

Report of Director of Resources and Housing

Report to Executive Board

Date: 13 December 2017

Subject: Cutting Carbon Breakthrough Project Annual Report

Are specific electoral Wards affected? If relevant, name(s) of Ward(s):	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are there implications for equality and diversity and cohesion and integration?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Is the decision eligible for Call-In?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Does the report contain confidential or exempt information? If relevant, Access to Information Procedure Rule number: Appendix number:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

Summary of main issues

- 1 Since last year's annual report to Executive Board on this Breakthrough Project, the world has seen a continuing pattern of extreme weather events, which the majority of climate scientists are now agreed is evidence of global climate change.
- 2 Leeds has taken the pioneering step to establish the Leeds Climate Commission, to help Leeds to make a positive choice on issues relating to energy, carbon, weather and climate. It brings together key organisations and actors from across the city and from the public, private and third sectors. Officially launched in September 2017, with guest speeches from the Leader of the Council, Professor Andy Gouldson (Professor of Environmental Policy and Dean of Interdisciplinary Research) from the University of Leeds and Lord Deben, Chairman of the UK's independent Committee on Climate Change, this report includes the Executive Summary of the Commission's first annual report at Appendix 1 and the results of the Commission's analysis of cost effective low carbon measures for Leeds showing that by 2030 Leeds can save over £277 million annually or £348 a year for everyone in the city if it exploited all of the profitable measures for energy efficiency and low carbon development.
- 3 In response to this global challenge and in order to deliver economic, social and environmental benefits locally, Leeds City Council adopted Cutting Carbon and Improving Air Quality as one of its priority Breakthrough Projects. Under this project the Council has been delivering a number of carbon reduction schemes and fuel poverty initiatives in the city which are reported here including:-

- Progress on the city wide district heating network, the first phase of which will connect almost 2,000 Council flats as well as corporate buildings and other public and private sector businesses taking heat from the city's Recycling and Energy Recovery Facility.
- Good progress on implementing a range of school and corporate building energy efficiency measures.
- Another strong year of performance on domestic energy efficiency, despite the challenging national policy context, attracting several million pounds worth of investment to help some of the most vulnerable households in the city to reduce their fuel bills. The report also includes an update on White Rose Energy.

4 It is in the nature of all of the Breakthrough Projects that the Council cannot address the challenge alone, so this report also records the progress being made by Northern Gas Networks for Leeds to be the first city in a national programme to convert the natural gas network to hydrogen. Activities of other key partners in the city, are detailed in Appendix 1 in the Leeds Climate Commission Annual Report Executive Summary and include measures undertaken by Yorkshire Water, CITU, Leeds Beckett University, University of Leeds, Leeds NHS organisations amongst others, demonstrating the breadth of activity across the city now being brought together via the Climate Commission.

Recommendations

5 Members of the Executive Board are recommended to:-

- Note the findings of the Leeds Climate Commission Annual Report and continue to respond to the Commission's advice and recommendations in the future;
- Note the progress and continue to support the delivery of the carbon reduction schemes within Cutting Carbon and Improving Air Quality Breakthrough Project.
- Note that all of these recommendations will be delivered from 2017/8 onwards by the Sustainable Energy & Climate Change team, under the direction of the Director of Resources and Housing.

1. Purpose of this report

- 1.1 To present the first annual report of the Leeds Climate Commission;
- 1.2 To outline the progress the Council has made in reducing carbon emissions through the schemes in the Cutting Carbon Breakthrough Project.

2. Background information

- 2.1 Last year's Executive Board report (14 December 2016) announced the creation of the Leeds Climate Commission (known at the time as the Leeds Committee on Climate Change), supplemented the city's Climate Change Strategy with an interim target to reduce citywide CO₂ emissions by 60% by 2030 from a 2005 baseline, updated the Affordable Warmth Strategy (2017-30) and reported on the progress of the carbon reduction schemes within the Cutting Carbon and Improving Air Quality Breakthrough Project;
- 2.2 Today's Executive Board agenda also includes a report on the progress being made on improving air quality. This report will therefore focus on the cutting carbon and fuel poverty aspects of the Breakthrough Project.
- 2.3 With the disturbing news from the United Nations that the concentration of carbon dioxide in the atmosphere increased at record speed last year to hit a level not seen for more than three million years (403.3 parts per million (ppm) in 2016, up from 400.00 ppm in 2015 because of a combination of human activities and a strong El Niño event), the authors of the study have urged policymakers to step up countermeasures to reduce the risk of global warming exceeding the Paris climate target of between 1.5C and 2C.
- 2.4 In the UK, the government launched the Clean Growth Strategy (CGS) in October setting out the government's direction of travel as it addresses its legal obligations under the Climate Change Act 2008. Fifty major policy proposals are being brought forward under the strategy, some old, some new, including a target for businesses to reduce greenhouse emissions by 20% by 2030, £100m to support carbon capture, usage and storage (CCUS), a target for all households to have an energy efficiency rating of C at least by 2035, £3.6bn to upgrade one million homes through the Energy Company Obligation, an end to the sale of petrol and diesel cars and vans by 2040 and £1bn for ultra-low-emission vehicles. The strategy also includes funding through the BEIS (Department for Business, Energy & Industrial Strategy) Energy Innovation Programme, totalling £94 million, to provide low-carbon heat in domestic and commercial buildings, improving energy efficiency of existing buildings, a sixth instalment of the Energy Entrepreneurs Fund, a carbon capture and storage demonstration project, demonstration of the benefits of low-carbon energy switching for industry and support for clean technology early stage funding. The Strategy set out a raft of proposals to improve the energy efficiency of homes and commercial buildings, and encourage the adoption of low carbon heating and to introduce a voluntary target for the wider public and higher education sector of at least a 30% reduction in greenhouse gases by 2020/21, against a 2009/2010 baseline.

