**Citizen Participation and Public Petitions Committee**
**Wednesday 11 February 2026**
**4th Meeting, 2026 (Session 6)**

# PE2159: Halt the production of hydrogen from freshwater

## Introduction

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| **Petitioner** | David Mackay on behalf of Innes Community Council |
| **Petition summary** | Calling on the Scottish Parliament to urge the Scottish Government to place a moratorium on the production of hydrogen from freshwater until scientific studies are undertaken to understand the impact on the environment, local economies and society. |
| **Webpage** | https://petitions.parliament.scot/petitions/PE2159 |

1. The Committee last considered this petition at its meeting on 24 September 2025. At that meeting, the Committee agreed to write to the Cabinet Secretary for Climate Action and Energy and the Scottish Environment Protection Agency. The Committee also agreed to include this petition as part of a thematic evidence session with the Cabinet Secretary for Climate Action and Energy.

2. On 14 January 2026, the Committee took evidence on thematic energy issues raised across a number of petitions, including this petition.

3. The petition summary is included in **Annexe A** and the Official Report of the Committee's last consideration of this petition is at **Annexe B**.

4. The Committee has received new written submissions from the Cabinet Secretary for Climate Action and Energy, SEPA and the Petitioner, which are set out in **Annexe C**.

5. Amendments relevant to the petition, which related more broadly to the impact of energy projects on biodiversity, the environment and communities, were debated and defeated during Stage 3 Consideration of the Natural Environment (Scotland) Bill, on 28 January 2026. The Parliament passed the Bill on 29 January 2026.

6. Written submissions received prior to the Committee's last consideration can be found on the petition's webpage.

7. Further background information about this petition can be found in the SPICe briefing for this petition.

8. The Scottish Government gave its initial response to the petition on 29 July 2025.

9. Every petition collects signatures while it remains under consideration. At the time of writing, 878 signatures have been received on this petition.

# Action

10. The Committee is invited to consider what action it wishes to take.

**Clerks to the Committee**
**February 2026**

# Annexe A: Summary of petition

## PE2159: Halt the production of hydrogen from freshwater

### Petitioner

David Mackay on behalf of Innes Community Council

### Date Lodged

6 May 2025

### Petition summary

Calling on the Scottish Parliament to urge the Scottish Government to place a moratorium on the production of hydrogen from freshwater until scientific studies are undertaken to understand the impact on the environment, local economies and society.

### Background information

Green hydrogen is touted as a replacement for fossil fuels. Hydrogen production requires extreme and unsustainable volumes of fresh water. Borehole water is seen as a source. Manufacturing takes 25 to 40 litres of desalinated or freshwater to produce 1kg of hydrogen. 1kg of hydrogen will power a class 1 or 2 Large Goods Vehicle for 6 miles. One plant under development plans to use 500,000 litres of water per day to produce 12,800kg of hydrogen. Similar plants are proposed/under development. Water will be extracted from a very wide geographical area depending on ground conditions and regional rainfall. Water is a major element of life and is in short supply in many areas. The volumes to be extracted will adversely impact the countryside, local industries, agriculture, fishing, and households, and possibly affect flooding. Extracting water will cause serious adverse impacts on aquatic life.

Responses to my enquiries show little knowledge of the volume of water used and I have seen no scientific studies to identify possible adverse consequences.

# Annexe B: Extract from Official Report of last consideration of PE2159 on 24 September 2025

**The Convener**: The first new petition is PE2159, which was lodged by David Mackay on behalf of Innes community council. The petition calls on the Scottish Parliament to urge the Scottish Government to place a moratorium on the production of hydrogen from fresh water until scientific studies are undertaken to understand the impact on the environment, local economies and society.

The SPICe briefing explains that all hydrogen production technologies require water as an input. Green hydrogen production is the process of separating the hydrogen atoms from the oxygen atom in water via electrolysis. Blue hydrogen production involves steam methane reformation and, thus, also includes $H_2O$ as a fundamental part of the process. The briefing notes that there are different conclusions about how much water is required for different methods of hydrogen production, meaning that there is no single view on which method has the lower water footprint.

