

BUS FLEET AUDIT

31 March 2023

This is an audit of the London Buses contracted fleet using data collated on 31 March 2023. This is the 28th audit and the report represents the results and makes comparisons with previous audits.

1. Summary

This year's fleet size of 8,643 buses represents a reduction of 152 buses in comparison to last fleet audit total on 31 March 2022 of 8,795. The number of vehicles in the fleet will change from time to time, as new vehicles enter service and the vehicles they are replacing are decommissioned.

The fleet total includes: 949 Electric buses, 1 NRM retrofitted to Electric, 20 Hydrogen and 3,835 Hybrid buses (including 997 new Routemasters). All vehicles in the fleet are PSVAR compliant.

2. London Bus Fleet by Age and Type as at 31 March 2023

The current data at 31 March 2023 shows the fleet size and the quantity registered in each year by type.

	OVERALL FLEET AGE PROFILE AS AT 31 MARCH 2023							
Year	DD	SD	Diesel	Electric	Fuel Cell	NRM Hybrid	Hybrid	Total
2007	1	3	4	-	-	-	-	4
2008	30	42	72	-	-	-	-	72
2009	221	155	371	-	-	-	5	376
2010	360	165	491	-	-	-	34	525
2011	523	298	738	-	-	-	83	821
2012	578	192	622	-	-	8	140	770
2013	468	87	287	1*	-	109	158	555
2014	488	78	82	6	-	236	242	566
2015	629	178	191	7	-	307	302	807
2016	797	233	256	52	-	227	495	1030
2017	689	341	333	18	-	109	568	1028
2018	479	265	199	66	-	1	478	744
2019	268	211	179	97	-	-	203	479
2020	250	66	13	169	4	-	130	316
2021	251	84	-	319	16	-	-	335
2022	157	44	-	201	-	-	-	201
2023	9	5	-	14	-	-	-	14
TOTAL	6198	2447	3838	950*	20	997	2838	8643

*Euro V NRM retrofitted to Zero Emission Electric

3. London Bus Fleet by Type – 31 March 2013 to 31 March 2023

Year as at 31 March		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
TOTAL		8717	8765	8977	9186	9616	9396	9142	9102	9068	8795	8643
Single deck	Diesel	2608	2606	2662	2617	2612	2587	2435	2406	2309	2130	2083
	Hybrid	28	23	23	18	18	13	-	-	-	-	-
	Fuel Cell	5	8	8	8	8	10	10	2	2	2	-
	Electric	-	2	8	17	66	91	150	201	268	335	362
	TOTAL	2641	2639	2701	2660	2704	2701	2595	2609	2579	2467	2445
Double deck	Diesel	5716	5315	5045	4804	4390	3463	2873	2605	2388	2004	1755
	Hybrid (incl NRM)	360	811	1231	1717	2517	3227	3669	3773	3884	3854	3835
	Fuel Cell	-	-	-	-	-	-	-	-	-	20	20
	Electric	-	-	-	5	5	5	5	115	217	450	587
	Electric NRM	-	-	-	-	-	-	-	-	-	-	1
	TOTAL	6076	6126	6276	6526	6912	6695	6547	6493	6489	6328	6198

4. Fleet Emission Standards Changes as at 31 March from 2013 to 2023

Emissions as at 31 March	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Euro VI	2	14	449	1194	2300	3383	4045	4274	4409	4361	4346
Euro VI upgraded from EEV	-	-	-	-	-	135	225	378	396	311	282
Euro VI upgraded from Euro V	-	-	-	-	-	752	2296	2846	3028	2812	2654
Euro VI upgraded from Euro IV	-	-	-	-	-	176	358	688	672	504	391
EEV	858	853	616	631	564	309	194	19	-	-	-
Euro V	2660	3151	3687	3633	3585	2611	848	259	9***	-	-
Euro IV	1771	1683	1625	1628	1627	1256	861	288	57***	-	-
Euro IV upgraded from Euro III	3116	2934	2534	2060	1451	658	140	25	10***	-	-
Euro II	305	121	50	10	10	10	10	7	0	-	-
Fuel Cell	5	8	8	8	8	10	10	2	2	22	20
Electric	-	2	8	22	71	96	155	316	485	785	949
Electric upgraded from Euro V	-	-	-	-	-	-	-	-	-	-	1
Fleet Total	8717	8765	8977	9186	9616	9396	9142	9102	9068	8795	8643
Hybrid (incl NRM)	388	834	1254	1735	2535	3240	3669	3773	3884	3854	3835

As at 31st March 2023, a total of 8,643 buses in the fleet are to the equivalent of Euro VI emissions standard or better. This represents a total of 100% of the fleet. The fleet included 970 Zero Emission buses which is 11.22% of the total fleet.

