

BLAKE   
MORGAN



## Environmental legal update – summer 2018

John Mitchell, Consultant, Regulatory  
Risk and Compliance

- There is much delay of varying lengths:
  - Agriculture and fisheries bills are months behind schedule
  - Resources and waste strategy now due in September
  - No date for the deposit return scheme
  - Delivery plan due soon
  - Metrics for measurement of progress against the plan will not be delivered by the July target date

# Environmental watchdog

- The watchdog will “enforce” a series of environmental principles
- The principles may be:
  - Set out in an Act of Parliament, or
  - Listed in a “policy statement”
- It won’t be in place on Brexit day
- It’s method of enforcement will be by means of “advisory notices”



- Four areas of focus
  - Transport
    - Road (local authority responsibility)
    - Maritime
    - Rail
    - Aviation
  - The home
  - Farming
  - Industry

# UK government in court again over clean air failures

- Ultimatum given by Commission to UK in January to produce credible plans
- Government plans ruled illegal by UK courts several times
- Commission has now referred the UK to the CJEU

## Interesting cases

- Severn Trent fined £350k plus £70k costs
  - Leak of a chemical from a sewage treatment works
  - Killed 30,000 fish
  - Damaged 5 kms of a river
- Joe Keet fined £3,000
  - Allowed an illegal waste dump at his land at Wickham
  - Household, clearance, demolition and construction waste



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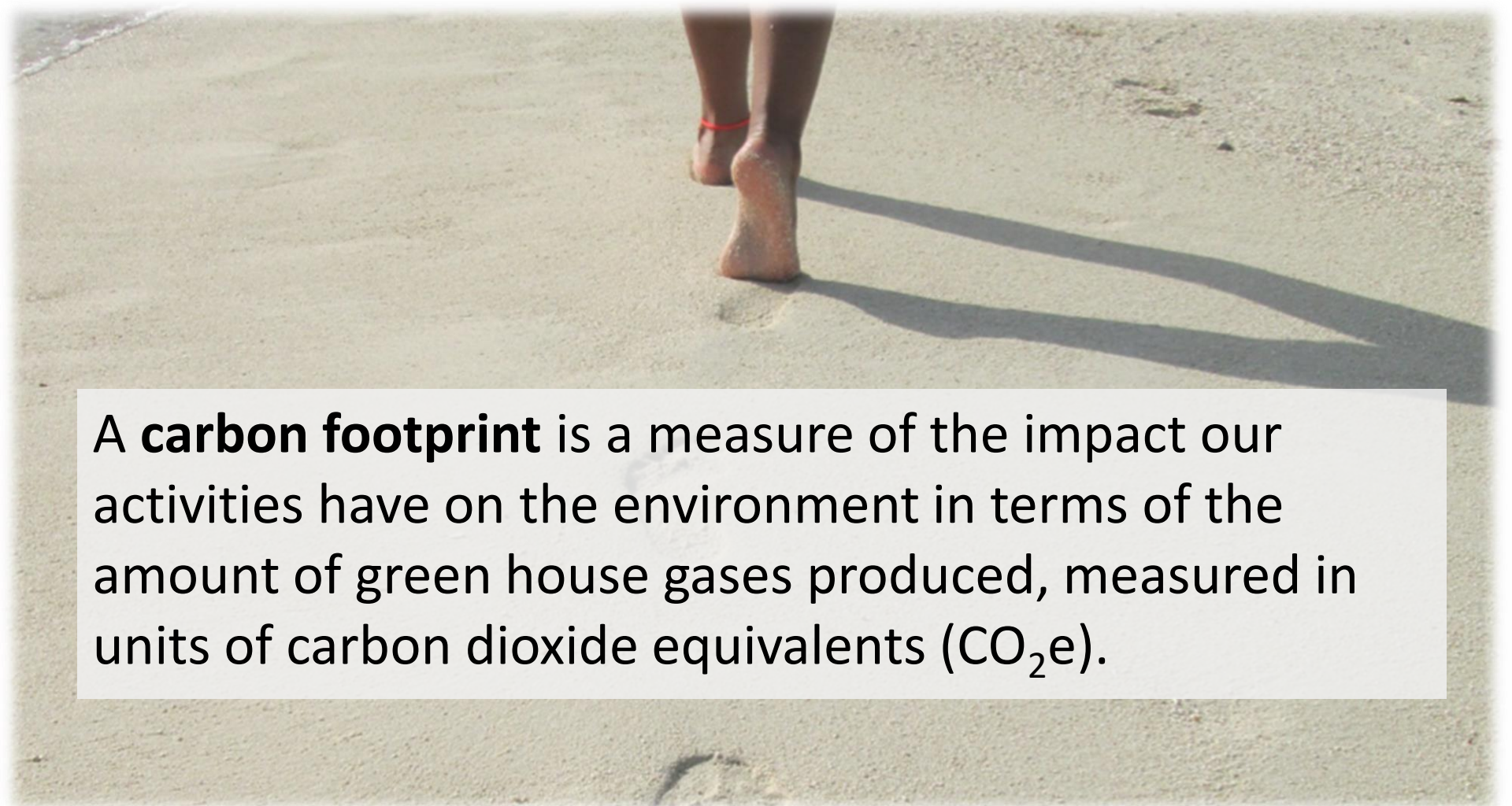
# Introduction to Carbon Footprinting and reducing your organisation's emissions

John Buckley  
Managing Director  
Carbon Footprint Ltd

[john.buckley@carbonfootprint.com](mailto:john.buckley@carbonfootprint.com)


01256 345645

# What is a Carbon Footprint?


A photograph showing the lower legs and feet of a person walking on a sandy beach. The person is wearing a red anklet. A shadow is cast on the sand to the right of the person's feet.

A **carbon footprint** is a measure of the impact our activities have on the environment in terms of the amount of green house gases produced, measured in units of carbon dioxide equivalents (CO<sub>2</sub>e).

# Why bother about it?

- 
- Do your bit for the planet
  - Legislation
  - Sales tender & customer demands
  - Market differentiation
  - Increased brand reputation
  - Reduce risks of bad PR
  - Attract investors
  - Cost reductions and boost profits



A background image of a blue sky filled with white and grey clouds, with sunlight breaking through in several places.

# 4 steps to calculate your carbon footprint

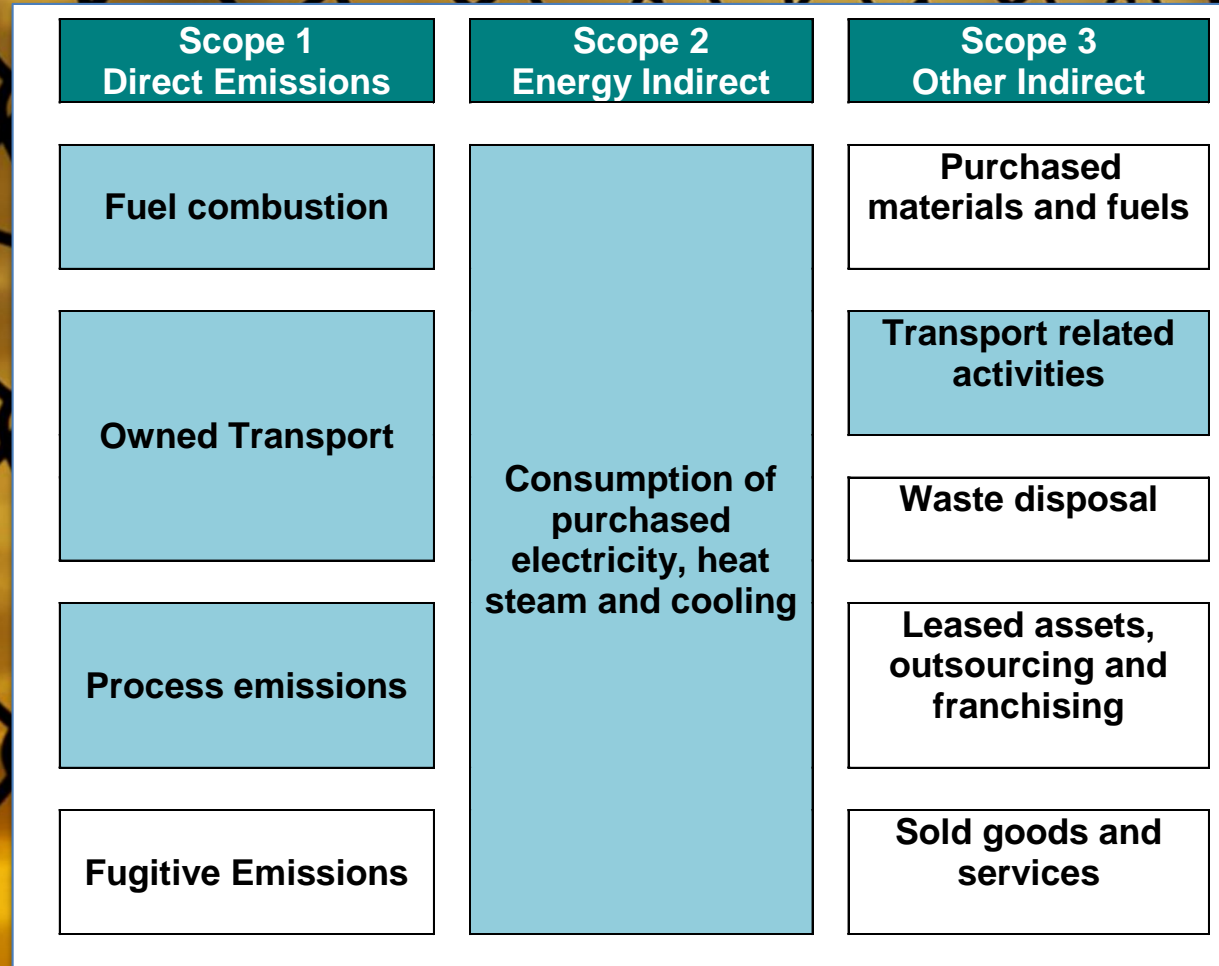


# Step 1 – Define the Scope and Boundaries

## A few things to consider...

- Why are you doing it?
- Who's asking for it?
- How do you need to report it?
- What are you assessing?
- Data available?
- Materiality

