PE2109/C: Halt any further pump storage hydro schemes on Scottish lochs holding wild Atlantic salmon

SSE Renewables written submission, 10 January 2025

Following your letter dated 6 December 2024 in relation to PE2109, I am pleased to respond on behalf of SSE Renewables, the owner and operator of the largest fleet of hydro-electric power assets in Scotland.

The importance of pumped storage hydro in the net zero transition

As members of the Committee may be aware, pumped storage hydro is the world's largest, most proven, and cost-effective long-duration electricity storage technology. Its deployment will help reduce the UK's reliance on imported gas and provide vital energy balancing services to the grid, not just for instant response but also for longer periods when renewable energy may not be available. As a result, pumped storage hydro is a critical enabling technology for the wider deployment of the renewable energy the country needs.

Decades of experience at Foyers Power Station

While we have not commissioned any new research into the impact of pumped storage hydro operations on wild Atlantic salmon, we have decades of experience in this proven technology, with 300MW of pumped storage hydro in operation at Foyers Power Station at Loch Ness since 1974.

As far back as the 1943 Act of Parliament which established the North of Scotland Hydro Electric Board (NoSHEB), there was a requirement to avoid, "as far as possible, injury to fisheries and the stock of fish in any waters". This environmental consideration was built into original hydro scheme agreements and continues to be licensed by the regulator, the Scottish Environment Protection Agency (SEPA), today.

Our understanding is that there is a lack of presence of Atlantic salmon in watercourses in the immediate vicinity of Foyers Power Station, and no natural inclination for salmon to be attracted to the water from Loch Mhor or the Rivers Fechlin and Foyers due to no natural spawning populations originating from them.

However, as a responsible owner and operator of hydro infrastructure, laboratory testing was undertaken in 1971 through the development process to ensure a suitable smolt screen design velocity for the operation of Foyers on Loch Ness. The velocities of flows through intake screens were tested on rainbow trout and salmon smolts to determine the speed and duration that smolts could continuously swim against without becoming entrained on the screens. This robust research, alongside regular operational monitoring of the intake screens, has resulted in no observed impact on smolts at Foyers, with SEPA's current guidance on flow rates aligning to the results of this research.

Robust planning processes for pumped storage hydro development

At SSE Renewables, we are progressing a development pipeline of pumped storage hydro projects in the UK. This includes our consented flagship project, Coire Glas, which could deliver up to 30GWh of storage capacity if built, doubling the total electricity storage capacity in Great Britain today.

In addition to Coire Glas, we are co-developing a new pumped storage hydro project at Loch Fearna in Scotland's Great Glen and also have plans to convert the largest conventional hydro power station in our existing hydro power fleet, the 152.5MW Sloy Power Station on the banks of Loch Lomond, into a pumped storage hydro scheme.

It is critical to note that all proposed pumped storage developments go through a robust Environmental Impact Assessment through the statutory planning process, including significant Ecological Impact Assessments of the impacts of developments on various factors, including on aquatic ecology and fish.

In relation to the proposed conversion of Sloy Power Station into a pumped storage hydro facility, our understanding is that based on recent research, smolts can maintain a higher indefinite swimming speed than the results of the 1971 research, demonstrating SSE Renewables' leading position in utilising the latest research and data to inform our development proposals, while protecting, restoring and, where possible, enhancing the natural environment.

Simultaneously tackling the climate and biodiversity crises

While playing our part in the delivery of a cleaner, more secure power system by developing and operating the largest fleet of hydro-electric

infrastructure across Scotland, we are acutely aware of the responsibility on us to meet our legal and regulatory requirements to protect the environment through all phases, from development through to operation.

We have been monitoring salmon and their interactions with conventional hydro infrastructure for over 80 years, contributing to academic research on the downstream migration of salmon smolts, and leading mitigation and restoration projects across our hydro catchment areas to ensure any impacts are minimised.

We have worked proactively and collaboratively with stakeholders to design and deliver improvement projects, using the best available knowledge and data, including:

- The Upper Garry Salmon Restoration Project, in partnership with the Ness District Salmon Fishery Board, University of the Highlands and Islands (UHI), Mowi, SEPA and Garry Fishings, kickstarting the revival of wild salmon in the River Garry.
- Re-watering the River Garry, alongside the Tay District Salmon Fisheries Board, SEPA and UHI, to provide major benefits for adult salmon spawning and juvenile production.
- The award-winning Artificial Intelligence partnership with Microsoft, Avenade and NatureScot to monitor puffin and salmon numbers across SSE Renewables' sites.
- Recognised at the 2023 Nature of Scotland Awards, the transformational Trap and Transport project on the River Tirry (https://www.youtube.com/watch?v=oZ8ZKentSE4&list=PLt8-QCjOTko_17i3hlhl2xVfuvbNUP8N4&index=9) utilises pioneering methods to improve smolt survival rates. Working in partnership with the Kyle of Sutherland District Salmon Fishery Board, SEPA and specialist contractors, the project has delivered a near four-fold increase in smolt numbers and trap efficiency, with returning adult salmon numbers at record levels in 2024.

Through over 50 years of operation, experience and expertise of pumped storage hydro at Foyers Power Station, we are not aware of an adverse impact on wild Atlantic salmon in Loch Ness. We remain committed to continued engagement with local fishery boards, elected representatives and interested parties to ensure future pumped storage developments work in tandem with the natural environment as we collectively tackle the climate crisis.

Yours sincerely,

Director of Hydro Asset Management

SSE Renewables