Gresham House
Specialist investment

# Sustainable investment update: Energy Transition

July 2025

# Real Assets

## What makes our approach different

We partner with our clients to help them achieve their financial and sustainability ambitions.

Within our Real Assets divisions, clients come to us to help them invest in assets that help them achieve positive environmental and social outcomes.

**Alongside achieving their financial objectives, we create investment solutions for our clients to:**

1. Generate nature positive outcomes
2. Support their net-zero objectives
3. Create positive social impact within their local region

> We partner with our clients to help them achieve their financial and sustainability ambitions.

Gresham House

Real Assets

# Energy Transition

## The Gresham House Energy Transition strategy invests in three growth technologies essential to decarbonising the energy system: Wind, Solar and Energy Storage Systems (ESS).

Through our existing assets, current pipeline and intention to invest further in new renewables and energy storage assets, our strategy materially contributes to the UK's net-zero Strategy and the wider transition away from fossil fuels.

In 2024, we launched a new wind strategy, aiming to add 45MW renewable capacity to the UK National Grid through the construction and ongoing management of an onshore wind farm. At the same time, a number of solar assets became operational in 2024, adding 140GWh of renewable energy generation capacity.

Meanwhile, Gresham House Energy Storage Fund plc (GRID) reached the milestone of 1GWh operational capacity (in terms of energy) and reached 1.2GWh by the end of the year, an increase of 53% from 2023.

This was a result of new sites reaching energisation at York, Penwortham, and Elland, as well as augmentation of existing assets to extend their durations.

| Real world outcomes | 2023 | 2024 |
|---|---|---|
| Renewable energy generation (GWh)[1] | 540 | 584 |
| *Equivalent homes powered*[2] | 166,941 | 180,253 |
| *Carbon emissions avoided ($tCO_2e$)*[3] | 229,257 | 255,138 |
| New renewable generation capacity (GWh) | 0 | 44 |
| Operational BESS capacity (MW) | 690 | 845 |
| Carbon emissions avoided (tCO2e)[4] | 677,775 | 649,701 |
| New operational BESS capacity (MW) | 140 | 155 |
| BESS capacity under construction (MW) | 377 | 277 |
| Community benefit fund contribution (£) | 531,668 | 589,530 |
| Renewable assets with habitat management plans (%) | 91 | 91 |

1. 2023 values restated from previous report due to changes in methodology
2. Assuming an average annual electricity usage per household of 3.2MWh, as quoted by DESNZ January 2024. "Homes powered" calculated using Renewable UK methodology: MWh divided by average annual domestic electricity consumption.
3. Assuming an "all non-renewable fuels" emissions statistic of 437$tCO_2$/GWh of electricity supplied, DESNZ statistics July 2024, Digest of UK Energy Statistics, Table 5.14 ("Estimated carbon dioxide emissions from electricity supplied"). "Carbon avoided" calculated using Renewable UK methodology: Carbon reduction is calculated by multiplying the total amount of electricity generated
4. Carbon Trust methodology. Investment team have been working with industry peers to agree upon a common methodology. Please see GRID Annual Report for details on the methodology used.

# ESG integration

ESG considerations, including climate and nature, are integrated throughout the investment lifecycle as outlined below:

## 1 Preliminary due diligence

During the origination phase, material ESG risks are identified for further investigation during the due diligence stage. Investments are screened for alignment with the Energy Transition strategy's sustainability objectives including contribution to decarbonisation and alignment with UK policy and net zero goals. If certain risks are unlikely to be manageable or mitigated, then we may choose not to proceed at this stage.

## 2 Due diligence

At the due diligence stage, sustainability risks and opportunities are assessed using our ESG Decision Tool tailored to energy infrastructure. Factors assessed include exposure to physical climate risks and supply chain risk. Where appropriate, independent technical and environmental assessments are commissioned to inform decision-making.

## 3 Investment appraisal

Investment recommendations to Investment Committees include an assessment of material ESG risks and opportunities identified in due diligence which are then factored into the decision-making process. Appropriate risk mitigation approaches will also be referenced and assurance that the business is open to making improvements is sought.

## 4 Asset operation

We aim to construct and operate our projects with minimal disruption to local communities and the environment. Construction and operational contractors are subject to ongoing review and the requirement to manage material ESG risks is included in contract terms. Compliance with planning conditions is stringently adhered to and monitored. We continue to assess how we can enhance positive environmental and social impacts of our projects.

