



# Bunhill 2

**Rodrigo Matabuena**

Energy Capital Projects Manager  
London Borough of Islington

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# Welcome to Islington!

- Islington is the most densely populated borough in the UK
- Third smallest district in England.
- Around 4,500 listed buildings
- 55% of the homes in Islington are Council owned or managed
- Ambitious target of Net Zero Carbon by 2030
- Average energy poverty levels around 10% with some Council estates peaking at 25%



# Bunhill Heat and Power – since 2012

- 2 MWe CHP plant
- 115m<sup>3</sup> thermal store
- 1.5 km pipe network

Provide heat to:

- 600 council homes
- 100 private homes
- 4 office buildings
- 2 leisure centres



Electricity generated is sold to the national grid

Reduced carbon emissions by 2,000 tonnes CO<sub>2</sub>e per year

# Bunhill II - 2016

- 2<sup>nd</sup> Energy Centre
- 1 MW heat pump
- 500 kW<sub>e</sub> CHP plant
- 75m<sup>3</sup> thermal store
- 1+ km pipe network

Will provide heat to:

- 600 council homes
- 100 private homes
- One school



# Celsius Project – Bunhill Phase II

Celsius project looks at new and existing smart infrastructure solutions for heating and cooling. Celsius brought together Islington and Transport for London (TfL) for extracting heat from the London Underground



**COMMUTERS HIT BY 'BRUTAL' TEMPERATURES ON LONDON'S TRANSPORT NETWORK THAT IT WOULD BE ILLEGAL TO TRANSPORT LIVESTOCK IN - STANDARD**

**TUBE TEMPERATURES HIGHER THAN LEGAL LIVESTOCK LIMIT - METRO**

**COOKING ON THE CENTRAL LINE... MAP SHOWS HOT SPOTS ON LONDON UNDERGROUND UNFIT EVEN FOR TRANSPORTING CATTLE - DAILY MAIL**

**LONDON HEATWAVE: TUBE PASSENGERS SWEAT IT OUT IN HOT WEATHER AS TEMPERATURES EXCEED 34C TO BEAT BALI - STANDARD**

**IS YOUR TUBE COMMUTE TOO HOT TO HANDLE? - METRO**

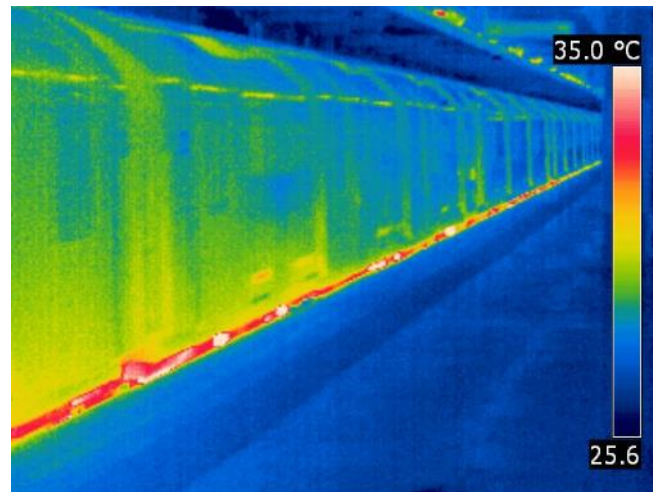
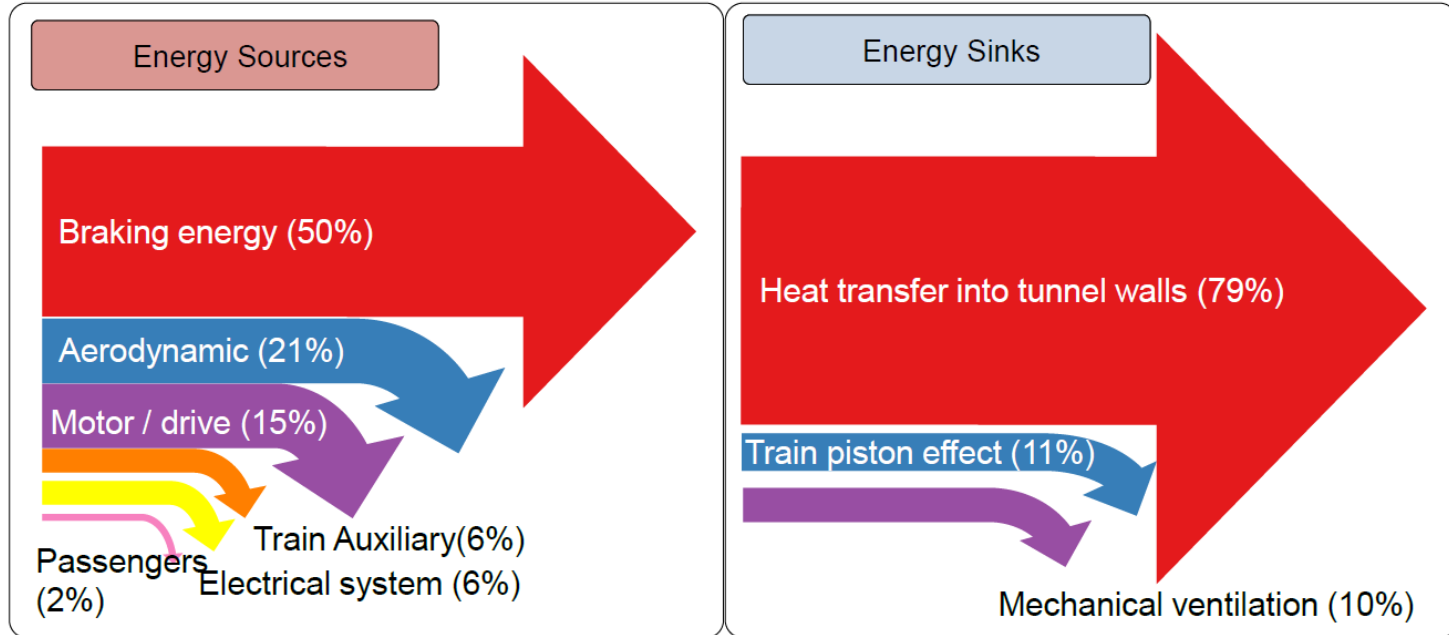
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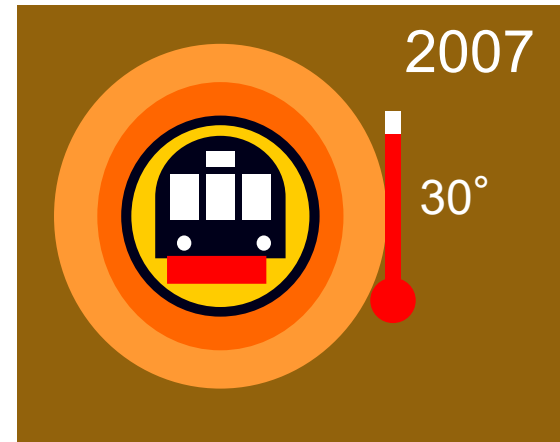
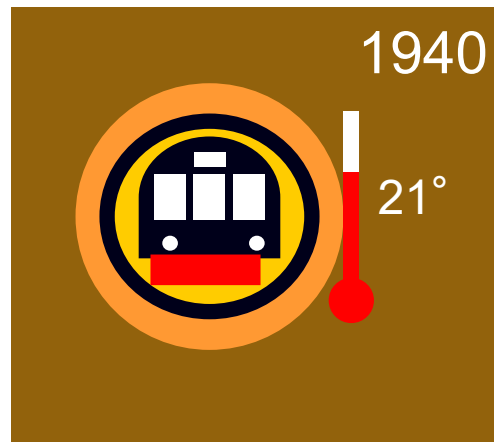
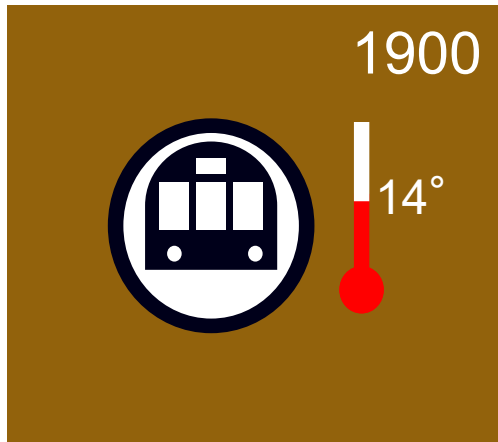
# LUL Heat Map



