Chapter 5: Sloy Pumped Hydro Storage Scheme: EIA Process and Methodology

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5. EIA Process and Methodology

5.1. Introduction

Environmental Impact Assessment (EIA) is a process that considers how a proposed development is predicted to change existing environmental conditions and what the consequences of such changes will be. It therefore informs both the project design and decision-making processes related to the grant of development consents.

This Chapter sets out the regulatory context for undertaking an EIA and the assessment methodology applied in the evaluation of effects, approach to mitigation and assessment of the significance of likely environmental effects. The Chapter also outlines the structure of the EIA Report

5.2. Scope Of Assessment

As discussed in **Chapter 1: Introduction**, the EIA Report has been prepared in accordance with the EIA Regulations.

This EIA Report contains the information specified in Regulation 5 of, and Schedule 4 to, The Electricity Works (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as 'the EIA Regulations'). The approach to the assessment has been informed by current best practice guidance, including the following:

- Scottish Government Planning Advice Note (PAN) 1/2013 (revision 1.0)[1]; and
- Planning Circular 1/2017[2].

An overview of the guidance and methodology adopted for each technical study is provided within the respective technical chapters of this EIA Report. The proposed methodologies for the assessment of likely significant effects for each topic area covered in the technical chapters have been the subject of consultation with statutory and non-statutory consultees through the publication of, and consultation on, the 'Sloy Pumped Storage Scheme Scoping Report', published in June 2023.

The scope of the EIA Report has been informed by the Scoping Opinion issued by Scottish Ministers in December 2023, discussed further within **Chapter 6: Scoping and Consultation** of this EIA Report and associated appendices.

5.3. Baseline

To identify the scale of likely significant effects resulting from as a result of the Proposed Development, it is necessary to establish the existing baseline environmental conditions.

The baseline scenario was established through the following methods, where relevant:

- Site visits and surveys.
- Desk-based studies.
- Review of existing information and previous consent decision.
- Modelling (including baseline noise and traffic levels).

[1] Scottish Government (2013, revised 2017) Planning Advice Note 1/2013 (revision 1.0): Environmental Impact Assessment.

[2] Scottish Government (2017) Planning Circular 1/2017: Environmental Impact Assessment Regulations 2017.

- Review of relevant national and local planning policies.
- Consultation with relevant statutory consultees; and
- Identification of sensitive receptors.

The environmental baseline of the Proposed Development Area (PDA) is described within the respective technical chapters of this EIA Report.

5.4. Assessment of Likely Significant Effects

For the purposes of this EIA Report the terms used in the assessment of effects are generally defined as follows:

- **Temporary** – where the effect occurs for a limited period of time and the change at a defined receptor can be reversed.
- **Permanent** – where the effect represents a long-lasting change at a defined receptor.
- **Direct** – where the effect is a direct result (or primary effect) of the Proposed Development.
- **Indirect** – a knock-on effect on the environment which is not a direct result of the Proposed Development, often occurring away from the proposals or as a result of a complex biological or chemical pathway.
- **Secondary** – an induced effect arising from the actions or presence of a project, such as changes to the pattern of future improvements to local road networks.
- **Cumulative** – these effects may arise when more than one development of a similar scale and nature combine to create a potentially greater impact than would result from the Proposed Development alone.
- **Beneficial** – a positive, or beneficial effect, on one or more environmental receptors; and
- **Adverse** – a detrimental, or adverse, effect on one or more environmental receptors.

Where a more appropriate definition of the above terms is applicable to a technical discipline this is clearly outlined with the respective technical chapters of this EIA Report.

The result of the assessment is the determination of whether the likely effect of the Proposed Development on the receptors in the study area would be significant or not significant, and adverse or beneficial. ‘Receptor’ should be defined as meaning the factors of the natural and built environment, including people and communities, that may be significantly affected by the Proposed Development. Examples include cultural heritage, landscapes, populations, animal and plant species, and the water environment.

Where no published standards exist, the assessments presented in the technical chapters describe the professional judgments (assumptions and value systems) that underpin the attribution of significance. For certain technical topics, such as ecology, widely recognised published significance criteria and associated terminology have been applied and are presented in the technical chapters and associated appendices where relevant.

The assessment of significance has considered the magnitude of change (from the baseline conditions), the sensitivity of the affected environmental factors / receptors and (in terms of determining residual effects) the extent to which mitigation and enhancement can reduce or reverse adverse effects. In addition, further considerations such as those listed below have been factored into the assessment using professional judgment:

- Likelihood of occurrence
- Geographical extent
- The value of the affected resource

- The compatibility of the Proposed Development with the provisions of legalisation and planning policy; and
- Reversibility and duration of the likely effect.