# **Case study:** Community engagement and natural habitat conservation at Harborough solar project

## Context

Harborough 28MW is a solar energy project located near Rugby in the UK that exemplifies the intersection of renewable energy development and community engagement.

Funds managed by Gresham House have made significant contributions to local communities through engagement and contributions, demonstrating how sustainability initiatives can generate direct social benefits.

This short case study explores the financial contributions, community impact, and long-term benefits associated with the project.

## Community engagement and contributions

One of the key aspects of Harborough's community involvement is its financial support for local development. The asset owner, Gresham House Solar Distribution LLP, has taken an active role in community engagement to help fulfil the local communities' initiatives:

- £20,000 Contribution to the Parish Council: This funding unlocked further grant support to construct a new playground in the local community, a space where families regularly gather and socialize.
- Annual Community Support: A further £5,730 per year for the next 10 years will be provided to the local parish council to support ongoing community initiatives and development projects.

## Natural habitat conservation strategies

Harborough also integrates environmental conservation into its solar energy project through a comprehensive Landscape and Ecological Management Plan (LEMP), which ensures the protection and enhancement of local biodiversity. Key strategies include:

- **Hedgerow and tree management:** Planting and maintaining over 2,120m of new hedgerows, improving habitat connectivity for birds, small mammals, and pollinators.
- **Grassland enhancement and biodiversity fields:** Establishing species-rich grasslands within and around the solar farm to support local wildlife, including habitat for skylarks and invertebrates.
- **Wildlife habitat features:** Installation of bat and bird boxes, dormouse boxes, and reptile hibernacula to enhance ecological diversity.
- **Creation of a pond complex:** Designed to support amphibians, insects, and wetland flora, contributing to local biodiversity and ecosystem resilience.
- **Ecological monitoring and adaptive management:** Regular surveys and assessments to track the success of conservation measures and implement necessary adjustments to maintain biodiversity net gain.

## Outcome

The combined financial and environmental efforts have led to significant benefits for both the community and the local ecosystem:

- The **new playground** provides a safe and engaging space for families to connect.
- The **ongoing funding** ensures long-term community support and local improvements
- The **solar project itself** contributes to the UK's renewable energy targets while preserving natural habitats.
- The **biodiversity initiatives** have enhanced local flora and fauna, improving habitat conditions for protected species such as bats, dormice, and pollinators

The Harborough solar project demonstrates how renewable energy investments can drive meaningful community engagement and environmental sustainability

## Climate-related disclosures

Our Energy Transition strategy is explicitly designed to support the UK's decarbonisation and net-zero ambitions by investing in renewables and enabling technologies such as energy storage systems (ESS).

Wind and solar are climate solutions, as they add to the ever increasing proportion of the energy mix coming from renewables, and reduce reliance on other energy sources such as coal and natural gas.

ESS are transition enablers of the transition as they play a crucial role in enabling the growth in renewable energy sources. The intermittent nature of renewable sources necessitates the deployment of ESS to ensure a reliable and continuous energy supply.

ESS facilitate the transition towards a more resilient and lower carbon energy generation system by preventing the loss of renewable energy in periods of high generation and reducing reliance on fossil fuels in periods of low renewable generation, as well as enhancing the stability of the grid.

KPIs are used to track the progress that our assets are making to decarbonisation, and to assess the extent to which climate-related risks are being managed effectively.

### Examples of climate-related KPIs that are monitored include[1]:

| Metric | 2023 | 2024 |
|---|---|---|
| Renewable energy generation (GWh)[2] | 540 | 584 |
| Operational BESS capacity (MW) | 690 | 845 |
| Scope 1 & 2 emissions ($tCO_2e$) | 12,890 | 4,264 |
| Scope 3 emissions ($tCO_2e$) | 1,973 | 1,890 |
| Carbon intensity ($tCO_2e$/£m invested) | 13 | 5.6 |

1. All emission figures have been restated from 2023 as a result of moving to the Watershed platform.
2. 2023 values restated from previous report due to changes in methodology

The primary source of emissions from our Energy Transition strategy is the electricity stored and discharged by our BESS assets. These emissions decreased significantly in 2024 which was driven by two key factors: a fall in the average carbon intensity of the UK national grid from (from 162kgCO2/MWh in 2023 to 124kgCO2/MWh in 2024), and a strategic shift towards trading, with increased optimisation of charging during periods of lower grid carbon intensity.

