Annual Report and Accounts 2019

Strategic report

Contents

Chairman's statement

Safety and operational performance

It has been another year of good progress. Our ATCOs safely handled record numbers of aircraft whilst meeting our regulatory safety and flight delay standards. We also came very close to meeting our extremely ambitious internal safety metrics, set at the beginning of the current Reference Period (RP2: 2015-2019), when the forecast growth in number of flights being handled was significantly lower than has been accommodated. During the year, as a key milestone in our Deploying Single European Sky ATM Research (DSESAR) programme, we completed a significant technical upgrade in our TC operation with the deployment of an IT-based electronic flight strip process. The impact on flight delays was minimised through a comprehensive and complex transition plan created and managed in partnership with our airline customers.

The average NATS en route delay per flight for the 2018 calendar year was 12.5 seconds, including 4.8 seconds of delay specifically associated with the above transition (2017 calendar year: 6.2 seconds per flight). This performance was five times better than the average delays experienced elsewhere across Europe.

We also commenced the introduction of space-based Automatic Dependent Surveillance - Broadcast (ADS-B) surveillance data into our Oceanic operation. This is the first time anywhere in the world that an oceanic region has had the ability to receive automatic real-time position reports for every aircraft. When fully operational this innovative new service will enhance safety, and provide much needed additional capacity on the world's busiest oceanic routes. Airlines and their customers will also benefit from more efficient flight profiles, reducing fuel burn and carbon emissions.

Financial performance and dividends

The group's profit before tax at just over £98m (2018: £133m) was £35m less than the prior year mainly reflecting real price reductions to our customers, and an investment in additional staff to meet the growth in air traffic volumes and to progress our technology change and airspace programmes. The results are explained in more detail in the Financial Review.

The Board declared and paid dividends of £59.0m (2018: £57.0m) in the year and in May 2019 declared a first interim dividend of £30.0m for the 2020 financial year. The Board is committed to paying a regular and progressive dividend that reflects NERL's cost of equity together with any regulatory out-performance, as well as 25% of profit after tax of NATS Services.

Reference Period 3 (2020-2024)

Last summer we consulted customers on our plan to deliver a safe, high quality and resilient service 24/7 with higher traffic and at lower prices than in RP2. Alongside this we will play a key role in the modernisation of UK airspace and we will upgrade our Air Traffic Management (ATM) service. These will be enabled by the completion of the largest and most complex technology upgrade that we or any of our European counterparts have previously undertaken. These aims were shared across our industry and were strongly supported during our consultation with customers. The CAA has now published its draft proposals for the UK's National Performance Plan (NPP) for RP3. Whilst we agree with the CAA in several important areas such as safety, the priority for airspace modernisation and the need for satellite-based ADS-B surveillance, we have significant concerns with some key aspects of their other proposals. These would set service performance targets beyond our reach (when the European Union (EU) is setting lesser targets), and would provide insufficient funding for all the resources we need to deliver the day to day service together with our technology and airspace modernisation programmes. If these concerns are not addressed, we would be compelled to focus on provision of the current service and safety, resulting in a delay in the technology and airspace modernisation programmes. Such a delay would create additional longer term costs for our customers that far outweigh the additional resources we have sought for these important programmes. We also have concerns with the CAA's proposal for cost of capital, which would lead to materially lower returns for shareholders incompatible with the risks imposed. In our response to the CAA we have provided constructive input on how to achieve the strategic objectives the aviation industry requires while continuing to deliver excellent service performance which is amongst the most cost efficient in Europe.

Airspace modernisation

The Government's Aviation Green Paper sets out an ambitious plan for the future of UK aviation. Published alongside this was our technical feasibility study into airspace modernisation in the South of England recognising the importance of airspace change and our role in delivering it. We have been commissioned by the Department for Transport (DfT) and the CAA to create and maintain a strategic masterplan of airspace change out to 2040 and to create the ACOG to lead this change programme. This group comprising individuals from NATS, airports and airlines, will create and manage a collaborative programme to deliver airspace change, delivering further capacity for those wishing to fly, mitigating noise impacts on overflown communities and reducing CO_2 emissions from aviation.

Chairman's statement

Drones

Airspace modernisation is also an important enabler to facilitate the safe integration of commercial unmanned aircraft or drones with conventional aviation. Drones offer huge potential benefits to public services and the economy. However, as the number of unmanned aircraft grows, increasing the electronic visibility of drone flights is essential to keeping the skies safe. Last December's drone incident at Gatwick Airport was not only a serious local issue but one which impacted the whole of UK airspace leading to airline cancellations, delays and aircraft en route being diverted to other airports. The strength and design of the industry's defence against malicious attacks must therefore reflect the need to minimise the impact across the whole UK network.

Brexit

The growth in demand for air travel is generally closely related to the strength of the UK economy. While the full effects of Brexit, in whatever form it is eventually implemented, are unlikely to be understood prior to the start of RP3, the progress of negotiations over the next few months could give significantly more information about its nature and possible impact on the UK economy. In these circumstances, we have asked the CAA to reassess their traffic forecasts before finalising the NPP proposals for RP3. The case for this has been strengthened, given the current uncertainty.

We are planning on the basis that measures put forward by the UK and the EU will ensure that flights can continue in any Brexit scenario.

Governance, Board and employees

The new Corporate Governance Code came into effect for our financial year starting April 2019. It places greater emphasis on the relationship between the company, shareholders and stakeholders. We will explain how we have applied the new Code's principles in the 2020 Annual Report and Accounts.

