

Kilmarnock 500 MW Battery Energy Storage System

Volume 1

Chapter 1 Introduction

Kilmarnock Energy Centre Limited

September 2023

Quality information

Prepared by	Checked by	Approved by	Verified by
LB Environmental Consultant	NW Senior Environmental Consultant	MS Associate Director - EIA	DR Technical Director

Revision History

Revision	Revision date	Details	Authorized	Name	Position
P01	29.09.2023	Submission	Yes	NW	Project Manager

Distribution List

# Hard Copies	PDF Required	Association / Company Name
1	Yes	Kilmarnock Energy Centre Limited

Prepared for:

Kilmarnock Energy Centre Limited

Prepared by:

NW
Senior EIA Consultant

AECOM Limited
100 Embankment
Cathedral Approach
Manchester M3 7FB
United Kingdom

T: +44 161 601 1700
aecom.com

© 2023 AECOM Limited. All Rights Reserved.

This document has been prepared by AECOM Limited ("AECOM") for sole use of our client (the "Client") in accordance with generally accepted consultancy principles, the budget for fees and the terms of reference agreed between AECOM and the Client. Any information provided by third parties and referred to herein has not been checked or verified by AECOM, unless otherwise expressly stated in the document. No third party may rely upon this document without the prior and express written agreement of AECOM.

Table of Contents

1.	Introduction.....	1-1
1.1	Purpose of this EIA report.....	1-1
1.2	The Applicant.....	1-1
1.3	Demand for the Project.....	1-1
1.4	Requirement for an Environmental Impact Assessment	1-2
1.5	Purpose of Environmental Statement.....	1-3
1.6	Gate-checking.....	1-3
1.7	Scope and Content of Environmental Statement	1-4
1.8	Availability of the Environmental Statement.....	1-6
1.9	How to Make Comment / the Next Step in the Process.....	1-6
1.10	References	1-8

Tables

Table 1-1: Annex B of the EIA Regulations: Information to be included in an EIAR.....	1-5
---	-----

1. Introduction

1.1 Purpose of this Environmental Impact Assessment report

- 1.1.1 This Environmental Impact Assessment (EIA) Report (EIAR) has been prepared to accompany the application by Kilmarnock Energy Centre Limited ('the Applicant') to construct, operate and decommission a battery energy storage system (BESS), equating to a maximum output of 500 megawatts (MW), located approximately 250 metres (m) north of Kilmarnock Substation (hereafter referred to as the 'Site'). The project is known as Kilmarnock BESS (hereafter referred to as the 'Proposed Scheme'). The location and boundary of the Proposed Scheme is illustrated in Volume 3, Figure 1-1.
- 1.1.2 The Scottish Government considers that a battery installation generates electricity and is to be treated as an energy generation project; therefore the Proposed Scheme will require consent from the Scottish Ministers under Section 36 of the Electricity Act 1989 (Ref 1-7). The Applicant is also seeking consent under the Town and Country Planning (Scotland) Act 1997 (as amended).
- 1.1.3 This report is a statutory EIAR and reports the findings of an EIA undertaken to identify and assess the likely significant effects of the Proposed Scheme on the environment.
- 1.1.4 For a description of the Proposed Scheme and Site Location information please see Chapter 2, The Proposed Scheme.

1.2 The Applicant

- 1.2.1 The Applicant is an independent, United Kingdom (UK) based company providing expertise and management services to innovative energy development projects in the rapidly evolving electricity sector. The Applicant's focus is electricity generation, electricity grid stability and energy storage. The Applicant assesses and uses new technologies to facilitate grid balancing and is experienced in the development, construction, and operation of such developments.

