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Environment Act

What is it?

Environment Act (now enacted (November 2021)) confirms a clear strategy in how we plan to protect and improve the natural environment in England.

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Environment Act
So why now?

A global problem that requires local solutions

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How?

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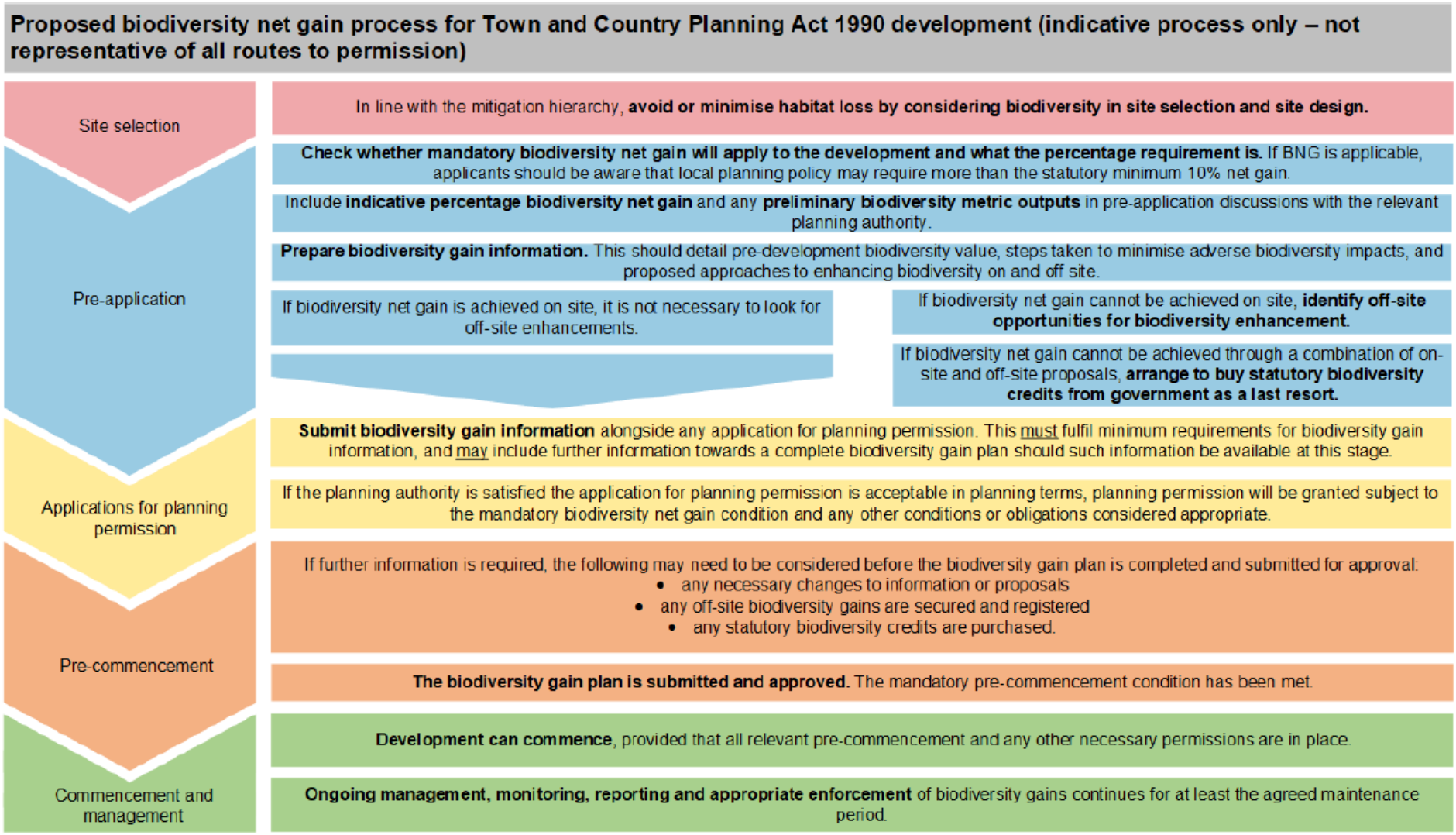

