QATAR AIRWAYS القطرية

Office of the Group Chief Executive

مكتب الرئيس التنفيذي للمجموعة

GCEO/LAX/096/18E
17 May 2018

Mr. Denny Schneider
Chairman
LAX/Community Noise Roundtable
c/o Los Angeles World Airports
PO Box 92216
Los Angeles, CA 90009-2216

After greetings,

Sub: <u>Qatar Airways' use of Required Navigation Procedures (RNP)</u>

Thank you for your letter of April 16, 2018 concerning your organization's effort to encourage carriers to develop Required Navigation Procedures (RNP) capabilities, in the hope that these procedures may be deployed at the Los Angeles International Airport (LAX) as soon as the FAA deploys the tools required to do so.

Let me start by noting that Qatar Airways operates only a single daily flight from Doha to Los Angeles. Setting aside the fact that our noise impact at LAX is de minimis, I am proud to say that Qatar Airways has amongst the youngest fleets in the industry, with an average aircraft age of 5.9 years. Our fleet is perhaps the most technologically advanced (and quietest) in the industry.

Qatar Airways also is an industry leader in supporting sustainability in the aviation sector. We have embraced the use of technology and adopted best practices throughout our entire network to enhance our operational and environmental performance. I am attaching for your information our Sustainability Report: 2016 – 2017, concerning our ongoing (and ambitious) sustainability initiatives.

For your information, we have been using RNP at certain key airports for several years. While I am unable to comment on the progress of the FAA in adopting this technology and implementing it at Los Angeles, I note that my carrier has traditionally been well ahead of the curve in leveraging technological advances to improve operational safety and efficiency, and will monitor future developments at LAX with interest.

Best regards,

Yours sincerely,

Akbar Al Baker
Group Chief Executive

Encl.: Qatar Airways Group Sustainability Report: 2016 – 2017.

oneworld

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الخطوط الجوية القطرية (ش. ق. م. م.)

QATAR AIRWAYS GROUP

— SUSTAINABILITY REPORT —

2016 - 2017

Reporting scope

This Qatar Airways Group Sustainability Report covers the period 01 April 2016 – 31 March 2017. Data is provided for certain environmental issues from previous reporting years to illustrate trends.

The scope of this report includes Qatar Airways and Qatar Airways Cargo, Hamad International Airport, Qatar Aviation Services, Qatar Aircraft Catering Company, Qatar Duty Free, Qatar Executive, Qatar Distribution Company, and Dhiafatina Hotels.

Reporting includes activities undertaken in the State of Qatar, as well as flights to and from international destinations, international hotels and Qatar Airways facilities and ground transport operations across the UK.

The scope of this report does not include other Qatar Airways Group subsidiaries or joint ventures, Doha International Airport, or facilities and ground transport operations outside of the State of Qatar or the UK.

Contents

Qatar Airways Airbus A380

1. Our environmental commitments

At Qatar Airways Group, we believe in our responsibility to care for the environment.

Our ambition is to demonstrate environmental leadership through our global airline and airport operations, aviation and catering services, retail outlets and hotels.

We aim to:

- Achieve lower and more efficient greenhouse gas emissions to help tackle climate change
- Reduce, reuse and recycle waste, manage noise and control emissions to air and water to reduce our impact on the local environment wherever we operate
- Support conservation and consume energy, water and materials efficiently to help protect natural resources

We will openly communicate our environmental performance to develop the trust on which long-term environmental leadership is built.

We are proud to contribute towards the Qatar National Vision to "transform Qatar into an advanced society capable of achieving sustainable development" by 2030. The Qatar National Vision's development goals are divided into four central pillars: economic, social, human and environmental development.

Our environmental policy is set within the context of the Qatar National Vision's pillar for environmental development to balance:

- Economic growth
- Social development
- Environmental protection

1.1 Introduction from Qatar Airways Group Chief Executive

It is with great pride that we celebrate Qatar Airways Group's 20th anniversary this year. Looking back over the last two decades, we have transformed our business from that of an emerging regional airline into a diverse group that combines a world-leading airline, the world's third largest international cargo carrier, a successful duty free retail organisation, a private jet division, a hotel group, and the operation of one of the most advanced airports in the world.

As we continue to build our global network, adding 10 destinations in 2016-2017, the operations of Qatar Airways Group have grown significantly over the last year. Our fleet now comprises 196 passenger and cargo aircraft with a further 11 luxury private jets. Our employee numbers have increased by 13 percent, to 44,452 people of 168 different nationalities.

Qatar Airways Group is committed to environmentally sustainable growth and it is a pleasure to inform you of our annual performance against the environmental objectives that we set ourselves in 2015, as well as to report our successes in key areas of our environmental agenda.

Notably, we have continued to improve how efficiently we use aviation fuel, making our airline operations 2.5 percent more carbon efficient than last year, building on the 1.3 percent efficiency achieved during the previous 12 months.

During the same period, Hamad International Airport achieved an 11.9 percent improvement in carbon efficiency compared to the previous year, and it became the first airport in the Gulf Cooperation Council to achieve Level 3 of the Airports Council International's Airport Carbon Accreditation. We also set a target to improve Hamad International Airport's carbon efficiency per passenger by 30 percent by 2030.

Qatar Airways continues its dedication to the global fight against the illegal trade in endangered wildlife, and this year we developed plans to improve detection within our cargo and passenger network. We continue to collaborate with our peers, international bodies and regulatory authorities to tackle this important issue at the industry level.

As our environmental management system evolves and becomes part of what we do as individuals, in teams, and as a company, we are embedding continual improvements across our environmental objectives.

It is with pride in Qatar Airways Group's achievements that I present this report, and provide the assurance that we will continue to dedicate the necessary leadership, vision and resources, locally and internationally, to advance our environmental objectives. I look forward to leading the sustainable development of Qatar Airways Group into the future.

H.E. Mr. Akbar Al Baker
Qatar Airways Group Chief Executive

Qatar Airways Airbus A350

1.2 About Qatar Airways Group

Qatar Airways Group provides a seamless air travel service, delivered by more than 44,000 employees within a range of world-class, international businesses.

Qatar Airways Group divisions included within this report

Qatar Airways

Qatar Airways, the commercial airline operation within the Group, and the national carrier for the State of Qatar.

Qatar Airways Cargo

Qatar Airways Cargo is the world's third largest air cargo operator.[1]

Hamad International Airport

Hamad International Airport is owned by the State of Qatar and is managed by Qatar Airways.

Qatar Aircraft Catering Company

Qatar Aircraft Catering Company provides the catering services for all aircraft and lounges at Hamad International Airport.

1 Measured in Freight Tonne Kilometres (FTK)

Qatar Aviation Services

Qatar Aviation Services provides ground handling services for all commercial, private and cargo operators at Hamad International Airport and Doha International Airport.

Qatar Duty Free

Qatar Duty Free operates a holistic vision that encompasses luxury retail, travel essentials, and food and beverage to create a unique seamless experience for passengers at Hamad International Airport.

Qatar Executive

Qatar Executive is Qatar Airways Group's corporate jet subsidiary based at Hamad International Airport, offering luxury jet services for worldwide charter on board the operator's wholly-owned business fleet.

Dhiafatina Hotels

Dhiafatina is Qatar Airways Group's hotel and spa management arm responsible for operating our four world-class hotels: Novotel Edinburgh Park, Sheraton Skyline London Heathrow, Oryx Rotana Doha, and the Airport Hotel at Hamad International Airport. Dhiafatina also operates the Vitality Spa at Hamad International Airport.

Qatar Distribution Company

Qatar Distribution Company is the sole distributor of licenced retail products in Qatar.

About Qatar Airways

Qatar Airways flies to more than 150 worldwide destinations with 14 new destinations planned in the coming year. During 2016-2017, the passenger fleet grew to 175 aircraft compared to 164 in 2015-2016, and Qatar Airways operated over 188,000 passenger flights; a 14 percent increase from the previous year.

Qatar Airways Cargo added four Boeing 777 freighters to its dedicated cargo fleet in 2016-17. By the end of the year, the 21 strong cargo fleet[2] had made 20,414 flights and, supported by the passenger fleet, had transported 1.15 million tonnes of cargo, maintaining its position as the world's third largest air-cargo operator[3].

Qatar Airways Cargo flies daily shipments of fresh goods, including meat, dairy and garden produce, contributing towards the essential supply of quality provisions to the State of Qatar.

By 31 March 2017, Qatar Airways employed over 30,000 people in Doha and at our worldwide destinations.

Qatar Airways has four major office locations in Doha: Qatar Airways Towers; the Learning and Development Centre; the Integrated Training Centre; and the Cargo Technical Building, as well as the Qatar Airways Operational Control building and dedicated office space at Hamad International Airport.

32 million passengers

196 passenger and cargo aircraft

Over **150** worldwide destinations

188,140 passenger flights

1.15 million tonnes of cargo

2 Inclusive of one wet-leased Boeing 747 Freighter

3 Measured in Freight Tonne Kilometres (FTK)

About Hamad International Airport

Hamad International Airport offers a world-class experience redefining what passengers expect from an airport. It is one of the world's most technologically advanced airports with expansive retail options, leading dining facilities, exclusive lounges, and a hotel and wellness centre including a gym, squash court, swimming pool and spa.

At 600,000 square metres, the airport terminal is the largest building in Doha.[4] During 2016-17, the airport served more than 38 million passengers, managed 250,419 aircraft movements and handled 1.8 million tonnes of cargo.

Hamad International Airport employed 1,339 staff as of 31 March 2017.

38.2 million passengers

1.8 million tonnes of cargo

250,419 aircraft movements

4 dohahamadairport.com/about-us/our-airport

About our other businesses[5]

Qatar Airways Group's other businesses ensure that Qatar Airways and Hamad International Airport provide a seamless, world-class service to customers, both in the air and on the ground.

Qatar Aviation Services

37 airlines
Served

30.1 million
Items of baggage

130 Passenger buses

57 Crew transport vehicles

30 Limousines

Qatar Aircraft Catering Company

120,000
Meals prepared per day

69,000 m²
Catering facility

46 Loading bays

22 Off-loading bays

471 Specialist chefs

Qatar Duty Free

40,000 m²
Retail space

30+ Restaurants and cafés

70+ Retail stores

Qatar Executive

11 Luxury jets

1,793 Flights

Qatar Distribution Company

53,500 Customers

95 Employees

Dhiafatina Hotels

4 Luxury Hotels

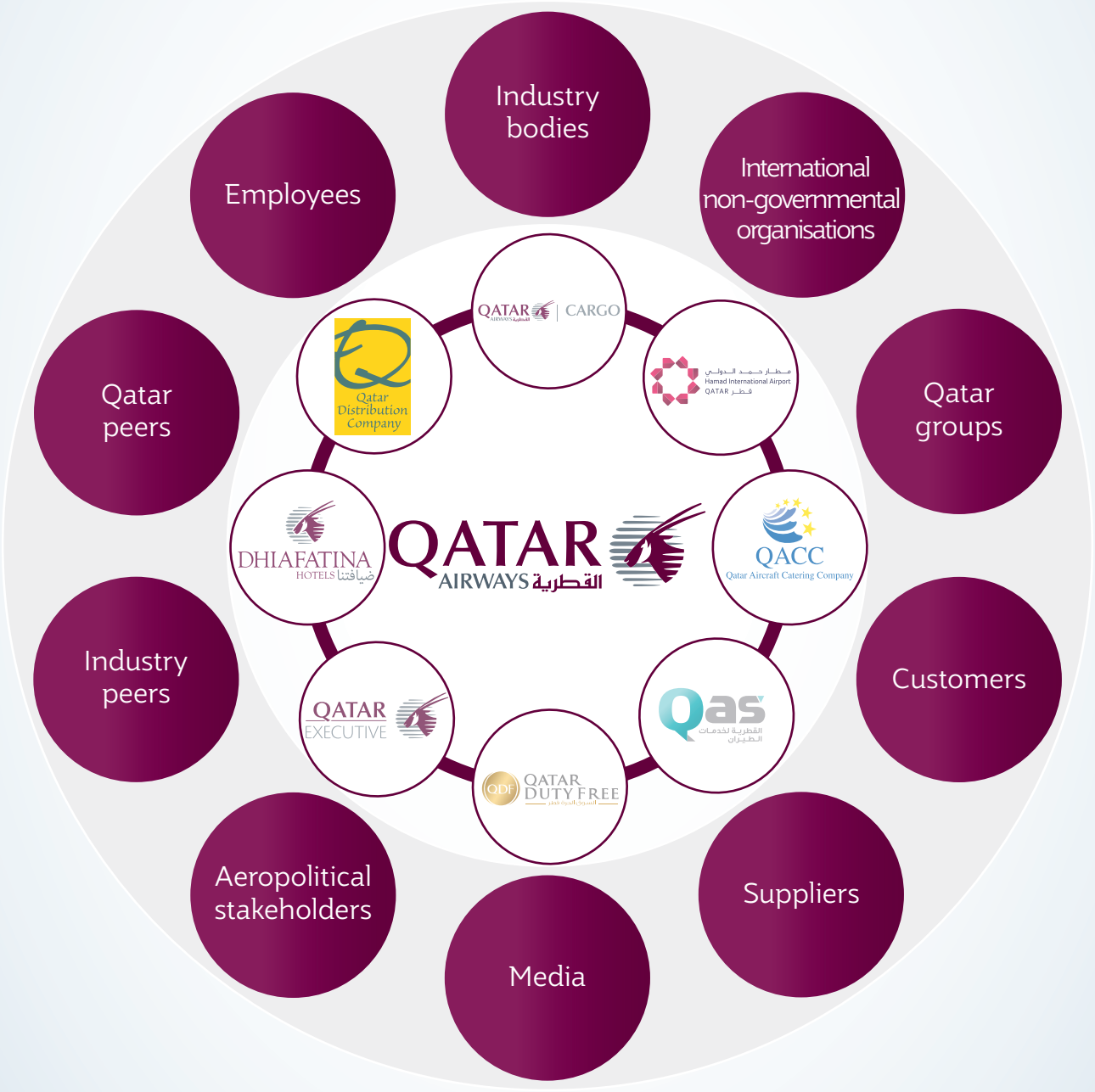
389,446 Room Bookings

5 31 March 2016

1.3 Stakeholder engagement

Maintaining a constructive, open dialogue helps us understand the environmental expectations of our stakeholders and guides the selection and measurement of our priorities when investing in environmental improvement initiatives.

Our Environmental Stakeholder Engagement Plan underpins how we communicate with different groups, depending on the nature and level of their interest in our environmental performance.



Partnerships: Industry collaboration on sustainable air travel

Qatar Airways is an active participant within the airline industry's most influential environmental bodies.

International Air Transport Association - Environment Committee

IATA's Environment Committee (*ENCOM*) is a policy group of appointed member airlines focusing on key environmental issues facing the airline industry, including climate change, transportation of wildlife, cabin waste and alternative fuels.

Qatar Airways has been a member of *ENCOM* since 2009.

International Air Transport Association - Environmental Assessment Programme

IATA's Environmental Assessment *(IEnvA)* programme is a voluntary scheme to independently assess and accredit airline environmental management systems.

Qatar Airways started its journey with *IEnvA* in December 2015 and intends to progress to the highest level (Stage 2) during 2017.

Airports Council International – Airport Carbon Accreditation

ACI's Airport Carbon Accreditation programme awards airports at four levels for the management of greenhouse gas emissions: *Mapping*, *Reduction*, *Optimisation*, and *Neutrality*.

Hamad International Airport reached Level 3 *Optimisation* in April 2017, only 18 months after initiating its carbon management programme, and including emissions from its first day of operations in April 2014.

United for Wildlife

Created by The Royal Foundation of The Duke and Duchess of Cambridge and Prince Harry, United for Wildlife brings together wildlife charities, government agencies and private companies to fight the illegal trade and trafficking of wildlife.

Arab Air Carriers' Organization - Environmental Policy Group

AACO is the regional association of Arab airlines. Its Environmental Policy Group contributes to the development of regional and global aviation environmental policy.

Sustainable Aviation Fuel Users Group

The Sustainable Aviation Fuel Users Group engages with airlines with the common purpose to accelerate the development and commercialisation of sustainable aviation biofuels.

KAHRAMAA Awareness Park

Tarsheed

Qatar Airways and Hamad International Airport partner with Tarsheed, Qatar's National Programme for Conservation and Energy Efficiency.

