

efficient affordable
accessible distinctive digitally connected
reliable
inspire simple integrated
modal-shift short distances clean
initutive
networked efficient
attractive



**SHEFFIELD'S
GREEN
COMMITMENT**

Final report of the Sheffield Green Commission

renewable low-emission
reliable move more
ambitious
affordable inspire
short distances distinctive networked
digitally connected
move more
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modal-shift ambitious
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clean renewable
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“It is easy to move around Sheffield in a safe, clean, integrated, affordable, high quality, low emission transport system”

“Sheffield is a walkable cycle-able city”



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“Energy is generated and distributed locally and individuals and businesses are engaged with energy efficiency and demand reduction”



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“Sheffield is a green city both in its urban core and its surrounding landscape”



Pages 22-25

“Sheffield is committed to continuously learning about how to make Sheffield a smart, sustainable future city”

Foreword by the Chairs of the Sheffield Green Commission:

When we first met as Green Commissioners, we were all aware of the scale and importance of the task ahead of us. How could Sheffield become a more sustainable city in the future? How could we take steps, together, now, as a city, which would help to secure a better quality of life for future generations of Sheffield people? Most importantly, how could we reach the stakeholders who most needed to be convinced of the business case for sustainability?

As Commissioners we received a wealth of written and spoken evidence over a 12 month period. At times the task and the scale of the challenge felt almost overwhelming, but as Commissioners worked together to discuss the issues and ideas, we began to identify some specific opportunities that could move the city towards becoming more sustainable.

Sheffield’s Green Commitment is the final report of the Sheffield Green Commission. Sheffield’s Green Commitment contains a vision for the city based on the evidence of need, good ideas and successful innovation but now requires delivery partners to secure its implementation. Sheffield’s Green Commissioners were keen to deliver a succinct and business-like report which set out a clear vision

to secure a smarter and more sustainable future for Sheffield. The Sheffield we want to see in the future is successful, competitive, sustainable and open for business.

We have always been clear that this is a citywide, independent commission and that a city wide response is required to transform Sheffield into the smart, sustainable, future city which we know it can be. We are now asking for your commitment - as civic leaders, large and small organisations, business and communities, as well as individuals - to help us turn this vision into a measurable, deliverable change programme. Throughout the process, one thing in particular has become very clear; Sheffield has a wealth of expertise and enthusiasm to take forward these actions outlined in this report.

Sheffield really can become a successful competitive and sustainable city, with a better quality of life for all, if we work together to achieve this common goal. And as one of our presenters said – the battle for sustainability will be won or lost in our cities.

The report will now be taken forward by Sheffield Green Commissioners and other partners in the city as a “Call to Action”.



Cllr Jayne Dunn
Cabinet Member for Housing
Sheffield City Council

J.P. Dunn



Liz Ballard
Chief Executive Officer of
Sheffield and Rotherham
Wildlife Trust

Liz Ballard



Thanks

Thanks first and foremost to the Sheffield Green Commissioners who attended over 51 hours of meetings, workshops and discussion in their own time, free of charge, over a 12 month period to work together to develop ideas and goals to make Sheffield a more sustainable city. Thanks to Cllr Jayne Dunn, Cabinet Member for Housing for chairing and to Liz Ballard, Chief Executive Officer of Sheffield and Rotherham Wildlife Trust for co-chairing the Sheffield Green Commission.

Thanks also go to:

- Expert witnesses who presented at public hearings between December 2014 and June 2015, and who gave both their time free of charge and their ideas for Sheffield.

- Sheffield Hallam University and University of Sheffield for providing venues free of charge for hearings and workshops.
- Sheffield Climate Alliance for co-hosting a public hearing with us.
- Local speakers who gave verbal evidence at our fringe event in July 2015 #SHEDtalks.
- All those who have contributed written evidence.
- Members of the public who have attended hearings, followed our progress on Twitter and joined in the conversation about how to make Sheffield more sustainable.
- Peter Hill, Sarah Sidgwick, and Helen T aylour for providing photographic images for this report, and to Peter Hill for his photographic record of Hearing 1.
- Georgina Blackburn for her work in collecting verbal evidence through semi-structured interviews.
- Bristol, the European Green Capital 2015: Sheffield Green Commission was inspired by examples from Bristol in its year as European Green Capital 2015. Bristol is a city renowned for its strong economy and now also leading the UK in future-proofing its success through sustainability initiatives. Bristol's achievements give us confidence that, with strong leadership and multi-stakeholder commitment, our vision is deliverable.

Specific thanks go to:

- Simon Hughes, Sheffield City Council Democratic Services for providing an excellent written record of hearings.
- Colin Harrison for providing film footage of the events.
- Sheffield City Council and Sheffield is My Planet web authors for publishing the Sheffield Green Commission work and providing a living 'archive' of this process.
- Sheffield-based Gray Associates for transforming this report into a bold and beautiful brochure for a more sustainable Sheffield.

Finally, thanks to the many Sheffield City Council officers who have facilitated the workings of the Commission.



Sheffield Green Commission vision of sustainable city principles for Sheffield



A city with transportation systems that are efficient and affordable, reliable and clean, simple and intuitive, networked and integrated, and low-emission. A city digitally connected to reduce avoidable travel. A city where there is a modal-shift towards active travel, where people move more on foot or by cycle, particularly for short-distances of under 5k/3 miles.



Sheffield is a green city both in its urban core and its surrounding landscape and this is part of its attractiveness and distinctiveness. A city with an accessible, ambitious, bold, biodiverse, equitable and high-quality, well-designed formal and informal landscape that is sustainable to maintain and delivers a myriad of benefits. An outdoor city that provides legacy in terms of its place-making. Green space which when linked together into a permeable network is game-changing for people, and for wildlife. An outdoor city ecosystem.



An energy secure city with transformative affordable, clean, efficient, low-emission, networked, renewable, resilient, simple and locally owned energy solutions.



A Core City and Eurocity which, building on its unique resources and capabilities, collaborates with partners in order to innovate and learn from its residents and from others in moving towards a more sustainable future. Sheffield is committed to continuously learning about how to make Sheffield a smart, sustainable future city.

Executive Summary

Sheffield Green Commission was tasked with hearing and reviewing evidence from a wide range of expert witnesses and using this evidence to make recommendations for securing Sheffield's environmental, social and economic future.

This is the final report of the Sheffield Green Commission and sets out a vision for how, working together as a city, Sheffield could become a smarter, more sustainable, more competitive, future city.

The next stage is to consider the recommendations put forward in Sheffield's Green Commitment and commit to action, to turn this vision into a reality.

We are inviting city wide stakeholders to respond to this report with firm commitments.

Sheffield

A sustainable city

Aims and ambition of the Sheffield Green Commission

Sheffield Green Commission was tasked with analysing Sheffield's strengths, opportunities and challenges; inviting and considering evidence on a range of sustainability themes; making recommendations and plans to secure Sheffield's environmental, social and economic sustainable future; developing an action plan¹ and finally encapsulating all of this in a report.

Sheffield Green Commissioners were selected who had both expertise and influence and who could bring the voice of different stakeholders across the city, including business, industry, both Universities, the public sector and the independent sector. Sheffield Green Commissioners gave over 51 hours of their time to the city, without charge, during 6 hearings, 8 workshops and 1 fringe event (SHED Talks).

¹The action plan will be derived from responses to this final report and commitments and pledges from partners, and will be appended.

The Green Commissioners received evidence over a 12 month period, including verbal evidence from expert witnesses at six hearings held in public and written and verbal evidence from local experts and grassroots campaigners. Expert witnesses were chosen to bring a wide range of evidence and insight into the issues that need to be tackled to make cities more sustainable and to give practical examples of successful initiatives and innovation.

The Sheffield Green Commission explored the city's environmental opportunities and challenges, by seeking written evidence and listening to expert witnesses. Expert witnesses were asked to speak to seven themes which were chosen following public consultation. These were:

1. Sustainable mobility
2. Low CO₂ energy and resource efficiency
3. Sustainable growth and a low CO₂ economy
4. Climate change
5. Green infrastructure /Quality of life/Place making
6. Communication, engagement, education and behavioural change
7. Health and wellbeing

The Commission considered global and national issues of relevance and significance (such as climate change and energy resilience) and established how these affect Sheffield, its residents, communities and businesses. In particular the Green Commission focussed on establishing how these environmental opportunities and challenges, if addressed appropriately, can benefit the health and wellbeing of our residents and also drive economic prosperity for all.

The over-arching ambition of the Sheffield Green Commission was to contribute to the debate, and to influence and help create a sustainable and smart city vision that takes

account of economic, social and environmental drivers.

After careful deliberation, Sheffield's Green Commission has chosen to put forward 4 high priority "game changing" visions, that are considered deliverable for the people of Sheffield in the medium term, and which can act as a lever to move Sheffield onto a more sustainable footing. These are:

- Sheffield is a connected city
- Sheffield is energy secure and sustainable for today and for the future
- Sheffield is a green city both in its urban core and its surrounding landscape
- Sheffield is a learning city and has sustainable "know how"

These **4 key vision statements** emerged following an intensive prioritisation process, over 9 hours and 3 workshops, which saw 77 ideas from the 6 hearings discussed.

Beneath each of these strong visions for the city lie a set of recommendations, a summary of evidence and brief case studies/exemplars from European Green Capital cities which illustrate the reality and achievability of such transformative change.