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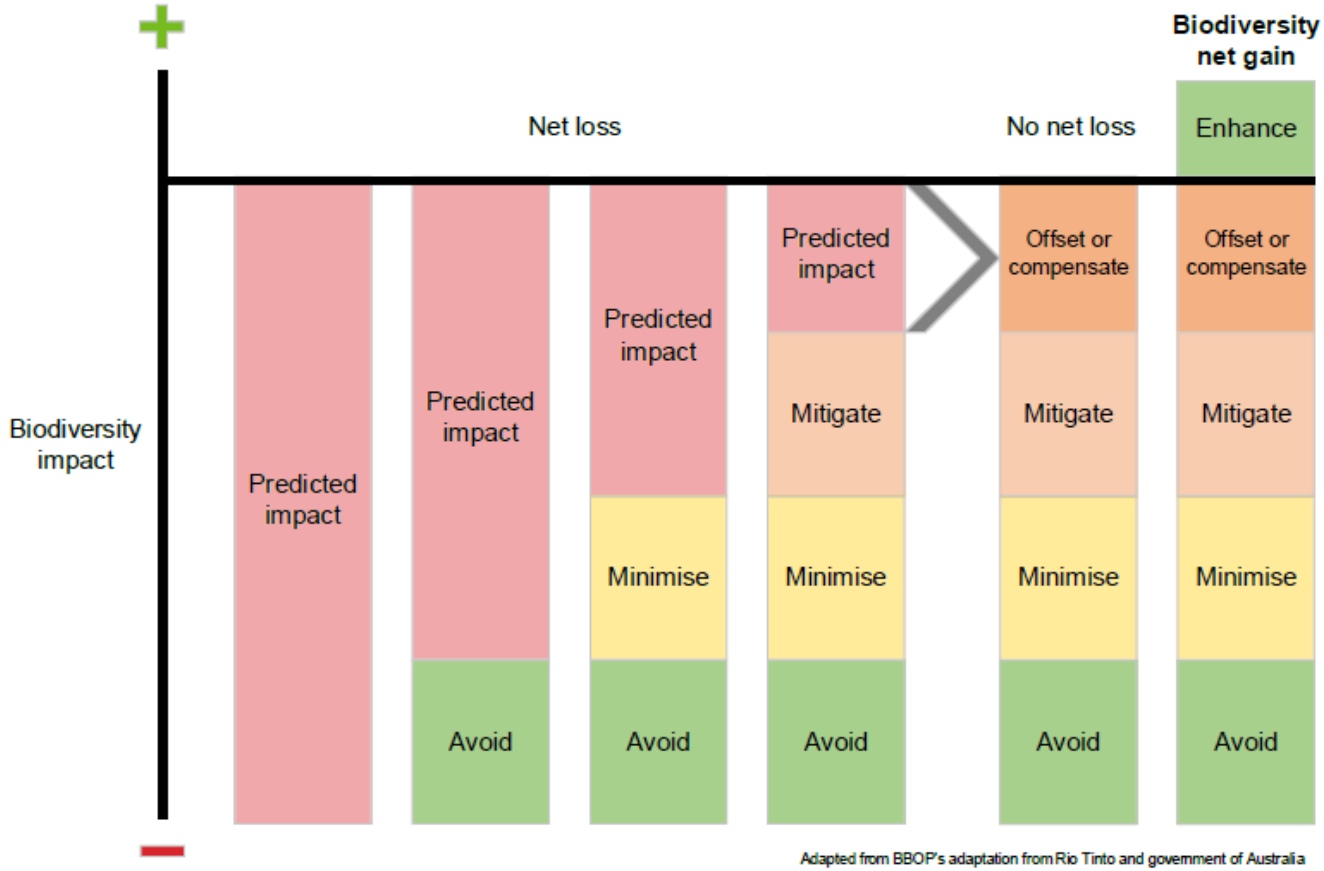

Adapted from BBOP's adaptation from Rio Tinto and government of Australia

Land at HayGreen lane, Birdwell, Barnsley

Outline Planning Application

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Barnsley Council Planning Policy

Policy BIO1 Biodiversity and Geodiversity

Development will be expected to conserve and enhance the biodiversity and geological features of the borough by:

Protecting and improving habitats, species, sites of ecological value and sites of geological value with particular regard to designated wildlife and geological sites of international, national and local significance, ancient woodland and species and habitats of principal importance identified via Section 41 of the Natural Environment & Rural Communities Act 2006 (for list of the species and habitats of principal importance) and in the Barnsley Biodiversity Action Plan.

Maximising biodiversity and geodiversity opportunities in and around new developments.

Conserving and enhancing the form, local character and distinctiveness of the boroughs natural assets such as the river corridors of the Don, the Dearne and Dove as natural floodplains and important strategic wildlife corridors.

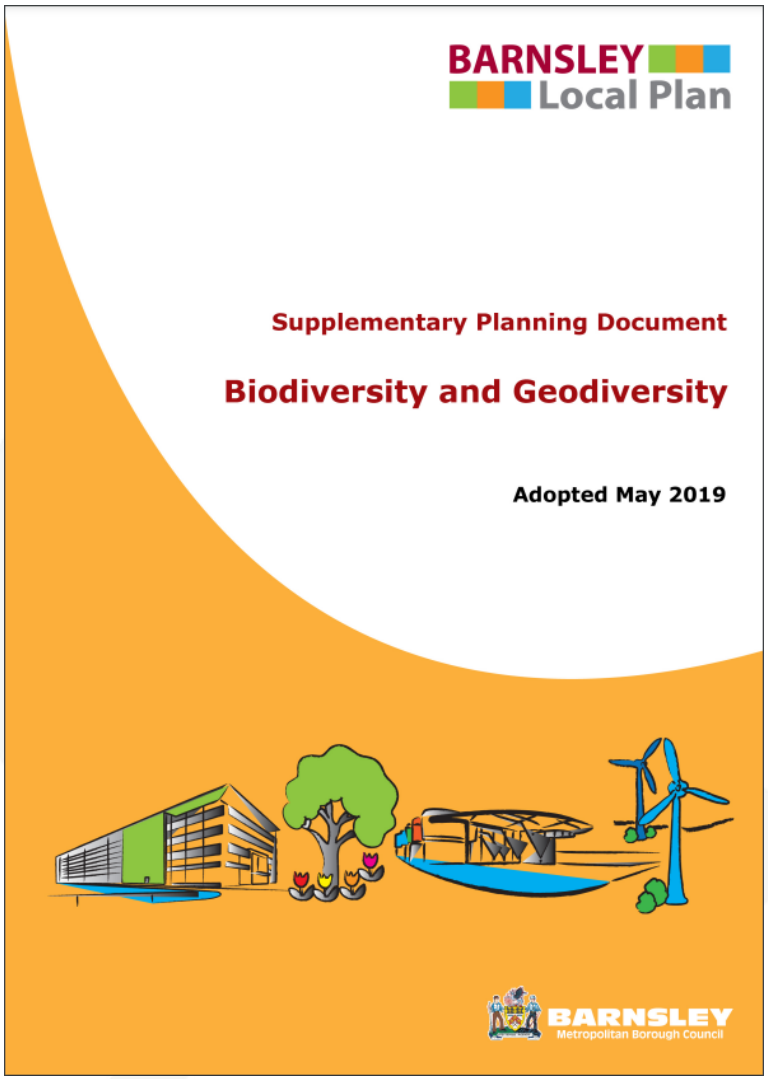
Proposals will be expected to have followed the national mitigation hierarchy (avoid, mitigate, compensate) which is used to evaluate the impacts of a development on biodiversity interest.

