the negative impacts of scaling hydrogen as a heating fuel.

Request to the CMA

57 The CMA is uniquely positioned to address this Complaint due to its statutory enforcement powers and ongoing focus on tackling misleading environmental claims, or "greenwashing," under the Green Claims Code. Furthermore, the CMA has demonstrated its commitment to addressing the widespread issue of greenwashing in the hydrogen heating sector, as evidenced by its recent investigation into hydrogen boiler advertising by Worcester Bosch.

58 In 2026, the Government is going to take strategic decisions on the role of hydrogen in heat decarbonisation. There is potential for the natural gas grid to be repurposed for hydrogen gas, meaning that 85% of the homes in the UK (i.e., those that use natural gas for heating) could be heated with hydrogen gas. Therefore, there is a wide public interest in ensuring that consumers are not misled about the cost, sustainability, viability, and environmental impact of hydrogen heating, and its role in reaching the Government's net zero target.

59 Decisive enforcement action by the CMA would not only protect consumers from misleading green claims, but also promote fair competition, transparency and accountability in the hydrogen heating market, ensuring that businesses operate responsibly and in compliance with the Green Claims Code.

60 Therefore, we respectfully request that the CMA take the following action:

a. Investigate SGN's promotional materials and communications for potential breaches of the Code.

b. Require SGN to amend its materials to ensure compliance with the Code (and notify consumers of such amendments by the same medium used for the relevant claims, including dissemination of corrections in paper copies to consumers) including:

i. Providing clear and accurate information about NOx emissions from hydrogen combustion.

ii. Substantiating claims about the environmental benefits, scalability, and cost-effectiveness of hydrogen heating with robust evidence.

iii. Clearly distinguishing between green hydrogen and other forms of hydrogen in all claims.

c. Take appropriate enforcement action to prevent further dissemination of misleading claims by SGN during the course of, and subsequent to, the Trial and in decision making over any future trials.

d. Issue industry-wide guidance on this issue, with particular regard to any other actual or potential hydrogen heating trials.

[23] See Appendix 1.

61 Should you require any further information, or if we can be of any further assistance, please do not hesitate to contact us by email to: [REDACTED].

Yours faithfully

[REDACTED]

Appendix 1: Types of Hydrogen Production

Appendix 2: Promotional material (REDACTED)

Appendix 3: Correspondence (REDACTED)

Appendix 4: SGN's internal correspondence regarding NOx emissions from hydrogen appliances (REDACTED)

Appendix 5: Breakdown of potentially misleading statements, SGN's responses, and our comments on SGN's responses (REDACTED)

Appendix 1: Types of Hydrogen Production

1 The different types of hydrogen referred to in this letter are as follows:

1.1 **Green hydrogen**. Green hydrogen is produced using renewable electricity and water. When used in heating systems, it can theoretically reduce carbon dioxide ("**CO_2**") and methane emissions by 100%, compared with using fossil gas.[24] However, as is common to all hydrogen production methods, hydrogen is a leak-prone gas and emissions of hydrogen itself are expected throughout the supply chain.[25;26] When released to the atmosphere, hydrogen causes chemical reactions which increase the concentrations of greenhouse gases including methane and ozone.[27] Although the climate impacts of hydrogen leaks remain uncertain and are yet to be studied in domestic heating applications, there is scientific consensus that minimising hydrogen leaks is important for maximising the climate benefits of green hydrogen across a range of use cases.[28] The United Kingdom's ("**UK**") Climate Change Committee states that "*hydrogen has an indirect warming impact*", while acknowledging that it is not currently included in the UK's greenhouse gas inventory.[29]

Furthermore, green hydrogen is expensive to produce and is likely to be in limited supply for at least several decades.[30] It is less efficient as a fuel for heat than using electricity directly (i.e., many more times electricity is required to heat homes using green hydrogen rather than heating those homes using electricity directly, e.g. with heat pumps[31]). Very little green hydrogen is currently available and it is likely to be in high demand from sectors where direct electrification cannot be used to decarbonise.[32]

1.2 **Blue hydrogen.** Blue hydrogen is produced from fossil gas and relies on carbon capture and storage ("**CCS**") to remove CO_2 emitted during the production of hydrogen from the atmosphere. Blue hydrogen therefore has additional environmental impacts to green hydrogen, including:

1.2.1 **CO_2 emissions**, the level of which varies depending on the integrity of the CCS. CO_2 emissions may result both from the process of hydrogen production and from fossil fuel combustion to power those processes.[33] Even the highest integrity carbon capture system cannot capture all of the CO_2 emissions produced during the process. Currently, CCS used in operational blue hydrogen production removes 50-70% of

