MAG GREENHOUSE GAS EMISSION REPORT, 2019/20

INTRODUCTION

Manchester Airports Group (MAG) owns and operates Manchester, London Stansted and East Midlands Airports. We understand our responsibility to tackle climate change; by reducing our own emissions and playing a part in helping to decarbonise the wider sector – creating a sustainable aviation industry for the future.

We know that climate change is an important issue for a wide range of our stakeholders, and it is for us too. This year has been a significant one, in which MAG has demonstrated its long-term commitment to climate change, when we published our new Corporate Social Responsibility (CSR) Strategy: '*Working together for a brighter future*'. Our 2020 Strategy marks the transition to a new strategic priority: 'Zero carbon airports', and our commitment to become a net zero carbon business by 2038. Our headline target is accompanied by a range of other commitments, which will ensure MAG plays its full part in addressing airport-related emissions, including from aircraft and surface access transport.

In parallel with launching our new Strategy, we have reviewed the way in which we report the climate impacts of our airports. By listening to local voices, industry partners and other stakeholders, we know people would like to know more about airport-related emissions. As such, with the aim of providing greater transparency, this year we are publishing the following information:

- MAG Annual Report and Accounts
  Which includes an overview of MAG's energy use and emissions, as required by the Streamlined Energy and Carbon Reporting (SECR) regime which was introduced by the Companies (Directors' Report) and Limited Liability Partnerships (Energy and Carbon Report) Regulations 2018. Our Annual Report and Accounts are available on our website.

- MAG CSR Report 2019/20: Working together for a brighter future
  Where we detail our climate-related achievements during the last year, and performance against our 2015-2020 CSR Strategy. This is accompanied by an overview of our carbon footprint, and an insight into the commitments in our new 2020 CSR Strategy. Our CSR Report is prepared in accordance with the Global Reporting Initiative (GRI) Standards: Comprehensive option. The Report, our GRI Contents Index and disclosures are published on our website.

- Greenhouse gas emission report (this report)
  A new, more detailed, report providing information about how we measure our energy use and greenhouse gas (GHG) emissions, our indirect emissions and our carbon neutrality and carbon offsetting. The content of this report, which includes GHG emission inventories and verification statements, is relatively technical. Readers will need to be familiar with climate change, GHG accounting methodologies and associated terminology.

MAG is fully committed to transparent reporting, which responds to the needs and expectations of our stakeholders. If you have any questions about this report, or ideas about how we could improve it, please contact us by email at: CSR@magairports.com.

SCOPE

In preparing this report, we have followed environmental reporting guidelines published by the Government, adopted the principles of the World Resources Institute (WRI) GHG Protocol Corporate Standard and implemented the sector-specific requirements of Airport Carbon Accreditation.

We have adopted the 'operational control' approach set out in the WRI GHG Protocol. As such, this report considers energy and emissions from all of MAG's UK operations, including:

- East Midlands Airport;
- London Stansted Airport;
- Manchester Airport; and,
- All other facilities MAG use which are not at its airports.

We report energy use in kilowatt hours (kWh) and emissions in tonnes of carbon dioxide equivalent (t CO_2e). This approach allows analysis between different energy sources and expresses emissions of greenhouse gases (GHGs) covered by the Kyoto Protocol in terms of the global warming potential (GWP) of one unit of carbon dioxide (CO_2). Reporting is aligned with our financial year, which runs from 1 April to 31 March.

Scope 1 and 2 emissions

Our report details all of MAG's location and market-based Scope 1 and 2 emissions.

Straddling our 2006 commitment to carbon neutrality and our 2020 commitment to net zero carbon, this report adopts a hybrid-approach to reporting the climate impact of refrigerant gases. We recognise that the climate impact of refrigerant gases is, and will increasingly be, important. Whilst these emissions are included in our 2020 net zero carbon commitment, they were not included within the scope of our 2006 carbon neutral commitment and are also not included within the scope of Airport Carbon Accreditation Level 3+ (Neutrality). On this basis, for this first report, we have not included these emissions in our emissions inventories – but do detail them within the verification statements issued by the Carbon Trust (Appendix 1 – Verification statements). Future reports, which report against our net zero carbon target, will detail these emissions within our Scope 1 footprint.

Scope 3 emissions

We have developed our Scope 3 footprint to include emissions from the activities of greatest impact, those over which we have the greatest ability to drive emission reduction and those which we know are important to stakeholders. As a starting point, we report all indirect emissions required by the Airport Carbon Accreditation programme, which is itself informed by an independent advisory board comprising distinguished industry and environmental experts. In addition, we report emissions from all departing flights – for the whole flight, as well as the 'landing and take-off cycle' (LTO) emissions from all arriving flights. We also report surface access emissions from all staff working at our airports, whether directly employed by MAG or another organisation.

Over time, we will assess other indirect emissions and introduce them to our reporting where we find that they are significant, of interest to stakeholders or from an activity where we can influence significant emission reductions. For example, in 2015/16 we undertook a detailed assessment of emissions from our supply chain, confirming these emissions were less than 1% of our overall footprint and that our major suppliers were within the lower emission 'service sector'. Since then we have built our Scope 3 emission inventory, and this is included in this report. We are currently assessing emissions from waste, water consumption and trade effluent and will share the results in our next report. Our CSR Strategy also includes commitments to introduce a league table identifying the most efficient aircraft operators and to implement assessments of the embodied carbon within our large construction projects. We will provide updates on these important initiatives in future reports.

METHODOLOGY

Information about how we calculate our emissions is presented below. Unless otherwise stated, emissions have been calculated by combining information about energy use with the UK Government GHG Conversion Factors for Company Reporting.

Scope 1 and 2

Our Scope 1 and 2 energy use and associated emissions are calculated using a collection of primary data. Where this has not been possible, we have estimated consumption by extrapolating historic energy use. For 2019/20, 1.7% of our Scope 1 and 2 energy use, 1.6% of our location-based Scope 1 and 2 emissions and 5.3% of our market-based Scope 1 and 2 emissions have been estimated.