- 2.5 The Council has responded to the BEIS' (Department for Business, Energy & Industrial Strategy) call for evidence on instituting a voluntary target for organisations across the public sector and higher education institutions. The response states that the proposed 30% reduction is not particularly ambitious and well within the reach of most public organisations, including Leeds City Council. Our response also urges the government to introduce a 'duty to collaborate' between public sector organisations when they are considering major energy infrastructure investments. This would open up the possibility for the public sector to explore the potential for more efficient and effective delivery of energy infrastructure schemes, securing better value for money and ensuring that the public sector optimises its role as an anchor for low carbon energy infrastructure.

3 Main issues

3.1 Leeds Climate Commission Annual Report

- 3.2 The Executive Summary of the Leeds Climate Commission Annual Report is attached at Appendix 1. The final version of the Leeds Climate Commission Annual Report will be agreed in collaboration with the Commission's Strategy Group and will be published on the Leeds Climate Commission website <http://leeds.candocities.org/about-leeds-climate-commission>.

- 3.3 Professor Andy Gouldson from the University of Leeds who chairs the Leeds Climate Commission has been invited to attend Executive Board.

- 3.4 One of the most important activities of the Commission has been to update the 2012 mini-Stern report on to cost-effective carbon reduction measures (see Appendix 2). Analysis has shown that by 2030 Leeds can save over £277 million annually or £348 a year for everyone in the city if it exploited all of the profitable measures for energy efficiency and low carbon development. This would also create 4,200 extra years of employment whilst also cutting carbon emissions for 22.7% on top of what is happening anyway. Leeds Climate Commission will help to ensure these opportunities become a reality by carrying out further detailed analysis of the measures needed to fill the gap between the impact of national schemes and local carbon reduction targets and to understand the scale of new investments by local partners in all sectors required to meet these targets. The Leeds Climate Commission will also be able to evaluate other ways of reducing local carbon emissions such as through addressing food waste.

4 Performance Indicators

- 4.1 There are three Best City and one Best Council key performance indicators of direct relevance to this report.

- Reduced carbon emissions across the city
- Number of households in fuel poverty
- Improved energy and thermal efficiency performance of houses
- Lower CO₂ emissions from council buildings and operations

4.1.1 Reduced carbon emissions across the city

4.1.2 The indicator is based on the old National Indicator 186 (Per capita CO₂ emissions in the LA area) the data for which is published annually by government. A sub dataset is used, which includes sources of CO₂ emissions within the scope of local authority influence, but excludes emissions outside the scope of the local authority such as those from motorways. The baseline is subject to small variations in different year's datasets, as BEIS (Department for Business, Energy & Industrial Strategy) continue to improve the methodology used to calculate the CO₂ emissions.

Performance Indicator	Baseline year [approx. CO ₂ emissions]	Target [approx. CO ₂ emissions]	Progress to date using latest data available		
			Year	Emissions (m tonnes)	% reduction from baseline
Reduced carbon emissions across the city	2005 [c5m tonnes]	40% reduction in CO ₂ emissions by 2020 [c3m tonnes]	2005	5.006	0%
			2006	4.992	0.28%
			2007	4.849	3.14%
		60% reduction in CO ₂ emissions by 2030 [c2m tonnes]	2008	4.776	4.59%
			2009	4.309	13.9%
			2010	4.492	10.3%
			2011	4.070	18.7%
			2012	4.310	13.9%
			2013	4.162	16.9%
			2014	3.599	28.1%
2015	3.386	32.4%			
		80% reduction in CO ₂ emissions by 2050 [c1m tonnes]			

4.1.3 The Leeds Climate Commission's analysis is that emissions have fallen as a result of a decarbonisation of the electricity grid (less reliance on coal in power stations and increased use of renewables to generate electricity), improving vehicle efficiencies and reduced energy use in homes and offices.

4.1.4 However the rate of decline is expected to diminish in the near future and without further actions at the national or local levels, Leeds will not meet its longer term carbon reduction targets. The Leeds Climate Commission will be providing the evidence base and advising the Council and other city partners on the most cost and carbon-effective measures that can be taken to achieve future carbon reduction targets.