# Many companies report against Greenhouse Gas (GHG) Protocol Scopes

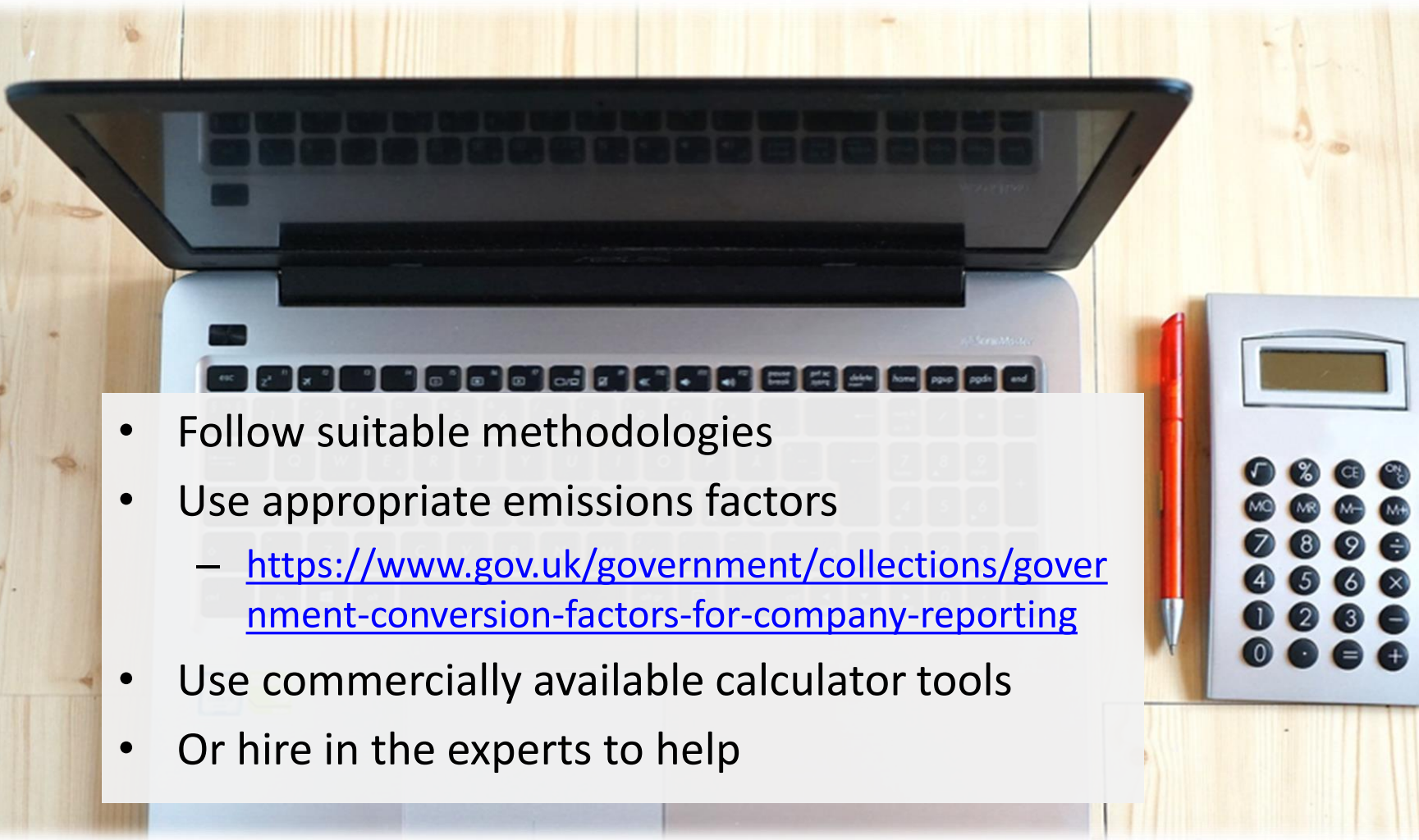




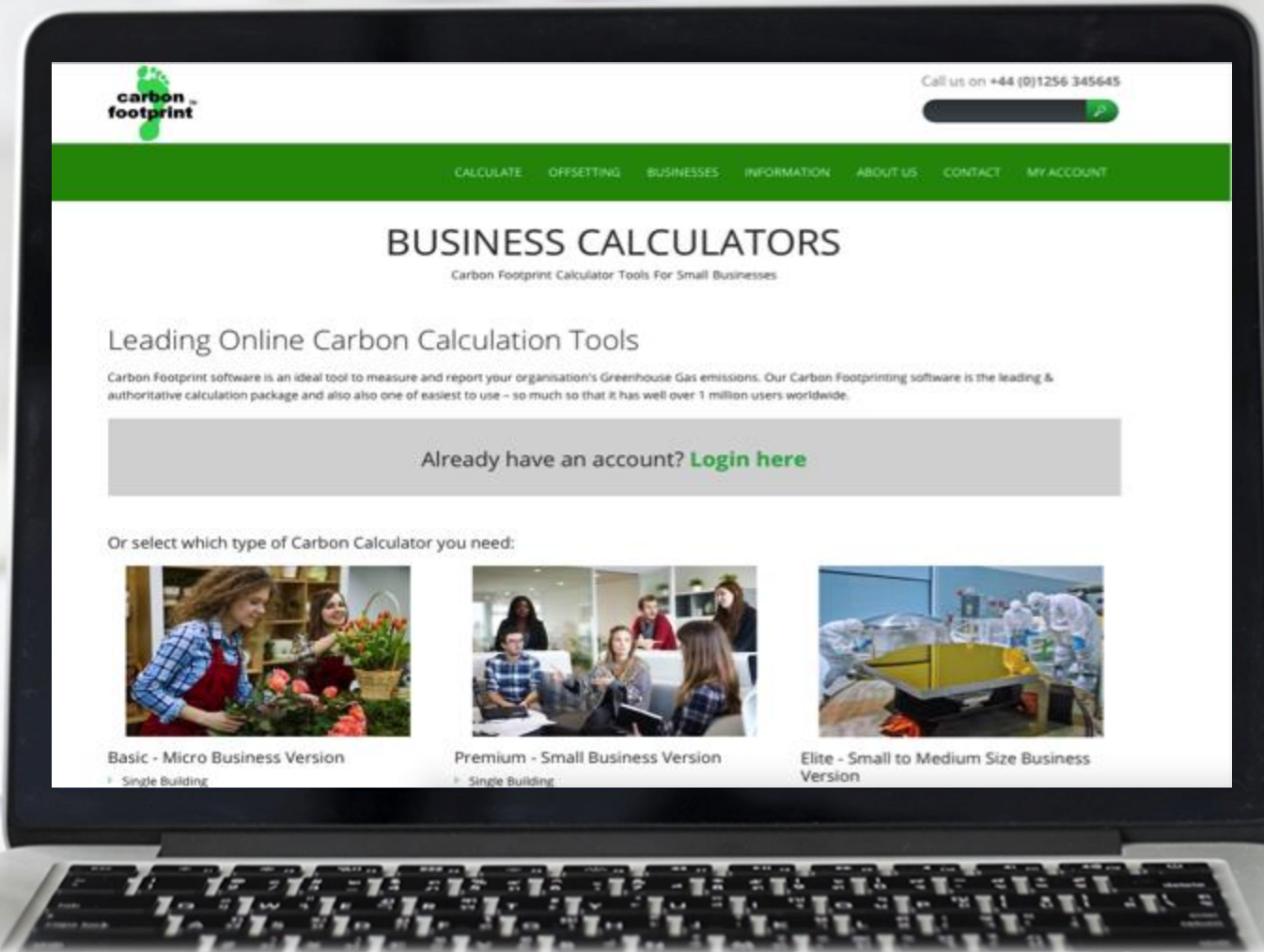
# Step 2 – Collect the data

| Typical Data Needed            | Where to find it...      |
|--------------------------------|--------------------------|
| Electricity                    | Bills; meter readings    |
| Gas                            | Bills; meter readings    |
| Air conditioning (A/C) top ups | A/C maintenance reports  |
| Company vehicle fuel           | Fuel Cards; Finance      |
| Staff owned cars               | Expenses; Finance        |
| Public Transport               | Expenses; Finance        |
| Flights                        | Expenses; Travel Reports |

# Step 3 - Calculate

- 
- Follow suitable methodologies
  - Use appropriate emissions factors
    - <https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting>
  - Use commercially available calculator tools
  - Or hire in the experts to help

# Free tools at [www.carbonfootprint.com](http://www.carbonfootprint.com)



# Tools available for more complex and large multi-site organisation (e.g. Sustrax)



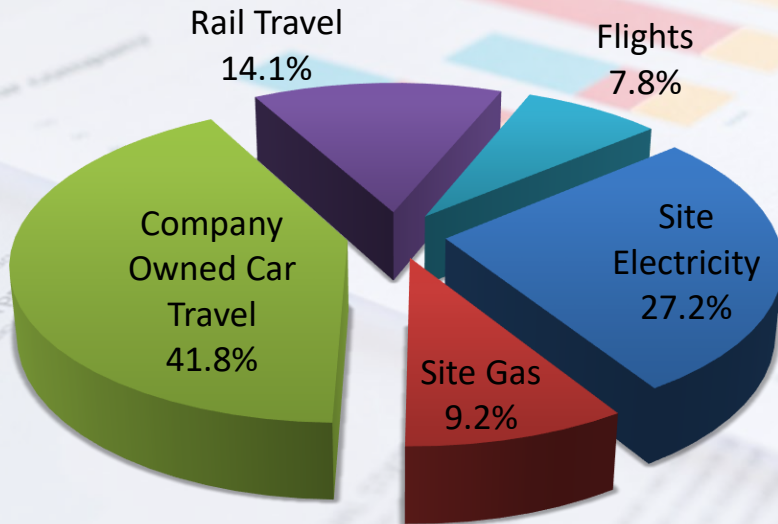
The screenshot shows the Sustrax web application interface. At the top, there is a green navigation bar with the company name "Sustrax" and a menu with options: Welcome, Building, Vehicle Fuel, Car Mileage, Flights, Waste, and Results. Below the navigation bar, the user is logged in as "Bob Test1" and can access "Print" and "Log Out" options. The main content area is titled "StarTech Ltd" and includes a message: "Select how you would like to analyse your emissions. Results are shown in charts that can be downloaded and exported for your reporting." There are two buttons: "Charts by Month" and "Charts By Year". Below this is a "Summary Results Table" section with filters for "All Years", "FY 2019", "FY 2018", and "FY 2017". A search bar with the text "search by keyword" and a "search" button is present. The table shows 10 rows of data, with a total of 21 rows. The table columns are: Date, FY, Month, Site, Scope, Data Type, Amount, Factor Name, Factor, tCO2e, and View. The data includes entries for various sites like Basingstoke and Paris, and data types such as Building Fuels, Grid Electricity, and Vehicle Miles. A summary row at the bottom shows a total of 182387 tCO2e for FY 2018 across 49 months.

| Date       | FY    | Month | Site        | Scope   | Data Type        | Amount | Factor Name                            | Factor  | tCO2e | View |
|------------|-------|-------|-------------|---------|------------------|--------|--|---------|-------|------|
| 11/11/2017 | 2018  | 2     | Basingstoke | Scope 1 | Building Fuels   | 6788   | Gas (Building) 2017                    | 0.18416 | 1.25  | view |
| 02/12/2017 | 2018  | 3     | Paris       | Scope 1 | Building Fuels   | 80000  | Gas (Building) 2017                    | 0.18416 | 14.73 | view |
| 01/01/2018 | 2018  | 4     | Paris       | Scope 1 | Building Fuels   | 15000  | Gas (Building) 2017                    | 0.18416 | 2.76  | view |
| 01/01/2018 | 2018  | 4     | Paris       | Scope 2 | Grid Electricity | 10000  | France (Grid Electricity) 2017         | 0.20000 | 2.00  | view |
| 01/02/2018 | 2018  | 5     | Paris       | Scope 1 | Building Fuels   | 18000  | Gas (Building) 2017                    | 0.18416 | 3.31  | view |
| 01/02/2018 | 2018  | 5     | Basingstoke | Scope 2 | Grid Electricity | 18999  | United Kingdom (Grid Electricity) 2016 | 0.35156 | 6.68  | view |
| 01/03/2018 | 2018  | 6     | Paris       | Scope 2 | Grid Electricity | 10500  | France (Grid Electricity) 2017         | 0.20000 | 2.10  | view |
| 01/03/2018 | 2018  | 6     | Paris       | Scope 1 | Building Fuels   | 12000  | Gas (Building) 2017                    | 0.18416 | 2.21  | view |
| 11/04/2018 | 2018  | 7     | Basingstoke | Scope 3 | Vehicle Miles    | 100    | Small Petrol 2016                      | 0.25184 | 0.03  | view |
| 11/04/2018 | 2018  | 7     | Paris       | Scope 1 | Building Fuels   | 11000  | Diesel (Building) 2016                 | 0.18416 | 2.03  | view |
| Sum        | 20180 | 49    |             |         |                  | 182387 |  |         | 37.10 |      |

