

# Metrics and targets

## TCFD definition

The metrics and targets used to assess and manage climate-related risks and opportunities.

## Progress this year

- The first UK water company to have targets verified by the SBTi, including for scope 3 emissions. Achieved our pledge 6.
- Delivered pledge 2: 100 per cent of electricity purchased has been renewable since October 2021.
- Reduced scope 1 and 2 emissions by 2.2 per cent (gross) and 3.5 per cent (net) compared to our baseline year 2019/20.
- Improved data collection and tracking of fuel use enabling targeted interventions.

## Future focus

- Data improvements for scope 3 emissions with more supplier and product-based estimates, rather than spend-based.
- Work to validate our long-term net zero ambition to the new SBTi Net Zero Standard.
- Use BEIS carbon values as an internal carbon price in our planning for medium and long-term investments, including PR24 (e.g. for 2030 we use the low case value of £140/tCO<sub>2</sub>e).

➔ Read more about [delivery of our six carbon pledges](#) on pages 86 to 87

➔ Read more about [2021/22 greenhouse gas emissions and performance against our SBTs](#) on pages 96 to 97

➔ Read more about our [2021/22 operational performance](#) on pages 52 to 75 and also in our annual performance report on our website

## Metrics to assess climate-related risks

Our vulnerability to climate-related risks is determined by two factors: the physical and transitional impacts we experience and the control measures we have put in place to manage the risks and realise opportunities. To manage our physical risks effectively we must track and understand patterns of weather, and weather events, and learn how they can affect us operationally. To do this we have been working with the Met Office to use both their short-term forecasts and longer-term projections, planning for up to a 4°C change in global temperature. We monitor factors relating to transitional risks, including energy pricing (of both fossil fuels and low carbon alternatives), carbon pricing (through purchasable credits, offsets and certificates), and the marketplace for the availability and cost of alternative fuelled vehicles, batteries and for emerging technologies to reduce process and fugitive emissions.

## Metrics to manage climate-related risks

We manage our climate-related risks by putting in place controls such as those as set out on page 90 and in Appendix A.3 of the climate change adaptation report. The effectiveness of these controls is seen in our operational performance metrics. The following metrics are recognised as key to our resilience to a changing climate and are reported in the annual performance report:

- External flooding incidents;
- Hydraulic external flood risk resilience;
- Hydraulic internal flood risk resilience;
- Internal sewer flooding;
- Leakage;
- Per capita consumption;
- Raising customer awareness to reduce the risk of flooding;
- Areas of low water pressure;
- Risk of severe restrictions in a drought;
- Risk of sewer flooding in a storm;
- Sewer collapses;
- Unplanned outages;
- Water service resilience; and
- Water supply interruptions.

## Science-based targets

We have a strong track record of playing our part to mitigate climate change and have reduced scope 1 and 2 emissions by over 70 per cent since 2005/06, largely through our substantial investment in renewable power generation and green energy procurement. Our ambition and commitments are based on international guidance and climate science and we were delighted in July 2021 that our four near-term science-based targets were verified by the Science Based Targets initiative (SBTi). In October, the remainder of our purchased electricity switched to a renewable tariff backed by Renewable Energy Guarantees of Origin certificates, meaning that in the future 100 per cent of our purchased electricity will be from renewable sources enabling us to deliver on our carbon pledge and our SBT. The SBTi Net Zero Standard was launched in late 2021 and we have committed to validate our 2050 ambition to this standard when we revise and revalidate our near-term targets in advance of 2025.

As well as our company-specific science-based targets, we share the UK water sector ambition for key operational emissions to be net zero from 2030. Note that this target has a smaller scope than SBTi and allows use of purchased credits, using agreed offsetting principles.