The Scottish Government's response to the petition states that regulations are already in place for any activity that may affect Scotland's water environment including the use of water for hydrogen developments, which require authorisation from SEPA. The submission also highlights the mechanisms in the planning process, stating that it will be for the relevant authority to interpret and implement relevant planning legislation and guidance in each case as it deems appropriate.

The petitioner's written submission notes that SEPA is reporting that there are longer, hotter and drier periods in Scotland. The petitioner believes that it will take longer and more rain will be required for groundwater levels to recover. He states:

"any process that abstracts additional groundwater will exacerbate the situation and will have major impacts on the ecology, the environment and the economy."

The submission goes on to say that the Scottish Government's response demonstrates a lack of understanding and knowledge of the production requirements for hydrogen and that neither the Government nor the hydrogen industry has calculated the total volume of water that will be required to produce the hydrogen that will be needed for domestic and export markets, nor how groundwater will be replenished.

Do members have any comments or suggestions for action? Mr Mountain is waving at me. I did not know that he had an interest in the petition, but in for a penny, in for a pound.

**Edward Mountain**: As the petitioner lives in Speyside, I remind the committee that I have an interest as I have a freshwater fishery on the River Spey. I have responded to a particular application related to Storegga's proposed project at Marypark, which is in Speyside.

I will draw the committee's attention to one or two matters that I think are critical in relation to the petition.

**The Convener**: If you can do that adroitly, it would be helpful.

**Edward Mountain**: I have never known what that means, convener.

**The Convener**: It means as quickly as possible.

**Edward Mountain**: I am not sure that politicians know what that means.

I understand how important water is across the River Spey and every other catchment. The water levels in the River Spey have not been so low since 1975. It is phenomenal—there has been no increase in the water level since February. All other abstractions on the river have been halted except for the one to Lochaber. SEPA is allowing water to be taken from the top of the catchment, but it is preventing it from being taken from anywhere else. The abstraction that is being proposed is massive: some 500,000 cubic metres would be taken out of the river daily, which would be hugely detrimental to any river. As a Parliament, we need to consider how those applications are considered.

11:45

I understand that the committee is running out of time in the current parliamentary session. However, what happens is that SEPA says that it is doing river basin management planning, but it is absolutely not. It is considering each application as it arises, and the cumulative effect of all those applications will be hugely detrimental to every watercourse. That is especially true in this case in Speyside, because it will increase the temperature of the water, and the water will be taken from substrate that has a high mineral content, which will be discharged back into the river. That is bad for mussels and it creates algae.

I do not think that the petitioner wants to halt all production for ever, but they want some sensible consideration to be taken. I urge the committee, rather than just closing the petition, to consider writing to SEPA to ask how it will consider this application in light of all the other applications that have already been consented to. Adding one more might be the final straw that breaks the camel's back.

**The Convener**: I did not know that we were talking about just closing the petition, Mr Mountain, but thank you.

Do colleagues have any suggestions for action?

**Fergus Ewing**: We are grateful for Ed Mountain's factual input. I represent part of the River Spey, which is in my constituency, and I concur that water levels are at an all-time low. I add that many existing users have already been prejudiced by that, notably distilleries. I do not have a personal interest in the matter, unlike Mr Mountain, other than through being an avid consumer of those distilleries' products. However, it seems reasonable to say that the existing users and businesses that have traditionally relied on access to the water supply should have their interests considered by all those whose job it is to oversee decisions in this regard.

There is an analogy with the pump storage situation, in which there is a plethora of pump storage applications and a lack of joint consideration of the overall impact that those will have on Loch Ness.

We should ask SEPA to comment specifically with regard to Mr Mountain's evidence, which was interesting and, on the face of it, quite compelling. It would certainly be worrying if a massive extraction of water was permitted without consideration of the overall impact. I suggest that we write to SEPA, as Mr Mountain suggested, and that we include the petition as part of the thematic evidence session with the Cabinet Secretary for Climate Action and Energy. I also suggest that, beforehand, we invite the cabinet secretary to respond to what Mr Mountain has said.