1.3 Need for the Project

- 1.3.1 The Scottish Government aims to achieve net zero emissions by 2045 (Ref 1-1). This Government aim, together with parallel UK Government aims, has led to a shift towards the generation of renewable power, and away from coal powered generation. The transition to renewable technology, particularly onshore and offshore wind farms, has led to renewable technology producing a higher percentage of electricity generation in Scotland in comparison to fossil fuel power generation (Ref 1-2). The use of renewable power is predicted to increase further when taking into consideration renewable projects under construction, awaiting construction and renewable project planning applications under consideration (Ref 1-2). These factors have driven a change in the energy landscape across Scotland and the UK more widely.
- 1.3.2 BESS technology has a key part to play in supporting the roll out of a greater amount of renewable energy generation and meeting net zero targets. BESSs are devices that enable energy from renewables, like solar and wind, to be stored and then released when customers need power most. The UK has the largest installed generating capacity of offshore wind in the world, but the ability to capture this energy and purposefully deploy it can increase the value of this clean energy; by increasing production and potentially reducing costs (Ref 1-3).
- 1.3.3 BESS provides a way to control and maintain a reliable, secure and sustainable supply of energy. The UK government estimates technologies like BESSs, supporting the integration of more low-carbon power, heat and transport technologies could save the UK energy system up to £40 billion by 2050, ultimately reducing people's energy bills (Ref 1-6)

1.4 Requirement for an Environmental Impact Assessment

- 1.4.1 EIA is a process required by Scottish law which brings together information about the likely significant effects of a development. The legal basis for EIA lies in the European Union (EU) EIA Directive (2011/92/EU as amended by 2014/52/EU) (the “EIA Directive”) (Ref 1-4). The EIA Directive is transposed into UK law through secondary legislation (‘Regulations’) that is peculiar to the Devolved Administration, consenting regime and sector of development
- 1.4.2 The applicable EIA regulations for the Electricity Act 1989 s36 applications in Scotland are the Electricity Works (EIA) (Scotland) Regulations 2017(as amended) (hereafter referred to as the “EIA Regulations”) (Ref 1-5).
- 1.4.3 The EIA Regulations comprise two schedules of development; Schedule 1 lists development for which EIA is mandatory and Schedule 2 lists development for which EIA may be required if it is likely to have significant effects on the environment by virtue of factors such as its nature, size or location.
- 1.4.4 BESSs, such as the Proposed Scheme, are not listed within Schedule 1 of the EIA Regulations and EIA is therefore not mandatory. Schedule 2 Development within the EIA Regulations are defined as:
- “The carrying out of development (other than development which is Schedule 1 development) to provide any of the following –*
- (1) A generating station;*
- (2) An electric line installed above ground –*
- a. With a voltage of 132 kilovolts or more;*
- b. In a sensitive area; or*
- c. The purpose of which installation is to connect the electric line to a generating station the construction or operation of which requires consent under section 36 of the Electricity Act 1989; or*
- (3) Any change to or extension (including a change in the manner or period of operation) of development of a description listed in schedule 1 or in paragraphs (1) or (2) of this schedule where that development is already authorised, executed, or in the process of being executed, and the change or extension may have significant adverse effects on the environment.”*
- 1.4.5 While BESS is not explicitly identified in Schedule 2, the Schedule does refer to generating stations (of a type that is not classed as Schedule 1 Development). As the Scottish Government’s position is that BESS should be classed as generation, it is considered that the Proposed Scheme falls under Category (1) of Schedule 2 (Ref 1-7).
- 1.4.6 Schedule 2 development does not always require an EIA to be undertaken; rather, it must be ‘screened’ i.e. considered against screening criteria listed within Schedule 3 of the EIA Regulations to determine whether significant effects on the environment are likely. Schedule 3 requires consideration of the characteristics of the Proposed Scheme, the location of the Proposed Scheme, and the characteristics of the potential impact.
- 1.4.7 A statutory EIA Screening Opinion Request, (see Volume 2, Appendix 1-A) under Regulation 8 (2) of the EIA Regulations was submitted to the Scottish Government’s Energy Consents Unit (ECU) on 29th March 2022. The ECU consulted with East Ayrshire Council (EAC) on the Screening Opinion Request.
- 1.4.8 Following receipt of correspondence received from EAC, on 12th July 2022, the ECU issued their Screening Opinion (see Volume 2, Appendix 1-B). The Screening Opinion stated that the description of the development does constitute as EIA development once taking into consideration the selection criteria in Schedule 3 of the EIA Regulation.
- 1.4.9 Therefore, the Proposed Scheme is deemed an ‘EIA Development’ under the EIA Regulations. An EIA has been undertaken as is described herein and this EIAR has been prepared to accompany the s36 consent application.