Activity	Fuel/emission source	Description	Source data and emission calculation methodology
Fuels combustion	Gas	Natural gas used in fixed equipment including boilers and combined heat and power (CHP) units to produce heat, hot water and energy for our buildings.	Measured consumption based on supplier invoices and/or meter readings, including 'deduction' submeters which measure energy supplied by MAG to tenants and concessionaires. Data gaps filled using estimates based on historic consumption.
	LPG	Liquified petroleum gas (LPG) used in fixed equipment including boilers and fire service training facilities to produce heat, hot water and for fire service training.	Supplier invoices for regular deliveries.
	Gas oil	Gas oil used in fixed equipment including boilers and fire service training facilities to produce heat, hot water and for fire service training.	Supplier invoices for regular deliveries.
	Biomass	Wood used in fire service training facilities for fire service training.	Historic measurement of wood used for typical training activity, multiplied by actual number of training events.
	Petrol	Petrol used in fire service training facilities for fire service training.	Supplier invoices for regular deliveries.
	Kerosene	Kerosene used in fire service training facilities for fire service training.	Supplier invoices for regular deliveries.
Owned transport	Diesel	Diesel used in vehicles owned or leased by MAG.	Fuelling records from MAG and fuel card supplier fuelling systems.
	Gas oil	Red diesel used in vehicles owned or leased by MAG. Also includes gas oil used in back-up generators, which it is not possible to monitor separately.	Fuelling records from MAG fuelling systems and supplier invoices for regular deliveries.
	Petrol	Petrol used in vehicles owned or leased by MAG.	Fuelling records from MAG and fuel card supplier fuelling systems.
	Company cars	Company cars leased by MAG business travel and/or personal use by employees.	Manufacturer certified emission performance multiplied by maximum contracted mileage.
Generation of renewable electricity on site	Wind generated electricity	Electricity generated by wind turbines, owned and operated by MAG and connected directly to East Midlands Airport's private electrical network.	Measured electricity production based on meter readings. Because MAG receives feed in tariff payments for its wind generated electricity, it does not own the renewable energy attribute and must therefore report emissions using the 'Electricity: UK' emission factor for both location and market-based emissions.
Consumption of purchased electricity, heat, steam and cooling	Consumption of purchased electricity	Electricity purchased and used by MAG in fixed equipment including our airport terminals, airfields, offices and associated infrastructure. Includes electricity consumed by electric and hybrid-electric vehicles owned or leased by MAG when charging from a MAG electricity connection.	Measured consumption based on supplier invoices and/or meter readings, including 'deduction' submeters which measure energy supplied by MAG to tenants and concessionaires. Data gaps filled with estimate based on historic consumption.

Activity	Fuel/emission source	Description	Source data and emission calculation methodology
Avoided emissions	Purchase and retirement of carbon offsets	Retirement of carbon offsets to compensate for residual MAG Scope 1 and 2 market-based emissions.	N/A.

Table 1. Scope 1 and 2 emissions categories and methodologies.

Scope 3

Our Scope 3 emissions are calculated using primary data as a preference. However, the nature of indirect emissions, which are the direct responsibility of another company or individual, means that primary data is not always available to us. Where we do not have primary data, we have developed robust modelling and sampling methodologies to estimate our indirect emissions.

Activity	Fuel/emission source	Description	Source data and emission calculation methodology
Transport-related activities	MAG staff commuting	MAG's directly employed staff commuting to and from MAG airports for work, either in private vehicles or by public transport.	Emissions for 'typical MAG employee' calculated using most recent staff travel surveys (2018-19 at East Midlands, 2018-19 at London Stansted and 2018-19 at Manchester Airports). Multiplied by actual number of MAG staff at each airport.
	Other airport staff commuting	Staff employed by other companies commuting to and from MAG airports for work, either in private vehicles or by public transport.	Emissions for 'typical non-MAG employee' calculated using most recent staff travel surveys (2018-19 at East Midlands, 2018-19 at London Stansted and 2018-19 at Manchester Airports). Multiplied by actual number of airport-based staff employed by other employers.
	Business travel - public transport	Business travel undertaken by MAG staff using public transport (including air travel).	Business travel records, including travel mode, class and distance.
	Business travel – staff vehicles	Business travel undertaken by MAG staff using private vehicles owned or leased by MAG staff.	Expense claim records, Government, conversion factor for 'average car unknown fuel'.
Downstream transport and distribution	Passenger surface access	Passengers 'surface access' travelling to and from MAG airports in private vehicles or by public transport.	Emissions for 'typical passenger' calculated using results of passenger surveys undertaken by the Civil Aviation Authority during calendar year 2019. Multiplied by actual number of passengers during financial year 2019/20.
Aircraft	LTO cycle (departures)	For flights departing from a MAG airport: Departure phases of the landing and take-off (LTO) cycle defined by the International Civil Aviation Organisation (ICAO). Includes aircraft taxiing from parking stand to runway, taking off and climbing to a height 3,000 feet above ground level.	Emissions calculated by Eurocontrol in accordance with their methodology for the European Environment Agency and United Nations Framework Convention on Climate Change (UNFCCC). Eurocontrol's model uses information about flights, flight routes and aircraft performance certification data to calculate emissions. Data is received over six months in arrears, we rescaled emissions from calendar year 2018 to reflect the number of flights during 2019/20.
	En-route (departures, excl. MAG airport LTO cycle)	For flights departing a MAG airport: Phases of flight between an aircraft passing 3,000ft after departure and the aircraft parking at destination airport.	
	LTO cycle (arrivals)	For flights arriving at a MAG airport: Arrival phases of the LTO cycle defined by ICAO. Includes approaching aircraft from a height of 3,000 feet above ground level, landing and taxiing from runway to parking stand.	
	On stand power (FEGP and APU)	Systems used to provide power to run systems on parked aircraft. Includes fixed electric ground power (FEGP) and auxiliary power units (APUs).	FEGP: Consumption based on metered electricity consumption, reported within MAG Scope 2 where metering is not available. APU: 'Typical turn-around' APU run-time measured through operational monitoring, multiplied by fuel flow figures for typical APU for each aircraft type.