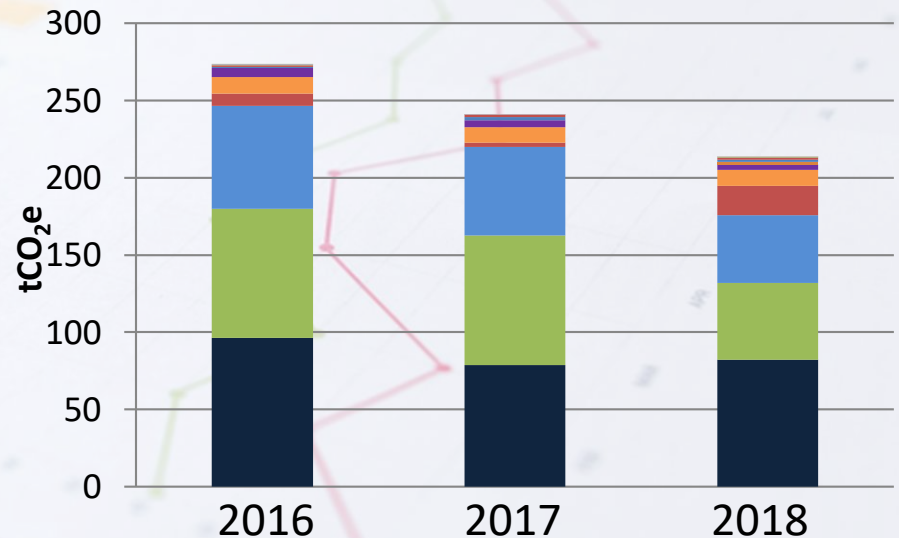


# Step 4 – Report & Communicate

**Breakdown of Carbon Footprint**



**Total tCO<sub>2</sub>e 2016 - 2018**



# Example of Mandatory Greenhouse Gas reporting



## Greenhouse gas ('GHG') emissions

million tonnes of CO<sub>2</sub>e



- Scope 1 emissions (over which we have direct control)
- Scope 2 emissions (from purchased electricity)
- Total of Scope 1 and Scope 2

Note:

Calculated using local market actual or estimated data sources from invoices, purchasing requisitions, direct data measurement and estimations. Carbon emissions calculated in line with GHG Protocol standards. Scope 2 emissions are reported using the market-based methodology. For full methodology see our Sustainable Business Report 2017.

## GHG emissions per petabyte of data carried by our mobile networks

tonnes of CO<sub>2</sub>e



Note:


Figures include all data carried by our mobile networks with an adjustment to include only part of the data carried in India, where only base stations under our operational control are included in our GHG emissions totals.



vodafone

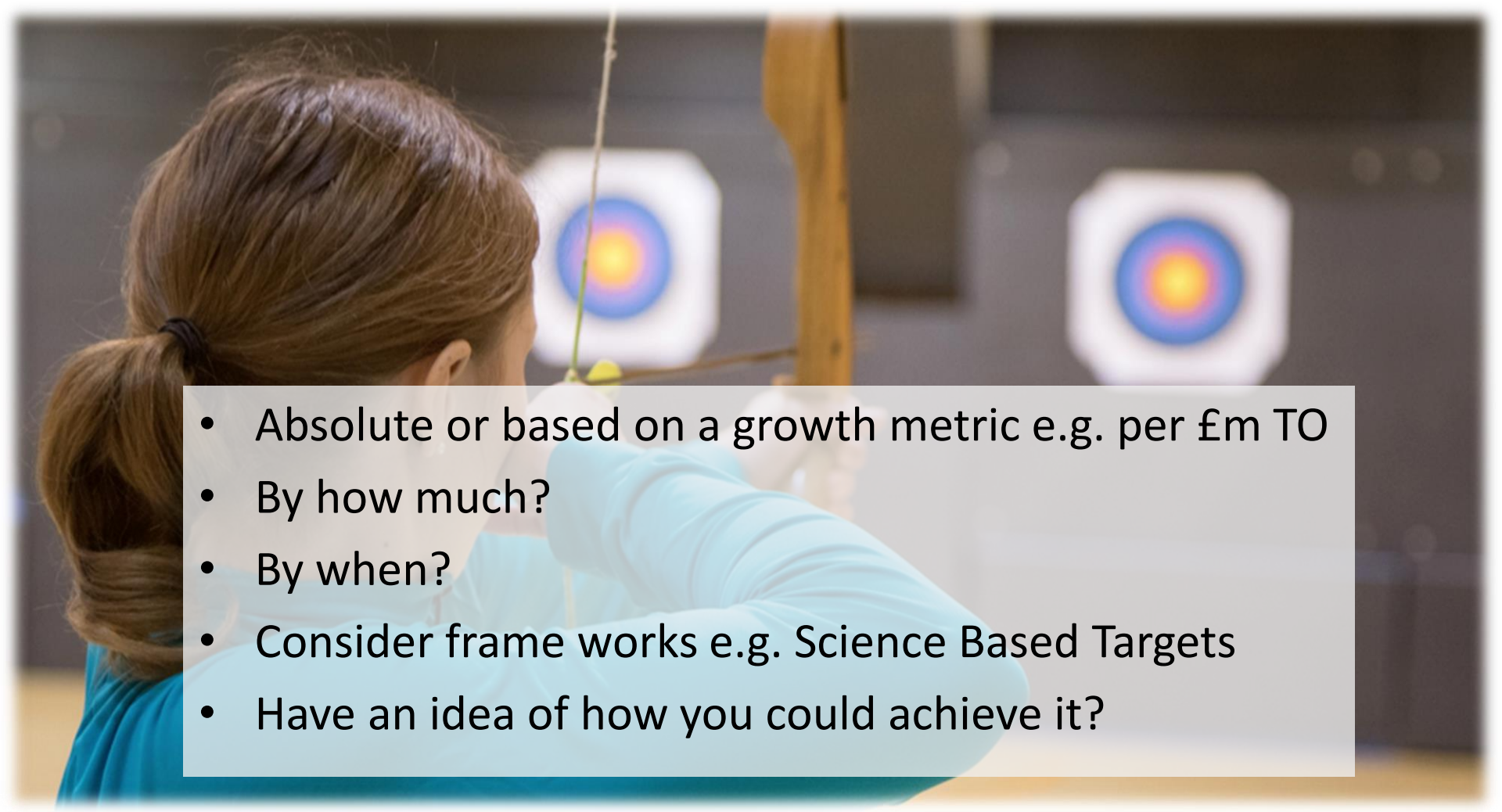
Ref: [http://www.vodafone.com/content/annualreport/annual\\_report17/index.html](http://www.vodafone.com/content/annualreport/annual_report17/index.html)



A background image of a blue sky filled with white and grey clouds, with sunlight breaking through in several places.

What next - now you know  
your carbon footprint?

# 1. Define realistic targets and goals

- 
- A woman with brown hair tied back, wearing a blue long-sleeved shirt, is seen from the side, aiming a wooden bow at two targets in an archery range. The targets are white with blue and yellow concentric circles. The background is dark and slightly blurred.
- Absolute or based on a growth metric e.g. per £m TO
  - By how much?
  - By when?
  - Consider frame works e.g. Science Based Targets
  - Have an idea of how you could achieve it?

## 2. Generate ideas and produce a Carbon Management Plan



| Action   | Who        | When     | Footprint Element      | Costs       | Annual Cost Savings | Pay back period  | Annual Carbon Savings |
|--|------------|----------|------------------------|-------------|---------------------|------------------|-----------------------|
| Change T8 lights to LEDs in Building 1         | Bob Smith  | Nov 2018 | Building 1 Electricity | £4,000      | £2,500              | 1.6 years        | 10tCO <sub>2</sub> e  |
| Investigate options for route planning systems | Jill Black | Jul 2018 | Delivery Vehicles      | 1 day       | -                   | -                | -                     |
| Implement route planning                       | Jill Black | Dec 2018 | Delivery Vehicles      | £500<br>TBC | £1000<br>TBC        | 0.5 years<br>TBC | 1tCO <sub>2</sub> e   |



# 3. Consider how carbon offsetting fits with your carbon and CSR strategy



# Things to remember...



1. Many good business reasons to managing your carbon emissions
2. Relatively easy to get started... Try out the free online tools
3. The assessment is just the starting point in the journey
4. Cost savings come from reducing your emissions
5. Wider marketing, PR and brand benefits for companies that are part of the solution

**Now is the time to take your first step... or your next...**

# Any questions?



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Carbon Footprint Ltd offer a full range of consultancy services to help you reduce your carbon footprint and improve your businesses sustainability credentials





Our Carbon Footprint Journey  
SBN Meeting 8 June 2018

# Back Ground Information

- We blend chemicals to make cleaning products for the air conditioning and refrigeration industry ; sell tools and equipment that a service engineer would use
- 2004 – Moved in to our current premises in Basingstoke
- 2009 – ISO14001:2004 certified
- 2010 – carried out a benchmark audit with Carbon Footprint
- 2017 – ISO14001:2015 certified

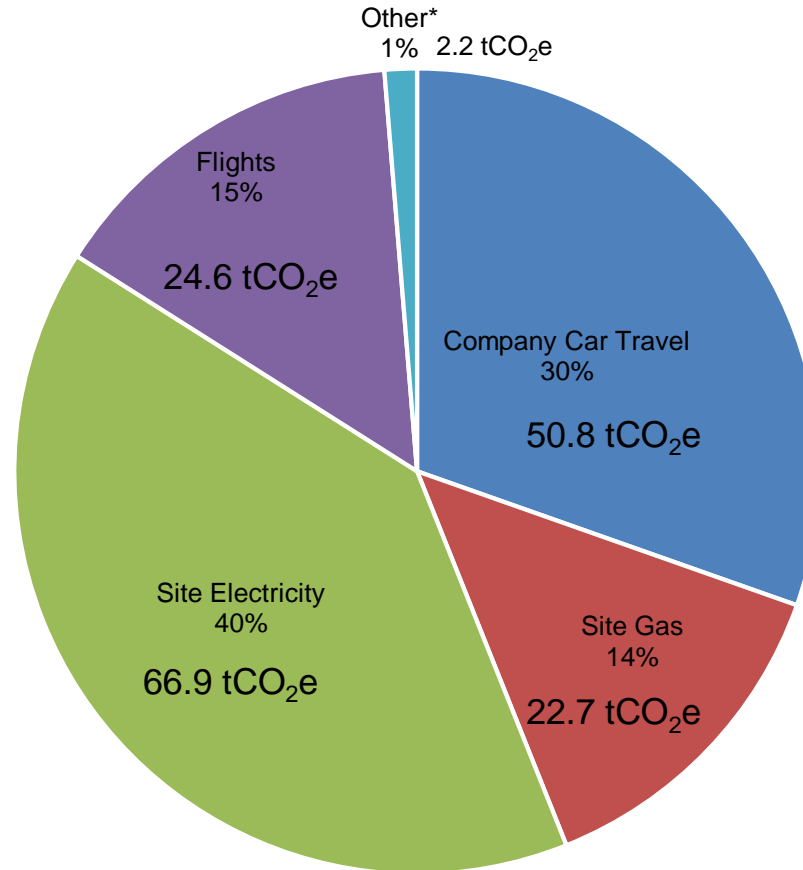




# What do we measure?

- Company car travel/grey fleet travel/ hire car travel
- Flights / rail travel / taxi travel
- Site gas & electricity consumption
- On-site electricity generation (since 2012)
- Refrigeration / air conditioning refrigerant emissions

# Tonnes CO<sub>2</sub>e 2010



Other\* includes: grey fleet, car hire, taxi, rail, ferry and van travel, and refrigerants

# What did we do?

- 2011 – installed 4kw solar PVs  
–£12k
- 2013 – installed 43kw solar PVs  
–£47k



