Armadale Battery Energy Storage System Project

PROPOSED APPLICATION UNDER SECTION 36 OF THE ELECTRICITY ACT 1989

Welcome

Welcome to Alcemi's pre-application consultation event for the Armadale Battery Energy Storage System (BESS), a proposed 280 MW energy storage facility on land close to Armadale, West Lothian.

At this event you will find information about:

- Who we are and what we do;
- The proposals for the Armadale BESS, including the proposed Application Site location;
- The environmental aspects being considered; and,
- The approach to assessment, how to get involved and project timeline.

Our Project Team, including our specialist advisors, will be on hand today to respond to questions you may have. We also have feedback forms available and encourage you to complete one to share your feedback and thoughts on our proposals.

The feedback received during this consultation will inform our proposals, and will be considered ahead of the formal submission of our application.

About Alcemi

Alcemi is an experienced large-scale energy project developer specialising in strategically located projects that alleviate constraints on the National Grid and support the transition to renewable energy.

It currently has a 4.3 gigawatt (GW) pipeline of battery energy storage projects across the UK, which would be capable of storing an amount of energy equivalent to the annual supply requirements of 1.87 million homes. Of this pipeline, 2.3 GW already have the relevant planning consents with 1.5 GW currently in construction, connecting to the grid from 2025 onwards.

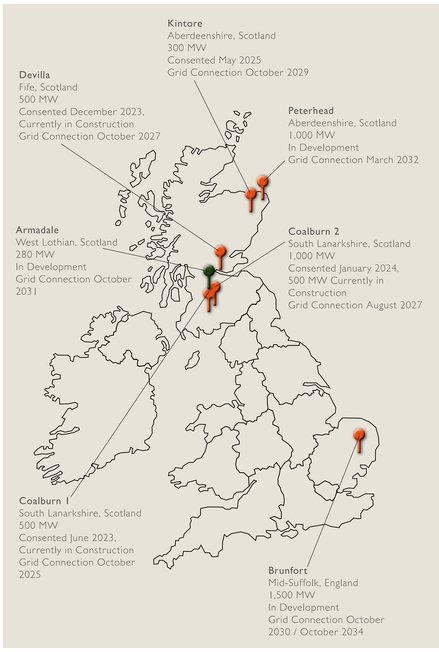
Alcemi's majority shareholder and partner, Susgen Limited, finances its project development and provides strategic commercial support. Together, they have built one of the UK's leading privately owned energy storage developers, with ambitions to grow their pipeline.

For project delivery, Alcemi has partnered with Copenhagen Infrastructure Partners (CIP). CIP is the world's largest dedicated fund manager within greenfield renewable energy investments. Under the partnership, Alcemi originate and develops the project with the support of Susgen and CIP. Subsequently, CIP lead procurement and construction activities.

To find out more, visit our website link: *www.alcemi.com/about*

Please scan the QR code above with your mobile device to view our website.

Our Projects



Our projects diagram

Why do we need Energy Storage Systems?

The UK generates electricity in several ways including from coal, gas, nuclear and renewable resources, and the electricity system is balanced in real-time. As demand is led by consumer behaviour, this can have a significant impact on the system balance.

The UK Government also has ambitious plans to generate at least 95% of our country's electricity from clean sources by 2030[1], and to reduce net carbon emissions to zero by 2050. The Scottish Government is also similarly committed to this transition, with a net-zero target of 2045.

However, energy generation through renewable resources is often intermittent, and excess capacity generated during off peak periods can be lost. To support the transition to net zero and low carbon generation, our systems need to be more adaptable and flexible.

Energy storage facilities, such as the Armadale BESS, directly support the UK's transition to clean renewable energy sources by allowing for the further integration of renewable intermittent technologies, in particular solar and wind, and enabling the electricity produced by these technologies during off peak periods and / or favourable generation conditions to be stored for use in peak periods and / or unfavourable generation conditions. They are some of the most adaptable and flexible infrastructure assets connected to the grid.

As such, National Grid is becoming increasingly reliant on energy storage facilities for short-term power and ancillary services – the necessary support systems that keep our grid balanced and stable – to minimise the likelihood of power outages.

Ultimately, the Armadale BESS aims to:

- Assist the energy market by storing excess generation until it is needed, making the best use of the UK's electricity generation capacity and improving the UK's energy security;
- Assist National Grid with the balancing market (by balancing transmission requirements as large generation and consumption sources come on-or off-line); and,
- Maintain the narrow frequency range required for safe transmission network operations.