- 1.4.10 As a result of the Screening Opinion and advice given in Scottish Government chief planning letter 2020, battery energy storage systems above 50 MW require s36 consent. After 2020, battery installations generating electricity and are therefore to be treated as “generator stations”. Consequently, this BESS requires consent under S36 of the Electricity Act 1989, as amended.
- 1.4.11 The Applicant’s response to the comments received in the Screening Opinion and how concerns raised by Scottish Ministers and EAC have been addressed within this EIA is provided in the Gatecheck Report (see Volume 2, Appendix 1-C).
- 1.4.12 Under the EIA Directive and 2017 EIA Regulations, the production of an EIA Scoping Report is not mandatory and is therefore a voluntary report in the EIA process to identify the key environmental impacts and issues of concern in the EIA procedure, as well as the nature and extent of information required to make an informed decision on the project. The EIA Screening Opinion received, as provided in Volume 2 Appendix 1-B was very detailed and clearly outlined and identified the areas of concern where EAC and Scottish Ministers believed the Proposed Scheme has the potential for a significant effect. As such an EIA Scoping Report has not been submitted to support a request for a statutory EIA Scoping Opinion. The Applicant has utilised the feedback from the Screening Opinion as well as the results of targeted consultation to inform site design and the production of this EIAR, as detailed in Volume 2, Appendix 1-C. The technical, geographical and temporal scope of this EIAR is described in detail in Chapter 3.

1.5 Purpose of Environmental Impact Assessment Report

- 1.5.1 The EIA process ensures that all the potential impacts associated with the site selection, design, construction, operation and decommissioning are identified and assessed. Appropriate mitigation measures are identified to minimise any potential impacts including indirect and cumulative impacts..
- 1.5.2 The purpose of this EIAR is to convey the findings and conclusions of the EIA, which has been undertaken for the Proposed Scheme. It describes the natural and human environment of the area where the BESS is to be situated. It provides details of the Proposed Scheme during its construction, operational and decommissioning phases and assesses the potential impacts and their significance on the local environment. It also provides mitigation measures to address potential adverse environmental effects
- 1.5.3 The preparation of this EIA has been an iterative process to ensure that the need for the BESS is balanced with local environmental and policy constraints. The design of the BESS has been achieved following workshops with technical leads to identify areas to avoid during the determination of the positioning of BESS components on Site and in consultation with the landowners.
- 1.5.4 The location and design of the Proposed Scheme including site layout plan, site elevations and landscape general arrangement plan is illustrated in Volume 2, Appendix 1-D, of this EIAR.

1.6 Gate-checking

- 1.6.1 The responses of the statutory EIA Screening Opinion formed the basis of the gate-checking procedure. The Gatecheck report is provided in Appendix 1-C.
- 1.6.2 The Applicant submitted information to the Scottish Government’s ECU and EAC on the following:
- Project description;
 - Layout and design improvements;
 - Pre-application consultation; and
 - Addressing screening consultation responses.