# What did we do?

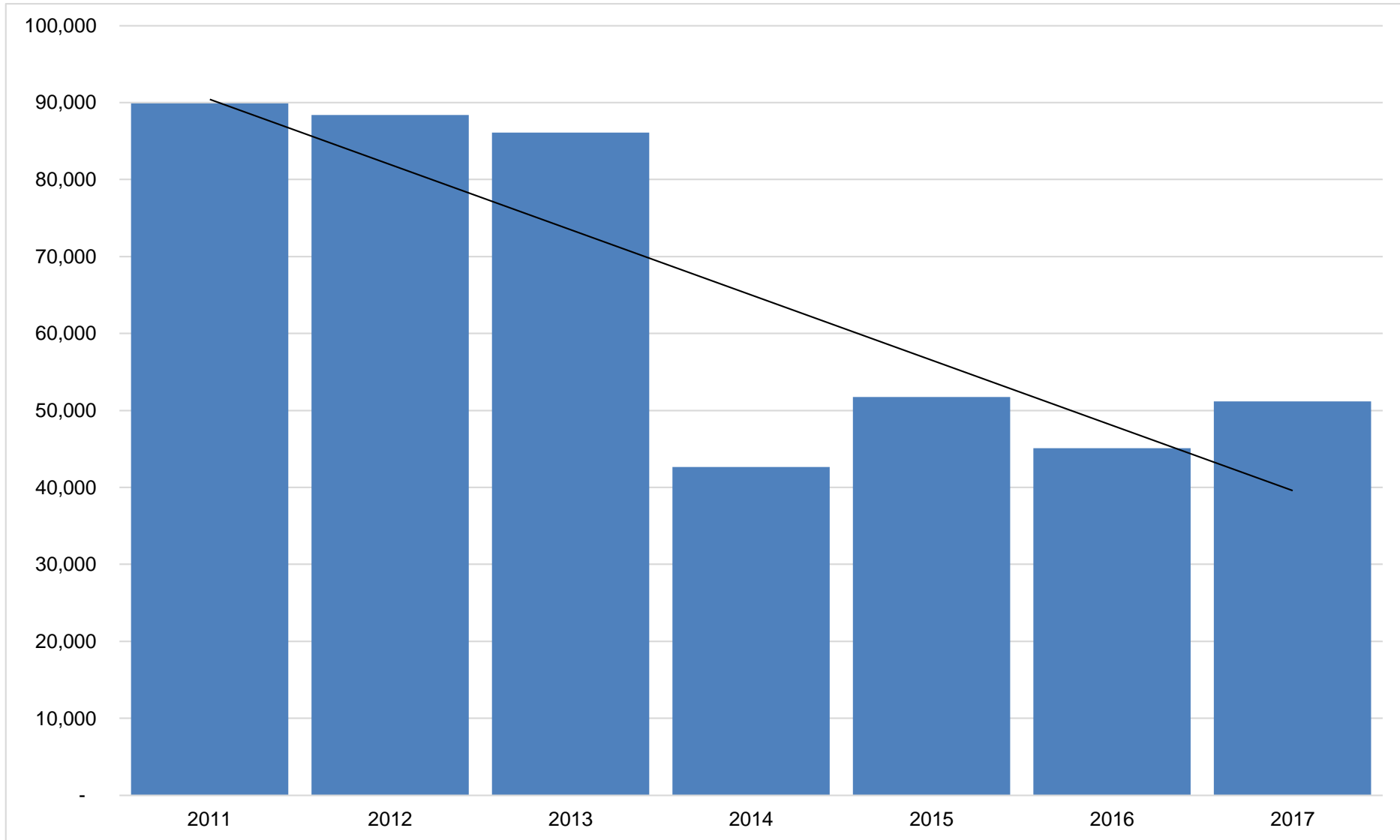
- 2013 – installed LED lighting throughout the building including the warehouse (£31k)
- 2015 – replaced ground floor air conditioning/heating (£16k)
- 2016 – replaced first floor air conditioning / heating and replaced gas boiler (£46k)
- 2017 – replaced 3 fork lift truck chargers with one (£2k)

# Pay-back – LED Lighting & Solar PVs only

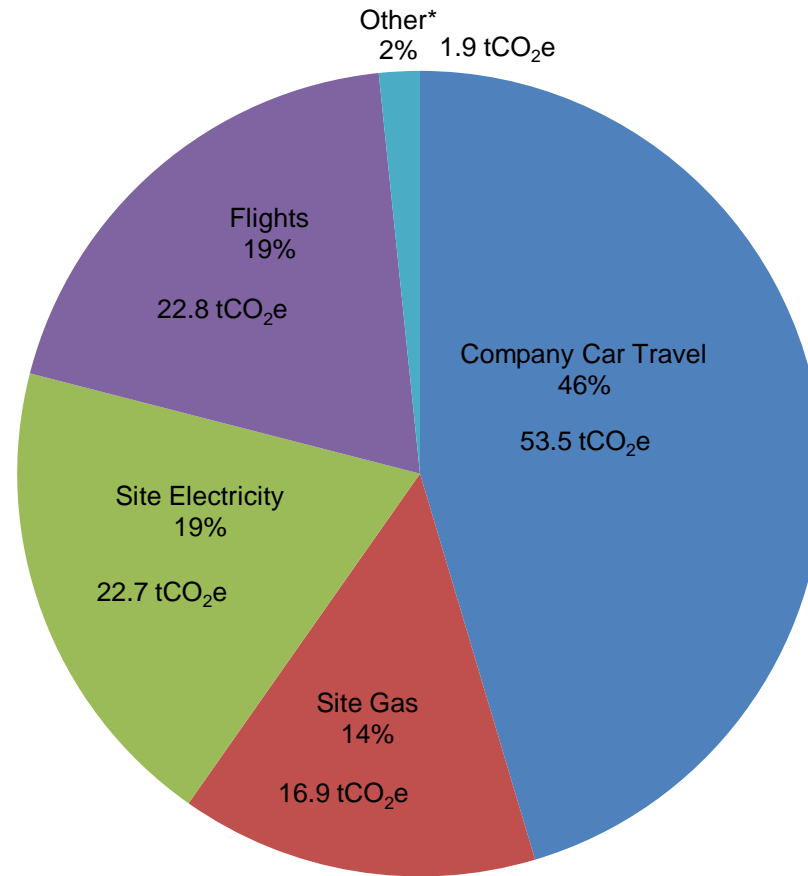


|                                |                 |
|--------------------------------|-----------------|
| Capital Cost                   | £90,000         |
| Savings per Year (6 year base) | £ 8,969         |
| <b>Pay back</b>                | <b>10 years</b> |