# Where does the heat come from?



# Where does the heat go?



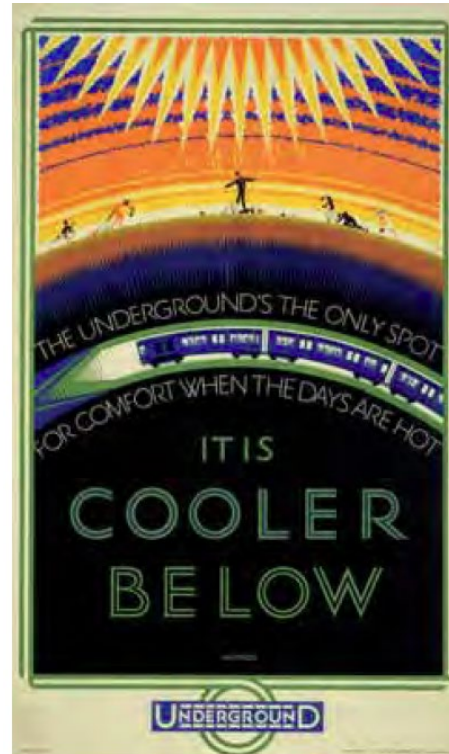
- 90% of heat absorbed into clay around tunnels
- LU tunnels built in London Clay, temperature around 14°C
- Temperature in the clay around the tunnels has warmed over time and can now reach over 30°C in summer





# Transport for London waste heat strategy

- Mayor's Transport & Environment strategy aims to maximise the utilisation of waste heat from TfL's transport network.
- Of TfL's transport modes, the London Underground produces the most heat, circa 500GWh pa of heat.
- TfL have been evaluating waste heat utilisation at a number of locations