[1] Further information on the UK Government plans available at this website link: https://www.gov.uk/government/publications/clean-power-2030-action-plan



Coalburn 1 site in construction

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Site Location

The Armadale BESS is proposed to be located approximately 2 kilometres (km) to the southeast of Armadale and approximately 3 km to the southwest of Bathgate, within the administrative boundary of West Lothian Council.

The Application Site covers a total area of approximately 11.7 hectares (ha).



Location Plan

Before selecting the Application Site location, Alcemi carried out a comprehensive review of alternative options. This process considered a range of factors to assess suitability, including:

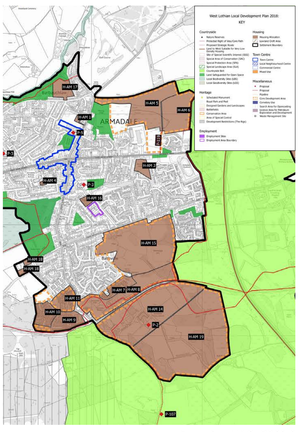
- Grid connection feasibility (e.g. available capacity at this location);
- Land availability;
- Constructability;
- Environmental and planning constraints; and,
- Commercial viability.

Following this review, the Application Site was identified as the most suitable option.

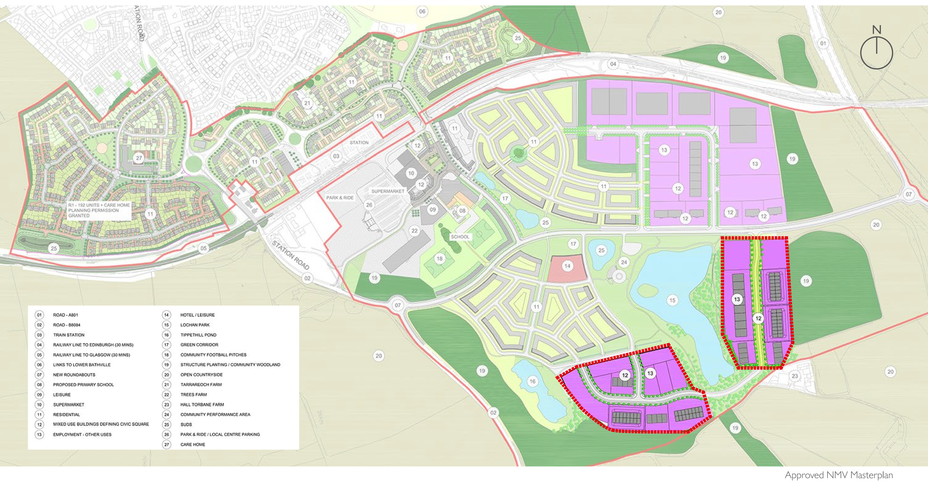
Within the West Lothian Development Plan 2018[1], the Application Site is located on land currently designated as part of the 'Armadale Core Development Area'. More specifically, the Application Site is located within the approved Southdale Masterplan (comprising a Planning Permission in Principle (PPiP), Ref 1044/P/08 granted on 22 November 2010, with an alteration (as shown on EMA Drawing Number 05047(11)NMV-001A)) granted on 26 August 2011) for a *"mixed use development, including residential, commercial, retail, school and leisure facilities together with associated infrastructure and open space provision"*.

Under the approved Southdale Masterplan, the Proposed Development will sit within the plots to the east and west of the central Lochan.

[1] Further information on the West Lothian Local Development Plan 2018 available at this website link: https://www.westlothian.gov.uk/LDP



Extract from WLC LDP 2018



Approved NMV Masterplan

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About the Armadale BESS

The Armadale BESS will comprise:

- Civil engineering works, including cut and fill earthworks and other site preparation works, to provide suitable topography for development purposes;
- Energy storage and associated infrastructure including:
  - The main energy storage modules, and associated platform(s);
  - Power conversion / inverter systems (including medium- / low-voltage switchgear and transformers);
  - Control and protection equipment (including cooling equipment; Heating, Ventilation and Air Conditioning (HVAC) equipment; and fire detection, protection and suppression equipment); and,
  - Metering equipment;
- Electrical cabling connections between the main energy storage modules and the electrical substation;
- An electrical substation (including: the main high-voltage switchgear and transformer(s); and, associated building, equipment and plant infrastructure);
- Welfare facilities (including: office areas; kitchen facilities; and, changing / toilet facilities);
- Site security (including: fencing and gating; operational (intermittent) lighting columns; and, Closed-Circuit Television (CCTV) / security cameras);
- Site access from the adopted road, internal access / circulation roads and car parking;
- Drainage infrastructure; and,
- Ecological enhancement and landscape planting measures.

