

# Balliemeanoch Pumped Storage Hydro

Environmental Impact Assessment  
Report

Volume 2: Main Report  
Chapter 1: Introduction

ILI (Borders PSH) Ltd

July 2024



## Quality information

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# 1. Introduction

## 1.1 Introduction

This Environmental Impact Assessment (EIA) Report has been prepared by AECOM on behalf of ILI (Borders PSH) Limited (hereafter referred to as the 'Applicant'). This EIA Report (EIAR) has been prepared to accompany an application for consent to construct, operate and decommission a pumped storage hydro (PSH) scheme to be known as the Balliemanoch Pumped Storage Hydro (referred to throughout as the 'Development') under Section 36 of the Electricity Act 1989 (the 'Act') (the "Section 36 Application").

This EIAR describes the results of the EIA for the Development. This chapter introduces the Development and sets out the context and structure of the EIAR.

## 1.2 About the Development

### 1.2.1 Background

Hydropower is an established electricity generation technology in Scotland. The first public hydro scheme was built by the Benedictine monks at Fort Augustus Abbey in 1891 to power the abbey and village at the southern end of Loch Ness. However, it was not until after World War II that the adoption of hydropower became widespread across Scotland.

The Hydro Electric Development (Scotland) Act 1943 drove the creation of the North of Scotland Hydro Electric Board. The efforts of the Board, combined with growing energy demands, in particular from the aluminium industry, resulted in significant developments in hydropower technology. By 1965, 54 main hydropower stations had been constructed with a total generating capacity of more than 1,000 megawatts (MW)<sup>1</sup>.

The first Scottish PSH scheme, Cruachan Power Station (440 MW), opened in 1965. At the time it was the first PSH of its scale in the world<sup>2</sup> and is still the largest operational hydropower scheme in Scotland.

Today, hydropower is a commercial technology that accounts for around 19% of Scotland's total energy generation<sup>3</sup>. As set out within the Energy Strategy: The Future of Energy<sup>4</sup>, and Draft Energy Strategy and Just Transition Plan<sup>5</sup>, further development of hydropower in Scotland, and PSH in particular, is supported by the Scottish Government in the pursuit of a flexible and resilient future energy network and power supply.

A Scotland-wide review of the untapped hydropower potential to identify locations suitable for PSH development was conducted by the Applicant. Through this review the potential for a PSH scheme utilising Loch Awe was identified.

The Development will discharge water from its Headpond back into Loch Awe, which is also utilised by the existing Cruachan scheme. Cruachan is a 440 MW pumped storage hydro-electric scheme which has been operating since 1965. An application to expand the scheme was recently given consent by the Scottish Government with the proposed expansion proposed to provide up to 600 MW of new generating capacity, resulting in a total generating capacity of up to 1,040 MW.

The Development is predominantly located within the catchment of the Allt Beochlich watercourse. The catchment consists of a number of small streams which ultimately flow into Loch Awe, these originate from smaller lochs (Airigh, Dubh and Romach).

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<sup>1</sup> Scottish and Southern Energy plc. Power from the Glens. <https://studylib.net/doc/7919719/power-from-the-glens>. [Accessed 13/02/2024].

<sup>2</sup> Scottish Power. (2018). Cruachan. <https://www.visitcruachan.co.uk/pages/history.aspx>. [Accessed 13/02/2024].

<sup>3</sup> Scottish Government. (2021) Annual Energy Statement & Quarterly Statistics Bulletin, as reported within: Energy Statistics for Scotland - Q3 2023 Part 2. <https://www.gov.scot/binaries/content/documents/govscot/publications/statistics/2018/10/quarterly-energy-statistics-bulletins/documents/energy-statistics-summary---december-2021/energy-statistics-summary---december-2021/govscot%3Adocument/Scotland%2BEnergy%2BStats%2BQ3%2B2021.pdf> [Accessed 13/02/2024].

<sup>4</sup> Scottish Government. (2017, Errata published 2018). Scottish Energy Strategy: The Future of Energy. [Online]. Available: <https://www.gov.scot/Resource/0052/00529523.pdf>. [Accessed 13/02/2024].