After nearly 20 years of service as Finance Director, Nigel Fotherby will be retiring on 30 June 2019. On behalf of the Board, I would like to thank Nigel for his outstanding contribution over this period which included steering NATS through the process of creating the Public Private Partnership (PPP) in 2001, the regulatory and financial restructuring following the tragic events of 9/11 and leading the company's input into the price control reviews for our economically regulated en route air traffic service. We all wish him well for the future. Nigel will be succeeded by Alistair Borthwick who will join us from energy supplier SSE in August.

Since last year's annual report was published, Hugh McConnellogue and Louise Street have joined the Board as Airline Group appointed directors. Both have extensive experience in the airline industry and will be a welcome addition to the Board. Also in the period, Chris Hope left the Board and I would like to thank him for his knowledgeable and extensive contributions during his tenure.

On behalf of the Board, I thank our employees and the management team for their commitment during an exciting and successful year.

Paul Golby

Dr Paul Golby, CBE FREng
Chairman

Chief Executive's review

Overview

In 2019 we made excellent progress with our strategic objectives achieving each of the priorities we set for the financial year. Particular highlights for me included: the delivery of a safe and resilient ATC service, every day, against a backdrop of growing traffic and while introducing complex new technology; the positive testing of the infrastructure which will support London City Airport's future digital tower service; our first use of Aireon's space-based surveillance system; and the development of an ambitious business plan for RP3 which delivers a balanced set of outcomes for our customers. The CAA is consulting on this plan and we have responded to their draft proposals.

Electronic flight strips

We safely handled over 2.5million flights this year, which is a record for the UK, and represents just under 25% of all flights in Europe. While doing this, we completed the deployment into our TC operation of electronic flight strips, a major new electronic system which replaced a paper system. This followed a complex transition plan that we developed with airlines and airports to minimise the impact on their operations. We received very positive feedback from customers and other stakeholders on the manner and timing of this deployment. Electronic flight strips are one of the important enablers to airspace modernisation which we will undertake in RP3, and for this reason we introduced the technology early in our transformation programme.

Automatic Dependent Surveillance - Broadcast (ADS-B)

Until now, customers flying en route across the North Atlantic have received a procedural service reliant on a rigid route structure with speed and separation restrictions and periodic position updates. ADS-B is a surveillance technology in which an aircraft determines its position using satellite navigation and broadcasts this regularly, enabling it to be tracked in real-time.

In March 2019, we started using ADS-B to monitor flights across the North Atlantic and we are now trialling reduced separation standards with NAV CANADA, Canada's Air Navigation Service Provider (ANSP).

During the customer consultation on our RP3 business plan, we discussed how best to deploy ADS-B over the North Atlantic, the busiest area of oceanic airspace in the world with 800,000 flights projected by 2030. Analysis undertaken with NAV CANADA, endorsed by ICAO, projects around a 76% reduction in safety risk. ADS-B also gives customers more flexible routes, enabling fuel savings and reducing CO_2 emissions. Airline customers acknowledged these benefits but were concerned that an ADS-B service will mean additional cost. Airports were generally supportive as the technology will help improve transatlantic flows and on time arrivals into UK airports. In its draft RP3 proposals, the CAA acknowledged the safety and efficiency benefits and is considering customer concerns about cost. Our view is that the significant improvements in safety, capacity and environmental performance represent good value and are the right thing to do.

Technology transformation and airspace modernisation programme

DSESAR is a complex technology and transformation programme which, alongside modernising airspace, is necessary for managing the expected growth in air traffic. DSESAR is replacing our many disparate and ageing systems with a single, unified architecture to meet the needs of our customers, now and in the future. DSESAR is the key enabler for a more efficient use of airspace. It is well advanced and our aim is to deliver this change as swiftly and safely as possible. We will also be applying the lessons learned from the managed transition of electronic flight strips when deploying this new technology.

During our consultation on RP3, customers agreed with our proposals for the modernisation of airspace across the south east and Manchester regions. Not only will this benefit the industry with reduced delays and environmental benefits, it will help pave the way for increased safe access for newer airspace users like drones.

As the Chairman has highlighted, as the experts in ATM, we have been tasked to create ACOG which will lead the airspace modernisation programme. During RP3, this will enable us to coordinate with airports and airlines the modernisation of upper and lower airspace. ACOG will also enable the cross industry coordination of other initiatives on airspace use such as: free route airspace; queue management solutions; and satellite navigation route design.

This year we completed airspace changes at the interface between UK airports and the Channel Islands, implemented new routes to facilitate a new military danger area complex in the North Sea and additional capacity to feed the Clacton sector, one of the most congested parts of our airspace. These are enabling airline fuel savings and increased network capacity.

Investment in Aireon

Last summer, we invested £51m (US$69m) for a minority interest in Aireon, which provides space-based ATC surveillance from a network of satellites by monitoring ADS-B equipped aircraft. We made this investment as it will enable us to shape the future of surveillance services to the benefit of customers and ensure that we play a leading role in the development of this technology. Significantly, Aireon's satellite constellation was successfully completed this year and is now operational, enabling its use in our oceanic service.

Chief Executive's review

Commercial developments

We are recognised for our world-class capabilities in managing busy and complex traffic flows and we are being sought out for this capability and our innovation in ATC. This year we secured a 10 year contract at Cardiff and St Athan airports, which strengthens our UK airports service. We are working on two digital tower projects: for London City Airport which will be the first major UK airport to receive such a service - the infrastructure is in place and our Swanwick operation is receiving live video feeds; and a prototype for Singapore's Changi Airport, which is also making good progress. Our International operation is also providing ATCOs to the Airport Authority of Hong Kong.