Activity	Fuel/emission source	Description	Source data and emission calculation methodology
Tenants and concessionaires – airside vehicles and MAG-supplied energy	Airside vehicles	Vehicles and equipment operated by other companies on the airfield at MAG airports. Includes vehicles which support aircraft and airport operations.	Emissions for 'typical vehicle' calculated using fuelling records from MAG fuelling systems for vehicles where MAG is the fuel supplier. Multiplied by total number of airside vehicles (monitored trough 'airside vehicle permit' records).
	Gas	Natural gas supplied by MAG to tenants and concessionaires for use in fixed equipment including boilers and catering facilities operated.	Measured consumption based on meter readings. Data gaps filled with estimate based on historic consumption.
	Heating oil	Heating oil supplied by MAG to tenants and concessionaires for use in fixed equipment including boilers.	Fuelling records from MAG fuelling systems and supplier invoices for regular deliveries.
	Electricity	Electricity supplied by MAG to tenants and concessionaires for use in fixed equipment and vehicles.	Measured consumption based on meter readings. Data gaps filled with estimate based on historic consumption.
Avoided emissions	Purchase and retirement of carbon offsets	Retirement of carbon offsets to compensate for emissions from MAG business travel.	N/A.

Table 2. Scope 3 emission sources and associated methodologies

Assurance

The methodologies used to monitor our energy and fuel use, and to calculate our carbon footprint, have been developed and refined over a number of years. We believe they represent best practice and are committed to continually improving them. Our methodologies are aligned with government guidance and the WRI GHG Protocol.

Our internal management processes, which are certified to ISO14001, the international standard for environmental management, provide assurance that we have robust approaches to measuring and monitoring energy use and emissions. Data is independently validated by our specialist climate change consultants, who we appoint to prepare our carbon footprint.

Additionally, we commission the Carbon Trust to provide independent assurance of our GHG emission inventory. Their verification statements are included as Appendix 1 – Verification statements.

CARBON NEUTRALITY AND CARBON OFFSETS

Our airport operations are independently certified carbon neutral. Each of our airports holds Level 3+ (Neutrality) Airport Carbon Accreditation. More information about Airport Carbon Accreditation is available online.

Although we have made significant investments to reduce our energy use and purchase renewable energy, MAG does still have a small gross carbon footprint. To compensate for these residual emissions, MAG purchases Gold Standard carbon offsets. For 2019/20, our carbon offsets were generated by the 'Improved Cookstoves for Social Impact in Ugandan Communities' project. This initiative provides more efficient cookstoves to communities in Uganda. We selected this project because, in addition to reducing emissions by minimising charcoal requirements, it also generates local employment and improves air quality.

Our GHG emission inventories include details of our carbon offset retirements. An overview of our 2019/20 offsets, including links to public registries which detail our retirements, provide information about the project which generated them and host independent verification statements, are provided in Table 3.

MAG business unit	Offsets retired 2019/20	Gold Standard Registry link
East Midlands Airport	2,517 tonnes	Registry link
Manchester Airport	9,367 tonnes	Registry link
London Stansted Airport	4,181 tonnes	Registry link
MAG	2,330 tonnes	Registry link

Table 3. Carbon offset retirements, 2019-20.

GHG EMISSION REPORTS

SECR Report

The SECR report, published in our Annual Report and Accounts, is presented as Table 4. This report provides a high-level overview of our energy use, emissions and carbon intensity as required by the Companies (Directors' Report) and Limited Liability Partnerships (Energy and Carbon Report) Regulations 2018.

We measure carbon intensity against traffic units, which are equivalent to 1,000 passengers or 100 tonnes of freight and mail.

	2019/20	2018/19
Energy consumption used to calculate emissions (kWh)	207,863,924	208,525,600
Emissions from combustion of gas (Scope 1, tCO_2e)	9,158	9,752
Emissions from combustion of fuel for transport purposes (Scope 1, tCO_2e)	5,622	4,665
Emissions from business travel in rental cars or employee-owned vehicles where MAG is responsible for purchasing the fuel (Scope 3, tCO_2e)	90	98
Emissions from purchased electricity (Scope 2, location-based, tCO_2e)	34,551	33,225
Emissions from purchased electricity (Scope 2, market-based, tCO_2e)	0	5
Total gross emissions based on the above (Location-based, tCO_2e)	49,421	47,739
Total gross emissions based on the above (Market-based, tCO_2e)	14,870	14,520
Intensity measure (Traffic units)	66,899	69,167
Intensity ratio (Location-based emissions, tCO_2e /traffic unit)	0.739	0.690
Intensity ratio (Market-based emissions, tCO_2e /traffic unit)	0.222	0.210
Carbon offsets (purchased and retired, tCO_2e)	14,870	14,520
Total net emissions based on the above (Location-based, tCO_2e)	34,551	33,225
Total net emissions based on the above (Market-based, tCO_2e)	0	0

Table 4. SECR Report 2019-20

Greenhouse gas emission inventories

GHG emission inventories for each of our airports and MAG's combined UK operations are provided as Tables 5, 7, 9 and 11. These inventories provide greater detail about our direct energy use, and our Scope 1, 2 and 3 GHG emissions. Tables 6, 8, 10 and 12 outline the intensity of our Scope 1 and 2, and Scope 1, 2, and 3 emissions relative to the traffic units handled. One traffic unit is equivalent to 1,000 passengers or 100 tonnes of freight and mail.