Protecting ancient and veteran trees where identified.

Encouraging provision of biodiversity enhancements.

Development which may harm a biodiversity or geological feature or habitat, including ancient woodland and aged or veteran trees found outside ancient woodland, will not be permitted unless effective mitigation and/or compensatory measures can be ensured.

Development which adversely effects a European Site will not be permitted unless there is no alternative option and there are imperative reasons of overriding public interest (IROPI).



Land at HayGreen lane, Birdwell, Barnsley

Habitat Retention

Key

- Retained Habitat
- Lost Habitat
- Retained Hedgerow
- Lost Hedgerow
- Retained Street Tree
- Lost Street Tree

Harworth Group

Land at Hay Green Lane, Birdwell

Habitat Retention

9/2/2021

Figure 2

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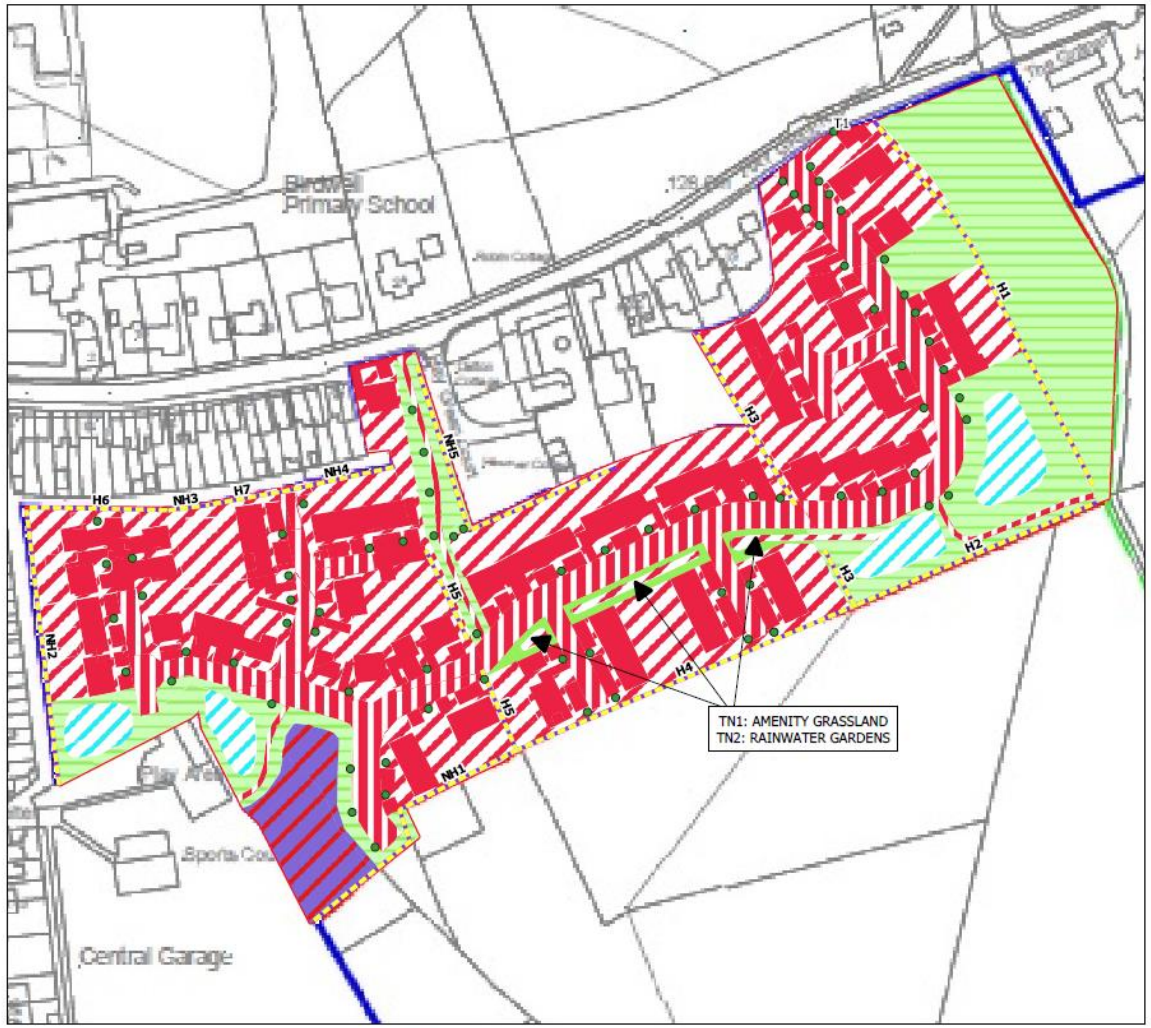
Land at HayGreen lane, Birdwell, Barnsley

