

## READING BOROUGH COUNCIL

### REPORT BY DIRECTOR OF ECONOMIC GROWTH AND NEIGHBOURHOOD SERVICES

<b>TO:</b>	STRATEGIC ENVIRONMENT, PLANNING AND TRANSPORT COMMITTEE		
<b>DATE:</b>	20 NOVEMBER 2019	<b>AGENDA ITEM:</b>	11
<b>TITLE:</b>	CLIMATE CHANGE ACTION		
<b>LEAD COUNCILLOR:</b>	CLLR PAGE	<b>PORTFOLIO:</b>	STRATEGIC ENVIRONMENT, PLANNING AND TRANSPORT
<b>SERVICE:</b>	REGENERATION AND ASSETS	<b>WARDS:</b>	BOROUGHWIDE
<b>LEAD OFFICER:</b>	BEN BURFOOT	<b>TEL:</b>	72232
<b>JOB TITLE:</b>	SUSTAINABILITY MANAGER	<b>E-MAIL:</b>	<a href="mailto:ben.burfoot@reading.gov.uk">ben.burfoot@reading.gov.uk</a>

#### 1. PURPOSE OF THE REPORT AND EXECUTIVE SUMMARY

- 1.1 The report summarises the progress against the carbon footprint targets for Reading Borough Council's own operations and those of the Borough and details the ongoing activity to meet the objectives set out in the climate emergency declaration.
- 1.2 Since its first climate change strategy in 2008/9, the Council has invested in solar panels, LED Street-lighting and energy efficiency projects, reducing the carbon footprint of its own operations by 62.5% from 19761 to 6987 tCO<sub>2e</sub> p.a.
- 1.3 Reading Borough's carbon footprint has reduced significantly since 2005. The most recent national data shows that by 2017 the per capita emissions for the Borough had reduced by 50%, to 3.3 tonnes per person. This was the greatest reduction of any Local Authority area in the South East of England over the period.
- 1.4 It is estimated that the avoided costs to the Council from the reduced energy consumption since 2008 are £10.9m compared to if no action had been taken. For 2018/19 this was estimated to be £1.5m.
- 1.5 The 2015 to 2020 Carbon Plan target for 2020 was met three years early. A new 2020 to 2025 carbon plan will continue to reduce the Council's carbon footprint towards zero, reducing exposure to rising energy costs.
- 1.6 The Reading Climate Change Partnership is now preparing its third climate change strategy for the period 2020 to 2025, which will include an Action Plan to reduce the borough emissions to net zero by 2030 and to prepare for the impacts of climate change.

1.7 The Council is currently developing a suite of new strategies and programmes which will be incorporated into the third Climate Change Strategy. A Climate Action Board is proposed. A new post of Head of Climate Strategy has been established alongside a new revenue budget. The Council has launched a number of additional initiatives and projects. Processes have also been put in place for all Committees to report on environmental implications and climate impacts.

1.8 Appendices:

- Appendix 1: Greenhouse Gas Report 2018/19

## 2. RECOMMENDED ACTION

2.1 That the Committee notes the significant progress made to date by the Council's proactive approach to addressing climate change issues and its impact on Reading, while also noting the scale of the on-going challenge.

2.2 That the Committee supports the establishment of a Climate Action Programme Board and the development of additional policies to further strengthen the Council's response to climate change.

2.3 That the Committee supports the development of a new Carbon Plan for the period 2020 to 2025 through ongoing investment in low carbon technologies and initiatives to reduce energy costs and the carbon footprint of Council operations towards zero by 2030.

## 3. POLICY CONTEXT

### BOROUGH EMISSIONS

3.1 Reading Borough Council adopted its first climate change strategy in 2008/9. Over the period of 2005 to 2017 carbon dioxide emissions in the borough have fallen by 50% per capita. This is the greatest reduction in the Southeast, with Reading Borough Council 9<sup>th</sup> of 400 authorities in the UK and 10% below the 2020 target.

3.2 Reading's Carbon Plan 2015-2020 set out how the Council would reduce its emissions of greenhouse gas from their own operations. The target to reduce emissions by 50% was met three years early in 2017/18 and its emissions in 2018/19 were 63% between below the 2008/9 baseline.

3.3 In October 2018, the International Panel on Climate Change (IPCC) published a special report ahead of the 24<sup>th</sup> international summit on climate change, stating that the world needed to reduce its greenhouse gas emissions (Carbon emissions) to zero if it is to limit heating to 1.5°C. Furthermore cities needed to decarbonise in the next two decades. For western cities, this must be sooner.

3.4 Notwithstanding its own good progress, in acknowledgement of the scale of the on-going challenge of tackling climate change, on the 26<sup>th</sup> of February 2019 the Council resolved to take action to accelerate the move to a carbon neutral\* Reading to 2030.

\*note: the terms ‘zero carbon’ and ‘carbon neutral’ refer to ‘net zero carbon’ which is taken to be the total carbon dioxide emissions less reductions met elsewhere.

#### 4. CURRENT POSITION

##### COUNCIL OPERATIONAL EMISSIONS

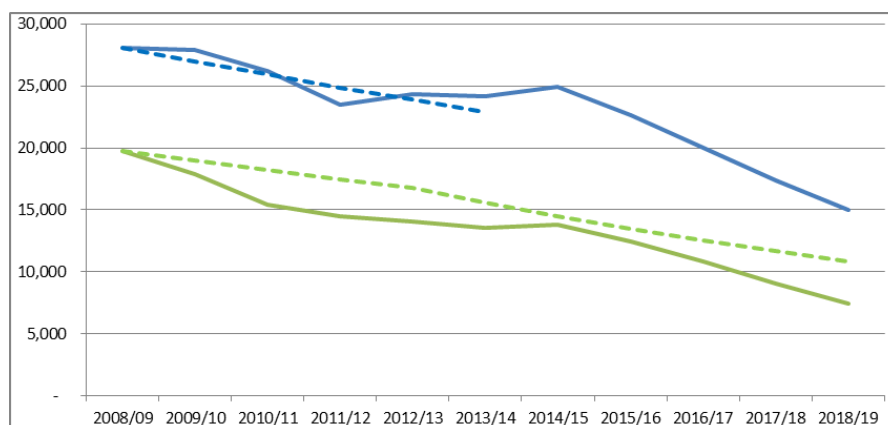
- 4.1 In 2018/19 the Council’s own carbon emissions reduced by 18.5% when considering corporate emissions against 2017/18 levels and 62.5% lower than the baseline emissions in 2008/09.
- 4.2 The net emissions under the wider influence of the Council decreased by 13.6% in 2018/19, making them 48 % lower than the baseline emissions in 2008/09. The full report can be found in Appendix 1.
- 4.3 The total renewably generated energy in 2018/19 was equivalent to 7.3 % of the energy used by the Council (excluding fuel for transport), 14% of its annual electricity demand.