### Climate opportunities

We are directly targeting the following:

- **Solar**: investments into ground-mounted and rooftop solar projects, supporting the UK's growing solar capacity. Solar accounted for around 5% of electricity in 2024.[3]

3. NESO, 2025

- **Wind**: investments in onshore wind assets. Wind was the UK's largest source of electricity in 2024 for the first time ever, accounting for 30% of the energy mix.[4]
- **Battery storage**: investments in battery energy storage systems designed to benefit from the opportunities presented by the transition to renewable energy technologies. Renewable energy technologies are inherently unpredictable and intermittent, creating a need for storage to balance supply and demand and to stabilise the network.
- **Collocated renewable energy assets with battery energy storage**: we are increasingly identifying opportunities for solar and wind assets to be collocated with battery energy storage systems. Collocation offers a way to support a cost-effective energy transition and to improve the risk-adjusted returns potential for our investors.

4. NESO, 2025

# **Case study:** Innovative approach to increasing energy storage capacity

Connecting new projects to the UK National Grid is becoming increasingly difficult due to the growing number of projects bidding to be connected; according to Ofgem the connection queue was 700GW in March 2024 and was estimated to be over 800GW by the end of 2024.

For Gresham House Energy Storage Fund plc ("GRID"), much like the rest of the BESS sector, final connections have caused havoc to commissioning timeframes with new construction projects facing large delays across the board.

As a result, the investment team revisited its growth plans to avoid these connection delays and deliver operational capacity growth at attractive returns levels. The cornerstone of these new plans was to grow operational capacity through duration extensions of existing sites thereby avoiding new connections and resulting delays that tend to follow.

In 2024, upgrades were completed at eight of our operational projects, increasing most project durations to two-hours. The upgrades to West Didsbury and Enderby took operational capacity to over 1 gigawatt-hour making GRID the first battery storage business in the UK to have achieved this threshold.

In total, this has added over 300MWh to the portfolio in a cost and time effective manner with the projects completed to date taking around three months on average to complete, considerably less than new build projects.