Scope	Activity	Fuel/emission source	Energy consumption (kWh)		Location-based emissions (tCO_2e)		Market-based emissions (tCO_2e)	
			2019/20	2018/19	2019/20	2018/19	2019/20	2018/19
1	Fuels combustion	Gas	2,071,240	5,683,487	381	1,046	381	1,046
		LPG	37,485	58,929	8	13	8	13
		Gas oil	511,670	690,018	131	177	131	177
		Biomass	6,321	7,327	0	0	0	0
		Petrol	47	566	0	0	0	0
		Kerosene	7,120	22,476	2	5	2	5
	Owned transport	Diesel	232,840	222,148	57	54	57	54
		Gas oil	6,673,671	1,179,519	1,714	303	1,714	303
		Petrol	91,983	73,189	21	17	21	17
		Company cars	252,724	273,817	65	69	65	69
	Total Gross Scope 1		9,885,100	8,211,477	2,379	1,685	2,379	1,685
2	Generation of renewable electricity on site	Wind generated electricity	288,184	144,719	74	41	74	41
	Consumption of purchased electricity, heat, steam and cooling	Consumption of purchased electricity	19,378,388	20,407,482	4,953	5,777	-	-
	Total Gross Scope 2		19,666,572	20,552,201	5,027	5,818	73.7	41
1 & 2	**Total Gross Scopes 1 & 2**		29,551,673	28,763,677	7,406	7,502	2,452	1,726
	Avoided emissions	Purchase and retirement of carbon offsets			2,452	1,726	2,452	1,726
	Total avoided emissions				2,452	1,726	2,452	1,726
	Total Net Scope 1 & 2 emissions				4,953	5,777	-	-
3	Transport-related activities	MAG staff commuting			956	942	956	942
		Other airport staff commuting			13,258	13,877	13,258	13,877
		Business travel - public transport			50	146	50	146
		Business travel – staff vehicles	59,728	60,848	14	18	14	18
	Downstream transport and distribution	Passenger surface access			40,849	37,210	40,849	37,210
	Aircraft	LTO cycle (departures)			53,696	55,571	53,696	55,571
		En-route (departures, excl. MAG airport LTO cycle)			525,284	543,625	525,284	543,625
		LTO cycle (arrivals)			23,834	24,666	23,834	24,666
		On stand power (FEGP and APU)			3,611	3,177	3,611	3,177
	Tenants and concessionaires – airside vehicles and MAG-supplied energy	Airside vehicles			1,669	1,734	1,669	1,734
		Gas			-	-	-	-
		Heating oil			25	47	25	47
		Electricity			2,601	3,053	-	-
	Total Gross Scope 3				665,849	684,065	663,248	681,013
	Avoided emissions	Purchase and retirement of carbon offsets			65	164	65	164
1, 2 & 3	**Total Net Scopes 1, 2 & 3**				**670,802**	**689,842**	**663,248**	**681,013**

Table 5. GHG Emission inventory, East Midlands Airport

Scope	Activity	Fuel/emission source	Location-based emissions (tCO_2e)		Market-based emissions (tCO_2e)	
			2019/20	2018/19	2019/20	2018/19
	Intensity benchmark	Total traffic units (TU)	8,189	8,524	8,189	8,524
1 & 2		Scopes 1 & 2 Gross Emissions/TU	0.90	0.88	0.30	0.20
		Scopes 1 & 2 Net Emissions/TU	0.60	0.68	-	-0.00
1, 2 & 3		Scopes 1, 2 & 3 Gross Emissions/TU	82.21	81.13	81.29	80.09
		Scopes 1, 2 & 3 Net Emissions/TU	81.91	80.93	80.99	79.89

Table 6. GHG Emission intensity, East Midlands Airport

Scope	Activity	Fuel/emission source	Energy consumption (kWh)		Location-based emissions (tCO_2e)		Market-based emissions (tCO_2e)	
			2019/20	2018/19	2019/20	2018/19	2019/20	2018/19
1	Fuels combustion	Gas	14,904,391	13,354,638	2,740	2,457	2,740	2,457
		LPG	32,480	12,133	7	3	7	3
		Gas oil	4,834	-	1	-	1	-
		Biomass	-	-	-	-	-	-
		Petrol	-	-	-	-	-	-
		Kerosene	-	-	-	-	-	-
	Owned transport	Diesel	2,358,255	2,077,036	577	508	577	508
		Gas oil	843,750	945,815	217	243	217	243
		Petrol	47,009	45,050	11	11	11	11
		Company cars	383,163	325,535	95	81	95	81
	Total Gross Scope 1		**18,573,881**	**16,760,207**	**3,648**	**3,302**	**3,648**	**3,302**
2	Generation of renewable electricity on site	Wind generated electricity	-	-	-	-	-	-
	Consumption of purchased electricity, heat, steam and cooling	Consumption of purchased electricity	43,775,814	42,641,731	11,189	12,071	-	-
	Total Gross Scope 2		**43,775,814**	**42,641,731**	**11,189**	**12,071**	**-**	**-**
1 & 2	**Total Gross Scopes 1 & 2**		**62,349,695**	**59,401,938**	**14,837**	**15,372**	**3,648**	**3,302**
	Avoided emissions	Purchase and retirement of carbon offsets			3,648	3,302	3,648	3,302
	Total avoided emissions				**3,648**	**3,302**	**3,648**	**3,302**
	Total Net Scope 1 & 2 emissions				**11,189**	**12,071**	**-**	**-**
3	Transport-related activities	MAG staff commuting			4,812	4,854	4,812	4,854
		Other airport staff commuting			36,707	36,989	36,707	36,989
		Business travel - public transport			516	411	516	411
		Business travel – staff vehicles	67,982	15,774	16	5	16	5
	Downstream transport and distribution	Passenger surface access			305,691	266,003	305,691	266,003
	Aircraft	LTO cycle (departures)			172,042	177,044	172,042	177,044
		En-route (departures, excl. MAG airport LTO cycle)			1,569,974	1,615,617	1,569,974	1,615,617
		LTO cycle (arrivals)			79,261	81,566	79,261	81,566
		On stand power (FEGP and APU)			4,924	5,987	4,924	5,987
	Tenants and concessionaires – airside vehicles and MAG-supplied energy	Airside vehicles			4,962	5,223	4,962	5,223
		Gas			20	56	20	56
		Heating oil			-	-	-	-
		Electricity			8,606	10,378	-	-
	Total Gross Scope 3				**2,187,531**	**2,204,132**	**2,178,926**	**2,193,754**
	Avoided emissions	Purchase and retirement of carbon offsets			532	416	532	416
1, 2 & 3	**Total Net Scopes 1, 2 & 3**				**2,198,720**	**2,216,203**	**2,178,926**	**2,193,754**