*Table 1: Reading Borough Council GHG Emissions 2018/19 compared to 2017/18 and 2008/09 figures*

YEAR	2008/9	2017/18	2018/19
NET EMISSIONS - Scope 1, 2, 3 - CORPORATE	19,761	8,595	6,987
NET EMISSIONS - ALL	28,103	16,895	14,622

- 4.4 It should be noted, when considering the wider emissions, that the pupil numbers in Reading’s schools have seen a significant increase of over 33% since 2008/9. The carbon emissions per pupil across Reading have decreased by 7% between 2017/18 and 2018/19, going from 0.30 tCO<sub>2</sub>/pupil to 0.28 tCO<sub>2</sub>/pupil. This improvement reflects the upgrading of school sites and improved standards in new facilities.

*Figure 1: Reading Borough Council’s corporate and wider GHG emission performance against target (dotted) tCO<sub>2</sub>eq, from the Baseline year (2008/9) through to 2018/19*



##### PROJECTS

- 4.5 The Council is currently taking forward a series of projects on its own assets to help to meet the goal of zero carbon\* by 2030. An overview of these initiatives is given below.

#### 4.6 **LED Street-lighting**

The full upgrade of the street lighting assets to LED is almost complete. The project has reduced street lighting energy consumption by 54% in 2018/19 compared to its peak in 2013/14, and this is likely to reduce further in 2019/20 as the last remaining conversions are completed and options for dimming are considered.

#### 4.7 **SALIX**

A recirculating fund generates energy savings which are re-invested into carbon reductions projects. To date over one hundred individual projects have been delivered through the SALIX funding programme which has saved an estimated 27862 tonnes of carbon dioxide emissions.

#### 4.8 **School Programmes**

A number of schools have continued to be upgraded to LED lighting and more are planned. Funding has also been allocated over the next 5 years for mechanical and electrical and insulation improvements. St Michael's Primary School and Phoenix College have received funding from the Department for Education for major energy efficiency works.

#### 4.9 **Town Hall Refurbishment**

The Town Hall is being refurbished, using a 'whole building' approach. The work thus far has comprised of roof insulation, upgrading the lighting to LED. The final element of the project, to upgrade the heating system, is set to be complete by March 2020.

4.10 **Reading Bus Depot** Reading Buses have been working with Reading Community Energy Society to add a further large array of solar panels on the workshop roof at Great Knollys Street Depot totalling 130kWp. Once this upgrade is complete and subject to planning, Reading Buses will seek to add yet more solar on the bus canopy roof to cover the electricity used to compress gas for fuel (CNG).

4.11 In the last year Reading Buses (Reading Transport Ltd) have added to the CNG powered double deck bus fleet and work is underway to establish gas stations for smaller depots. CNG vehicles have much lower tailpipe NOx emissions, and hence have been contributing to improving the air quality in Reading. It should also be noted that these emissions are offset by injection of bio-methane into the gas grid, making them net zero carbon.

#### 4.12 **Bennet Road Depot**

Work has begun at the Council depot site at Bennet Road where the building is undergoing a major refurbishment. The development of the electric only building, incorporating renewable energy technologies is underway.

The refurbishment of Bennet Rd will deliver an all-electric building negating the need for heating oil to heat the Darwin Close building, which is due to become empty in April 2020. This will save 23,000 litres of Kerosene (heating oil) per annum. (Please refer to the Liquid Fuel Procurement Report November 19)

#### 4.13 **Electric Vehicles**

The Council currently has twelve electric vehicle chargers and nine electric vehicles and will look to increase the number of both chargers and electric

vehicles when suitable vehicle types become available and financially viable.

**4.14 'Go Electric Reading'**

This project involves installing electric vehicle charging points (EVCP) in residential areas of Reading with on-street only parking and car parks. An update on this project is presented elsewhere on this agenda.

**4.15 Council Housing**

Updates to the council's housing stock continue, including double glazing, insulated doors, upgraded insulation, solar panels, showers, and ensuring all new build properties are energy efficient with ventilation that recovers heat.

**4.16 Reading Community Energy Society (RCES)**

RCES are in the process of installing a second phase of solar panels on a number of buildings in Reading. RCES are also preparing a third project to install solar panels on schools and community buildings. In total the society has over 1MWp (4000 solar panels) in its pipeline.

**POLICIES**

4.17 The Council is working closely with the Reading Climate Change Partnership to develop the new Reading Climate Change Strategy, which will be launched in April 2020. The timetable for this strategy has been brought forward by six months due to the Climate resolution passed in February. The strategy will incorporate the Reading 2030 zero carbon target and adaptation plan.

4.18 The strategy is being developed in collaboration with businesses, specialists, interested members of the public, council members and staff. Working groups are developing relevant actions under six main themes: Health, Resources, Natural Environment, Energy & Low Carbon Development, Transport, and Water Supply & Flooding. These will form the 2020 to 2025 strategy action plan.

4.19 The strategy will also have four cross-cutting themes: Education, Adaptation, Business, and Community. The consultation will culminate in an informed and community-engaged strategy, ready for publication in Spring 2020.

4.20 The consultation for the Local Transport Plan 4 (LTP4) launched in July 2019. It will include the new Climate Change Strategy Action plan following its publication in Spring 2020.

4.21 Reading's planning policies include a number of requirements on developers in relation to climate change, including CO<sub>2</sub> emission standards of buildings, adaptation to climate change measures and requirements for decentralised energy. The new Local Plan, which is expected to be formally adopted in November 2019, goes significantly further in setting requirements for zero carbon planning on all large residential developments and BREEAM Excellent standard on large commercial developments.

4.22 The Reading Biodiversity Action Plan (BAP) is currently being revised, with completion expected in 2020. The BAP sets out a methodology to protect, conserve and enhance Reading's diversity of wildlife. A revised tree strategy is also in development to bring about an increase in tree planting locally.