Led by KAHRAMAA, Qatar's General Electricity and Water Corporation, Tarsheed's mission is to empower Qatar's residents through the provision of information, awareness, encouragement and practical lifestyle suggestions to reduce the consumption of water and electricity.

Both Qatar Airways and Hamad International Airport are partnering with Tarsheed to meet shared objectives for energy and water conservation.

As the national carrier and airport operator, Qatar Airways and Hamad International Airport are well positioned to increase awareness of Tarsheed's principles to employees and to customers travelling through the airport. A number of joint communication initiatives will be implemented in the coming year.

Tarsheed has planned energy audits at Qatar Airways' offices and Hamad International Airport's passenger terminal. The audits are expected to contribute practical recommendations for efficiency improvements that can be adopted for implementation by facilities management teams.

Also in the planning stages, Tarsheed will deliver training to Qatar Airways and Hamad International Airport employees on water and electricity conservation at the newly opened state-of-the-art KAHRAMAA Awareness Park.

Internal communications

Qatar Airways Group employs over 44,000 staff across the globe. An effective way of communicating with this wide-spread workforce is through our internal social media. Over the last year we have used an intranet campaign as a tool to communicate key environmental issues, including:

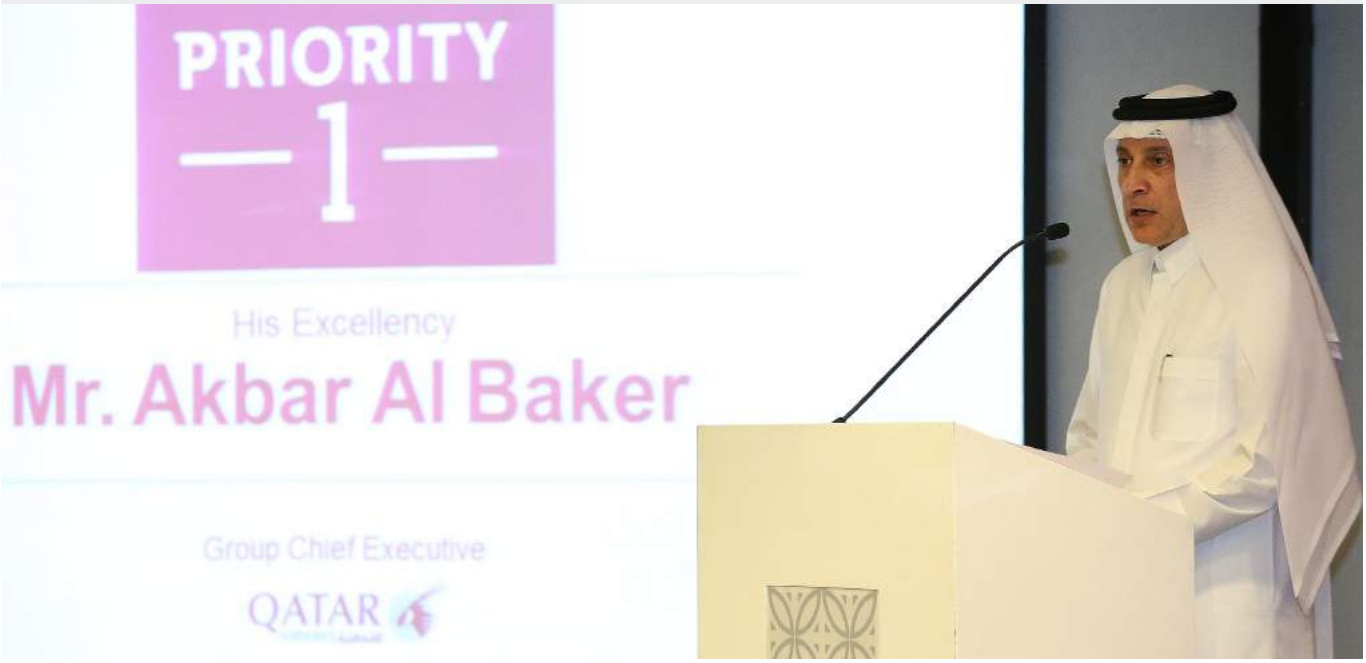
The launch of environmental initiatives around the Group

The publication of environmental standards and procedures

The announcement of events and achievements

Earth Hour

Qatar Airways marked Earth Hour on 25 March 2017 with an internal awareness campaign and by switching off the lights in its offices in Doha. The switch-off was filmed and shared on social media - #EarthHour.



Qatar Airways Group Priority 1 Conference, October 2016

Qatar Airways Group – Priority 1 Conference

Qatar Airways Group held its first annual conference on safety, security and environment for its staff in Doha in October 2016.

Opened by His Excellency, Mr. Akbar Al Baker, Qatar Airways Group Chief Executive, the conference provided Group-wide awareness of best practice, information exchange and enhanced collaboration throughout the organisation.

The conference included an interactive workshop on environmental sustainability hosted by key business partners from around the Group to highlight best practice in four areas of environmental management, including:

- Cabin waste management, supported by Qatar Airways Catering Services and Qatar Aircraft Catering Company
- Airport energy management, supported by Hamad International Airport Facilities Management
- Aviation fuel efficiency, supported by Qatar Airways Flight Operations
- Illegal wildlife transportation, supported by Qatar Airways Cargo

The Priority 1 Conference was attended by over 600 executive leaders, managers and supervisory staff from across Qatar Airways Group.

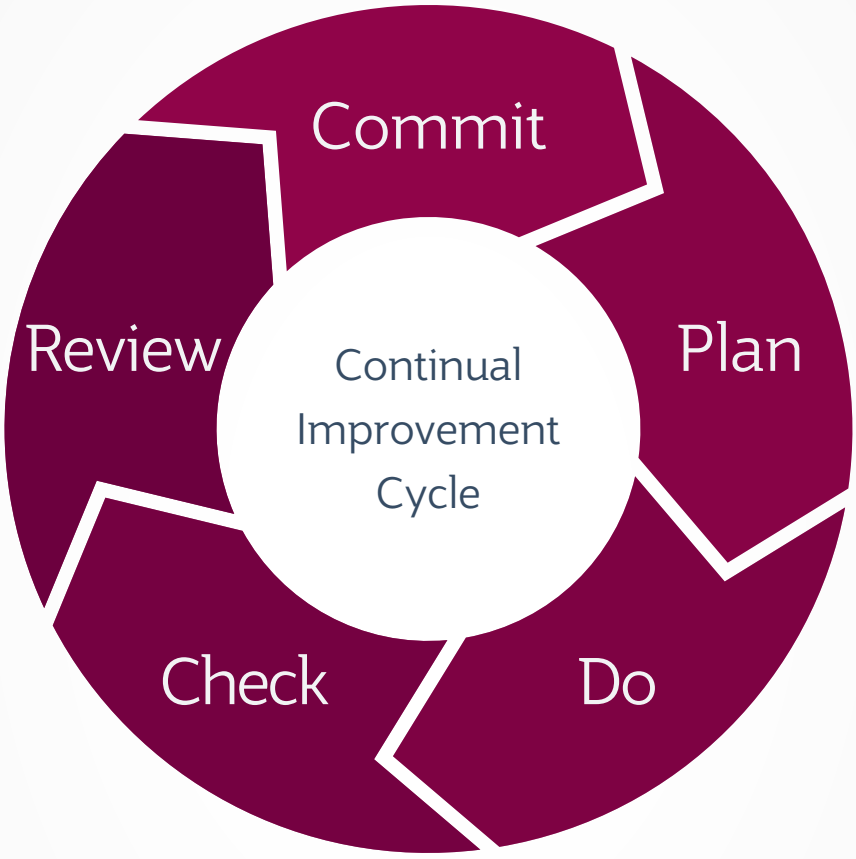
Qatar Airways Boeing 777

1.4 Environmental management

A robust Environmental Management System provides the foundation for delivering continual improvement in environmental performance across the Qatar Airways Group. Key activities include:

- Embedding our Environmental Policy, Standards and Procedures across the business and seeking accreditation to recognised independent certification schemes
- Setting environmental competencies and providing training for all employees
- Committed, visible environmental leadership and effective governance to drive and maintain progress towards our environmental objectives

Our Environmental Management System is based on the principles of the Continual Improvement Cycle



Continual Improvement Cycle

IEnvA

In December 2015, Qatar Airways launched a programme to attain the highest level of certification to the International Air Transport Association's Environmental Assessment programme (*IEnvA*, see page 16). Our aim is to achieve full certification to *IEnvA* Stage 2 by December 2017.

Work continues to embed our Environmental Management System across the Group to improve how we manage all aspects of our operations, including flight operations, catering and cabin services, ground operations and corporate activities.

Our employees are key to improving environmental performance

Qatar Airways Group firmly believes in the importance of equipping employees to deal with the daily environmental challenges faced by the organisation.

During 2016, we launched a leading-edge environmental competency matrix for all employees. Developed in partnership with the Institute of Environmental Management & Assessment (*IEMA*), environmental competencies for individual roles are tailored to specific requirements according to incremental levels of responsibility.

IEMA is the largest environmental professional membership organisation in the world, providing the confidence that the environmental competencies included in the job description of every Qatar Airways Group employee meet the highest international standards.

We believe everyone in the organisation has a role to play. To help our employees engage in environmental management and meet the competency levels required for their role, new environmental training packages, including interactive and engaging e-learning modules, will become mandatory for all staff in the coming year. This is paramount to our business resilience as we prepare for future growth.

Our approach to developing a culture of environmental responsibility

Our workforce is empowered to deliver our ambitions for sustainable business by meeting five **Environmental Competencies**:

1. Environmental & Sustainability Principles
2. Environmental Regulation & Policy
3. Environmental Management Systems
4. Resilience, Risk & Continual Improvement
5. Delivering Sustainable Solutions

Environmental Accountabilities

The **Job Description** of every employee sets out clear **Environmental Accountabilities** linked to their role:

Frontline Staff	Supervisors & Managers	Senior Leaders
Understand	Apply	Lead

Training and Development

Training and Development plans based on the 70:20:10 principle include environmental aspects to enhance knowledge and skills through:

70%	20%	10%
Experience on the job	Exposure & awareness	Structured education

Sustainable Outcomes

Our workforce is increasingly well-equipped to deliver sustainable business outcomes and respond to new environmental challenges across all of our business activities.

- Legal Compliance
- Cost Efficiency
- Enhanced Reputation

Environmental leadership

Our business leaders and management teams are united in their commitment to deliver Qatar Airways Group's environmental objectives by:

- Considering environmental issues during business planning
- Embedding environmental management within our operational procedures
- Integrating environmental requirements within our procurement decisions
- Incorporating environmental expectations within personal responsibilities and training

To enhance the engagement of our senior leaders in driving our environmental objectives, each was gifted a unique hand-made "eco-tree" desk-tidy made out of rice-straw, a sustainable material made from the waste from rice production.

Included with the eco-tree was a copy of our environmental policy and objectives. In return, we asked our leaders for a short statement to outline their personal commitments to our environmental objectives.

Eco-tree desk tidy: Self-assembly experience

Items presented inside the drawer

Each item, individually crafted by hand

Self-assembled and ready for use

Our senior leader's environmental commitments

"Create awareness and a sense of responsibility for the company's environmental objectives."

Acting Chief Commercial Officer

"Reduce waste and promote efficiency in our offices across the world."

Vice President
Financial Accounting

"To promote environmental issues in our training products."

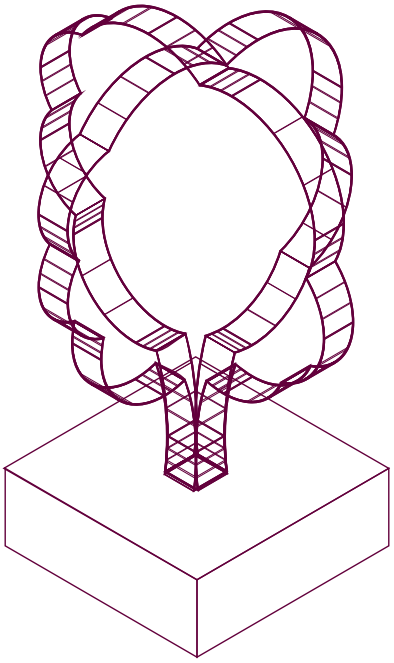
Vice President Talent Development

"Adopt international best practices to reduce the impact of aircraft operation and maintenance."

Vice President
Quality Assurance and
Management Training

"Effectively communicate progress towards our objectives to staff, partners and external stakeholders."

Vice President Commercial,
Hamad International Airport



"To achieve legal compliance at the highest level."

Chief Legal and Compliance Officer

"Focus on reducing waste and weight on board."

Vice President Catering Services

"Care for animal welfare and combat the illegal transportation of endangered species."

Chief Officer Cargo

"Lead environmental working groups to improve performance in energy, waste, water, vehicles and sustainable buildings."

Vice President Facilities
Management, Hamad
International Airport

Corporate Affairs Environmental Governance Framework

The Corporate Affairs Environmental Governance Framework enables our business leaders to review performance and drive progress towards Qatar Airways Group's environmental objectives. Each governance forum has the authority to implement change in the areas of operation that they are accountable for in order to drive continual improvement in environmental performance.

Plans are in place to review and enhance the Corporate Affairs Environmental Governance Framework during 2017-18.

Corporate Affairs Environmental Governance Framework

1.5 Environmental objectives

In 2015, a group of over 150 employees representing all parts of our business collaborated to develop and agree our shared environmental objectives.

Now we are able to look back at our performance against these objectives in relation to our long-term ambitions.

Qatar Airways Group environmental objectives

Energy & Climate Change:

- Optimise energy demand through technology and operational practices
- Pursue the adoption of low carbon energy sources

Waste:

- Minimise waste generation by adopting efficiency principles in design, procurement and operational planning
- Reduce waste disposal by re-using, recycling and recovering energy from unwanted products and materials
- Manage the risk associated with hazardous waste to a level that is as low as reasonably practicable

Water & Land:

- Optimise water demand through technology and operational practices
- Adopt effective controls to prevent the contamination of water and land

Noise & Air Quality:

- Comply with noise regulations and operational procedures
- Quantify and limit the impact that aircraft, vehicles and equipment have on air quality

Nature & Conservation:

- Manage wildlife sensitively and invest in conservation projects
- Create opportunities to use sustainably sourced and low environmental impact materials within our supply chain

Qatar Airways Boeing 787 Dreamliner

2. Trends in environmental performance

Each year, we look back on our performance against each of our environmental objectives to see how we compared to previous years.

This section highlights the key trends observed as well as presenting examples of environmental initiatives from around the Group.

Airside at Hamad International Airport

2.1 Energy and climate change

Climate change is largely attributed to increased carbon dioxide (CO_2) emissions generated from the burning of fossil fuels for energy and transportation.

The resulting changes in global and regional climate patterns are expected to have wide-ranging consequences for human society and the natural environment.

Aviation's climate goals

International aviation produces approximately 1.3 percent of the world's man-made carbon emissions.[6]

The International Air Transport Association (IATA) has adopted a set of ambitious targets to reduce CO_2 emissions from aviation:[7]

- Improve aviation fuel efficiency by 1.5 percent each year from 2009 to 2020
- Achieve carbon neutral growth in international aviation from 2020
- Reduce net CO_2 emissions by 50 percent by 2050 relative to 2005 levels

The industry is pursuing a 4-pillar strategy for addressing aviation's climate impacts and to meet the carbon targets:

- Improved **technology**, including the deployment of sustainable alternative fuels
- More efficient aircraft **operations**
- **Infrastructure** improvements, including modernised air traffic management systems
- A **single global market-based measure** to fill the remaining emissions gap

6 ICAO, Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA): www.icao.int/environmental-protection/Pages/market-based-measures.aspx

7 IATA, Environmental Policy, Climate Change Targets: www.iata.org/policy/environment/Pages/climate-change.aspx

In order to deliver aviation's carbon reduction target, a **global market-based measure** is required to complement energy efficiency in the medium term as the sustainable biofuel sector matures to its full potential.

Carbon Offsetting and Reduction Scheme for International Aviation - CORSIA

The State of Qatar was one of 66 states[8] to opt into the landmark CORSIA agreement to reduce carbon emissions from the international civil aviation industry at the 39th session of the International Civil Aviation Organization (ICAO) Assembly held in Montreal, October 2016.

