

Borough Council of
**King's Lynn &
West Norfolk**



Addendum:
Comparative District Wide CO₂ Emissions Bubble Report
2017 to 2018

Published: 2020

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1. King's Lynn & West Norfolk 2018 CO₂ District Profile

Table 1: King's Lynn & West Norfolk district CO₂ emissions sector breakdown¹.

Sector	Sector Split	kt CO ₂	% of Total Emissions
Industrial and Commercial	Electricity	142.6	10.5
	Gas	400.7	29.5
	Large Industrial Installations	30.4	2.2
	Other Fuels	45.1	3.3
	Agriculture	28.2	2.1
	Total	647.0	47.6
Domestic	Electricity	77.9	5.7
	Gas	87.0	6.4
	Other Fuels	77.4	5.7
	Total	242.3	17.8
Transport	A Roads	215.3	15.5
	Motorways	-	-
	Minor Roads	162.1	11.9
	Diesel Railways	0.1	0.0
	Other	12.1	0.9
	Total	389.5	28.6
Land Use, Land Use Change & Forestry (LULUCF)	Forest	-82.1	-6.0
	Cropland	170.9	12.6
	Grassland	-32.5	-2.4
	Wetlands	-	-
	Settlements	24.6	1.8
	Harvested Wood Products	-	-
	Total (Net Emissions)	80.9	5.9

¹ Kt = kilo tonnes; t = tonnes; CO₂ = Carbon Dioxide



2018 Population ('000s, mid-year estimates)	151.8
Per Capita Emissions (t)	9.0
Area (km²)	1,526.9
Emissions per km² (kt)	0.9
King's Lynn and West Norfolk Total (kt)	1,359.7

Data Source: DBEIS, UK local authority and regional carbon dioxide emissions national statistics, 2005-2018.

1.1 The Department of Business, Energy and Industrial Strategy (BEIS) publishes local authority area CO₂ emissions statistics every year. As of August 2020, the 2018 data set is the most recent published local authority area estimates. Emissions are allocated on an end-user basis (apart from goods production), which means that emissions are distributed to points of consumption. This reflects the total emissions relating to that energy consumption, rather than points of generation (such as power stations).

1.2 CO₂ emissions are split into four sectors: industrial and commercial emissions, domestic emissions, road transport and land use, land use change and forestry (LULUCF). Table 1 presented the breakdown of King's Lynn and West Norfolk emissions, showing that King's Lynn and West Norfolk emitted 1359.7 kilo tonnes (kt) of CO₂. The breakdown is as follows:

1. Industrial and commercial: 647.0 kt CO₂
2. Transport: 389.5 kt CO₂
3. Domestic: 242.3 kt CO₂
4. LULUCF: 80.9 kt CO₂

1.3 Within these sectors, emissions data sets are split further to provide a more in-depth view of where the emissions are coming from. As shown in Table 1 (page 3), the five highest emitting sub-sectors are as follows:

1. Industrial and commercial, gas: 400.7 kt CO₂
2. Transport, A roads: 215.3 kt CO₂
3. LULUCF, cropland: 170.9 kt CO₂
4. Transport, minor roads: 162.1 kt CO₂
5. Industrial & commercial, electricity: 142.6 kt CO₂

1.4 Figures 1 and 2 below show the percentage contribution of the four key sub-sectors as well as their individual sub-sectors.



Figure 1: 2018 percentage sector contribution to district CO₂ emissions.