- 4.23 A new Housing Strategy is currently being developed, with a completion date set to align with the new climate change strategy and local transport plan. Amongst other outcomes, it will seek to reduce the carbon footprint of housing whilst preparing for a changing climate.
- 4.24 The Council is part of a collaborative initiative to achieve the Reading 2050 Vision, seeking to establish a smart and sustainable future for Reading, putting green technology, culture and diversity, and Reading's rivers and parks, at the heart of its future development. The project to-date has been led by Reading UK, Barton Willmore (a design and planning consultancy), and the University of Reading. A workshop attended by key stakeholders to refresh and review the vision was held on 4 November 2019.
- 4.25 Through the strategies and plans outlined above, the Council and the Reading Climate Change Partnership will play an important part in galvanising action on climate change and in encouraging and supporting local communities and business to change to a carbon neutral\* pathway in order to play our part in averting the worst effects of climate change.

## **PROPOSAL**

- 5.1 The delivery of the scale of change that is needed to achieve a carbon neutral Reading will require a continued internal effort within RBC but also a concerted external focus. Reading Climate Change Partnership has a broad representation across the business, community and the public sectors. This external focus will continue to build a network of dedicated champions who can engage at all levels to influence, persuade and lead by example to bring about the extended involvement of all communities across the borough.
- 5.2 It has been identified through modelling that a number of fundamental actions would be needed to make significant progress towards a carbon neutral Reading by 2030. These actions form part of a Climate Action Framework which will become embedded into the Reading Climate Change Strategy and Carbon Plan 2020 to 2025.
- 5.3 To deliver carbon reduction and climate resilience projects, this report proposes to establish a Climate Action Programme Board. The Board will oversee the co-ordination of a Climate Action Framework, ensuring its principles and objectives are embedded as part of day to day business and that key projects are taken forward across all Council Directorates.
- 5.4 A cross Committee approach has been established within the Council, whereby all the standing Committees of the Council report on the relevant elements of Reading's Climate Change Strategy and the Climate Action Framework. Relevant guidance for the identification of environmental implications and the necessary mitigations that should be undertaken will be provided in the committee report templates. The Terms of Reference of the Committees have been amended to include this.
- 5.5 A new Cleaner Air and Safer Transport Forum has been set up. This Forum enables participation in the development and delivery of policies to reduce emissions, improve air quality and bring forward sustainable safe transport in

the borough. The first meeting has been held and discussed climate emergency, playstreets, school travel and 20mph speed restrictions.

5.6 A new business forum has been created by the Reading Climate Change Partnership. 'BusinessCAN' will build and share best practice amongst private sector organisations based in Reading.

5.7 A new Head of Climate Strategy post has been created to report directly into the Director of Economic Growth and Neighbourhood Services, to provide a senior strategic lead for the Climate Change work across the Council's services.

5.8 A revenue bid has been put forward for consideration by officers as part of the Council's annual Medium Term Financial Planning process to further improve capacity to deliver the objectives of the Climate Action Programme. A decision on this will be taken as part of the Council's budget setting process.

## **6 CONTRIBUTION TO STRATEGIC AIMS**

6.1 The report is relevant to all the sections of the Corporate Plan.

- Securing the economic success of Reading
- Improving access to decent housing to meet local needs
- Protecting and enhancing the lives of vulnerable adults and children
- Keeping Reading's environment clean, green and safe
- Promoting health, education, culture & wellbeing
- Ensuring the Council is fit for the future

6.2 The Climate Change Strategy and Climate Action Programme will also consider the following:

- Sustainability (at the heart of the Climate Change Strategy)
- Community Safety - in adapting to the risks posed by climate change
- Health, as this will be affected by climate change. A healthy place/environment will be one whose populations have effectively adapted to climate change.

## **7. COMMUNITY ENGAGEMENT AND INFORMATION**

7.1 Widespread community engagement is taking place in the updating of a range of Council strategies including the upcoming revisions to the Reading Climate Change Strategy, Housing Strategy and Local Transport Plan 4. Each of these strategies/plans will be submitted for community consultation.

## **8. EQUALITY IMPACT ASSESSMENT**

8.1 It is not considered that an Equality Impact Assessment (EIA) is required for the decisions being made in this report. The individual strategies and projects will be considered separately in due course.

## **9. LEGAL IMPLICATIONS**

9.1 This report sets out the intended approach to establishing policies and programmes to meet the objectives of the Climate Emergency resolution and the emerging climate change strategy. Modifications to policies procedures

and processes will be made under the General Power of Competence set out in the Localism Act 2011 and/or other statutory powers as detailed below.

- 9.2 It is anticipated that a range of actions could also be delivered under a number of other statutory powers such as the those which fall under the Climate Change Act, the Minimum Energy Efficiency Standards Regulations, the Energy Performance in Buildings Regulations, the Heat Network Regulations, the Local Government (Miscellaneous Provisions) Act, the Clean Air Act, the Environmental Protection Act and other local authority powers.
- 9.3 It is also anticipated that projects and programmes will be required to comply with the Council's Standing Orders including the Contract Procedure Rules as set out under in the Council's constitution.

## **10. FINANCIAL IMPLICATIONS**

- 10.1 The the delivery of the Climate Change Strategy and other relevant strategies and specific projects will be managed within agreed budgets and reported when specific plans and proposals are brought in due course. Risk Assessments will be carried out for these individual projects.
- 10.2 The Council spends over £2m per annum on energy and has capital provision for investing in energy efficiency projects through the SALIX programme, which typically meets a 10 year repayment condition, helping to avoid rising energy costs.

## **11 ENVIRONMENTAL IMPLICATIONS**

- 1.1 The report sets out how the Council intends to establish the policy framework and resources to enhance its response to climate change and to accelerate the objective of a carbon neutral Reading to 2030. The decisions herein are therefore considered positive in terms of Environmental Implications.

## **12 BACKGROUND PAPERS**

- 12.1 Appendix 1: Greenhouse Gas Report 2018/19



## READING BOROUGH COUNCIL: GREENHOUSE GAS (GHG) REPORT 2018 - 19

Reading Borough Council (RBC) is committed to reducing its *Greenhouse Gas* emissions across its estate and operations.

This year (2018/19) the Council had an 18.5% decrease in absolute gross corporate emissions against our 2017/18 levels and a 62.5% decrease against our 2008 baseline. In 2018/19 the Council's emission reductions exceeded the 2020 target, by 12.6%. The gross emissions of the wider influence of the Council also decreased in 2018/19 compared to 2017/18 levels, by 13.6%, and a 46.5% decrease against our 2008 baseline.