ICAO recognises that climate change is a challenge requiring a global response from the aviation industry. The aims of CORSIA are to enable carbon neutral growth in international aviation from 2020 by providing a global market-based measure to replace the existing patchwork of local and regional measures. CORSIA is intended to reduce the costs and complexity of administration for states and airlines.

8 as of 31 March 2017

Our carbon footprint

Our energy and climate change objectives are to:

- Optimise energy demand through technology and operational practices
- Pursue the adoption of low carbon energy sources

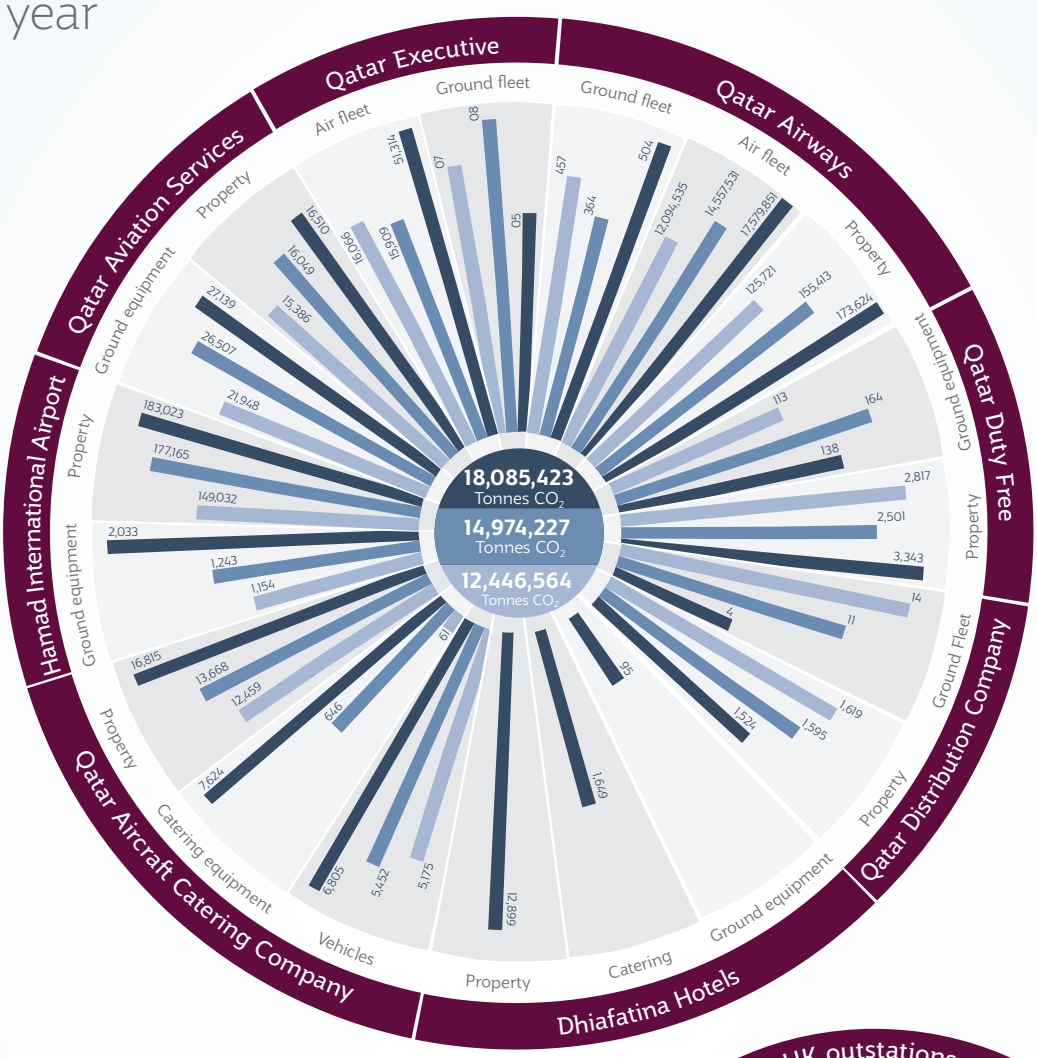
To help meet Qatar Airways Group's commitment to achieve lower greenhouse gas emissions, we prepare and independently verify our carbon footprint annually. As a rapidly growing business, Qatar Airways Group's total carbon emissions continue to rise. However, we aim to operate more efficiently as we continue to expand.

Aviation fuel contributes 97.5 percent of Qatar Airways Group's carbon footprint.[9] Growth in our airline operations is carefully planned to ensure efficiency is maintained.

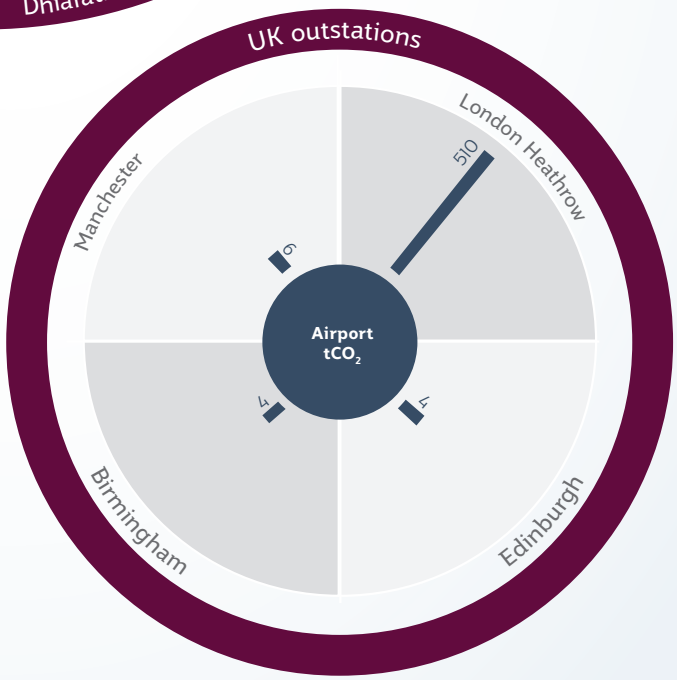
The remainder of our carbon footprint is associated with consumption of electricity, natural gas and other fuels, such as petrol, diesel and liquid petroleum gas (LPG). While proportionately less significant, we recognise that there are meaningful efficiencies to be achieved throughout our operations.

9 Carbon footprint made up of Scope 1 (direct) and Scope 2 (indirect) emissions

Qatar Airways Group CO_2 emissions by business, activity and year



2016-2017
2015-2016
2014-2015



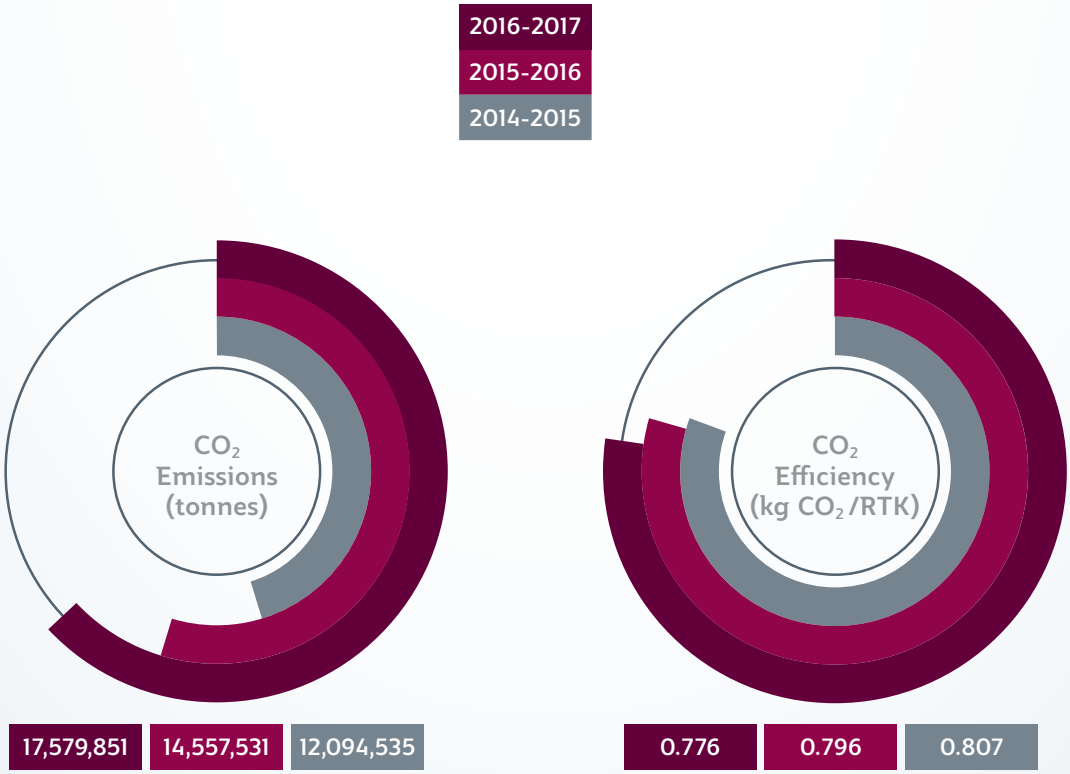
Qatar Airways is gradually adding its outstations to its carbon footprint reporting starting with our UK outstations. Adopting a phased approach, increasingly more of our outstations will be added to the carbon footprint during future reporting periods.

Qatar Airways' carbon emissions

The aviation industry measures carbon efficiency in CO_2 generated as a result of transporting the weight of passengers and cargo per kilometre. This is known as Revenue Tonne Kilometre (RTK).

Qatar Airways increased its RTK by 23.8 percent by the end of 2016-17 when compared to the previous year. As a result, total fuel consumption increased by 21 percent. Alongside this continued growth, Qatar Airways improved its average carbon efficiency (CO_2/RTK) by 2.5 percent, building on the 1.4 percent improvement achieved during 2015-2016.

Qatar Airways CO_2 emissions and CO_2 efficiency for 2014-15, 2015-16 and 2016-2017

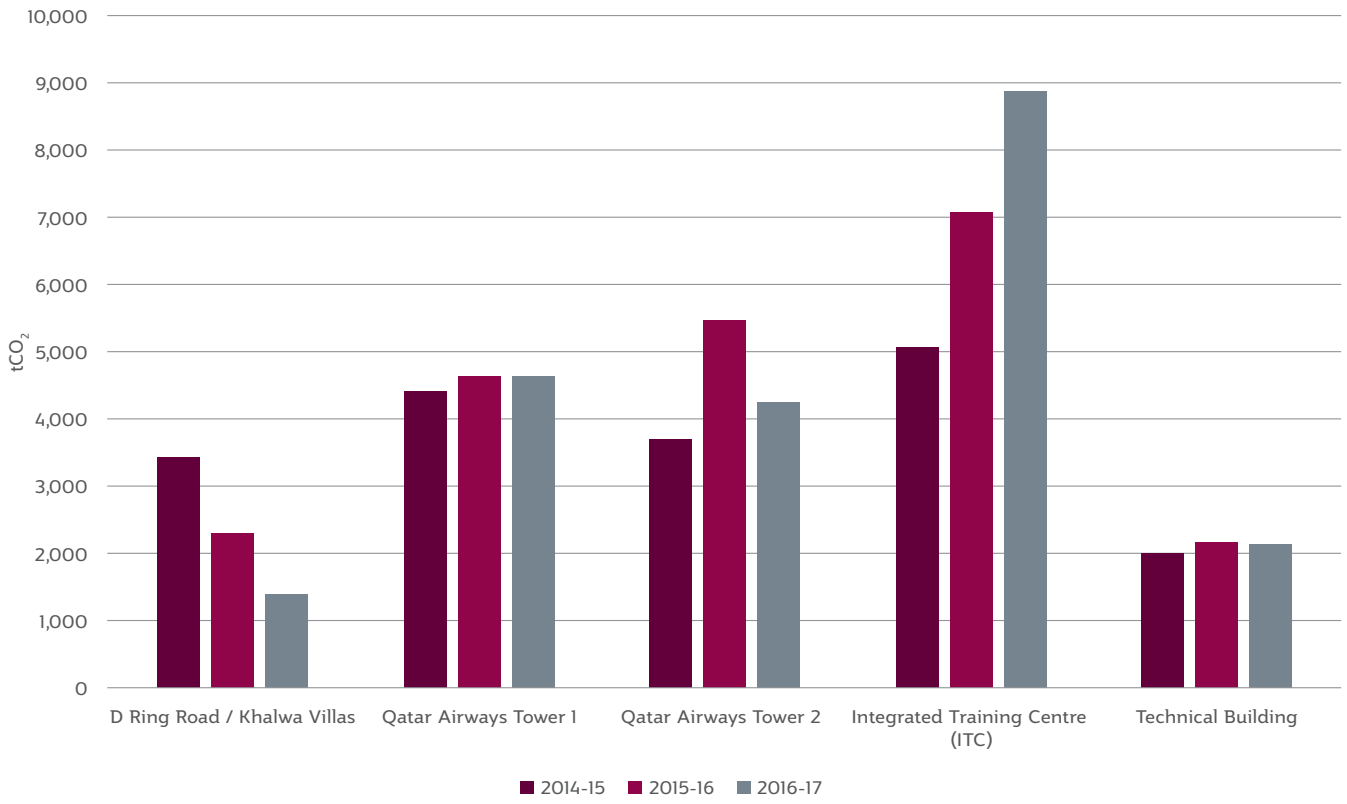


Commercial property carbon emissions

Supporting our growth, Qatar Airways Group has relied on the utilisation of more commercial office facilities in Doha.

Total carbon emissions from the consumption of energy in commercial buildings has remained relatively static, with an increase of 0.4 percent in 2016-2017 compared to the previous year.

Qatar Airways Group's carbon emissions from electricity consumed in commercial properties.



During 2016, Qatar Airways added a new office building to its portfolio with staff gradually moving in during the latter half of the year. Carbon emissions have been calculated from electricity consumption in Qatar Airways Tower 3 for the occupied period as 606 tonnes of CO_2. While this is not shown on the chart above, it is included in the overall carbon footprint for the year 2016-17.

Hamad International Airport's carbon emissions

Since its opening in 2014, Hamad International Airport's operations have expanded rapidly. A total of 17.8 percent more passengers travelled through Hamad International Airport during 2016-17 than the previous year, and the airport managed 13.1 percent more aircraft movements.

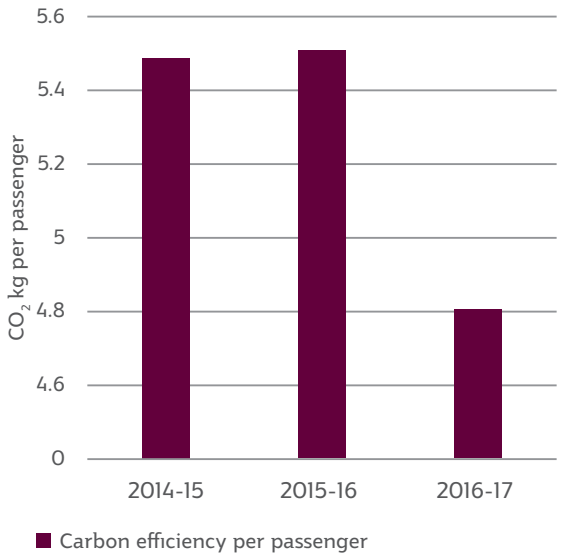
Hamad International Airport's carbon efficiency per passenger improved by 11.9 percent and carbon efficiency per aircraft movement improved by 8.3 percent during 2016-17.

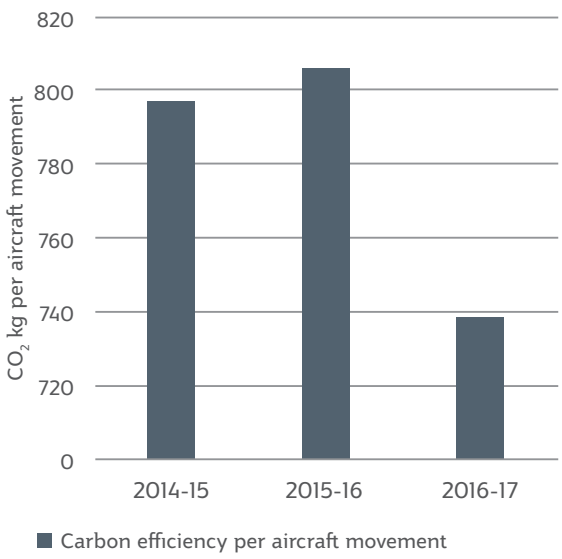
Defined as indirect emissions not owned or controlled by the reporting entity, Scope 3 emissions included by Hamad International Airport in its carbon footprint include those since January 2016:

- Airport tenants' fuel and electricity consumption
- Transportation of airport staff and passengers
- Staff duty travel
- Aircraft landing, take off and ground operations

Scope 3 emissions made up 82 percent of the airport's carbon footprint in 2016-17 and will be included in annual comparisons from 2017-2018.