We are now collaborating with McLaren Deloitte on technology to enable us to better understand and predict the impact of operational decisions to maximise available airspace capacity and minimise delay. We believe combining our strengths with experts outside of the traditional aviation industry will enable us to develop innovative tools and services for ourselves, existing and new customers alike.

People

Our people are key in delivering our strategy and achieving our vision. Our people and organisation strategy is aimed at ensuring that, as we transform our business and respond to the demographic profile of our workforce, we have the right level of resources and mix of skills we need to achieve our objectives. At the same time, we want our people to feel NATS is an inspiring and inclusive place to work where diversity is valued, within an environment that promotes personal growth and development.

Looking ahead

I expect this summer to be at least as busy as last year's and we will continue our focus on providing a safe and resilient service to all of our customers.

We will also be looking to conclude the RP3 settlement in the autumn, as this will determine our plan for the next five years. We will be looking to the CAA to make important changes to their draft proposals, including providing the right level of resources and flexibility to enable us to achieve the strategic objectives that our industry wants while continuing to deliver one of the best levels of service performance in Europe and, as our proposals set out, at rates of cost efficiency improvement that are even tougher than EU-wide targets. We have seen the results of underinvestment in ATM services in other parts of Europe and the huge impact this has on the travelling public; it is essential that the UK, through NATS, continues to deliver a world class safe service in this pillar of its national infrastructure.

Over the coming years we will be deploying new technology which will transform the basis of our service to customers, such as London City Airport and airlines flying across the North Atlantic, and which move us closer to transforming our operational systems into a modern, flexible platform for the future.

Finally, Nigel Fotherby, our Finance Director retires this month after nearly 20 years of service to NATS. I would like to take the opportunity to personally thank Nigel for his support and counsel. His deep understanding of the group's finances and the regulatory framework and his passion for the business and his leadership, have been invaluable to the company, its executive team and to me, and I wish him every happiness in his well deserved retirement.

Martin Rolfe, FRAeS
Chief Executive

Financial review

Group profit before tax at £98.2m (2018: £132.8m) was £34.6m lower than last year's result. This mainly reflected the further real price reductions for our en route service in RP2, which offset the benefit of higher air traffic volumes in the year, and the investment we are making in operational staff to meet the growth in air traffic and to progress our technology change and airspace programmes (the latter also resulting in higher non-staff costs). Other factors included the transfer of the Edinburgh Airport ATC contract to another provider at the end of the last financial year, and a small impact from the adoption of IFRS 15: *Revenue from Contracts with Customers*, the effect of which is explained below. Partly offsetting these factors were: improved income from our subcontracts relating to the MOD's Project Marshall[5] contract and lower staff pension costs.

	£m	£m
2018 profit before tax		**132.8**
Revenue changes		
Airspace		
UK en route revenue	(3.9)	
Impact of adopting IFRS 15	(2.2)	
Service performance incentive	(2.9)	
Other revenue changes (net)	(1.9)	
	(10.9)	
Airports		
Airport ATC and engineering	(6.3)	
Impact of adopting IFRS 15	(10.4)	
Reduction in airport property charges	(8.1)	
	(24.8)	
Defence	5.9	
Other	2.4	
		(27.4)
Operating cost changes		
Staff costs	(10.0)	
Non-staff costs		
Impact of adopting IFRS 15	10.4	
Reduction in airport property charges	8.1	
Other non-staff	(13.6)	
Depreciation and amortisation, net of grants	(4.1)	
Gain on disposal of assets	2.1	
		(7.1)
Finance cost changes		
Fair value movement on financial instruments	(6.2)	
Other net finance costs	3.6	
		(2.6)
Results of associates and joint ventures		**2.5**
2019 profit before tax		**98.2**

Financial review

Adoption of new International Financial Reporting Standards (IFRSs)

The group adopted IFRS 9: *Financial Instruments* and IFRS 15 in the year. In both cases, the cumulative effects of initial application have been recognised as adjustments to the opening balance sheet, and comparative periods have not been restated. Further detail on the transitional impact of these standards is described in note 35. Overall, the adoption of these IFRSs has not had a material impact on the profit before tax for the year:

	Year ended 31 March 2019		
	As reported under previous accounting standards £m	**Impacts of IFRS 9 and IFRS 15 £m**	**As reported under IFRS 9 and IFRS 15 £m**
Revenue	898.1	(12.4)	**885.7**
Operating costs	(773.4)	10.2	**(763.2)**
Operating profit	124.7	(2.2)	**122.5**
Profit before tax	99.3	(1.1)	**98.2**
Net assets	768.6	9.4	**778.0**

Net assets have increased by £9.4m. This is mainly due to the accelerated revenue recognition of the recovery of higher defined benefit pension contributions than our economic regulator assumed would be paid in RP1 (2012-2014). In addition, the recovery from airport customers of charges for certain airport facilities and for safety regulation (totalling £10.4m) has been reported within operating costs rather than within revenue, which does not change profit before tax or net assets.

Regulatory return

In the 2018 calendar year, NERL achieved a pre-tax real return of 7.1% (2017 calendar year: 10.9%) compared with the regulatory return of 5.9% assumed in the RP2 Performance Plan. This reflects better revenue from faster growth in air traffic volumes and higher capital expenditure and pension costs than the Plan assumption. These factors were partly offset by the cost of our investment in operational staff and to progress the technology change and airspace programmes. These additional costs will also be incurred in 2019, the final year of RP2. Taking into account higher revenue, but also higher costs, we expect to achieve the regulatory rate of return over the five-year period.