Reading Borough Council's 'Carbon Plan, 2015-2020' was approved in July 2015. It reinforced the organisation's target to reduce carbon emissions by 50% against the 2008/9 baseline. In addition a renewable energy target was set to generate renewable energy equivalent to 15% of total energy consumed, by 2020. This plan identifies actions to further reduce carbon emissions and to generate renewable energy by 2020. Reading Borough Council has had a vision to have energy and water efficient estate and operations since 2006.

On the 26th of February 2019 the Council declared a Climate Emergency and resolved to take action to accelerate to be a carbon neutral Reading by 2030.

### 1 Introduction

#### 1.1 Our Vision

As part of Reading Borough Council's commitment to 'Reading's Climate Change Strategy 2013-2020; Reading Means Business on Climate Change', the council supports the vision that:

*'Reading will be at the forefront of developing solutions for reducing carbon emissions and preparing for climate change. Low carbon living will be the norm in 2050.'*

*And to work with others to '...reduce the carbon footprint of the borough in 2020 by 34% compared with levels in 2005.'*

#### 1.2 Leading by Example

Reading Borough Council has a long history of actively reducing its carbon emissions. On the 26th February 2019 Reading Borough Council declared a climate emergency, one of the first councils in the country to do so. Driving this process is an aspirational target for Reading to be carbon neutral by 2030. We have already reduced our own carbon footprint by over half since 2008 and in Reading as a whole by 44% since 2005.

There has been numerous local and national policies, targets, and legislation which have influenced the council's energy management work. In 2007 RBC worked with the Carbon Trust to produce Reading's Local Authority Carbon Management Plan (LACM). Since 2008 the authority has managed a rolling investment programme in energy efficient technologies to achieve carbon reduction.

### **1.3 Carbon Plan**

Reading Borough Council's current 'Carbon Plan, 2015-2020', was approved in 2014/15, which reinforced the organisation's target to reduce carbon emissions by 50% against the 2008/9 baseline. In addition a renewable energy target was set to generate renewable energy equivalent to 15% of total energy consumed, by 2020. The current Carbon Plan 2015-2020 aims to reduce costs; reduce negative impacts on the environment; continue to decarbonise energy supply and manage demand; and make energy, carbon and water savings an integral part of the organisation.

The Council will ensure that it meets local and global needs by through climate emergency initiatives which are in the process of development, the development of the new carbon plan and the third Reading Climate Change Strategy.

Work by the Council, over the next three years, will also be shaped by the corporate plan, *Shaping Reading's Future 2018 - 2021*. Commitment to carbon reduction by the Council continues as a priority through '*keeping Reading's environment clean, green and safe*', against a backdrop of financial challenges such as reductions in Government funding and growing demands on key Council services.

## **2 Reading Borough Council Greenhouse Gas (GHG) Emissions**

### **2.1 The Organisation**

Reading Borough Council is a unitary local authority. The organisation has been subject to significant reorganisation over the last 5 years. The Council is now comprised of three directorates; Directorate of Economic Growth & Neighbourhood Services (DEGNS); Directorate of Resources; and Directorate for Adult Care & Health Services (AC&HS). The Directorate for Children, Education & Early Help Services (CE&EHS) has been replaced by Brighter Futures for Children (BFfC) which is a not-for-profit company, owned by Reading

Borough Council, with the core aim of looking after the children of Reading. Carbon Management for the Council is managed in the Sustainability Team, within the Directorate of Economic Growth & Neighbourhood Services (DEGNS) '.

This report covers the Reading Borough Council corporate GHG footprint and the 'wider influence' GHG footprint for 2018/19 (1st April 2018 to 31st March 2019).

## **2.2 Scope**

RBC reports carbon emissions from corporate activities under its direct operational control separately from those activities which are (only) under its influence. As such, all schools (including community, voluntary aided, diocese, Academy and Free Schools) and managed services (including Rivermead Leisure centre, Reading Buses) will be reported in Scope 3, where RBC can influence, rather than control, the operations.

One significant change that has affected our carbon emission reporting is that Council owned car parks are managed by Reading Borough Council and are no longer included in the managed assets section of the report. This change happened in November 2018. In past years carbon emissions from Council owned car parks were reported in Scope 3 (outsourced services). Since the Council took over the management of the car parks the emissions are now reported in Scope 2 (electricity from grid and electricity from transmission and distribution).

A second change which took place in January 2019 which has affected the corporate carbon dioxide emissions was the creation of Brighter Futures for Children (BFfC). This not-for-profit company was set up in January 2019. RBC staff transferred to BFfC in January 2019 so the FTE (staff figure) used in the report for employee intensity ratio includes BFfC staff, as this change took place in the last quarter of 18/19.

The list of GHG activities measured by RBC is as follows below. A detailed breakdown of the activities that are reported, and within which scope, can be found in Appendix 1.

### **Scope 1 (Direct emissions)**

- Fossil fuels - Natural Gas and burning oil consumption
- Transport Fleet
- Fugitive emissions from air conditioning units only (excluding emissions from domestic fridges and freezers)
- Self-supplied renewably generated electricity or heat

### **Scope 2 (Indirect Emissions)**

- Purchased electricity
- Passenger Vehicle - Reading Car Club

### **Scope 3 (Other Indirect Emissions)**

- Electricity losses from transmission and distribution
- Managed Assets - Business travel
- Schools (Community, Voluntary Aided, Diocese, Academy and Free Schools)
- Outsourced services (5 car parks, 2 leisure centres and bus company)

#### **Outside Scopes**

- CO<sub>2</sub> equivalent emissions from biofuels

#### **Renewable electricity**

- Renewably generated electricity from systems owned by RBC, but supplying electricity to other parties

### **2.3 Baseline Year and reporting**

The Council has been reporting its carbon footprint since 2005/6. Since this time, the reporting systems have changed several times and data collection has improved. The Council's baseline year is 2008/9.

Since 2013/14, the Council is no longer required to annually report carbon emissions for the Carbon Reduction Commitment Energy Efficiency Scheme.

The emissions factors for the GHG footprint 2018/19 (1st April 2018 to 31st March 2019) are those published by DEFRA, based on a 1 year average factor for each year.

<https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2018>

### **2.3 Weather Correction**

A considerable contribution to the greenhouse emissions of the Council is from space heating. With changing heat demand depending on the weather of each year; there can be an increased or decreased fuel demand, which will have an impact on our emissions. Weather correction calculations can be undertaken to adjust for this bias. Weather corrected figures can be found in Appendix 2. The official annual reported emissions are uncorrected.