Hamad International Airport's carbon efficiency per passenger and per aircraft movement, 2014-15, 2015-16 and 2016-17.[10]





10 Carbon efficiencies are calculated from Scope 1 and Scope 2 carbon emissions

Qatar Airways energy and climate change initiatives

Qatar Airways' Aircraft Fuel and Emissions Programme brings together key areas of the business to collaborate on fuel saving measures.

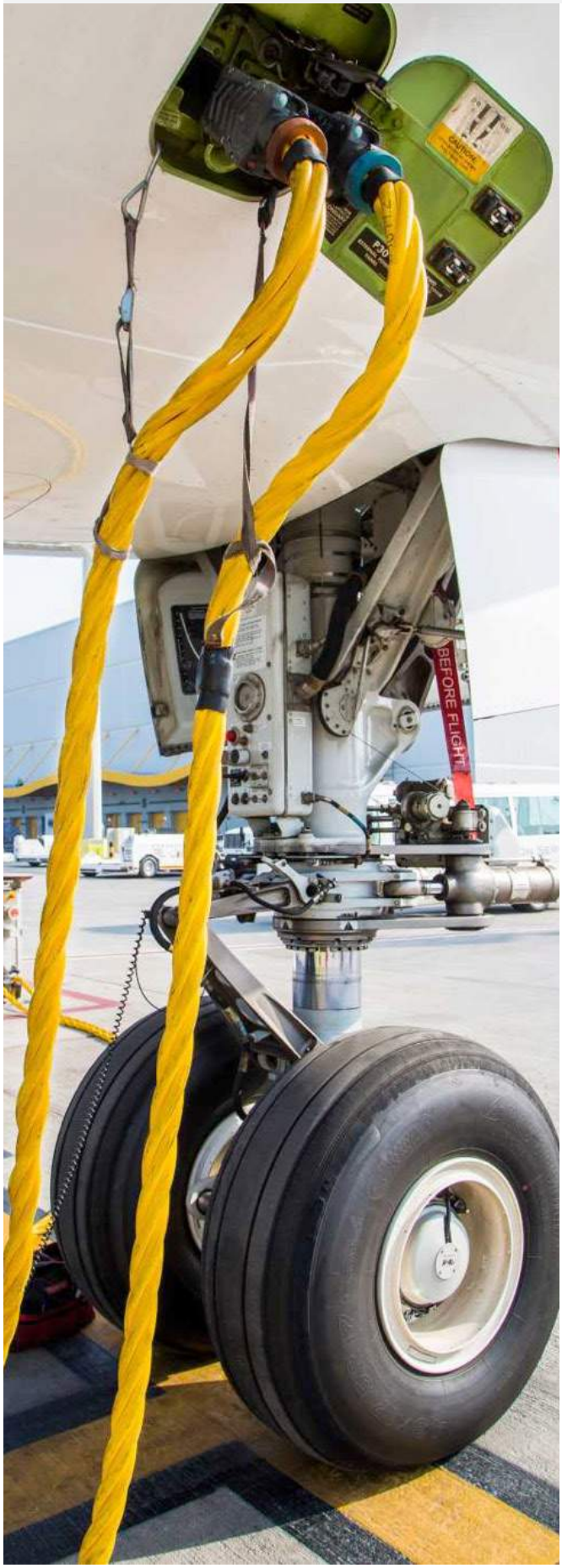
The programme focuses on four key areas for optimisation:

- Weight reduction
- Route optimisation
- Aircraft on the ground
- Aircraft performance

Estimated savings in aviation fuel and equivalent reductions in CO_2 emissions between 01 April 2016 to 31 March 2017 are shown in the table below. The following pages include some examples of fuel saving projects under each area. The examples described are not exhaustive, hence the fuel and CO_2 savings quoted do not add up to the totals in the below table.

Estimated aviation fuel savings and equivalent reductions in carbon emissions for 2016-17.

Category	Aviation fuel (tonnes)	CO_2 (tonnes)
Weight reduction	21,047	66,300
Route optimisation	4,087	12,874
Aircraft on the ground	26,666	83,997
Aircraft performance	493	1,553
Total	**52,293**	**164,724**



Fixed electrical ground power

Qatar Airways energy and climate change initiatives

Weight reduction

Qatar Airways' weight reduction programme spans all aspects of aircraft operations to seek opportunities to reduce weight and save fuel.

During 2016-17, weight reduction saved an estimated total of 21,047 tonnes of fuel, equivalent to 66,300 tonnes of CO_2.

Potable water

New procedures have been introduced to calculate the optimal quantity of potable water to be uploaded on Qatar Airways flights based on the aircraft type and destination. This has been applied across our passenger and cargo fleets.

Savings during 2016-17:
1,791 tonnes of fuel
5,642 tonnes of CO_2

Interior of a Qatar Airways freighter

Cargo locks

Each Boeing 777 freighter is supplied with 48 cargo locks for securing cargo containers. Each lock weighs 1.47 kg. Since these locks are only used for specialist loads, Qatar Airways Cargo are able to safely reduce the number of locks on each aircraft.

Savings during 2016-17:
20 tonnes of fuel
64 tonnes of CO_2

Flyaway kits

Most aircraft carry a "flyaway kit" containing tools and spare parts for undertaking repairs away from the base. Each kit weighs between 500 and 900 kg. Qatar Airways has planned alternative contingencies to carrying flyaway kits for its cargo fleet.

Savings during 2016-17:
969 tonnes of fuel
3,053 tonnes of CO_2

Maintaining Doha International Airport

Doha International Airport (DIA) continues to be maintained as an international aerodrome with Air Traffic Control and full rescue and firefighting services. When weather conditions permit, flights can be planned using DIA as an alternative airport for diversions. The weight saving from carrying less contingency fuel reduces the amount of fuel used during flight.

Savings during 2016-17:
10,605 tonnes of fuel
33,406 tonnes of CO_2

Route optimisation

Reducing the distance travelled on each Qatar Airways route reduces fuel burn. Qatar Airways continues to review and optimise routes between Hamad International Airport and its destination airports. Key routes optimised during 2016-17 included Cape Town (CPT), Erbil (EBL), Manila (MNL), Manila Clark International Airport (CRK), and Sulaimaniyah (ISU).

Savings during 2016-17:
4,087 tonnes of fuel
12,874 tonnes of CO_2

Aircraft on the ground

Reduced engine taxi

Our pilots perform reduced engine taxi on arrival, shutting down at least one engine after landing, reducing the fuel consumed when taxiing to aircraft stands.

Savings during 2016-17:
4,883 tonnes of fuel
15,381 tonnes of CO_2

Fixed electrical ground power and pre-conditioned air

Aircraft use small, on-board engines (Auxiliary Power Units or APUs) to provide power and cooling while an aircraft is waiting at a stand. At Hamad International Airport, Qatar Airways pilots are able to limit the use of APUs by connecting to electrical power and pre-conditioned air provided by the airport.

Savings during 2016-17:
21,783 tonnes of fuel
68,616 tonnes of CO_2

Qatar Airways Airbus A350 connected to pre-conditioned air supply at Hamad International Airport

Aircraft performance

Qatar Airways is committed to investing in a modern fleet powered by the latest generation fuel-efficient jet engines.

- Qatar Airways' fleet has grown from 182 aircraft in 2016 to 196 aircraft as at 31 March 2017.[11]
- The average age of our fleet is 5.9 years.
- The average age of our dedicated cargo fleet is 3.8 years.

We have orders for 219 new aircraft:[12]

115 Airbus orders

46	29	37	3
A321 Neo	A350-900	A350-1000	A380-800

104 Boeing orders

10	10	50	30	4
777-300ER	777-8	777-9	787-9	777-Freighter

11 The 2016 figure of 182 aircraft includes two wet-leased Boeing 747 Freighters. One of these aircraft remains in service and is included in the 196 aircraft counted as at 31 March 2017. Carbon efficiency calculations in this report include the fuel consumption associated with the wet-leased aircraft.

12 Orders as of 31 March 2017. At this time, Qatar Airways had also signed a Letter of Intent for up to 60 Boeing 737 Max 8s.

Improving aerodynamics

Winglets increase fuel efficiency by up to four percent by reducing aerodynamic drag. These small fin-like surfaces mounted almost vertically at the tip of an aircraft's wing save fuel by literally slashing through the air. The optimal effect is during mid-to-long range flights, when cruising speed is sustained for longer periods.

To improve fuel efficiency across its fleet, Qatar Airways is retrofitting "sharklets" (the name Airbus gives to winglets) to its older Airbus A320 passenger aircraft. Three aircraft have been upgraded so far. A further three A320's are being modified and are due to return to service in early 2017-18.

Savings during 2016-17:
493 tonnes of fuel
1,553 tonnes of CO_2

Qatar Airways Airbus A320

Algae cultivation pond

Qatar Airways is supporting research into alternative sustainable fuels

The innovative Algae Biofuel Project involved investment from Qatar Airways, Qatar University and Qatar Science and Technology Park, with research led by Qatar University's Centre for Sustainable Development.

The project identified and mapped more than 98 strains of algae local to the State of Qatar, classifying the productivity of each for biomass growth potential, resilience to local climatic conditions and potential as a biofuel feedstock.

The first stage of the project involved establishing indoor laboratories and an outdoor demonstration facility to cultivate, harvest and analyse large-scale micro-algae production with the potential to apply algae biomass to biofuel production.

The second stage of the project will identify the optimal strains of algae and fuel types to be produced, and will include pilot studies into large-scale production. The study will also incorporate environmental impact assessment and economic feasibility studies.

Exterior building lights

Qatar Airways manages over 9,500 residential units within 233 buildings to accommodate staff in Doha.

In January 2017, the Corporate Services department embarked on an initiative to fit automatic timers to exterior building lights to ensure these are not left on during daylight hours.

Between January and March 2017, a total of 123 timers were fitted to 45 buildings with plans to continue the programme into 2017-18.

Off-airport vehicles

Qatar Airways Group operates approximately 325 vehicles in Qatar outside the perimeter of Hamad International Airport. Work is underway to develop a transport management system to:

- Monitor and manage fuel consumption
- Monitor vehicle tasks and workload
- Improve driver behaviour and reduce vehicle idling
- Optimise vehicle fleet size
- Maximise passenger loads to reduce vehicle trips

Initially to be implemented on the crew transport bus fleet, the system will later be expanded to include other off-airport transportation services.

Hamad International Airport

Hamad International Airport - Airport Carbon Accreditation

In April 2017 Hamad International Airport became the first airport in the Gulf Cooperation Council (GCC) countries to achieve Level 3 *"Optimisation"* of the Airports Council International Airport Carbon Accreditation (ACA) programme.

Notable for including carbon emissions from its first day of opening in April 2014, Hamad International Airport achieved ACA Level 3 only 18 months after first initiating its carbon management programme in 2015.

airport carbon accredited
OPTIMISATION

This accreditation acknowledges Hamad International Airport's commitment to tackling climate change summarised as:

- Continuing to measure the airport's carbon emissions
- Implementing an airport-wide energy reduction programme
- Engaging stakeholders to measure and manage third-party emissions associated with the airport

Central to the commitment, Hamad International Airport announced a target to improve carbon efficiency per passenger by 30 percent by 2030 against a 2015 baseline. Hamad International Airport recorded an 11.9 percent improvement in carbon efficiency per passenger in 2016-17 compared to 2015-16, building on the 4.0 percent improvement in the previous year.

Hamad International Airport energy initiatives

Hamad International Airport's energy management programme is tasked with identifying and coordinating the implementation of energy saving initiatives across the airport.

The programme has identified 325 individual initiatives focused on four key areas for optimisation.

Estimated energy savings and equivalent reductions in carbon emissions for 2016-17.[13]

Category	No. of initiatives	Electrical energy (kWh)	CO_2 (tonnes)
Optimising lighting	277	4,240,180	2,104
Optimising ventilation and cooling systems	9	3,675,921	1,824
Optimising heaters	38	469,848	233
Optimising transformers	1	5,623	3
Total	**325**	**8,391,573**	**4,164**

13 Excluded from the table are a number of energy saving initiatives for which it is not possible to accurately calculate energy savings. For example, energy curtains and high-speed doors prevent the loss of cooled air from buildings, but it is not possible to quantify the resulting reduced energy demand on cooling systems.

Maintaining airport cooling

Maintaining airport cooling can be challenging during hot summer months and presents a risk to energy conservation, particularly in situations where constant access in and out of buildings is required. Several projects are underway to retrofit air curtains and, for larger vehicular entrances, high-speed doors are being installed. High-speed doors introduced at the entrance to the airport's baggage handling area have had the additional benefit of improving operational safety of traffic in and out of the building.

Improved flood lighting

Flood lighting at the airport is provided by 408 high pressure sodium lamps. A project is underway to replace these with LED's which along with reducing energy demand, have a longer life, requiring less frequent maintenance, and provide an improved low glare light which enhances safety and security at the airport. Once installed, this alteration is expected to save 2,423,000 kWh per year, equivalent to 1,200 tonnes of CO_2.

Retrofitting automated control

Waste water treatment plant

The airport's waste water treatment plant has a number of 'blowers' to maintain optimal levels of dissolved oxygen in the aeration tank. The blowers operate continuously, regardless of the dissolved oxygen levels. To resolve this, a dissolved oxygen sensor and a variable frequency drive are to be fitted to the aeration tank. These two devices will work in conjunction to ensure that the blower operates only when dissolved oxygen falls below the optimal level.

Occupancy sensors

A project is being initiated to fit occupancy sensors to numerous spaces on the airport campus to control lighting and ventilation systems. This will reduce energy wasted in unoccupied spaces such as washrooms and other facilities with intermittent use.

Hamad International Airport cooling plant

Embracing new building technology

Hamad International Airport continually monitors new sustainable building technologies, and is currently investigating the potential to use innovative heat pipe technology to save cooling energy in building and refurbishment projects.

Particularly effective in hot and humid climates, heat pipes are highly efficient heat transfer devices with no energy requirement, no moving parts and, once installed, require no specialised maintenance. They use the latent capacity of vaporisation to transfer heat from external air sources for use in building air handling systems.

Initial studies have indicated that by lowering the load on a building's cooling systems, heat pipes could yield energy savings of between 30 and 70 percent.

Optimisation

A number of initiatives to optimise existing systems have been identified including:

- Periodically reviewing and adjusting electrical substation transformer settings
- Controlling chilled water flow and increasing chilling temperatures from 6°C to 9°C
- Increasing air conditioning temperature settings for non-passenger areas from 22°C to 24°C

Hamad International Airport waste plant

2.2 Waste

The generation of waste puts pressure on scarce natural resources, incurs unnecessary financial cost and risks damaging human health and the environment.

Effective waste management involves adopting a hierarchy of waste management options to guide investment in the right waste management solutions for local circumstances.

Group-wide objectives

Our waste objectives are to:

- Minimise waste generation by adopting efficiency principles in design, procurement and operational planning
- Reduce waste disposal by re-using, recycling and recovering energy from unwanted products and materials
- Manage the risk associated with hazardous waste to a level that is as low as reasonably practicable

Smart product design and procurement, along with the elimination of excessive packaging, can minimise waste generation and reduce the costs associated with materials, manufacturing and transportation.

Unwanted items can be re-used by those who may need them. Recycling and composting enables the recovery of materials for other uses or for energy production.

Establishing and maintaining robust procedures for the collection, storage, transportation, treatment and disposal of waste improves re-use, recycling and recovery rates and reduces the risk of pollution.

Waste management hierarchy

Sources of waste at Hamad International Airport include:

- Technical and maintenance activities
- Inflight catering and cabin waste
- Retail, food and beverage services
- Airport offices

Hamad International Airport manages the majority of waste at a dedicated ancillary area. Waste is centrally segregated ready for transfer to specialised recycling contractors.