The lack of consideration of the cumulative impact of developments across the board—notably renewable developments in the Highlands—is a huge concern at the moment. Mr Mountain and I know that from attending a packed public meeting with Douglas Lumsden—he attended it as well, not as a participant but as a spectator from outwith the Highlands and Islands area.

Without labouring the point—I would never wish to do that, convener—I hope that the cabinet secretary and SEPA will opine on the issue before we hear oral evidence from the cabinet secretary.

**The Convener**: Is that what you were going to suggest, Mr Golden? I see that you are nodding.

The only point that I will add is that I would not want the date on which we will be able to see the cabinet secretary to be conditional on her having responded in advance. We can seek to get that response, or perhaps the cabinet secretary will be in a position to speak to the response that might be made at the point when we have a meeting with her. Do members agree that we should do what has been suggested?

**Members** *indicated agreement.*

# Annexe C: Written submissions

## Cabinet Secretary for Climate Action and Energy written submission, 30 October 2025

### PE2159/D: Halt the production of hydrogen from freshwater

Thank you for your enquiry regarding the use of water in the production of hydrogen. As stated in the response to the original petition PE215 which called on a moratorium on hydrogen production, regulations are already in place for any activity which may affect Scotland's water environment. This includes the use of water for hydrogen developments which will require authorisation [P1] from SEPA under the terms of the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (CAR). The CAR Regulations exist for the protection of the water environment, and the type of authorisation required will depend on the volume and location of the abstraction.

SEPA must consult relevant public authorities about any CAR authorisations under consideration for activities likely to have a significant adverse effect on the water environment - and make the responses of those authorities publicly available during the period in which such authorisation applications are advertised.

The development of hydrogen production projects will also require planning permission from the relevant planning authority. Scotland's planning system includes provisions for communities to contribute views about proposals which may affect them. In line with this, planning authorities front load consultation processes and take into account any comments on a case ahead of a decision being made.

It will fall to the relevant planning authority, in the first instance, to consider whether a proposed development requires an Environmental Impact Assessment (EIA) to be undertaken. Planning authorities already have a well-established general responsibility to consider the environmental implications of developments which are subject to planning control, however, an EIA can provide a more systematic method of assessing the environmental implications of developments that are likely to have significant effects.

Should an EIA be deemed necessary, the EIA regulations require the relevant planning authority to make details of any EIA development public - and provide details of where the EIA report is available for inspection free of charge or how copies may be obtained.

It will be for the relevant authority to interpret and implement relevant planning legislation and guidance as it deems appropriate given the circumstances in each case and to ensure that the provisions of the planning system are applied properly. Planning legislation requires that planning applications are determined in accordance with the development plan for the area unless material considerations indicate otherwise, each proposal being considered on its own merits.

Our National Planning Framework 4 (NPF4) sets out our strategy for working towards a net zero Scotland by 2045 and directly influences all planning decisions. It signals the key priorities for 'where' and 'what' development should take place at a

national level and is combined with national planning policy on 'how' development planning should manage change. NPF4 makes clear our support for all forms of renewable, low-carbon and zero emission technologies, including renewable and low-carbon hydrogen projects. Potential impacts on communities, nature and cultural heritage, including the cumulative effects of developments, are important considerations in the decision-making process.

It may also be helpful to highlight work undertaken by the Scottish Government on the future management of Scotland's water resources. This involved a consultation on the principles and considerations for water, waste water and drainage in developing policy for the future of the water industry in Scotland in response to the climate emergency. A analysis of the consultation feedback can be found on our website: Water, wastewater and drainage: consultation analysis - gov.scot (www.gov.scot)

More information about this and the regulation of the water environment can be found on SEPA's website: Water | Scottish Environment Protection Agency (SEPA)

Yours sincerely,

**GILLIAN MARTIN**

## SEPA written submission, 3 November 2025

### PE2159/E: Halt the production of hydrogen from freshwater

Thank you for your correspondence dated 2nd October 2025 regarding Petition PE2159.