4.1.5 Examples of successful projects being undertaken across the city include:-

Yorkshire Water's £72 million investment in a in a state-of-the-art sludge treatment and anaerobic digestion facility at Knostrop works which treats the sewage produced in Leeds. The new facility will replace a sludge incinerator to enable the more efficient and effective treatment of sewage combined with the additional benefit of renewable power production. Once complete in 2020, the new facility will have the ability to:

- Recycle 94% of Leeds' sewage sludge
- Be capable of processing 131 tonnes of dry sludge a day
- Generate 55% of its own electricity demand, the equivalent of providing power to 8,000 homes
- Reduce the Knostrop site's carbon emissions by 15%.

CITU's plans for a Climate Innovation District on South Bank. They hope to build over 500 sustainable homes near the city centre of Leeds. Using a timber framed design and building the homes to be extremely energy efficient will mean the development is net zero carbon. Its central location will mean it's easy for residents to walk and cycle to their places of work in the city, preventing huge amounts of vehicle emissions and helping to make Leeds' air cleaner.

Leeds Beckett University are working with CITU on their new buildings, using thermal modelling and simulation and experience from field tests, to advance digital engineering, client interfaces and CITU's factory engineered buildings. This research will help to ensure that CITU's plans for development in the centre of Leeds are at the forefront of smart building technology and design.

Leeds Teaching Hospitals NHS Trust has a vision is to be one of the greenest Trusts in the UK by 2020. They are fully committed to becoming a sustainable organisation and will embed environmental and social improvement into day to day business activities. They have launched a comprehensive Sustainable Development Management Plan with stringent carbon reduction targets and have also begun the process of embedding an environmental management system with the intention of seeking external verification for ISO14001 accreditation.

Since adopting the 2011 Carbon Management Plan, which aims to reduce waste, water and carbon emissions 35% by 2020, the University of Leeds has invested heavily into upgrading, monitoring and targeting systems to help quantify and demonstrate reductions across campus. The Chemistry Building is equipped with five laboratory extract systems which have now been upgraded to VAV extraction systems. Compared to 2015, the monthly energy use has decreased by 48,915.57 kWh, with an annual saving of 586,986.86 kWh. This reduction in energy has resulted in an annual cost saving of £43,672 and 242 tonnes of carbon.

4.1.6 Number of households in fuel poverty

4.1.7 The Council does not have a target for the number of households in fuel poverty as this is so heavily influenced by factors beyond our control, such as household income and central Government funding availability. Instead, through the Leeds Affordable Warmth Partnership we agree an annual work programme towards our overall aims, as stated in the Leeds Affordable Warmth Strategy, of improving the average energy efficiency of housing in Leeds as a whole and targeting

assistance towards residents whose health and wellbeing is most likely to be at risk from living in a cold home.

Performance Indicator	2014	2015
Number of households in fuel poverty	32,4810 households (11.9% of the total households in Leeds)	43,871 households (13.5%)

4.1.8 Projects to improve heating in residents' homes make a genuine difference to people's lives as these Central Heating Fund case studies and quotes from other schemes demonstrate:-

Case Study 1

We were informed by our gas connection provider of an 87 year old man who lives on his own and suffers from diabetes in a post war property which has suffered some damp problems, resulting in floor boards needing to be replaced. The property was heated with one storage heater and one on-peak electric heater. Because of the central heating fund we have been able to install a central heating system which will help to improve the resident's health and help him to maintain his home in a fit state.

Case Study 2

We had a referral from our Warm Homes Service, managed by Care and Repair Leeds of two brothers, aged 63 and 80 respectively who share a house in the outskirts of the city. Between them they suffer from a range of medical conditions, including psoriasis, glaucoma, hypertension and mental illness. The property had a coal fire with a back boiler which heated hot water only, although by the time they reached the Warm Homes Service, the hot water boiler had broken down and the brothers were relying on boiling a kettle to bathe. An application for full central heating has now been made through the central heating fund.

Case Study 3

Another referral from our Warm Homes Service was for a 71 year old man who lives on his own who survived with one gas fire, one plug in electric heater and a hot water boiler which had broken down. Because the client wears a colostomy bag and has to bathe regularly, this case was quite urgent, however, the central heating fund has enabled us to provide adequate heating and hot water, rather than just repairing the hot water boiler, making sure that his ongoing needs are addressed, as well as resolving the immediate crisis.

Case Study 4

We had an urgent referral from the Warm Homes Service regarding an 86 year old woman who looked after her three adult sons, all of whom suffer from mental health issues and are unable to work. The main form of heating had previously been a solid fuel heating system which had long since broken down and which the client would have been unable to sustain due to suffering from heart disease, hypertension, arthritis and skin cancer. The family has since been relying on a plug-in electric fire, causing her to complain of very high bills. The family had been struggling to keep on top of housework for many years, and as a result, the property required a substantial amount of cleaning and de-cluttering before heating could be installed. However, because of the central heating fund, we are now able

to install an adequate central heating system which will better help the client to manage the house and maintain her health.