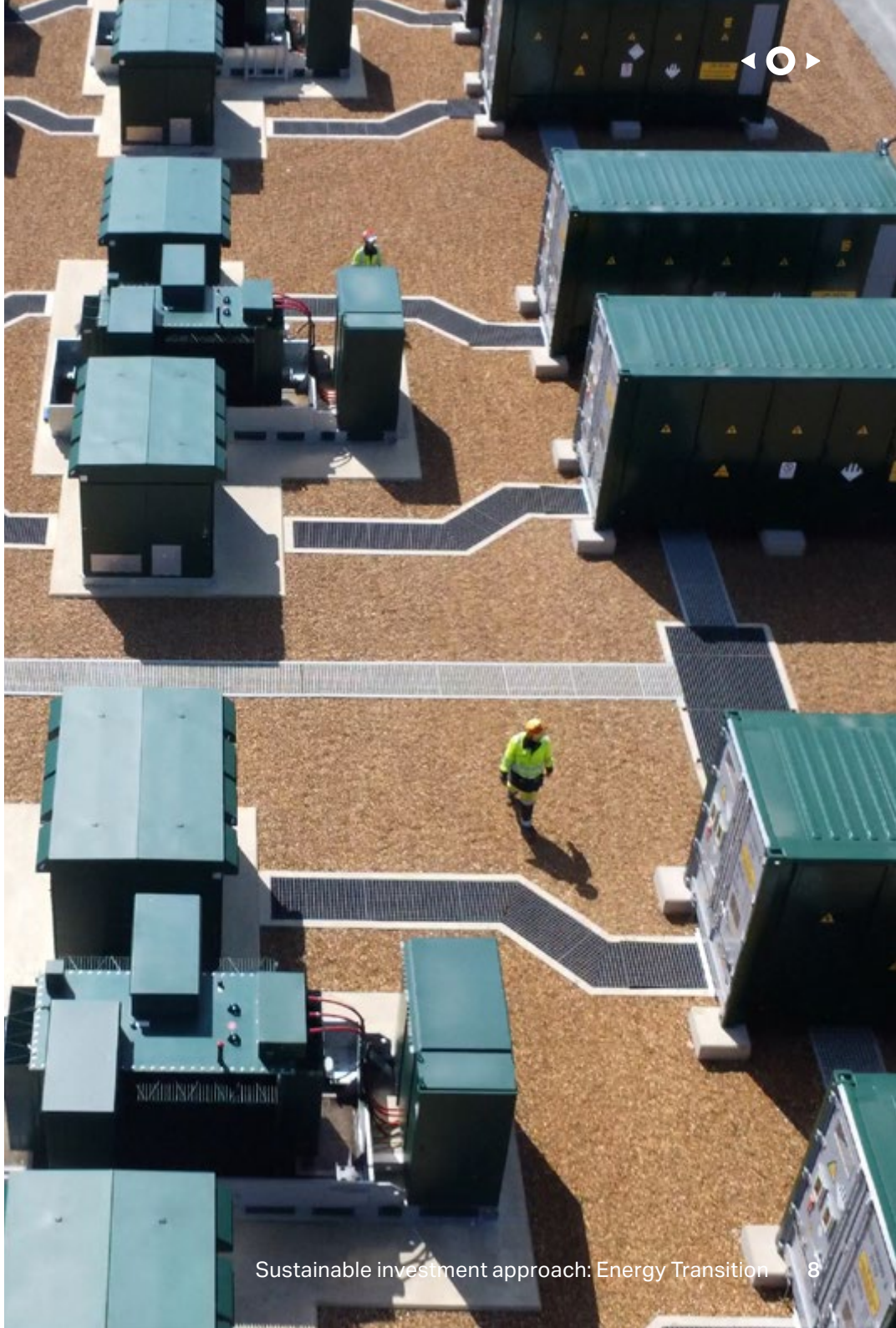
## Climate risks

We actively assess and manage short, medium and long-term climate-related risks.

- Policy & Regulatory Uncertainty: Shifts in government energy policy could impact renewable incentives or planning approvals.
- Raw Material Supply & Cost Volatility: ESS components such as lithium and solar panel materials are sensitive to global supply chain shocks and energy price volatility. The cost of raw materials is closely monitored by the investment team and costs are agreed and fixed at the construction stage.
- Physical Climate Risks: Increasing frequency of extreme temperatures or flooding may affect asset performance and lifespan. Potential physical risks are considered during the initial acquisition process. Flood risk assessments are undertaken during planning to determine a probabilistic analysis of flooding.

We mitigate these climate-related risks in a number of ways.

- We use the services of third-party experts to estimate the impact of specific risk factors on energy prices over the short, medium and long term to create low, high and central case scenarios which are used within financial modelling, although the precise effect on power prices of any of the identified factors, and their timing, is uncertain.
- Best-in-class suppliers are identified to work with and we encourage more responsible supplier practices to reduce supply chain sustainability risks.
- Flood defences have been implemented with several projects having key equipment elevated above the ground to reduce risk of damage in the event of a flood.
- Our battery assets also have temperature managements (such as air conditioning or liquid cooling) which are considered at the planning stage and are often required to be considered as part of planning approval.



# Risks & opportunities: Energy Transition

| Risk/ opportunity | Risk: market | Risk: physical | Risk: policy & legal | Opportunity: products and services | Opportunity: market |
|---|---|---|---|---|---|
| Description | Volatility in the cost of raw materials | Impact of higher temperatures and acute physical risks on asset performance | Changes to policy and regulation | Development and/or expansion of low emission goods and services | Access to new and emerging markets |
| Likelihood | Medium | Medium | Medium | Medium | Medium |
| Potential impacts | Increased costs | Decreased performance of assets due to higher temperatures, damage to assets from acute events | Increased operating costs (e.g., higher compliance costs), reduction in income | Increased revenues | Increased revenues |
| Time period | Short- & Medium-term | Medium-term | Medium- & Long-term | Medium- & Long-term | Medium- & Long-term |
| Divisional commentary | Recent geopolitical events such could continue to lead to supply shortages, leading to price volatility. The cost of raw materials is closely monitored by the investment team and costs are agreed and fixed at the construction stage where possible | Potential physical risk factors identified as part of the initial acquisition process, design reviews, site inspections or during routine maintenance, and are mitigated via design changes. The geographical spread of the investment portfolio mitigates against local physical risk factors | Risk that UK government strategy moves away from net zero ambitions. Potential reform of policy and legislation is consistently monitored. The division plays an active role in responding to regulatory consultations and is part of industry lobby groups | The division is focused on delivering the lowest emissions products and seeks to drive best design practices to extract the best efficiencies | The division is constantly evaluating new areas of the market including (e.g. abated gas, hydrogen, EV charging) and is aware of incentive schemes for some of these areas |
| Example KPIs/ trends to monitor | ▪ Cost of raw materials<br>▪ Raw material costs as a % of operating costs | ▪ % assets in areas prone to extreme weather events<br>▪ Average cost of asset insurance | ▪ # community engagements<br>▪ # consultation responses | ▪ Operational carbon emissions ($tCO_2e$)<br>▪ Operational carbon intensity ($tCO_2e$/£m invested) | ▪ Revenue mix<br>▪ Diversity of Energy Transition assets |