Behind this brief consolidated output of the Sheffield Green Commission lies months of work which has been digitally published during the process.

This report marks the formal end of the Sheffield Green Commission enquiry but it firmly acknowledges that further work and action is now required to implement this vision. We are inviting a wide range of partners to respond to the vision, help develop it further and set their own firm targets to make this into a deliverable, measurable programme of change.

It is anticipated that each sector will respond to this call using their unique resources, capabilities and opportunities as well as all sectors collaborating for collective action. An implementation strategy will be determined having allowed time for different sector responses.





connected City

low-emission

affordable

digitally connected

integrated

clean



“It is easy to move around Sheffield in a safe, clean, integrated, affordable, high quality, low emission transport system”

for individuals and businesses to switch to ultra-low emission vehicles through for example business rate reductions, financial lease arrangements, zero parking charges, free re-charging of electric vehicles in the workplace and in car parks around the city.

Traffic flows freely in and around Sheffield, without congestion and reflects the modal share of a modern city with predominantly public transport and pedal cycles on the roads and room on the pavement for easy pedestrian use, with safer crossings and intersections.

Superb digital connectivity means unnecessary travel is avoided.

Intelligent urban design has increased urban density so that a greater number of people in Sheffield are living closer together and more connected to services. This urban density means that unnecessary travel is eliminated and resources are more intensively shared leading to systemic decarbonisation across land use and transport.

As a consequence of these interventions Sheffield’s air pollution is reduced to the point where it is well below the European Health Limit maximum value.

We want
**Sheffield’s
air pollution**
to be reduced to the point where it is well below the European Health Limit maximum value

What will success look like?

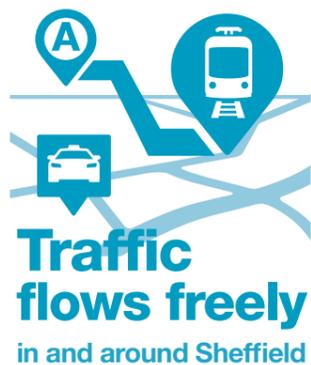
It is easier, enjoyable and more convenient, comfortable and affordable for individuals and families to travel around Sheffield and across the Sheffield City Region by public transport than it is to use private vehicles. Residents using public transport have smartphone or card integrated ticketing. Departure and journey times are provided in real time direct to the customer. Public transport is safe and clean, it is easy to get a seat, and there is free Wi-Fi so that commuting time can be used pro-actively. Bicycles can be transported on trams and trains. Tram, train and bus stops

are clean and well lit and have CCTV where this would improve customer safety.

Buses, trams, trains and taxis keep pace with the latest ultra-low emission technology and fleet renewal is routine.

Pedal cycles are available for hire across the city in a series of connected and intuitive hubs. The cycling infrastructure supports new, beginner and less confident cyclists and cyclists of all ages to safely travel across and around the city, along pleasant routes, and without unnecessary detours.

Where it is necessary to use private vehicles, ultra-low emission vehicles are available through car clubs as occasional use vehicles for business and leisure. There are incentives



£58m scheme

3 “tram-trains” will run per hour between Sheffield and Rotherham

European City Case Study: Ljubljana, European Green Capital 2016

Transportation in Ljubljana has changed dramatically over the past decade. From a city which was rapidly becoming dominated by the car, the focus has now shifted to eco-friendly alternatives. In 2013, Ljubljana modified the traffic flow within the city to limit motorised traffic and give priority to pedestrians, cyclists and public transport. Cycling is also increasing, with over 1.6 million journeys using the ‘BicikeLJ’ bike-sharing system since 2011. Future transportation plans are promising in Ljubljana. In 2012 the city adopted goals that will see public transport, non-motorised traffic and private account for equal one-third shares of all transport by 2020

What has Sheffield already achieved?

Sheffield has a proposed “Devolution Agreement” with the Government which includes a long-term transport budget for the City Region and the power to franchise the bus network.

There is a 25 year Private Finance Initiative contract “Streets Ahead” with Amey to upgrade 2/3 of the city’s roads.

It is proposed that there will be a High Speed 2 station in Sheffield at Victoria or at Meadowhall (location to be determined)

From 2017 - as part of a £58m scheme - 3 “tram-trains” will run per hour between Sheffield and Rotherham promoting greater connectivity across the city region.

ITM Power, a Sheffield based company, has opened its first public access wind hydrogen refuelling station at the Advanced Manufacturing Park, and has signed a strategic siting partnership for the delivery of Hydrogen Refuelling Stations (HRS) on three forecourts in the UK.

Sheffield continues to bid for funding to upgrade to its bus and taxi network to newer, lower emission and clean fuel vehicles.

The University of Sheffield now offers a bicycle rental scheme across a number of locations in the city.

Recommendations:

Sheffield clarifies and agrees its transport vision and aspirations for the City

Sheffield controls public transport in the city region – as in Transport for London and Greater Manchester – so that it is integrated, safe, affordable, high quality and low emissions

Sheffield becomes a leading centre for initiatives such as locally generated community renewables and hydrogen fuel cell vehicle technology

Sheffield promotes innovation/disruptive technologies in transport, for example digital ticketing or emerging clean fuel technology.

Organisations with large return to base fleet (such as the NHS and Local Authority, and their sub-contractors) consider the feasibility, and possible benefits, of using clean vehicle technology.

Sheffield considers the role of hydrogen fuel cell/ clean vehicle technology in the economic regeneration of the city region, and examines the business case for additional investment in extra fuelling centres in the City Region





connected City

simple

digitally connected

reliable

intuitive

efficient

accessible



“Sheffield is a walkable cycle-able city”

What will success look like?

It is easy, practical, safe and convenient to walk or cycle for commuting, using services, and shopping, as well as for leisure purposes. Instinctively, we think of walking and cycling as our first choice of travel.

Pedestrians and cyclists of all ages are visible and safe on accessible, intuitive, and attractive cycle and pedestrian networks across the city and into the Sheffield City Region.

It is easy and safe for a 10 year old child to travel independently to school on foot or by bicycle.

Beginner cyclists are supported by both coaching and good

cycling infrastructure to be confident on Sheffield's roads and on segregated cycle-paths.

Cycling is an affordable travel choice for everyone and there are schemes available to get whole schools, workplaces and business cycling.

Secure bicycle parking is plentiful and conveniently located near local workplaces, schools, business and retail areas.

On street bike hire links businesses, campuses, parks and other destinations across the city and on the Trans Pennine Trail for commuting and leisure purposes.

We aspire that Sheffield will have a healthier population with more people building active travel into their everyday lives.

What has Sheffield already achieved?

Sheffield has a range of initiatives to promote cycling including bike loans, bike libraries, cycle coaching, led rides, bike parking and pumps, cycle routes and maps, advice on bicycles on public transport. For bike/train/tram commuters, there is a bike hub at the train station with over 400 secure bike parking spaces, showers and bicycle repair shop.

There is investment into developing physical infrastructure for cycling, in particular green routes across the city for both commuting and leisure purposes. The Trans Pennine Trail runs through Sheffield.

The University of Sheffield has a bike hire scheme at a number of locations in the city.

Tour de France legacy is a big area of work for the city, with events such as the Jenkin Hill time trial and the mass participation Skyride on traffic free roads through the city centre continuing to raise the levels of engagement in cycling in the city.

A cycling inquiry and Move More Plan aim to reduce barriers and increase participation in everyday physical activity.

The Sheffield Walking Forum is well-established and holds an annual walking festival in Sheffield each year.

Recommendations:

Sheffield learns from exemplars such as Bristol to support its ambition to be a cycling city, but also seeks to be an exemplar in its own right.

Sheffield's Local Plan contains specific ambition to be a walkable, cycle-able city.

It is as easy and safe to walk, bike, run, take public transport in Sheffield as it is to drive for both commuting to work/school and for leisure pursuits. There is a Walk/cycle first mind-set (as in the Netherlands)

Sheffield actively seeks increased investment in walking and cycling infrastructure (e.g. 20 mph zones, wide pedestrian and cycle paths separated from road traffic), both through local budgets, business partnerships, Community Infrastructure Levy (CIL) and through national and European funding

Intelligent, green-blue integrated urban densification reduces the need for travel and can promote walking and cycling.

Sheffield monitors and evaluates the impact of sustainable travel choices e.g. increasing modal share of walk/cycle, city attractiveness as a destination for business and leisure.

increased investment in walking and cycling infrastructure



European City Case Study: Copenhagen was European Green Capital 2014

The jury singled out Copenhagen as a good model in terms of urban planning and design. It is also something of a transport pioneer, aiming to become the world's most practicable city for cyclists. Its goal is to have 50% of people cycling to their place of work or education by 2015 (35% cycled to their workplace or school in 2010), helping the city reach an ambitious goal of being CO2 neutral by 2025.)