Comparison of reported profit and regulatory return

Profit reported in these financial statements is prepared in accordance with IFRS and policies described in note 2 to these accounts. As described below, the CAA applies an economic regulatory building block model which is mainly cash-based.

This can give rise to some significant differences between reported operating profit and regulatory return, mainly due to:

- lower historical cost depreciation compared with regulatory depreciation which is indexed to inflation; and
- lower accounting pension costs using best estimate assumptions prescribed by accounting standards compared with cash contributions agreed with Trustees, which include a margin for prudence.

Regulatory accounts are also prepared on a calendar year basis. These differences mainly explain why NERL's reported operating profit is some £51m higher than its regulatory profit.

Revenue

Revenue at £885.7m (2018: £913.1m) was 3.0% lower than last year. This reduction mainly reflects the impacts of IFRS 15 (see above), further real price reductions for our en route service in RP2 which offset the benefit of higher traffic volumes, a service performance penalty compared with a bonus in the prior year, the transfer of the Edinburgh Airport contract and a reduction in recharges of airport property costs (with no margin impact). These factors were partly offset by increases in airport engineering income and from our subcontracts relating to the MOD's Project Marshall contract and higher revenue from our contracts in Asia Pacific.

Operating costs

	2019 £m	2018 £m
Staff costs	**(446.4)**	(436.4)
Non-staff costs	**(183.9)**	(188.2)
Depreciation and amortisation, net of grants	**(141.1)**	(137.0)
Profit on disposal of assets	**2.1**	-
Other operating income	**6.1**	5.5
Total operating costs	**(763.2)**	(756.1)

Operating costs at £763.2m (2018: £756.1m) increased by 0.9%. Staff costs of £446.4m (2018: £436.4m) were 2.3% higher. This mainly reflected higher pay and employee share scheme costs partly offset by a lower accrual rate for the defined benefit pension scheme (see below) and lower redundancy.

The average number of employees during the year was 4,464 (2018: 4,310) and there were 4,591 (2018: 4,382) employees in post at 31 March 2019.

Non-staff costs at £183.9m (2018: £188.2m) were £4.3m lower than the previous year. The impact of IFRS 15 (see above) and a reduction in airport property related charges were partly offset by the cost of supporting commercial contracts and the technology change and airspace programme.

Financial review

Depreciation and amortisation increased to £141.1m (2018: £137.0m). This included a full year's charge for electronic flight strips and impairment charges of £5.0m (2018: £5.7m). The group also made gains on the disposal of radio mast sites of £2.1m in the year.

Net finance costs and fair value movements on financial instruments

Net finance costs of £21.0m were £3.6m lower than last year (2018: £24.6m), reflecting a reduction in the bond's principal which is being repaid by semi-annual instalments.

Fair value charges of £4.9m (2018: £1.3m credit) were recognised in the year. Of this amount, £3.0m (2018: £1.3m credit) related to a change in market value of the index-linked swap liability. This swap was taken out in 2003 as an economic hedge for NERL's revenue allowance for financing charges, which is linked to inflation. The swap is accounted for at fair value with changes in fair value recognised in the income statement. Fair value can be volatile and is sensitive to market expectations of inflation and swap discount rates over the time to expiry of the contract in 2026.

The remaining fair value charge of £1.9m was in respect of an equity investment in Aireon, based on the company's assessment in present value terms of the amount and timing of projected dividends. In May 2018 we acquired a strategic interest in Aireon by investing £51.0m (US$68.75m) in convertible preference stock which is intended to result in an ordinary stock holding of just over 11% by 2021.

Joint ventures, associates and other investments

The group recognised a net profit of £1.6m (2018: £0.9m loss) for the results of joint ventures and its associate. This mainly reflected a share of earnings from Aquila, for which an impairment provision was recognised in the prior year, and a small profit by Searidge Technologies. The results of FerroNATS and European Satellite Services Provider SAS (ESSP) were broadly in line with the prior year.

Taxation

The tax charge of £15.9m (2018: £20.1m) includes current tax of £4.5m (2018: £4.6m) and deferred tax of £11.4m (2018: £15.5m). Overall, the charge was at an effective rate of 16.2% (2018: 15.1%). This is lower than the headline rate of 19%, mainly reflecting the deferred tax impact of the reduction in the corporation tax rate to 17% from April 2020 and the lower tax rate on patent box income.

NATS' taxes generally arise in the UK, though it undertakes business in other countries. Wherever we operate we organise our operations to pay the correct and appropriate amount of tax at the right time, according to relevant national laws, and ensure compliance with the group's tax policies and guidelines. During the year the company received a refund of UK corporation tax of £0.8m (2018: paid £6.7m), reflecting claims for R&D allowances, and incurred no foreign taxes (2018: paid £0.1m). The group also pays other taxes such as employer's national insurance contributions, business rates and the apprenticeship levy, which are significant costs. The group's tax strategy can be viewed at www.nats.aero.

Balance sheet

	2019 £m	2018 £m
Goodwill	**198.3**	198.3
Tangible and intangible fixed assets	**1,064.2**	1,049.5
Investments	**50.9**	-
Other non-current assets	**54.8**	49.1
Cash and short term deposits	**261.0**	307.9
Derivatives (net)	**(119.8)**	(127.3)
Borrowings	**(334.9)**	(379.4)
Pension scheme (deficit)/surplus	**(22.1)**	110.6
Deferred tax liability	**(97.8)**	(115.5)
Other net liabilities	**(276.6)**	(212.3)
Net assets	**778.0**	880.9

The decrease in net assets in the year mainly reflects the change in the IAS 19 funding position of the defined benefit pension scheme, which reported a deficit (2018: surplus - see below), as well as retained earnings net of dividends paid in the year.

