Cheltenham Borough Council
Greenhouse Gas Emission Report: financial year 2021/22

Introduction

Carbon dioxide (CO_2) emissions are the primary driver of global climate change. There are however a number of less well known greenhouse gases such as methane (CH_4), nitrous oxide (N_2O), and hydrofluorocarbons (HFCs). These various greenhouse gases have different global warming potentials in the atmosphere which, for ease, are converted into a single metric of carbon dioxide equivalents (CO^2e). This unit of measurement will be utilised throughout this report.

Cheltenham Borough Council (CBC) declared a climate emergency in 2019 and committed to becoming a net zero council by 2030. This means that greenhouse gas (GHG) emissions relating to the council's production and consumption activities will need be reduced to almost zero. In the instance that some emissions cannot be reduced to zero, offsetting initiatives can be introduced to remove the equivalent GHGs.

Currently, there is no requirement for Local Authorities to report on their organisational carbon footprint. CBC, however, is committed to its net zero aims and the actions detailed in the Climate Emergency Action Plan and as part of this, publicising our annual carbon footprint. The emissions in this report are related to annual in-house consumption activities such as energy, fuel, and water. By calculating the related emissions, with the aim to reduce, will in turn reduce overall consumption, and therefore costs. In line with the Department for Business, Energy and Industrial Strategy (BEIS, 2020) reporting guidance, the collated emissions are categorised into Scope 1, Scope 2 and Scope 3 emissions as detailed below:

Table 1: Definition of Scope 1, 2 and 3 emissions.

Category	Description	Source
Scope 1	Direct emissions as a result of burning fossil fuels	Gas usage within Council, Ubico, Cheltenham Trust sites, miscellaneous properties and vehicle fleet gas/fuel use
Scope 2	Indirect emissions from purchasing energy for operations	Metered electricity use for Council, Ubico, Cheltenham Trust sites and miscellaneous properties.
Scope 3	All other quantifiable indirect emissions produced in relation to the organisational activity	Staff commuting & business travel, water usage, procurement, 50% of airport electricity and ground operations, transmission and distribution of electricity

Organisational boundary:

CBC is liable for the emissions relating to a diverse range of properties. Cheltenham Trust sites include: Cheltenham Town Hall, Pittville Pump Room, Leisure at Cheltenham, Prince of Wales Stadium and The Wilson Art Gallery & Museum. Smaller sites include public toilets, pavilions, car parks, fountains and other miscellaneous properties. CBC is currently responsible for purchasing

the energy and water for these properties. The water supplier currently used is Water Plus, whilst the main electricity and gas supplier is West Mercia Energy (WME). The miscellaneous properties which CBC is liable for vary year to year and therefore, only properties with annual energy payments of over £1,000 were considered in the emissions total. There are a number of energy suppliers for these sites.

Ubico Ltd has been responsible for the borough's household waste and recycling service since April 2012. This company itself is owned by several authorities, including CBC. The emission calculations in this report account for the fleet fuel use, and energy and water supplies at the depot and main site.

This is the first reporting year that waste emissions have been taken into account. The waste and treatment considered is only the organisational waste produced by staff in the Municipal Offices. The refuse waste is collected by Ubico and treated at an 'energy from waste' site (Javelin Park). Food waste collections during this period were managed by *Andigestion* and processed at an anaerobic digestion facility at Bishops Cleeve. Cardboard, paper, drinks cans, plastic bottles, and mixed glass is managed by Printwaste, recycled in a closed loop process.