Table 7. GHG Emission inventory, London Stansted Airport

Scope	Activity	Fuel/emission source	Location-based emissions (tCO_2e)		Market-based emissions (tCO_2e)	
			2019/20	2018/19	2019/20	2018/19
	Intensity benchmark	Total traffic units (TU)	29,406	30,893	29,406	30,893
1 & 2		Scopes 1 & 2 Gross Emissions/TU	0.50	0.50	0.12	0.11
		Scopes 1 & 2 Net Emissions/TU	0.38	0.39	-	-
1, 2 & 3		Scopes 1, 2 & 3 Gross Emissions/TU	74.89	71.84	74.22	71.12
		Scopes 1, 2 & 3 Net Emissions/TU	74.77	71.74	74.10	71.01

Table 8. GHG Emission intensity, London Stansted Airport

Scope	Activity	Fuel/emission source	Energy consumption (kWh)		Location-based emissions (tCO_2e)		Market-based emissions (tCO_2e)	
			2019/20	2018/19	2019/20	2018/19	2019/20	2018/19
1	Fuels combustion	Gas	32,809,259	33,971,292	6,032	6,249	6,032	6,249
		LPG	62,105	265,770	13	57	13	57
		Gas oil	247,826	7,809	64	2	64	2
		Biomass	-	-	-	-	-	-
		Petrol	-	-	-	-	-	-
		Kerosene	-	31,176	-	8	-	8
	Owned transport	Diesel	8,679,591	9,985,048	2,123	2,443	2,123	2,443
		Gas oil	2,287,584	3,013,379	587	774	587	774
		Petrol	-	-	-	-	-	-
		Company cars	592,257	601,499	146	149	146	149
	Total Gross Scope 1		**44,678,622**	**47,875,974**	**8,966**	**9,681**	**8,966**	**9,681**
2	Generation of renewable electricity on site	Wind generated electricity	-	-	-	-	-	-
	Consumption of purchased electricity, heat, steam and cooling	Consumption of purchased electricity	71,984,978	65,786,004	18,399	18,622	-	-
	Total Gross Scope 2		**71,984,978**	**65,786,004**	**18,399**	**18,622**	**-**	**-**
1 & 2	**Total Gross Scopes 1 & 2**		**116,663,600**	**113,661,979**	**27,365**	**28,303**	**8,966**	**9,681**
	Avoided emissions	Purchase and retirement of carbon offsets			8,966	9,681	8,966	9,681
	Total avoided emissions				**8,966**	**9,681**	**8,966**	**9,681**
	Total Net Scope 1 & 2 emissions				**18,399**	**18,622**	**-**	**-**
3	Transport-related activities	MAG staff commuting			4,611	5,435	4,611	5,435
		Other airport staff commuting			45,089	43,691	45,089	43,691
		Business travel - public transport			394	494	394	494
		Business travel – staff vehicles	27,130	52,951	6	15	6	15
	Downstream transport and distribution	Passenger surface access			345,259	294,446	345,259	294,446
	Aircraft	LTO cycle (departures)			173,566	178,428	173,566	178,428
		En-route (departures, excl. MAG airport LTO cycle)			2,680,711	2,755,803	2,680,711	2,755,803
		LTO cycle (arrivals)			81,741	84,031	81,741	84,031
		On stand power (FEGP and APU)			11,236	11,541	11,102	11,352
	Tenants and concessionaires – airside vehicles and MAG-supplied energy	Airside vehicles			16,025	16,366	16,025	16,366
		Gas			4,762	5,323	4,762	5,323
		Heating oil			-	-	-	-
		Electricity			11,039	12,746	-	-
	Total Gross Scope 3				**3,374,438**	**3,408,320**	**3,363,265**	**3,395,385**
	Avoided emissions	Purchase and retirement of carbon offsets			401	509	401	509
1, 2 & 3	**Total Net Scopes 1, 2 & 3**				**3,392,838**	**3,426,942**	**3,363,265**	**3,395,385**

Table 9. GHG Emission inventory, Manchester Airport

Scope	Activity	Fuel/emission source	Location-based emissions (tCO_2e)		Market-based emissions (tCO_2e)	
			2019/20	2018/19	2019/20	2018/19
	Intensity benchmark	Total traffic units (TU)	29,304	29,749	29,304	29,749
1 & 2		Scopes 1 & 2 Gross Emissions/TU	0.93	0.95	0.31	0.33
		Scopes 1 & 2 Net Emissions/TU	0.63	0.63	-	-
1, 2 & 3		Scopes 1, 2 & 3 Gross Emissions/TU	116.09	115.52	115.08	114.46
		Scopes 1, 2 & 3 Net Emissions/TU	115.78	115.19	114.77	114.13