Transformative energy



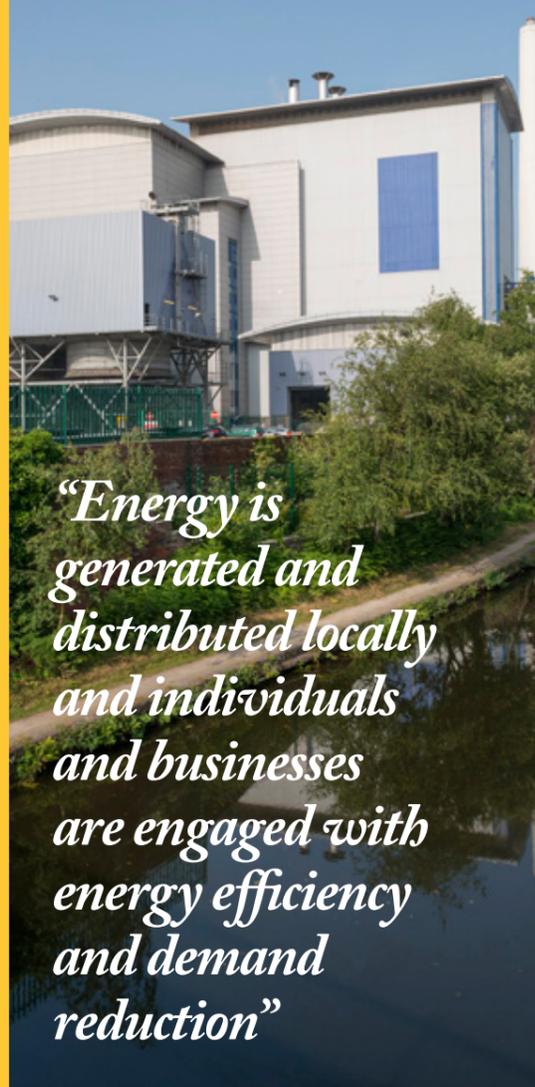
renewable

secure city

low-emission

locally owned

energy solutions



“Energy is generated and distributed locally and individuals and businesses are engaged with energy efficiency and demand reduction”

What will success look like?

Sheffield has greater energy security and lower CO₂ emissions, becoming a stronger Northern City by improving resilience to the issues of security of supply and variability of price.

Sheffield has well-insulated, fuel efficient homes across all housing sectors and no household lives in fuel poverty. New build homes meet the highest energy efficiency standards and connect to the lowest CO₂, locally generated energy sources where viable.

Sheffield’s industrial and commercial properties meet the best independent standards for energy efficiency and make

use of the lowest CO₂, locally generated energy sources where viable.

Sheffield generates more of its own energy through renewables like solar, wind and biomass and also through hydrogen and heat recovered from non-recyclable waste.

Local ownership of energy generation and distribution is actively encouraged and growing, becoming an important resource for the city. It enables greater control of supply and promotes energy efficiency and demand reduction. It ethically invests for the direct benefit of the people of Sheffield to support sustainability and reduce fuel poverty, seeking profits to reinvest in those aims.

Sheffield continues to exploit

the potential of being a city with two District Heating Networks and seeks to extend them where they can be seen to lower CO₂ emissions and improve energy security.

The city is known for being at the cutting edge of research into disruptive technologies for the generation and storage of renewable energy.

We seek to grow and support investment in “green collar” jobs in this sector at all levels, including research, manufacture, project management, retrofit and installation.

What has Sheffield already achieved?

The Council and third sector organisations have invested in and co-ordinated local initiatives to increase levels of insulation, improve heating and reduce fuel poverty in the owner-occupied, private rented and social housing sectors.

Sheffield is already home to Sheffield Renewables, a well-regarded and established community energy organisation which has undertaken three community solar projects, renewable energy feasibility studies and has supported many other organisations across the country through two national mentoring projects.

Sheffield operates the biennial “Big Switch”, a collective switching scheme to offer lower energy tariffs to households and combat fuel poverty.

Local company ITM Power uses hydrogen fuel-cell technology to store surplus wind power, avoiding curtailment and creating a reliable clean fuel source.

Within Sheffield Veolia operates our first district heat network connected to their plant which converts municipal household waste in the city into heat for houses and commercial properties on that network.

In addition E.ON’s 30MW biomass renewable energy plant near Meadowhall produces enough power for around 40,000 homes by converting UK sourced recycled waste wood into electricity. The plant displaces the emissions of around 80,000 tonnes of CO₂ every year. The city’s second heat-network has been connected to this plant to deliver heat to homes and businesses up and down the Don Valley from Rotherham to Sheffield City Centre.

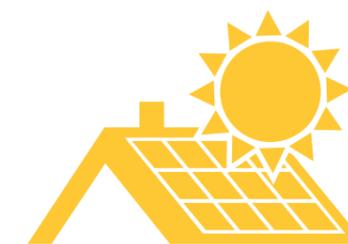
A further biomass plant is to be constructed in Sheffield after securing £30m of investment from the UK’s Green Investment Bank (GIB) and the Equitix Energy Efficiency Fund (EEEF). The plant is Combined Heat and Power (CHP) ready and will provide over 6.5MW of renewable electricity into the local grid and is capable of supplying zero CO₂ heat to homes and businesses in the local area.

The University of Sheffield operates a 58m² state-of-the-art silicon photovoltaic installation designed to measure the use of ‘real-world’ devices in northerly locations and to field-test new and alternative photovoltaic technologies.

The Council is seeking to use rivers to generate hydroelectricity as part of the flood management programme.

By the end of 2017 the Streets Ahead project will have replaced all streetlights with new LED lights that are fully controllable. The Council believes that Sheffield will be the first city in the world to be able to control all our LED streetlights centrally. This controllability will save 40% of energy and CO₂.

Sheffield biomass providing power for 40,000 homes



New build homes meet the highest energy efficiency standards



Recommendations:

Sheffield develops a full business case for development of a local energy company and actively supports other community energy schemes. Sheffield builds on the experience of successful local authority schemes elsewhere, which have demonstrated economic benefits by investing in the generation and distribution of community generated, low CO₂ energy for local people.

Public investment is made in this sector for the direct benefit of people, jobs and businesses in Sheffield to support sustainability and reduce fuel poverty, seeking profits to reinvest in those aims. To that end, the City explores financial instruments, such as the revolving fund model and social enterprise companies to help deliver innovative and long-term energy investment.

Sheffield sets minimum and aspirational requirements - as landowner on its own land - for domestic energy use and efficiency. SAP 65 is considered to be the minimum necessary to take a household out of fuel poverty; the average SAP¹ for a publicly owned property in Sheffield now exceeds 70. There are local exemplars in the private sector to show how SAP 65 can be economically achieved and new house building developers and major retro-fit schemes, both public and private, should be set this standard.

Sheffield accompanies any retrofit schemes or new local energy developments with public education and clear information on energy efficiency and staying warm affordably.

Sheffield continues to promote and provide accessible, understandable advice on national and local schemes for home energy efficiency improvements and on sourcing affordable energy (e.g. better heating controls or price comparison) using the expertise and support of local groups.

Sheffield revisits, refreshes and implements the recommendations of the mini-Stern Review for the Sheffield City Region, with particular attention to the actions in that report which resonate with the recommendations in this report.

Sheffield develops a comprehensive decentralised energy supply chain strategy, creating higher wage jobs by focusing on local, high quality supply chain development in all aspects of this sector, with particular emphasis on small and medium sized businesses in the area to ensure we are poised to benefit from future opportunities.

Incorporating all of the above recommendations, Sheffield communicates a broad decentralised energy generation strategy, linked to wider infrastructure needs, considering the nested connected islands approach. Climate change is now likely to impact on heating and cooling requirements unpredictably, therefore impacting the demand for, and supply of, affordable energy. Sheffield ensures it has the sustainable, decentralised energy infrastructure required to cope with climate change, delivering energy resilience and job competitiveness for the city over the long term.

European City Case Study: Bristol was European Green Capital 2015

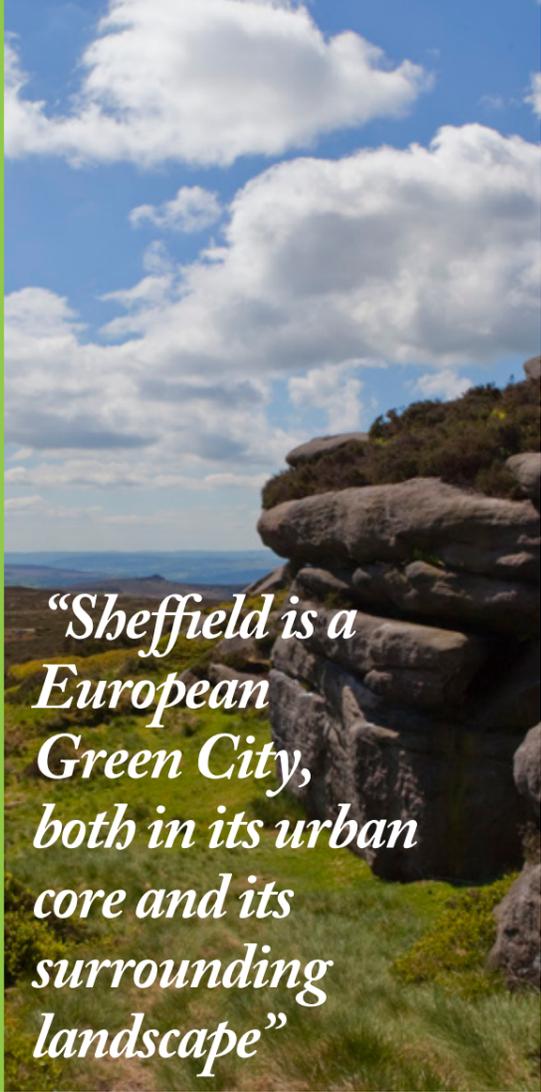
Bristol impressed the Jury with its investment plans for transport and energy.