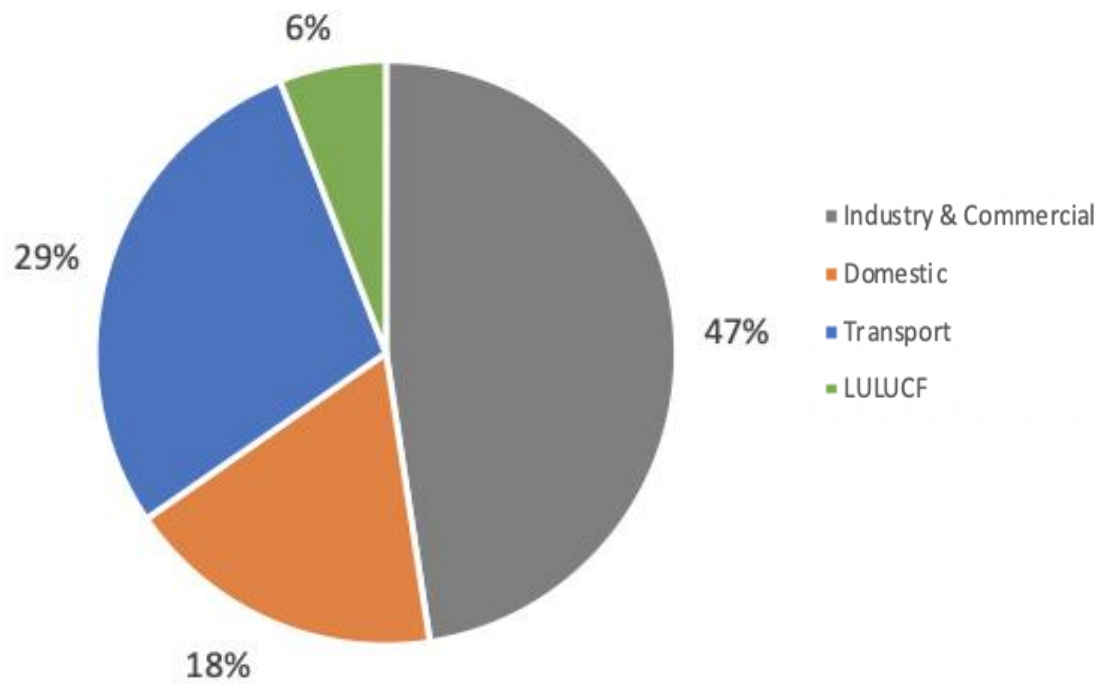
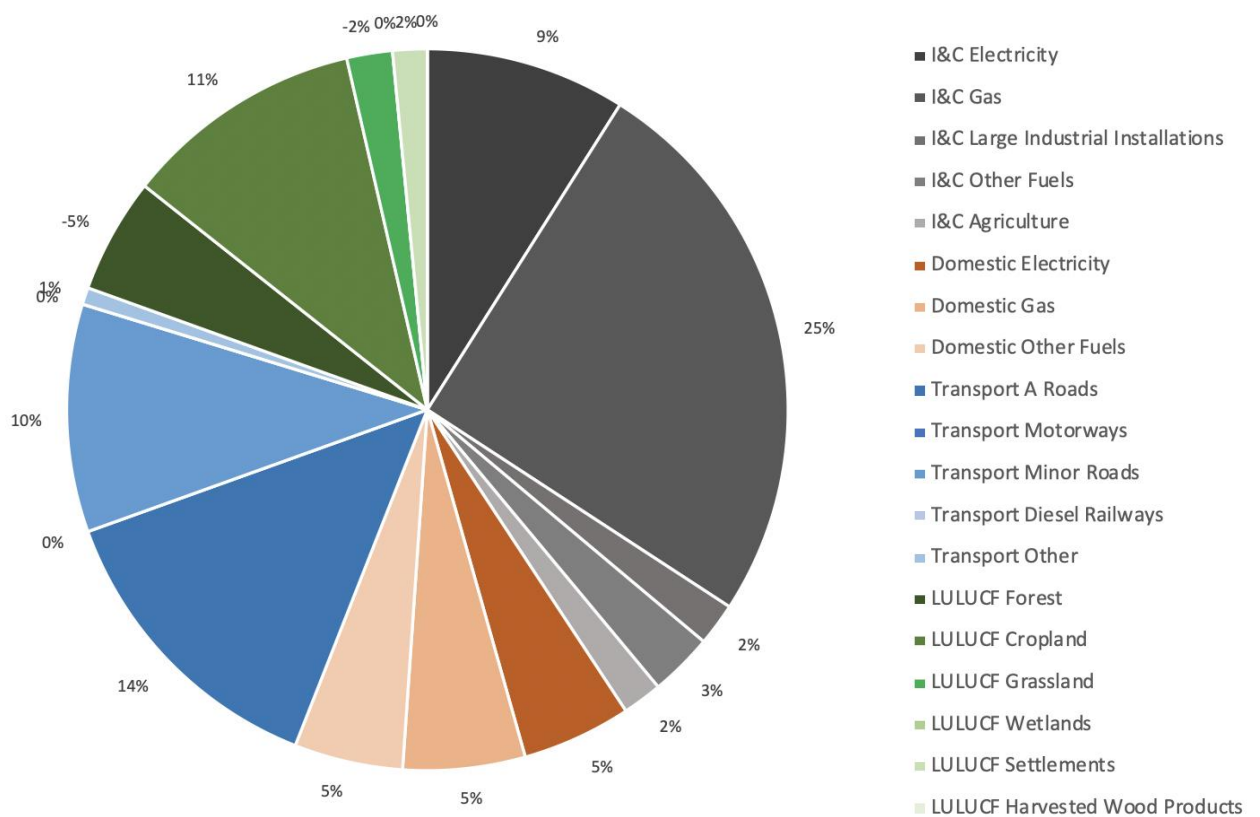


Figure 2: 2018 percentage sub-sector contribution to district CO₂ emissions².