Post Development Habitats



Key

- Amenity grassland
- Other neutral grassland
- Mixed scrub
- Urban- buildings
- Urban- gardens
- Urban- sealed surface
- Standing Water
- Hedgerows
- Street trees (75 medium)

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Harworth Group

Land at Hay Green Lane, Birdwell

Post-Development Habitats

1:1500 | 3DH | 9/2/2021

Figure 3 -

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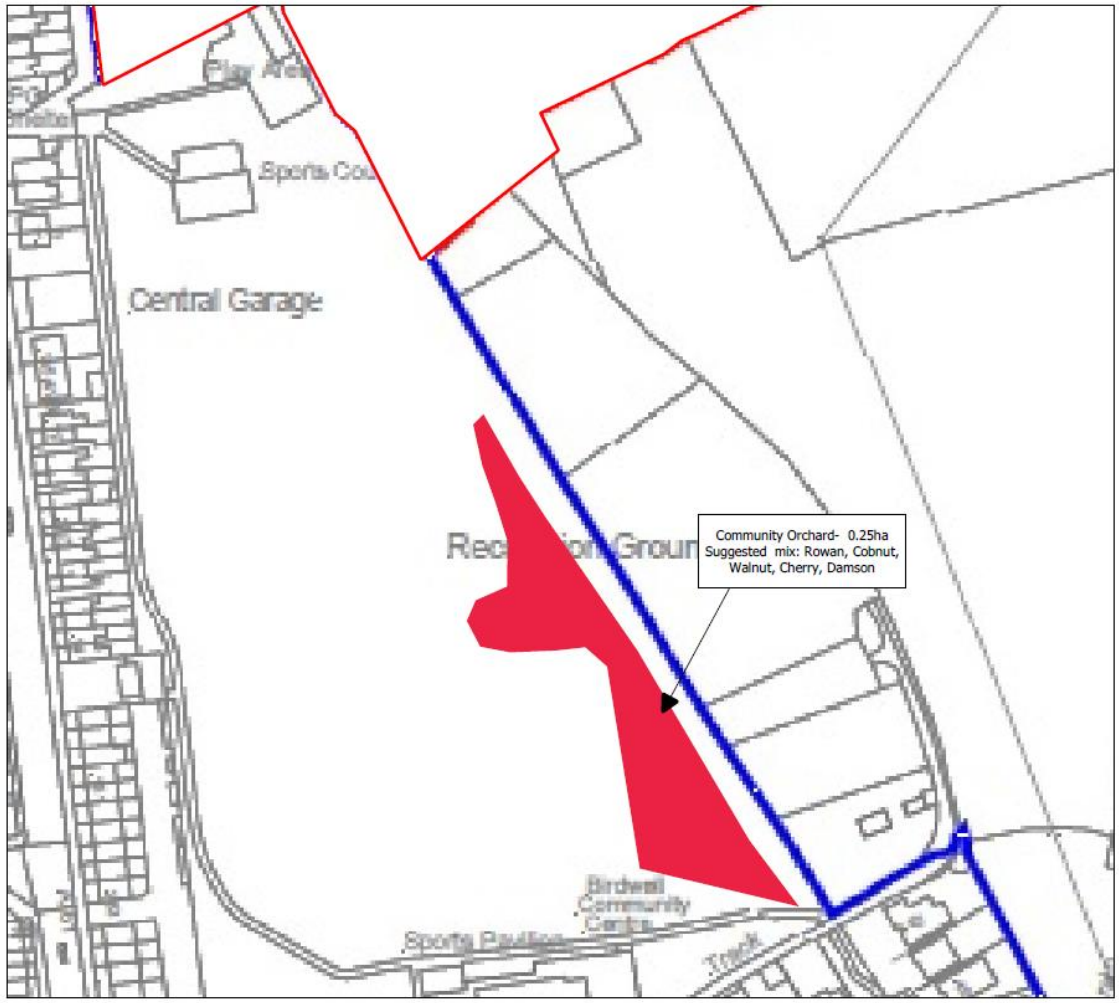
Land at HayGreen lane, Birdwell, Barnsley

Off-site Habitat Enhancements



Key

- Site Boundary
- Urban Orchard (13-38 trees)

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Client: Harworth Group
Project: Land at Hay Green Lane, Birdwell
Drawing title: Off-site habitat enhancement
Scale @ A3: 1:1000
Drawn: JDH
Date: 12/3/2021
Drawing / figure number: **Figure 5**
Rev: -

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Towards net zero-carbon development

- Policy and legislation
- Small scale delivery
- Pathway to large scale delivery

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National Planning Policy Framework

Paragraph 148:

*"The planning system should support the transition to a low carbon future in a changing climate…it should help to shape places in ways that contribute to **radical** reductions in greenhouse gas emissions…"*

The NPPF also makes clear that 'landform, layout, building orientation, massing and landscaping' all contribute to well-designed places which are both efficient and resilient to climate change.

Government rhetoric and actions

The Climate Change Act 2008

- Pre-dates NPPF
- UK's approach to tackling and responding to climate change
- Requires carbon dioxide and other greenhouse gas emission reduction
- Commits the UK government by law to reducing greenhouse gas emissions to 'net zero' by 2050

May 2019: Parliament declared an environment and climate emergency

- Following a lead set by many Local Authorities

December 2020: Energy White Paper published

- Vision and 10-point plan for how UK will reach target of 'net zero' carbon emissions by 2050
- Intention to improve building energy performance
- By 2030 all new buildings must operate at 'net zero'

Net Zero Operational Carbon

Ten key requirements for new buildings

By 2030 all new buildings must operate at net zero to meet our climate change targets. This means that by 2025 all new buildings will need to be designed to meet these targets. This page sets out the approach to operational carbon that will be necessary to deliver zero carbon buildings. For more information about any of these requirements and how to meet them, please refer to the: UKGBC - Net Zero Carbon Buildings Framework; BBP - Design for Performance initiative; RIBA - 2030 Climate Challenge; GHA - Net Zero Housing Project Map; CIBSE - Climate Action Plan; and, LETI - Climate Emergency Design Guide.