### **2.4 Reading Borough Council Greenhouse Gas carbon footprint, 2018/19**

Reading Borough Council's absolute (gross) corporate carbon emissions for 2018/19 were 7,409 tCO<sub>2</sub>, down 18.5% (1,685 tCO<sub>2</sub>) against 2017/18 emissions. Renewably generated electricity, exported to the grid, or sold to third parties can be netted off against this gross figure, to the sum of 412 tCO<sub>2</sub>, giving net corporate carbon emissions of 6,997 tCO<sub>2</sub>.

The absolute carbon emissions of the organisations' wider activities were 15,034 tCO<sub>2</sub> for 2018/19. Carbon emissions from schools were 6,013 tCO<sub>2</sub> (gross) for 2018/19, down 6.7 % compared to 2017/18 figures.

The GHG carbon footprint figures for 2018/19 are illustrated in Table 2.1 below, compared against 2017/18 data. A full breakdown of the data can be found in Appendix 3.

YEAR	2017/18	2018/19
	tCO <sub>2</sub>	
<b>SCOPE 1 - Corporate</b>		
	4,395	3,871
<b>SCOPE 2 - Corporate</b>		
	4,135	3,114
<b>SCOPE 3</b>		
CORPORATE	565	424
SCHOOLS	6,447	6,013
MANAGED ASSETS/SERVICES	1853	1,611
<b>GROSS EMISSIONS - Scope 1, 2, 3 - CORPORATE</b>	9,095	7,409
<b>GROSS EMISSIONS - ALL</b>	17,395	15,034
ELECTRICITY EXPORTED/SOLD TO GRID/OTHERS	500	412
<b>NET EMISSIONS - Scope 1, 2, 3 - CORPORATE</b>	8,595	6,997
<b>NET EMISSIONS - ALL</b>	16,895	14,622

Table 2.1: Reading Borough Council GHG Emissions 2018/19, compared to 2017/18 figures.

## 2.5 Intensity Measurement

This measures an organisation's GHG emissions against a specific relevant activity. There are a number of factors that determine and influence the level of GHG emissions of an organisation, such as size of buildings, number of employees (activity ratios), financial turnover of the business (financial ratio) etc.

For Reading Borough Council, the intensity ratio is measured by number of Full Time Equivalent (FTE) staff working for the Council. The recommended methodology by the Defra/DECCs guide is to measure using direct emissions (Scope 1 and 2) only which occurs as a direct result of staff activities.

In March 2019 RBC had 1,452.56 staff (FTE) employed by the Council as against 2,092.8 staff (FTE) in March 2018.

In January 2019 Reading Borough Council established Brighter Futures for Children (BFfC) which is a not-for-profit company, they have FTE figure of 385.27 for 2018/19.

This change took place in the last quarter of the reporting year so the employment intensity ratio includes FTE staff from Brighter Futures for Children (BFfC) as well as Reading Borough Council staff. BFfC's carbon emissions are currently not separated out from the Council's carbon emissions, BFfC staff occupy corporate buildings and provided a statutory service for the Council.

Therefore the energy consumption of the buildings they occupy is included in the corporate emissions for 2018/19.

The employee intensity ratio for Reading Borough Council as a whole (including BFfC) , for 2018/19 was

$$\text{tCO}_2\text{e per FTE} = \frac{6,985}{1837.83} = 3.80 \text{ tCO}_2\text{e/FTE}$$

The employee intensity ratio for Reading Borough Council, for 2017/18 was

$$\text{tCO}_2\text{e per FTE} = \frac{8,530.5}{2,092.8} = 4.08 \text{ tCO}_2\text{e/FTE}$$

## 2.6 Progress against target

Reading's Climate Change Strategy 2008 - 2013 set a reduction target of 4 % per annum, which equates to a total of 20% carbon reduction by 2012/13, for Reading's owned estate and operations. The subsequent Reading Climate Change Strategy 2013-20, a collaborative strategy with business, community and public sector, has set a target for borough-wide carbon emissions reductions of 34 % by 2020, against a 2005 (2005/6) baseline. This would be achieved in part by encouraging participants to achieve a 7% per annum reduction. The Council's target from 2013 to 2020 therefore was increase to 7% per annum or 50% by 2020. Going forwards the new target would be nearing zero carbon by 2025 and net zero by 2030.

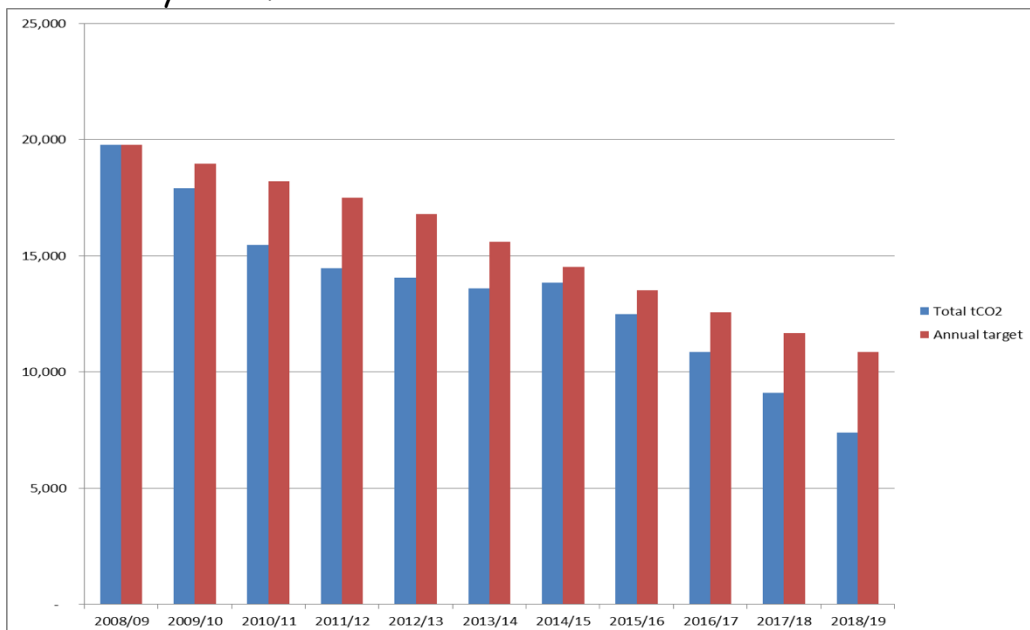


Figure 2.1: Reading Borough Council's corporate GHG emission performance against annual target from the Baseline year (2008/9) through to 2018/19

## 2.7 Renewable / low carbon energy

Reading Borough Council owns over 500 PV arrays which generate onsite electricity through the Feed In Tariff (FiT) subsidy. In total, these generated 1,557,153 kWh of electricity in 2018/19, of which 621,620 kWh was deemed to have been exported to the National Grid. Twenty-three systems generated and self-supplied 187,902 kWh to RBC sites, whilst the remaining arrays generated and supplied 210,086 kWh to schools, council house tenants and other parties in 2018/19. The renewably generated electricity leads to 412 tCO<sub>2</sub> carbon emissions savings, which are 'netted off' against the RBC gross emissions (excluding those 'self-supplied').