The above elements will be required in some form regardless of the final design solution implemented. These elements will allow for operation in either 'energy charge', 'energy storage' or 'energy discharge' modes (or else providing ancillary (support) services to the National Grid). Between each mode, there will be no noticeable differences in operational characteristics.



Benefits

The Armadale BESS will have a capacity up to 280 MW. This anticipated storage capacity is the equivalent to:

- The annual supply requirements of 103,000 homes; or,
- The charging of 7,700 electric vehicles.

Further, the Armadale BESS could annually offset 57,600 equivalent tonnes of carbon dioxide (CO_2) emissions.

Alcemi commits to being a good neighbour, and is keen to listen to the views of communities and stakeholders to ensure the project delivers for all.

Whilst not a consideration for the consenting process, details on a proposed community benefits scheme will be developed following engagement with local residents, community groups and authorities, and Alcemi encourages feedback and input.



Coalburn I site in construction



Coalburn I site in construction

Constraints Plan



Constraints diagram



Track from Southdale Primary School



View towards the Lochan from the track at Southdale Primary School

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Aspects Being Considered

In Scotland, a BESS is considered to be a generating station.

As the Armadale BESS capacity is greater than 50 MW, a section 36 consent under the Electricity Act 1989 is required. Applications for section 36 consent (made together with associated applications for directions to be issued for deemed planning permission under section 57 of the Town and Country Planning (Scotland) Act 1997) are made to the Scottish Ministers via the Scottish Government's Energy Consents Unit (ECU).

In support of the application, Alcemi recently sought an Environmental Impact Assessment (EIA) screening opinion from the Scottish Government's ECU who confirmed that the Armadale BESS is not EIA Development. This means that an EIA Report will not have to accompany the application.

Notwithstanding, the application will be supported by a number of assessments, reports and studies to identify, assess and address potential significant environmental effects / impacts.

Noise

During construction, the Armadale BESS may emit noise due to construction activities, construction equipment / plant, and construction vehicle movements. These will be managed and reduced through a Construction Noise Management Plan.

During operation, the Armadale BESS may emit noise due to the energy storage modules and associated equipment / plant. These will be managed through noise attenuation features / measures (e.g. acoustic enclosures; and / or acoustic fencing).

Overall, noise levels are expected to be low and within acceptable limits. A Noise Assessment will be submitted with the application to confirm that the Armadale BESS is not likely to result in significant adverse effects.



Image of Coalburn 1 showing the on site equipment

Traffic and Transport

During construction, the Armadale BESS will require traffic movements for construction equipment / plant / materials deliveries and construction personnel. These will be managed through a Construction Traffic Management Plan, in particular to avoid busy times, especially near the local school.

During operation, the Armadale BESS will be unmanned, with only occasional maintenance visits, requiring very limited traffic movements.

Overall, access routes are considered to be suitable and visibility at junctions is good. A Transport Assessment will be submitted with the application to confirm that the Armadale BESS is not likely to result in significant adverse effects.

Ecology / Biodiversity

The Application Site is not located in or near any protected ecological areas, and surveys are being carried out to understand the potential habitat and species receptors, including bats and birds.

An Ecological Impact Assessment will be submitted with the application to describe potential effects on identified habitats and species, and confirm the required features and measures to ensure that the Armadale BESS is not likely to result in significant adverse effects. A Biodiversity Enhancement Plan will also be submitted with the application show the proposed ecological enhancement and landscape planting measures.

Ground Conditions

As some areas of the Application Site were previously used for mining, a programme of ground investigation work and subsequent assessment is currently ongoing to understand potential risks and the requirement for mitigation features and measures. Where the findings of the assessment identify a requirement for such mitigation, a detailed Strategy will be prepared setting out the specific features and measures to ensure the Application Site is suitable for development.

The ground investigation work reports and associated assessments will be submitted with the application to confirm that the Armadale BESS is not likely to result in significant adverse effects.