[24] Baldino C, O'Malley J, Searle S, Zhou Y, Christensen A, 'Hydrogen for heating? Decarbonization options for households in the United Kingdom in 2050' (2020) International Council on Clean Transportation (ICCT).
[25] Sun T and others, 'Climate Impacts of Hydrogen and Methane Emissions Can Considerably Reduce the Climate Benefits across Key Hydrogen Use Cases and Time Scales' (2024) 58 Environmental Science & Technology 5299.
[26] Esquivel-Elizondo S and others, 'Wide Range in Estimates of Hydrogen Emissions from Infrastructure' (2023) 11 Frontiers in Energy Research 1207208.
[27] Warwick NJ and others, 'Atmospheric Composition and Climate Impacts of a Future Hydrogen Economy' (2023) 23 Atmospheric Chemistry and Physics 13451.
[28] (n25).
[29] Climate Change Committee, 'The Seventh Carbon Budget: Advice for the UK Government' (Climate Change Committee, 2025), online at: https://www.theccc.org.uk/publication/the-seventh-carbon-budget/ accessed 22 January 2026.
[30] Odenweller A and Ueckerdt F, 'The Green Hydrogen Ambition and Implementation Gap' (2025) 10 Nature Energy 110.
[31] Rosenow J, 'Is Heating Homes with Hydrogen All but a Pipe Dream? An Evidence Review' (2022) 6 Joule 2225.
[32] (n30).
[33] (n24).

overall CO_2 emissions,[34;35] however studies suggest that more than 90% CO_2 capture is possible[36;37;38]

1.2.2 **methane emissions**, a highly potent greenhouse gas with over 80 times more warming potential than CO_2 over a 20 year period.[39] Methane emissions occur due to methane leaks in the natural gas supply chain, and are an important determinant of the overall climate impact of blue hydrogen across a range of end-use applications.[40;41;42] Rates of methane leakage depend on the specifics of the supply chain in question,[43] with one recent study assuming methane leaks of 0.5-2% are applicable for domestic heating applications[44]; and

1.2.3 the perpetuation of fossil fuel production and 'lock in' of fossil fuel infrastructure.[45]

Overall, one estimate suggests that using blue hydrogen for domestic heating in the UK could deliver 42-61% emission reductions, compared with natural gas.[46] This figure assumes that CO_2 emissions occur when producing electricity to power blue hydrogen production. If these emissions are discounted (reflecting for instance a decarbonised electricity grid), emissions reductions rise to 69-93%, compared with natural gas.[47] This final range results from variable CCS efficiencies and methane leakage rates, illustrating that in any event using blue hydrogen cannot achieve zero emissions.[48] Additionally, this estimate does not include the climate impacts of hydrogen leaks. Research into other sectors has shown that high levels of hydrogen leaks can severely reduce the climate benefits of using blue hydrogen as a fuel compared with fossil fuels.[49]

1.3 **Grey hydrogen**. Currently the vast majority of hydrogen produced is 'grey hydrogen', which is produced using natural gas (without CCS) and therefore results in high CO_2 emissions, as well as methane leaks in the natural gas supply chain.[50] In 2023, global hydrogen production was responsible for 920 million tonnes CO_2 emissions.[51] Even without accounting for the climate impacts of hydrogen leaks, using grey hydrogen can result in higher emissions than using fossil fuels themselves, because of the energy required for hydrogen production.[52]

[34] Bauer C and others, 'On the Climate Impacts of Blue Hydrogen Production' (2022) 6 Sustainable Energy & Fuels 66.
[35] International Energy Agency, 'Global Hydrogen Review 2024' (2024) https://www.iea.org/reports/global-hydrogen-review-2024 accessed 22 January 2026.
[36] (n34).
[37] (n25).
[38] (n35).
[39] Forster P and others, 'The Earth's Energy Budget, Climate Feedbacks, and Climate Sensitivity. In Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change' Cambridge University Press, pp. 923–1054.
[40] (n25).
[41] (n34).
[42] Howarth RW and Jacobson MZ, 'How Green Is Blue Hydrogen?' (2021) 9 Energy Science & Engineering 1676
[43] (n34).
[44] (n24).
[45] Rosenow J and Lowes R, 'Will Blue Hydrogen Lock Us into Fossil Fuels Forever?' (2021) 4 One Earth 1527
[46] (n24).
[47] (n24).
[48] Rosenow J, 'Is Heating Homes with Hydrogen All but a Pipe Dream? An Evidence Review' (2022) 6 Joule 2225
[49] (n25).
[50] Roy R and others, 'Comparative Techno-Environmental Analysis of Grey, Blue, Green/Yellow and Pale-Blue Hydrogen Production' (2025) 116 International Journal of Hydrogen Energy 200
[51] (n35).
[52] (n48).

Appendix 2-5: REDACTED