PE2159/F: Halt the production of hydrogen from freshwater

Petitioner written submission, 13 November 2025

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.