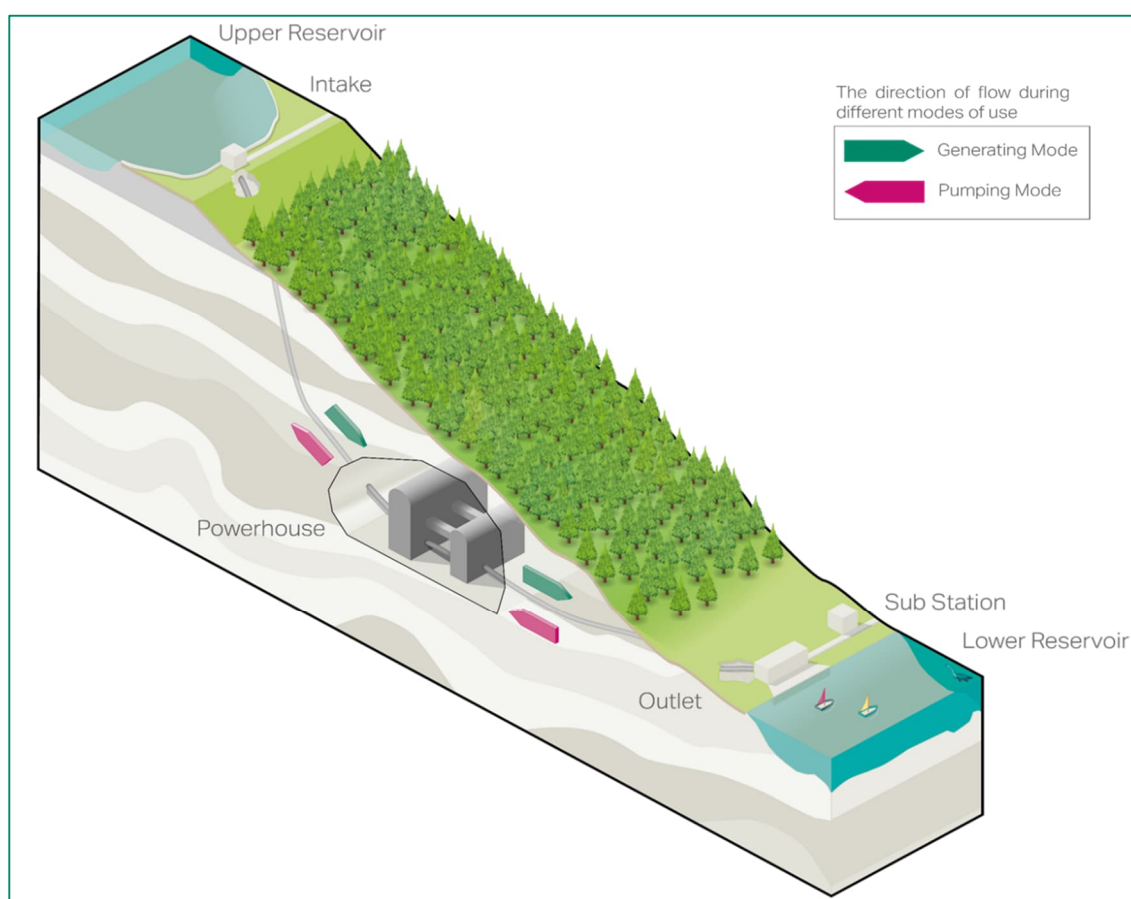
<sup>5</sup> Scottish Government (2023) Draft Energy Strategy and Just Transition Plan <https://www.gov.scot/publications/draft-energy-strategy-transition-plan/>

## 1.2.2 Concept of Pumped Storage

The main principle of pumped storage is to release water from an upper reservoir (the Headpond) to a lower reservoir (the Tailpond) when there is a demand to generate electricity and to pump water from a lower reservoir to an upper reservoir when there is either a low demand or excess supply of electricity. As the water transfers between the upper and lower reservoirs, the water passes through a pumped turbine either generating electricity or storing the water (as potential energy) at a higher elevation to be used later for electricity generation.

Pumped storage is currently the most efficient technology for storing large amounts of energy and is capable of generating and pumping in a relatively short period of time, when there is either a demand for, or a surplus of, electricity. Pumped storage is complementary to variable intermittent energy sources such as wind and solar and is able to reduce the curtailment of excess generation by providing load and energy storage for the grid. Therefore, this Development can enable greater deployment of renewable energy into the grid and at the same time provide flexibility to generation plants to meet the demands from the grid.