The magnitude (scale) of change for each effect has been identified and predicted as a deviation from the established baseline conditions for the construction and operation phases of the Proposed Development. The scale generally used is high, medium, low, and negligible, as outlined in **Table 5.1: Matrix for Determining the Significance of Effects** below and defined within each of the technical chapters.

The sensitivity of the receptor / receiving environment to change has been determined using professional judgement, consideration of existing designations, such as Special Areas of Conservation (SACs) and quantifiable data, where possible. The scale generally used is high, medium, low, and negligible, as outlined in **Table 5.1** below and defined within each of the technical chapters.

Each effect has been assessed taking account of the predicted magnitude of change and the sensitivity of the receptor / receiving environment as shown in **Table 5.1** and defined within each of the technical chapters of this EIA Report to determine overall significance of effect. High magnitude impacts will not necessarily always result in significant effects. Likewise high sensitivity receptors will not always experience significant effects. The converse is also true. Each of the technical chapters defines the scale used for its methodology, where it differs from the below.

Table 5.1: Matrix for Determining the Significance of Effects

		Sensitivity / Receiving Environment to Change / Effect			
		High	**Medium**	**Low**	**Negligible**
Magnitude of Change / Effect	**High**	Major	Major	Moderate	Negligible
	Medium	Major	Moderate	Minor	Negligible
	Low	Moderate	Minor	Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

Major and moderate effects are generally considered to be significant in the context of the EIA Regulations. Minor and negligible effects are not considered significant. Occasionally, where it assists in describing the level of impact, a 'Not Significant' category is also used. These terms are generally used to define the level of impact arising for the environmental factors. Where different terms or levels of effect to the above are used, they are defined within the methodology section for the topic area as appropriate in **Chapters 8-16.**

The characteristics of an effect will vary depending on the duration of the activity causing the effect, the sensitivity of the receptor and the resultant change. It is therefore necessary to assess whether the effect is temporary or permanent; beneficial or adverse; and indirect or direct. Effects that are temporary are usually reversible and generally confined to the construction period.

5.5. Approach to Mitigation

Mitigation measures are identified to prevent, reduce or remedy any potentially significant adverse environmental effects identified in the EIA, beyond that already taken into account as normal good

practice (i.e. embedded mitigation). This includes, for example, the Construction Environment Management Plan (CEMP) or the Construction Noise and Vibration Management Plan (CNVMP). An Outline CEMP can be found in **Volume 4, Appendix 4.2** of this EIA Report.

Such measures would be implemented during detailed design, construction and / or operation of the Proposed Development. Each technical chapter details the measures recommended to mitigate identified likely significant effects, and summary of the recommended mitigation measures is provided in **Volume 4, Appendix 4.3: Schedule of Mitigation** of this EIA Report.

Any remaining predicted effects after taking into account available mitigation measures are known as 'residual effects'. This assessment considers the mitigation as specified in the EIA Report to identify the residual effects, based on the assumption that the identified mitigation is implemented. The residual predicted effects are discussed for each potential effect that has not been scoped out of assessment and a significance level identified.

5.6. Cumulative Effects

In accordance with the EIA Regulations, the assessment has considered 'cumulative effects'. The assessment of cumulative effects is a key part of the EIA process and is concerned with identifying situations in which a number of potential and / or predicted effects from separate existing or future development projects could combine to cause a significant effect on a particular receptor. Cumulative effects have been assessed within each chapter, at a scale appropriate to that subject.

There are two aspects to Cumulative Effects, defined as follows:

- In combination effects: the combined effect of the Proposed Development together with other reasonably foreseeable developments (taking into consideration effects at the site preparation and earthworks, construction and operational phases); and
- Effects interactions: the combined or synergistic effects caused by the combination of a number of effects on a particular receptor (taking into consideration effects at the site preparation and earthworks, construction and operational phases), which may collectively cause a more significant effect than individually. A theoretical example is the cumulation of disturbance from dust, noise, vibration, artificial light, human presence and visual intrusion on sensitive fauna (e.g. certain species) adjacent to a construction site.

Related or large-scale infrastructure developments have broadly been considered with the EIA Report in the wider context of the Proposed Development, including, where relevant, with respect to cumulative effects (see also **Volume 2, Figure 5.1**). These include:

- Sloy Transformer Replacement Project (pre-application phase): Replacement of the four power station transformers currently located at the rear of the existing power station with a new substation approximately 500m to the south-southeast.
- Cruach Tairbeirt Forestry Works: Extensive felling and track construction works over a 5-year period (2022 – 2027) to tackle *Phytothorum ramorum* in larch.

LLTNPA also requested consideration of two further projects within the cumulative assessment. These were considered for inclusion as part of the cumulative baseline, but discounted for the following reasons:

- A82 upgrade works: There is no projected timescale for these works to take place and this is therefore not included due to uncertainty as to what it would involve.
- VISTA project access tracks: These works around Sloy have been completed and temporary tracks have already been reinstated.