The city has committed a budget of €500m for transport improvements by 2015 and up to €300m for energy efficiency and renewable energy by 2020 (this includes a confirmed €100m ELENA investment in renewable energy). CO₂ emissions have consistently reduced in Bristol since 2005, despite a growing economy. Bristol has the ambition of becoming a European hub for low-CO₂ industry with a target of 17,000 new jobs in creative, digital and low CO₂ sectors by 2030. Bristol demonstrated 4.7% growth in the green economy in 2012.

¹SAP has been adopted by government as part of the UK national standard for calculating the energy performance of buildings. It provides a simple means of reliably estimating the energy efficiency performance of your home. SAP ratings are expressed on a scale of 1 to 100 - the higher the number, the better the rating. (source: http://www.nihe.gov.uk/what_is_a_sap)



attractive
ecosystem
sustainable
outdoor city
accessible



“Sheffield is a European Green City, both in its urban core and its surrounding landscape”

What will success look like?

- Well-maintained
- Planned and protected
- Great for wildlife and great for people

Sheffield is a city recognised for its natural and attractive green spaces and waterways, running from the heart of the city right out to the surrounding landscape.

Sheffield has a high quality, bio-diverse, wildlife-rich natural environment; accessible, attractive, formal and informal parks and green spaces; and clean rivers and waterways for people to benefit from and enjoy.

Sheffield’s landscape of rivers, canals, hills, mature woodland, moorland and parks (formal and informal green space) is:

- Understood and valued

Nature is valued intrinsically in its own right, as well as for its economic, social, health, and ecological benefits.

Sheffield’s green spaces are multi-functional and the role of the surrounding landscape, green spaces and waterways in flood risk mitigation, CO₂ capture, air quality mitigation, noise reduction and urban cooling is understood and enhanced.

There is equal access to high quality green space right across the city. People enjoy and regularly visit formal and informal green spaces as part of their

everyday lives – they benefit from the mental and physical health and wellbeing that regular contact with nature and the outdoors can bring.

Visitors to the city travelling up from the station and through the city centre feel that they are in the greenest and most wooded city in Europe.

There are permeable green networks across the city for both people and wildlife.

Sheffield has all the benefits of being a large urban city, yet with 1/3 of its urban area in the Peak District National Park. Residential areas have a “garden city” feel.

Talent is attracted to, and retained in Sheffield because of the city’s superb green and blue infrastructure. Sheffield is a successful destination as an “Outdoor City” bringing economic benefits and investment to the local outdoor industry and the supporting natural assets.

What has Sheffield already achieved?

Sheffield has an enviable reputation as one of the greenest and most wooded cities in Europe. Sheffield has the largest allotment site in Europe, 83 public parks and green spaces, 70 green roofs, more than 1/3 of the city within the Peak District National Park, more than 2 million trees, and greater woodland cover than any other city in Britain (over 10%). Sheffield is building upon this with schemes that address flood resilience and which create new green and blue space within the city centre such as the “Grey to Green” scheme between West Bar and Snig Hill and a new pocket park at Sidney/Matilda St.

A city with over 150 miles of rivers and streams, Sheffield has an agreed Waterways

Strategy for waterways regeneration which addresses competitiveness, place-making, climate adaptation and resilience and ecological benefits.

Sheffield City Council, in partnership with the Environment Agency, has an ambitious flood management programme to 2021 that will make the city more resilient to flood risk. It will also improve water quality and support leisure opportunities, including blue corridors

Sheffield is recognising and building upon its strong economic competitive advantage as an “Outdoor City”. Sheffield is re-greening its city centre and there is huge potential to transform this urban space so it mirrors the surrounding landscape of gritstone, moors, rivers and woodland.

Sheffield is in the process of developing its Local Plan (called the Sheffield Plan) which will include policies to ensure there is sufficient green space provision in the city.



Recommendations:

There is a clear, bold vision for Sheffield as a Green City, which is incorporated into the Local Plan, regional plans and other strategic documents.

Sheffield works to deliver its legacy as a smart green and blue future city for the next 150 years, as much of the green and blue we currently enjoy is mainly the legacy of the Victorians.

The Local Plan is a key opportunity to shape and guide development in the city for the next 15-20 years and must include a strong focus on green and blue infrastructure.

Protection of the green belt around Sheffield means there is a pressure on densification in the City Centre and brownfield sites for housing. Sheffield's Local Plan needs to consider the ecosystems services that green belt, brownfield and urban gardens give in deciding where to build the housing that the city needs for growth.

Sheffield invests in green infrastructure, particularly where this provides multiple ecosystems services and benefits, and this is included in plans for the Community Infrastructure Levy (CIL) as a priority

Green infrastructure and intelligent urban densification is prioritised in spatial planning, using the new Local Plan to site housing land allocation away from important green spaces.

Sheffield's Residential Design Guide is refreshed to influence housing estate design that

makes space for nature and adds green networks to the city.

Sheffield considers the evidence on what type of urban form provides the best space for nature and uses this in the refresh of the Residential Design Guide.

All large new developments, whether residential, commercial or for employment contain quality green space with clear mechanisms for their long-term maintenance.

Sheffield has ambitious standards for the quality and accessibility of green space, connectivity for people and for wildlife, and equality of access to green space.

Sheffield invests in its green infrastructure to deserve and build on its reputation as the "greenest and most wooded city".

Sheffield recognises the economic benefits of green infrastructure, including the value to the City's economy of the "Outdoor City" brand.

The City needs a solution and new financial models for maintenance of its existing green space and waterways if it is to retain the level of provision and promote the city as an attractive place for people to live, work, play and visit.

Sheffield ensures that in re-greening schemes there is joined-up planning so that multiple objectives for sustainability can be met e.g. the 'Grey to Green', Living Highways schemes contain

cycling and pedestrian infrastructure as well as flood resilience, urban cooling, biodiversity, air quality mitigation and amenity value.

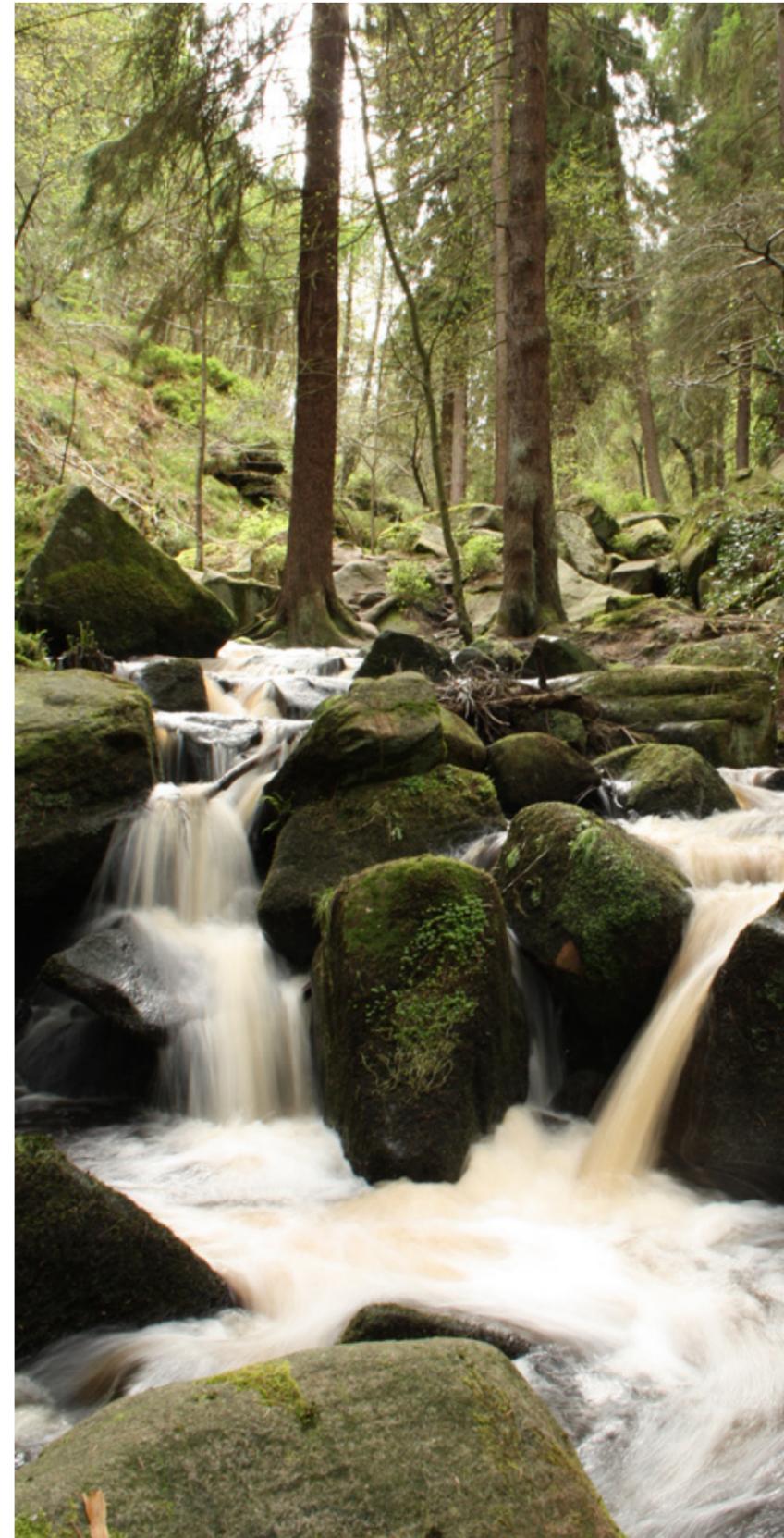
Sheffield seeks opportunities to retrofit existing developments to incorporate more attractive green space and spaces for nature; ensure new developments have a requirement for good green and blue infrastructure to help future-proof the city against flood risk and heatwaves; and develop attractive spaces to live, work and play in order to retain talent in the city.