² For transparency, figure 2 includes emissions sinks from the LULUCF sector. Thus, the percentages differ slightly from figure 1.



2. Norfolk Emissions Comparisons: 2018

2.1 Comparative analysis for the 2018 BEIS Norfolk District data highlights that King's Lynn and West Norfolk is still the largest contributor to Norfolk CO₂ emissions (as highlighted in table 2). King's Lynn and West Norfolk emits 523.2 kt CO₂ more than the closest emitting district (South Norfolk). King's Lynn and West Norfolk also has the highest per capita emissions in Norfolk (9.0 t CO₂). Again, the district with the closest per capita emissions is South Norfolk (6.1 t CO₂). From table 2 you can identify that King's Lynn and West Norfolk emits the highest amount of CO₂ in the industrial and commercial sector (647.0 kt CO₂), the domestic sector (242.3 kt CO₂), as well as the LULUCF sector (80.9 kt CO₂). King's Lynn and West Norfolk also has the second highest road transport emissions in Norfolk, behind South Norfolk.

2.2 Overall, King's Lynn and West Norfolk contributes 26.72% to Norfolk emissions. This is 10.28% more than the closest contributor (South Norfolk). King's Lynn and West Norfolk also contributes 36% of Norfolk's industrial and commercial emissions; 20.81% more than the closest contributor (Broadland). Table 3 provides a full breakdown of individual district emissions, which are shown as a percentage of overall Norfolk emissions.

Table 2: Norfolk CO₂ emissions sector breakdown.

2018	Industrial & Commercial (kt)	Domestic (kt)	Transport (kt)	LULUCF (kt)	Total (kt)	Per Capita (t)
Breckland	216.7	198.4	388.6	-108.5	695.1	5.0
Broadland	273.1	198.6	270.0	6.8	748.4	5.8
Great Yarmouth	89.7	134.6	138.9	1.8	365	3.7
KL&WN	647.0	242.3	389.5	80.9	1,359.7	9.0
North Norfolk	173.0	180.1	228.4	5.8	587.2	5.6
Norwich	197.5	175.8	124.6	-1.1	496.8	3.5
South Norfolk	200.1	206.4	446.2	-16.2	836.5	6.1
Norfolk	1,797.2	1,336.1	1,986.1	-30.6	5,088.8	5.6

Data Source: DBEIS, UK local authority and regional carbon dioxide emissions national statistics, 2005-2018.



Table 3: Individual district emissions shown as a percentage of overall Norfolk emissions.

2018	Industrial & Commercial (kt)	Domestic (kt)	Transport (kt)	LULUCF (kt)	Total (kt)	Per Capita (t)
Breckland	12.1%	14.8%	19.6%	354.4%	13.7%	5.0
Broadland	15.2%	14.9%	13.6%	-22.1%	14.7%	5.8
Great Yarmouth	5.0%	10.1%	7.0%	-6.0%	7.2%	3.7
KL&WN	36.0%	18.1%	19.6%	-264.0%	26.7%	9.0
North Norfolk	9.6%	13.5%	11.5%	-18.8%	11.5%	5.6
Norwich	11.0%	13.2%	6.3%	3.6%	9.8%	3.5
South Norfolk	11.1%	15.4%	22.5%	52.9%	16.4%	6.1
Norfolk	1,797.2	1,336.1	1,986.1	-30.6	5,088.8	5.6

Data Source: DBEIS, UK local authority and regional carbon dioxide emissions national statistics, 2005-2018.

Table 4: A comparison between different local authorities' per capita CO₂ emissions.

2018	Industrial & Commercial (t)	Domestic (t)	Transport (t)	LULUCF (t)	Total (t)
Breckland	1.6	1.4	2.8	- 0.8	5.0
Fenland	3.2	1.5	1.8	0.8	7.3
KL&WN	4.3	1.6	2.6	0.5	9.0
UK	2.0	1.5	1.9	-0.2	5.2

Data Source: DBEIS, UK local authority and regional carbon dioxide emissions national statistics, 2005-2018.