1.7 Scope and Content of EIA Report

- 1.7.1 The EIA informs the final decision taken by Scottish Ministers via the s36 application process on whether a project should be allowed to proceed. The function of an EIA is to give stakeholders, including public and statutory environmental bodies, an opportunity to express an opinion before a s36 application is determined.
- 1.7.2 The EIA comprises the following:
- Volume 1: Main Text – which presents the environmental assessment for each of the specialist topics in detail;
 - Volume 2: Appendices – which comprises topic specific technical reports and other relevant supporting documentation; and
 - Volume 3: Figures – includes relevant plans and drawings.
 - Non-Technical Summary (NTS): includes a summary of the EIA using non-technical terms and therefore does not require specialised knowledge to understand the main findings and conclusions.
- 1.7.3 The contents of EIA Volume 1 comprise:
- Non-Technical Summary;
 - Chapter 1 Introduction;
 - Chapter 2 The Proposed Scheme;
 - Chapter 3 EIA Methodology;
 - Chapter 4 Landscape and Visual;
 - Chapter 5 Ecology;
 - Chapter 6 Cultural Heritage;
 - Chapter 7 Noise and Vibration;
 - Chapter 8 Water Environment;
 - Chapter 9 Traffic and Transport;
 - Chapter 10 Combined and Cumulative Effects Assessment;
 - Chapter 11 Other Matters Considered; and
 - Chapter 12 Summary.
- 1.7.4 The NTS, which is available as a standalone report, summarises the Proposed Scheme proposals, the likely environmental effects of the Proposed Scheme and the measures proposed to mitigate any potentially adverse environmental effects of the Proposed Scheme. The NTS is intended to inform people who have a general interest in the development, but who are not concerned with, or are not familiar with, the detail forming the basis of the technical assessments.
- 1.7.5 In addition to the EIA documents (Volumes 1, 2 and 3, and the NTS), the following documents have been prepared on behalf of the Applicant to support the s36 application and are cross-referred to in the EIA as appropriate. These documents form separate standalone documents within the s36 application:
- Pre-Application Consultation Report; and
 - Planning Statement
- 1.7.6 A Planning Statement has also been submitted with the planning application which has fully assessed the Proposed Scheme against the Scottish National Policy Framework 4, the development plan and other material considerations. The topic chapters of the EIA contain reference to the planning policies relevant to determining the scope and methodology of the assessments only.

1.7.7 Annex B of the EIA Regulations 2017 sets out the information to be included in an EIAR (Ref 1-8). These are summarised in Table 1-1 below, which identifies where the information is presented in this ES. It should be noted that not all items are relevant to every application e.g., radiation or telecommunication interference.

Table 1-1: Annex B of the EIA Regulations: Information to be included in an EIAR

Specified Information	Location within this EIAR
1 Description of the development, including in particular:	
(a) A description of the location of the development	Chapter 2 The Proposed Scheme
(b) a description of the physical characteristics of the whole development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases	Chapters 2 The Proposed Scheme, and Chapter 10 Material Assets and Waste
(c) a description of the main characteristics of the operational phase of the development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used;	Chapters 2 The Proposed Scheme, and Chapters 5 to 13 (technical topic chapters)
(d) an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste) produced during the construction and operation phases	Chapters 4 to 9 and Chapter 11 (technical topic chapters)
2 A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.	Chapter 2 The Proposed Scheme
3 A description of the relevant aspects of the current state of the environment (the "baseline scenario") and an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of relevant information and scientific knowledge.	Chapters 4 to 9 Part 4 and Chapter 11 (technical topic chapters)
4 A description of the factors specified in regulation 4(3) likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape	Chapters 4 to 11 (technical topic chapters)
5 A description of the likely significant effects of the development on the environment resulting from, inter alia:	
(a) the construction and existence of the development, including, where relevant, demolition works;	Chapter 2 The Proposed Scheme
(b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;	Chapter 2 The Proposed Scheme and Chapter 11 Other Matters
(c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;	Chapters 4 to 9 and Chapter 11 (technical topic chapters)
(d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);	Chapters 4 to 9 and Chapter 11 (technical topic chapters)
(e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;	Chapter 10 Combined and Cumulative Effects Assessment
(f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;	Chapter 11 Other Matters
(g) the technologies and the substances used.	Chapter 2 The Proposed Scheme
6 A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.	Chapters 4 to 11 (technical topic chapters)