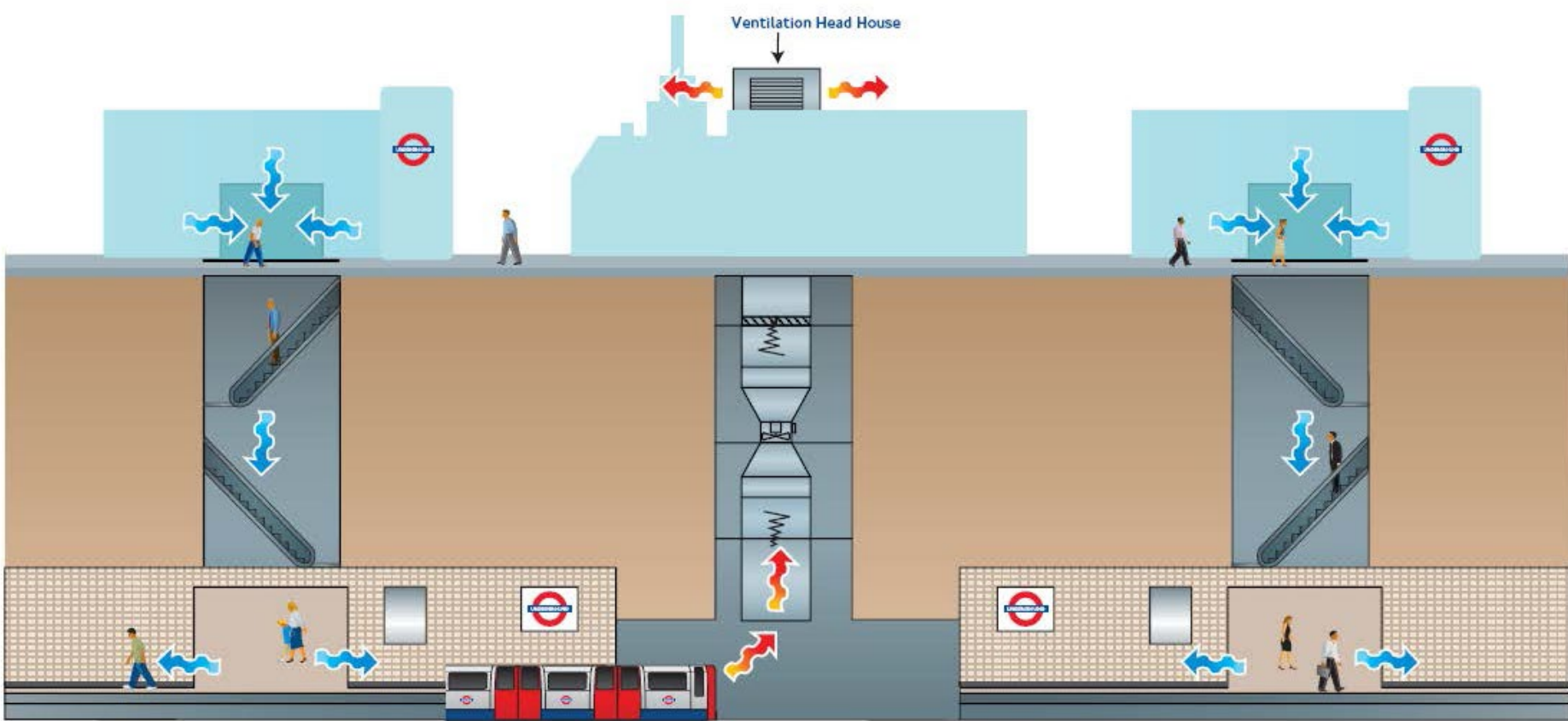


1920s London Underground posters

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# Mid-tunnel ventilation systems



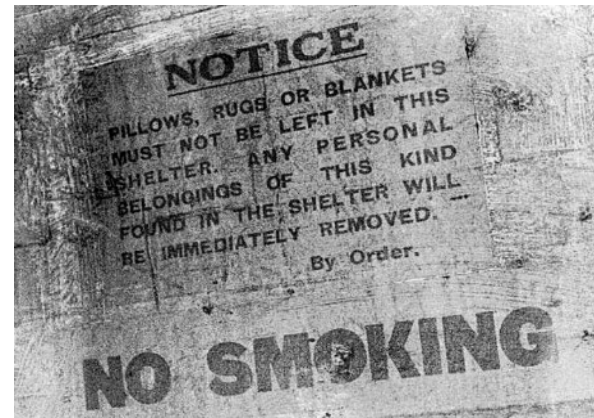
c. 130 fans across the network

# City Road Disused Station

City & South London Railway  
opened 1901, closed 1922



City Road Station in 1915



Shelter in WWII



Old ticket

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# Disused Station Passageway