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## Scenario analysis

In 2024, we conducted a physical climate risk scenario analysis across Energy Transition assets. Using climate models aligned with various warming scenarios, we assessed impacts across four hazards:

### Key Findings

- Temperature increases: A significant proportion of assets are expected to face an increase in average daily temperature of more than 0.5°C by 2050. If the higher temperatures are related to more hours of sunlight, our solar assets may increase in productivity. However, if temperatures increase above 25°C, this could reduce the productivity of the solar assets. If there is an increase in temperature extremes or in the frequency of heatwaves, this could reduce the lifespan of battery assets as well as increasing the risk of thermal runway which can lead to fires.
- Water stress: This did not increase with temperature rise, as might be expected. The scenarios used consider socioeconomic factors as well as climate, meaning that even if climate impacts on water availability are less severe in the lower temperature rise scenario, the competition for water resources may be higher, leading to higher levels of water stress.
- Precipitation patterns: The middle scenario is expected to have the greatest change in precipitation, rather than the worst-case. This may be due to warmer and wetter winters than a lower temperature rise scenario, but less intense periods of drought than higher temperature rise scenarios. Further analysis will be necessary to confirm this.

### Next steps

To build on this scenario analysis, we will look to:

- Assess the materiality of changing climate conditions to identify at risk assets
- Expand analysis to include extreme temperature days, heatwaves, and wildfire exposure
- Ensure adaptation measures such as cooling systems and fire management plans are sufficient for at risk assets

| | Below 2 degrees | Business-as-usual | Worst Case |
|---|---|---|---|
| Water stress | 24% | 18% | 20% |
| Precipitation | 0% | 27% | 0% |
| Temperature | 60% | 96% | 100% |
| Wind | 0% | 0% | 0% |

# Nature-related disclosures

In general, the operation of renewable and energy storage assets has a limited dependency on nature, and material impacts can be minimised by integrating appropriate mitigants into the design of each site.

The impacts of our assets are considered from the beginning of their development. Environmental impact assessments required by law for new infrastructure projects, with any material impacts identified requiring mitigation for the project to go ahead. Mitigants are integrated into the design of our sites and include habitat management plans to protect priority species and minimise the visual impact on the landscape, and acoustic design specifications to limit noise pollution.

Following the Environment Act 2021, new infrastructure projects in England are also required to deliver a minimum of 10% Biodiversity Net Gain (BNG). For our Energy Transition assets, we aim to deliver this onsite. For example, at Harborough we are planting 2.1km of new native hedgerows, establishing a biodiversity field with a wildflower meadow mix and a pond, and installing a number of bat, bird and dormouse boxes to meet the 10% biodiversity uplift requirement.

## Proximity analysis

To locate our interface with nature and identify assets with the potential to impact high value ecosystems, proximity analysis was conducted. This determined which of our assets:

- contain a designated site
- have a designated site downstream of a waterbody that passes through the site and could therefore be impacted by a pollution event such as a fire water spillage
- are within 10km of a designated site, and could have less direct impacts such as noise or air pollution

| | Assets Under Management |
|---|---|
| Designated site downstream of asset | 3% |
| Designated site within site boundary | 0% |
| Designated site within 10km | 100% |

## Dependencies, impacts & mitigants

We have used the ENCORE tool to identify material nature-related impacts and dependencies relevant to the construction and operation of renewable and energy storage assets. The table adjacent is a summary of these risks and the mitigation measures in place.