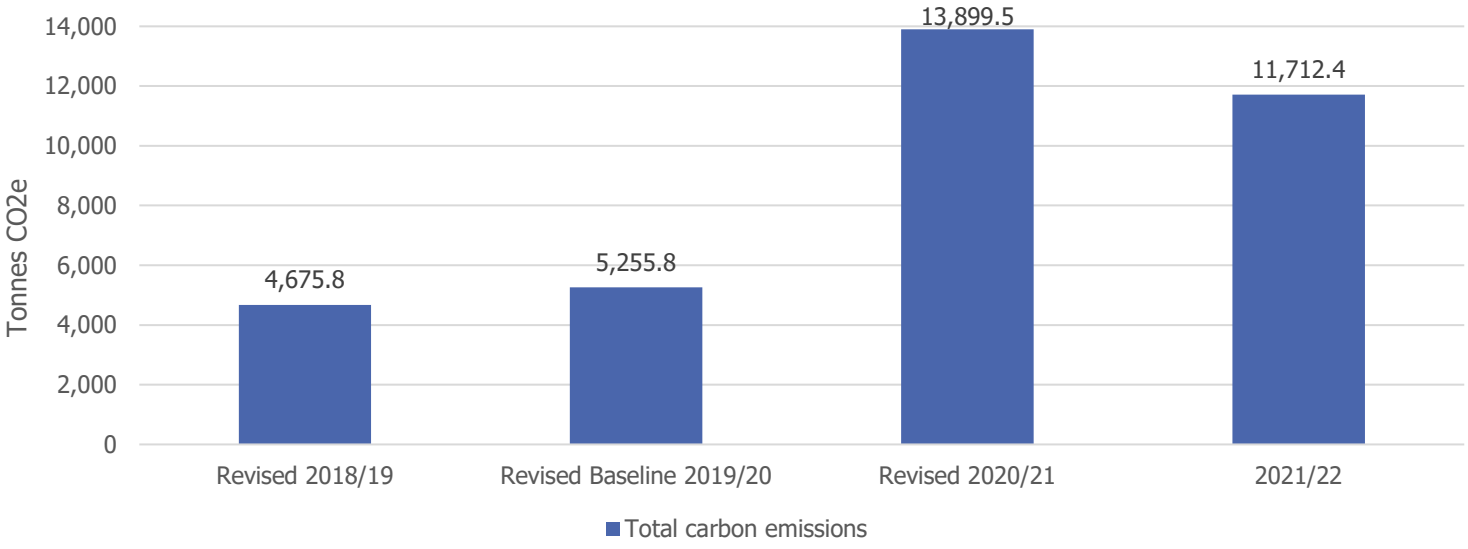
CBC has a 50% shareholding in Gloucestershire airport. Half of the emissions related to the site's electricity use, and ground fleet fuel use, have been accounted for by CBC. Fuel data relating to the ground fleet was not provided and therefore data from 2020/21 was utilised.

Results:

The carbon emissions detailed in this report have been calculated using the 2021 UK Government GHG Conversion Factors. Activity data, from April 2021 to March 2022, is multiplied by the relevant emission conversion factor, to calculate GHG emissions, which is then converted into tonnes of CO^2e. Full emissions breakdown is available in Appendix 1.

Total emissions:

Figure 1: Total emissions from 2018 to 2022.



A number of adjustments have been made to reported emissions in previous years. Cheltenham Borough Homes (CBH) is now accounting for its emissions separately from CBC, and therefore,

the related activity has not been included in this year's totals. In cases where a property has a shared liability, the percentages below state which organisation accounts for what amount. For comparable purposes, the total carbon footprint reported in previous years, which included CBH emissions, has been revised to no longer include the said emissions.

Table 2: Percentage of CBC and CBH property liability.

	CBH	CBC
Municipal Offices	1.20%	98.8%
The Depot	9.52%	90.48%
Oakley Community Centre	56.11%	43.89%

The other significant revised change is related to the emissions from purchasing of goods and services, known as procurement. For the year 2020/21, these emissions were calculated using a different, less accurate methodology. Therefore, to effectively monitor emission changes, these calculations have been revisited, using the same methodology used in the current reporting year. The associated 10,210 tCO2e is now included in the revised figure for 2020/21. (Note: the baseline year has not been revised using the same methodology).

Progress analysis:

Progress is measured relative to the revised 2019/20 emission baseline. This was decided in the previous report, due to being the year with the most complete and accurate data set, unaffected by the Covid-19 pandemic. The revised baseline figure of 5255.8 tCO2e includes scopes 1, 2 and 3 emissions.