### SBT 1 – scope 1 and 2

Reduce scope 1 and 2 emissions by

**↓42%**



**66%**

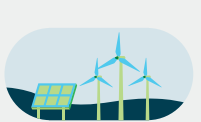
construction services suppliers by emissions have SBTs by 2025



### SBT 3 – scope 3 supplier engagement

### SBT 2 – scope 2 electricity

**100%**  
renewable electricity



Reduce other scope 3 emissions by

**↓25%**



### SBT 4 – scope 3 emissions reductions

## Energy and carbon report

The Companies Act 2006 (Strategic Report and Directors' Reports) Regulations require us to publish this energy and carbon report applying the 2019 UK Government Environmental Reporting Guidelines, including the Streamlined Energy and Carbon Reporting Guidance (SECR).

We use the financial control approach so our energy and carbon accounting is aligned with the consolidated financial statements for United Utilities Group PLC for 1 April 2021 to 31 March 2022. This includes subsidiaries listed in section A8 on page 260.

## Energy strategy

Our energy management strategy has four objectives:

- Efficient use of energy;
- Maximising self-generation and direct supply opportunities;
- Reducing costs (through time of use); and
- Supply resilience to ensure we can deliver our services.

In 2021/22, we set a record for renewable energy generation of 210 GWh through focus on end-to-end performance of our bioresources operations, which produce electricity, heat and biomethane. We completed more solar installations during the year.

Each year we serve a growing population, driving increased energy use as we strive to achieve environmental performance targets. We seek to mitigate this through our energy management programme and in recent years have maintained consistent energy use in the face of these considerable upward pressures.

## Energy efficiency actions taken

Our approach to energy efficiency is based on continuous improvement of:

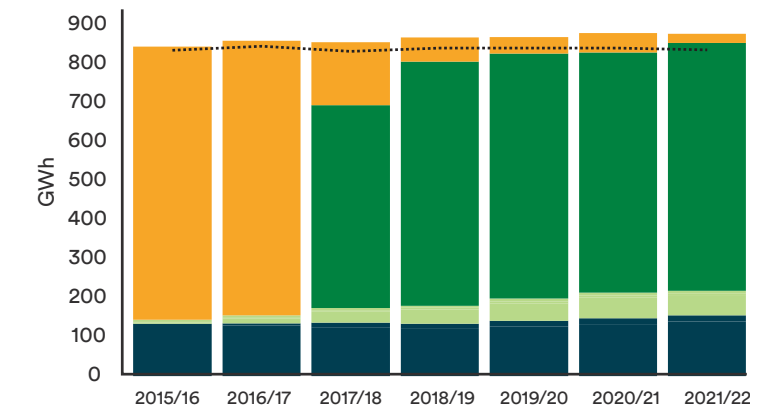
- people – optimising ways of working;
- systems – improving visibility of use and analysis of data systems; and
- technology – targeted investment to remove technological inefficiencies.

Our Energy Management Programme is now firmly established and working well after activities were restricted during COVID-19. The programme carries out site-based workshops and develops ways of working to optimise operations at sites and local area and is underpinned by e-learning packages and a comprehensive energy performance reporting and analysis capability.

To support reporting and analysis, we have invested over recent years to capture data from our fiscal meters and have installed thousands of sub-meters. The resulting data is used to identify opportunities, assess impacts and benefits of trials and maintain good performance. We are piloting analytics to support pump optimisation interventions.

We have a dedicated investment programme to implement targeted energy saving opportunities for existing operations and we focus on ensuring efficient outcomes from our capital programme. Examples of invest-to-save projects include pump optimisation, time-of-use actions and improved control of wastewater treatment.

## Electricity use, purchase and self generation<sup>(1)</sup>



Legend:  
 ■ Generated: CHP plus gas to grid  
 ■ Generated: solar, wind and hydro  
 ■ Purchased: non renewable  
 ■ Purchased: renewable  
 ..... Total electricity used

<sup>(1)</sup> Electricity purchased plus self generated is in excess of that used. The difference is what was exported to the grid.