Capital investment

	2019 £m	2018 £m
SESAR deployment	**113.2**	135.9
Airspace modernisation	**7.5**	7.4
Infrastructure	**14.4**	16.1
Operational systems	**5.0**	10.8
Other	**8.3**	8.5
Regulatory capex	**148.4**	178.7
Military systems	**1.6**	1.3
Other non-regulatory capex	**6.5**	5.6
Capital investment	**156.5**	185.6

We spent £156.5m (2018: £185.6m) as we continue to make good progress with our technology and transformation programme to deploy new ATC equipment and software in RP3.

Financial review

Defined benefit pensions

The group operates a final salary defined benefit pension scheme with 1,990 employee members at 31 March 2019 (2018: 2,089). The scheme was closed to new entrants in 2009 and a defined contribution scheme was put in place. More information on our pension arrangements is provided in note 31 to the financial statements.

a. IAS 19 charge and funding position

The cost (including salary sacrifice and past service) of defined benefit pensions at £66.3m (2018: £92.6m) reflected a lower accrual rate of 35.9% (2018: 48.6%) of pensionable pay.

IAS 19 pension deficit	£m
At 1 April 2018	110.6
Charge to income statement*	(66.3)
Actuarial gains/(losses):	
- on scheme assets	180.5
- on scheme liabilities	(346.9)
Employer contributions*	100.0
At 31 March 2019	**(22.1)**
Represented by:	
Scheme assets	4,767.7
Scheme liabilities	(4,789.8)
Deficit	**(22.1)**

*including salary sacrifice

At 31 March 2019, the scheme's liabilities exceeded its assets by £22.1m (2018: £110.6m surplus) as measured under International Accounting Standards (IAS 19) using best estimate assumptions. The real yield on AA corporate bonds used to value pension obligations decreased by 30 basis points during the year, which increased liabilities by more than the growth in the scheme's assets. The size of the scheme relative to the group means changes in financial market conditions can have relatively large impacts on the results and financial position.

b. Trustee valuation and funding obligations

The funding of the defined benefit scheme is subject to agreement between the company and the scheme's Trustees based on the outcome of their formal valuation. This valuation uses a wide range of financial and demographic assumptions for measuring pension liabilities and legislation requires a margin for prudence. As a result, the Trustees' valuation gives a different outcome to the valuation under IAS 19 for the company's financial statements.

The Trustees completed a formal valuation at 31 December 2017 which reported a funding deficit of £270.4m. The scheme's actuary also determined that the cost of employee benefits accruing in future was 41.8% of pensionable earnings (excluding salary sacrifice), and contributions will reflect this from January 2020. Trustees agreed to maintain the recovery plan to repair the deficit by December 2026. This means the company will make deficit contributions of £41.8m in the 2019 calendar year and £25.4m from 2020, increasing by 2.37% in each of the following three years. These contributions, with assumed investment outperformance, are expected to restore the funding position by December 2026.

NERL's contributions are higher than the regulator assumed for RP2. To the extent that this was caused by changes in financial market conditions, we expect to recover these through higher prices in RP3 and in subsequent reference periods. NATS Services will meet its share of NATS' obligations from its cash reserves.

Net debt and cash flow

	Cash and short-term investments £m	Borrowings £m	Net debt £m
Balance at 31 March 2018	307.9	(379.4)	(71.5)
Cash flow	(47.1)	45.4	(1.7)
Non-cash movements	0.2	(0.9)	(0.7)
Balance at 31 March 2019	**261.0**	**(334.9)**	**(73.9)**

At 31 March 2019, the group had borrowings of £334.9m (2018: £379.4m) and cash and short-term investments of £261.0m (2018: £307.9m). Net debt increased to £73.9m (2018: £71.5m).

At 31 March 2019, the balance outstanding on NERL's bond was £336.2m (2018: £381.3m). NERL had no outstanding bank loans (2018: £nil) but has available bank facilities of £400m, which expire in July 2022. More information is provided in note 18 to the financial statements.

The group generated £294.5m (2018: £338.0m) from its operating activities. This mainly reflected lower cash receipts than the previous year and higher supplier payments, which were partly offset by lower tax payments and pension contributions reflecting a lower pensionable payroll for the defined benefit scheme. The cash from operations financed the group's capital investment and its debt service obligations.

Nigel Fotherby
Finance Director

Going concern and viability statements

Going concern

The group's business activities, together with the factors likely to affect its performance and financial position, its cash flows, liquidity position and borrowings are set out in this Strategic report. In addition, note 20 to the financial statements describes the group's objectives, policies and processes for managing its capital and its financial risks; and details its financial instruments and hedging activities.

At 31 March 2019, the group had cash of £261m and access to undrawn committed bank facilities of £400m that are available until July 2022. The group's forecasts and projections, taking account of reasonably possible changes in trading performance, show that the group should be able to operate within the level of its existing facilities for the foreseeable future. The UK en route business also benefits from some protections against traffic volume risk afforded by its price control conditions. Other sources of income are generated mainly from long term contracts. As a result, the directors believe that the group is well placed to manage its business risks.

The directors have formed a judgement that, taking into account the financial resources available, the group has adequate resources to continue to operate for a period of at least twelve months from the date of approval of the financial statements, and have therefore adopted the going concern basis in the preparation of the financial statements.

Viability statement

The directors have assessed the viability of the group based on its current position and future prospects, its business strategy and available financial resources. The directors have also assessed the potential financial and operational impacts in plausible downside scenarios of the principal risks and uncertainties facing the business set out on page 22 and the effectiveness of currently available mitigating actions. On this basis, the directors have a reasonable expectation that the group will be able to continue in operation and meet its liabilities falling due over the three-year period to 31 March 2022.