A woman from Rothwell had external wall insulation, last summer and would highly recommend having insulation done: *“The house has been much warmer over winter. I didn’t have to use my fire this winter, I normally have to put it on to back up the central heating a few times. My bill is less than last year too. Everyone admires the way the house looks, visitor’s comment on it. The workmen who did the work were wonderful and it was very easy. The biggest problem was getting it done, but once it got going it’s been great.”*

Testimony from Joan, LS16: *“I’d certainly recommend getting this work done. The house is much warmer than it used to be and it looks so much better on the outside now. These houses have always been known for being cold and the external insulation has made mine noticeably warmer. It’s really made a difference in the kitchen, which is north facing so doesn’t warm up easily. The living room’s south facing so it’s made less of a difference there but the heating does come on less. I switched energy supplier just before the work was done and I’ve been in credit with them all the way through the winter, so I’m obviously using less gas than before and I think I’ll be reducing my direct debit shortly. The work’s really made the outside of the house so much neater. People have made comments about how much nice it looks and some visitors have even thought they’d gone to the wrong house! “I didn’t have any complaints about the work when it was being carried out. I’d see the workmen on a morning before I went to work and they’d just get on with it during the day. They only needed to get inside the house to extend the pipe to the toilet, and apart from that the whole thing was very unintrusive.”*

4.1.9 Improved energy and thermal efficiency performance of houses

4.1.10 SAP (Standard Assessment Procedure) is the methodology used by the Government to assess and compare the energy and environmental performance of dwellings. Its purpose is to provide accurate and reliable assessments of dwelling energy performances that are needed to underpin energy and environmental policy initiatives. It is basically a measure of how energy efficient a dwelling is on a scale of 1 to 100, which is independent of floor area and geographical location, and where 100 is energy neutral (a house creating as much energy as it uses) and 1 is extremely poor.

Affordable Warmth Strategy indicators	2010	2016	Notes
Average Citywide SAP	58.7	62.6	In Leeds the ‘Affordable Warmth Strategy 2007-16’ has aspirational targets to increase the average SAP rating of housing in Leeds to band ‘C’ (min. SAP 69) by 2020 as a whole, and to ensure that no properties are below band ‘E’ (min. SAP 39) by 2030. Clearly other than our own Council properties, we have no direct control over the SAP rating of properties in the city.
% Properties below SAP band ‘E’ (min SAP 39)	Data not available	2.4	

4.1.11 Lower CO2 emissions from council buildings and operations

4.1.12 The CO₂ emissions are calculated by extracting energy consumption data from the Council's energy database, eliminating meters which are out of scope (eg Traffic signals, PFI Leisure centres etc) and applying fuel dependant emission factors. The council has a programme of investment via a variety of funds of interest free loans that are repaid through the energy savings that are generated as a result of delivering a programme of works that will save energy and reduce CO₂ emissions. Examples of cost savings are presented in tables in section 5.3 later in this report.

Performance Indicator	Baseline year [approx. CO2 emissions]	Target [approx. CO2 emissions]	Progress to date using latest data available		
			Year	Emissions (k tonnes)	% reduction from baseline
Lower CO2 emissions from council buildings and operations	2005 [132,328 tonnes] (This is an extrapolated figure from the earliest available 2008/9 local authority data. 2005 is chosen to bring the target in line with the city wide target/baseline.)	40% reduction in CO2 emissions by 2020	2005	132.328	0
			2008/09	136.989	+3.54%
			2009/10	131.962	-0.26%
			2010/11	130.553	-1.32%
			2011/12	122.321	-7.54%
			2012/13	112.909	-14.66%
			2013/14	116.135	-12.22%
			2014/15	110.009	-16.85%

5 Cutting Carbon Breakthrough Project

5.1 In order to help contribute towards achieving the city wide carbon reduction targets, the Council has a number of low carbon schemes in place under the Breakthrough Project. The main achievements this year are summarised below.

5.2 District Heating

5.2.1 The Council has made a major step forward this year towards its strategic priority of creating a citywide district heating network, to pipe lower cost and lower carbon heat from the perimeter of the city to businesses and residents in dense urban areas.

5.2.2 The Council has now started construction of c8km of underground district heating pipe runs and is mobilising to start construction of two new energy centres early in 2018. Ultimately, this network will allow the Council to convert 1,440 flats from electric storage heaters to district heating, and to connect another 543 flats with

existing district heating systems in Saxton Gardens and Ebor Gardens. It will also provide heat to new and existing buildings en route and has been designed to allow easy expansion to the city centre and Southbank.