# Annual Electric Consumption (kWh) 2011 – 2017 (based on energy invoices)

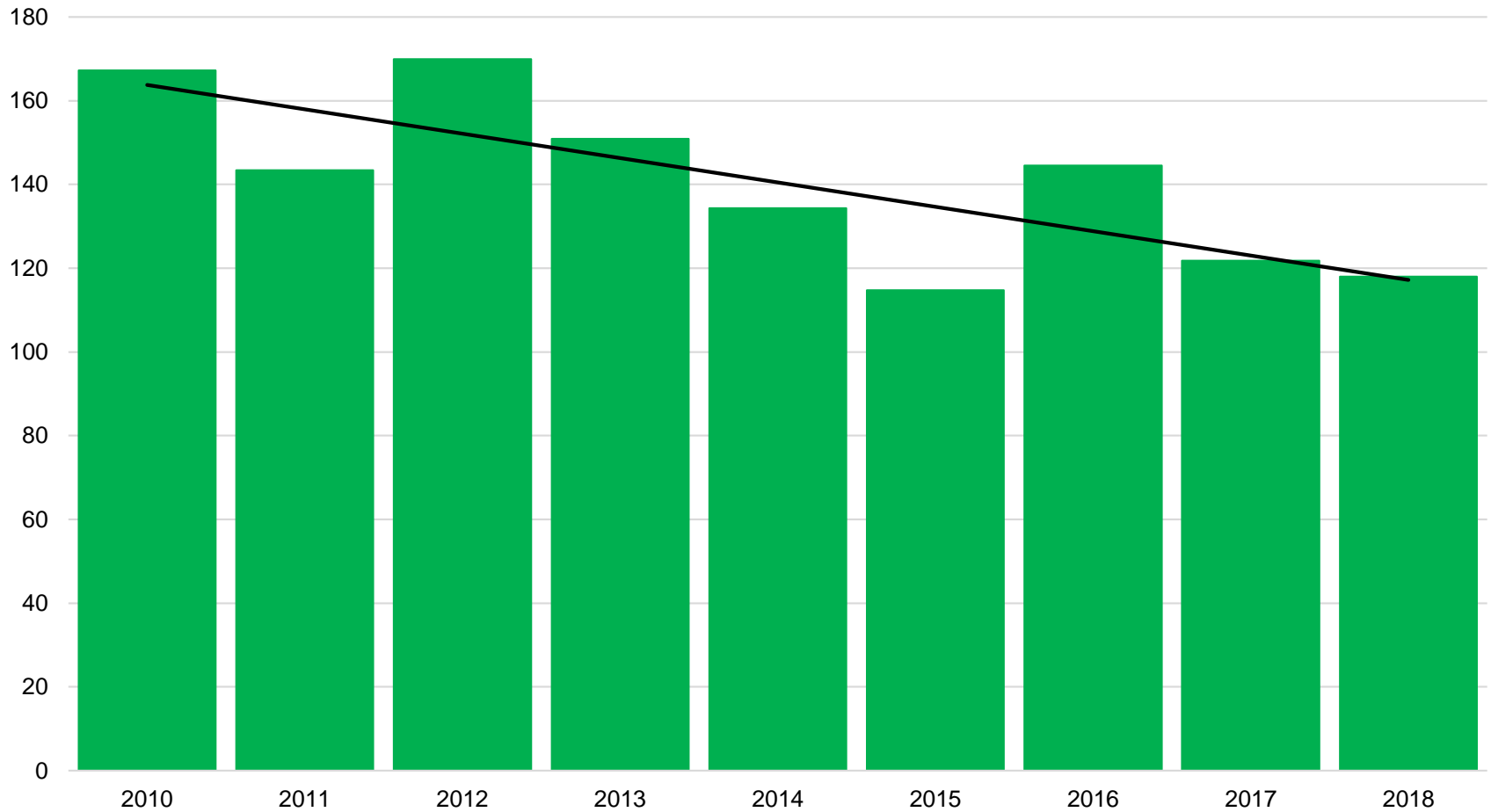


# Tonnes CO<sub>2</sub>e 2018



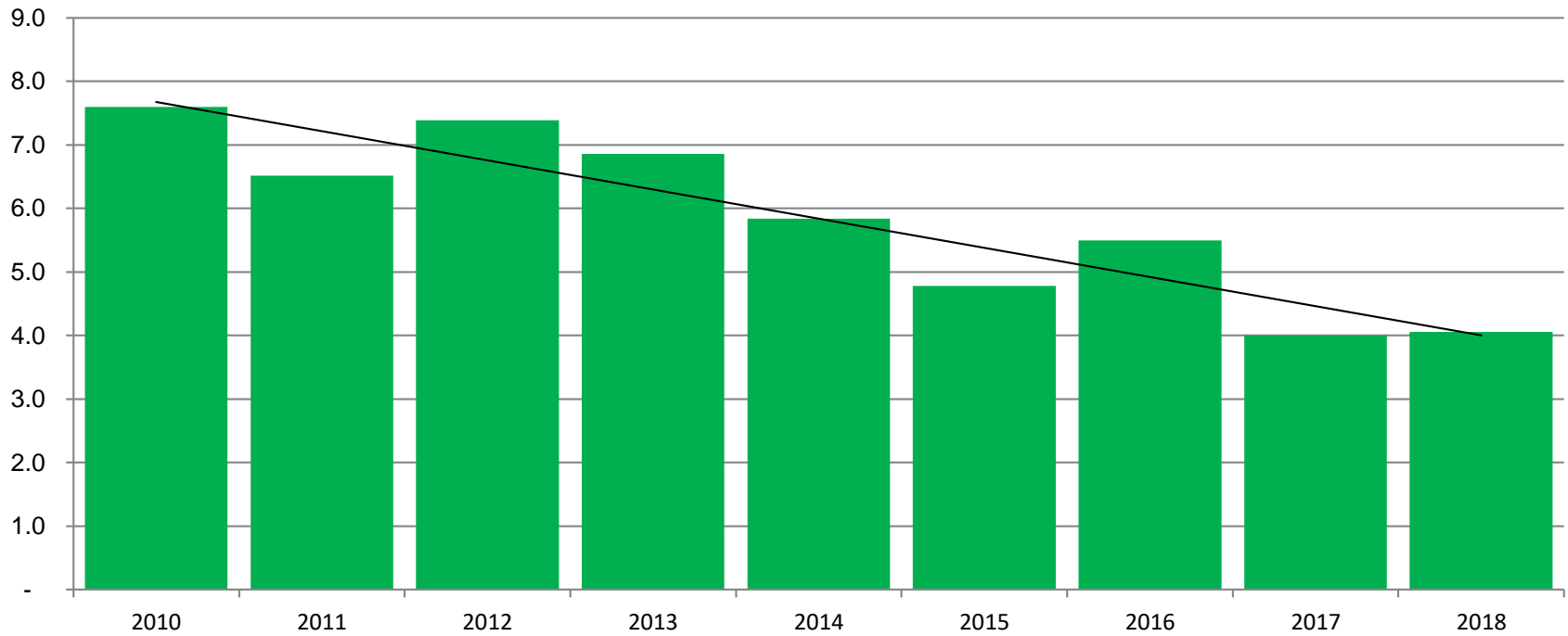
Other\* includes: grey fleet, car hire, taxi, rail and ferry travel, and refrigerants

# Total tCO<sub>2</sub>e 2010 - 2018

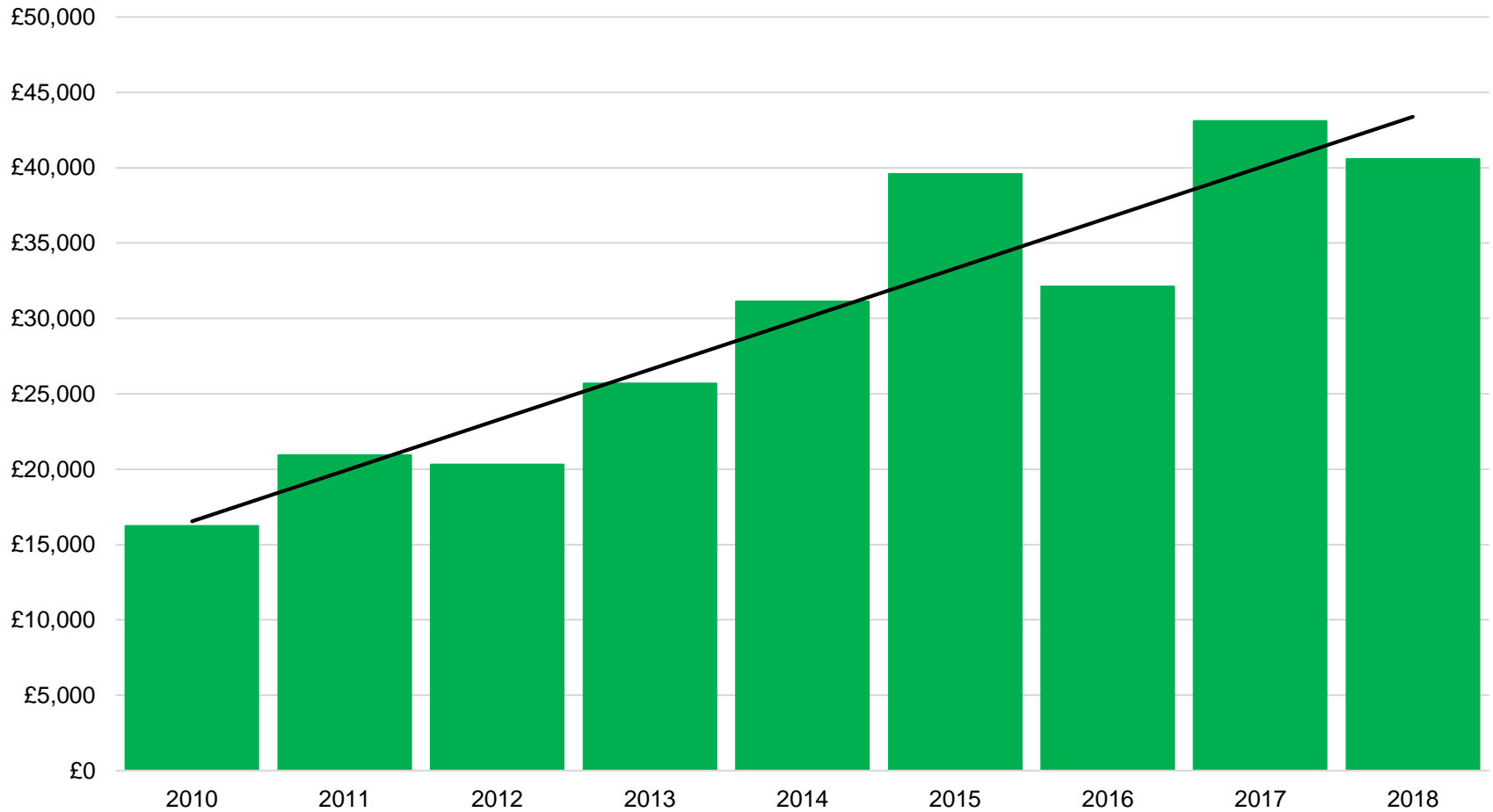




# Tonnes of CO<sub>2</sub>e per Employee



# Turnover per tonne of CO<sub>2</sub>e 2010-2018



# What next?

## **Short-Term**

- Review company car policy
- Review electricity supply – possible move to all green energy supply

## **Medium Term**

- Carbon off-setting
- Possible replacement gas blower heater in warehouse – currently running well

# Why measure your carbon footprint?



- Identifies the high tCO<sub>2</sub>e categories
- Enables the business to focus investment
- Shows continuous improvement (ISO14001)

**nus**

**green impact**



**Winchester**  
City Council

# Cutting Carbon with Green Impact

Michelle Farrell  
Sustainability Project Officer – NUS



Environmental awards programme which takes place in a range of organisations across the UK and beyond.

Based around an online toolkit which breaks sustainability down into easy to follow actions

The toolkit acts as a guide to help your business on their sustainability journey!





In the UK there is a **£300 million** opportunity in encouraging employees to adopt greener behaviours, which would result in saving over **six million tonnes** of carbon!

- Play your part in cutting carbon emissions
  - Reduce operational costs
  - Receive recognition for your efforts
- Get others involved and be part of the Winchester Green Impact business community

Make Winchester a greener, cleaner place to live and work!

"It's evident that Green Impact has reduced our environmental impacts, improved our working efficiencies and cost savings, but above all of that, it **has led to a more joint-up-thinking across the business** that was certainly missing in many areas."

- 2014/15 national staff team survey

small actions  
lots of people  
x = BIG CHANGE



# 352 organisations



NUS have won the UNESCO prize for education for sustainable development



nus

green impact at 10





- Intro
- Water  
Completed 0 of 8
- Energy  
Completed 0 of 24
- Travel  
Completed 0 of 13
- Waste & Recycling  
Completed 0 of 17
- Biodiveristy and Communit
- Embedding & Communication  
Completed 0 of 17
- Procurement  
Completed 0 of 18

## Welcome to Green Impact Winchester!

Welcome to your organisation's Green Impact toolkit.

First of all, please watch the short instruction video below, or take a look at the [full user guide](#) to find out how to get started. Then you can use the navigation tabs on the left to look at the bespoke toolkit designed for organisations across the Winchester district. Please also take the [baseline survey](#) to help with our monitoring and evaluation of the scheme.

If you click on the tabs to the left you will see the different criteria. This year we have changed the scoring system,

To gain the various award levels you will need to achieve the following:

- Working Towards Bronze – Score at least 10 points
- Bronze – Score at least 100 points

- Achievement Report
- Profile
- Activity Log
- Evidence Uploads
- Archive Toolkit
- Logout

Team name:  
Example

Members:  
Example Example

Like Share 2.2k people like this. Sign Up to see what your friends like.

Tweet #GreenImpact

Tweets by @WinchesterCity

Winchester CC @WinchesterCity

(BAC001 - BAC002) Community Action - [Hide All](#) Completed 0 out of 2

| BAC001  | Criteria | Further Information | How you will be audited | Comments/Evidence | Total Points | 4 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
|---|----------|---------------------|-------------------------|-------------------|--------------|---|-----------------------|-----------------------|-----------------------|
| <b>BAC001 - Community Action</b>  |          |                     |                         |                   |              |   | Not Done              | N/A                   | Done                  |
| <p>Within the last 12 months, the business has promoted the work of the <a href="#">Sustainable Business Network</a> and <a href="#">WinACC</a> to staff and/or other local businesses. This could include disseminating resources provided by them, inviting them to events or simply ensuring that staff are aware of them.</p> |          |                     |                         |                   |              |   |                       |                       |                       |

| BAC002   | Criteria | Further Information | How you will be audited | Comments/Evidence | Total Points | 4 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
|--|----------|---------------------|-------------------------|-------------------|--------------|---|-----------------------|-----------------------|-----------------------|
| <b>BAC002 - Community Action</b>   |          |                     |                         |                   |              |   | Not Done              | N/A                   | Done                  |
| <p>Staff in the team have participated in two or more charity initiatives in the last 12 months.</p> |          |                     |                         |                   |              |   |                       |                       |                       |

(BAC003 - BAC006) Managing outdoor spaces - [Hide All](#) Completed 0 out of 4

| BAC003   | Criteria | Further Information | How you will be audited | Comments/Evidence | Total Points | 4 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
|--|----------|---------------------|-------------------------|-------------------|--------------|---|-----------------------|-----------------------|-----------------------|
| <b>BAC003 - Managing outdoor spaces</b>                                      |          |                     |                         |                   |              |   | Not Done              | N/A                   | Done                  |
| <p>The business has bird feeders or bug boxes on trees on their premises</p> |          |                     |                         |                   |              |   |                       |                       |                       |

| BAC004   | Criteria | Further Information | How you will be audited | Comments/Evidence | Total Points | 3 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
|--|----------|---------------------|-------------------------|-------------------|--------------|---|-----------------------|-----------------------|-----------------------|
| <b>BAC004 - Managing outdoor spaces</b>  |          |                     |                         |                   |              |   | Not Done              | N/A                   | Done                  |
| <p>The business has at least one <a href="#">bee hotel</a> or bee hive on their premises</p> |          |                     |                         |                   |              |   |                       |                       |                       |



**Working towards Bronze - 10 points**



**Bronze - 100 points**



**Silver - 200 points**



**Gold - 300 points**



One team ran a food collection campaign, 'De-clutter your Cupboards' over Jan. They invited staff and students to take part and organised a collection from a local food bank.





All Veggie options  
half price on  
Mondays!





Michelle Farrell

Senior Sustainability Project Officer, NUS

[Michelle.Farrell@nus.org.uk](mailto:Michelle.Farrell@nus.org.uk)



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# Government Funding Opportunities for Energy Innovation

  
Department for  
Business, Energy  
& Industrial Strategy

Gemma Regniez Head of Communications and Strategy, Science & Innovation for Climate and Energy [Gemma.Regniez@beis.gov.uk](mailto:Gemma.Regniez@beis.gov.uk)

  
Department for  
Business, Energy  
& Industrial Strategy

A diagram illustrating the components of Industrial Strategy. At the top is a dark blue triangle containing the text 'Industrial Strategy'. Below it are four dark blue rounded rectangular pillars. The first pillar on the left is labeled 'Clean Growth Challenge' and has a smaller section at the bottom labeled 'Energy Innovation' in yellow. The second pillar is labeled 'AI'. The third pillar is labeled 'Mobility'. The fourth pillar is labeled 'Aging Society'.