Low energy use

1. Total Energy Use Intensity (EUI) - Energy use measured at the meter should be equal to or less than:
   - **35 kWh/m²/yr** (GIA) for residential[1]

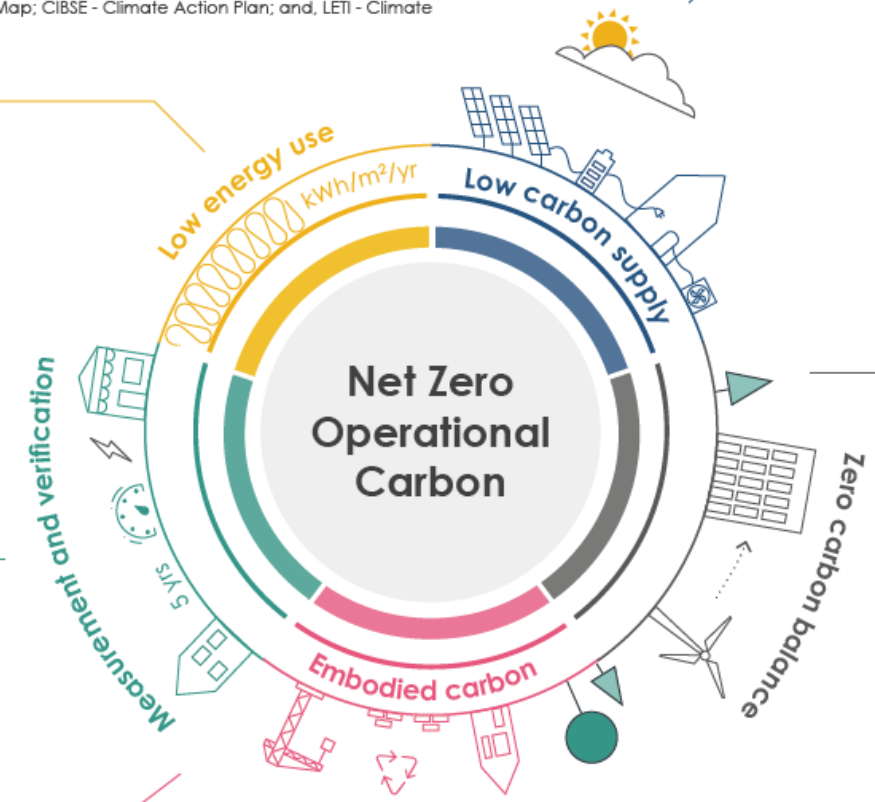
   For non-domestic buildings a minimum DEC B (40) rating should be achieved and/or an EUI equal or less than:
   - **65 kWh/m²/yr** (GIA) for schools[1]
   - **70 kWh/m²/yr** (NLA) or **55 kWh/m²/yr** (GIA) for commercial offices[1,2]
2. Building fabric is very important therefore space heating demand should be less than **15 kWh/m²/yr** for all building types.

Measurement and verification

3. Annual energy use and renewable energy generation on-site must be reported and independently verified in-use each year for the first 5 years. This can be done on an aggregated and anonymised basis for residential buildings.

Reducing construction impacts

4. Embodied carbon should be assessed, reduced and verified post-construction.[3]



Low carbon energy supply

5. **Heating and hot water should not be generated using fossil fuels.**
6. The average annual carbon content of the heat supplied (gCO_2/kWh) should be reported.
7. On-site renewable electricity should be maximised.
8. Energy demand response and storage measures should be incorporated and the building annual peak energy demand should be reported.

Zero carbon balance

9. A carbon balance calculation (on an annual basis) should be undertaken and it should be demonstrated that the building achieves a net zero carbon balance.
10. Any energy use not met by on-site renewables should be met by an investment into additional renewable energy capacity off-site OR a minimum 15 year renewable energy power purchase agreement (PPA). A green tariff is not robust enough and does not provide 'additional' renewables.

Notes:

Note 1 – Energy use intensity (EUI) targets
The above targets include all energy uses in the building (regulated and unregulated) as measured at the meter and exclude on-site generation. They have been derived from: predicted energy use modelling for best practice; a review of the best performing buildings in the UK; and a preliminary assessment of the renewable energy supply for UK buildings. They are likely to be revised as more knowledge is available in these three fields. As heating and hot water is not generated by fossil fuels, this assumes an all electric building until other zero carbon fuels exist, (kWh targets are the same as $kWh_{(elec,exp)}$). Once other zero carbon heating fuels are available this metric will be adapted.

Note 2 – Commercial offices
With a typical net to gross ratio, 70 kWh/m² NLA/yr is equivalent to 55 kWh/m² GIA/yr. Building owners and developers are recommended to target a base building rating of 6 stars using the BBP's Design for Performance process based on NABERS.

Note 3 – Whole life carbon
It is recognised that operational emissions represent only one aspect of net zero carbon in new buildings. Reducing whole life carbon is crucial and will be covered in separate guidance.