Sheffield has a clear strategic and spatial plan for the different uses of space, including green space.

Sheffield considers where garden cities and green blue infrastructure fit within the Local Plan and the balance of more densified cities and the impact on noise and nuisance.

Successful cities have a mindset that recognises water and rivers as an asset and opportunity rather than as a threat. Sheffield's waterways, woodlands, moors, gritstone, parks and informal greenspace are celebrated as an asset and opportunity.

Climate change means that cities like Sheffield need to consider flood and heatwave resilience – green and blue infrastructure is at the forefront of climate mitigation and adaptation.



Photograph of Wyming Brook Nature Reserve courtesy of Sarah Sidgwick and Sheffield and Rotherham Wildlife Trust

European City Case Study: Essen, European Green Capital 2017

Essen has built green and blue corridors within the city and is investing in green infrastructure which has been demonstrated through the development of the Krupp Belt. The city of Essen has implemented a range of practices to protect and enhance nature and biodiversity. Future plans focus not only on the greening of the city but also on the promotion of biodiversity in new green areas and in particular on species which are resilient to climate change.

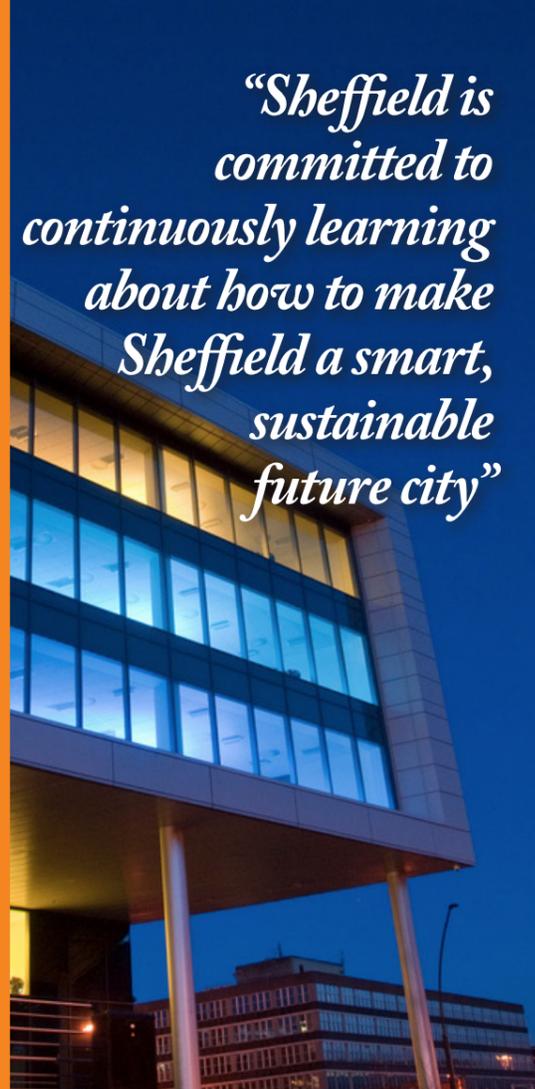


delivering a smart green and blue city

learning city

create
long view
solve
connect
evaluate
learn

“Sheffield is committed to continuously learning about how to make Sheffield a smart, sustainable future city”



What will success look like?

Sheffield’s inclusive civil society – including organisations, businesses and individuals from many different sectors, are all working together and contributing to a more sustainable city.

Sheffield has a continuous dialogue across city partners, and local and national experts, delivering Sheffield’s Green Commitment vision, based on firm foundations of knowledge, evidence and best practice.

Sheffield is continuously learning from and collaborating with other major UK and European cities, to organise collective action across Europe that has positive local

and global impacts, e.g. tackling climate change and CO₂ reduction.

Sheffield has a knowledge economy around sustainability; gathering, generating and harnessing “know how” to make Sheffield a successful, competitive and sustainable city.

Sheffield demonstrates “tried and tested” solutions and is a beacon for other cities facing similar challenges.

Sheffield has competitive advantage based on advanced manufacturing, resource efficiency including CO₂ reduction, and sustainability.

Sheffield has the combined capabilities of world class industry and innovation and is the locus of learning for new low CO₂ technologies and resource efficiency.

Sheffield is a successful and sustainable city because it has the key competency of achieving more with limited and scarce resources through designing resource efficient systems and embracing an outlook of digital transformation.

Sheffield’s mixed economy is one reason for its competitive strength and sustainability.

Sheffield is a city where the outdoor economy has the potential to grow new business and retain talent.

Sheffield is a ‘creative, inventive and energetic city’ of makers.

With a proud industrial heritage the city is internationally recognised for its leading edge talents in manufacturing, engineering and design.

As the anchor city in the Sheffield City Region, the city is poised to play a pivotal role in the ‘Northern Powerhouse’. The city is developing its economic offer around advanced manufacturing and its burgeoning outdoor economy and both these initiatives offer potential for the city to establish itself as a leader in areas such as research and new technology.

Sheffield has growing expertise in resource efficiency and supply chain life cycle management, both in a manufacturing and a public service context.

Sheffield has strong sustainability credentials which include: the first Business Improvement District (BID) in the country to focus on flood management; the tram network; one of the largest and still growing decentralised energy networks in the country; in the Sheffield City Region, the hydrogen mini grid for energy storage and fuel at the Advanced Manufacturing Park; and the first green roof to be designated as a nature reserve.

A new £10 million Centre for Climate Change Mitigation, led by the University of Sheffield, was announced on 3rd December 2015. This award recognised the enormous potential of Sheffield as a research rich university, with a track record in sustainability, being well-positioned to help address this global challenge through knowledge.

What has Sheffield already achieved?

Sheffield has started a city-wide dialogue with a range of partners about how to transform Sheffield into a smart, sustainable, future city. The digital archive of evidence is freely available to anyone wanting to take this conversation further, beyond the formal process.



A New
**£10
MILLION**

centre for climate change mitigation, led by the University of Sheffield

Recommendations:

Sheffield considers how to build on the work of the Sheffield Green Commission and ensures that city partners work together effectively for a sustainable future city. Sheffield harnesses the power of city leaders and many local champions.

Sheffield collaborates, partners and shares learning with other Core Cities and Eurocities facing similar sustainability challenges to ensure greater joined-up learning, thinking and working.

Sheffield builds upon its major city status and sustainability credentials, as set out in this report, and promotes the city to the brightest talent as an attractive and innovative place to live, learn, work and enjoy.

Sheffield should actively seek out, develop and retain the “know how” it needs to become a more sustainable future city.

Sheffield establishes a set of broad sustainable design principles (including resilience, competitiveness, attractiveness and healthiness) that harnesses the expertise of those “ahead of the curve” (e.g. early innovators, disruptive technologies) and allows the City to work together to co-design solutions to shared problems.



O travellers from
across here rise to here
Rising from Sheffield Station
and Great Square
To wander through the
labyrinths of an

Pause now, and let
the sight of this sheer cliff
Become a priming place
when the you of
The speculate
What is?
What is?
What is?

Cloud shadows drag
their hands across
the white
Rain prints the sudden
darkness on its weight
Sun falls and leaves the
bleaching evidence of light

Your thoughts are like
this top, as fixed as words
Set down to decorate
a blank facade
And yet, as words are too,
all soon transferred

To greet and understand
what lies ahead
The city where your
dreaming is to pad,
The lives which wait
unseen as yet, unread.

WHAT IS?
Andrew Motion
OF THE SHEFF 2007

Sheffield
Hallam
University

Sheffield
Hallam
University

Conclusion and Next Steps

Sheffield's Green Commission has been the start of a process of multi-stakeholder, city wide dialogue about how to transform Sheffield into a smart, sustainable, future city.

Sheffield's Green Commitment offers the city a starting point for aspirational change. The ideas and recommendations that have been put forward are all achievable in the medium term – there is deliberately no “blue-sky” thinking but all four visions are “game-changing”.

The visions and recommendations in this report require collective commitment and action from across the city. No one organisation can do this alone.

The next step in the process is for the city to respond to the challenge put forward by Sheffield Green Commission. It is likely that there will be an implementation “spectrum” with the most forward thinking partners immediately adopting the ideas and pushing the vision further whilst others will need more time to consider.

Sheffield's Green Commitment is one contribution to a wider conversation on sustainable Sheffield that will be made far richer by debate with city leaders and champions, to which we hope that you will add your voice, commitment and pledges.

“Sustainably Made in Sheffield”:

A note regarding resource efficiency

Sheffield Green Commissioners have been committed to resource efficiency and smarter ways of working throughout the process.

The main resource of Sheffield Green Commission has been the people of Sheffield, and the expert witnesses, who have willingly donated their time.

Sheffield Green Commissioners have specifically chosen to have a very small print-run of hard copies which will be available for reference in the city's libraries. This report will be predominantly shared in digital format and will be complemented by a publicly available digital archive of the evidence gathered.

“Sustainably Made in Sheffield” is the quality mark that this report aspires to.