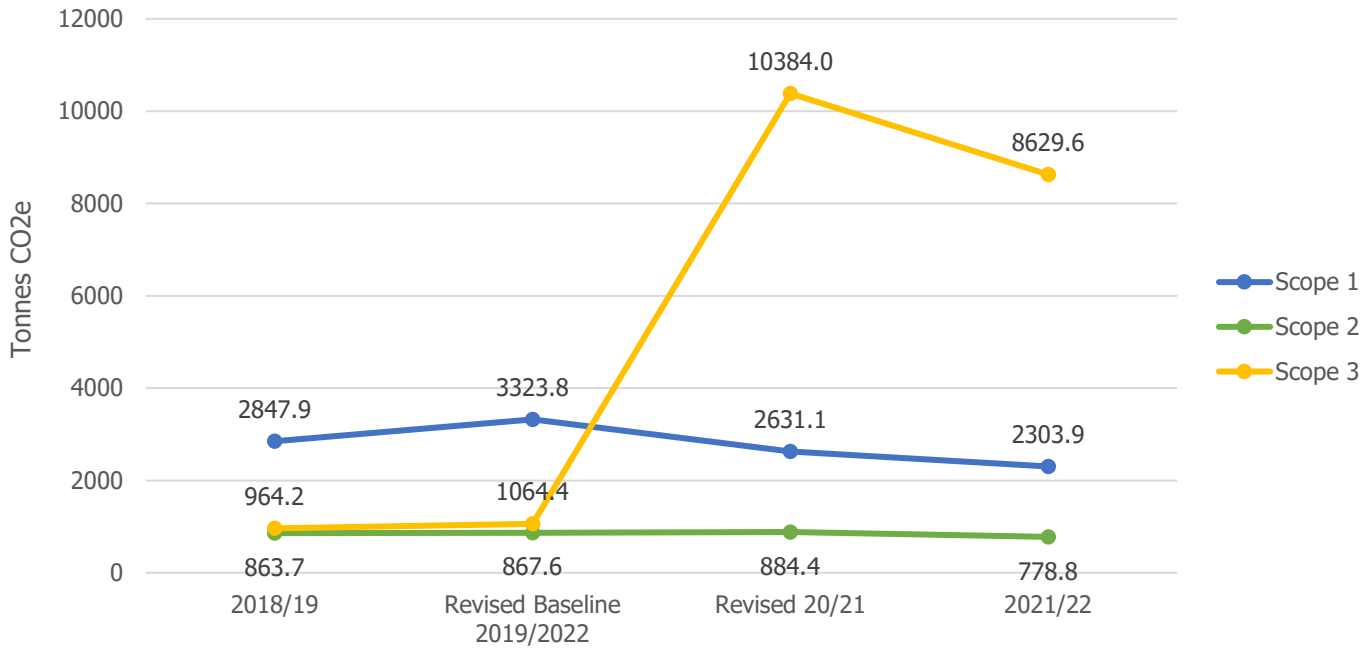
Although 2021/22 annual emissions are 16% (2187.9 tCO2e) lower than the previous year, declared emissions have increased by 123% (6455.8 tCO2e) compared to the baseline year. This is largely due to the more thorough and accurate calculations now being used for procurement activity in years 2020/21 and 2021/22.

Other increases can be attributed to the gathering of data, which is now more specific to CBC and its partner organisations, and less based on national averages. This will be explained within the individual scope analysis. To get to net zero by 2030 CBC needs to reduce emissions by an **annual average of 1673.2 tCO2e** from 2023 to 2030.

Scope analysis:

In this section individual scope results will be illustrated.

Figure 2: Individual scope comparison from 2018 to 2022.



Scope 1:

Table 3: Source specific breakdown for change in Scope 1 emissions, comparing against prior year in tCO2e and percent, rounded up to 1 significant figure.

Emission source	tCO2e compared to previous year	Percentage change compared to previous year
Council gas	-26	-8%
Council fleet diesel	-4	-25%
Council fleet petrol	+13	+1118%
Cheltenham Trust gas	-55	-6%
Ubico & Depot gas	+4	+4%
Ubcio& Depot fleet diesel	-257	-23%
Ubico & Depot fleet petrol	-6	-21%
Ubico & Depot gas oil	+17	+17%
Miscellaneous Properties Gas	-14	-48%
Total Scope 1	**-327**	**-12%**

Table 4: Source specific breakdown for change in Scope 1 emissions, comparing against baseline year in tCO2e and percent, rounded up to 1 significant figure.