Table 10. GHG Emission intensity, Manchester Airport

Scope	Activity	Fuel/emission source	Energy consumption (kWh)		Location-based emissions (tCO_2e)		Market-based emissions (tCO_2e)	
			2019/20	2018/19	2019/20	2018/19	2019/20	2018/19
1	Fuels combustion	Gas	49,812,069	53,009,417	9,158	9,752	9,158	9,752
		LPG	132,069	336,832	28	72	28	72
		Gas oil	764,330	697,827	196	179	196	179
		Biomass	6,321	7,327	0.10	0.07	0.10	0.07
		Petrol	47	566	0.01	0.13	0.01	0.13
		Kerosene	7,120	53,652	2	13	2	13
	Owned transport	Diesel	11,270,686	12,284,233	2,757	3,005	2,757	3,005
		Gas oil	9,805,005	5,138,714	2,518	1,319	2,518	1,319
		Petrol	138,992	147,419	32	34	32	34
		Company cars	1,286,126	1,249,101	315	306	315	306
	Total Gross Scope 1		**73,222,764**	**72,925,087**	**15,007**	**14,681**	**15,007**	**14,681**
2	Generation of renewable electricity on site	Wind generated electricity	288,184	144,719	74	41	74	41
	Consumption of purchased electricity, heat, steam and cooling	Consumption of purchased electricity	135,175,288	136,696,717	34,551	33,225	-	5
	Total Gross Scope 2		**135,463,472**	**136,841,436**	**34,624**	**33,266**	**74**	**46**
1 & 2	**Total Gross Scopes 1 & 2**		**208,686,236**	**209,766,523**	**49,631**	**47,947**	**15,080**	**14,728**
	Avoided emissions	Purchase and retirement of carbon offsets			15,080	14,728	15,080	14,728
	Total avoided emissions				**15,080**	**14,728**	**15,080**	**14,728**
	Total Net Scope 1 & 2 emissions				**34,551**	**33,219**	**-**	**-**
3	Transport-related activities	MAG staff commuting			10,379	11,231	10,379	8,499
		Other airport staff commuting			95,053	94,558	95,053	72,831
		Business travel - public transport			3,222	1,979	3,222	1,979
		Business travel – staff vehicles	375,760	335,782	90	98	90	98
	Downstream transport and distribution	Passenger surface access			691,799	597,659	691,799	597,659
	Aircraft	LTO cycle (departures)			399,304	411,043	399,304	411,043
		En-route (departures, excl. MAG airport LTO cycle)			4,775,968	4,915,045	4,775,968	4,915,045
		LTO cycle (arrivals)			184,837	190,263	184,837	190,263
		On stand power (FEGP and APU)			19,771	20,704	19,637	20,516
	Tenants and concessionaires – airside vehicles and MAG-supplied energy	Airside vehicles			22,656	23,323	22,656	23,323
		Gas			4,783	5,379	4,783	5,379
		Heating oil			25	47	25	47
		Electricity			22,246	26,177	-	-
	Total Gross Scope 3				**6,230,133**	**6,297,505**	**6,207,753**	**6,246,681**
	Avoided emissions	Purchase and retirement of carbon offsets			3,312	2,076	3,312	2,076
1, 2 & 3	**Total Net Scopes 1, 2 & 3**				**6,264,684**	**6,330,725**	**6,207,753**	**6,246,681**

Table 11. GHG Emission inventory, MAG

Scope	Activity	Fuel/emission source	Location-based emissions (tCO_2e)		Market-based emissions (tCO_2e)	
			2019/20	2018/19	2019/20	2018/19
	Intensity benchmark	Total traffic units (TU)	66,899	69,167	66,899	69,167
1 & 2		Scopes 1 & 2 Gross Emissions/TU	0.74	0.69	0.23	0.21
		Scopes 1 & 2 Net Emissions/TU	0.52	0.48	-	-
1, 2 & 3		Scopes 1, 2 & 3 Gross Emissions/TU	93.87	91.74	93.02	90.53
		Scopes 1, 2 & 3 Net Emissions/TU	93.64	91.53	92.79	90.31

Table 12. GHG Emission intensity, MAG

APPENDIX 1 – VERIFICATION STATEMENTS

East Midlands Airport, Manchester Airports Group plc

673,546 tCO_2e (location based)
665,991 tCO_2e (market based)

Verification Summary

Carbon Trust Certification Limited ('The Company') has verified that East Midlands Airport, Manchester Airports Group plc ('You') have reported the above footprint in accordance with the measurement requirements of the Carbon Trust Standard and in accordance with the principles of the WRI/WBCSD GHG Protocol.

Verified Footprint Period

Your footprint has been verified for the period of 1st April 2019 – 31st March 2020.

Boundary

Your footprint and certification correspond to the following boundary:

Organisational Boundary

East Midlands Airport

Operational Boundary

This footprint applies to East Midlands Airport i.e. the airport company at East Midlands Airport. It applies to all of the Manchester Airports Group activities at the East Midlands Airport location. This excludes other MAG airports.

Morgan Jones
Associate Director – Assurance
Carbon Trust Assurance Limited

Carbon Trust Assurance Limited
Registered in England and Wales Number 06547658.
4th Floor, Dorset House, 27-45 Stamford Street, London SE1 9NT, United Kingdom

East Midlands Airport - Total Emissions 2019-20	Units Used	Measure	Location Based CO2e (tonnes)	Market Based CO2e (tonnes)
Scope 1				
Fuels combustion				
Boilers & AHUs (gas)	2,071,240	kWh	381	381
Boilers, AHUs & Fire Training (LPG)	37,485	kWh	8	8
Boilers, vehicles, fire training and generators (gas oil)	252,542	kWh	65	65
Fire training (biomass wood)	6,184	kWh	0	0
Fire training (biomass)	136	kWh	0	0
Fire training (gas oil)	0	kWh	0	0
Fire training (petrol)	47	kWh	0	0
Power back-up (oil)	259,127	kWh	67	67
Fire training (kerosene)	7,120	kWh	2	2
Owned transport				
Vehicles (Diesel)	232,840	kWh	57	57
Vehicles (Gas Oil)	6,673,671	kWh	1,714	1,714
Vehicles (Petrol)	91,983	kWh	21	21
Vehicles (Company Cars)	252,724	kWh	65	65
Total	**9,885,100**	**kWh**	**2,670**	**2,670**
F-Gas (all types) (Excluded from ACA)	>>>>	kg	291	291
Scope 2				
Consumption of purchased electricity, heat, steam and cooling				
Consumption of purchased electricity	19,378,388	kWh	4,953	0
Generation of renewable electricity on site				
Wind generated electricity	288,184	kWh	74	74
Total Scopes 1 & 2	**19,666,572**	**kWh**	**7,697**	**2,743**
Scope 3				
Commuting	>>>>	CO2e (t)	956	956
Non-MAG staff commuting	>>>>	CO2e (t)	13,258	13,258
Business travel - public transport	>>>>	CO2e (t)	50	50
Business travel - grey fleet	>>>>	CO2e (t)	14	14
Sold Goods and Services				
Passenger surface access	>>>>	CO2e (t)	40,849	40,849
Tenants & concessionaires				
Fuel combustion - Boilers & catering (gas)	0	kWh	0	0
Owned transport - Third party vehicles	>>>>	CO2e (t)	1,669	1,669
Consumption of heating oil	9,000	litres	25	25
Consumption of purchased electricity	10,176,755	kWh	2,601	0
Aircraft				
Landing and take-off cycle (LTO)	>>>>	CO2e (t)	77,530	77,530
On stand (FEGP)	0	kWh	0	0
On stand (APU)	>>>>	CO2e (t)	3,611	3,611
Aircraft en-route	>>>>	CO2e (t)	525,284	525,284
Total Scope 3			**665,849**	**663,248**
Total Scopes 1, 2 & 3			**673,546**	**665,991**