Some schools own their own PV arrays, self-supplying and generating electricity on site. In 2018/19 these systems generated 53,398 kWh.

## 3. Risks and Opportunities

There is overwhelming global consensus that society should rise to the challenge of tackling climate change. Recently the International Panel on Climate Change has called on the cities of the world to decarbonise in the next two decades. With the planet facing unprecedented pressures on natural resources, energy reserves and land use; Reading Borough Council is committed to playing its part in averting the risks of severe climate change. This was demonstrated through the Council's declaration of a Climate Emergency made in February 2019. We will act locally in the global interest, but we will not overlook the local opportunities and benefits of this action. These benefits include improving the efficiency and resilience of our local communities and infrastructure.



### References

*Environmental Reporting Guidelines: Including mandatory greenhouse gas emissions reporting*, June 2013

Reading's Climate Change Strategy 2008-2013. *Stepping forward for Climate Change*

Reading's Climate Change Strategy 2013-2020; *Reading Means Business on Climate Change*

*Reading's Local Authority Carbon Management Plan (LACM) 2007*

*Shaping Reading's Future. Our Corporate Plan 2018 - 2021*

*International Panel on Climate Change IPCC - Summary for Urban Policy Makers, what the IPCC special report on global warming of 1.5°C means for Cities - December 2018*



## Appendices: Greenhouse Gas (GHG) Report 2018/19

### Appendix i: GHG Protocol scope and treatments of renewables

Reporting of GHG emissions for RBC, divided into 3 scopes	
<b>Scope 1</b> (Direct emissions): Emissions from activities owned or controlled by your organisation that release emissions into the atmosphere. They are direct emissions.	
Fossil fuels - Natural Gas and burning oil consumption	Direct emissions from combustion of natural gas and oil
Transport Fleet	Direct emissions from combustion of diesel and petrol
Fugitive emissions from air conditioning units only (excluding emissions from domestic fridges and freezers)	Emissions released from equipment leaks
Self-supplied renewably generated electricity or heat	Direct emissions at site (zero emissions). See Figure A1 below for further detail on treatment of renewables.
<b>Scope 2</b> (Energy indirect): Emissions released into the atmosphere associated with your consumption of purchased electricity, heat, steam and cooling. These are indirect emissions that are a consequence of your organisation's activities but which occur at sources you do not own.	
Purchased electricity	Electricity purchased from supplier. Emissions at source, outside RBC control.
Passenger Vehicle - Reading Car Club	Emissions from use of cars due to RBC activity, but Car Club not owned by RBC.
<b>Scope 3</b> (Other indirect): Emissions that are a consequence of your actions, which occur at sources which you do not own or control and which are not classed as scope 2 emissions.	
Electricity losses from transmission and distribution	Emissions as a result of losses from transmission and distribution of electricity on the national grid
Managed Assets - Business travel	Emissions as a result of travel by means not owned or controlled by RBC
Schools (Community, Voluntary Aided, Diocese, Academy and Free Schools)	Emissions from activities within schools, which are not controlled by RBC
Outsourced services (1 leisure centre and bus company office)	Emissions from activities within managed services, which are not controlled by RBC
<b>Outside Scopes:</b>	
CO <sub>2</sub> equivalent emissions from biofuels	Other GHG emissions from combustion of biofuels. Awaiting emissions factors
<b>Renewable electricity:</b>	
Renewably generated electricity from systems owned by RBC, but supplying electricity to other parties	Emissions avoided by generating electricity renewably at site. See Figure A1 below for further detail on treatment of renewables.

#### Exclusions:

Water supplied & sewerage: to date the data available for reporting emissions from water use is not sufficiently robust. Work is being undertaken to enable this for future years.

Fleet fuel data from Managed Services (Reading Buses) in Scope 3 are quoted, but not included in total carbon footprint figures, due to some missing data (2014/15).