### Storegga Marypark Proposal (Edward Mountain MSP's reference)

SEPA has engaged in pre-application discussions with the developer of the proposed hydrogen facility at Marypark. The proposed borehole abstraction is for five hundred cubic metres per day (500,000 litres/day) - not 500,000 m³/day as previously suggested. This is 0.1% of the volume stated in the original claim.

A proportion of the abstracted water would be returned to the water environment after undergoing appropriate treatment, to meet the relevant regulatory and environmental standards. SEPA's initial review found the proposed activity to be within the acceptable environmental limits, but a full environmental assessment would be required before any permit could be issued. No formal application has been submitted to date.

To provide context:

- Agricultural abstractions on the River Spey range from 250 m³/day to 1800 m³/day.
- Distillery abstractions range from 1200 m³/day to 10,000 m³/day, with most of the water returned to the river as cooling water.

- The mean daily flow of the River Spey at Grantown is approximately 3,300,000 m³/day, highlighting the relatively small scale of the proposed abstraction.

**SEPA's Permitting Process**

All activities that may impact the water environment require authorisation from SEPA. Hydrogen production is regulated under the Water Environment (Controlled Activities) (Scotland) Regulations (CAR) and the Pollution Prevention and Control (PPC) Regulations. From November 2025, these will be replaced by the Environmental Authorisation (Scotland) Regulations (EASR), which streamline regulatory frameworks but do not alter the assessment criteria.

Under the regulations any abstraction exceeding 50 m³/day requires a permit. Applicants must submit detailed information, including:

- Hydrological surveys and monitoring data to assess water availability.
- Identification of potential receptors, such as ecosystems and other water users.
- An evaluation of cumulative pressures on the waterbody.

SEPA assess applications using the most current environmental standards, considering the capacity of the waterbody to support the proposed abstraction. In determining an application for authorisation under CAR/EASR, SEPA must assess the risk posed to the water environment by the proposed development, including cumulative effects with other activities. This ensures:

- Protection of the wider water environment.
- No negative impact on existing abstractors.
- No breach of environmental thresholds.

Details of how SEPA undertake such assessment are described in our published regulatory methods.

**Water Scarcity & Sector-Wide Restrictions**

We have seen unprecedented water scarcity across Scotland's river systems in 2025, and SEPA have exercised its regulatory powers to restrict or suspend abstractions in affected areas. These restrictions apply equally across all sectors and would include hydrogen production where authorised. New permits may include stricter conditions, such as:

- Earlier cessation of abstraction during dry periods.
- Adaptive management clauses to respond to changing environmental conditions.

**Hydro Licence – Upper Spey Catchment**

The hydro licence referenced allows water to be diverted from the Spey catchment to Lochaber only when water is available. It includes conditions requiring the operator to:

- Release water downstream from Spey Dam to mitigate hydro scheme impacts.
- Scale back or cease diversions during dry weather to prioritise environmental protection.
- Use stored water to maintain river flows during low-flow periods.

**Hydrogen Plant Discharges**

Discharges from hydrogen facilities are regulated like any other industrial discharge and must meet Environmental Standards. Additionally, hydrogen production is classified as an Industrial Activity, and is subject to:

- Enhanced controls under PPC regulations/EASR.
- Demonstration of Best Available Techniques (BAT), which may impose stricter discharge limits than standard environmental thresholds.

**Monitoring & Enforcement**

If SEPA grant an authorisation, the facility will be subject to ongoing compliance monitoring. SEPA will:

- Conduct regular inspections.
- Review operational data.
- Take enforcement action in response to any breach or environmental harm, ensuring issues are resolved and do not recur.

I trust the above information is helpful, but should you wish to discuss the above matter further, please do not hesitate to contact ask@sepa.org.uk.