5.2.3 Since December 2016 the Council has:

- Completed procurement and contracted with Vital Energi, a leading district heating design and delivery company, to design build and operate both the Spine and Housing District Heating Networks.
- Secured Executive Board approval to borrow c£17m of Public Works Loan Board finance, matched by £4m of growth funding from the LEP, for the Spine District Heating Network.
- Secured ERDF funding of c£5.8m with the balance of c£11.3m coming from the HRA.
- Engaged with potential heat customers from across the city and secured Heads of Terms with the College of Music, West Yorkshire Playhouse and are at an advanced stage with two major developers.

5.2.4 In 2018, the Council aims to:

- Construct the majority of the underground District Heating Network, near completion of the two energy centres and commence installation of pipework within the Council blocks.
- Establish the trading company to allow us to sell heat to the private sector.
- Secure Heads of Terms with developers.

5.2.5 Longer term, we have a vision to create an interlinked series of district heating networks covering much of the city, similar to the Scandinavian models. We will therefore undertake detailed techno-economic development work for extensions to the Southbank and the wider city centre over the next year.

5.3 Corporate Energy Projects including schools

5.3.1 The LED (Light Emitting Diode) lighting in schools initiative has successfully completed 14 schools. LEDs are composed of a semiconductor light source. Initially developed in the 1960's, LED's were first used as low intensity red lights – for example as traffic lights. As the technology has developed, LEDs can now be found across the visible, ultraviolet and infrared wavelengths, which means that the applications for LEDs have expanded considerably. Now they are being used in light bars, light bulbs and many more real world applications. The benefit of LED's compared to incandescent lights is that they have lower energy consumption and last longer.

5.3.2 Four schools were completed in the 2017 summer holidays. This currently results in an estimated saving of 246 tonnes of carbon and almost £65k estimated savings per annum.

5.3.3 The LED in schools projects are supported by Salix funding, a revolving, interest-free loan scheme managed by Salix Finance, where schools need to meet select criteria for eligibility. Loans are paid back to Salix through the savings made from more efficient lighting measures.

5.3.4 Further investigations are underway for additional schools to be added to this portfolio.

School	As of 23/10/2017	
	Est Carbon Saving (tonnes) pa	Est Cost Saving pa
Adel Primary School	27.4	£6,959.75
Bardsey Primary School	18.5	£4,356.92
Bramley St Peter's C of E Primary School	20.0	£4,865.00
Broadgate Primary School	11.9	£3,066.00
Churwell Primary School	9.1	£2,625.00
Pool-in-Wharfedale Primary School	7.6	£1,726.08
Queensway Primary School	38.0	£11,011.00
Temple Moor High School	45.6	£11,744.00
Westbrook Lane Primary School	15.2	£4,285.33
Westgate Primary School	8.4	£1,947.92
Rosebank Primary School	12.9	£3,555.00
Shadwell Primary School	7.1	£1,944.00
Meanwood C of E Primary School	10.2	£2,902.00
St Peter's Burmantofts	13.9	£3,838.00
	245.8	£64,826.00

5.3.5 A number of schemes have been delivered over the past year and are in the pipeline to be delivered in the future

5.3.6 Utilising a subsidy provided by our PFI provider for street lighting, Tay Valley Lighting, a number of lamps have been replaced in the Chapeltown and Belle Isle districts of Leeds. The work concentrated on replacing old lanterns with LED. This has led to a reduction of 106,690 kWh of electricity which equates to 44 tonnes of CO₂ (43,697 kgs). All new streetlights are now erected with LED bulbs.

5.3.7 Further work is being undertaken by the street lighting team in City Development to look at rolling replacement programme and to also look to expand the part night switching scheme. The team are in the process of developing a programme of city wide consultation which would be used to develop an Executive Board report in 2018.

5.3.8 In terms of works undertaken elsewhere across the corporate and operational estate, the council has a rolling fund of interest free loans that are repaid through the energy savings that are generated as a result of delivering a programme of works that will save energy and reduce CO₂ emissions. The following schemes are in the pipeline to be delivered before the end of the current financial year.

Title	Work Type	Est annual financial savings	kWh savings	CO2 Saved
Scott Hall Leisure Centre - BEMS Replacement	BEMS - bureau remotely managed	£8,203.92	203,218	45.12
Seacroft Depot - BEMS Replacement	BEMS - bureau remotely managed	£2,165.78	29,284	9.28
Rothwell Leisure Centre - Pool Management System	Motors - high efficiency	£7,915.54	78,840	39.45
Technorth - Replacement BEMS & VSD	BEMS - bureau remotely managed	£2,926.20	78,723	20.18
Wetherby Leisure Centre - Small Pool Management	Motors - high efficiency	£1,319.26	13,140	6.57
Leeds Art Gallery - new Air Handling Unit	Fans - air handling unit	£2,712.10	26,280	13.15
Kippax Leisure Centre - Pool Management System	Variable speed drives	£6,215.14	70,080	35.06
Fearnville Leisure Centre - Pool Management System	Variable speed drives	£7,926.84	81,468	40.76
Scott Hall Leisure Centre - Pool Management System	Variable speed drives	£5,790.01	59,568	29.8
John Smeaton Leisure Centre-Pool Management System	Variable speed drives	£2,146.20	21,900	10.96
Kippax Leisure Centre - Pool Cover	Swimming pool covers - motored	£5,487.90	182,930	33.74
JCCS Tennis Lighting	T12/T8 to LED using same fitting	£19,198.36	181,975	81.77
Aireborough Leisure Centre	Boilers - replacement condensing	£5,029.90	201,196	37.02
Civic Hall LED Lighting 2 & 3 floor	T12/T8 to CFL including new fitting	£5,758.09	62,656	28.15
		£82,795.24	1,291,258	431.01