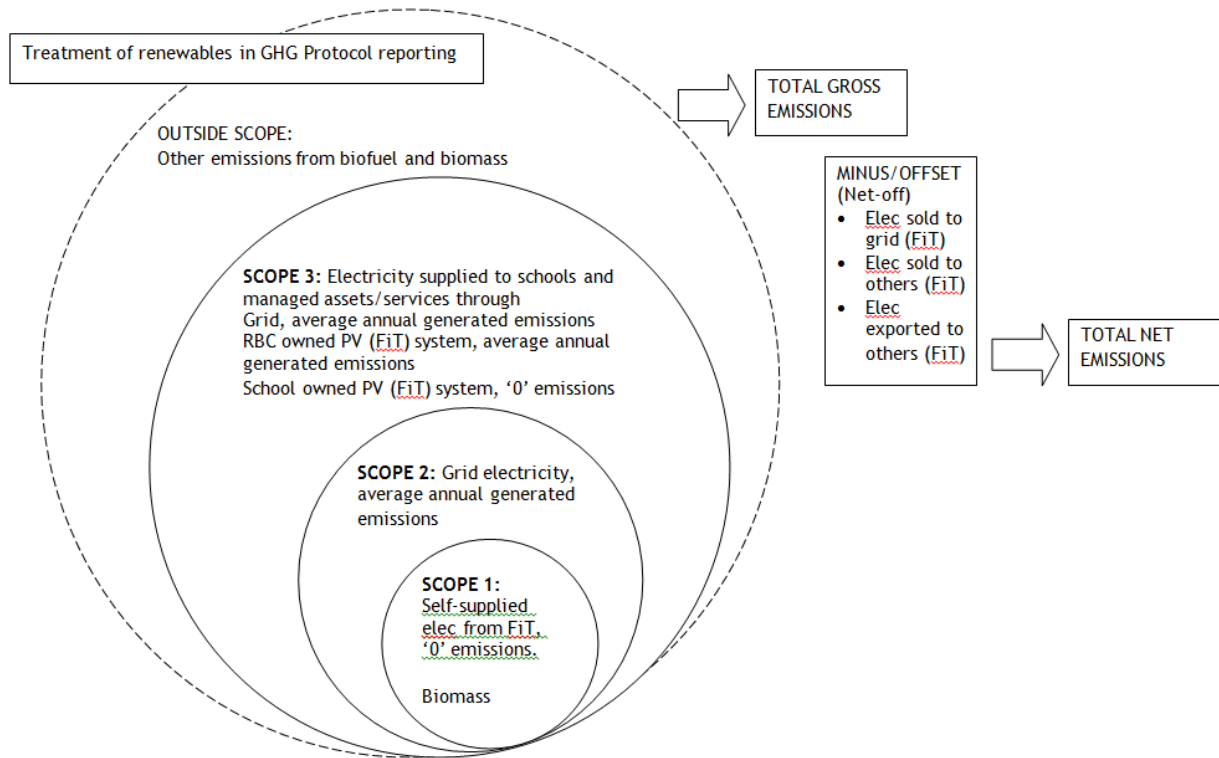


Figure A1: Treatment of renewables in GHG Protocol reporting, depending on system ownership and reporting scope

## Appendix ii: Historic data

YEAR	REPORTING UNITS	BASELINE: 2008/09			2015/16			2016/17			2017/18			2018/19		
		kWh/litres/km/m3/kg	conversion factor	tCO2	kWh/litres/km/m3/kg	conversion factor	tCO2	kWh/litres/km/m3/kg	conversion factor	tCO2	kWh/litres/km/m3/kg	conversion factor	tCO2	kWh/litres/km/m3/kg	conversion factor	tCO2
<b>SCOPE 1</b>																
GAS	kWh	26,624,860	0.1836	4,888	17,930,037	0.18445	3,307	16,507,378	0.184	3,037	16830923	0.184164	3099.64992	13479123	0.18396	2479.61947
OIL	litres	329,462	0.2468	81	13,851	2.53215	35	18,700	2.53215	47	19181	2.5323298	48.57261715	18900	2.53627	47.935503
FLEET - DIESEL	litres	616,794	2.5725	1,587	474,783	2.5839	1,227	416,684	2.61163	1,088	466509	2.6001627	1212.999306	444243.1	2.62694	1166.99997
FLEET - PETROL	litres	16,717	2.2450	38	11,577	2.1944	25	44,998	2.19697	99	11094.2	2.1983536	24.38897459	12028.9	2.20307	26.5005087
FUGITIVE - R12	kg			-	-	0	-			-	23713.55	2.9535053				
FUGITIVE - R22	kg			-	-	0	-			-			0			0
FUGITIVE - R407C	kg			-	-	0	-			-	5	1810	9.05			0
FUGITIVE - R134A	kg				0	1300	0		0	-			0			0
FUGITIVE - R410A	kg			-	-	0	-	37	2088	76			0	72.05	2088	150.4404
FUGITIVE - R49a	kg			-	-	0	-			-			0			0
FUGITIVE - R404a	kg			4	3921.6	14.5			0				0			0
CHP - GAS	kWh			-	-	0	-	-		-			0			0
CHP - ELECTRICITY	kWh			-	-	0	-	-		-			0			0
BIOMASS				-	-	0	-	61	0	-	18		0	7		
ELECTRICITY FROM RENEWABLES	kWh			-	179,520	0	-	196,925	0	-	141,140			187,902		
<b>TOTAL</b>				<b>6,594</b>			<b>4,609</b>			<b>4,348</b>			<b>4,395</b>			<b>3,871</b>
<b>SCOPE 2</b>																
ELECTRICITY FROM GRID	kWh	24,416,596	0.4853	11,850	15,256,177	0.46219	7,051	14,015,798	0.41205	5,775	11,758,772	0.35156	4,134	10,996,861	0.28307	3,113
CAR CLUB - SMALL	km	-	-	-	12,843	0.15859	2	4,879	0.16027	1			0.7	3,714	0.15565	0.57814106
CAR CLUB - MEDIUM	km	-	-	-	5,000	0.19931	1	1,945	0.20033	0.4			0.3	1,075	0.19386	0.2084076
<b>TOTAL</b>				<b>11,850</b>			<b>7,054</b>			<b>5,776</b>			<b>4,135</b>			<b>3,114</b>
<b>SCOPE 3</b>																
<b>CORPORATE</b>																
ELECTRICITY FROM GRID T&D	kWh	24,416,596	0.0391	954	15,256,177	0.0382	582	14,015,798	0.03727	522	11,758,772.00	0.03	387	10,996,861	0.02413	265.4
BUSINESS MILEAGE - average fuel unknown	km	1,742,835	0.2086	364	1,284,393	0.1864	239	1,067,231	0.1856	198	923,957.07	0.18	169	822,561	0.18064	148.6
BUSINESS MILEAGE - average petrol								2,585	0.19184	0.5		0.18568	0			0
BUSINESS MILEAGE - supermini petrol								932	0.16285	0.2		0.15867	0			0
BUSINESS MILEAGE - MPV petrol								225	0.20761	0.0		0.25199	0			0
BUSINESS MILEAGE - MPV diesel								80	0.18965	0.0		0.20219	0			0
BUSINESS MILEAGE - executive petrol								93	0.24707	0.0		0.33685	0			0
BUSINESS MILEAGE - executive diesel								398	0.19118	0.1		0.18545	0			0
BUSINESS MILEAGE - lower medium petrol								554	0.19027	0.1		0.24112	0			0
BUSINESS MILEAGE - small petrol											25,274	0.15649	4.0	25,943	0.15565	4.0
BUSINESS MILEAGE - med petrol											26,608	0.1949	5.2	18,178	0.19386	3.5
BUSINESS MILEAGE - large petrol											782	0.28539	0.2	3,991	0.28411	1.1
BUSINESS MILEAGE - small diesel											298	0.14545	0.0	1,736	0.14533	0.3
BUSINESS MILEAGE - med diesel											2,574	0.1738	0.4	396	0.17353	0.1
BUSINESS MILEAGE - large diesel											182	0.21834	0.0	4,870	0.2152	1.0
BUSINESS CYCLE	km			-	-	-	-	13,626	-	-	7,754			6,056		
BUSINESS MOTORCYCLE	km			-	-	-	-	-	-	-	-					
WATER SUPPLIED	m3			-	-	-	-	-	-	-	-					
WATER SEWERAGE	m3			-	-	-	-	-	-	-	-					