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# City Road Vent Shaft

Old station mostly demolished, then used as a mid-tunnel vent



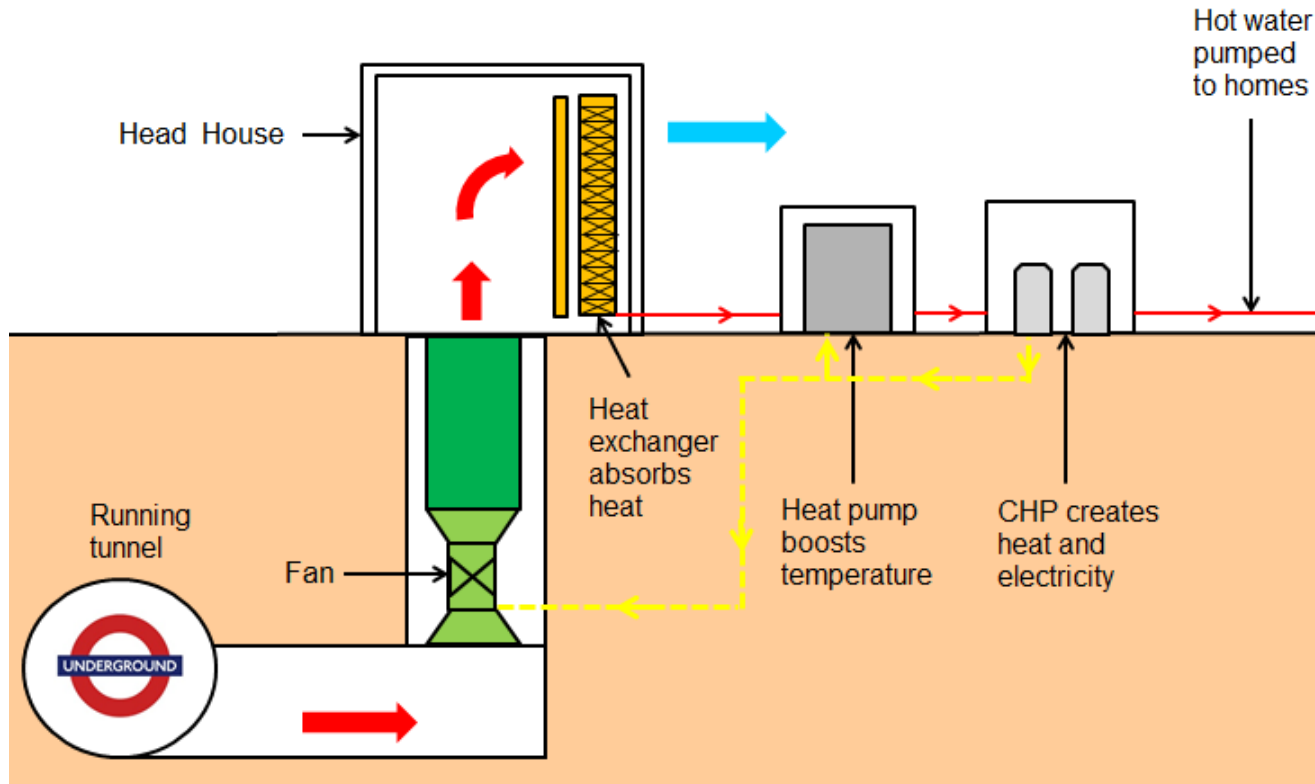
The Vent Shaft in 2016



Old Fan

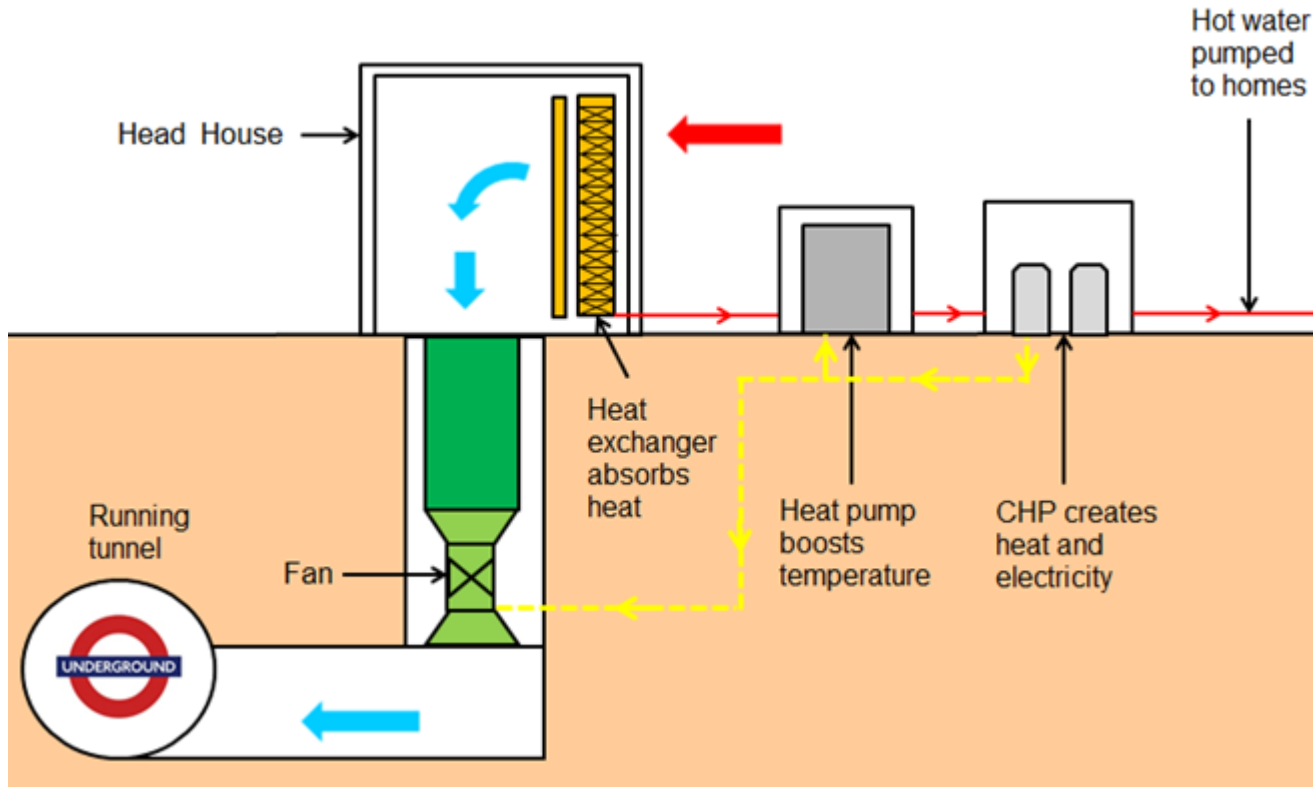
# The solution

Install heat pump to capture the heat from the Underground

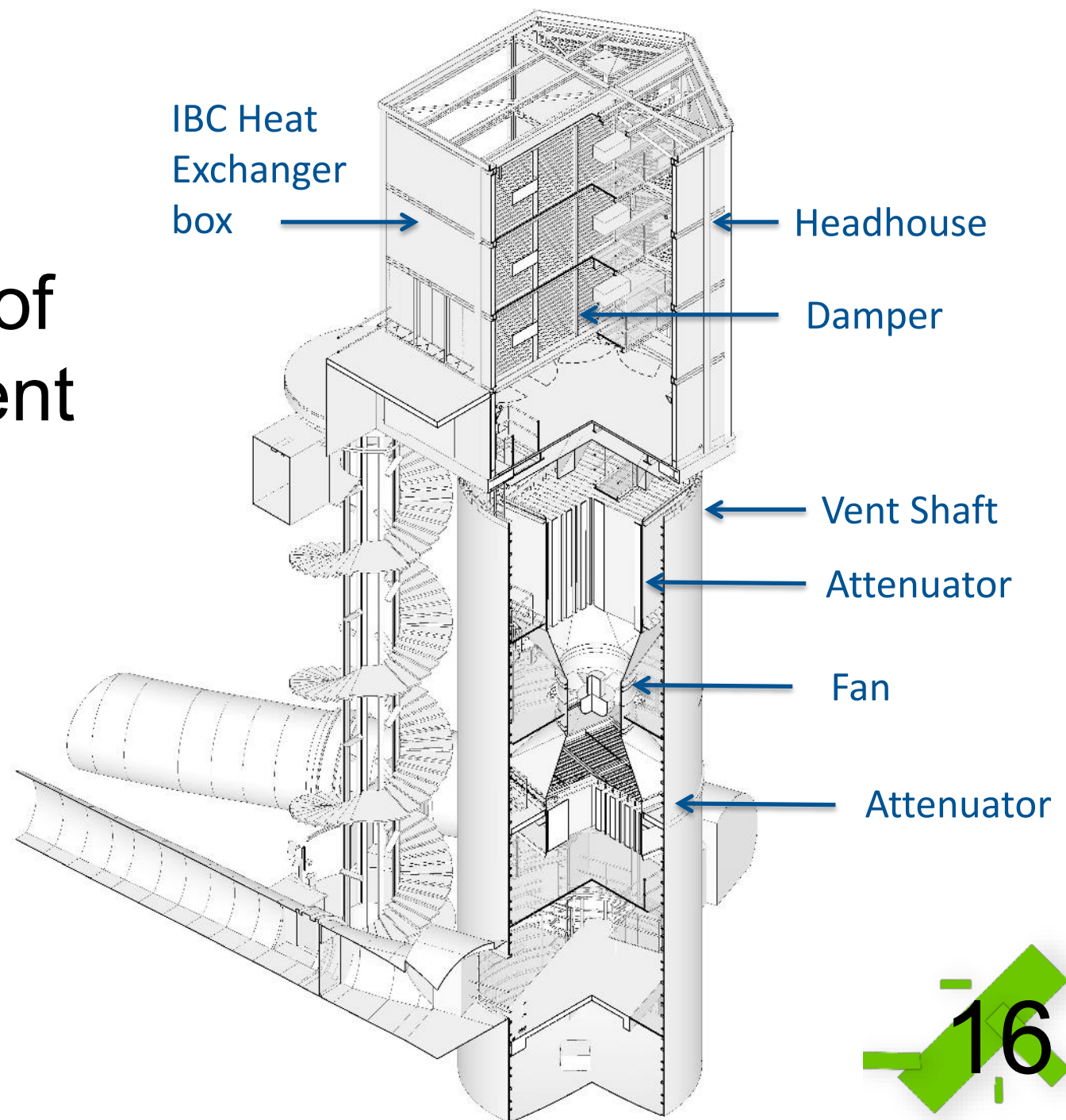


# Additional benefit

## Summer cooling



# 3D Model of new LU Vent Shaft







# The site



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# Demolition



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# Headhouse foundations



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# Headhouse steel frame



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# Headhouse



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# Foundations and substation



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# New Challenges

- Become Zero Net Carbon by 2030
- Develop 15 heat networks across Islington
- Expand Bunhill
- Decarbonise the heat – replace CHPs
- Adopt new metering regulation
- Retrofit 1000's of properties

## Integrated systems

[www.greenscies.com](http://www.greenscies.com)

# Thank you!

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# Boyd Brothers



(Fauldhouse) Ltd.

*"Providing specialist services for renewable energy infrastructure"*

*The Leading EV infrastructure Provider*

# Company Overview and Background

Stephen Boyd  
Commercial Director  
Boyd Brothers (Fauldhouse) Ltd



- We started trading in 1967 and are now in third generation management
- We work with approximately one third of the United Kingdoms Local Authorities, directly and indirectly through supply chain
- It is estimated that we have installed around two thirds of the public Electric Vehicle infrastructure in Scotland
- Approximately 75% repeat business
- Installations for several Blue – Chip companies
- In partnership with Swarco, we won the ‘Outstanding Project Award’ for Dundee City Council’s Princess Street EV Charging Hub

Princess Street, Dundee



## Princess Street, Dundee



- 6no 50kW DC Rapid Chargers
- 3no 22kW AC Fast Chargers
- 36kW of Solar Canopies
- 90kW Energy Storage System



## Marchbanks Depot, Dundee



- 1no 150kW DC Rapid Chargers
- 1no 43kW DC Charger
- 2no 22kW AC Chargers
- We are also exploring the option to install solar  
On an adjacent workshop