This period of assessment is based on the group's budget for the 2019/20 financial year and projections for the two years thereafter based on our RP3 business plan submitted in October 2018 to the CAA. The Board considers that there is greater certainty around forecasting assumptions over a three-year period, taking into account the CAA's regulatory review for RP3 which is currently still in progress.

Specific consideration has been given to:

> The RP3 review: taking into account the general duties of the CAA and the Secretary of State for Transport under the Transport Act 2000 to exercise their functions in the manner they think best calculated to secure that NERL will not find it unduly difficult to finance activities authorised by its licence;

> Brexit: the risk of lower revenue in RP2 from a reduction in en route air traffic volumes would be partly mitigated by the traffic volume risk sharing provisions of NERL's licence and EC Regulations. A new traffic forecast will be set for RP3 by the CAA and we have requested the CAA to reflect our updated forecast provided in May 2019;

> Recovery of capital investment: we consulted extensively with our customers on our forecast increase in capital expenditure relative to the RP2 Performance Plan setting out both the costs and benefits. On this basis we expect to recover additional costs through NERL's revenue allowances in RP3 and subsequently;

> Defined benefit pensions: following the 2017 pension valuation by Trustees, the directors consider that NERL's contributions will be recovered through prices in RP2 and future reference periods, including additional contributions arising from unforeseen changes in financial market conditions since the Performance Plan for RP2 was set, while contributions from NATS Services will be met from operating cash flows.

Key performance indicators

We adopt a number of financial and non-financial key performance indicators (KPIs) that enable us to track progress against our business plan objectives. For NERL, KPIs are largely aligned with Single European Sky (SES) key performance areas, ensuring management focus on safety, service quality, environmental and cost efficiency targets. For NATS Services, the focus of management is on safety, customer service and on growing the business profitably. A number of metrics are also used to set targets for remuneration purposes and so align incentives with business objectives. KPIs are measured on a financial year (FY) or calendar year (CY).

NATS' actual performance relating to financial and non-financial KPIs

Description		FY 2019 or CY 2018	FY 2018 or CY 2017
Financial KPIs			
Profit before tax:	NATS Group	**£98.2m**	£132.8m
	NERL	**£86.0m**	£134.2m
	NATS Services	**£14.5m**	£2.5m
Non-financial KPIs			
Safety performance:			
NATS Group: category A or B Airprox[2] attributable to NATS (financial year)		**nil**	nil
Calendar year metrics:			
NATS Group KPI: RAT[6] points (12 month rolling)		**1,200**	1,440~
NERL KPI: RAT points (per 100,000 flights, 12 month average)		**34.1**	42.7~
NATS Services KPI: RAT points (per 100,000 flights, 12 month average)		**20.1**	21.8~
Service performance and resilience:			
NATS Group: customer satisfaction score (%)		**85.7%**	84.5%
NERL KPIs:			
Average delay (seconds per flight, financial year)		**11.5**	7.2
Average delay (seconds per flight, calendar year)		**12.5**	6.2
Impact score[7] (weighted seconds per flight, calendar year)		**17.0**	12.7
Variability score[8] (weighted seconds per flight, calendar year)		**16.1**	0.6
3Di[9] score (calendar year)		**29.2**	29.6
Environmental performance (financial year):			
Scope 1 emissions (tonnes CO_2e)*		**4,094**	3,982
Scope 2 (Location-based tonnes CO_2e)*		**16,561**	21,223
Scope 2 (Market-based tonnes CO_2)*		**21,024**	20,628
Scope 1 + 2 intensity metric (tonnes CO_2e per £m of revenue)		**23.3**	27.6
Progress against 10% enabled ATM-related CO_2 emissions reduction target		**6.9%**	6.4%
Scope 4 (Modelled enabled ATM-related CO_2 reduction in tonnes)**		**113,700**	273,600^
Water consumption (cubic metres)*		**64,285**	54,624
Energy consumption (gas & electricity) MWh		**71,262**	71,697

~ RAT points restated following moderation. 2018 calendar year values remain subject to final moderation.
^ restated for modelling accuracy, data quality, updated traffic forecasts and changes to NATS' airport portfolio.
Certain metrics have been verified in accordance with the ISO 14064-3 standard on greenhouse gas (GHG) quantification, monitoring and reporting by DNV GL, a quality assurance and risk management company, to a reasonable (*) or limited (**) level of verification. A verification statement and GHG report is available at www.nats.aero/environment/cr.
Modelled enabled ATM-related CO_2 reductions represent the saving in CO_2 emissions from improvements to the ATM network, such as technical changes which enable us to provide more fuel-efficient flight profiles, based on projections of the volume of flights likely to take advantage of the improvements. The enabled reduction in emissions is reported in full in the year in which the improvement is made. This is modelled based on industry best practice and is outlined in detail in our GHG report.