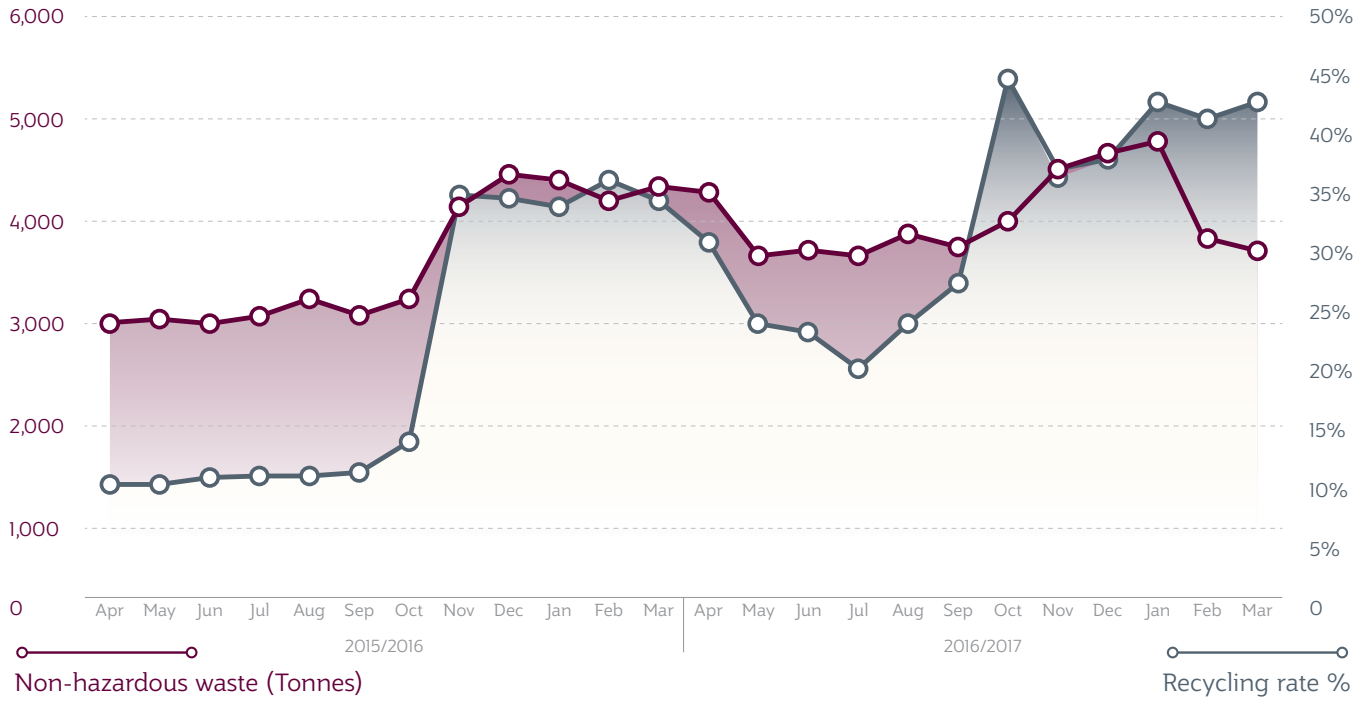
Waste trends

To help us meet our commitment to reduce our impact on the local environment, we quantify the types and amounts of waste our activities generate and how different wastes are managed.

As passenger numbers grow, so too has the volume of waste produced at Hamad International Airport. Whilst the total volume of waste produced during 2016-17 is up 36 percent to 62 million tonnes compared to 2015-16, the average volume of waste per passenger has increased at a lesser rate of 15.2 percent compared to the previous year.

The recycling rate for non-hazardous waste at Hamad International Airport has averaged 33 percent during the year 2016-17. This marks an overall improvement from the previous year in which the annual average recycling rate was 22 percent, although much higher rates of recycling have been achieved since November 2015.

Non-hazardous waste recycling rate at Hamad International Airport 2015-16 and 2016-17.



Waste initiatives

Charitable donation of uniforms

Qatar Aircraft Catering Company sorts through used staff uniforms to identify those that are in good condition. Suitable items, including shirts, trousers, and overalls, are donated to Qatar Charity to support its work on humanitarian and development programmes.

This initiative began with an initial donation of 1,487 items in March 2016. A further two donations were made during this financial year bringing the total donations to date to 2,972 items of uniform.

Catering waste

As Hamad International Airport's sole catering supplier, Qatar Aircraft Catering Company manages large volumes of packaging and catering waste.

During 2016-17, Qatar Aircraft Catering Company recycled approximately 1,165 tonnes of materials including cardboard, plastic wrapping and a variety of plastic containers. These materials have been collected by two local firms for recycling, along with 20,700 litres of cooking oil which is sent to specialist contractors to be converted into bio-diesel.

IT equipment

Qatar Airways works with Qatar Charity to enable unwanted IT equipment to be refurbished and re-used by community groups. During 2016-17, a total of 485 items of IT equipment were donated for re-use and a further 80 central processing units and monitors were donated for spare parts.

Vehicle wash and water recycling area at Hamad International Airport

2.3 Water and land

Water conservation is of national importance to Qatar as the region has one of the lowest levels of annual rainfall in the world. Qatar has three sources of water:[14]

Desalination

Seawater is desalinated through a costly and energy-intensive thermal process and accounts for over half of the water used in Qatar, with production quadrupling during the last two decades.

Groundwater

Groundwater supplies provide a small but important contribution to Qatar's water network. The amount of groundwater being extracted is exceeding the amount flowing in.

Recycled water

The volume of recycled water is increasing in Qatar and is used primarily for irrigation and in industry as a substitute for potable water.

14 Hukoomi, Environment and Natural Resources, Water and Desalination: http://portal.www.gov.qa/wps/portal/topics/Environment+and+Agriculture/waterandesalination

Group-wide objectives

Our water conservation objective is to:

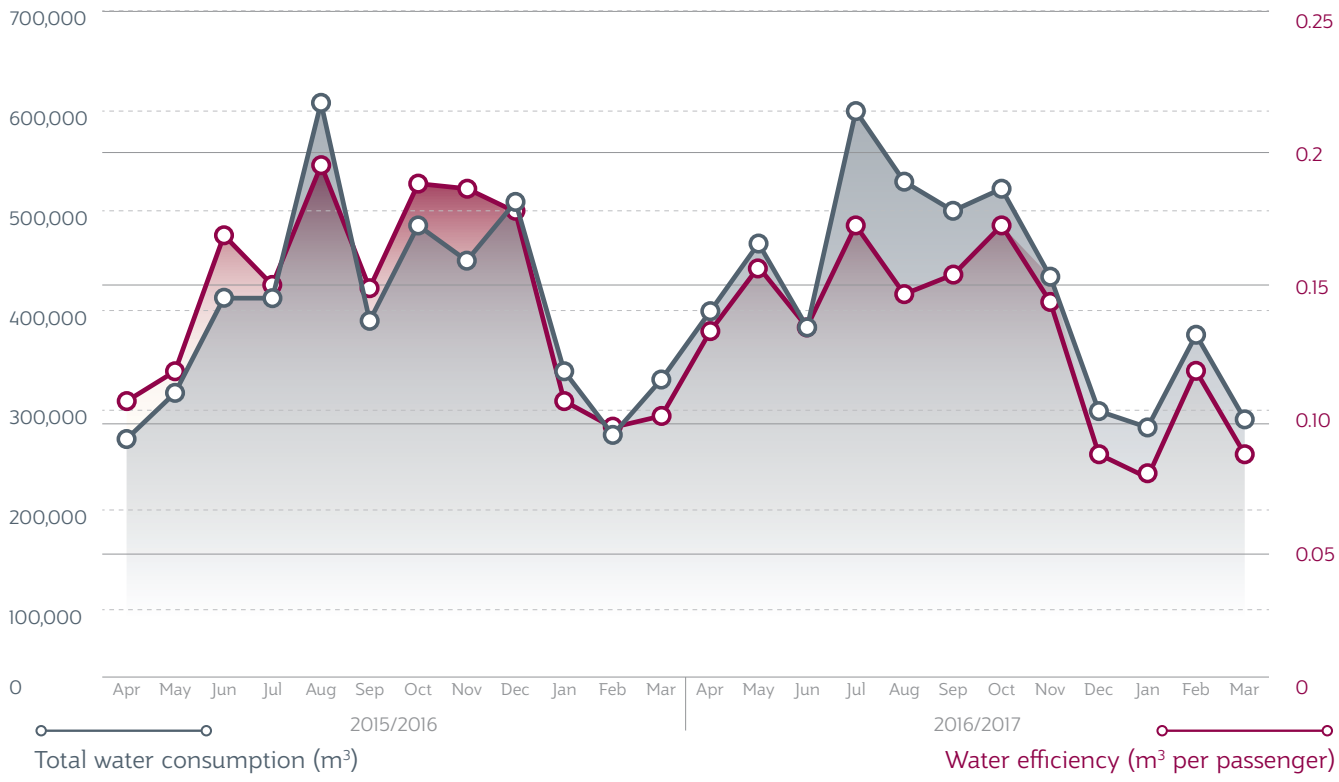
- Optimise water demand through technology and operational practices

Water trends

To help us meet our commitment to protect natural resources, we measure water consumption as close to the end user as possible. This enables us to monitor usage and identify conservation opportunities.

Total water consumption at Hamad International Airport has increased by 7 percent in 2016-17 when compared to the previous year, totalling 5.1 million cubic metres across the year. However, when compared as an efficiency against the number of passengers that have travelled through the airport during each year, there has been a 9 percent improvement in 2016-17 when compared to 2015-16.

Total water consumption and water consumption per passenger at Hamad International Airport 2015-16 and 2016-17.

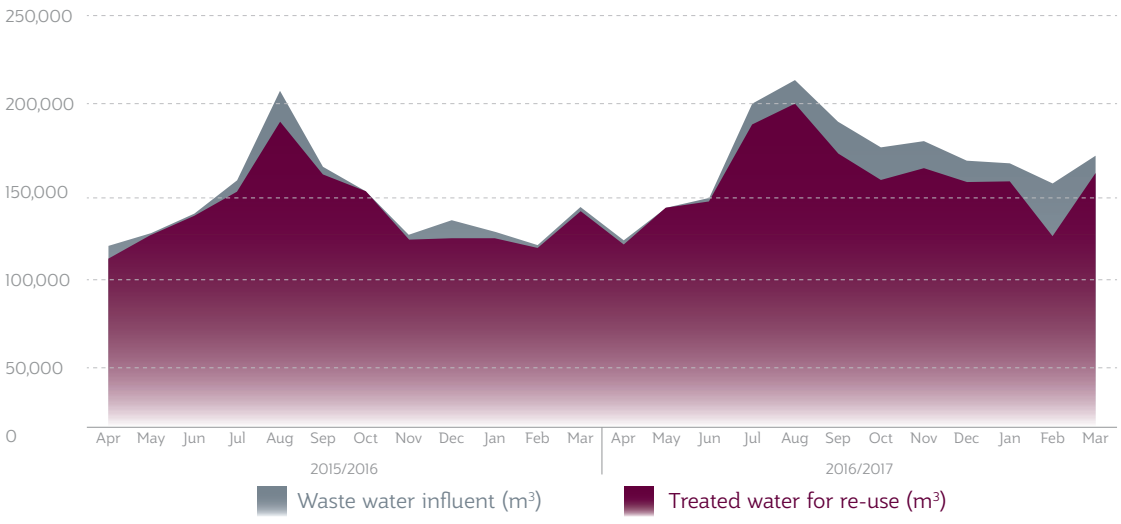


Hamad International Airport waste water treatment plant

Waste water treatment plant

Hamad International Airport's waste water treatment plant was commissioned in November 2014 and has a capacity to treat over 28,000 m^3 of waste water per day. Waste water is transferred from across the airport campus to the hi-tech facility, where water is treated and returned for use in irrigation across the airport. Hamad International Airport's plant received 18 percent more waste water in 2016-17 than in the previous year, recovering 91 percent of the waste water treated. All treated water is re-used for irrigation. The remaining by-product (sludge) is further treated to extract the water content to minimise the volume of solid waste sent to landfill.

Waste water influent and treated water for re-use 2015-16 and 2016-17.



Water initiatives

Optimising irrigation

Hamad International Airport currently re-uses all of the treated water from the onsite waste water treatment plant to irrigate the soft landscaping features around the airport campus. To reduce the overall water demand associated with irrigation, a study has been initiated to review the operation of landscape irrigation systems and identify improvements. We are also considering how changes can be made to the extent and type of plants used to further reduce water demand without adversely affecting the visual quality of the landscape.

As water conservation initiatives are rolled out across the airport campus, Hamad International Airport recognises that waste water supply to the treatment facility may diminish, which will in turn reduce supply of treated water for irrigation. The airport is working with Qatar's Public Works Authority, Ashghal, to build infrastructure to divert municipal waste water to the airport's waste water facility and secure a long-term supply of treated water for irrigation.

Retrofitting faucet aerators

Hamad International Airport's Facilities Management department has installed aerators to faucets in its operational building washrooms.

Aerators restrict the flow rate of water from the faucet to as little as 2 litres per minute, achieving a 60 percent reduction in water consumption. Restricting water flow also reduces hot water use resulting in further energy savings.

Hamad International Airport fire water system

Saving water during fire pump tests

Hamad International Airport conducts periodic tests of fire water pumps at its facilities buildings. Following tests, water is discharged to storm water drains. Three buildings have been identified where this water can be re-captured by connecting the test line back to the cooling tower basin or storage tanks.

If applied to all three buildings, the water saved from fire pump tests could be up to 3,500 m^3 per year.

Harvesting condensation

The widespread use of air conditioning equipment necessary in Qatar's hot and humid climate results in substantial volumes of condensation collecting within cooling equipment. Condensation water, which is high quality, is typically drained to the outside of the building and lost.

Qatar Airways is undertaking a study of its corporate office buildings to see if it is economically feasible to capture this water for re-use in cleaning of external and basement areas and in the irrigation of landscaping.

Spill response equipment in Qatar Airways' technical hangar

Group-wide objectives

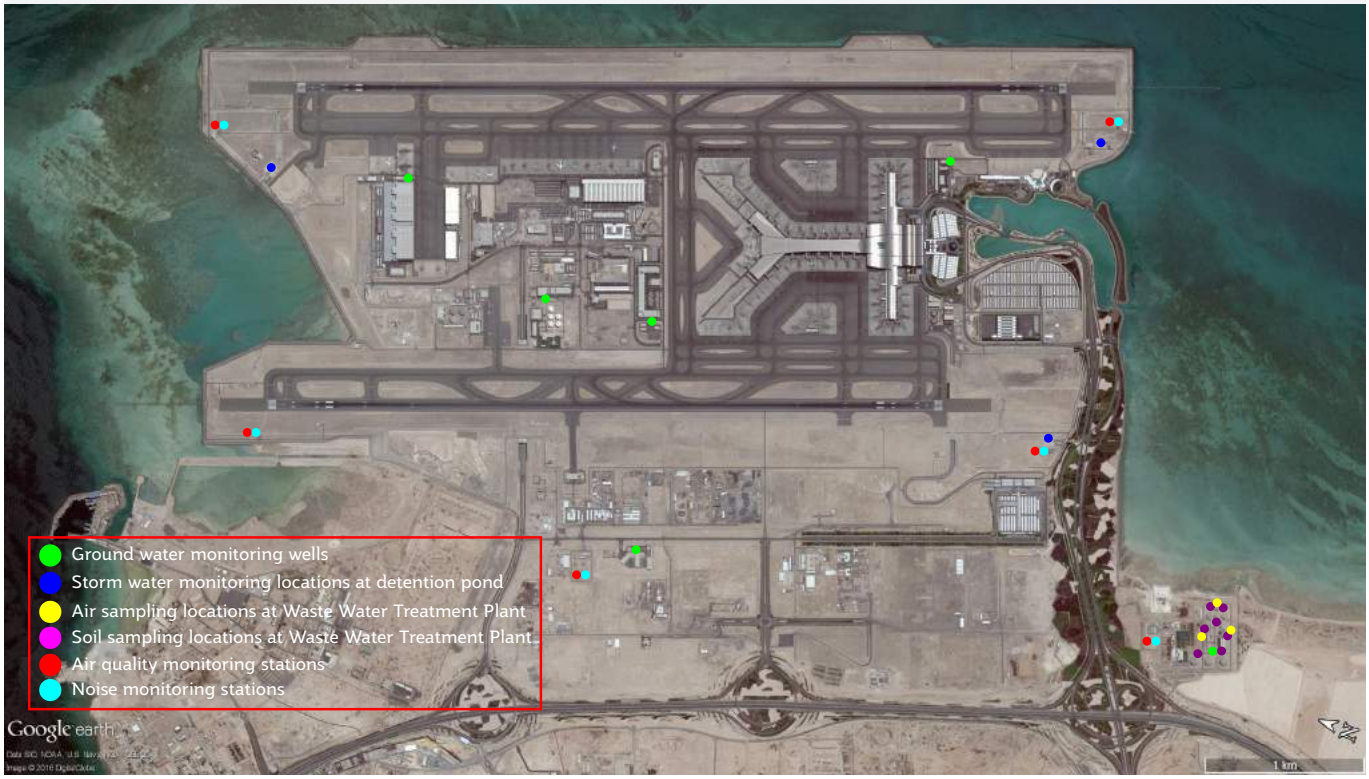
Our pollution prevention objective is to:

- Adopt effective controls to prevent the contamination of water and land

Preventing pollution

Preventing pollution to land and water is a basic principle of good environmental management and is central to maintaining the quality of Doha's groundwater and coastal waters.