Given the very localised nature of potential effects relating to the Proposed Development during operation, the potential for any significant cumulative effects is considered to be highly unlikely. Therefore, the assessment of cumulative effects has focussed on the construction phase only.

5.7. EIA Quality

In accordance with Regulations 5(5) of the EIA Regulations, by appointing ASH design+assessment Ltd. (ASH) to coordinate the EIA Report for the Proposed Development, SSE has ensured that the EIA Report has been prepared by competent experts.

The EIA Report has been compiled and approved by professional EIA practitioners at ASH, which is a registered practice with the Institute of Environmental Management and Assessment (IEMA). The EIA Report meets the requirements of the IEMA EIA Quality Mark scheme. This is a voluntary scheme operated by IEMA that allows organisations to make a commitment to excellence in EIA and to have this commitment independently reviewed on an annual basis. In addition, SSE confirmed that each of the impact assessment chapters has been prepared by competent experts, with the chapter providing details of the relevant professional memberships of the authors and any applicable code of practice followed.

The following provides a summary of specialist consultants appointed by SSE for this EIA Report (for further details refer to **Volume 4, Appendix 5.1: EIA Team**):

- EIA Co-ordination: ASH design+assessment Ltd.
- Planning: Savills plc.
- Scheme Hydrology: SSE Renewables Ltd.
- Aquatic Ecology: EnviroCentre Ltd. and Dr Ross Glover
- Terrestrial Ecology: EnviroCentre Ltd.
- Ornithology: EnviroCentre Ltd.
- Soils, Geology and Water Environment: SLR Consulting Ltd.
- Landscape and Visual: ASH design+assessment Ltd.
- Traffic and Transport: Pell Frischmann Ltd.
- Noise: TNEI Services Ltd.
- Cultural Heritage: CFA Archaeology Ltd.
- Recreation: ASH design+assessment Ltd.

5.8. Structure of EIA Report

This EIA Report contains the environmental information required by the EIA Regulations and comprises a number of volumes as detailed below.

5.8.1. VOLUME 1: MAIN REPORT

The Main Report (this Volume) describes the project and the legal policy framework within which the application will be determined. Details of how the design has evolved are also included. The Main Report includes the individual assessment undertaken under each of the specialist environmental topics identified, a description of the proposed mitigation measures relevant to those assessment, and confirmation of the predicted residual effects.

Volume 1 of the EIA Report includes the following Chapters:

- Chapter 1: Introduction
- Chapter 2: The Existing Hydroelectric Scheme
- Chapter 3: Site Selection and Design Evolution

- Chapter 4: Description of Development
- Chapter 5: EIA Process and Methodology
- Chapter 6: Scoping and Consultation
- Chapter 7: Planning Policy and Context
- Chapter 8: Aquatic Ecology and Fish
- Chapter 9: Terrestrial Ecology
- Chapter 10: Ornithology
- Chapter 11: Soils, Geology and Water Environment
- Chapter 12: Landscape and Visual Impact Assessment
- Chapter 13: Traffic and Transport
- Chapter 14: Noise and Vibration
- Chapter 15: Cultural Heritage
- Chapter 16: Recreation

5.8.2. VOLUME 2: FIGURES

V**olume 2** includes all accompanying figures referred to in **Volume 1**, with figure numbering corresponding to the chapter numbers e.g. **Figure 1.1, 2.1** etc.

5.8.3. VOLUME 3: VISUALISATIONS

Volume 3 comprises photomontage visualisations of the Proposed Development from a number of visualisation locations that have been agreed with LLTNPA. In accordance with the requirement of the Scoping Opinion and subsequent consultation, these have been prepared in accordance with the relevant guidance from NatureScot.[3]

5.8.4. VOLUME 4: TECHNICAL APPENDICES

Volume 4 comprises supporting appendices for **Volume 1** of the EIA Report. Appendices include a Schedule of Mitigation (**Appendix 4.3**), an Outline CEMP (**Appendix 4.2**) and further detailed reporting or information to support the EIA Report and technical assessments contained therein.

5.9. Supporting Documents

5.9.1. NON-TECHNICAL SUMMARY

A standalone Non-Technical Summary is also provided which describes the project and the likely significant effects predicted in a concise, non-technical manner.

5.9.2. PLANNING STATEMENT

A Planning Statement is included with the application as supporting information. The Planning Statement considers the acceptability of the Proposed Development in the context of existing and emerging planning policies.

[3] Scottish Natural Heritage. (2017). *Visual Representations of Wind Farms. Version 2.2. Available at: https://www.nature.scot/doc/visual-representation-wind-farm-guidance*