We hope that the electronic format will enable this report to be widely and sustainably shared.

Sheffield Green Commission in numbers:

1 final report – **Sheffield's Green Commitment**

1 fringe event
#SHEDtalks

6 hearings held in public

8 workshops of **Sheffield Green Commissioners**

14 **Sheffield Green Commissioners**

50 public tickets for each hearing

>51 HOURS of time given by **Green Commissioners** (and counting...)

>200 followers on twitter

>300 on the **Green Commission** mailing list

1 **city-wide** multi-stakeholder movement for a smart, sustainable, future Sheffield

Appendix 1 – Sheffield Green Commissioners

Chair:
Councillor Jayne Dunn
Sheffield City Council

Vice Chair:
Liz Ballard
Sheffield and Rotherham
Wildlife Trust

Robert Allen
Amey Sheffield

Emma Bridge
Community Energy England

Stephen Brooks
UYE (UK) Ltd

Professor Lynn Crowe
Sheffield Hallam University

Beatrice Greenfield
Sheffield Climate Alliance

Professor Lenny Koh
University of Sheffield

Professor Martin Mayfield
University of Sheffield

Richard Scott
E.ON Community Energy

Dr Marion Sloan
Sheffield Clinical
Commissioning Group
Governing Body

Frances Wells
FWA , Sustainable Business
Advisors

Tom Wild
University of Sheffield
Urban Institute / Local Nature
Partnership

Nigel Wilson
Veolia

Thanks to all those Sheffield Green Commissioners who contributed during the 16 month process but who, for a variety of reasons, had to withdraw before publication of the final report:

Cllr Jack Scott
Sheffield City Council

John Mothersole
Sheffield City Council

Sharon Squires
Sheffield First Partnership

Dr Jeremy Wight
Sheffield City Council

Elliott Whiteside
Sheffield Youth Cabinet

Steve Marsh
E.ON Community Energy

Richard Wright
Sheffield Chamber of
Commerce and Industry



Appendix 2 – Area of Enquiry Summaries

Area of Enquiry: Sustainable mobility

Sub-topic area: Modal Shift

Triple bottom line



Economic: Congestion causing delays, availability of parking spaces for employees and customers, attractiveness of the city for investment, impact on health/social care economy of inactivity, outdoor economy benefits from walking/cycling

Health/Social: Physically inactive travel and poor air quality from vehicle emissions contributing to rates of cardiovascular disease in the city and other health harms.

Environmental: Poor air quality and greenhouse gases produced by vehicle emissions. Sheffield breaches European Health Limit Values for air pollution and the major cause is road traffic.

What:

“A connected and walkable, cycle-able city”

Building on the legacy of the Tour de France Grand Depart, Sheffield will be a “cycling city” for all ages for both school/work commute and for leisure in the beautiful natural landscape of parks, woodland, countryside, moorlands, river and canalside. Sheffield will benefit economically from the outdoor economy, reduced burden of health and social care and from the attractiveness of a liveable,



walkable city. Businesses will choose to locate in the Sheffield City Region not only because of integrated transport links including active travel for employees and customers, but because they can attract and retain talent through the growing outdoor leisure scene.

Why relevant to Sheffield?

Modal split refers to the proportion of the population choosing to drive, cycle/walk, use public transport. In Sheffield, over 50% of journeys are by car and fewer than 9% by cycling/walking. Sheffield’s entire urban area is designated as an Air Quality Management Area due to poor air quality, above European Health Limit Values in areas with the busiest roads. Around 60% of adults, and 1 in 3 children on leaving primary school are overweight: active travel everyday could help reduce these health and economic impacts.

Evidence:

Dr Adrian Davis, Consultant in Public Health, Bristol City Council – Sustainable Mobility and Modal Shift

- Active travel is the best buy in public health but is undervalued
- The risk of death through inactivity far outweighs deaths of cyclists on the roads
- There are significant economic benefits through cycling and walking
- There are co-benefits for climate change through greenhouse gas reduction

How?

Bristol has achieved change through a number of initiatives:

- A multi-disciplinary Healthy Urban Team working across the Local Authority, including in planning and transport;
- Through the Cycling City programme, invested £16 per head over 2.5 years to 2011 this led to a rise from 6.7% to 9.8% of people cycling to work by 2011
- The Vision for Bristol: “Bristol should be safe city for a 10 year old to walk independently to school”.
- Bristol and Edinburgh are signatories to the ‘Charter of Brussels’: demands include a 15% bicycle modal share by 2020 and reducing bicycle road fatalities by 50%. See more at: <http://www.ecf.com/about-us/manifesto/charter-of-brussels/#sthash.j4ACdwbX.dpuf>

Assets/challenges for Sheffield around this theme:

Assets:	Challenges:
Legacy of Tour de France encouraging cycling	Austerity inhibiting investment in cycling infrastructure e.g. Amey “Streets ahead” contract is ‘like for like’ replacement rather than upgrade
Natural assets of parks, woodland, moorland, countryside, rivers, canals	Hilly terrain discouraging beginner cyclists, walkers
Strong independent cyclist groups and forums and <i>Living Streets</i> promoting walk to work and school	Lack of overall control of public transport, - unlike Transport for London - so can be difficult to integrate and co-ordinate (new Devolution Deal may address this)
Dedicated personnel within Sheffield City Council and within South Yorkshire Passenger Transport Executive for cycling, walking, public transport promotion	
Wealth of Sheffield businesses supporting cycling with 15 listed on http://www.cyclesheffield.org.uk/lists-and-links/bike-shops-in-the-sheffield-area/	

So what does this mean for Sheffield?

Sheffield’s reputation as a clean, green, sustainable city, attractive to live, work and play in, will secure economic growth and inward investment as well as promoting health for its residents and protecting the environment for future generations of Sheffield citizens.



Area of Enquiry: Low CO₂ Energy and Resource Efficiency

Sub-topic area: a. production (renewables) and supply b. usage and efficiency (domestic, commercial and industrial) c. fuel poverty d. energy distribution e. reduce, re-use and recycle (waste hierarchy)

What: Sheffield has reduced its energy demand and energy bill and created green collar jobs through insulation schemes; and is generating income and regenerating its local economy from renewable energy production and storage.

Why relevant to Sheffield?

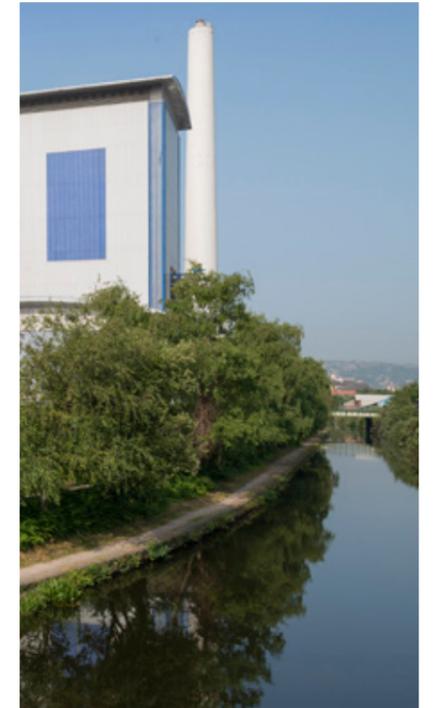
Triple bottom line



Economic: The energy bill for the city region is growing and is a brake on economic growth (energy bill expected to be £4.6 billion by 2022). This could be addressed both by local renewable energy generation and through reduction in demand through insulation. “Warm Front” insulation schemes in Kirklees created 200 “green collar” jobs as well as reducing emissions. Household use is 25% of local energy use so domestic retrofit has a significant impact on energy demand. Measures are both cost and CO₂ effective. Tried and tested economic vehicles - such as community bonds/share offers - generate the capital needed and offer a good return on investment. Schemes become self-financing over time. Hydrogen fuel cell technology is efficient in enabling energy from wind turbines to be stored in periods of excess supply. This stored supply can then be accessed as cheap energy in periods of need and avoid payment of curtailment charges. Hydrogen fuel cell is an innovative clean vehicle technology; having a local refuelling plant could attract inward investment.

Health/Social: Every £1 spent on tackling fuel poverty saved the NHS 42p, notwithstanding the human costs of living in cold, damp homes. Properly commissioned and executed insulation schemes can reduce energy demand but behavioural change is also needed to secure thermal comfort and efficiency gains.

Environmental: Renewable energy generation schemes + energy demand reduction through insulation are CO₂ and cost effective.



Evidence:

Andy Gouldson et al, The Economics of Low CO₂ Cities: A Mini-Stern Review for the Sheffield City Region, Centre for Low CO₂ Futures <http://www.lowcarbonfutures.org/reports/economics-low-carbon-cities-mini-stern-review-sheffield-city-region>

HOW:

- There is enormous potential to reduce local energy demand through domestic and commercial retrofit if properly commissioned and executed;
- Community energy regeneration from renewables has considerable potential, including energy storage through hydrogen fuel cell technology
- Tried and tested financial vehicles exist to finance these cost and CO₂ effective schemes and most become self-financing over time;

Assets/challenges for Sheffield around this theme:

Assets:	Challenges:
The economic case/business case for investment in insulation schemes is clear and tried and tested financial instruments exist to raise the capital required	There needs to be “political” commitment and local leadership to make this happen –engagement is the issue not economics
Sheffield as a Local Authority has considerable experience of managing domestic insulation schemes and further learning is available from near neighbours such as Kirklees	Austerity may impact on the ability of Local Authorities to respond to opportunities for growth provided through such schemes. Expert knowledge and capacity is needed to properly commission and execute such schemes. Developing a local supply chain of contractors with expert knowledge of domestic retrofit - on thermal bridging for example – and quality control of work may be a challenge.
The Advanced Manufacturing Park with a hydrogen fuel cell refuelling station provides a local example of the potential of energy storage and clean fuel technology, particularly for “return to base” fleets e.g. logistics, taxis, ambulances, service vehicles.	The potential of hydrogen fuel cell may be difficult to realise without capital investment in rapid refuelling technology and fleet renewal.