Pollution prevention involves adopting a duty of care in the selection of potentially hazardous substances, such as fuels, oils and chemicals, and establishing procedures for the transportation, storage and utilisation of these materials in a way that prevents uncontrolled release to the environment.



Environmental monitoring stations at Hamad International Airport

Pollution prevention trends

Hamad International Airport is regulated by the Ministry of Municipality and Environment through a Consent to Operate. This imposes strict conditions relating to the prevention of pollution to land and water which include:

- Prohibition of discharge of oils, solids and measurable toxins to the Arabian Gulf or in storm water
- Restrictions on the use of dispersants, surfactants and detergents
- Prohibition of discharge of treated or untreated waste or storm water to the Arabian Gulf

To ensure compliance, the quality of local waterways and natural surfaces are monitored at agreed sampling points for ground water, storm water and soil. Monitoring locations are indicated on the figure above.

Zero significant spillage occurrences were recorded in 2016-2017.

Qatar Airways' aircraft in the technical hangar

Pollution prevention initiatives

Spill response management

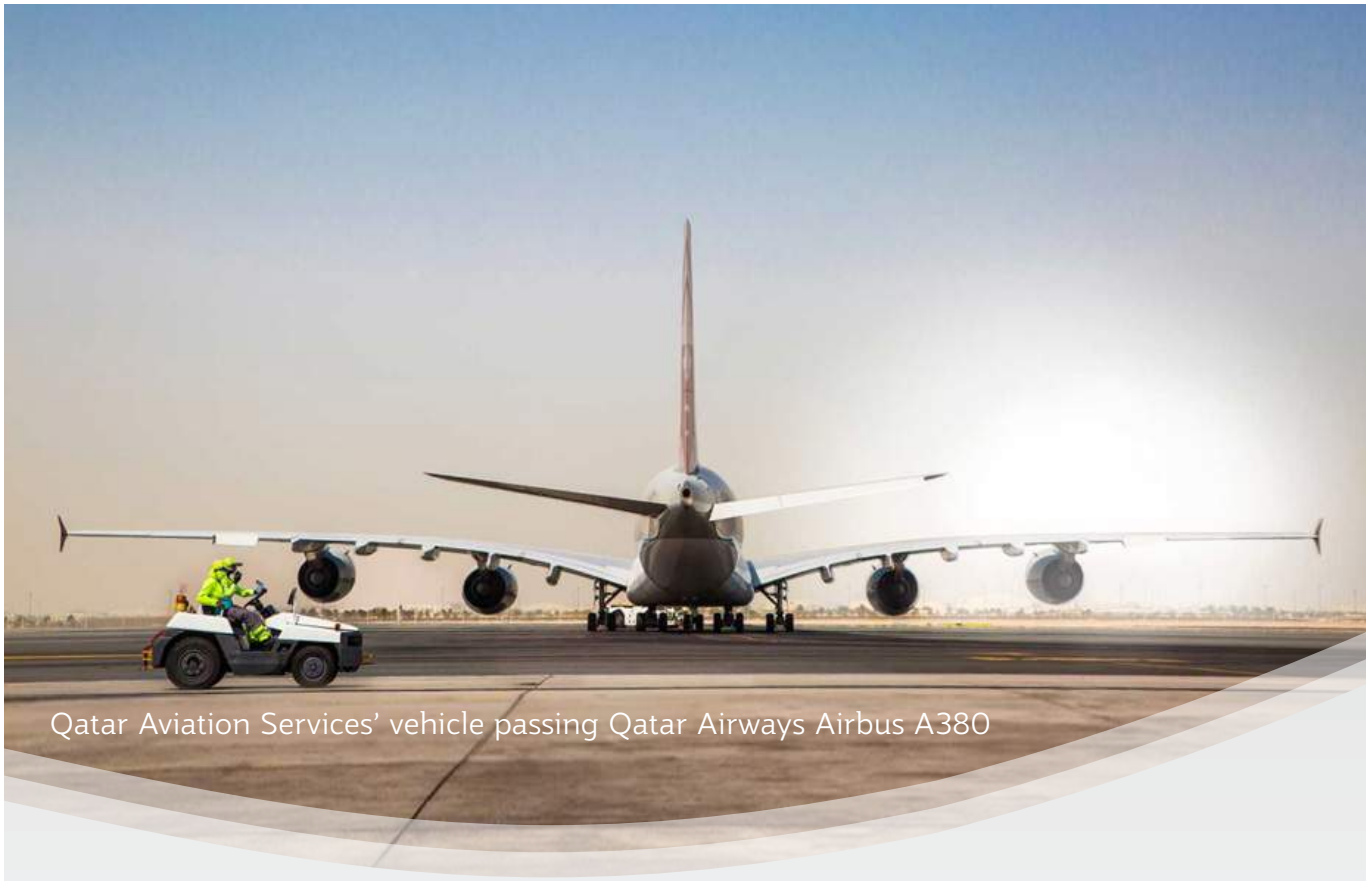
Across the Qatar Airways Group, we are reviewing and updating our spill response procedures to ensure all spills are managed and reported appropriately.

Reported occurrences are reviewed to ensure corrective actions are applied where required. Training is being deployed to improve awareness amongst all employees and contractors.

Pollution prevention at Qatar Airways' technical hangar

Maintenance activities, such as aircraft and engine washing at Qatar Airways' technical hangar generate waste water. Contaminated water is collected in a waste water foam pit before being pumped through drainage channels to a storage area ready for collection by recycling contractors.

Robust maintenance regimes are followed to ensure the integrity of the closed system in order to protect the nearby coastal waters.



Qatar Aviation Services' vehicle passing Qatar Airways Airbus A380

2.4 Noise

While new technology is ensuring aircraft are getting quieter, expanding and busier airports may change how local communities are affected by noise.

Aircraft noise results from moving engine parts and air passing through the engine and over the aircraft's body and wings. Most airport noise relates to aircraft landing or taking off, taxiing and during engine testing.

Group-wide objectives

Our noise objective is to:

- Comply with noise regulations and operational procedures

Noise trends

Noise abatement procedures

To help us meet our commitment to reduce our impact on the local environment, we monitor our adherence to noise abatement procedures at every destination airport.

Quieter aircraft

Modern aircraft are becoming quieter as advances are made in engine technology and new composite materials. The International Civil Aviation Organisation (ICAO) set progressively tighter noise certification standards for civil aircraft. Each aircraft is certified according to the standard it meets, known as Chapters.

Aircraft manufactured since 2006 must meet the requirements of ICAO's Chapter 4 and those designed and manufactured after 31 December 2017 must meet the requirements of ICAO's next Chapter, known as Chapter 14.

As Qatar Airways manages its fleet and invests in new aircraft, we maintain records of ICAO Noise Chapter certificates for all our aircraft. As of 31 March 2017, all Qatar Airways aircraft were certified to Chapter 4.

Noise initiatives

Noise monitoring at Hamad International Airport

Hamad International Airport is regulated by the Ministry of Municipality and Environment through a Consent to Operate, which imposes strict conditions relating to noise. To date, noise monitoring has been conducted at the airport perimeter through handheld monitoring devices. To provide continuous data and improve data quality, Hamad International Airport has agreed to the locations for six fixed noise monitoring stations, shown on the map on page 63. The new noise monitoring stations are planned to go live by late 2017.

Our noise management standard

In early 2017, we agreed a Group-wide Standard for Environmental Noise Management to ensure the adoption of a balanced approach to managing noise in Doha and at our outstations.

Air quality monitoring instruments at Hamad International Airport

2.5 Air quality

Air quality in urban areas can be affected by emissions generated through burning fossil fuels. Airport-related activities, including aircraft and vehicle movements, emit pollutants such as nitrogen oxides which, in high concentrations, can affect human health.

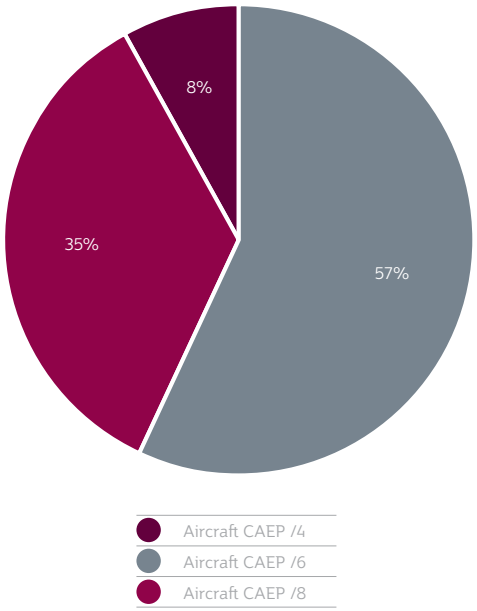
Qatar Airways Boeing 787 Dreamliner

Group-wide objectives

Our air quality objective is to:

- Quantify and limit the impact that aircraft, vehicles and equipment have on air quality

Air quality trends



Percentage of Qatar Airways' aircraft by CAEP standards 4,6 and 8 as of 31 March 2017.

Cleaner engines

The International Civil Aviation Organisation (ICAO) Committee on Aviation Environmental Protection (CAEP) is responsible for setting standards on emissions from aircraft engines. Based on lowering emissions of nitrogen oxides (NO_x), the current standard (CAEP 8) requires 15 percent lower NO_x emissions than the previous standard (CAEP 6).

As of 31 March 2017, 35 percent of Qatar Airways aircraft are compliant with the most stringent emissions standard, CAEP 8.

Qatar Aviation Services' electric vehicles

Air quality initiatives

Electric vehicles

Qatar Aviation Services provide ground handling services for more than 300 passenger and cargo flights per day at Hamad International Airport. Such an extensive operation involves over 1,300 vehicles, ranging from baggage trucks to high aircraft loading trucks.

Since last year, Qatar Aviation Services increased its fleet of electric vehicles to 141, including 66 electric baggage tractors and 75 electric forklift trucks. Using advanced polymer batteries unique in the airline industry, these batteries take two hours to charge instead of the normal eight hours. As well as eliminating the emission of air pollutants such as particulates and nitrogen oxides, these vehicles are more cost-efficient to maintain.

Air quality monitoring at Hamad International Airport

Hamad International Airport is regulated by the Ministry of Municipality and Environment through a Consent to Operate, which imposes strict conditions relating to air quality. To provide continuous data and improve data quality, Hamad International Airport has agreed to the locations for six fixed air quality monitoring stations, shown on the map on page 63. The new air quality monitoring stations are planned to go live by late 2017.

Setting the standard for air emissions

In early 2017, we developed a Group-wide standard for air emissions to improve the way we manage local air quality at our hub in Doha and at our global destinations.

2.6 Nature and conservation

The illegal trade in wildlife is one of the biggest threats to the survival of some of the world's most endangered species. Airlines and airports play an important role in preventing the illegal transportation of endangered animals and animal products.

Credit: United for Wildlife

Group-wide objectives

Our nature and conservation objective is to:

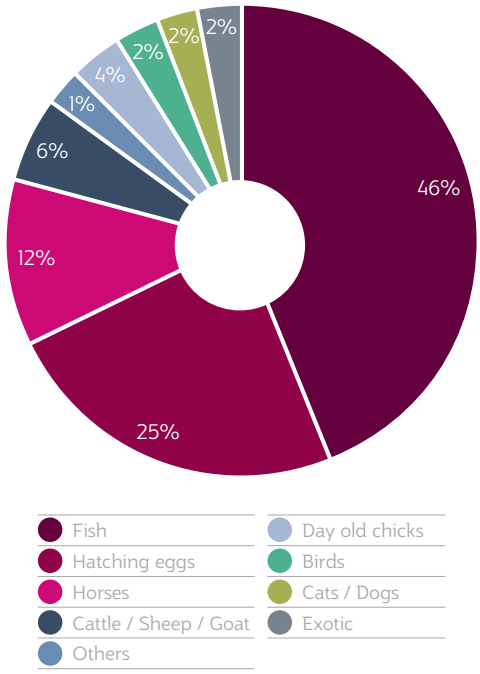
- Manage wildlife sensitively and invest in conservation projects

Wildlife trends

Qatar Airways accepted over 10,000 bookings for live animal shipments in 2016-17, approximately 33 percent more than the previous year.

As the world's third largest international air cargo carrier,[15] Qatar Airways Cargo adheres to industry best practice for the welfare of live animals.

To help us to meet our commitment to manage wildlife sensitively and support conservation, we are establishing systems to accurately record the species and purpose of transportation for all animals legally shipped through Qatar Airways' global network.



Qatar Airways live animal shipments by weight, 2016-17

15 Measured in Freight Tonne Kilometres (FTK)

Wildlife initiatives

United for Wildlife

In March 2016, Qatar Airways signed the United for Wildlife Transport Industry Declaration at Buckingham Palace in the presence of H.R.H. The Duke of Cambridge and The Rt. Hon. The Lord Hague of Richmond.

Qatar Airways was one of a small group of aviation industry leaders invited to attend the signing ceremony in London, acknowledging the scale and complexity of the challenge of illegal wildlife transportation.

Qatar Airways has a policy of zero tolerance towards the illegal transportation of endangered species through its network. As signatory to the United for Wildlife Declaration, we are committed to putting measures in place to:

- Raise employee and passenger awareness of illegal wildlife transportation
- Improve detection of illegally transported wildlife
- Share intelligence and best practices with the industry

Qatar Airways attended the United for Wildlife Transport Taskforce in Geneva on 19 January 2017 and reported the following progress on our commitments for raising awareness and improving detection during 2016-17:

- An interactive awareness raising workshop
- Enhanced training on detection of illegal wildlife transportation for Cargo staff
- Upgraded cargo booking system to record additional information for shipments of wildlife and improve detection of fraudulent documents
- A new animal occurrence reporting system deployed with training to ensure detected offences are recorded

Plans for the coming year include an awareness campaign targeted at customers and employees to comprise an in-flight video, topical articles for our in-flight magazine, *The Oryx*, as well as displays for customer information screens and stands within Hamad International Airport.

A bespoke e-learning package is being developed, targeted at roles which are most likely to encounter illegal activity.

Low environmental impact materials

Material used in the construction of physical infrastructure and the operation of major catering and retail activities may be scarce or have the potential to be damaging to the environment or human health during their extraction, transportation, manufacture or use. Design and procurement decisions present an opportunity to deliver environmental improvements, as well as cost savings, while maintaining quality and customer experience.

Group-wide objectives:

Our low impact materials objective is to:

- Create opportunities to use sustainably sourced and low environmental impact materials within our supply chain

Low environmental impact materials initiatives

Supply chain

Qatar Airways' Catering Services and Procurement departments are working together to review and update our catering policies to promote the use of sustainably sourced items and to exclude items that pose a significant threat to the environment.

We have developed a sustainability questionnaire for our catering suppliers to provide baseline performance data and identify areas for improvement.

Environmentally friendly materials

Qatar Duty Free and Qatar Distribution Company are sourcing alternatives to the current carrier bags given out at our retail stores. The whole product lifecycle is being considered to ensure the highest environmental standards are met for manufacture through to end-of-life disposal.