Emission source	tCO2e Compared to baseline year	Percentage change Compared to baseline year
Council gas	-46	-13%
Council fleet diesel	+1	+6%
Council fleet petrol	-4	-20%

Cheltenham Trust gas	-472	-36%
Ubico & Depot gas	+5	+5%
Ubcio & Depot fleet diesel	-526	-38%
Ubico & Depot fleet petrol	-2	-9%
Ubico & Depot gas oil	+39	+48%
Miscellaneous properties gas	-14	-48%
Total Scope 1	**-1020**	**-31%**

The total of all scope 1 emission sources, shows a decrease of 327 tCO2e, compared to 2020/21 and 1,020 tCO2e compared to the baseline year (Table 3). The specific emission sources to note are:

- Council fleet petrol emissions – these have seen a dramatic increase compared to 2020/21. This may be due to the previous year being affected by Covid-19, or due to underreporting. When this is compared to the baseline, a 20% reduction is evident, which is positive.
- A reduction in emissions relating to miscellaneous properties, in relation to which CBC is liable for a gas supply, is due to smaller properties and gas usage for the Oakley Centre now being accounted for in CBH's emissions (Table 2).

Scope 2:

Table 5: Source specific breakdown for change in Scope 2 emissions, comparing against prior year in tCO2e and percent, rounded up to 1 significant figure.

Emission source	tCO2e compared to previous year	Percentage change compared to previous year
Council electricity	+32	+20%
Cheltenham Trust electricity	+41	+9%
Ubico electricity	-4	-6%
Recharged properties electricity	-2	-15%
Miscellaneous properties not included Electric	-173	-88%
Total scope 2	**-106**	**-12%**

Table 6: Source specific breakdown for change in Scope 2 emissions, comparing against baseline year in tCO2e and percent, rounded up to 1 significant figure.

Emission source	tCO2e compared to baseline	Percentage change compared to baseline
Council electricity	-46	-19%
Cheltenham Trust electricity	-37	-7%
Ubico electricity	-24	-25%
Recharged properties electricity	-7	-41%
Miscellaneous properties not included Electric	Not previously included	Not previously included
Total scope 2	**-89**	**-10%**

Overall electricity has reduced 12% compared to the prior year and 10% compared to the baseline (Table 4). Comments on the individual electricity uses are:

- All electricity purchased from WME is labelled "Pure Green" which is made up of a combination of Renewable Energy Guarantees of Origin certificates (REGOs), sourced from the wholesale market and generators. The figures presented are calculated on the 'location based' recommendation, which use grid-averages to present full emissions. It is recognised that if a 'market based' reporting method was adopted, emissions relating to electricity purchased from WME would be 0 tCO2e (please see the government Environmental Reporting Guidelines document for more information). However, the only way to ensure zero-emission electricity is to directly consume from onsite renewable sources such as solar panels.
- The increase in electricity emissions, compared to 2020/21 at Council and Cheltenham Trust sites, may be due to Covid-19 lockdowns influencing electricity use. Buildings were closed to the public and employees were working from home in 2020/21. However, when evaluating from the baseline year, which was unaffected by the pandemic, emissions have decreased.
- The Municipal Offices has had one of its boilers changed from gas to electric, contributing to the increase in electricity and decrease in gas consumption.
- The electricity at the Leisure@ site, which is generated from a Combined Heat and Power (CHP) unit, has previously been included. A CHP unit uses technology which generates heat and electricity from the same energy source, which in this case is gas. The Environmental Reporting Guideline**Error! Bookmark not defined.**, which include energy and carbon reporting, confirms that if all the electricity is used on site then the emissions are accounted by the cost of gas generation.
- The CHP unit is faulty and unreliable, working only intermittently as it is at the end of its asset life. This means more metered electricity is being pulled from the grid, resulting in increased electricity usage at the Cheltenham Trust operated site.
- The electricity emissions at a number of our miscellaneous properties have been reduced as CBH are accounting for a percentage of the total use liability. This is reflected in scope 3 electricity transmission and distribution (T&D) related emissions also.

Scope 3:

Table 7: Source specific breakdown for change in Scope 3 emissions comparing against prior year in tCO2e and percent, rounded up to 1 significant figure.

Emission source	tCO2e compared to previous year	Percentage change compared to previous year
Mileage claims	+2	+29%
Rail travel	0	0
Council electricity (T&D)	+3	+24%
Miscellaneous (T&D)	-15	-87%
Twinning travel	0	0
Commuting (based on travel survey 2022)	+36	+96%

Waste	Not previously included	Not previously included
Water from Council properties	-4	-50%
Cheltenham Trust electricity T&D	+5	+13%
Recharged properties electricity T&D	-0.1	-13%
Ubico electricity (T&D)	-0.2	-3%
Purchasing of goods & services	-1,769	-17%
50% airport emissions from ground operations	-13	-28%
Total scope 3	**-1,755**	**-17%**

Table 8: Source specific breakdown for change in Scope 3 emissions comparing against baseline in tCO2e and percent, rounded up to 1 significant figure.