## Eastgate Depot, Glasgow



- 11no 7kW AC Chargers
- New Substation – off site



Substation Location Off Site





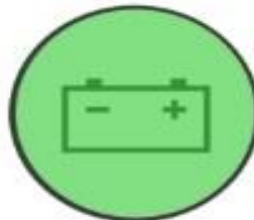
EV CHARGING



SOLAR



WIND



BATTERY



Stephen Boyd, Commercial Director

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Phone: 07854434159

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



@BoydBrothersLtd

# Climate Action

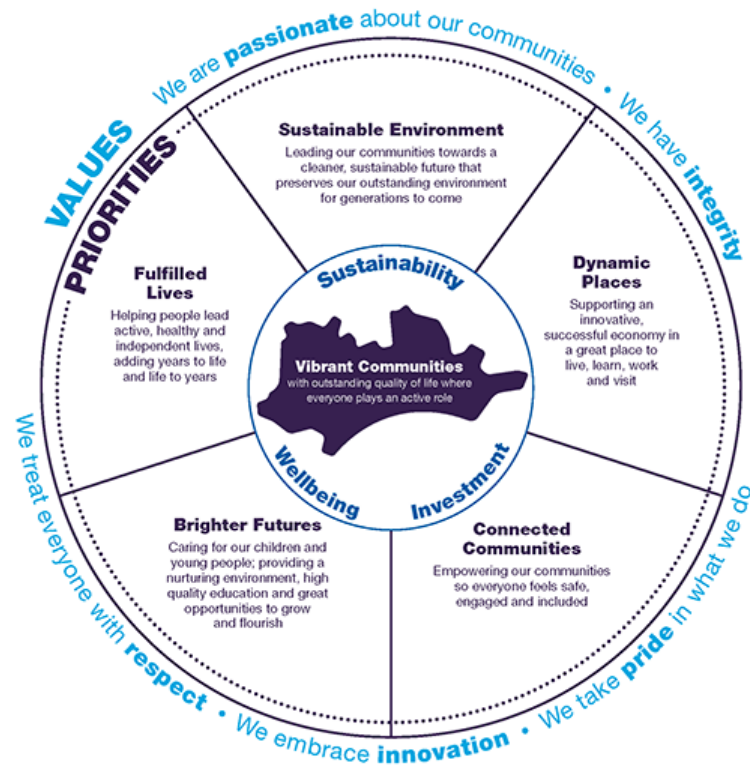
## BCP Council's Response to the Climate & Ecological Emergency

**Roxanne King**

Strategic Lead – Climate, Resource & Sustainability



# Bournemouth, Christchurch and Poole



- LGR 2019
- Legacy scopes, resources, priorities, standards, commitments
- Sustainable Environment & Sustainability
- Political leadership
- Smarter Structures
- Sustainable Development Goals in BCP corporate plan and decision making

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# Climate & Ecological Emergency declared July 2019

‘Make **BCP Council and its operations carbon neutral by 2030**, taking into account both production and consumption emissions (scope 1, 2 and 3)’

‘Make the **Bournemouth, Christchurch and Poole region carbon neutral**, ahead of the UK target of 2050’

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# 153 Point Draft Climate Action Plan

## **Carbon Neutral BCP Council (2030)**

- 100 actions
- Climate Action Steering Group
- Design, delivery, funding

## **Carbon Neutral BCP Area (2050)**

- 53 actions
- Climate Action Leadership Board
- Shared commitment

## **Carbon Neutral BCP Council & Area (2030 & 2050)**

- Overview, support, scrutiny
- Portfolio Holder for Transport & Sustainability
- Climate Action Cabinet Support Working Groups

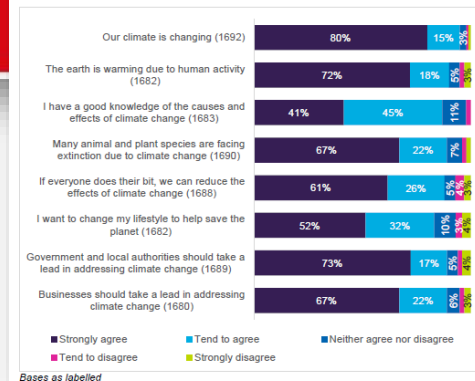
# Climate Action Public Engagement

- Consultation January – March 2021
- Strong support for climate action across all sectors. Contradictions e.g. ban environmentally harmful activities; don't impede car use
- Activities to be mapped against multiple factors - consultation / carbon / cost / contracts etc
- Climate Action Leadership Board
  - Emissions / Influence
- Sustainable Business Leaders Group



Views about the climate and ecological emergency  
 Respondents were first asked whether they agree or disagree with a series of statements about the climate and ecological emergency.

Figure 2: Views about the climate and ecological emergency



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## Energy

- Investigate options to offer residents renewable electricity
- Promote home energy demand reduction and low-cost improvements

## Buildings

- Dispose of unwanted/inefficient buildings, after reviewing their energy efficiency, or redevelop sites to build new carbon neutral homes
- Develop a Sustainability Strategy for Housing including improving energy efficiency of the Council's new build programme and considerations for retrofitting existing stock



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## Planning and Land Use

- Seek to include policies in the new Local Plan for climate change mitigation and adaptation, including a policy to encourage zero carbon developments, subject to viability testing
- Seek to include policies in the new Local Plan for Policy for new homes to be built to higher than current Building Regs standards

## Travel

- Assess the feasibility of congestion charging options in BCP and other means of changing behaviours towards more sustainable options
- Seek to work with Bournemouth Airport to encourage reduce emissions from flights and passenger travel

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## **Nature**

- Develop a Green Infrastructure Strategy and carbon offsetting plan aiming for the 2030 target
- Investigate the allocation of land to allow natural woodland generation from trees, natural habitat and heathlands at scale to absorb carbon and become 'carbon sinks'

## **Adaptation**

- Produce Supplementary Planning Document for climate change place adaptation
- Seek to ensure that via communication, communities and sectors are aware of future risks, pre-emptive actions and how to mitigate

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## **Waste**

- Seek to progress towards single-use plastic-free status and support community plastic-free initiatives
- Seek to apply the proximity principle to treat and/or dispose of wastes in reasonable proximity to their point of generation

## **Doing things differently**

- Promote and encourage low carbon best practice among commissioned services
- Investigate a carbon charge on projects/decisions to fund offsetting

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## **Working together**

- Develop and agree a science-based emission reduction pathway for the BCP area
- Consider developing a local offsetting scheme for area-wide emissions remaining at 2050

## **Implementation**

- Monitor and communicate progress via a Climate Emergency Annual Report
- Seek to establish 'carbon budgets' for Council services