Setting minimum sustainability standards for design and construction

Our Sustainable Building Design and Construction Standard sets the minimum requirements for the design and construction of all building projects undertaken by Qatar Airways Group. The standard applies to a range of ongoing projects, ranging from staff accommodation and schools in Doha, to new and retrofitted lounges, hotels and offices at our base and around the world, as well as the future expansion of Hamad International Airport.

Wherever we are in the world, we strictly apply local standards and strive for the best environmental outcomes by embedding sustainability into our project lifecycle.

Qatar Airways' Capital Projects department has developed a checklist against which ongoing project design and construction is reviewed. This checklist feeds into a database used to manage compliance at each project stage.

Qatar Airways Airbus A380 in Doha

3. Planning for continual improvement

In developing Qatar Airways Group's Environmental Management System, we evaluated environmental risks within each business unit. Existing controls were assessed and plans to further mitigate environmental risks were put into place.

Environmental improvement plans include projects that are expected to deliver immediate improvements in environmental performance while supporting more sustainable business practices over the longer-term.

This section of the report summarises how we are striving as a group to improve our environmental performance.

Qatar Airways Boeing 777

3.1 Qatar Airways

Qatar Airways comprises the commercial passenger and cargo airline services. It directly employs over 30,000 staff in Doha and at our destinations. In Doha, Qatar Airways operates from four major office locations and staff are accommodated in over 9,500 residential premises.

As well as being responsible for the operation of the airline, Qatar Airways provides business services to other parts of the Group.

The environmental improvements that Qatar Airways is directly involved in, either as a leading partner or as an active participant, are wide-ranging, with numerous departments engaged in delivery.

Key projects being pursued by Qatar Airways relate to:

- Aviation fuel consumption of passenger and cargo aircraft
- Fuel consumption in the landside vehicle fleet
- Energy and water consumption in office locations
- Waste, including office recycling, cabin waste, and hazardous waste
- Unintended spills and other environmental occurrences
- Air conditioning equipment
- Aircraft air and noise emissions
- Sustainable buildings design and construction
- Sustainable procurement
- Employee environmental accountabilities and training
- Environmental management systems

Qatar Airways' environmental improvement actions are summarised below:

 Pending

 Progress

 Complete

Environmental Objectives	Improvement Theme	Projects	Status
Energy & Climate Change	Aircraft Fuel and Emissions	**Qatar Airways Aircraft Fuel and Emissions Programme** Enhance the Qatar Airways Aircraft Fuel and Emissions Programme to identify, measure and increase fuel savings from initiatives, including weight reduction, route optimisation, aircraft on the ground, aircraft performance and inflight decisions.	
	Passenger Carbon Offset	**Carbon Offset Product** Identify and subscribe to a credible carbon offset investment mechanism.	
		Ticketing and Sales Update ticketing and sales IT systems to allow customers to offset carbon.	
	Sustainable Alternative Fuels	**Algae Biofuel Project** Collaborate with Qatar University on phase 2 of the Algae Biofuel Project.	
	Vehicle Fuel Management	**Landside Vehicles** Establish systems to measure and monitor fuel consumption from landside vehicle fleet.	
	Energy Management	**Measure and Monitor** Establish systems to measure and monitor electricity and gas consumption in operational buildings.	
		Training and Awareness Raise awareness of energy management procedures for all employees and contractors.	
Waste	Waste Management	**Non-Hazardous Waste** Establish systems to measure and monitor all types of non-hazardous waste to reduce volume of waste sent to landfill, guided by the waste management hierarchy.	
		Hazardous Waste Establish systems to manage and monitor all types of hazardous waste to prevent pollution.	
		Office Waste Recycling Trial Undertake a recycling trial in specified office locations to collect baseline data and lessons learned for wider implementation.	
		Cabin Waste Prepare scope and business case for cabin waste management project.	
		Training and Awareness Raise awareness of waste management procedures for all employees and contractors.	

Environmental Objectives	Improvement Theme	Projects	Status
Water & Land	Water Management	**Measure and Monitor** Establish systems to measure and monitor water consumption in operational buildings.	
		Training and Awareness Raise awareness of water management procedures for all employees and contractors.	
	Pollution Prevention	**Spill Response Procedures** Review and update existing spill response procedures and ensure availability of spill kits.	
		Report and Monitor Ensure spills are reported on the occurrence reporting system and closed-out appropriately.	
		Training and Awareness Raise awareness of spill response procedures for all employees and contractors.	
Noise & Air Quality	Air Conditioning Equipment and Gases	**Maintenance Procedures** Review and update existing air-conditioning equipment maintenance procedures.	
		Air Conditioning Equipment Inventory Create and maintain an inventory of all air-conditioning equipment and gases used in commercial buildings.	
		Compliance Plan Develop and implement a plan for the replacement of old-generation equipment.	
	Aircraft Air Emissions	**Aircraft Air Quality Register** Maintain register of aircraft engine compliance to ICAO Air Quality Standards (CAEP).	
	Aircraft Noise Emissions	**Aircraft Noise Register** Maintain register of aircraft engine compliance to ICAO Noise Standards (Chapters).	
Nature & Conservation	Illegal Transportation of Endangered Wildlife	**Booking Systems** Review and update cargo booking system to include controls for endangered species.	
		Employee Training Develop and deliver a training and awareness programme for the prevention of transportation of endangered wildlife.	
		Customer Awareness Develop a customer awareness programme to deliver information at Hamad International Airport and on-board Qatar Airways flights.	
	Sustainable Buildings Design and Construction	**Project Lifecycle** Review and update project procedures to ensure sustainable building requirements are integrated at all stages of the project life-cycle.	
		Project Database Develop and maintain a database of design and construction projects and monitor compliance to the sustainable building standard at key project milestones.	
		Monitoring and Improvement Monitor compliance and performance and identify key areas for improvement.	
	Sustainable Products and Contracts	**Materials Inventory** Review and maintain inventory of procured catering materials and identify any items that pose environmental risk.	
		Environment and Sustainability Questionnaire Develop an environment and sustainability questionnaire and issue to catering supply chain.	
		Prohibited Items Review and update food policies to identify prohibited items.	

Environmental Objectives	Improvement Theme	Projects	Status
Nature & Conservation	Sustainable Products and Contracts	**Supplier Code of Conduct** Develop and issue a Supplier Code of Conduct.	
		Supplier Pre-Qualification Develop a Supplier Pre-Qualification Questionnaire to be implemented in the supplier registration process.	
		Contracts Review Review and update standard terms and conditions to include environmental requirements.	
Management & Stakeholder Engagement	Group Environmental Management System	**Certification of Qatar Airways Group's Environmental Management System** Develop, implement and maintain the Qatar Airways Group Environmental Management System. Aim to achieve certification to Level 2 of IATA's IEnvA scheme by December 2017.	
	Employee Accountabilities	**Environmental Accountabilities** Develop employee environmental competence matrix and include environmental accountabilities for all roles in all employee job descriptions.	
		Training and Awareness Develop and deploy a mandatory environmental e-learning programme targeted to different competence levels.	
	Environmental Data	**Environmental Data Management Software** Develop environmental data management tool to standardise data collection analysis and reporting across the Group.	

Hamad International Airport

3.2 Hamad International Airport

Hamad International Airport has developed a series of environmental working groups involving key airport stakeholders to focus efforts on the main environmental issues across the airport including:

- Energy
- Airport vehicles
- Waste
- Water
- Sustainable buildings

These working groups are tasked with identifying, prioritising and implementing environmental improvement projects relating to the operation of the airport. Projects are assessed and prioritised for implementation by the relevant airport stakeholders.

Hamad International Airport's environmental working groups are supported by Qatar Airways Group businesses including:

- Qatar Airways
- Qatar Aviation Services
- Qatar Aircraft Catering Company
- Qatar Duty Free

Hamad International Airport also supports other Qatar Airways Group initiatives. For example, in 2017-18, Hamad International Airport will be key to Qatar Airways' awareness campaign for the illegal transportation of endangered wildlife, where Hamad International Airport plans to utilise passenger information display screens and advertising space to deliver key information to staff and customers passing through the airport.

Hamad International Airport's environmental improvement actions are summarised below:


Pending


Progress


Complete

Environmental Objectives	Improvement Theme	Projects	Status
Energy & Climate Change	Vehicle Fuel Management	**Airside Vehicles** Establish systems to measure and monitor fuel consumption from airside vehicle fleet.	
		Hamad International Airport Vehicle Working Group Establish an airport vehicle working group comprised of airport stakeholders with airport vehicle permits.	
	Energy Management	**Measure and Monitor** Establish systems to measure and monitor electricity and gas consumption in operational buildings.	
		Training and Awareness Raise awareness of energy management procedures for all employees and contractors.	
		Hamad International Airport Energy Working Group Establish working group to identify and implement energy saving initiatives on airport campus.	
		Hamad International Airport Energy Efficiency Target Set an energy efficiency target for 2030.	
Waste	Waste Management	**Non-Hazardous Waste** Establish systems to manage and monitor all types of non-hazardous waste to reduce volume of waste sent to landfill, guided by the waste management hierarchy.	
		Hazardous Waste Establish systems to manage and monitor all types of hazardous waste to prevent pollution.	
		Training and Awareness Raise awareness of waste management procedures for all employees and contractors.	
		Hamad International Waste Management Working Group Establish working group to identify and implement waste management initiatives on airport campus.	
		Hamad International Airport Waste Efficiency Target Set a waste efficiency target for 2030.	

Environmental Objectives	Improvement Theme	Projects	Status
Water & Land	Water Management	**Measure and Monitor** Establish systems to measure and monitor water consumption in operational buildings.	
		Training and Awareness Raise awareness of water management procedures for all employees and contractors.	
		Hamad International Water Management Working Group Establish working group to identify and implement water saving initiatives on airport campus.	
		Hamad International Airport Water Efficiency Target Set a water efficiency target for 2030.	
	Pollution Prevention	**Spill Response Procedures** Review and update existing spill response procedures and ensure availability of spill kits.	
		Report and Monitor Ensure spills are reported on the occurrence reporting system and closed-out appropriately.	
		Training and Awareness Raise awareness of spill response procedures for all employees and contractors.	
	Air Conditioning Equipment and Gases	**Maintenance Procedures** Review and update existing air-conditioning equipment maintenance procedures.	
		Air Conditioning Equipment Inventory Create and maintain an inventory of all air-conditioning equipment and gases used in commercial buildings.	
		Compliance Plan Develop and implement a plan for the replacement of old-generation equipment.	
Nature & Conservation	Sustainable Buildings Design and Construction	**Project Lifecycle** Review and update project procedures to ensure sustainable building requirements are integrated at all stages of the project life-cycle.	
		Project Database Develop and maintain a database of design and construction projects and monitor compliance to the sustainable building standard at key project milestones.	
		Monitoring and Improvement Monitor compliance and performance and identify key areas for improvement.	

Qatar Aviation Services ground service vehicle

3.3 Qatar Aviation Services

Qatar Aviation Services is the sole ground handling services provider for all flights into Hamad International Airport. Qatar Aviation Services looks after every passenger, bag and consignment of cargo passing through the airport.

Qatar Aviation Services is based at Hamad International Airport, and participates in initiatives relating to:

- Emissions from airside vehicles
- Hazardous waste management
- Spill response procedures

Qatar Aviation Services' environmental improvement actions are summarised below:

Pending Progress Complete

Environmental Objectives	Improvement Theme	Projects	Status
Energy & Climate Change	Vehicle Fuel Management	**Diesel Additive Trial** Complete a trial of a diesel additive to evaluate the effectiveness of the additive in improving fuel efficiency and reducing fuel emissions.	Pending
Water & Land	Pollution Prevention	**Spill Response Procedures** Review and update existing spill response procedures and ensure availability of spill kits.	Progress
		Report and Monitor Ensure spills are reported on the occurrence reporting system and closed-out appropriately.	Progress
		Training and Awareness Raise awareness of spill response procedures for all employees and contractors.	Progress

Qatar Aircraft Catering Company catering vehicle

3.4 Qatar Aircraft Catering Company

Qatar Aircraft Catering Company is the sole catering company at Hamad International Airport, providing the catering for all Qatar Airways flights and other airlines using Hamad International Airport. Producing 120,000 meals per day, the catering building includes facilities for food preparation, storage, dishwashing and laundry.

The catering building is located on the airport campus and Qatar Aircraft Catering Company operates both airside and landside. Qatar Aircraft Catering Company is an active participant in the airport's environmental programmes for energy, vehicles, waste, and water. Qatar Aircraft Catering Company also manages its own revenue generating recycling contracts, aside from the main airport waste management contracts.

Qatar Aircraft Catering Company works with Qatar Airways in ensuring environmental standards are met for the procurement of sustainable ingredients and catering items.

Qatar Aircraft Catering Company's environmental improvements actions are summarised below:


Pending


Progress


Complete

Environmental Objectives	Improvement Theme	Projects	Status
Energy & Climate Change	Energy Management	**Measure and Monitor** Establish systems to measure and monitor liquid petroleum gas consumption.	
Waste	Waste Management	**Non-Hazardous Waste** Establish systems to measure and monitor all types of non-hazardous waste to reduce volume of waste sent to landfill, guided by the waste management hierarchy.	
		Hazardous Waste Establish systems to measure and monitor all types of hazardous waste to prevent pollution.	
		Training and Awareness Raise awareness of waste management procedures for all employees and contractors.	
Nature & Conservation	Sustainable Products and Contracts	**Materials Inventory** Review and maintain inventory of procured catering materials and identify any items that pose environmental risk.	
		Prohibited Items Review and update food policies to list prohibited items.	

3.5 Qatar Duty Free

Qatar Duty Free operates the retail experience at Hamad International Airport with 40,000 square metres of combined retail, food and beverage facilities. Qatar Duty Free is a premier airport shopping and dining location with more than 70 retail outlets offering an unprecedented selection of designer boutiques, high-street fashion labels, electronics and gadgets, gourmet foods, concept stores, and home-grown brands in addition to 30 food and beverage outlets.

As airport tenants, Qatar Duty Free participates in many of the environmental initiatives led by Hamad International Airport, including the programmes for energy, vehicles, waste, and water. Qatar Duty Free also works closely with Qatar Airways to improve the environmental performance of our catering items through the supply chain.

Qatar Duty Free's environmental improvements actions are summarised below:

Pending Progress Complete

Environmental Objectives	Improvement Theme	Projects	Status
Nature & Conservation	Sustainable Products and Contracts	**Materials Inventory** Review and maintain inventory of procured catering materials and identify any items that pose environmental risk.	
		Report and Monitor Ensure reporting of spills on the occurrence reporting system and monitor occurrences and close-out procedures are followed.	
		Alternative Plastic Bags Review the type of plastic bag used for retail, and identify alternatives with better environmental performance considering whole bag lifecycle.	

3.6 Qatar Distribution Company

Qatar Distribution Company is Qatar's only retail distributor of licensed products. It employs 95 staff at its retail store and warehouse in Doha.

Qatar Distribution Company's environmental improvement projects focus on waste management, maintenance of air conditioning equipment, and sourcing environmentally friendly plastic bags for its retail store.

Qatar Distribution Company's environmental improvement actions are summarised below:


Pending


Progress


Complete

Environmental Objectives	Improvement Theme	Projects	Status
Waste	Waste Management	**Non-Hazardous Waste** Establish systems to measure and monitor all types of non-hazardous waste to reduce volume of waste sent to landfill, guided by the waste management hierarchy.	
		Training and Awareness Raise awareness of waste management procedures for all employees and contractors.	
Noise & Air Quality	Air Conditioning Equipment and Gases	**Maintenance Procedures** Review and update existing air-conditioning equipment maintenance procedures.	
		Air Conditioning Equipment Inventory Create and maintain an inventory of all air-conditioning equipment and gases used in commercial buildings.	
		Compliance Plan Develop and implement plan for replacement of old-generation equipment.	
Nature & Conservation	Sustainable Products and Contracts	**Alternative Plastic Bags** Review the type of plastic bag used for retail, and identify alternatives with better environmental performance considering whole bag lifecycle.	

3.7 Qatar Airways Group environmental improvement plan summary

Our plans for environmental improvement span across the Qatar Airways Group with different business units and departments leading and participating in initiatives to deliver cross-functional improvements. This table highlights the responsibilities of our business units and key departments within Qatar Airways and Hamad International Airport to deliver Qatar Airways Group's environmental improvement plans.