5.4 Domestic Energy Efficiency & Fuel Poverty Initiatives

5.4.1 One of the main sources of funding for this area of work is the Energy Company Obligation (ECO) which is a government energy efficiency scheme in Great Britain to help reduce carbon emissions and tackle fuel poverty. The ECO scheme means that larger gas and electricity suppliers with more than 250,000 household customers are obliged to help households with energy efficiency measures. Leeds City Council works hard to ensure that the city is an attractive place for ECO funding to be invested. Key highlights from this year are:

- Implementation of Flex ECO. This new subsidy was introduced as part of the ECO transition arrangements, which gives local authorities the ability to define residents in fuel poverty outside the standard benefits criteria, so they can get a subsidy for energy efficiency improvements. A statement of intent has been published, funding has been secured from E.On and is being used to assist the Warm Well Homes and Holbeck schemes as well as a general scheme for residents in fuel poverty. Information on progress with this scheme is being fed back to BEIS (Department for Business, Energy & Industrial Strategy), to promote its inclusion in ECO3 from October 2018. Flex ECO can be up to 10% of an energy company's obligation. It is early days for the funding but we have negotiated contracts with Eon, for up to £250,000, as part of the wider LCR and by the end of September had drawn in an additional £29,944 ECO funding for 20 properties in Holbeck phase 1.
- The Holbeck Group Repair programme has started on site in Holbeck and is on track. This £4.5M project is part funded by Leeds City Council, the Leeds City Region Local Growth Fund (£1.5m), ECO and customer contributions. The project provides external wall and attic room insulation to 189 Victorian homes (37 LCC homes and 152 private) and will be completed by March 2019. 114 properties (37 LCC and 77 private) have joined the scheme. 61 houses have been completed, and a further 36 are being refurbished.
- Warm Well Homes provides larger scale energy efficiency and heating improvements to low income residents suffering from cardio vascular, respiratory or mental health conditions city-wide. The programme will support c100-150 properties over a 2 year period and has £280k of Local Growth Funding, matched by council grants and loans and personal contributions. It has surveyed 64 properties since March 2017 and installed heating or insulation measures in 47 homes.
- Continuation of Better Homes Yorkshire, for private able to pay customers, and an external wall insulation scheme of 110 properties on the Parkwood Estate delivered between November 2017 and March 2018.
- The Warmth for Wellbeing programme which is funded by SECC, Public Health and the NHS, which encompasses the Green Doctor scheme, managed by Groundwork Leeds and the Warm Homes Service, which is managed by Care and Repair Leeds provided energy efficiency advice, fuel bill advice, heating repairs and small scale energy efficiency improvements to 1623 households in 2016/17. The Public Health Programme Board agreed in August to merge this service with the Home Independence service (also currently provided by C&R) and a joint procurement exercise is now being planned.

5.4.2 Next year's priorities include:

- Securing funding for Holbeck phase 2 to extend the successful project to a neighbouring area.
- A pilot project of smart energy storage using storage heaters, this will test out how to ensure tower blocks do not exceed their electrical capacity, whilst saving money for tenants by using low cost electricity and increasing comfort

by providing heat when it is needed. The free pilot will take place in the 60 flats in Norman Towers in Cookridge.

- Delivering Warm Homes fund project for £0.97m to extend the successful Central Heating Fund to a further 550 households, 500 private and 50 LCC tenants, and bidding for projects in two further calls for this fund expected in 2018.
- A further pilot project using innovative external wall insulation manufactured offsite and room in roof insulation in back to backs in neighbourhood priority action areas, starting in the Cliftons area in Burmantofts. This exploits a loophole in current ECO provision which benefits back to backs.
- A small scale trial in 8 council properties of battery technology and time of use tariffs to test how they can improve cost savings to residents with PV, making it more effective.
- The re-procurement of the new Home Independence and Warmth service jointly with Public Health and Adult Social Care.
- A Leeds City Region ESIF call on priority 4 was released on 13th September with a deadline for outline applications of 10th November 2017. This is European Union money, for capital energy efficiency and renewables projects in social housing. As this is European Union money, we are expecting this to be the last opportunity to get this funding. All projects need to be delivered by Summer 2021. It is likely that bids selected to progress to the full bid will be announced by Christmas. Full bids require a lot of detail and take upwards of 3 months to compile, so we are expecting grant awards to take place from around June 2018. The minimum project size for funding is £1m (£500,000 ESIF, £500,000 match), and the total ERDF funding pot is £12m. In line with Housing Leeds' Strategic Investment Priorities the following projects are proposed, some of which build on small scale pilot projects.