	2021/22 GWh	2020/21 GWh	2019/20 GWh
<b>Energy use</b>			
Electricity	803.3	807.3	802.3
Natural gas	33.8	40.0	38.3
Other fuels <sup>(1)</sup>	123.1	104.0	116.3
<b>Total energy use</b>	<b>960.2</b>	951.3	956.9
<b>Electricity purchased</b>			
Renewable tariff – half hourly <sup>(2)</sup>	589.4	591.4	602.9
Standard tariff – non-half hourly <sup>(3)</sup>	22.3	47.8	40.8
Renewable tariff – non-half hourly <sup>(3)</sup>	21.6	–	–
<b>Total electricity purchased</b>	<b>633.3</b>	639.2	643.7
<b>Renewable energy generated</b>			
CHP	133.8	127.6	121.5
Solar	47.8	50.7	42.6
Wind	4.8	5.3	5.7
Hydro	7.2	6.9	6.8
Biomethane <sup>(4)</sup>	15.9	14.8	14.2
<b>Total renewable energy generated</b>	<b>209.5</b>	205.3	190.8
<b>Renewable energy exported</b>			
Electricity <sup>(5)</sup>	23.5	22.4	18.1
Biomethane <sup>(4)</sup>	15.9	14.8	14.2
<b>Total renewable energy exported</b>	<b>39.4</b>	37.2	32.3

<sup>(1)</sup> Other fuels includes liquid fuel purchased for processing and transport plus business mileage in private vehicles converted to GWh using 2021 UK Government GHG Conversion Factors for Company Reporting.

<sup>(2)</sup> Half hourly supply has been on a renewable tariff with 0g CO<sub>2</sub>e/kWh emissions since June 2017.

<sup>(3)</sup> Non half hourly metered supplies were on a standard tariff up to the end of September 2021. The emissions were 289g CO<sub>2</sub>e/kWh in 2019/20, 178g CO<sub>2</sub>e/kWh in 2020/21 and 188g CO<sub>2</sub>e/kWh in 2020/21. Non half hourly supplies moved to a new supplier on a 0g CO<sub>2</sub>e/kWh renewable tariff on 1 October 2021.

<sup>(4)</sup> Biomethane generated and exported to grid is expressed as an electricity equivalent.

<sup>(5)</sup> Electricity exported was generated by solar, wind and hydro.

# Our approach to climate change

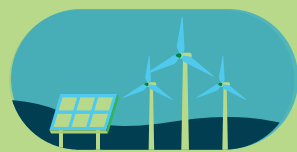
## Greenhouse gas emissions

Our carbon footprint is calculated by estimating the individual greenhouse gases that result from all United Utilities' activities, converted into a carbon dioxide equivalent (tCO<sub>2</sub>e). We report scope 1, 2 and all relevant scope 3 emissions. Emissions have been estimated using the UK water industry Carbon Accounting Workbook v16 (CAW v16), the 2021 UK Government GHG conversion factors for company reporting and CEDA (Comprehensive Environmental Data Archive) factors. Our greenhouse gas inventory has been independently verified and certified by Toitū carbonreduce programme, as aligned to the GHG Protocol Corporate Accounting and Reporting Standard (2015) and the international carbon reporting standard ISO 14064, Part 1:2018.