2.3 Table 4 highlights the difference in per capita emissions between different local authorities and the UK average. Breckland and Fenland are used as comparisons due to their geographical closeness to King's Lynn and West Norfolk. King's Lynn and West Norfolk has higher per capita emissions in the industrial and commercial, domestic and transport sectors than the comparison local authorities and the UK average. Overall, King's Lynn and West Norfolk's per capita emissions are 3.8 tonnes CO₂ higher than the UK average (72.6% higher). With regards to King's Lynn and West Norfolk's industrial and commercial per capita emissions, they are 112.4% higher than the national average. Domestic stands at 9.9% higher, road transport 34.4% higher and



finally LULUCF per capita emissions are -402%³ higher than the national average. The industry and commercial sector is the most significant contributor to King's Lynn and West Norfolk's high per capita emissions.

3. King's Lynn and West Norfolk CO₂ Emissions Change: 2017 - 2018

Table 5: Yearly CO₂ emissions in King's Lynn and West Norfolk, per sector.⁴

	Industrial & Commercial (kt)	Domestic (kt)	Transport (kt)	LULUCF (kt)	Total (kt)	Per Capita (t)
2005	728	403.7	394.2	90	1,615.90	11.5
2006	752.3	414.2	392	88.1	1,646.60	11.5
2007	776.7	399.8	396.3	85.5	1,658.40	11.5
2008	896.5	396.5	381.9	84.2	1,759.10	12.1
2009	902.9	362.7	370.1	86.4	1,722.20	11.8
2010	1,044.1	392.6	368.1	84.4	1,889.10	12.8
2011	939.4	342.5	359.7	84.2	1,725.90	11.7
2012	945.9	362.6	357.8	88.5	1,754.80	11.8
2013	938.9	349.2	358.1	84.5	1,730.70	11.6
2014	811.2	299.9	361.3	82.8	1,555.20	10.4
2015	791.9	285.7	368.1	82.1	1,527.80	10.1
2016	485.2	265.9	380.4	83.5	1,215.10	8.0
2017	692.1	250.1	390.2	82.2	1,414.60	9.3
2018	647.0	242.3	389.5	80.9	1,359.7	9.0

Data Source: DBEIS, UK local authority and regional carbon dioxide emissions national statistics, 2005-2018.

3.1 Industrial and Commercial:

Industrial and commercial CO₂ emissions have seen a decline of 45.1 kt CO₂ from 2017 to 2018. This equates to a 6.5% decrease in CO₂ emissions. This restarts the decreasing trend observed from 2010 to 2016, where emissions decreased by 33.7% (558.9 kt CO₂). Unfortunately, CO₂ emissions are still 161.8 kt CO₂ above the all-time low level of 485.2 kt CO₂, recorded in 2016.

3.2 Domestic:

Domestic CO₂ emissions continued its steady decreasing trend, hitting a new all-time low in 2018 with CO₂ emissions of 242.3 kt CO₂. This is a 3.1% reduction from 2017 and a 41.5% reduction from its all-time high in 2006.

3.3 Road Transport:

Road transport CO₂ emissions have stayed relatively consistent from 2005 to 2018, fluctuating from a revised high of 396.3 kt CO₂ in 2007 to a revised low of 357.8 kt CO₂ in 2012. Whilst CO₂

³ This is a negative number because you are using the positive LULUCF King's Lynn and West Norfolk value with negative UK value within a formula.

⁴ Historical data may differ to previous reports (2005 - 2017). This is due to methodological improvements to the latest BEIS data set (2018).



emissions have decreased from 2017 to 2018, this was only a decrease of 0.7 kt CO₂ (0.2%). Emissions still remain 31.7 kt CO₂ above the all-time low.

3.4 LULUCF:

Historical LULUCF emissions have seen the greatest changes since the 2018 data's improved methodology. Whilst historical emissions estimates are higher than previously estimated, the overall trend shows a steady decrease from 90 kt CO₂ in 2005 to 80.9 kt CO₂ in 2018, a 10.2% reduction. LULUCF emissions reduced from 2017 to 2018, with 2018 reaching an all-time low of 80.9, a reduction of 1.3 kt CO₂ (1.6%) from 2017.