No	Name	Value	ESIF funding	External funding	Housing Leeds
1	Transforming the Market for EWI using Back to Backs in Leeds	£9,827,690.87	£4,913,845.43	Up to £850,000	£4,063,845.43
2	Improving electrical heating within limited electrical capacity.	£2,839,565	£1,419,783	may receive income	£1,419,783
3	Low Carbon ESCO Creation.	£7,800,000	£2,195,053	£4,556,611	£1,048,336

- Lobbying of government to help shape the new energy company subsidy ECO3, due in October 2018, in order to make it practical and beneficial for the residents of Leeds.

5.5 White Rose Energy (WRE): is a partnership between Leeds City Council and Robin Hood Energy (RHE), a not-for-profit energy company that the Council chose to endorse following a competitive process. Collectively, we're driven by the same

ethos, which is to provide low cost energy to all households, with pricing that is fair and transparent. WRE launched on the 12th of September 2016 and its tariffs are open to all households across the Yorkshire and Humber region.

- 5.5.1 The justification for the scheme emerged from a longstanding belief that people across Yorkshire deserve a better type of energy company and we – as a large local authority – should be leveraging our influence to bring about better outcomes for people in this regard. Our primary aim is to help people to stay warm and comfortable with a reliable source of energy in their own homes, without paying over the odds.
- 5.5.2 During the past thirteen and a half months, WRE has accrued around 6,000 customers, with around 40% of these sign ups coming directly from switching undertaken in Housing Leeds social housing properties as part of the voids process in-between tenancies. This overall customer base figure is lower than expected for a variety of reasons:
- 5.5.3 Towards the end of 2016 we saw a huge upsurge in our customer numbers due to the fact that our fixed rate tariff was right at the top of comparison tables. However, since the new year our tariffs have been less competitive due to market pressures; for instance, many new entrants have potentially created loss leader prices to disrupt the market and pursue a rapid, high risk growth strategy. Our model is more about ensuring financial sustainability over the long-term. However, we have seen our acquisition numbers slow down since the turn of the year because of price point issues.
- 5.5.4 Another potential reason for slower than expected sign ups relates to changes in the prepayment market, particularly the government price cap, which took away our unique selling point around having a highly competitive tariff. Everyone is now much more closely bunched, which narrows our previous edge in this domain; albeit it's good for prepayment customers generally as on the whole they are paying far less on average compared to before, regardless of who their supplier is.
- 5.5.5 We believe that customer numbers are now poised to start increasing again as a result of some focused work we've done to assess and improve the partnership's services. We soon hope to have the following in terms of new offerings:
 - Promotional codes to be publicised via large employers across Leeds, Bradford, and Calderdale, which will create decent savings for signups via this route.
 - A new 18 month tariff, which will lock in prices for 2 winter periods and will include 100% 'green' electricity, and hence will help bolster our environmental credentials.
 - A potential 'rollover' tariff, which will ensure that any customers on fixed deals automatically lapse onto a competitive tariff – with no exit fees – that is guaranteed to be cheaper than the standard variable tariff. In this way we will be rewarding their loyalty to us and hopefully we will retain their custom in the longer term.

- We are also investigating a possible economy 10 style tariff for use with battery storage in homes. This initiative is in its early stages but could be aligned to a private sector offer around home energy management systems.
- A more proactive smart metering campaign with a view to rolling out smart in our area ahead of the curve.

5.5.6 All of these ideas will add strings to WRE's bow and will give us more scope to promote our services to the public.

5.5.7 We have also partnered with Bradford and Calderdale councils, which will offer heightened promotional opportunities in areas outside of Leeds as our back-to-back endorsement with these partners involves spreading the word regarding WRE within their respective areas. This will strengthen and reinforce our regional marketing and there are lots of joint promotional activities and initiatives planned for winter 2017/18.

5.5.8 In the coming year we hope to improve sign up figures markedly by creating a greater diversity of low cost tariff plans, improving customer service, and demonstrating more innovative approaches to our marketing drives.

5.6 Leeds City Gate H21 (Hydrogen gas network trial in Leeds)

5.6.1 As reported in last year's Executive Board report, the Council is supporting Northern Gas Network's (NGN) H21 project which proposes that Leeds would be the first city to be converted from natural gas to hydrogen in what would essentially be a vision for the country, requiring government support (similar to the transition from Town Gas to natural gas in the 1960s/70s) with all major cities being converted by 2052.