5. Fleet Emissions by Bus Type and Operator as at 31 March 2023

Fuel	Body Type	EU Standard	31/03/23	Abellio	Arriva Group	Go Ahead Group	Metroline	RATP	Stagecoach	Sullivan Buses	University Bus
Diesel	Single deck	Euro VI upgraded from Euro IV	170	-	11	33	83	8	34	-	1
		Euro VI upgraded from Euro V	745	71	76	247	120	110	115	6	-
		Euro VI upgraded from EEV	26	-	-	19	-	7	-	-	-
		Euro VI	1142	161	88	260	92	262	254	20	5
	Double deck	Euro VI upgraded from Euro IV	221	-	71	73	30	2	34	11	-
		Euro VI upgraded from Euro V	1183	24	416	300	80	74	264	25	-
		Euro VI upgraded from EEV	238	-	-	-	197	20	21	-	-
		Euro VI	113	-	41	3	-	5	52	12	-
Hybrid	Double deck	Euro VI upgraded from Euro V	726	94	264	102	100	105	61	-	-
		Euro VI upgraded from EEV	18	-	-	-	-	18	-	-	-
		Euro VI	3091	335	513	819	618	254	549	-	3
Fuel cell	Double deck	Zero Emission	20	-	-	-	20	-	-	-	-
Electric	Single deck	Zero Emission	362	45	13	168	23	108	5	-	-
	Double deck	Zero Emission	587	70	22	137	65	214	74	-	5
		Zero Emission upgraded from Euro V	1	-	-	-	1	-	-	-	-
Total			8643	800	1515	2161	1429	1187	1463	74	14

6. Operator Fleet Changes

The data as at 31 March from 2013 to 2023 details the individual bus operator fleet size by vehicle quantity, the respective % of the overall network fleet and fleet average age.

Fleet size as at 31 March											
OPERATOR	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Abellio	568	596	661	738	708	745	720	798	831	756	800
Arriva Group	1747	1733	1652	1634	1768	1706	1652	1648	1590	1527	1515
<i>Ensignbus</i>	-	-	-	-	-	-	-	-	10	-	-
Go Ahead Group	1720	1750	2298	2251	2370	2354	2141	2254	2265	2210	2161
Metrobus	324	315	315	315							
Metroline	1099	1606	1495	1680	1735	1678	1729	1602	1532	1491	1429
RATP	933	960	1056	1047	1066	1076	1112	1086	1069	1234^	1187
Quality Line	82	84	89	89	89						
HCT Group	83	86	180	92	152	129	152	157	163	159	1463*
Stagecoach	1147	1198	1062	1287	1290	1232	1176	1102	1198	1191	
Tower Transit	-	415	462	426	479	407	388	381	321	139^	
Sullivan Buses	17	22	22	26	43	64	68	69	78	74	74
University Bus	-	-	-	5	5	5	4	5	11	14	14
Total	8717	8765	8977	9186	9616	9396	9142	9102	9068	8795	8643
Less than 10 years	7619	6952	6651	7384	8186	8332	8163	7590	7261	6380	5907
% of Total fleet as at 31 March											
OPERATOR	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Abellio	6.52	6.80	7.36	8.03	7.36	7.93	7.88	8.77	9.16	8.60	9.25
Arriva Group	20.04	19.77	18.40	17.79	18.39	18.17	18.07	18.11	17.53	17.36	17.52
<i>Ensignbus</i>	-	-	-	-	-	-	-	-	0.11	-	-
Go Ahead Group	19.73	19.97	25.60	24.50	24.65	25.07	23.42	24.76	24.98	25.13	24.99
Metrobus	3.72	3.60	3.60	3.60							
Metroline	12.61	18.32	16.65	18.29	18.04	17.86	18.91	17.60	16.89	16.95	16.53
RATP	10.71	10.95	12.34	11.40	11.09	11.43	12.16	11.93	11.79	14.03^	13.73
Quality Line	0.94	0.96	0.99	0.99	0.99						
HCT Group	0.95	0.98	2.01	1.00	1.58	1.37	1.66	1.72	1.80	1.81	16.92*
Stagecoach	13.16	13.67	11.83	14.01	13.42	13.11	12.86	12.11	13.21	13.54	
Tower Transit	-	4.73	5.15	4.64	4.98	4.33	4.24	4.19	3.54	1.58^	
Sullivan Buses	0.20	0.25	0.25	0.28	0.45	0.68	0.74	0.76	0.86	0.84	0.86
University Bus	-	-	-	0.05	0.05	0.05	0.04	0.05	0.12	0.16	0.16
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Less than 10 years	87.40	79.32	74.09	80.38	85.13	88.70	89.29	83.38	80.07	72.54	68.34
Average Age of Fleet as at 31 March (years)											
OPERATOR	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Abellio	5.60	6.30	5.94	5.96	5.24	4.64	4.98	5.57	6.12	6.25	6.72
Arriva Group	6.50	7.43	6.39	6.17	5.93	5.28	6.07	6.76	7.40	8.06	8.99
<i>Ensignbus</i>	-	-	-	-	-	-	-	-	6.56	-	-
Go Ahead Group	5.70	6.40	7.16	6.83	5.78	5.63	5.54	6.06	6.65	7.25	7.84
Metrobus	5.80	6.70	6.70	6.70							
Metroline	5.70	5.60	6.26	6.41	6.31	6.16	6.09	6.08	6.83	7.51	8.37
RATP	5.60	5.60	6.63	5.73	6.82	6.73	5.62	5.91	6.64	5.95^	6.21
Quality Line	4.50	4.50	4.07	4.07	4.07						
HCT Group	5.20	6.20	7.72	7.00	2.36	2.67	3.20	4.26	5.22	6.15	7.85*
Stagecoach	7.10	7.10	6.54	6.73	6.43	6.50	5.91	6.19	6.26	7.02	
Tower Transit	-	5.40	6.10	5.38	5.41	5.48	5.27	6.18	6.34	7.11^	
Sullivan Buses	6.50	8.00	9.05	9.42	8.31	5.63	6.09	7.04	8.31	8.67	9.68
University Bus	-	-	-	2.60	3.37	4.43	3.75	6.39	6.19	6.99	7.93
Total	5.90	6.20	6.41	6.47	6.00	5.77	5.70	6.11	6.69	7.12	7.82