		Qatar Airways														Hamad International Airport			Qatar Aviation Services	Qatar Aircraft Catering Company	Qatar Duty Free	Qatar Distribution Company
Environmental Objectives	**Improvement**	Cabin Services	Capital Projects	Cargo	Catering Services	Contracts	Corporate Services	E-commerce	Environmental Affairs	Flight Operations	Ground Services	Human Resources	Information Technology	Procurement	Product Development	Technical	Facilities Management	Operations	Strategy				
Energy & Climate Change	Aircraft Fuel and Emissions	▒		▒	▒				▒	■					▒	▒					▒		
	Passenger Carbon Offset							▒	■				▒										
	Sustainable Aviation Fuels								■														
	Vehicle Fuel Management			▒			■		▒		▒					▒	▒	■		■	▒	▒	▒
	Energy Management						■		▒							▒	■			▒	■	▒	▒
Waste	Waste Management	▒					■		▒		■		■		■	■	■			▒	■	▒	■
Water & Land	Water Management						■		▒							▒	■			▒	▒		▒
	Pollution Prevention						■		▒							■	■			■	▒		
Noise & Air Quality	Air Conditioning Equipment and Gases						■		▒								■						■
	Aircraft Air Emissions								▒							■							
	Aircraft Noise Emissions								▒	▒						■							
Nature & Conservation	Illegal Transportation of Endangered Wildlife	▒							▒											▒			
	Sustainable Buildings Design and Construction		■	■			▒		▒										■				
	Sustainable Products and Contracts				■	■			▒					■	▒						■	■	■
Management & Stakeholder Engagement	Group Environmental Management System	▒	▒	▒	▒	▒	▒		■	▒	▒	▒	▒	▒	▒	▒							
	Employee Accountabilities	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	■	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒
	Environmental Data			▒			▒		■	▒							▒	▒		▒	▒	▒	▒

KEY

■ Lead

▒ Participate

Qatar Airways Boeing 777 simulator

4. Environmental data and assurance

4.1 Environmental data tables[16]

General Business Information	Qatar Airways Group			Qatar Airways			Qatar Executive			Qatar Aircraft Catering Company			Qatar Aviation Services		
	2014-15	2015-16	2016-17	2014-15	2015-16	2016-17	2014-15	2015-16	2016-17	2014-15	2015-16	2016-17	2014-15	2015-16	2016-17
Employees	36,549	39,369	44,452	21,880	23,802	30,537	107	113	385	1,501	1,867	2,389	7,177	7,478	7,812
Passengers				22,352,000	26,654,000	32,007,211									
Passenger Flights				146,561	165,228	188,140			1,793						
Cargo Flights					15,339	20,414									
Cargo Tonnes				764,324	954,191	1,153,825									
Passenger Destinations						153									
Cargo Destinations						59									
Aircraft in Service	159	190	207	151	182 [B]	196 [B]	8	10	11						
Aircraft Average Age						5.9			4.5						
Aircraft Movements															
Airlines Served															

General business information	Qatar Duty Free			Qatar Distribution Company			Dhiafatina Hotels		UK outstations	Hamad International Airport (Directly Managed)		
	2014-15	2015-16	2016-17	2014-15	2015-16	2016-17	2015-16	2016-17		2014-15	2015-16	2016-17
Employees	1,807	2,011	1,824	91	100	95	77	71		1,055	1,235	1,339
Passengers												38,169,168
Passenger Flights												
Cargo Flights												
Cargo Tonnes										1,208,138	1,534,553	1,821,361
Passenger Destinations										147	156	160
Cargo Destinations												
Aircraft in Service												
Aircraft Average Age												
Aircraft Movements										193,332	222,868	250,419
Airlines Served										34	37	34

Hamad International Airport Campus Environmental Data	Total waste (tonnes)[Z]			Percentage of solid waste recycled[AA]			Potable water consumption (m^3)			Waste water influent (m^3)[BB]			Percentage of water treated for re-use[CC]		
	2014-15	2015-16	2016-17	2014-15	2015-16	2016-17	2014-15	2015-16	2016-17	2014-15	2015-16	2016-17	2014-15	2015-16	2016-17
	27,567	45,796	62,119	11%	24%	33%	3,497,892	4,789,058	5,114,678	612,599	1,750,231	2,056,929	90%	95%	91%

16 Blank cells indicate that the data is not applicable to the business unit or that historic data is not available.

	Qatar Airways Group			Qatar Airways			Qatar Executive			Qatar Aircraft Catering Company			Qatar Aviation Services		
Carbon Emissions (CO_2 tonnes) D	2014-15	2015-16	2016-17	2014-15	2015-16	2016-17	2014-15	2015-16	2016-17	2014-15	2015-16	2016-17	2014-15	2015-16	2016-17
Total - Scope 1 and 2	12,446,564	14,974,227	18,085,423	12,220,713	14,713,308	17,650,684	16,073	15,917	51,318	17,695	19,766	31,245	37,334	42,556	43,649
Total - Scope 1, 2 and 3 [E]			18,930,287												
Scope 1 (Direct emissions)	12,139,530	14,607,835	17,677,160	12,094,992	14,557,895	17,580,355	16,073	15,917	51,318	5,236	6,098	14,430	21,948	26,507	27,139
- Aviation fuel	12,110,601	14,573,440	17,631,165	12,094,535	14,557,531 [F, G]	17,579,851 [F, G]	16,066	15,909	51,314 [M]						
- Diesel	25,227	30,300	34,326							4,688	5,098	6,407	19,942	24,508 [O]	24,965 [O]
- Petrol	3,641	3,450	3,950	364	364 [H]	504 [H]	7	8	5	487	354	398	2,006	1,999 [O]	2,173 [O]
- Liquid Petroleum Gas	61	646	7,719							61	646 [N]	7,624 [N]			
Scope 2 (Indirect emissions)	307,034	366,392	408,263	125,721	155,413	173,624				12,459	13,668	16,815	15,386	16,049	16,510
- Electricity	307,034	366,392	405,443	125,721	155,413 [I, J, K]	173,624 [I, J, K L]				12,459	13,668	16,815	15,386	16,049	16,510
- Natural gas			2,820												
Scope 3 (Indirect emissions)			844,864												
- Tenant Fuel															
- Tenant Electricity															
- HIA Staff Travel (Business)															
- HIA Staff Travel (Work)															
- LTO, Taxiing and APU															
- Passenger Travel															

	Qatar Duty Free			Qatar Distribution Company			Dhiafatina Hotels		UK outstations	Hamad International Airport (Directly Managed)		
Carbon Emissions (CO_2 tonnes) D	2014-15	2015-16	2016-17	2014-15	2015-16	2016-17	2015-16	2016-17	2016-17	2014-15	2015-16	2016-17
Total - Scope 1 and 2	2,930	2,665	3,481	1,633	1,607	1,528		14,643	524	150,186	178,408	185,056
Total - Scope 1, 2 and 3 [E]												1,029,920 [E]
Scope 1 (Direct emissions)	113	164	138	14	11	4		1,744	0.31	1,154.00	1,243	2,033
- Aviation fuel												
- Diesel	97	130 [P]	117 [P]					1,649		500	563	1,188
- Petrol	16	34 P, [Q]	21 P, [Q]	14	11	4			0.31 [V]	654.00	680	844
- Liquid Petroleum Gas								95				
Scope 2 (Indirect emissions)	2,817	2,501	3,343	1,619	1,595	1,524		12,899	523	149,032	177,165	183,023
- Electricity	2,817	2,501	3,343	1,619	1,595	1,524		10,328 [R, S]	275 [W X]	149,032	177,165	183,023
- Natural gas								2,572 [T, U]	248 [Y]			
Scope 3 (Indirect emissions)												844,864 [E]
- Tenant Fuel												43,027
- Tenant Electricity												98,584
- HIA Staff Travel (Business)												122
- HIA Staff Travel (Work)												2,119
- LTO, Taxiing and APU												681,896
- Passenger Travel												19,116

Footnotes

A. Breakdown of employee numbers is provided for Qatar Airways Group divisions included within the scope of this report.
B. Qatar Airways aircraft in service includes wet-leased aircraft. The 2016 figure of 182 aircraft includes two wet-leased Boeing 747 Freighters. One of these aircraft remains in service and is included in the 196 aircraft counted as of 31 March 2017.
C. Accounts for aircraft landing and taking off.
D. CO_2 emissions have been calculated following the methodology set out within the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition) where the 'Control' approach has been used. The CO_2 conversion factors (a constant that varies according to energy type) are multiplied by the energy consumption (in litres, kilograms, or kilowatts) to arrive at the CO_2 emissions in kg, which is then divided by 1,000 to calculate the CO_2 emissions in tonnes. The CO_2 conversion factors for Jet A1 is 3.15 kg CO_2/kg fuel; diesel is 2.68 kg CO_2/litre; petrol is 2.27 kg CO_2/litre; liquid petroleum gas is 1.61 kg CO_2/litre; electricity is 0.49 kg CO_2/KWh.
E. Scope 3 has been calculated since 01 April 2016, hence no data is provided for 2015-16.
F. Includes Auxiliary Power Unit (APU) fuel consumption which is calculated based on actual APU utilisation hours per aircraft, and the estimated APU fuel burn by aircraft type.
G. Includes the fuel consumed of all wet-leased aircraft.
H. Only includes the fuel consumption of vehicles being monitored by Qatar Airways Transport Management Department.
I. Electricity consumption is based on the total cost (in Qatari Riyals (QAR)) divided by the unit rate (in kWh/QAR). However, the total cost includes "other charges", thus actual consumption is slightly lower.
J. Electricity consumption uses the single flat rate instead of slab rate. Although slab rate applies to Qatar Airways, it is difficult to calculate the exact consumption due to contributing factors.
K. Residential electricity consumption that is paid by Qatar Airways but recovered from staff salary is not included in this figure.
L. Includes electricity consumption of the new Tower 3 building.
M. Large increase in emissions compared to 2015-16 is due to transfer of aircraft from Qatar Amiri Flight to Qatar Executive.
N. LPG consumption is based on consumption stated on received invoices.
O. Includes fuel consumption of vehicles and other ground equipment.
P. Based on fuel invoices provided by Q-Jet and petty cash (using the Tyseer card) used for fuel uplifts. Q-Jet initially charges Qatar Airways for all fuel uplifts, then Qatar Airways back-charges this amount to Qatar Duty Free.
Q. Includes fuel consumption of Qatar Duty Free Food and Beverage (based on petty cash).
R. Excludes the electricity consumption of the Qatar Duty Free boutique located inside the hotel.
S. Novotel heating units were provided in m^3 (for gas). This was converted into kWh so that the correct emission factor could be used to calculate the carbon emissions.
T. The heating conversion factor for Novotel is based on an industry average fuel mix (in the UK) for combined heat and power based heat and steam. Novotel purchases heat from an off-site supplier.
U. Natural gas used for heating at Sheraton and Novotel is provided by an off-site energy supplier and invoiced directly to the hotels.
V. UK vehicle emission data (London) is measured and provided by the supplier via invoice.
W. Manchester and Birmingham stations are charged for their electricity consumption by the airport authority. Edinburgh and London Heathrow receive invoices directly from the off-site electricity provider.
X. The received electricity consumption invoices for London Heathrow cover a period of up to three months. The average consumption per day is calculated by dividing the total kWh with the total number of days. This is then used to estimate the total consumption for each month and ultimately for the year.
Y. Heating (natural gas) is provided by an off-site energy supplier and invoiced to Qatar Airways.
Z. Waste includes non-hazardous waste, hazardous solid waste, hazardous liquid waste, and inert waste. The mass of waste has been calculated by using density values of the particular waste in question and using the volume of the waste containers that the waste is put into. Multiplying the density and the volume and diving by 1,000 gives the waste in tonnage. It is assumed that the waste occupies the entirety of the waste containers.
AA. Calculated by dividing 'total recycled solid waste' by 'total solid waste' and multiplying by 100.
BB. Waste water influent is the volume of waste water collected by Hamad International Airport's waste water treatment plant.
CC. Percentage has been calculated by dividing 'treated water for re-use' by 'waste water influent' and multiplying by 100.

4.2 Assurance Statement

Context
We have been engaged by the Qatar Airways Group to perform an independent verification with reasonable assurance of the scope 1 and 2 carbon inventory data of the following business entities for the period 01 April 2016 – 31 March 2017 and presented in the Qatar Airways Group's Carbon Footprint report. This includes the following subsidiary businesses:

- Qatar Airways
- Qatar Executive
- Qatar Aviation Services
- Qatar Duty Free
- Qatar Duty Free Food & Beverage
- Qatar Aircraft Catering Company
- Qatar Distribution Company
- Hamad International Airport Qatar
- Dhiafatina Hotels
- Internal Media Services
- Qatar Aviation Lease Company
- Outstation - UK

All other information in the Qatar Airways Group's Carbon Footprint report is not subject to our assurance engagement and we do not report and do not opine on this information.

The Environmental Affairs department of the Qatar Airways Group is responsible for the preparation and presentation of the Qatar Airways Group's Carbon Footprint report, including the reported annual environmental data and information presented therein. We are responsible for providing an Assurance Statement on the reported annual environmental data presented in the Report. Verifavia S.A.R.L. and Verifavia (UK) Ltd. disclaim any liability or responsibility to a third party for decisions, whether investment or otherwise, based on this Assurance Statement.

Criteria
The criteria used by the Qatar Airways Group to report the carbon inventory data is the Greenhouse Gas Protocol – "A Corporate Accounting and Reporting Standard" (Revised Edition).

For Hamad International Airport, the carbon inventory data is also based on the requirements of the Airport Carbon Accreditation programme (Airport Carbon Accreditation Guidance Document Issue 10, September 2016).

We conducted the independent audit based on the following verification criteria:

- ISO14065:2013 – Greenhouse gases – requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition
- ISO14064-3:2012 – Greenhouse Gases – Specification with guidance for the validation and verification of greenhouse gas emissions and removals
- Chapter 10 of the Greenhouse Gas Protocol – "A Corporate Accounting and Reporting Standard" (Revised Edition)
- Section 10 of the Airport Carbon Accreditation Guidance Document Issue 10, September 2016

Responsibilities
The Qatar Airways Group is solely responsible for the preparation and reporting of their carbon inventory data, for any information and assessments that support the reported data, for determining the Group's objectives in relation to carbon information and management, and for establishing and maintaining appropriate performance management and internal control systems from which reported information is derived.

In accordance with the verification contract, it is the responsibility of Verifavia to form an independent opinion, based on the examination of information and data presented in the Carbon Footprint report, and to report that opinion to the Qatar Airways Group. We also report if, in our opinion:

- the carbon inventory data is or may be associated with misstatements (omissions, misrepresentations or errors) or non-conformities; or
- the verification team/verifier has not received all the information and explanations that it requires to conduct its examination; or
- improvements can be made to the operator's performance in monitoring and reporting of carbon inventory data.

We conducted our examination having regard to the verification criteria documents listed above. This involved a site visit previously to inspect the facilities and interview the staff responsible. It also included examining, on a test basis, evidence to give us reasonable assurance that the amounts and disclosures relating to the data have been properly prepared in accordance with the requirements of the Greenhouse Gas Protocol in terms of relevance, completeness, consistency, transparency and accuracy. This also involved assessing where necessary estimates and judgements made by the Qatar Airways Group in preparing the data and considering the overall adequacy of the presentation of the data in the Carbon Footprint report.

Independence statement
We confirm that Verifavia and the verification team are independent of the Qatar Airways Group and have not assisted in any way with the development of the carbon inventory or in the preparation of any text or data provided in the Carbon Footprint report, with the exception of this Assurance Statement.

Opinion
We conducted a verification of the carbon inventory data reported by the Qatar Airways Group in its Carbon Footprint report and presented above. On the basis of the verification work undertaken to reasonable assurance, these data are fairly stated and contain no material misstatements or material non-conformities.

Recommendations
Verifavia recommends that, in future carbon inventories, the Qatar Airways Group:

- extend the organisational boundaries of the inventory to all subsidiary companies and joint ventures over which it has operational and / or financial control, and to all non-aviation fuel emission sources located outside of the State of Qatar; and,
- extend the inventory to other emissions sources of greenhouse gases considered by the Greenhouse Gas Protocol and listed in the Kyoto Protocol (methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF6).

Paris & London, 8 August 2017
Julien Dufour, CEO, VERIFAVIA SARL & VERIFAVIA (UK) LTD

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