### Scope 1 Emissions from activities we own or control, e.g. burning fossil fuels, wastewater and sludge processing.



### Scope 2 Emissions from purchased electricity.



### Scope 3 Emissions from our value chain, e.g. sludge disposal, business travel and products and services.



SCOPE 1 & 2 GREENHOUSE GAS EMISSIONS		2021/22 tCO <sub>2</sub> e	2020/21 tCO <sub>2</sub> e	SBT baseline 2019/20 tCO <sub>2</sub> e
<b>Scope 1 Direct emissions</b>				
Direct emissions from burning of fossil fuels		19,207	17,371	15,247
Process and fugitive emissions from our treatment works – including refrigerants		96,020	98,569	96,186
Transport: company-owned or leased vehicles		16,507	16,634	15,739
<b>Total scope 1</b>		<b>131,735</b>	<b>132,574</b>	<b>127,172</b>
<b>Scope 2 Energy indirect emissions</b>				
Grid electricity purchased	Market-based <sup>(1)</sup>	4,201	8,507	11,789
	Location-based <sup>(2)</sup>	134,492	149,030	164,521
<b>Total scope 2</b>		<b>4,201</b>	<b>8,507</b>	<b>11,789</b>
		Location-based	134,492	149,030
<b>TOTAL SCOPE 1 &amp; 2 (GROSS)</b>		<b>Market-based</b>	<b>135,936</b>	<b>141,082</b>
		Location-based	266,226	291,693
<b>Avoided emissions</b>				
Renewable electricity exported		-4,317	-4,184	-3,979
Biomethane exported	Market-based <sup>(3)</sup>	0	0	0
	Location-based	-10,283	-9,725	-9,302
Green tariff electricity purchased	Market-based	n/a	n/a	n/a
	Location-based	-128,604	-154,095	-136,644
<b>Total avoided emissions</b>		<b>Market-based<sup>(3)</sup></b>	<b>-14,600</b>	<b>-13,281</b>
		Location-based	131,619	134,982
<b>TOTAL SCOPE 1 &amp; 2 (NET)</b>		<b>Market-based<sup>(3)</sup></b>	<b>131,619</b>	<b>134,982</b>
		Location-based	118,429	114,202

- (1) Market-based figures use emission factors specific to the actual electricity purchased. If electricity is on a standard grid tariff they are calculated using factors from suppliers' public fuel mix disclosures, as shown in energy use table on page 95.
- (2) Location-based figures use average grid emissions to calculate electricity emissions and are shown in blue.
- (3) Exported biomethane sold with green gas certificates so has zero avoided emissions in market based accounts. Note in 2022 we have improved disclosure to report both location and market-based methods so the net totals for 2019/20 and 2020/21 have been restated.

SCOPE 3 GREENHOUSE GAS EMISSIONS		2021/22 tCO <sub>2</sub> e	2020/21 tCO <sub>2</sub> e	SBT baseline 2019/20 tCO <sub>2</sub> e
<b>Scope 3 Other indirect emissions</b>				
Category 1: Purchased goods and services <sup>(1)</sup>		292,946	271,871	213,442
Category 2: Capital goods <sup>(1)</sup>		112,498	95,968	128,286
Category 3: Fuel and energy-related emissions		58,948	42,599	45,262
Category 4: Upstream transportation and distribution (sludge transport)		103	1,119	3,374
Category 5: Waste generated in operations (including sludge disposal to land)		25,458	26,333	27,936
Category 6: Business travel (public transport, private vehicles and hotel accommodation)		1,138	1,226	3,508
Category 7: Employee commuting and home working		4,066	4,108	4,231
<b>TOTAL SCOPE 3</b>		<b>495,145</b>	<b>443,224</b>	<b>426,039</b>
<b>Scope 3 SBT measure (excluding category 2)</b>		<b>382,647</b>	<b>347,256</b>	<b>297,753</b>

- (1) For Category 1 and 2 we use CEDA (an EEIO (environmentally-extended input-output) inventory) to estimate emissions. Other categories use actual activity records and UK government conversion factors.

### United Utilities' greenhouse gas emissions intensity

As in previous years, we state our emissions as tonnes CO<sub>2</sub> equivalent per £million revenue. We include scope 1 and 2 (market-based) emissions only in this measure. We also report the regulated emissions kilograms CO<sub>2</sub> equivalent per megalitre treated (using the location-based method as calculated in the CAW v16), as these are common metrics for our industry.