So what does this mean for Sheffield?

If Sheffield could generate more of its own energy through energy recovery and renewables, store energy at times of surplus (e.g. using hydrogen fuel cell/solar battery) and reduce demand for that energy through domestic and commercial retrofit then the surplus energy could be prioritised for energy intensive local industry and for sale back to the grid or to surrounding areas.

The Local Authority Energy Index recommendations for Sheffield are:

High priority:

- Promote the installation of micro-generation capacity by:
 - supporting community-led projects (through direct funding or indirect subsidies, advisory services and micro-generation surgeries)
 - fast-tracking planning permission (where required) for installation of capacity
 - partnering with providers of energy from micro-generation (these may be large or small energy companies) to fund the installation of capacity in or on public buildings.
 - encouraging the development and maintenance of appropriate infrastructure.

- Learn from existing success stories in setting up an Energy Services Company (ESCO) such as Blue Sky Peterborough. Carry out the feasibility studies to demonstrate the economic and environmental benefits of a council-owned ESCO.
- Consider the benefits of joining the Local Government Association Climate Local or the European Covenant of Mayors, the C40.
- Evaluate the potential for and develop local micro-generation, especially on council-owned property. Where the feasible local micro-generation capacity falls short, purchase low or zero CO₂ energy.
- Enlist a third party to perform ongoing evaluation, measurement and verification of energy efficiency strategy.
- Commission a third party audit of operational energy use data.



Medium priority:

- Implement and maintain community-wide energy efficiency programmes and initiatives. Aggressively support local implementation of the Energy Company Obligation (ECO). Promote and encourage high energy efficiency standards and / or micro-generation capacity for new domestic development.
- Stimulate energy efficient retrofits and local uptake of ECO by:
 - partnering with energy companies (for ECO)
 - raising public awareness and understanding of these programmes
 - raising public awareness of the environmental, financial and health benefits of a well-insulated home.

Mandate high levels of insulation for new builds over and above national Building Regulations for non- domestic buildings in their core strategies through:

- explicit requirement or
- by referencing relevant building standards (Code for Sustainable Homes, BREEAM) in their core strategy.
- Stimulate local uptake of ECO by:
 - partnering with energy companies (for ECO)
 - raising public awareness and understanding of these programmes
 - raising public awareness of the environmental, financial and health benefits of a well-insulated, energy-efficient home.

- Retrofit housing stock within the Council’s own portfolio (where this is still under local authority ownership). Encourage housing authorities to do the same. Promote uptake of ECO and ensure that vulnerable residents receive maximum benefit from ECO’s Home Heating Cost Reduction Obligation, which targets low income and vulnerable households, making it easier for them to heat their homes. Educate the public on domestic energy efficiency, renewable energy and available grants and discounts.
- Consider the financial and environmental benefits of applying ISO 50001.

<http://laenergyindex.co.uk/local-authorities/sheffield/>



Area of Enquiry: Green and Blue Infrastructure – quality of life – place making

Sub-topic areas: a. natural environment
b. biodiversity c. green and open spaces

What:

Our ambition is for Sheffield to be an outdoor city, in its urban core as well as its surrounding landscape with outcomes of being resilient, competitive, attractive and healthy.

Why relevant to Sheffield?

Sheffield is regarded as the greenest and most wooded city in Britain with more than 1/3 of the city in the Peak District National Park. There is more woodland cover than any other city in Britain (over 10%) and more than 2 million trees. There are 160 publicly accessible woodlands and 83

public parks and green spaces within Sheffield. Quality green and open space is importantly not just “green” but multi-coloured, multi-functional planting including non-native species. The wealth of parks and woodland Sheffield enjoys is the legacy of the Industrial Revolution/Victorian era; we now have an opportunity to deliver a new legacy of green space which will provide ecosystems services for the next 150 years.

Sheffield’s blue infrastructure of waterways (rivers, canals, streams) is a visually attractive asset that offers amenity value for leisure, wildlife habitats and a living record of our industrial archaeology and heritage. When well-managed, our waterways contribute to flood resilience.

Triple bottom line



Economic: Green space contributes to economic success by providing high quality urban environments to live, work and play in. The Crown Estate’s £1.5 billion investment in an ecology masterplan for the West End of London demonstrates that World Cities recognise the economic asset of quality urban green space. The £30m cost of the 2007 floods to Sheffield creates the business case for investment in flood resilience through green and blue infrastructure.

Health/Social: Green and Blue infrastructure can reduce emissions and improve air quality; contribute to sustainable urban cooling and heatwave mitigation; improve physical health including reducing body mass index and obesity; improve mental wellbeing; increase longevity; reduce isolation, reduce health inequalities and increase social cohesion.

Environmental: Green and Blue Infrastructure provides ecosystems services for cities: flood resilience, climate adaptation (sustainable urban cooling/reduction of urban heat island effect); air quality mitigation and increasing biodiversity; CO₂ sequestration.

Appendix 2 – continued

HOW:

- Sheffield recognises and builds upon its status as the greenest City in the country to drive forward investment in green infrastructure, and its design and use to the greatest effect;
- Green and blue infrastructure is an asset and not a liability. Cities that are achieving success are those that recognise water as an opportunity rather than a threat;
- Spatial planning is crucial in the development of a vision for the city; existing development may require green and blue retrofit whilst new developments need to plan in green and blue infrastructure to future proof the city against flood risk and heatwaves and to make attractive urban spaces that help to attract and retain talent in the city.

Assets/challenges for Sheffield around this theme:

Assets:	Challenges:
Sheffield is the greenest and most wooded city in Britain	Not all green space is “quality” green space and some is under-loved and under-utilised
Sheffield has good, clear, access to green space standards	Not all green space is equal in its ability to provide ecosystems services to the city
The Community Infrastructure Levy provides an opportunity to invest in green space – but this has to be planned in and prioritised.	Austerity is impacting on the ability of Local Authorities to maintain green space and new design, delivery and management models need to be sought
Sheffield’s natural assets offer the potential to be the leading centre for initiatives on green and blue infrastructure and use this to drive economic regeneration of the City as exemplified in the “Grey to Green” project and “Outdoor City Strategy”	Austerity may impact on the ambition and vision for Sheffield’s green and blue infrastructure and mean Sheffield falls behind other core cities from its current leading position
Sheffield has the first Business Improvement District (BID) in the country to focus on flood management	
Sharrow School is the only school in the country which has its green roof designated as a local nature reserve	

Appendix 2 – continued

So what does this mean for Sheffield?

Sheffield has the potential to re-build its economy around being a leading centre for green and blue infrastructure both in terms of the outdoor economy and knowledge services such as the Green Roof Centre. Using its already considerable experience and “know how”, Sheffield can

use its green and blue networks to help us adapt to climate change and be more resilient, whilst also making the city an attractive place to live, work, play and invest.



Photograph of Blacka Moor Nature Reserve courtesy of Helen Tylour and Sheffield and Rotherham Wildlife Trust

Appendix 3 – Master list of evidence received by Sheffield Green Commission

	Contributor	Organisation	Title/theme
GC1 Sustainable transport			
GC1.1	Ray Kohn		City Centre
GC1.2	Duncan McIntyre	Sheffield City Council, Place - Development Services	Inmotion
GC1.3	Julie Meese	Sheffield City Council Transport, Traffic and Parking Services	Air Quality: Sheffield Low Emission Zone (LEZ) for air quality Feasibility Study undertaken in 2013

GC2 Low CO₂ energy and economy			
GC2.1	Robert Almond	Sheffield City Council, Place - Capital Delivery Service	EST ABA Best Practice Guide
GC2.2	Robert Almond	Sheffield City Council, Place - Capital Delivery Service	Sheffield Renewables Potential
GC2.3	Robert Almond	Sheffield City Council, Place - Capital Delivery Service	Sheffield City Region Retrofit Delivery Model
GC2.4	Robert Almond	Sheffield City Council, Place - Capital Delivery Service	Economic Impact of Sheffield City Council's Private Sector Domestic Insulation Programme: An initial assessment (June 2011)
GC2.5	Commissioners' request		The Merton Rule (London Borough of Merton)
GC2.6	Commissioners' request		District Heat and Power - the Woking model (Woking Borough Council, 2008)
GC2.7	Magda Boo	Sheffield City Council, Place - Public Health	Community Energy - urban planning for a low CO ₂ future (TCPA, 2010)
GC2.8	Jenny Patient	Sheffield Climate Alliance	Green Commission - Evidence re Warm Homes programme

GC3 Sustainable growth			
GC3.1	Gordon Ferguson	Repair Sheffield	Repairing
GC3.2		United Nations	TRANSFORMING OUR WORLD: THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT

Appendix 3 – continued

	Contributor	Organisation	Title/theme
GC4 Climate change			
GC4.1	Kate Stott	Sheffield Climate Alliance	Climate Change resilience and mitigation: Evidence re Targets FINAL
GC4.2	Chris Broome		Climate change Impacts of Northern Powerhouse Plans
GC4.3	Liz Ballard	Sheffield and Rotherham Wildlife Trust	Climate Change and Health: Director of Public Health Annual Report for Sheffield 2014

GC5 Green and blue infrastructure			
GC5.1	Martin Brighton		Our Open Spaces
GC5.2	D A Long		EVIDENCE_TREES_DEBATE
GC5.3	Liz Ballard	Sheffield and Rotherham Wildlife Trust	Making Space for Nature: a review of England's wildlife sites and ecological network 2010
GC5.4	Liz Ballard	Sheffield and Rotherham Wildlife Trust	The State of Natural Capital: Protecting and Improving Natural Capital for Prosperity and Wellbeing
GC5.5		Sheffield City Council	Sheffield's Green and Open Space Strategy 2010-2030
GC5.6		South Yorkshire Forest Partnership	South Yorkshire Green Infrastructure Strategy

GC6 Communication and engagement			
GC6.1	Nick Nuttgens	Sheffield Climate Alliance	Sheffield Climate Alliance: Notes from public workshop on communication and engagement following Sheffield Green Commission hearing 12.02.15
GC6.2	Nick Nuttgens	Sheffield Climate Alliance	CO ₂ Literacy
GC6.2 a)	Nick Nuttgens	Sheffield Climate Alliance	TV's ECO Shame
GC6.2 b)	Nick Nuttgens	Sheffield Climate Alliance	Manchester Evening News 18 Jun 15 Pupils lead way in CO ₂ classroom

Appendix 3 – continued

	Contributor	Organisation	Title/theme
GC7 Health and fuel poverty			
GC7.1	Anna Brook	Sheffield City Council, CYPF - Lifelong Learning, Skills and Communities	Green jobs, fuel poverty, tackling poverty
GC7.2	Geoff Green	Emeritus Professor of urban policy at the Centre for Health and Social Care Research, Sheffield Hallam University	Cold Comfort
GC7.3	Geoff Green	Emeritus Professor of urban policy at the Centre for Health and Social Care Research, Sheffield Hallam University	Social cost of cold homes
GC7.4	Geoff Green	Emeritus Professor of urban policy at the Centre for Health and Social Care Research, Sheffield Hallam University	Decent Homes
GC7.5	i) Dr Jeremy Wight		Health and climate change: policy responses to protect public health
	ii) Mark Daly	Sheffield City Council, Place - Sustainable City	
GC7.6	Liz Ballard	Sheffield and Rotherham Wildlife Trust	Our Natural Health Service: The role of the natural environment in maintaining healthy lives

GC8 Mixed themes			
GC8.1	Will Eadson	Sheffield Hallam University, Centre for Regional Economic and Social Research	Submission to Sheffield Green Commission Call for Evidence
GC8.2	Andrew Brooker		Green Commission - Call for Evidence
GC8.3a	Joyce Bullivant	Sheffield Timewalk Project	Green Commission - Call for Evidence: sustainable growth and resilience re built environment ie Heritage
GC8.3b	Joyce Bullivant	Sheffield Timewalk Project	re Submission for consideration
GC8.4	Robert Almond	Sheffield City Council, Place - Capital Delivery Service	Towards an Environmentally Resilient Sheffield 9SCC/Arup 11 Oct 13
GC8.5	Commissioners' request		Malmo European Green Capital

Appendix 3 – continued

	Contributor	Organisation	Title/theme
GC8.6	Commissioners' request		European Green Capitals
GC8.7	Commissioners' request		European Green Capital Tallinn Memorandum of Understanding
GC8.8	Commissioners' request		FoE Radical Agenda for Cities
GC8.9	Mark Watts - blogpost	Executive Director, C40 Cities Climate Leadership Group	C40 Key elements to a low CO2 sustainable city
GC8.10	Nick Tovey	Regional Director, Wardell Armstrong	Green Commission supporting evidence
GC8.11	Liz Ballard	Sheffield and Rotherham Wildlife Trust	State of Nature Report 2013
GC8.12	Liz Ballard	Sheffield and Rotherham Wildlife Trust	Natural Childhood, National Trust 2012

GC9 Structured interviews			
GC9.01	Caroline Wood	University of Sheffield - Dept. Plant and Animal Sciences	Ecological systems
GC9.02	Duncan Swainsbury	Bounceback Foods	Sustainable food and entrepreneurialism
GC9.03	Emma Wells	Sheffield City Council - Development Services	Planning systems and sustainability
GC9.04	Gareth Roberts	Regather	Sustainable food and ecological systems
GC9.05	Sue France	Green Estate / Pictorial Meadows	Green infrastructure and sustainable development
GC9.06	Jo Hercberg	The Real Junk Food Project	Sustainable food and ecological systems
GC9.07	Katie Powell	University of Sheffield (Student Eats)	Sustainable food and ecological systems
GC9.08		Sheffield Renewables	Community and low CO2 energy
GC9.09	Terry Howard	Sheffield Ramblers/Sheffield Local Access Forum	Sustainable transport
GC9.10	Chris Thompson	Citu	Sustainable development
GC9.11	Nicky Rivers	Sheffield and Rotherham Wildlife Trust	Ecological systems
GC9.12		South Yorkshire Housing Association	Sustainable development
GC9.13	Jim Fletcher	Sheffield City Council, Place - Development Services	Land drainage and flood management

Appendix 3 – continued

	Contributor	Organisation	Title/theme
GC10 Hearings			
GC10.01	Dr Adrian Davis	Public Health and Transport Consultant, Bristol City Council	Sustainable Mobility and Modal Shift
GC10.02	Professor Christine Liddell	Professor of Psychology, University of Ulster	Fuel Poverty
GC10.03	Dr David Pencheon	Director, NHS Sustainable Development Unit	Sustainable Development and Climate Change
GC10.04	Dr Carly McLachlan	University of Manchester / Tyndall Centre	Communication, Engagement and Behaviour Change
GC10.05	Amanda Pearce	Director, Diva Creative	Achieving Behaviour Change through Social Marketing
GC10.06	Dr Joe Smith	Open University	Communication, Engagement and Behaviour Change relating to Climate Change
GC10.07	Professor Andy Gouldson	Deputy Director, Centre for Climate Change Economics and Policy	The Economics of Climate Change
GC10.08	Professor Cedo Maksimovic	Imperial College, London	The Blue Green Dream - sustainable infrastructure development
GC10.09	Charles Purkess	Marketing and PR Manager, ITM Power	Low CO ₂ Fuel Technology
GC10.10	Eddie Murphy	Technical Director, Mott MacDonald	Low CO ₂ Design and Construction
GC10.11	David Rudlin	URBED	Garden Cities and Sustainable City Growth
GC10.12	Gary Topp	Development Manager, Bristol Green Capital Partnership	Sustainability Partnerships for Cities
GC10.13	Professor Nigel Dunnett	Professor of Planting Design and Vegetation Technology / Director of the Green Roof Centre, University of Sheffield	The Green Environment in Cities
GC10.14	Robert Evans	CEO, Cenex	Sustainable Transport Options for Cities
GC10.15	Will McBain	Associate Director, Water, Arup	Flood Management and Blue Infrastructure for Cities
GC10.16	Julia Thrift	Head of Projects and Events, Town and Country Planning Association	Green Infrastructure in Cities

Appendix 3 – continued

	Contributor	Organisation	Title/theme
GC10.17	Professor Philip Warren	University of Sheffield, Dept. of Plant and Animal Sciences	Ecological services - Green and Blue Infrastructure in Cities

GC11 SHED Talks			
SHED Talk 0	Charles Morse	Sheffield Hallam University	Welcome and introduction - A learning and a sustainable environment
SHED Talk 1	Professor Lynn Crowe	Sheffield Hallam University	What has nature ever done for us?
SHED Talk 2	Nick Nuttgens		CO ₂ Twaddle: why "CO ₂ literacy" programmes are utter nonsense
SHED Talk 3	Dr David Reid	Nottingham Trent University	Eco-tone - visual and audio work on themes of environment
SHED Talk 4	Liz Ballard	Sheffield and Rotherham Wildlife Trust	Wild Sheffield
SHED Talk 5	Professor Ian Rotherham	Sheffield Hallam University	Who needs trees?
SHED Talk 6	Madame Zucchini		On sustainability and having fun with vegetables
SHED Talk 7	Emily Vincent	University of Sheffield	The mammoth in the room - fossil fuels heading for extinction
SHED Talk 8	Professor Gordon Dabinett	University of Sheffield	A green and fair Sheffield - can the city be more equal and more sustainable?
SHED Talk 9	Matt Turner	Cycle Sheffield	Designing cycling into the city - why Sheffield should go Dutch
SHED Talk 10	John Grant	Sheffield Hallam University	Home and dry - domestic retrofit
SHED Talk 11	Joy Bullivant	Timewalk Project	Not just a pile of old brick - the economics of uniqueness
SHED Talk 12	Professor Lenny Koh	University of Sheffield	Resource efficient and environmentally sustainable supply chains
SHED Talk 13	Luke Wilson	Sheffield Renewables	Harnessing the energy of the community
SHED Talk 14	Jeff Sorrill	Green Roof Centre, University of Sheffield	Green roofs - the only way is up! From sheds to SHEDs