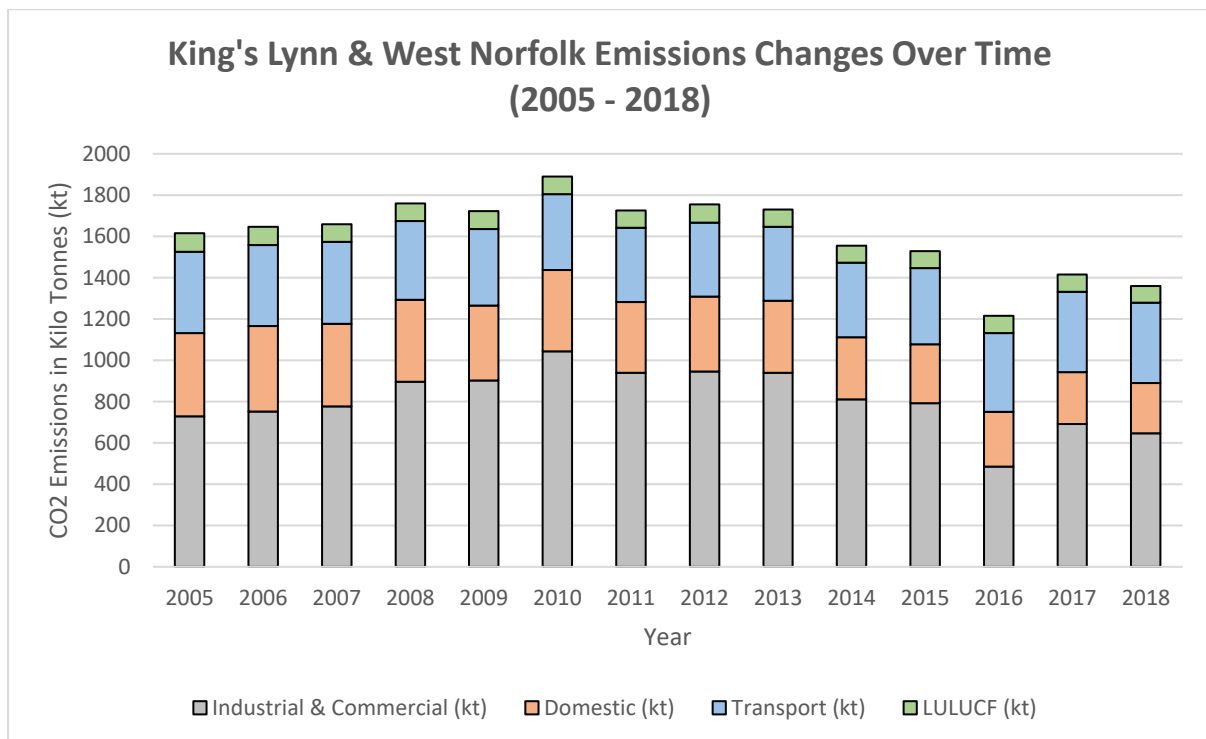
3.5 Total:

Total CO₂ emissions saw a decrease from 2017 levels, to King's Lynn and West Norfolk's second lowest levels. 2018 emissions of 1,359.7 kt CO₂ records a 3.9% (54.9 kt CO₂) reduction in total CO₂ emissions. Overall, this is a 28% reduction from King's Lynn and West Norfolk's all-time high of 1,889.10. However, total emissions are still 144.6 kt CO₂ higher than 2016's all-time low.

3.6 Per Capita:

Per capita CO₂ emissions have reduced by 0.3 t CO₂ from 2017 to 2018, which is a 3.7% decrease. Per capita emissions still sit 1.0 t CO₂ above the all-time low of 8.0 t CO₂ recorded in 2016.

Figure 3: Yearly CO₂ emissions trends in King's Lynn and West Norfolk.



Data Source: DBEIS, UK local authority and regional carbon dioxide emissions national statistics, 2005-2018.



4. Conclusion

4.1 Throughout the four emissions sectors, CO₂ emissions have seen a decrease from 2017 to 2018 figures. The largest reduction of 6.5% was seen in the industry and commercial sector, with the second highest reduction of 3.1% coming in the domestic sector. Despite a reduction in the transport sector, this was only by 0.2%, continuing the largely stable CO₂ emissions trend in this sector. Despite these reductions across all four sector, 2018 CO₂ emissions are still sitting above their all-time lows.

4.2 The total CO₂ emissions figure has inevitably decreased from 2017 to 2018, to its second lowest ever level of 1,359.7 kt CO₂. Although the CO₂ emissions reductions seen in 2018 is a positive step towards a low carbon future, CO₂ emissions have failed to reduce to similar levels seen in 2016. The stable trajectory of transport CO₂ emissions and slow yearly reductions in the domestic and LULUCF sectors suggest that much more work is required to significantly reduce King's Lynn and West Norfolk's district CO₂ emissions.