**Data, Environment and Innovation**

## Petitioner written submission, 13 November 2025

**PE2159/F: Halt the production of hydrogen from freshwater**

The submissions from the Scottish Government, the Cabinet Secretary and SEPA refer to current legislation and procedures for conventional planning applications for commercial and industrial developments. Hydrogen production is a new industry and requires water abstraction in addition to traditional industry abstractions. Therefore, these freshwater abstractions will require additional rainfall to replenish groundwater levels. Climate change has changed weather conditions in Scotland in recent years. We have lower rainfall and hotter weather conditions, which have reduced groundwater reserves of water. Hydrogen Scotland estimates future production of

green hydrogen from freshwater in Scotland at 3 million tonnes. Government figures show it takes 17,000 litres (17 cubic metres) of water to produce 1 tonne of hydrogen. The current planning legislation/ procedures require a complete review and changes for this industry.

Currently, planning consent is applied for before any application is made to SEPA for water abstraction licenses. As the volume of water abstracted is the only requirement for a hydrogen production facility to be successful, the application for water abstraction should be made before any planning application. If SEPA refuse the water abstraction license, then there is no need for a planning application. That would reduce the amount of time and money spent by local authorities in processing any planning application, which would not be required if the water abstraction had been refused.

There appears to be a failure by the respondents to understand the impact of water abstraction on a far wider area. Water abstraction is from groundwater reserves. These reserves can only be replenished by rainfall. Weather patterns are changing with longer dry spells. Overall all precipitation is decreasing. There are now lower groundwater levels throughout the year. Depending on soil structures, geology and landscape, levels of groundwater vary from area to area across the whole of Scotland and within each river catchment. Scientific papers published around the world highlight water abstraction by borehole adversely impacts the landscape and the environment for many miles from the bottom of the borehole. Through FOIs to the various Government bodies and organisations, including SEPA, Scottish Water, Marine Scotland Freshwater Directorate, as well as local authorities, there have been no studies in Scotland into the levels of groundwater, water retention and the replenishment process, nor the impact on environmental diversity.

In their response, SEPA give average figures of the volume of water. They fail to mention that up to 60% of the rainfall of the Upper Spey does not reach Kingussie. They mention distilleries and agriculture industries but fail to mention many other abstractions, including potable water. The volume of water detailed is an average over the full year. Water levels are far lower during the summer months, with extremely high levels during floods. The volume of water as recorded on SEPA river gauges can vary as much as 2 to 3 metres between periods of low water and flood.

Flood events last a little more than a week whereas low water periods can last (as for this year) for over 6 or 7 months. Periods of flooding do not replace all the abstracted groundwater. Average figures are misleading and are computer-generated. They ignore the impact of water abstraction on the land and environment in the river valley. It appears that the impact of each application is processed on its own without any consideration of the far wider environmental impact. Water abstraction lowers levels above the abstraction point. Discharging of processed water is downstream of the abstraction and does not replenish groundwater levels. Such processes alter the dynamics of any river/stream to the detriment of the aquatic and surrounding ecology, and environmental diversity.

Small businesses, especially angling tourism, rely on healthy river catchment areas. Any reduction in river levels will impact these industries, thus employment and the economy.

Despite issuing large-scale grants to the hydrogen industry in 2022, the Government has not published hydrogen strategy polices. In drawing up a strategy document, they must look at the production of hydrogen from a different perspective to the standard commercial industrialisation process and policies. The industry brings completely different risks to the environment and economy.

The planning process for renewable energies is under scrutiny by communities as it is strongly felt that the current system does not allow full public consultation and participation. We note that SEPA comment that there is a public consultation once they publish their opinion on an application. Surely the correct procedure would be for SEPA to publish an application before they make any decision and act on the responses. Communities understand their areas better than distant officials.

Scientific studies must be carried out to measure the impact of rainfall and abstraction on groundwater levels.

Hydrogen production plants should be located on the coast, where, using salt water, they can produce a large range of byproducts such as ammonia and chlorine gas. The production of these would offset additional production costs and help the national economy by reducing the importation of such products from overseas.