The schematic below provides an indicative view of how a pumped storage system works. **Note that this is a diagrammatic illustration, and it therefore does not accurately represent the proposed scheme for the Development.**



Insert 1.1 Schematic of a Typical Pumped Storage Hydro Scheme

## 1.2.3 Balliemanoach Pumped Storage Hydro

The Development is located at central national grid reference NN 03615 17578 approximately 4.4 km to the south of the village of Portsonachan and 9 km northwest of Inveraray in Argyll and Bute, as shown on *Figure 1.1 Location Plan (Volume 3 Figures)*. The Development Site is generally characterised by upland moorland plateau grazing land. The Headpond (upper reservoir) location at Lochan Airigh sits at approximately 360 m above ordnance datum (AOD) and 3 km to the east of the Balliemanoach farm steading. A new temporary Marine Facility, comprising a temporary jetty to aid construction of the Development, is to be located south of Inveraray off the A83.

The Development Site boundary is shown by the red outline on *Figure 1.1 Location Plan (Volume 3 Figures)* and includes all the land that is required during construction, operation and decommissioning including the Headpond and Embankments, Tailpond inlet / outlet structure, temporary Marine Facility with jetty, waterways, Power Cavern

Complex, Access Tunnels, Access Tracks and other associated permanent and temporary infrastructure. The total area within the red line boundary is approximately 3,115 hectares (ha). Not all of the area within the red line boundary will be developed.

The Development will have a storage capacity of approximately 45,000 gigawatt hours (GWh) with approximately 1,500 MW installed electrical generation capacity.

## 1.2.4 The Applicant

The Applicant is a clean energy developer who has been developing renewable energy projects for over 15 years. This has included onshore wind, solar and run river hydro schemes, with their focus now on energy storage.

The Applicant seeks to play its part in meeting Scotland's future energy needs and contribute to world leading climate change and net zero targets. It has developed a portfolio of battery and pumped storage hydro projects.

Energy storage projects will be of critical importance as we move towards 100% renewable energy generation, as they provide the balancing and back-up services a secure and efficient energy system requires.

The Applicant's lead pumped storage hydro project, Red John, received Section 36 consent and deemed planning permission from the Scottish Government in June 2021. In recognition of this success, the Applicant was a finalist in the 2021 Scottish Green Energy Awards and in the Regen Green Energy Awards 2023.

## 1.3 Consenting Requirements

As the Development will comprise an electricity generating plant with a gross electrical output in excess of 50 MW, consent to construct and operate will be required from the Scottish Ministers under Section 36 of the Act. The Section 36 Application will be prepared in accordance with the requirements of the Act and submitted to the Energy Consents Unit (ECU) of the Scottish Government. As part of that consent, the Scottish Ministers will also be requested to give a direction for deemed planning permission to be granted under Section 57(2) of the Town and Country Planning (Scotland) Act 1997.

## 1.4 The Environmental Impact Assessment Report

### 1.4.1 Requirement for Environmental Impact Assessment

As consent is sought under Section 36 of the Act, the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (hereafter referred to as the 'EIA Regulations') also apply to the Development. By virtue of its size, nature and location, the Development constitutes an 'EIA development' under Schedule 2 of the EIA Regulations.

An EIA has therefore been undertaken. More details on the EIA process and the approach to EIA for the Development are set out in *Chapter 4: Approach to Environmental Impact Assessment*.

In compliance with Regulation 5(1) of the EIA Regulations, this EIAR has been prepared to accompany the Section 36 Application.

### 1.4.2 Content and Structure of the EIA Report

This EIAR describes the results of the EIA for the Development. This includes a detailed description of the Development and its surroundings, an overview of the design process, and technical assessments with associated reports by individual environmental topic.

The EIAR has been published in six volumes:

- Volume 1: Non-Technical Summary (NTS) - concise and written in non-technical language, providing a description of the Development, a summary of its residual environmental effects, and proposed mitigation measures;
- Volume 2: EIAR Main Text - contains the introductory and topic specific environmental assessment chapters, which is structured around the chapter headings as set out in *Table 1.1 Volume 2: EIAR Main Text Chapter Structure*;
- Volume 3: Figures - contains the figures relating to the EIAR chapters;

- Volume 4: Visualisations - contains photomontages to NatureScot standards, projecting how the Development will sit within the surrounding landscape;
- Volume 5: Appendices - contains supporting Appendices to the EIAR. The Appendices include detailed technical information such as raw data, survey reports and plans that are cross referenced where relevant within Volume 2 of the EIAR; and,
- Volume 6: Confidential Appendices - contains supporting Appendices which are only provided to certain competent bodies due to the nature of the information which is contained within them.