Safety, regulatory environment and outlook for air traffic volumes

Safety

Safety performance

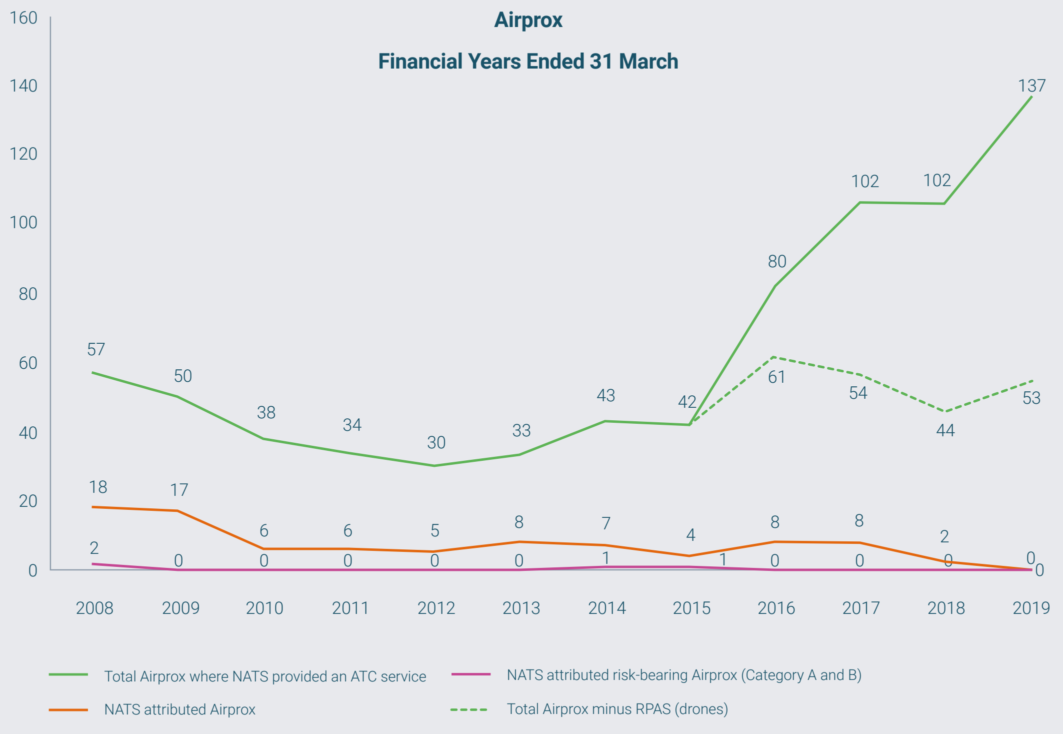
We maintained our safety performance this financial year, with no category A or B Airprox event attributable to NATS (2018: nil). This was achieved while handling a record number of flights and completing last summer the deployment of electronic flights strips into TC.

We continue to meet the three safety performance targets set for the end of RP2 by the UK and European regulators in the SES performance scheme, which are based on: the effectiveness of safety management; the use of the Risk Analysis Tool (RAT[6]) to assess the severity of safety events; and the extent of Just Culture training.

Additional to the EU safety targets, NATS uses internal targets and the RAT to monitor its internal safety performance and further analyse the severity and risk of air traffic events. The internal targets for RP2 were set against a lower forecast of traffic than we continue to experience, resulting in their achievement being very challenging. Although our control centres experienced some of their busiest days this year, we were able to achieve an improvement in safety performance. On a 12-month rolling basis, for calendar year 2018, we achieved a RAT score of 1,200 points (calendar year 2017: 1,440 points) relative to a stretching internal target of 1,119.

This reflects a combination of factors including the management of changes in the operation and targeted safety improvement activities. The deployment of electronic flight strips contributed to a reduction in RAT points relating to the TC operation, which is now a less tactical operation than previously, reflecting a reduction in controller workload and an improved framework for decision making by operational supervisors which was developed during the deployment of electronic flight strips. Also, although the overall rate of traffic growth was less than the prior year, there was significant variation across the operation and between different sectors of airspace. The safety improvement actions, particularly in these busier sectors of airspace, played a material part in our improvement in safety performance.

The number of Airprox events (see graph) has increased significantly since 2014 with events associated with Remotely Piloted Aircraft Systems (RPAS), or drones, accounting for almost all of the increase. This reflects the continued growth of drone activity in airspace controlled by NATS and across the UK generally. Drone sightings not resulting in an Airprox event have also increased steadily over time and the true number of drone infringements into controlled airspace, many of which go undetected, remains unknown.



Historical data includes Birmingham, Gatwick and Edinburgh which are no longer NATS airports

Safety, regulatory environment and outlook for air traffic volumes

Safety improvements

The number of drone incidents is continuing to increase and the potential for these to impact the airspace network was demonstrated by the incident at Gatwick Airport. We are continuing to engage directly with the CAA and with our industry partners to educate drone users and to develop solutions for their safe integration into UK airspace. Since the Gatwick Airport incident, the DfT has introduced new legislation that expands the range of flight restriction zones around all aerodromes, as well as increasing police enforcement powers. Also, in order to better manage any future disruption, we have improved procedures and guidance for those airports at which we provide an ATC service.

In response to a growth in demand from airspace users (other than commercial airlines) for access to controlled airspace, and to new legislation restricting drone operations within the vicinity of airports, we have implemented the Airspace User Portal. This provides users and approving authorities, including NATS, with a more efficient and automated flight planning application and approval process. It also provides NATS and other authorities with a clear understanding of drones which have been approved to operate in controlled airspace and to distinguish these from unauthorised operators.

The drone safe website is now the source of all consumer-focused drone resources and there are now 100,000 users of the Drone Assist Application, providing recreational drone pilots with assistance in identifying areas of restricted airspace. Our partnership with Sky Futures has continued to deliver expert commercial drone training to the growing commercial drone sector and to the emergency services. These initiatives support the safe integration of drones with conventional aviation.

We continue to support the CAA's initiatives to reduce infringements of controlled airspace. This includes participating in all the local airspace infringement teams where NATS provides ATC services in the vicinity of the aerodrome.