Industrial Strategy

Clean Growth  
Challenge

Energy  
Innovation

AI

Mobility

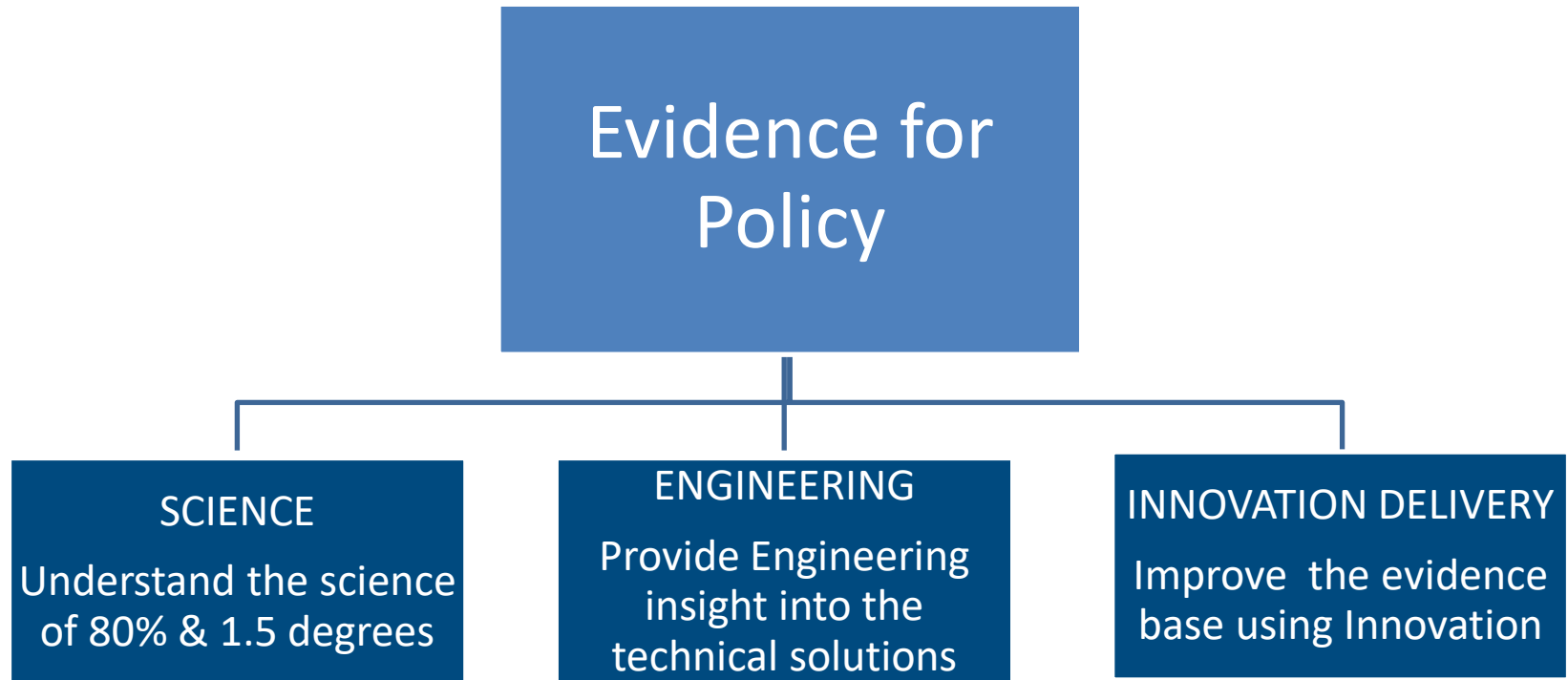
Aging  
Society

Department for  
Business, Energy  
& Industrial Strategy



# EVIDENCE BASED APPROACH FOR THE INDUSTRIAL STRATEGY

## *Science and Innovation for Climate and Energy (SICE)*



  
Department for  
Business, Energy  
& Industrial Strategy



The overall aim of the BEIS Energy Innovation Programme is to accelerate the commercialisation of innovation cheap, clean, and reliable energy technologies by the mid 2020s and 2030s.

**£180m**  
Nuclear

Driving down costs and building new UK supply chains and skills

**£15m**  
Renewables

Driving down the cost of low carbon electricity at scale

**£100m**  
Industry

Low carbon options for industry, lowering energy costs

**£90m** Built Environment

More cost effective energy efficiency and low carbon heating

**£70m** Smart Systems

Scaling up flexibility and looking for new storage options

**£50m Cross Cutting** Supporting disruptive innovations (particularly for SMEs), including using innovative finance.

# Case Study from the Energy Entrepreneurs Programme: CCm Technologies, Peter Hammond.

Find out more at:

<https://www.gov.uk/guidance/energy-innovation>

Contact:

Gemma Regniez Head of  
Communications and Strategy,  
Science & Innovation for Climate  
and Energy

[Gemma.Regniez@beis.gov.uk](mailto:Gemma.Regniez@beis.gov.uk)



**ccm** **research**  
sustainable materials

# Carbon Footprint

June 2018



- CCM Research was established in 2013 to develop processes that utilise carbon dioxide and other waste materials in new products
- Our approach is to focus on combining Carbon dioxide and Biogenic Wastes / Bye Products to produce more sustainable materials
- Our principal products are fertilisers, compound biobased and heat storage materials
- We have had a Pilot Unit operating at Viridors EfW facility at Ardley
- System has been operational for 36 months and has produced materials for two full seasons of field trials.
- Just commissioning 10kT output system for another Viridor site

## Production Unit Viridor Food Waste Site, Walpole

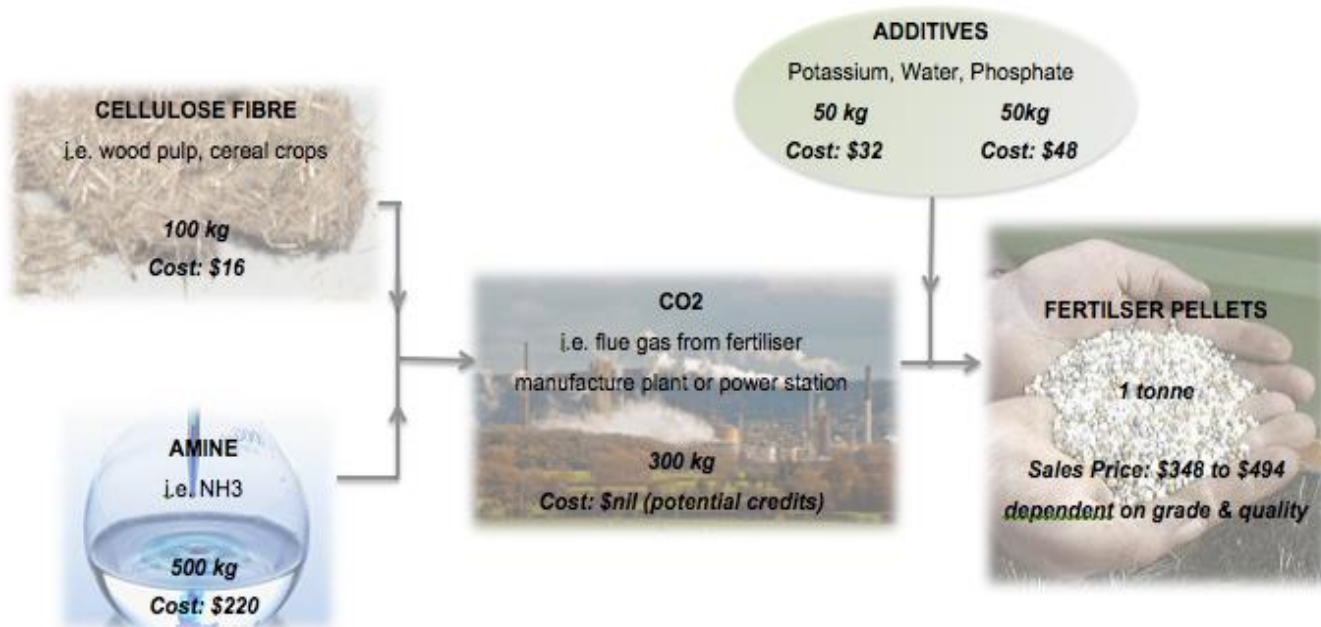


### Output

- 20 Tons of product per day.
- 3 Classes of product produced
- 2 Fertiliser Plus Heat
- Hands Free Operating.
- Exploitation of wider waste streams
- Ag. Food Sewage AD



## Fertiliser Production Process





## Product Evaluation Academic and Commercial



## CCm fertiliser trials at RAU and Harper Adams



CCm fertiliser trials at RAU and Harper Adams

CCm Research Limited  
Oxford University Begbroke Science Park  
Woodstock Road  
OX5 1PF  
United Kingdom

[www.ccmtechnologies.co.uk](http://www.ccmtechnologies.co.uk)

+44 (0)1865 309 605  
peter.hammond@ccmtechnologies.co.uk



## HPW | Sustainable Construction







New Forest - Studio





# Avon Tyrell - Zero energy boathouse



Avon Tyrell - Completed boathouse





Avon Tyrell - Completed boathouse



## Private Home - Romsey

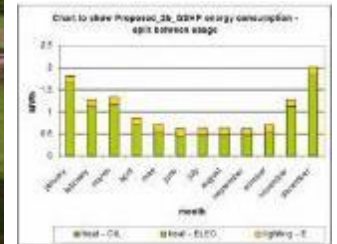
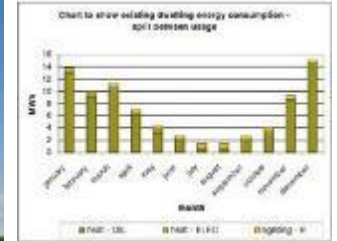
HPW secured planning for this modernist house in the conservation area of the historic market town of Romsey.





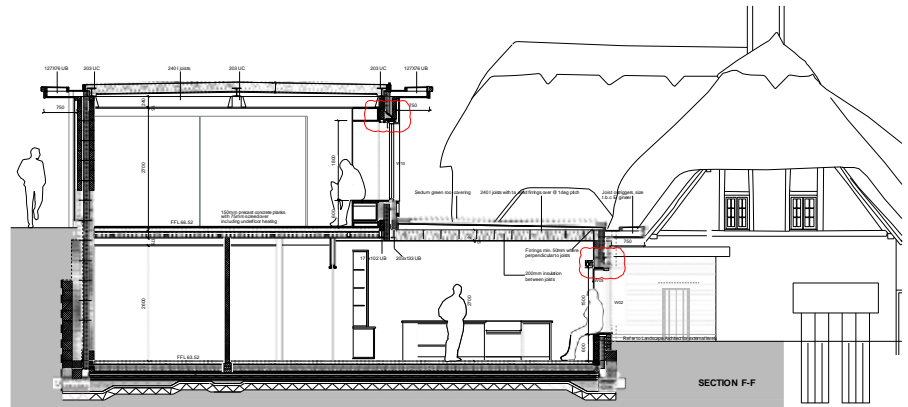
## Private Home - Yorkshire

Our client brief was to retrofit a converted barn in order to reduce energy consumption. Features include under floor heating, ground source heat pump, super-insulated shell, and a high quality fit-out.