* HCT and Tower Transit Lea Interchange operations absorbed into Stagecoach between 31.3.22 and 31.3.23

^ Tower Transit Westbourne Park operation absorbed into RATP Dev Transit London between 31.3.21 and 31.3.22

7. All Single Deck Vehicles – Breakdown by Year and Length

The tables below show the single deck fleet profile for both Diesel Euro VI and Zero Emission buses as at 31st March 2023 split by respective vehicle lengths. As at 31st March 2023 14.8% of the single deck fleet is zero emission.

Single Deck Bus age and length profile at 31 st March 2023								
Year	7.8 – 7.9m	8.7- 9.0m	9.3- 9.7m	9.9- 10.2m	10.4- 10.5m	10.6- 10.9m	11.5- 12.0m	Total
2007		3						3
2008		13		26		3		42
2009		5		88	28	15	19	155
2010	7		13	135		10		165
2011		33	31	147		80	7	298
2012		24	57	58		53		192
2013		22	1	9		55		87
2014		20	8	12		32		72
2015		70	9		8	69	15	171
2016		61	48	1		76		186
2017		66	60		36	159		321
2018	6	13	19		14	140	7	199
2019		32	19		32	70	26	179
2020		13						13
Total	13	375	265	476	118	762	74	2083

*To 31st March 2023

ZERO EMISSION Single Deck Bus age and length profile at 31 st March 2023								
Year	7.8 – 7.9m	8.8- 9.0m	9.3- 9.7m	9.9- 10.2m	10.4- 10.5m	10.6- 10.9m	11.5- 12.0m	Total
2014						6		6
2015						7		7
2016							47	47
2017						18		18
2018						66		66
2019			10	22				32
2020			1			52		53
2021			12	24		48		84
2022		11				33		44
2023*			5					5
Total	-	11	28	46	-	230	47	362

*To 31st March 2023

8. Double Deck Vehicles – Breakdown by Year

The double deck fleet profile as at 31st March 2023 shows the quantity by year registered and the transition from Diesel to Hybrid and then to Zero Emission technology. As at 31st March 2023 9.8% of the double deck fleet is zero emission.

Double Deck Bus age profile at 31 st March 2023				
Year	Diesel	Hybrid (inc NRM)	Electric	Hydrogen
2007	1			
2008	30			
2009	216	5		
2010	326	34		
2011	440	83		
2012	430	148		
2013	200	267	1*	
2014	10	478		
2015	20	609		
2016	70	722	5	
2017	12	677		
2018		479		
2019		203	65	
2020		130	116	4
2021			235	16
2022			157	
2023^			9	
Total	1755	3835	588	20

*Euro V NRM retrofitted to Zero Emission Electric in 2022

^ To 31st March 2023