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:

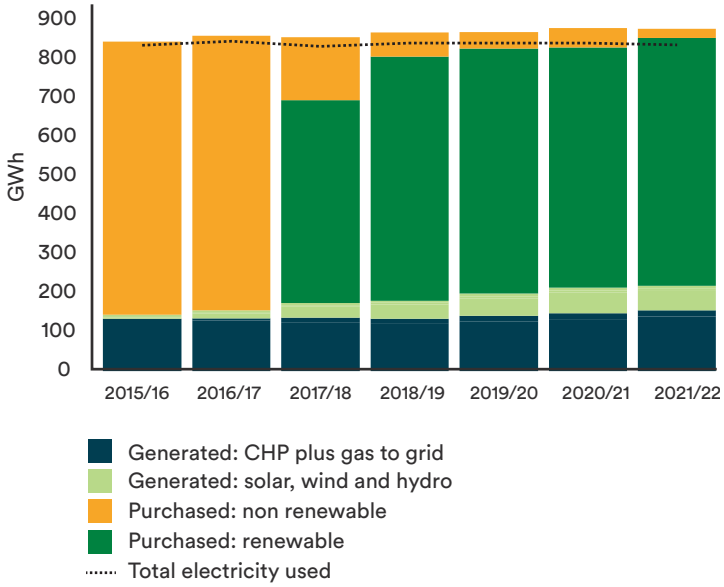
- people – optimising ways of working;
- systems – improving visibility of use and analysis of data systems; and
- technology – targeted investment to remove technological inefficiencies.

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[1]



(1) 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
Energy use			
Electricity	**803.3**	807.3	802.3
Natural gas	**33.8**	40.0	38.3
Other fuels[1]	**123.1**	104.0	116.3
Total energy use	**960.2**	951.3	956.9
Electricity purchased			
Renewable tariff – half hourly[2]	**589.4**	591.4	602.9
Standard tariff – non-half hourly[3]	**22.3**	47.8	40.8
Renewable tariff – non-half hourly[3]	**21.6**	–	–
Total electricity purchased	**633.3**	639.2	643.7
Renewable energy generated			
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[4]	**15.9**	14.8	14.2
Total renewable energy generated	**209.5**	205.3	190.8
Renewable energy exported			
Electricity[5]	**23.5**	22.4	18.1
Biomethane[4]	**15.9**	14.8	14.2
Total renewable energy exported	**39.4**	37.2	32.3

(1) 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.

(2) Half hourly supply has been on a renewable tariff with 0g CO_2e/kWh emissions since June 2017.

(3) Non half hourly metered supplies were on a standard tariff up to the end of September 2021. The emissions were 289g CO_2e/kWh in 2019/20, 178g CO_2e/kWh in 2020/21 and 188g CO_2e/kWh in 2020/21. Non half hourly supplies moved to a new supplier on a 0g CO_2e/kWh renewable tariff on 1 October 2021.

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

(5) Electricity exported was generated by solar, wind and hydro.

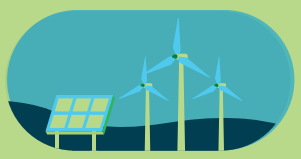
Our approach to climate change

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_2e). 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 1 & 2 GREENHOUSE GAS EMISSIONS		2021/22 tCO_2e	2020/21 tCO_2e	SBT baseline 2019/20 tCO_2e
Scope 1 Direct emissions				
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
Total scope 1		131,735	132,574	127,172
Scope 2 Energy indirect emissions				
Grid electricity purchased	Market-based[1]	4,201	8,507	11,789
	Location-based[2]	134,492	149,030	164,521
Total scope 2	Market-based	4,201	8,507	11,789
	Location-based	134,492	149,030	164,521
TOTAL SCOPE 1 & 2 (GROSS)	Market-based	135,936	141,082	138,961
	Location-based	266,226	281,604	291,693
Avoided emissions				
Renewable electricity exported		-4,317	-4,184	-3,979
Biomethane exported	Market-based[3]	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
Total avoided emissions	Market-based[3]	-14,600	-13,909	-13,281
TOTAL SCOPE 1 & 2 (NET)	Market-based[3]	131,619	136,897	134,982
	Location-based	118,429	129,680	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.