## Grade 2 Listed Cottage - Romsey

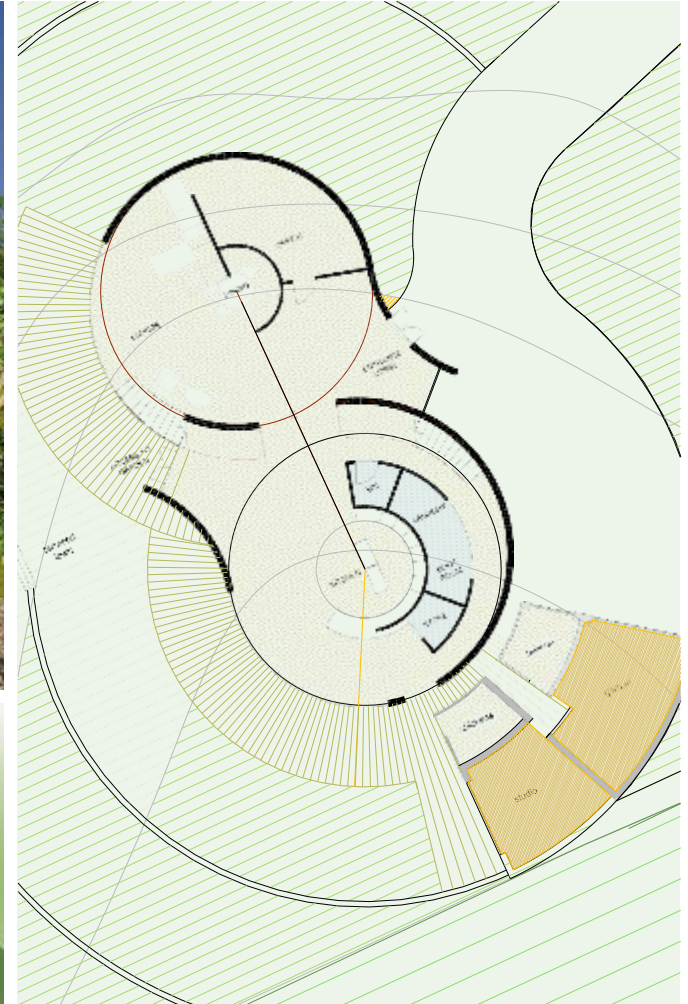
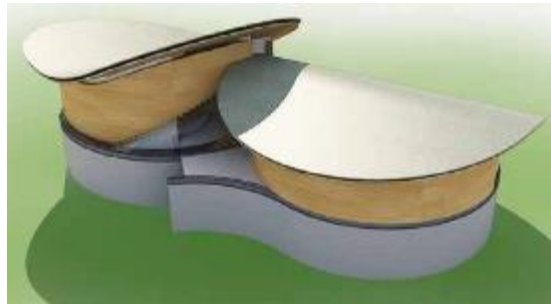
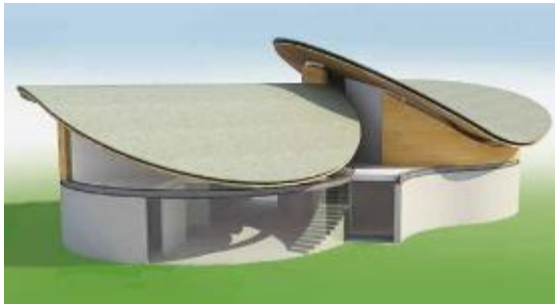
A sensitive contemporary extension to provide family accommodation and open plan living.  
High quality materials, local bricks, sharp edge detailing, all combine to create a synergy of old and new.





## Yin Yang House - Malvern

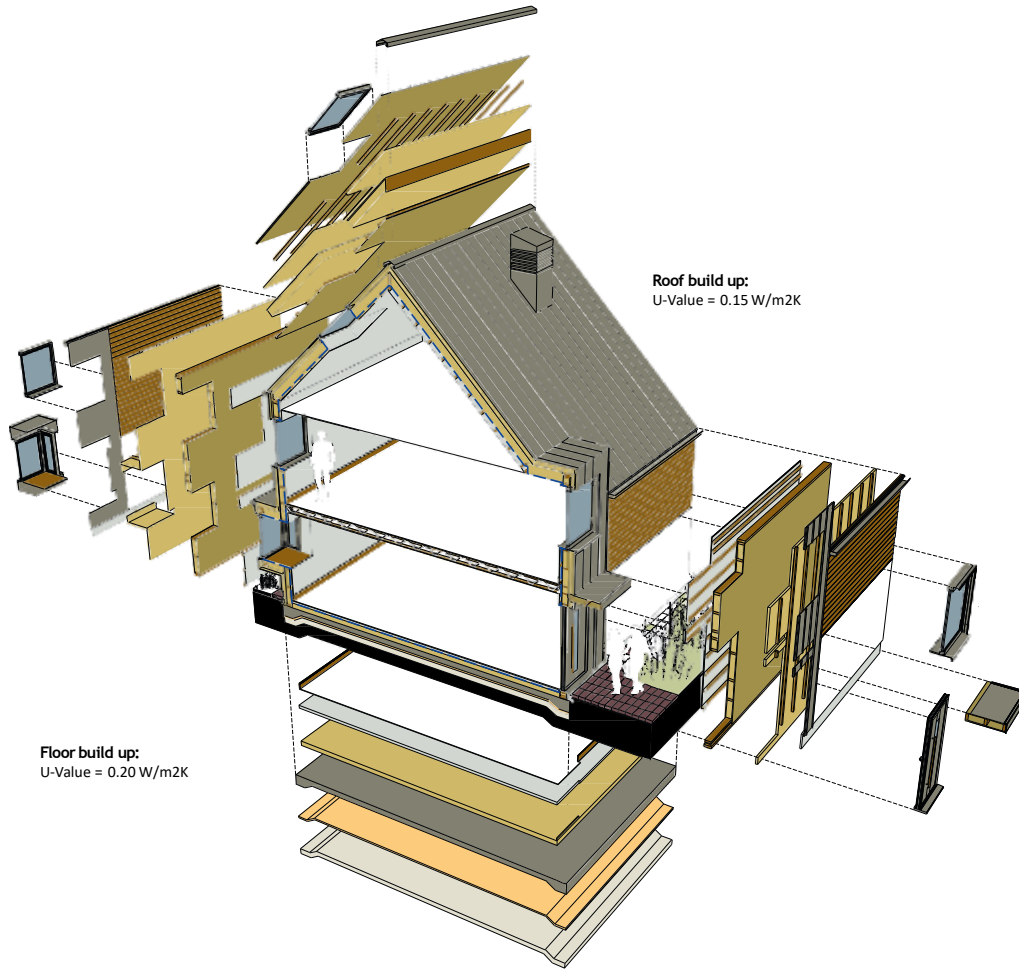
Conceptual home set in a rural location and designed to be energy self-sufficient.  
All aspects of the building and gardens are oriented to maximise natural light and wellbeing.



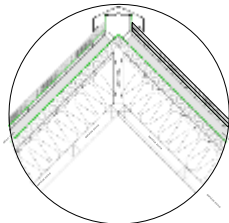
## Housing Types - AECB Building Standard

HPW are working closely with National Park Authorities and Planning Departments to develop a low energy, super-insulated prefabricated housing solution.

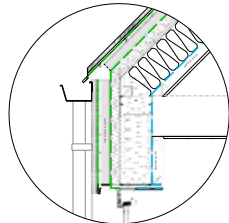
This will enable local procurement and help streamline all aspects of new build housing in rural areas.



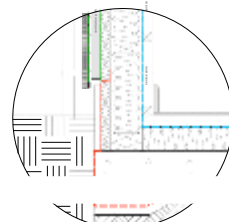
# Housing Types - AECB Building Standard



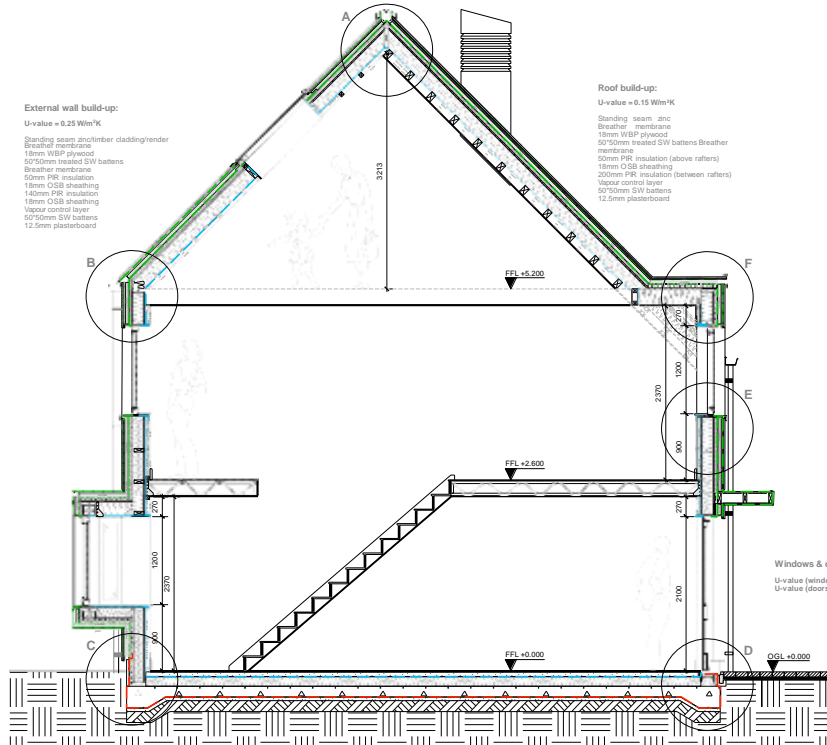
A - Ridge



B - Eaves



C - Ground level



**External wall build-up:**

U-value = 0.25 W/m<sup>2</sup>K  
 Standing seam zinc/ timber cladding/ render  
 Breather membrane  
 18mm WBP plywood  
 9250mm treated SW battens  
 Breather membrane  
 50mm PIR insulation  
 18mm OSB sheathing  
 140mm PIR insulation  
 18mm OSB sheathing  
 Vapor control layer  
 50\*50mm SW battens  
 12.5mm plasterboard

**Roof build-up:**

U-value = 0.15 W/m<sup>2</sup>K  
 Standing seam zinc  
 Breather membrane  
 18mm WBP plywood  
 50\*50mm treated SW battens Breather membrane  
 50mm PIR insulation (above rafters)  
 18mm OSB sheathing  
 200mm PIR insulation (between rafters)  
 Vapor control layer  
 50\*50mm SW battens  
 12.5mm plasterboard

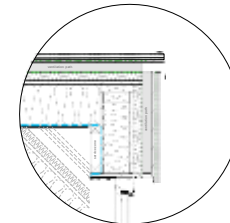
**Windows & doors:**

U-value (windows) = 1.5 W/m<sup>2</sup>K  
 U-value (doors) = 1.0 W/m<sup>2</sup>K

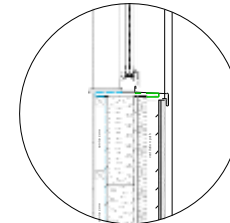
**Floor build-up:**

U-value = 0.20 W/m<sup>2</sup>K  
 15mm floor finish  
 65mm screed  
 Vapor control layer  
 130mm PIR insulation  
 150mm concrete slab (as SE design)  
 1200g damp proof membrane  
 50mm sand bedding  
 150mm compacted hardcore

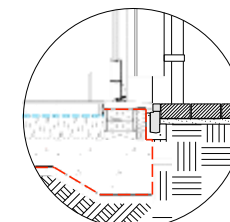
| Technical key |                                       |
|---------------|---------------------------------------|
|               | Damp proof membrane/damp proof course |
|               | Air tightness line (VCL)              |
|               | Breather membrane                     |