Emission source	tCO2e compared to baseline	Percentage change compared to baseline
Council mileage claims	-9	-54%
Council rail travel	-0.46	-99%
Council electricity (T&D)	-3	-16%
Miscellaneous (T&D)	-16	-88%
Twinning travel	-2	-100%
Commuting (based on travel survey 2022)	+17	+31%
Waste	Not previously included	Not previously included
Water from Council properties	-4	-50%
Cheltenham Trust electricity T&D	-1	-3%
Recharged properties electricity T&D	-1	-39%
Ubico electricity (T&D)	-2	-22%
Purchasing of goods & services	+7,659	+979%
50% airport emissions from ground operations	-74	-69%
Total scope 3	**+7,564**	**+711%**

The methodology used to measure scope 3 emissions has become more accurate and relevant to CBC (Table 5). Although it look like that there has been an increase in emissions from the baseline year, it is important to consider the various changes in calculating activity and emissions. Notable changes are:

- Previously, staff commuting emissions were calculated using national averages. This has resulted in under-estimating. The external company Mobilityways carried out a staff travel survey in 2022. This survey had 151 respondents and these result have been applied to the

232 CBC employees. Although this has resulted in reporting an additional 36 tCO2e, it means that internal efforts to drive down staff-related commuting emissions will now be reflected in future reporting.

- The procurement (purchasing of goods and services) emissions figure wa previously rolled over from 2018/19. This, however, only included approximately 16% of CBC's total expenditure.
- For the reporting year 2020/21, a newly introduced tool was used to calculate procurement emissions. Using categories devised by DEFRA, a specific carbon emissions factor was allocated to every pound of council expenditure, depending on the category of spend, e.g. business services or construction (Table 6).

Table 9: Expenditure type related emissions (tCO2e).

Expenditure type	tCO2e
Business services	6518
Paper products	28
Other manufactured products	127
Manufactured fuels, chemicals and glasses	0
Food and catering	31
Construction	102
Information and communication technologies	929
Waste and water	87
Medical and precision instruments	0
Other procurement	619
Unclassified	0
Total	**8441**

- This process is entirely based on monetary value and does not account for individual contactor emissions. Therefore, the only way to report a reduction in emissions, is to reduce the total annual spend. This was the only accessible methodology to provide a 'best estimate' for procurement.
- These results can be utilised to assess expenditure types with the highest emissions, to help target those specific suppliers. The highest emitting categories are Business Services and Information & Communication Technologies. Efforts can now be focused on supporting specific contactors and providers in calculating and reporting on their own carbon emissions through the Cheltenham Zero partnership. By increasing accuracy in reporting and streamlining working practices, the aim is to become more targeted in emissions reductions.
- 1,769 tCO2e of emissions reduction is due to a change in monetary spend.
- Water emissions have decreased from the previous year. Water usage has however, increased, from 24,617 m^3 to 28,464 m^3. The DEFRA conversion factor for this reporting year is 0.272 kg CO2e per unit, whereas in the previous year it was 0.344 kg CO2e.
- By using recycling waste management practices instead of sending waste to landfill, related emissions have been reduced to 1 tCO2e compared to 37 tCO2e.

Summary:

- For this reporting year, CBH's previous emissions data has been excluded, as it is now being monitored and reported on separately by CBH.
- Emissions across scopes 1 and 2 reflect the main bulk of organisational consumption and demand (Table 3&4). Within these scopes, a reduction of 432.8 tCO2e is evident compared to the previous year and a reduction of 1108.7 tCO2e compared to the baseline. These are the emissions CBC has a level of direct control over.
- A reduction in scope 3 emissions, however, will rely heavily on awareness raising to influence behavioural change internally (staff) and externally (suppliers). Our scope 3 emissions have increased compared to the baseline. However, assessing emission sources more accurately and specifically to CBC, instead of using national averages, allows monitoring to reflect the efforts made in driving down emissions. From 2023, emission **reductions needs to be at an annual average of 1673.2 tCO2e to reach net zero by 2030.** Currently, the assessed **total decrease in emissions from last year is 2187.1 tCO2e**, 1,769 tCO2e of this is due to procurement variances/alterations.