Note 4 – Adaptation to climate change
Net zero carbon buildings should also be adapted to climate change. It is essential that the risk of overheating is managed and that cooling is minimised.

Developed in collaboration with: LETI, UKGBC, BBP Better Buildings Partnership

Supported by: Good Homes Alliance, RIBA Architecture.com, CIBSE

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Early Local Plan policy

Adopted Dec. 2020:

Planning permission will only be granted for residential development which achieves at least a 40% reduction in carbon emissions compared with a code 2013 Building Regulations compliant base case. This reduction is to be secured through renewable energy and other low carbon technologies and/ or energy efficiency measures. The requirement will increase from 31 March 2026 to at least a 50% reduction in carbon emissions and again from 31 March 2030 to a 100% reduction in carbon emissions (zero carbon). These targets will be reviewed in the light of any future legislation and national guidance.

Non-residential development proposals are required:

i) to meet the BREEAM excellent standard (or a recognised equivalent assessment methodology)

ii) in addition development proposals of 1,000sqm or more are required to achieve at least a 40% reduction in the carbon emissions compared with a 2013 Building Regulations compliant base case.

An Energy Statement will be submitted to demonstrate compliance with this policy for all new build residential developments

‘Future Buildings Standard’

January 2021:

- ‘radically improve’ the energy performance of new homes ensuring they are ‘zero carbon ready’ by 2025
- high levels of energy efficiency and fabric performance that produce 75 to 80 per cent lower carbon emissions than houses built to current standards.
- By ‘Zero Carbon Ready’ the Government has confirmed this means that no further retrofit work will be necessary to enable them to become zero carbon homes.

Retrofitting

A Climate Change Committee Report in 2019 suggested the costs of achieving higher energy performance standards via retrofit can be five times the cost (about £25,000 per home) compared to designing these requirements into new buildings from the outset.

Building regulations

From 15 June 2022

New Building Regulations (five new Approved Documents) including uplifts to standards in Part L (fuel and power)and Part F (ventilation).

New homes

- 30% cut on emissions from new homes, and a 27% cut on new buildings including offices and shops
- New Building Regulation and Approved Document O to mitigate the risk of overheating in new homes.
- New homes will adopt the Fabric Energy Efficiency Standard to measure energy efficiency
- Maximum flow temperature requirement of 55°C for new and replacement heating systems
- An appendix to Part L which sets out a good practice for a home built with a heat pump.

Existing homes

- New minimum standards for fabric efficiency, including a metric for the whole house calculation method for new extensions
- Requirement for new or replacement heating system designs to accept low-carbon heating in future, including integrating the latest “Ecodesign” appliance benchmarks.

Small Scale Delivery

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CASE STUDY

BEECH COURT PAVILION, ABINGDON SCHOOL

Sustainable Design and Construction

- Reduction of solar gain in the summer using solar control glazing
- overhanging roof to provides external shading
- overhanging roof will also help to prevent infiltration of heavy rain around doors and windows
- building fabric to a high standard of energy efficiency in terms of insulation levels, glazing performance and air tightness
- The proposed sedum roof will provide benefits including increased ecological value of the site, slowing the rate of rainwater run-off from the roof, and providing some cooling
- The majority of the building will be naturally ventilated
- Efficient building services
- Low carbon energy sources including air source heat pumps

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CASE STUDY

NORTH BAILEY HOUSE, OXFORD

Sustainable Design and Construction

- Refurbishment project
- passive and energy efficiency measures, VRF/ASHP providing space heating and cooling as well as domestic hot water in the office spaces,
- a 50m2 PV array.
- Green roof
- water-efficient fixtures and fittings
- embodied carbon assessment
- Excellent rating under BREEAM RFO 2014
- Development will achieve a 61.6% regulated carbon emission reduction

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Pathway to large scale delivery

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CASE STUDY

CULHAM SCIENCE VILLAGE

Innovation framework for Planning & Development

- Deliver accessibility and connectivity for all
- zero-carbon economy, with zero-carbon new development
- clean, sustainable growth
- ongoing monitoring
- Embedding of circular economy (maximising longevity of assets and minimising waste).
- Integrating flexibility and resilience into development
- Healthy, thriving, safe, connected, diverse and inclusive communities
- Software and technologies are put in place in support outputs
- Ensuring innovation is undertaken responsibly.

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Achieving Net Zero and beyond

1. Wider policy context
2. MEES
3. UK energy markets
4. A different approach
5. Understanding your usage
6. Finance options
7. Case studies

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Net Zero – Policy Context

UN CLIMATE CHANGE CONFERENCE UK 2021
IN PARTNERSHIP WITH ITALY

The 2050 path to net-zero

1. Take-up of low carbon measures
   - Electric Vehicles (EVs)
   - Replacement of boilers with heat pumps
   - Shift to renewable power and hydrogen
2. Expansion of low carbon energy supply and production
   - Energy production in UK to be zero carbon by 2035
   - Driven by offshore wind
3. Reduction in demand for carbon-intensive activities
   - Reduce waste
   - Reduce reliance on carbon-intensive products
   - Reduce car miles
   - Improve energy efficiency in buildings
4. Land and greenhouse gas removals
   - Farmland and agriculture to change dramatically
   - More land to be utilised for energy crops
   - New mixed woodlands to be planted.

> “The built environment contributes around 40% of the UK’s total carbon footprint.

BUT

> “80% of the buildings that will exist in 2050 are already built!