### Appendix iii: Full breakdown 2018/19 GHG data

YEAR	2017/18				2018/19		
	REPORTING UNITS	kWh/litres/km/m3/kg	conversion factor	tCO2	kWh/litres/km/m3/kg	conversion factor	tCO2
<b>SCOPE 1</b>							
GAS	kWh	16830923	0.184164	3099.64992	13479123	0.18396	2479.61947
OIL	litres	19181	2.5323298	48.57261715	18900	2.53627	47.935503
FLEET - DIESEL	litres	466509	2.6001627	1212.999306	444243.1	2.62694	1166.99997
FLEET - PETROL	litres	11094.2	2.1983536	24.38897459	12028.9	2.20307	26.5005087
FUGITIVE - R12	kg	23713.55	2.9535053				
FUGITIVE - R22	kg			0			0
FUGITIVE - R407C	kg	5	1810	9.05			0
FUGITIVE - R134A	kg			0			0
FUGITIVE - R410A	kg			0	72.05	2088	150.4404
FUGITIVE - R49a	kg			0			0
FUGITIVE - R404a	kg			0			0
CHP - GAS	kWh			0			0
CHP - ELECTRICITY	kWh			0			0
BIOMASS		18			7		
ELECTRICITY FROM RENEWABLES	kWh	141,140			187,902		
<b>TOTAL</b>				<b>4,395</b>			<b>3,871</b>
<b>SCOPE 2</b>							
ELECTRICITY FROM GRID	kWh	11,758,772	0.35156	4,134	10,996,861	0.28307	3,113
CAR CLUB - SMALL	km			0.7	3,714	0.15565	0.57814106
CAR CLUB - MEDIUM	km			0.3	1,075	0.19386	0.2084076
<b>TOTAL</b>				<b>4,135</b>			<b>3,114</b>
<b>SCOPE 3</b>							
<i>CORPORATE</i>							
ELECTRICITY FROM GRID T&D	kWh	11,758,772.00	0.03	387	10,996,861	0.02413	265.4
BUSINESS MILEAGE - average fuel unknown	km	923,957.07	0.18	169	822,561	0.18064	148.6
BUSINESS MILEAGE - average petrol			0.18568	0			0
BUSINESS MILEAGE - supermini petrol			0.15867	0			0
BUSINESS MILEAGE - MPV petrol			0.25199	0			0
BUSINESS MILEAGE - MPV diesel			0.20219	0			0
BUSINESS MILEAGE - executive petrol			0.33685	0			0
BUSINESS MILEAGE - executive diesel			0.18545	0			0
BUSINESS MILEAGE - lower medium petrol			0.24112	0			0
BUSINESS MILEAGE - small petrol		25,274	0.15649	4.0	25,943	0.15565	4.0
BUSINESS MILEAGE - med petrol		26,608	0.1949	5.2	18,178	0.19386	3.5
BUSINESS MILEAGE - large petrol		782	0.28539	0.2	3,991	0.28411	1.1
BUSINESS MILEAGE - small diesel		298	0.14545	0.0	1,736	0.14533	0.3
BUSINESS MILEAGE - med diesel		2,574	0.1738	0.4	396	0.17353	0.1
BUSINESS MILEAGE - large diesel		182	0.21834	0.0	4,870	0.2152	1.0
BUSINESS CYCLE	km	7,754			6,056		
BUSINESS MOTORCYCLE	km						
WATER SUPPLIED	m3						
WATER SEWERAGE	m3						
<b>SCOPE 3</b>							
<i>SCHOOLS</i>							
GAS	kWh	16391168.03	0.184164	3,031	17,506,254	0.18396	3,220
OIL	litres	127076.7995	2.5323298	322	143,139	2.53627	363
ELECTRICITY FROM GRID	kWh	7860976.309	0.35156	2,764	7,743,950	0.28307	2,192
ELECTRICITY FROM GRID T&D	kWh	7860976.309	0.03287	258	7,743,950	0.02413	187
ELECTRICITY FROM RBC FIT	kWh	139338	0.35156	49	172,350	0.28307	49
ELECTRICITY FROM RENEWABLES	kWh	21,373.0		0	53,398		
WATER SUPPLIED	m3			0			
WATER SEWERAGE	m3			0			
FUGITIVE - R410A	kg	11.3	2088	23.5944	1.05	2088	2.1924
<i>MANAGED ASSETS/ SERVICES</i>							
GAS	kWh	3,420,805	0.184164	629.9891315	3,301,373	0.18396	607.320577
OIL	litres			0			0
ELECTRICITY FROM GRID	kWh	3,116,522	0.35156	1095.644334	3,194,976	0.28307	904.401791
ELECTRICITY FROM GRID T&D	kWh	3,116,522	0.03287	102.440065	3,194,976	0.02413	77.0947654
ELECTRICITY FROM RBC FIT	kWh	70,733	0.35156	24.86689348	79,072	0.28307	22.3829217
ELECTRICITY FROM RENEWABLES	kWh						
FLEET - DIESEL	litres	3,155,306	3	8,204	3,451,905	2.62694	9,068
FLEET - CNG	tonnes	1,105	2,814	3,110	1,752	2746.63	4,812
WATER SUPPLIED	m3						
WATER SEWERAGE	m3						
<b>TOTAL</b>				<b>8,865</b>			<b>8,049</b>

OUTSIDE SCOPE							
FLEET - DIESEL - BIOFUEL MIX	litres						
FLEET - PETROL - BIOFUEL MIX	litres						
CNG	litres						
BIOMASS		18			7		
	TOTAL						
GROSS EMISSIONS - CORPORATE				9,095			7,409
GROSS EMISSIONS - ALL				17,395			15,034
GROSS EMISSIONS - CORPORATE - weather corrected				8,763			7,318
GROSS EMISSIONS - ALL - weather corrected				16,643			14,791
ELECTRICITY EXPORTED/SOLD TO GRID/OTHERS	kWh	1299637	0.38443	500	1,340,503	0.3072	412
NET EMISSIONS - CORPORATE				8,595			6,997
NET EMISSIONS - ALL				16,895			14,622
NET EMISSIONS - CORPORATE - weather corrected				8,263			6,906
NET EMISSIONS - ALL - weather corrected				16,144			14,380