Further work:

- Future reports will:
    - Break down Cheltenham Trust Sites to enable monitoring of individual site progress;
    - Assess 'working from home' emissions if feasible to do so;
    - Include total waste generated by sites CBC is liable for, e.g. Depot.

- For the next reporting year, internal changes such as energy efficiency awareness in CBC-owned buildings and changing fleet vehicles to hydro-treated vegetable oil (HVO) should be reflected.
- The next report will be completed earlier in the year, to allow time to use the results to help influence organisational change. However, initiatives such as an Active Travel Strategy, a Building Management System and a new Procurement Strategy are taking place to work on driving down organisational emissions at scale.

Appendix 1:

Scope 1 emission source	2021/22 tC02E	Revised 2020/21 tCO2e	2018/19 tCO2e	Revised baseline 2019/20 tCO2e	% change on revised baseline	% change from 20/21
Council gas	320.73	347.13	355.2	367.04	-13%	-8%
Council fleet diesel	10.95	14.53	28.2	10.35	6%	-25%
Council fleet petrol	14.50	1.19	7.1	18.22	-20%	1118%
Cheltenham Trust gas	826.90	882.04	1246.0	1298.94	-36%	-6%
Ubico & Depot Gas	106.79	102.34	186.5	101.43	5%	4%
Ubico & Depot fleet diesel	868.47	1,125.37	970.3	1394.41	-38%	-23%
Ubico & Depot fleet petrol	21.35	26.85	27.7	23.48	-9%	-21%
Ubico & Depot gas oil	118.93	101.96	26.9	80.26	48%	17%
Miscellaneous properties not previously included Gas	15.33	29.67	NA	29.7	-48%	-48%
Total scope 1	**2,303.9**	**2,631.1**	**2,847.9**	**3,323.8**	-31%	-12%

Scope 2 emission source	2021/22 tC02E	Revised 2020/21 tCO2e	2018/19 tCO2e	Revised baseline 2019/20 tCO2e	% change on revised baseline	% change from 20/21
Council electricity	190.52	158.65	220.4	236.4	-19%	20%
Cheltenham Trust electricity	483.24	441.95	524.8	520.2	-7%	9%
Ubico electricity	71.26	75.46	105.1	95.2	-25%	-6%
Recharged properties electricity	9.25	10.91	13.5	15.8	-41%	-15%
Misc. Properties not previously included Electric	24.55	197.46	NA	0.0	NA	-88%
Total scope 2	**778.8**	**884.4**	**863.7**	**867.6**	-10%	-12%

Scope 3 emission source	2021/22 tC02E	Revised 2020/21 tCO2e	2018/19 tCO2e	Revised baseline 2019/20 tCO2e	% change on revised baseline	% change from 20/21
Council mileage claims	7.60	5.87	18.0	16.40	-54%	29%
Council rail travel	0.00	0.00	0.6	0.46	-99%	
Council electricity (T&D)	16.86	13.64	18.8	19.97	-16%	24%

Misc. (T&D)	2.17	16.98		18.4	-88%	-87%
Twinning travel	0	0	6.1	2.0	-100%	NA
Commuting (based on travel survey 21)	74.0	38	61.7	56.6	31%	96%
Waste	1	NA	NA	NA	NA	NA
Water from Council properties	4.24	8.47	NA	8.5	-50%	-50%
Cheltenham Trust electricity T&D	42.8	38.0	44.7	44.0	-3%	13%
Recharged properties electricity T&D	0.8	0.9	1.2	1.3	-39%	-13%
Ubico electricity (T&D)	6.3	6.5	9.0	8.0	-22%	-3%
Purchasing of goods & services	8441.0	10210.0	782.0	782.0	979%	-17%
50% airport emissions from ground operations	32.9	45.9	22.2	106.8	-69%	-28%
Total scope 3	**8,629.6**	**10,384.03**	**964.21**	**1,064.42**	711%	-17%
Total 1, 2 and 3 scopes	**11,712.4**	**13,899.5**	**4,675.8**	**5,255.8**	123%	-16%