Specified Information	Location within this EIA
7 A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.	Chapters 4 to 11 (technical topic chapters)
8 A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to legislation of the European Union such as Directive 2012/18/EU of the European Parliament and of the Council or Council Directive 2009/71/Euratom or relevant assessments may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.	Chapters 4 to 11 (technical topic chapters)
9 A NTS of the information provided is under paragraphs 1 to 5 of this part.	NTS (which is a standalone document)
10 A reference list detailing the sources used for the descriptions and assessments included in the EIA report.	A reference list is provided at the end of each chapter and appendix

1.8 Availability of the Environmental Impact Assessment Report

1.8.1 All the s36 application documents, including this EIA, are published on the ECU and EAC planning portals, available at following locations:

ECU: <https://www.energyconsents.scot/ApplicationSearch.aspx>

EAC: <https://eplanning.east-ayrshire.gov.uk/online/> <https://www.buckinghamshire.gov.uk/planning-and-building-control/view-and-comment-on-a-planning-application/>

1.8.2 Hard copies of the application will be made available for public viewings at:

East Ayrshire Council Care at Home
 The Johnnie Walker Bond
 15 Strand Street
 Kilmarnock
 KA1 1HU

1.9 How to Make Comment / the Next Step in the Process

1.9.1 If you wish to comment on the EIA you may do so by the following methods:

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

Email

Representation@gov.scot

ECU website

www.energyconsents.scot/Resiter.aspx

- 1.9.2 Written or emailed representations should be dated, clearly stating the name (in block capitals), full return email and postal address of those making representations. Only representations sent by email to representation@gov.scot will receive acknowledgment.
- 1.9.3 Any subsequent additional information which is submitted by the developer will be subject to further public notice in this manner, and representations to such information will be accepted.
- 1.9.4 Scottish Ministers will determine if a Public Local Inquiry is required.
- 1.9.5 Following examination of the environmental information, Scottish Ministers will determine the application for consent in one of two ways:
 - a) Consent the proposal, with or without conditions attached; or
 - b) Reject the proposal.

1.10 References

- Ref 1-1 Scottish Government (2021). *Reaching net zero*. Available at: <https://www.gov.scot/news/reaching-net-zero-1/> [Accessed: 30.11.2022].
- Ref 1-2 Scottish Renewables (2023). *Statistics Energy Consumption by Sector*. Available at: [Renewable Energy Facts & Statistics | Scottish Renewables](#) [Accessed: 24.05.2023].
- Ref 1-3 National Grid (n.d.). *Energy Explained*. Available at: <https://www.nationalgrid.com/stories/energy-explained/what-is-battery-storage> [Accessed: 30.11.2022].
- Ref 1-4 *Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment*. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0052&from=EN> [Accessed: 21.09.2023].
- Ref 1-5 *The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017*, Scottish SI 2017/101. Available at: <https://www.legislation.gov.uk/ssi/2017/101/contents/made> [Accessed: 30.11.2022].
- Ref 1-6 National Grid (2023). *What is battery storage?*. Available at: <https://www.nationalgrid.com/stories/energy-explained/what-is-battery-storage#:~:text=The%20UK%20government%20estimates%20technologies,ultimately%20reducing%20people's%20energy%20bills>. [Accessed: 22.05.2023].
- Ref 1-7 Scottish Government (2022). *Electricity Act 1989 – sections 36 and 37: applications guidance*. Available at: <https://www.gov.scot/publications/good-practice-guidance-applications-under-sections-36-37-electricity-act-1989/pages/1/> [Accessed: 22.05.2023].
- Ref 1-8 Scottish Government (2017). *Planning Circular 1/2017: Environmental Impact Assessment regulations Annex B: Information to Be Included in an EIA Report*. Available here: <https://www.gov.scot/publications/planning-circular-1-2017-environmental-impact-assessment-regulations-2017/pages/20/> [Accessed: 22/02/2023].

aecom.com