CARBON TRUST STANDARD

CARBON MEASURED 2020

London Stansted Airport, Manchester Airports Group plc

2,202,820 tCO_2e (location based)
2,183,026 tCO_2e (market based)

Verification Summary

Carbon Trust Certification Limited ('The Company') has verified that London Stansted Airport, Manchester Airports Group plc ('You') have reported the above footprint in accordance with the measurement requirements of the Carbon Trust Standard and in accordance with the principles of the WRI/WBCSD GHG Protocol.

Verified Footprint Period

Your footprint has been verified for the period of 1st April 2019 – 31st March 2020.

Boundary

Your footprint and certification correspond to the following boundary:

Organisational Boundary

London Stansted Airport

Operational Boundary

This footprint applies to London Stansted Airport i.e. the airport company at London Stansted Airport. It applies to all of the Manchester Airports Group activities at the London Stansted Airport location. This excludes other MAG airports.

Morgan Jones
Associate Director – Assurance
Carbon Trust Assurance Limited

Carbon Trust Assurance Limited
Registered in England and Wales Number 06547658.
4th Floor, Dorset House, 27-45 Stamford Street, London SE1 9NT, United Kingdom

London Stansted Airport - Total Emissions 2019-20	Units Used	Measure	Location Based CO2e (tonnes)	Market Based CO2e (tonnes)
Scope 1				
Fuels combustion				
Boilers & AHUs (gas)	14,904,391	kWh	2,740	2,740
Boilers, AHUs & Fire Training (LPG)	32,480	kWh	7	7
Boilers, vehicles, fire training and generators (gas oil)	0	kWh	0	0
Fire training (biomass wood)	0	kWh	0	0
Fire training (biomass)	0	kWh	0	0
Fire training (gas oil)	0	kWh	0	0
Fire training (petrol)	0	kWh	0	0
Power back-up (oil)	4,834	kWh	1	1
Fire training (kerosene)	0	kWh	0	0
Owned transport				
Vehicles (Diesel)	2,358,255	kWh	577	577
Vehicles (Gas Oil)	843,750	kWh	217	217
Vehicles (Petrol)	47,009	kWh	11	11
Vehicles (Company Cars)	383,163	kWh	95	95
Total	**18,573,881**	**kWh**	**4,100**	**4,100**
F-Gas (all types) (Excluded from ACA)	>>>>	kg	452	452
Scope 2				
Consumption of purchased electricity, heat, steam and cooling				
Consumption of purchased electricity	43, 775,814	kWh	11,189	0
Generation of renewable electricity on site				
Wind generated electricity	0	kWh	0	0
Total Scopes 1 & 2	**43,775,814**	**kWh**	**15,289**	**4,100**
Scope 3				
Commuting	>>>>	CO2e (t)	4,812	4,812
Business travel - public transport	>>>>	CO2e (t)	516	516
Non- MAG staff commuting	>>>>	CO2e (t)	36,707	36,707
Business travel - grey fleet	>>>>	CO2e (t)	16	16
Sold Goods and Services				
Passenger surface access	>>>>	CO2e (t)	305,691	305,691
Tenants & concessionaires				
Fuel combustion - Boilers & catering (gas)	111,464	kWh	20	20
Owned transport - Third party vehicles	>>>>	CO2e (t)	4,962	4,962
Consumption of heating oil	0	kWh	0	0
Consumption of purchased electricity	33,668,283	kWh	8,606	0
Aircraft				
Landing and take-off cycle (LTO)	>>>>	CO2e (t)	251,303	251,303
On stand (FEGP)	0	kWh	0	0
On stand (APU)	>>>>	CO2e (t)	4,924	4,924
Aircraft en-route	>>>>	CO2e (t)	1,569,974	1,569,974
Total Scope 3			**2,187,531**	**2,178,926**
Total Scopes 1, 2 & 3			**2,202,820**	**2,183,026**

CARBON TRUST STANDARD

CARBON MEASURED 2020

Manchester Airport, Manchester Airports Group plc

3,402,308 tCO_2e (location based)
3,372,736 tCO_2e (market based)

Verification Summary

Carbon Trust Certification Limited ('The Company') has verified that Manchester Airport, Manchester Airports Group plc ('You') have reported the above footprint in accordance with the measurement requirements of the Carbon Trust Standard and in accordance with the principles of the WRI/WBCSD GHG Protocol.

Verified Footprint Period

Your footprint has been verified for the period of 1st April 2019 – 31st March 2020.

Boundary

Your footprint and certification correspond to the following boundary:

Organisational Boundary

Manchester Airport

Operational Boundary

This footprint applies to Manchester Airport i.e. the airport company at Manchester Airport. It applies to all of the Manchester Airports Group activities at the Manchester Airport location. This excludes other MAG airports.