# Climate Action Funding

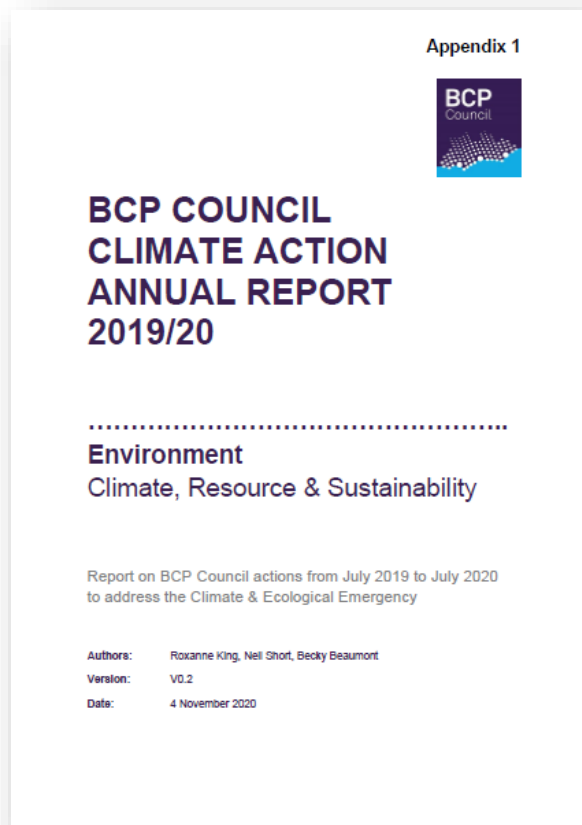
- Services – service plans, BAU, projects – quantifiable?
- Revenue £240k 21/22
- Salix Recycling Fund £220k pa
- LEAP + ward based extension scheme
- Transforming Cities Fund £37m
- Flood Resilience £12m
- Public Sector Decarbonisation Scheme £2.4m
- Future Parks Accelerator
- Community Climate Bonds



**Future Parks**  
Accelerator



# First Climate Action Annual Report – December 2020



- Local & global effects of climate change
- Financial consequences of targets
- Emissions inventories
  - Scope 3: GHG / SCATTER
  - Power, Buildings, Planning & Land Use, Travel, Nature, Adaptation, Waste, Doing thing differently, Implementation / Working together

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## Early Progress

- BCP Council electricity supply 100% renewable UK generation
- Secured £m's funding across wide range of services to deliver sustainable schemes e.g. travel & transport, housing,
- Climate Emergency information has been included in residents' newsletters and social media channels; revamped Climate Action web pages
- Climate Emergency training for staff; dedicated intranet site; regular communications via email and monitors in buildings
- Asset Management & Accommodation strategies underway; Property Management Group chaired by the Chief Executive
- Retrofit and New Build housing and commercial groups created
- Meeting rooms are equipped to allow teleconferencing between Council offices

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## Early Progress

- Public consultation via 'Climate Emergency – Give your ideas' webpage and 2050 Climate Action Plan survey
- Air Festival flight emissions were offset via a gold standard offsetting scheme and local tree planting
- A Senior Managers Conference was held to introduce the Climate Emergency to the Council Management Team of over 130 officers. Speakers were from organisations including the Town & Country Planning Association, APSE, Bristol City Council, Friends of the Earth and Ashden
- A Climate Action Team Charter was produced to remind staff of simple ways to reduce emissions and to gain team commitment.
- Maintained CDP 'A-List City' and 'Fully Compliant' COM statuses



# Decision Impact Assessment (DIA)

- Embeds sustainability in project development and Council decision making
- 90+ assessments undertaken to date tracking financial, social & environmental benefits by ward / service
- Tracks progress against SDGs
- Cumulative impact assessment to guide future training / investment
- Promotes transparency and collaboration between services



Decision Impact Assessment Final Report    DIA Proposal ID: 203   

Proposal Title: **Seafront Electric barbecues**

### Impact Summary

Climate Change & Energy	Green - Only positive impacts identified
Communities & Culture	Amber - Minor negative impacts identified / unknown impacts
Waste & Resource Use	Green - Only positive impacts identified
Economy	No impact identified
Health & Wellbeing	Green - Only positive impacts identified
Learning & Skills	Green - Only positive impacts identified
Natural Environment	Green - Only positive impacts identified
Sustainable Procurement	Amber - Minor negative impacts identified / unknown impacts
Transport & Accessibility	Green - Only positive impacts identified

● Major negative impacts identified  
● Minor negative impacts identified / unknown impacts  
● Only positive impacts identified  
● No positive or negative impacts identified

Answers provided indicate that the score for the carbon footprint of the proposal is: <b>5.5</b>	The Carbon Footprint is banded as follows: 0-4 <b>Low</b> 5-9 <b>Moderate</b> 10-14 <b>High</b>
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Proposal ID: 203  
 Proposal Title: **Seafront Electric barbecues**  
 Type of Proposal: **Procurement**  
 Brief description:  
**To purchase a selection of electric barbecues to enhance the infrastructure of BCP Council**  
 Proposer's Name: **Nick Maguire**  
 Proposer's Directorate: **Regeneration & Economy**  
 Proposer's Service Unit: **Destination & Culture**  
 Estimated cost (£): **Above OJEU threshold**  
 If known, the cost amount (£): **£200,000**  
 Wards/Is affected (if applicable):  
**Boscombe East & Pokesdown    Boscombe West    Bournemouth Central    Canford Cliffs    East Cliff & Springbourne    East Southbourne & Tuckton    Hamworthy West    Southbourne    Westbourne & West Cliff**  
 Sustainable Development Goals (SDGs) supported by the proposal:  
**3. Good Health and Well Being    3. Industry, Innovation and Infrastructure    12. Responsible Consumption and Production    13. Climate Action    14. Life Below Water    15. Life On Land**