Regulated emissions per megalitre water treated		Regulated emissions per megalitre sewage treated	
2021/22	106.91	2021/22	144.21
2020/21	118.51	2020/21	152.26
2019/20	131.98	2019/20	168.51
Scope 1 and 2 emissions (gross) per £m revenue		Scope 1 and 2 emissions (net) per £m revenue	
2021/22	73.0	2021/22	70.7
2020/21	78.0	2020/21	75.7
2019/20	74.7	2019/20	72.6

### Scope 1 emissions

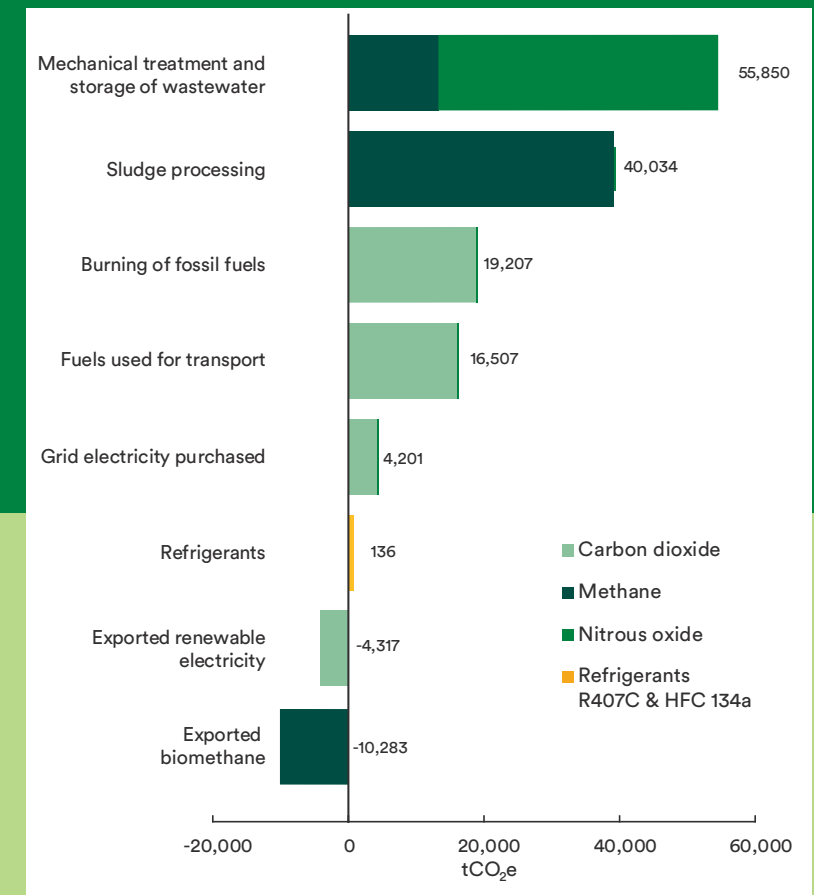
Wastewater and sludge processes cause 73 per cent of our scope 1 emissions as the gases released, nitrous oxide (N<sub>2</sub>O) and methane (CH<sub>4</sub>) have much greater global warming potentials than carbon dioxide (CO<sub>2</sub>).

Our process emissions are currently estimated as a direct function of the amount of wastewater we treat. We are undertaking research with other UK water companies to better quantify these emissions from measured values and to find ways to reduce or capture those emissions for beneficial use.

We are investigating and trialling ways to reduce our use of fossil fuels, including for transport, through both efficiencies and use of alternative fuels.

### Scope 2 emissions

Our market-based scope 2 emissions have halved this year because we switched our remaining non-renewable purchased electricity to a renewable tariff in October 2021. Next year these emissions will be negligible.



### Scope 3 emissions

Like most organisations, most of our scope 3 emissions are in GHG Protocol category 1 (products and services) and category 2 (capital goods); the latter being those provided by our construction services suppliers. We currently calculate category 1 and 2 emissions using records of the amount we have spent. This provides an indicative estimate but does not show the GHG impact of management choices, instead fluctuating with the scale of our investment programme. This can be seen in our increase in reported emissions this year compared to last. We are working internally and with supply chain partners to enhance relevant data and systems so that we can calculate these emissions based on types and quantities of materials used, thereby showing the full impact of our management choices.