F - Window head/dormer eaves



E - Window sill

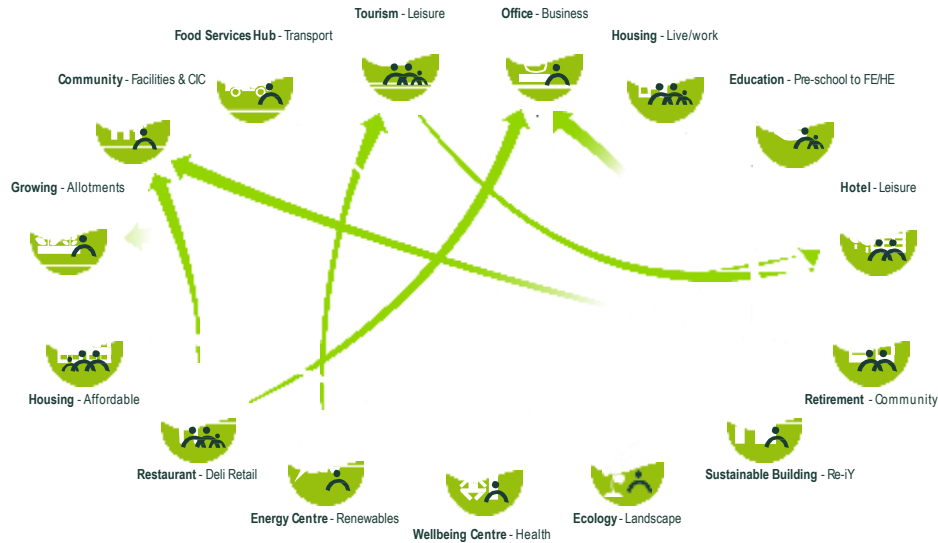


D - Lever threshold



## Sustainable Communities

Proactive community engagement allows HPW to identify key local needs. Communities will be self-sufficient in energy and enable people to live, work and play in a socially vibrant, economically sound, inclusive community. This offers the potential to achieve planning consents on otherwise locked sites.





# Higher Newham Farm - Truro

Working closely with our client, HPW engaged with local specialists to undertake extensive public consultation to secure planning for 155 new homes on green belt near to town.



Living Villages.



Inspiring architecture...

Sustainable communities



## Higher Newham Farm - Truro

Partnering with Duchy College and the Cornish Food Foundation, HPW have developed a sensitive, sustainable and community focussed proposal with resounding local support.





Paultons Park - Building programme



# Explore and discover...

and find out more on the sustainable features of this building



### Green Roof

- More than 30 varieties of wildflower, plus four different grasses
- Like a winter coat, it keeps the building warm in winter
- Evaporating rainwater from the soil keeps the building cool in summer



### Wind Catchers

- Wind and sun power to keep the building cool
- 7 wind-catchers on the roof, bring fresh air in and take stale air out
- The wind-catchers also have south facing photovoltaic panels to power the fans when the wind is low



### Rainwater Harvesting

- Rainwater is collected and stored in the man-made lake at the rear
- The lake also keeps the wildflower roof fresh and healthy
- This provides water conservation and reduces water bills!



### Local building services and materials

- The outside wall cladding uses Douglas Fir, grown and harvested in the New Forest
- All timber is untreated, and uses its natural qualities for the building's rainscreen cladding
- Where possible local tradesmen and materials have been used



### Heating

- Underfloor piped water, with a small gas-fired boiler keeps the building warm in winter
- The north-south orientation of the building is a key design factor:
  - Plenty of natural daylight on the northside
  - Reduces the need to switch lighting on
  - Fewer windows, keeps the building cool on the southside

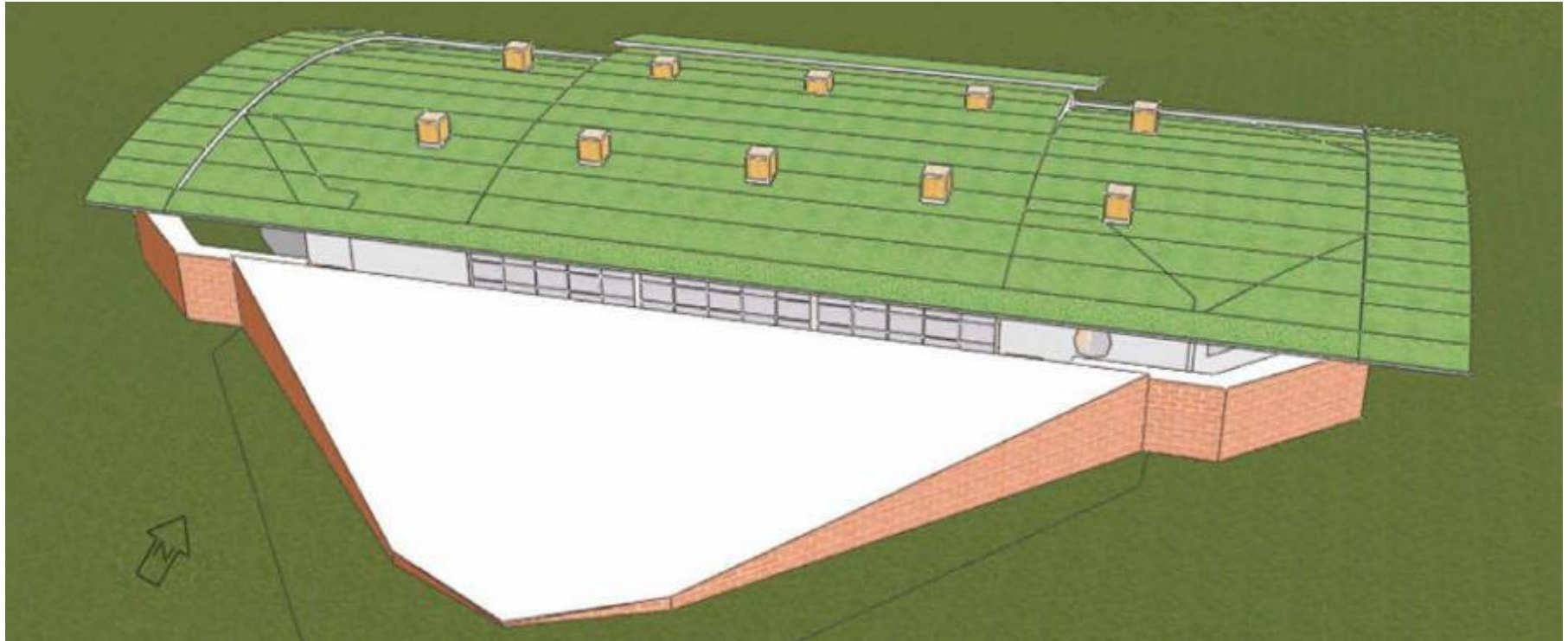


### Bund Forming

- Rather than removing the concrete slab from the site, it has been used to form the bund at the rear of the building
- This provides effective screening, as well as supporting the local wildlife ecosystem



Peppa Pig World - Dynamic thermal modelling and construction phase



Peppa Pig World - Completed building





Peppa Pig World - Completed building



Peppa Pig World - Completed building





# Explore and discover...

and find out more on the sustainable features of this building



**Saving resources and generating energy**

- Low energy lighting and energy saving technology throughout
- 456 solar PV panels on adjacent buildings providing 7% of the Parks electrical needs
- Sustainable Urban Drainage System (SUDS)* with water collection in adjacent lake

**Natural illumination**

- Natural illumination of the interior via extensive ridge mounted, integrated skylights
- Use of light tubes in deep span spaces to maximise natural illumination
- Orientation and location of skylights is carefully calculated to maximise light gain

**17 Wind-catchers**

- As part of a natural ventilation strategy throughout the building to minimise energy use
- Wind power to keep the building cool, feeling fresh and comfortable
- Use of catches and automated obsestory windows bring fresh air in and take stale air out

**Local building services and materials**

- The outside wall cladding uses Douglas Fir, grown and harvested in the New Forest
- All timber is untreated, and uses its natural qualities for the buildings rainscreen cladding
- Where possible local tradesmen and materials have been used

**Heating**

- Underfloor heating with facility to cool in particularly hot weather
- Extensive high performance glazing to main public areas to prevent heat gain in summer and no heat loss in winter
- Minimal need for heating due to the high performing building envelope

**Super insulated building shell**

- Extensive roof, walls and floor insulation to reduce energy use over the buildings lifetime
- Curved double brim over roof form to encourage air flow and create a sense of volume and space
- Scientifically calculated and proven building performance as part of the design process



## Gateway Building - Dynamic thermal modelling and construction phase





Gateway Building - Completed building





Gateway Building - Completed building





Gateway Building - Completed building





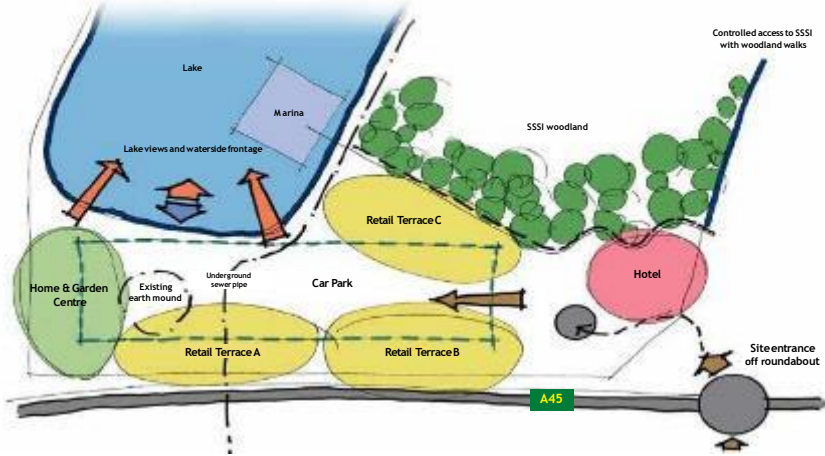
## Rushden Lakes - Retail, leisure and tourist destination in the Nene Valley



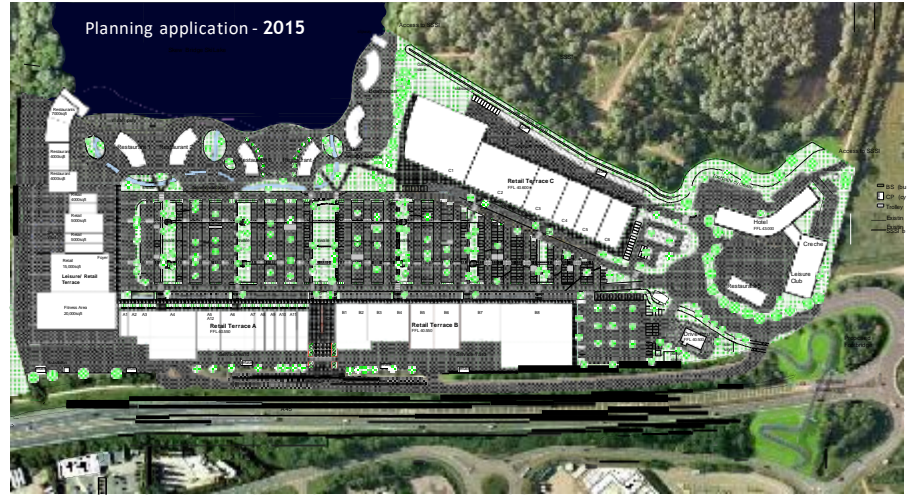


# Rushden Lakes - Site plans

Concept sketch - 2009



Planning application - 2015



Concept plan  
Planning application - 2011



Rushden Lakes - Construction phase





Rushden Lakes - Overall site











Rushden Lakes - Boardwalk splash zone





Rushden Lakes - Net zero energy buildings



# Thank you... any questions?



RIBA   
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green impact