| | Description | Mitigating action |
|---|---|---|
| Dependency: climate regulation | Climate regulation is required to maintain a relatively steady climate and to mitigate and reduce the frequency and intensity of major climate events that could damage buildings and infrastructure, and affect operations. | Renewables and ESS enable the transition to net zero and avoid emissions generated through the use of fossil fuels, contributing to climate change mitigation. |
| Impact: noise & visual disturbances | Onshore wind farms, solar parks and energy storage assets modify the natural landscape and take up land that may contain natural ecosystems.<br>They can also cause disturbances like noise pollution and are often considered to visually intrusive to the natural landscape. | All sites have habitat management plans integrated into the design of the site, and new sites are required to meet the BNG requirement.<br>During the planning process, ambient noise levels are measured and if they are found to be above a set threshold, noise controls such as acoustic fencing will be installed. |
| Dependency: soil and sediment retention services | Energy production and storage is dependent on soil and sediment retention to provide a stable substrate, erosion control, and landslide mitigation for infrastructure. | Our assets are often constructed on unproductive agricultural land. By planting diverse grass and wildflower species during the planning of the site and leaving the land fallow over the lifespan of our assets, overtime the structure and quality of the soil can improve. |
| Impact: emissions of toxic pollutants to water and soil | In the event of a fire caused by thermal runway of a battery asset, water used to extinguish the fire will carry pollutants that could enter the soil or waterbodies. | All battery assets have a firewater management plan which has to demonstrate how firewater runoff volume will be controlled and managed at the site.<br>This will include site design features such as surface water drainage routes, subsurface perforated pipework, and a lined attenuation basin. |

# **Case study:** Habitat integration at Higher Bye solar scheme

Gresham House's Energy Transition assets have habitat management plans developed throughout the planning process to minimise any negative impacts that come with the construction and operation of energy infrastructure.

The Higher Bye solar scheme located in West Somerset, is set on 13ha of agricultural land. In the planning of the scheme, a 10-year landscape management plan was implemented to visually and ecologically integrate the development into the surrounding landscape, enhance the biodiversity of the site, and ensure the site is well screened without compromising electricity generation.

The site consisted of hedgerows, with the occasional mature hedgerow including oak and ash trees, and semi mature woodland.

Some examples of management practices included in the plan to enhance these habitats included:

- Increasing the abundance and availability of berries in hedges, as they are an important winter food supply for a wide range of farmland birds and small mammal species
- Introducing small areas of scrub to field margins and corners as additional habitat areas for hedgehogs, small mammals and dormouse
- Specific wildflower and grass mixes should be introduced to margin areas to provide habitat for hare

As well as the recommendations for the design of the site, the plan also included a 10-year maintenance schedule for each habitat type to ensure new planting established successfully and continues to develop over time.

## Engagement

Our engagement approach across the Energy Transition strategy is multi-dimensional, reflecting the diverse stakeholders involved in the successful development and operation of renewable and energy storage infrastructure.

We engage proactively with:

- Developers, landowners, contractors to ensure timely delivery and responsible construction
- Equipment suppliers to improve supply chain sustainability and quality standards
- Local authorities and communities to ensure projects align with regional needs and minimise disruption
- Investors and policymakers to support the broader decarbonisation agenda

## Asset-specific engagement

For our ESS assets, we focus engagement to maximise the efficient operation of ESS that help balance the UK electricity grid, allowing it to make optimal use of intermittent renewable energy generation in the UK electricity generation system.

For our renewables assets, engagement is focused to maximise the delivery of renewable electricity for local and national distribution in a safe and efficient manner with minimal disruption to local communities and habitats.

## Policy and industry engagement

Our Energy Transition team engage with key government and industry bodies to encourage policies and regulation that support accelerated decarbonisation of energy systems and the technologies that underly this transition. This includes:

- Department for Energy Security and Net-zero (DESNZ)
- Office and Gas Electricity Markets (OFGEM)
- National Grid Future System Operator (FSO)
- Energy Storage Networks, an industry trade association focused on Energy Storage
- RenewableUK, an industry trade association whose role is to maximise the renewables opportunity and create the conditions that will see the renewable sector continue to thrive in the UK
- Solar Energy UK, a solar trade association whose mission is to empower the UK solar industry

# **Case study:** Developing an industry standard for carbon accounting collaborative engagement

In 2024, Gresham House identified the need to improve the way carbon emissions avoided by BESS are calculated. While a current methodology was originally developed with the Carbon Trust in 2022, evolving grid dynamics and investor expectations called for further refinement.

To address this, Gresham House initiated a collaborative working group with the Energy Storage Network, Field Energy and other industry participants. The aim is to establish a unified methodology to calculate avoided carbon emissions from BESS operations, including emissions avoided from energy arbitrage and frequency response services.

As of early 2025, the working group is finalising the methodology and preparing for independent third party accreditation, which will enhance the transparency, consistency, and credibility of emissions reporting across the sector.

# Contacts

**Heather Fleming**
Managing Director,
Institutional Business

h.fleming@greshamhouse.com

**Ben Gunnee**
Head of Institutional

b.gunnee@greshamhouse.com

**Chris Elliott**
Managing Director, Wholesale

c.elliott@greshamhouse.com