Morgan Jones
Associate Director – Assurance
Carbon Trust Assurance Limited

Carbon Trust Assurance Limited
Registered in England and Wales Number 06547658.
4th Floor, Dorset House, 27-45 Stamford Street, London SE1 9NT, United Kingdom

Manchester Airport - Total Emissions 2019-20	Units Used	Measure	Location Based CO2e (tonnes)	Market Based CO2e (tonnes)
Scope 1				
Fuels combustion				
Boilers & AHUs (gas)	32,809,259	kWh	6,032	6,032
Boilers, AHUs & Fire Training (LPG)	62,105	kWh	13	13
Boilers, vehicles, fire training and generators (gas oil)	0	kWh	0	0
Fire training (biomass wood)	0	kWh	0	0
Fire training (biomass)	0	kWh	0	0
Fire training (gas oil)	0	kWh	0	0
Fire training (petrol)	0	kWh	0	0
Power back-up (oil)	247,826	kWh	64	64
Fire training (kerosene)	0	kWh	0	0
Owned transport				
Vehicles (Diesel)	8,679,591	kWh	2,123	2,123
Vehicles (Gas Oil)	2,287,584	kWh	587	587
Vehicles (Petrol)	0	kWh	0	0
Vehicles (Company Cars)	592,257	kWh	146	146
Total	**44,678,622**	**kWh**	**9,471**	**9,471**
F-Gas (all types) (Excluded from ACA)	345	kg	505	505
Scope 2				
Consumption of purchased electricity, heat, steam and cooling				
Consumption of purchased electricity	71,984,798	kWh	18,399	0
Generation of renewable electricity on site				
Wind generated electricity	0	kWh	0	0
Total Scopes 1 & 2	**71,984,978**	**kWh**	**27,870**	**9,471**
Scope 3				
Commuting	>>>>	CO2e (t)	4,611	4,611
Non MAG staff commuting	>>>>	CO2e (t)	45,089	45,089
Business travel - public transport	>>>>	CO2e (t)	394	394
Business travel - grey fleet	>>>>	CO2e (t)	6	6
Sold Goods and Services				
Passenger surface access	>>>>	CO2e (t)	345,259	345,259
Tenants & concessionaires				
Fuel combustion - Boilers & catering (gas)	25,901,972	kWh	4,762	4,762
Owned transport - Third party vehicles	>>>>	CO2e (t)	16,025	16,025
Consumption of heating oil	0	kWh	0	0
Consumption of purchased electricity	43,189,213	kWh	11,039	0
Aircraft				
Landing and take-off cycle (LTO)	>>>>	CO2e (t)	255,307	255,307
On stand (FEGP)	524,856	kWh	134	0
On stand (APU)	>>>>	CO2e (t)	11,102	11,102
Aircraft en-route	>>>>	CO2e (t)	2,680,711	2,680,711
Total Scope 3			**3,374,438**	**3,363,265**
Total Scopes 1, 2 & 3			3,402,308	3,372,736

Manchester Airports Group plc

6,281,013 tCO_2e (location based)
6,224,082 tCO_2e (market based)

Verification Summary
Carbon Trust Certification Limited ('The Company') has verified that Manchester Airports Group plc ('You') have reported the above footprint in accordance with the measurement requirements of the Carbon Trust Standard and in accordance with the principles of the WRI/WBCSD GHG Protocol.

Verified Footprint Period
Your footprint has been verified for the period of 1st April 2019 – 31st March 2020.

Boundary
Your footprint and certification correspond to the following boundary:

Organisational Boundary
All UK operations including all subsidiaries.

Operational Boundary
This footprint applies to all of the Manchester Airports Group activities at Manchester Airport, East Midlands Airport, London Stansted Airport's location and other group facilities.

Morgan Jones
Associate Director – Assurance
Carbon Trust Assurance Limited

Carbon Trust Assurance Limited
Registered in England and Wales Number 06547658.
4th Floor, Dorset House, 27-45 Stamford Street, London SE1 9NT, United Kingdom

Manchester Airports Group - Total Emissions 2019-20	Units Used	Measure	Location Based CO2e (tonnes)	Market Based CO2e (tonnes)
Scope 1				
Fuels combustion				
Boilers & AHUs (gas)	49,812,069	kWh	9,158	9,158
Boilers, AHUs & Fire Training (LPG)	132,069	kWh	28	28
Boilers, vehicles, fire training and generators (gas oil)	252,542	kWh	65	65
Fire training (biomass wood)	6,184	kWh	0	0
Fire training (biomass)	136	kWh	0	0
Fire training (gas oil)	0	kWh	0	0
Fire training (petrol)	47	kWh	0	0
Power back-up (oil)	511,788	kWh	131	131
Fire training (kerosene)	7,120	kWh	2	2
Owned transport				
Vehicles (Diesel)	11,270,686	kWh	2,757	2,757
Vehicles (Gas Oil)	9,805,005	kWh	2,518	2,518
Vehicles (Petrol)	138,992	kWh	32	32
Vehicles (Company Cars)	1,286,126	kWh	315	315
Total	**73,222,764**	**kWh**	**16,256**	**16,256**
F-Gas (all types) (Excluded from ACA)	773	kg	1,249	1,249
Scope 2				
Consumption of purchased electricity, heat, steam and cooling				
Consumption of purchased electricity	135,175,288	kWh	34,551	0
Generation of renewable electricity on site				
Wind generated electricity	288,184	kWh	74	74
Total Scopes 1 & 2	**208,686,165**	**kWh**	**50,880**	**16,329**
Scope 3				
Commuting	>>>>	CO2e (t)	10,379	10,379
Non MAG staff commuting	>>>>	CO2e (t)	95,053	95,053
Business travel - public transport	>>>>	CO2e (t)	3,222	3,222
Business travel - grey fleet	>>>>	CO2e (t)	90	90
Sold Goods and Services				
Passenger surface access	>>>>	CO2e (t)	691,799	691,799
Tenants & concessionaires				
Fuel combustion - Boilers & catering (gas)	26,013,436	kWh	4,783	4,783
Owned transport - Third party vehicles	>>>>	CO2e (t)	22,656	22,656
Consumption of heating oil	9,000	litres	25	25
Consumption of purchased electricity	87,034,250	kWh	22,246	-
Aircraft				
Landing and take-off cycle (LTO)	>>>>	CO2e (t)	584,141	584,141
On stand (FEGP)	524,856	kWh	134	0
On stand (APU)	>>>>	CO2e (t)	19,637	19,637
Aircraft en-route	>>>>	CO2e (t)	4,775,968	4,775,968
Total Scope 3			**6,230,133**	**6,207,753**
Total Scopes 1, 2 & 3			**6,281,013**	**6,224,082**