Image of Coalburn 1 showing the earthworks

Flood Risk

Some small areas of the Application Site are at risk of from flooding due to the nearby small watercourses and ponds. However, the detailed design will ensure that any equipment / plant is located outside these areas, with systems installed to recognise existing flow pathways and manage surface water runoff.

A Flood Risk Assessment – including an Outline Surface Water Drainage Strategy – will be submitted with the application to confirm that the Armadale BESS is not likely to result in significant adverse effects.

Landscape and Visual

Visibility of the Application Site is limited from existing areas that are densely populated (i.e. from Armadale and Bathgate).

Further, the Application Site is located on land currently within the approved Southdale Masterplan, and would not be out of scale with the approved Masterplan elements.

A Landscape Strategy will be submitted with the application to confirm that the Armadale BESS is not likely to result in significant adverse effects.



View towards the site from Southdale Way

Heritage

The Application Site is not located in or near any World Heritage Sites or Scheduled Monuments. Whilst there are some Scheduled Monuments and Listed Buildings within the surrounding area, due to separation distances, potential connectivity is limited.

A Heritage Assessment will be submitted with the application to confirm that the Armadale BESS is not likely to result in significant adverse effects.

Health and Safety

The Armadale BESS will be designed, constructed, operated and maintained in compliance with relevant legislation and regulations, and associated codes and standards. In addition, the Armadale BESS will be operated and maintained so as to keep it safe and in good conditions, where relevant taking account on the requirements of any authorities. Therefore, potential health and safety risks are extremely limited and the Armadale BESS is not likely to result in significant adverse effects.

Further, BESS are designed with safety as a top priority and, whilst BESS systems are increasingly a focus of attention over fire safety concerns, there have only been a limited number of documented incidents in the UK.

This is coupled with the continued development of battery chemistries / technologies, more resilient systems and safer designs, where:

- Battery chemistries are becoming less prone to thermal runaway, with some battery chemistries completely removing any risks of thermal runaway;
- Modern BESS incorporate multiple safety and monitoring systems, including:
  - Battery management systems;
  - Temperature management systems;
  - Embedded detection / protection systems;
  - Suppression systems (including automated cut-offs / shutdowns); and,
  - Deflagration venting / explosion protection systems.
- BESS site designs are developed in accordance with the latest international / national standards and industry best practice, including considerations on separation between BESS containers and water storage.

Taken together, this ensures the highest level of protection for people and the surrounding environment.

Fire and Rescue Service Engagement

We will work closely with the Scottish Fire and Rescue Service (SFRS) on our proposals, so that they know what to do in the unlikely event of a fire, and we will collaboratively develop a Tactical Response Plan and a Risk Management Plan.

This collaboration, which will also include site visits and awareness training, ensures that if a response is ever needed, it will be safe, efficient and effective.

Cumulative Impacts

Whilst there are a number of other developments planned in the surrounding area, Alcemi will endeavour to work with others to align development and construction programmes as far as practicable to minimise the potential for adverse effects and develop any required control features and measures.

In doing so, potential effects are anticipated to be limited, and the Armadale BESS is not likely to result in significant adverse effects.

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Approach to Assessment

A number of energy storage technologies are currently available (i.e. are technically proven and reliably maintainable) and have been deployed across industry. However, these technologies are rapidly evolving, and the exact energy storage technology has yet to be confirmed.