Page 1

## Economic benefits

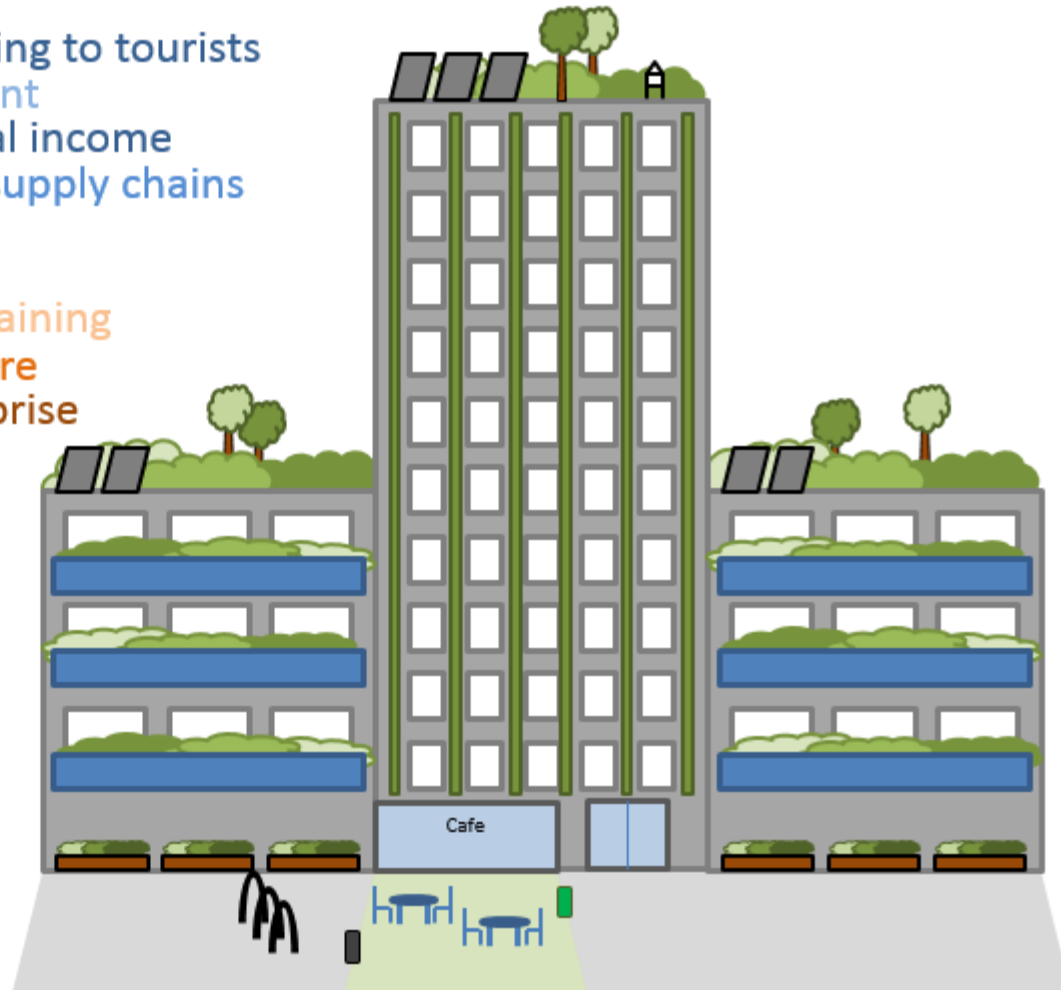
- Residential flats
- Community meeting space for hire
- Office space
- Energy generation and sale
- Inward investment opportunities
- Cafe income
- More appealing to tourists
- Small business development
- More desirable = higher sale/rental income
- Local food growing and shorter supply chains

## Social benefits

- Community cohesion, interaction & training
- Employment
- Connection to nature
- Opportunity for social enterprise
- Local amenities free to 3<sup>rd</sup> sector
- Friendly/safe environment
- Health and wellbeing improvements

## Environmental benefits

- Carbon sequestration
- Sustainable urban drainage (SUDS)
- Climate change resilience
- Biodiversity enhancement
- Reduced air pollution
- Recycling
- Cooling 'urban heat island'
- Green energy generation
- Sustainably constructed



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# Renewables & Energy Efficiency

## Underway

- PV on housing stock
- Low carbon maintenance / replacement schedules
- Retrofit / New Build groups
- LEAP energy efficiency advice / guidance / funding (£770k)
- SW Energy Hub – advice / feasibility
- PV farm / battery storage opportunities
- EV charging network

## Further Development

- Dedicated energy resource
- Improving grid capacity / upgrades  
PV on non-residential buildings
- Retrofit / New Build schemes
- Heat pumps & other renewable technologies
- Innovative technologies / funding
- Income generation
- Leased out buildings

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## Climate Action – Knowledge Share

- Energy models – solar farms, white labelling, battery storage etc
- Maximising investment in climate action – public / private / innovation
- Weighting of carbon reduction vs. public perception in action plan delivery
- How far climate action is being embedded in key place strategies e.g. Local Plan
- Strategies for early investment to avoid carbon offsetting
- National policy / guidance / funding – Future Homes Standard / Waste Strategy
- Resourcing vs. ambition – finance / staff
- Skills shortage – climate / green technologies / low carbon innovation
- Urgency to respond to the emergency – carbon budgets / ecological damage
- Carbon reduction / lifecycle costs within business cases

**Thank you**

Roxanne.king@bcpcouncil.gov.uk