**Table 1.1 Volume 2: EIAR Main Text Chapter Structure**

Chapter No	Title	Author
1	Introduction	AECOM
2	Project and Site Description	AECOM
3	Evolution of Design and Alternatives	AECOM
4	Approach to EIA	AECOM
5	Landscape and Visual Amenity	AECOM with DGA Forestry providing Appendix 5.5
6	Terrestrial Ecology	AECOM
7	Aquatic Ecology	AECOM
8	Marine Ecology	AECOM
9	Ornithology	AECOM
10	Geology and Soils	AECOM
11	Water Environment	AECOM
12	Flood Risk and Water Resources	AECOM
13	Cultural Heritage	AECOM
14	Access, Traffic and Transport	AECOM
15	Noise and Vibration	AECOM
16	Socio-Economics and Tourism	AECOM
17	Climate	AECOM
18	Marine Physical Environment and Coastal Processes	AECOM
19	Shipping and Navigation	Anatec
20	Commercial Fisheries	Brown and May Marine
21	Summary of Effects and Conclusions	AECOM

### 1.4.3 Availability of the Environmental Impact Assessment Report

This EIAR and other documentation prepared to support the Section 36 Application are available for download from the Argyll and Bute Planning Portal website: <https://www.argyll-bute.gov.uk/planning-and-environment/find-and-comment-planning-applications> and the ECU website: <http://www.energyconsents.scot/>.

The EIA Report will be available for viewing at the following locations:

- Oban, Lorn and the Isles Argyll & Bute Council office at Municipal Buildings, Albany Street, Oban PA34 4AW
- Dalmally Village Hall
- Portsonachan Village Hall
- West Lochfyneside Parish Church, Inveraray



Digital USB pen copies of the EIAR will also be offered to the following community councils (CC):

- Inveraray CC
- Glenorchy & Innishail CC
- Avich & Kilchrenan CC
- Furnace CC
- Dunadd CC
- West Lochfyne CC
- Taynuilt CC

Digital USB pen copies of the EIAR will also be offered to the following councillors from Oban North and Lorn:

- Independent (Kieron Green)
- Scottish Greens (Luna Martin)
- Scottish National Party (Julie McKenzie)
- Scottish Conservative and Unionist Party (Andrew Vennard)

### 1.4.3.1 Representations

Any representations regarding the application should be made as per guidance on Scottish Government, Energy Consents website at:

<https://www.gov.scot/publications/energy-consents-how-to-support-or-object-to-an-application/>

Which advises that representations can be made by email to The Scottish Government, Energy Consents Unit mailbox at: [representations@gov.scot](mailto:representations@gov.scot)

Or by post to:

Energy Consents Unit, Energy Division, Scottish Government, 4th Floor, 5 Atlantic Quay, 150 Broomielaw, Glasgow, G2 8LU.

Representations should be dated and should clearly state the name (in block capitals) and full return email or postal address of those making representation. All representations to the Scottish Government will be copied in full to the planning authority, and made available to the public on request, unless individuals request otherwise.

### 1.4.3.2 Copies of the Application Documents

Electronic copies of the application documents (with the exception of Volume 6: Confidential Appendices) can be made available at a fee of £10 per USB pen drive. A paper copy of the Non-Technical Summary can be made available free of charge. Cheques should be made payable to AECOM Ltd, with your name and address on the back.

To request copies of the EIAR documents please contact the Balliemanoach PSH Project Team at the following address:

Balliemanoach PSH Project Team, AECOM, 1 Tanfield, Edinburgh, EH3 5DA

E-mail: [pumpedstorage@aecom.com](mailto:pumpedstorage@aecom.com)

Information on the Development will also be available on the Development website: <https://www.balliemanoachpsh.co.uk/> and requests for copies of the EIAR may be submitted through the queries form.

## 1.5 Other Supporting Information

Other documents that will be submitted along with the EIAR as part of the Section 36 Application, include:

- Planning Statement;

- Pre-Application Consultation Report;
- Marine Licence; and
- Planning Drawings.

## 1.5.1 Secondary Consents

It is recognised that other consents and licenses are required for the construction and operation phase of the Development. At present it has been identified that the following may be required:

- Acquisition of Water Rights application;
- Controlled Activities Regulation (CAR) Licence;
- European Protected Species licences;
- Felling Licence (if required);
- Reservoir registration under the Reservoir (Scotland) Act 2011;
- Construction Site License; and
- Generation Licence.

This list is not exhaustive and will be updated as required. Information on when and who will gain the relevant consents and licenses has been included within the Mitigation Register in *Chapter 21: Summary of Effects and Conclusions* of this EIAR (Volume 2). As much information as possible is provided within the EIAR to support the application for these secondary consents.