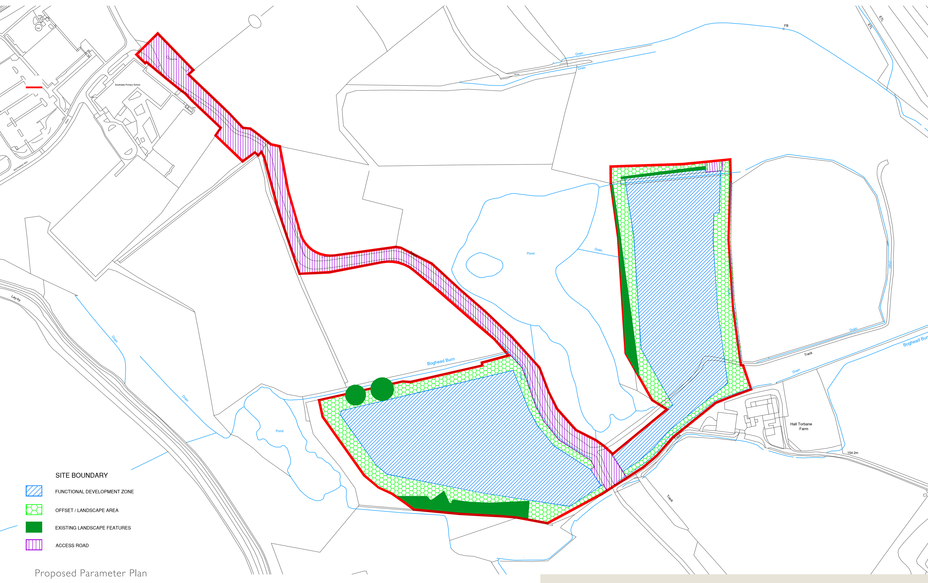
As such, the exact Armadale BESS characteristics are yet to be confirmed, pending (for example): the selection and appointment of an energy storage integrator; detailed design; the selection and appointment of a Construction Contractor (or Construction Contractors); further ground investigations; the accuracy of existing services / utilities information; and, agreements with existing services / utilities operators.

Therefore, a degree of flexibility will be incorporated into the structure of the application and supporting reports / studies through the adoption of the 'Rochdale Envelope' approach. This approach enables meaningful assessment to be undertaken, using anticipated maximum and minimum design parameters, through the adoption of a 'likely worst case' assessment scenario.

To support this approach, a Parameter Plan has been prepared with cognisance to potential layout options.

Subsequently, it is anticipated that a requirement for the submission of further design details relating to the final Armadale BESS characteristics, including the selected BESS technology and final site layout, would be secured through conditions attached to the section 36 consent and deemed planning permission.

Parameter plan



Proposed Parameter Plan

How to Get Involved

Thank you for taking part in our pre-application consultation for the Armadale BESS. The plans and the boards from the consultation events will be visible on our website at *www.alcemi.com/projects/armadale*.

You can provide feedback on our proposals for the Armadale BESS by:

- Completing a feedback form and posting it in our secure box; or,
- Alternatively, if you wish to further consider the information you have seen today, then you can provide comments and feedback to:

Email: *armadale@alcemi.com*
Address: Armadale BESS consultation
c/o Orbit Communications,
42 Charlotte Square,
Edinburgh,
EH2 4HQ
Phone: 0131 202 3259

All the feedback we receive will be shared with the project team to help finalise our application. We will also prepare a Pre-Application Consultation Report to summarise the feedback received and explain how this has influenced the proposals.

It should be noted that comments submitted at this stage do not constitute representations to the Scottish Ministers. There will be an opportunity to make representations to the Scottish Ministers following the formal submission of the application. When the formal Section 36 application is submitted there will be a public notice in both national and local newspapers. Thereafter you can provide comments / representations to:

Email: *representations@gov.scot*
Address: Energy Consents Unit,
Scottish Government, 5 Atlantic Quay,
150 Broomielaw,
Glasgow,
G2 8LU

Indicative Timeline

June 2025
EIA Screening Opinion Request submitted

July 2025
EIA Screening Opinion received (Non-EIA Development)

Currently
Pre-Application Consultation / Final Assessments and Surveys being completed

November 2025
Second public consultation event

Winter 2025
Submission of application for Section 36 consent

Autumn 2026
Anticipated determination of Section 36 consent

Spring 2029
Construction work commences

Autumn 2031
Commissioning works and Grid Connection

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Feedback from Previous Event

The first public consultation event was held on Tuesday 9th September 2025 at the Armadale Community Education Centre.

The event was widely publicised, including a Public Notice within the West Lothian Courier newspaper, details outlined on the Alcemi website, leaflets delivered to local households and direct invitations sent to the local community council, local councillors, Members of the Scottish Parliament (MSPs), Members of Parliament (MPs) and other key stakeholders.

The first event was attended by a mixture of local residents and local councillors.

The feedback received both at the event and in the subsequent consultation period are summarised as follows.