5.6.2 The main progress this year has been NGN's submission for OFGEM Network Innovation Competition funding in order to research and demonstrate the safety case for gas network conversion to 100% hydrogen, the outcome of which will be known towards the end of November 2017. The main elements of the bid are:-

Total value	£15 million	Submission Deadline:	7 August 2017
Decision Date:	End of Nov 2017	Period of project if successfully funded:	2 years from Jan 2018
Summary: Confirming that hydrogen represents a comparable and manageable risk to that presented by natural gas in the network, prior to a live trial. The downstream aspects (i.e. within buildings) are subject to a separate Government funded bid.			
The project will undertake an experimental testing programme that will cover the network aspects through:-			
Year 1			
<ul style="list-style-type: none"> • Background testing of a cross section of gas network assets removed from the network and transported to test site in Derbyshire; • Consequence testing to establish the consequence of leaking hydrogen for different scenarios (e.g. mains fracture, 3rd party damage, network maintenance) with different potential sources of ignition on test site in Cumbria; 			
Year 2			

- Field testing on in situ mains to confirm the background testing utilising redundant gas network assets on local authority owned sites.

Tests will quantify:

- How hydrogen dissipates in the air and ground compared with natural gas;
- How likely leaking hydrogen is to ignite when exposed to ignition sources such as engines, cigarettes, sparking tools etc;
- Whether existing maintenance practices need to be amended.

The results of the trials will be used to update gas industry computer models that are already in place

5.6.3 NGN is working closely with Leeds City Council and WYCA to identify demolished/derelict sites where mains networks still exist in order to provide a safe, 'real-life' test environment with no customer impact. Field trials will only progress if the test site experiments have revealed no potential problems.

6 Corporate Considerations

6.1 Consultation and Engagement

6.1.1 The relevant Breakthrough Project cross-party working group has been consulted and remains a key group for driving forward initiatives and making linkages with other issues (e.g. air quality) as appropriate.

6.2 Equality and Diversity / Cohesion and Integration

6.2.1 There are no immediate implications for equality and diversity or cohesion and integration arising from this report. Each scheme within the Breakthrough Project is subject to the appropriate screening assessment.

6.3 Council policies and the Best Council Plan

6.3.1 The Best Council Plan sets out what the council will do to help improve the lives of local people and how we will measure progress in delivering better outcomes across Leeds. The most relevant of these are identified below:-

- Supporting communities and tackling poverty: improving housing conditions and energy efficiency.
- Promoting sustainable and inclusive economic growth: improving the competitive position of the city through the enabling of low carbon energy infrastructure and reduced carbon emissions.
- Becoming a more efficient and enterprising council: reducing the energy and carbon footprint of the Council.

6.3.2 Cutting Carbon and improving Air Quality is one of the Council's Breakthrough Projects. The development of the related low carbon energy infrastructure directly

contributes to the Council's forward looking commitment of introducing 21st Century infrastructure.

6.4 Resources and value for money

6.4.1 To successfully deliver many of the projects identified under the breakthrough project, a cross Council and cross partner approach is required as it cuts across so many areas of work (e.g. public health, planning, parking, transport, environmental health, highways, waste management, Housing Leeds).

6.4.2 Where possible, the team are identifying and bidding for grants to support the development of this work. Details of successful bids have been summarised in the report. The ongoing collaboration with the University of Leeds and Leeds Beckett University is intended to continue to help to secure additional resources for the city.

6.5 Legal Implications, Access to Information and Call In

6.5.1 There are no legal implications arising from this report.

6.6 Risk Management

6.6.1 The instability in government policies that support energy efficiency works and renewable technologies makes it very difficult to establish long term plans and robust business cases. Each scheme within the Breakthrough Project is subject to a rigorous risk management procedure.

6.6.2 As the Council has to bid for funding to support many of the activities that it wants to undertake in this area, if the Council is unsuccessful in winning the funds, it will impact on our ability to deliver our identified projects.

7 Conclusions

7.1 This report and the accompanying annual report from the Leeds Climate Commission serve to demonstrate the leadership that the city of Leeds is making on the climate change agenda. The Council's leadership in this field is critical and the city is fortunate to have the University of Leeds and Leeds Beckett University who are world leaders in this field. The University of Leeds have dedicated significant resources, led the way in securing financial support for the Commission, marshalled student projects and their research will provide the evidence for the decision making in the future.

7.2 The Council is actively creating an environment of innovation, a living laboratory, so that academic partners can develop and implement the latest research and ideas. As Leeds led with the first mini-Stern, so Leeds is leading again on how a city can come together to collectively respond to the challenge and opportunity that climate change presents.

8 Recommendations

8.1 Members of the Executive Board are recommended to:-

- Note the findings of the Leeds Climate Commission Annual Report and continue to respond to the Commission's advice and recommendations in the future;
- Note the progress and continue to support the delivery of the carbon reduction schemes within Cutting Carbon and Improving Air Quality Breakthrough Project.
- Note that all of these recommendations will be delivered from 2017/8 onwards by the Sustainable Energy & Climate Change team, led by the Executive Programme Manager within the Projects, Programmes, & Procurement Unit, under the direction of the Director of Resources and Housing.

9 Background documents¹

9.1 None

¹ The background documents listed in this section are available to download from the Council's website, unless they contain confidential or exempt information. The list of background documents does not include published works.