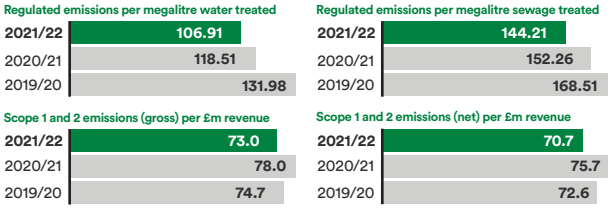
Scope 3
Emissions from our value chain, e.g. sludge disposal, business travel and products and services.

SCOPE 3 GREENHOUSE GAS EMISSIONS	2021/22 tCO_2e	2020/21 tCO_2e	SBT baseline 2019/20 tCO_2e
Scope 3 Other indirect emissions			
Category 1: Purchased goods and services[1]	292,946	271,871	213,442
Category 2: Capital goods[1]	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
TOTAL SCOPE 3	495,145	443,224	426,039
Scope 3 SBT measure (excluding category 2)	382,647	347,256	297,753

(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_2 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_2 equivalent per megalitre treated (using the location-based method as calculated in the CAW v16), as these are common metrics for our industry.

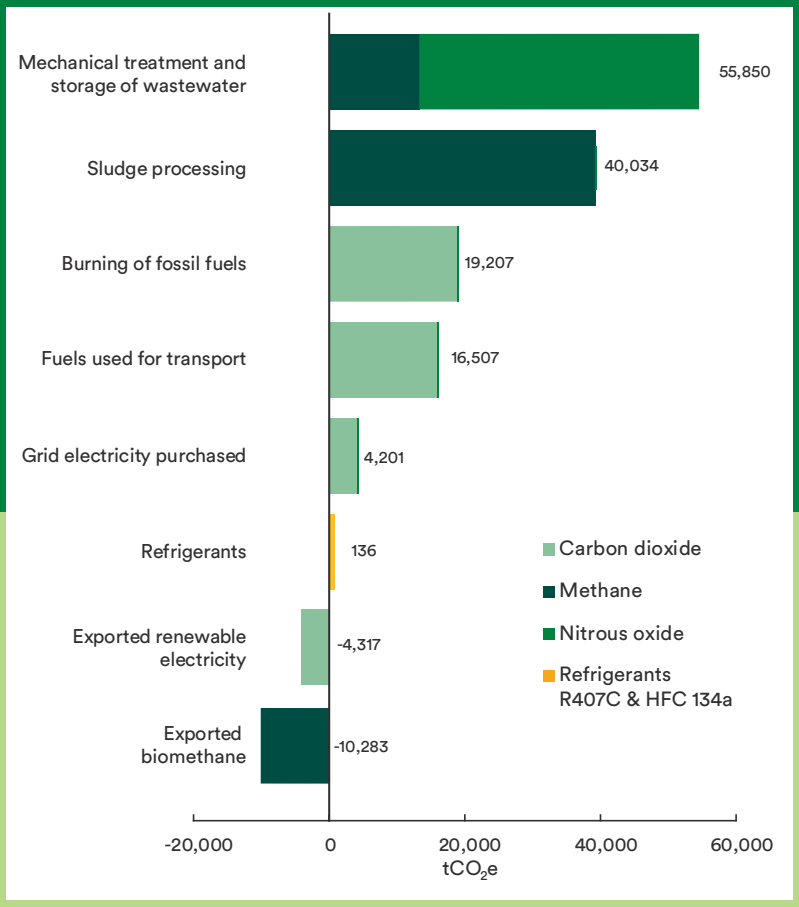


Scope 1 emissions

Wastewater and sludge processes cause 73 per cent of our scope 1 emissions as the gases released, nitrous oxide (N_20) and methane (CH_4) have much greater global warming potentials than carbon dioxide (CO_2).

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.