Comments Raised	Applicant's Response
Noise The feedback included concerns about potential noise once the site becomes operational. In particular, these noted that the cooling systems may require fans running continuously, which could disrupt the nearby schools and residential properties. This was seen as potentially disruptive to the local environment.	During operation, the Armadale BESS may emit noise due to the energy storage modules and associated equipment / plant. However, these will be managed through features designed to reduce noise from the site to ensure that noise levels remain low and within acceptable limits. Such features may include: • Locating noisier components away from sensitive receptors; • Using quieter equipment (e.g. variable speed fans or silencers); and, • Installing acoustic barriers / fences, enclosures, and / or earth mounds. The application will be accompanied by a Noise Impact Assessment to confirm that the Armadale BESS is not likely to result in significant adverse effects. Noise levels and mitigation will be secured through an appropriately worded condition(s).
Construction Traffic The feedback included concerns on construction traffic, in particular around the nearby school, and information was sought on potential management and safety measures.	During construction, the Armadale BESS will require traffic movements for construction equipment / plant / materials deliveries and construction personnel. These will be managed through a Construction Traffic Management Plan, which will consider (amongst other aspect) the following management and safety measures: • Clear signage; • Temporary traffic calming measures (for example, speed bumps); • Temporary additional safety measures; • Additional lighting; • Controlled construction site entrance, providing for security and turning facilities; and, • Further liaison with the local school at an appropriate time, including discussions / sessions on construction and traffic safety. The Construction Traffic Management Plan will also include consideration of the local school's hours and holidays. The requirement for a Construction Traffic Management Plan will be secured through an appropriately worded condition(s).
Site Security The feedback noted the need for clear security measures to deter trespassing, antisocial behaviour, and the attraction of young people to the site.	Site security will include fencing and gating around the perimeter of the site, and intermittent lighting columns and Closed-Circuit Television (CCTV) / security cameras within the site.
Fire Risk The feedback reflected unease about fire risk, referencing incidents involving prolonged fires and 'vapour' emissions at similar facilities.	While BESS systems are increasingly a focus of attention over fire safety concerns, there have only been a limited number of documented incidents in the UK. This is coupled with the continued development of battery chemistries / technologies, as well as more resilient systems and safer designs. Additionally, we will work closely with the Scottish Fire and Rescue Service (SFRS), to ensure they know what to do in the highly unlikely event of a fire, and we will collaboratively develop a Tactical Response Plan and a Risk Management Plan.
Site and Access The feedback sought reassurance about continued access to existing public routes.	Access to existing public routes will be maintained. Should any temporary diversions be required during construction, the Construction Traffic Management Plan will ensure that alternative safe routes are identified, and clearly signposted.
Aesthetics and Environment The feedback welcomed efforts to enhance the site's surroundings, including plans to make the pond area (Lochan) more attractive. This was seen as a positive opportunity for environmental improvement.	A Biodiversity Enhancement Plan will be submitted with the application to outline proposed ecological enhancements, landscape planting, and wider environmental measures aimed at supporting local ecosystems, including flora, fauna, and habitat networks, while helping to integrate the Armadale BESS into the surrounding landscape and maintaining site security
Community Benefit The feedback noted that there was a strong expectation that community benefits should be delivered directly to the local community rather than managed solely through the council. Other suggestions included Alcemi staff participation in local events, such as school activities and the gala day float.	Whilst not a consideration for the consenting / planning process, details on a proposed community benefits scheme will be developed following engagement with residents, community groups and authorities, and Alcemi encourages feedback and input. We are fully committed to involving the local community in all stages of the project, including the use of local businesses and suppliers during both the construction and operation phases. We are keen to hear from local businesses and organisations who may be interested in supplying services.
Consultation and Communication The feedback requested clear information about future consultation sessions, including dates, times, and venues, to ensure local people, particularly parents, can stay informed and involved in the process.	To follow the project, and to sign up to receive updates on the project, planning and development, visit the website: *https://alcemi.com/projects/armadale* If you have any questions about the proposals, or need to speak with a member of the Project Team, please do not hesitate to get in touch by: • Phone: 0131 202 3259 • E-Mailing: *armadale@alcemi.com* • Writing to: Armadale BESS Consultation, c/o Orbit Communications, 42 Charlotte Square, Edinburgh, EH2 4HQ • Completing the 'Contact Us' form available at: *https://alcemi.com/projects/armadale*
Land and Ownership The feedback included questions about land ownership and leasing arrangements.	The Site will be leased, with the term lasting 40 years. Subsequently, at the end of its operational life, the Site will be decommissioned. During decommissioning, it will be ensured that the Site is left with no residual environmental and / or safety risks, and that the Site is returned to a condition suitable for reuse. It is anticipated that this will be secured through an appropriately worded condition(s).

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