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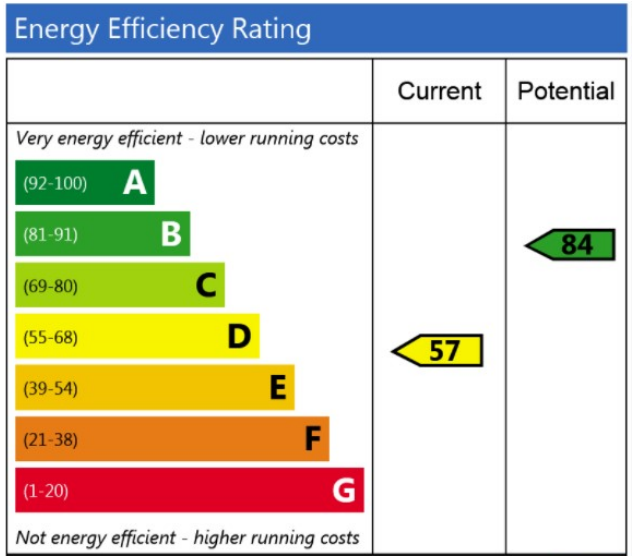
Minimum Energy Efficiency Standard (MEES)



1st April 2030 B or better

1st April 2027 C or better

1st April 2023 ALL commercial buildings MUST rate E or better

1st April 2018 no new lets, sub-lets or renewals unless E or better

The timescales are short; therefore, this is something all property owners need to be thinking about now in order to ensure they are compliant.

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MEES in Practice

EPC's ratings based on 2 main areas of a building:

1. Fabric

construction make-up of a building, such as the structure, walls, roof, glazing etc.

2. Building services

provision of heating, lighting and electricity to the building:

- On-site generation e.g., solar panels
- LED lighting
- Smart, automatised systems such as sensors
- Customised heating and cooling systems

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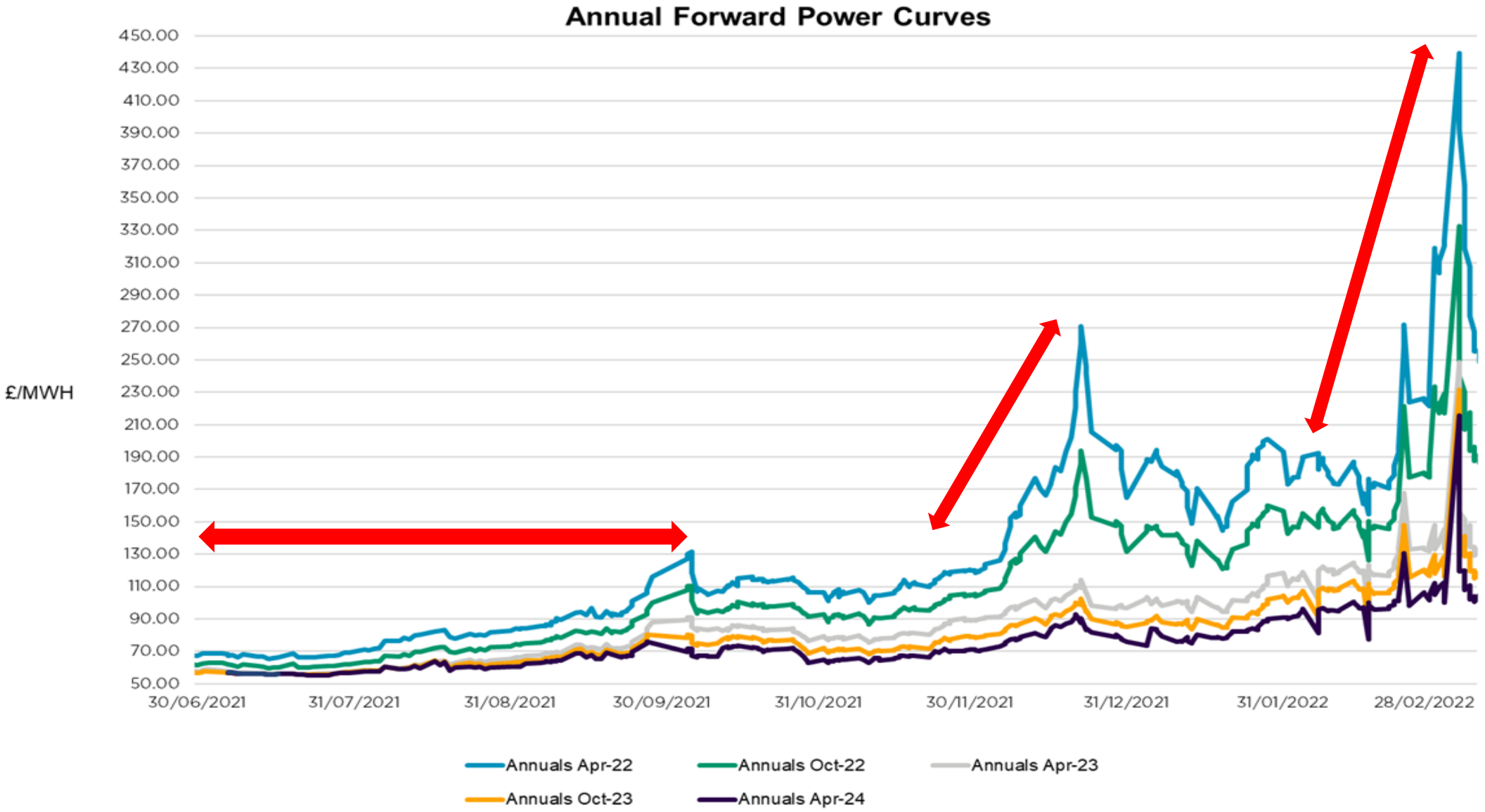
Energy Markets – Historic Highs



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A Different Approach

- Reduce organisations' carbon emissions
- Reduce their energy costs
- Immediate and sustainable results

Rethink how you use energy

Analyse your energy profiles and contracts to identify opportunities to reduce carbon emissions and demand from existing equipment and operations.

With energy profiles scoped and limits agreed, optimisation of existing plant can begin. Energy conservation and generation equipment are then deployed to reduce and remove grid dependency.

Steps 1 and 2

Data Capture | Monitor | Analyse | Survey | Deploy | Report & Monitor

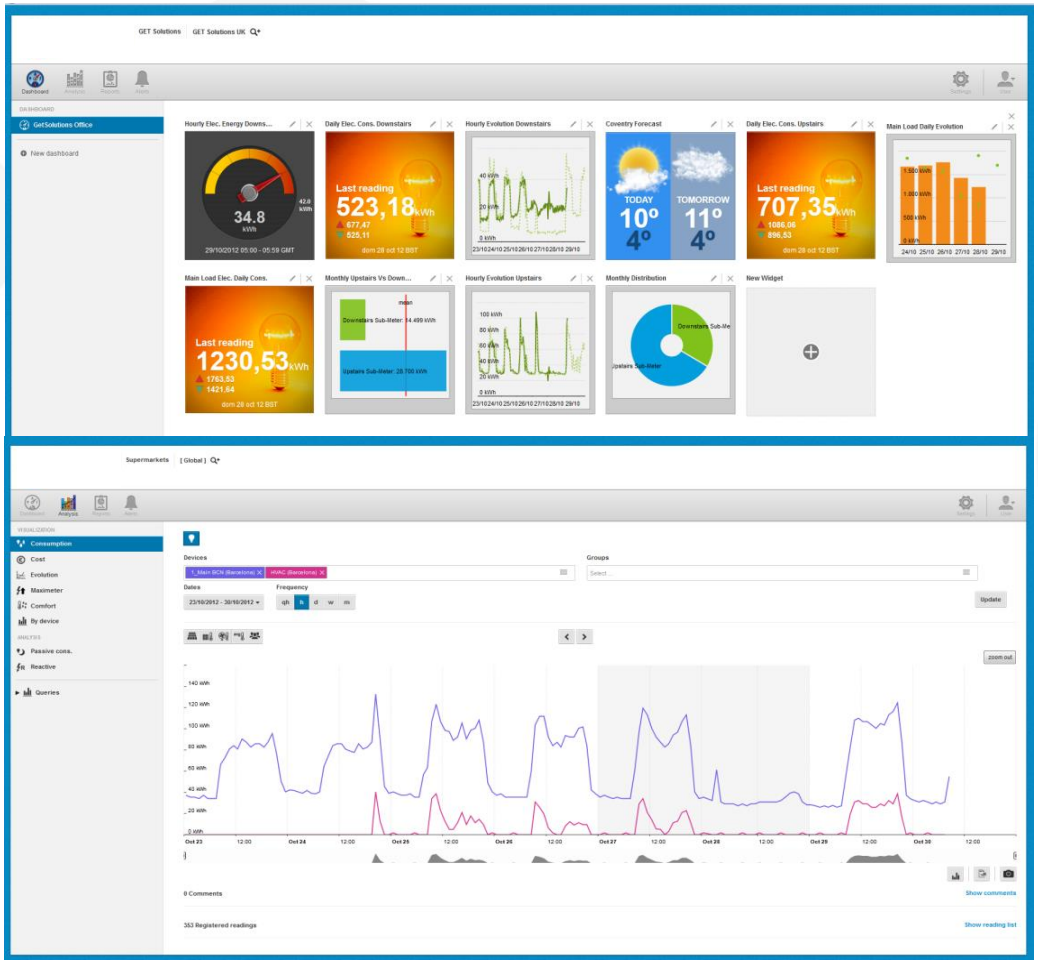
- Obtain site data/information
- Analyse copy utility bills
- Seek energy supplier raw data (Letter of Authority)
- Install data loggers (as required)

Data Capture | Monitor | Analyse | Survey | Deploy | Report & Monitor

- Import raw data
- Import live data (data loggers)
- Identify, measure & train base load, compare profiles
- Set benchmarks and alert parameters

Step 3

Data Capture | Monitor | **Analyse** | Survey | Deploy | Report & Monitor



Widget based customisable energy manager dashboard

Share dashboard among users

Comparative analysis
Interrogate patterns in detail

- Energy monitoring
- Tariff analysis
- * **Energy league tables**
- Sub meter monitoring
- * **Energy audits**
- Energy alarms
- Technologies monitoring
- M & V of projects

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Steps 4, 5 and 6

Engineering site survey to be conducted to validate and qualify desktop finding and to confirm specific details to cost and deploy interventions

All peripherals and equipment supplied, installed and commissioned. Inclusive of builders works and required local authority permissions

Continual energy efficiency performance development. Report, monitor, identify, act.

Financing Options

- Fully funded ‘Energy Services Agreement’ (ESA) – fixed, indexed payments
- Fully Funded – through PPA
- Cap Ex – Self financed, large upfront cost, maximum savings

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Published: 23 March 2022

AWARD WINNING HOLIDAY PARK JOINS THE ENERGY REVOLUTION™

Ullswater Heights, a luxury holiday park with stunning views of Blencartha and the stunning North Lakes has joined The Energy Revolution and will soon embark on its mission to become net-zero.