Our main focus has been supporting and influencing the CAA's strategy for the adoption of interoperable electronic conspicuity solutions in areas of high infringement activity. The CAA has indicated that electronic conspicuity will be a key enabler of future airspace development, delivering improved safety, increased flight efficiency and broader airspace access and capacity.

Our plan to bring safety and capacity benefits to oceanic airspace by deploying a space-based surveillance system (ADS-B) was discussed extensively with airlines through the RP3 consultation. For safety reasons, the horizontal separation standard between aircraft flying at the same altitude in oceanic airspace is greater than for aircraft flying in UK airspace, where a network of ground-based radar enables monitoring in real-time. Deployment of space based ADS-B will deliver safety benefits which cannot be achieved by currently available alternative means.

Regulatory environment

NERL is subject to economic regulation under the European Commission's SES Performance Scheme for Air Navigation Services. The impact of Brexit on these arrangements remains unclear. However, the UK's Transport Act 2000 provides a national regulatory framework if the SES Performance Scheme no longer applied.

For the time being, the UK must still develop a performance plan and targets consistent with EU-wide targets set by the European Commission (EC) in preparation for RP3. The European regulatory framework for the SES Performance Scheme for RP3 was set in December 2018 and EU-wide targets for safety, capacity, environment and cost efficiency set in April 2019.

NERL provided a business plan for RP3 to the CAA in October 2018, which followed consultations with customers last summer, and in February 2019 the CAA published for consultation the draft RP3 NPP.

Our analysis of the NPP is that, if we were to accept it as currently constructed, we would be unable to meet our licence obligations in RP3. The NPP proposals: a) increase targets across a broad range of areas, beyond levels in our business plan that are already stretching and more than meet the EU-wide targets; b) provide insufficient funding for the resources that we need to deliver the service and our technology and airspace modernisation programmes; and c) propose materially lower returns for shareholders. In our view, the CAA's proposals mean that the core outcomes of our plan will be unachievable within the timescales of RP3.

Therefore, in our response to the CAA's consultation we have made clear that we cannot accept the CAA's proposals in their current form without important changes. In order to engage as constructively as possible, we set out a number of alternative proposals for the NPP in our response, which would enable us to achieve the strategic objectives that our industry wants while continuing to deliver one of the best levels of service performance in Europe. This would all be done at levels of cost efficiency that exceed EU-wide targets for both RP2 and RP3.

We expect the CAA's Board to reach a decision on the NPP in mid-July 2019 with publication in September 2019, with the opportunity for all stakeholders to make representations to the UK's DfT before submission to the EC. This will then be followed by a statutory consultation on modifications to NERL's licence required to implement licence changes for RP3, which will require NERL's agreement.

Safety, regulatory environment and outlook for air traffic volumes

Outlook for air traffic volumes

The current operating environment for ATM in the UK is defined by the highest traffic volumes we have experienced; a trend which is set to continue in the coming years.

We have managed significantly more flights in RP2 than was assumed when the RP2 plan was developed. In the 2018 calendar year we handled around 5.6% more traffic than the RP2 Performance Plan forecast. Over the five years of RP2 we estimate that traffic will have grown by 13.9%, and will be 4.5% higher than the RP2 Performance Plan for this period.

We are forecasting further annual growth in UK and oceanic flights during RP3. Annual UK flights are forecast to rise by an additional 11.1% in RP3 to 2.8 million. This forecast reflects a slowing in the rate of annual growth, mainly as a result of airport capacity constraints within the UK.

While UK GDP is not directly correlated with traffic growth, it is a significant driver of disposable income and economic prosperity which results in higher passenger demand. There is significant uncertainty around the economic forecasts for the years to 2024, affecting our RP3 plan. This is particularly the case given Brexit and the effect this may have on the UK economy over the coming years. For this reason we have asked the CAA to reassess their traffic forecasts before finalising the NPP proposals for RP3.

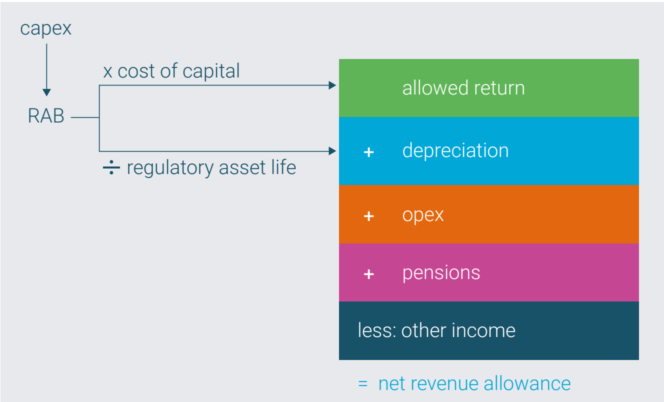
Our business model

We generate our income from the provision of ATC and related services. Our activities are mainly conducted through NERL and NATS Services.

NERL

NERL is our core business and is the sole provider of ATC services for aircraft flying en route in UK airspace and the eastern part of the North Atlantic. It is economically regulated by the CAA within the framework of the EC's SES and operates under a licence granted under the Transport Act 2000. En route, London Approach and North Sea helicopter advisory services are regulated by this licence. NERL also provides the MOD with engineering, surveillance and communications services. All of these activities are reported within Airspace.

The CAA establishes revenue allowances for NERL's economically regulated activities for a reference period which remunerate NERL's efficient investment (capex), operating costs (opex), pensions and an allowed return on the capital invested in the Regulatory Asset Base (RAB) to recover the cost of capital. The RAB represents the value ascribed to the capital employed in the regulated businesses. NERL's income from other activities is deducted under a 'single till', leaving a net revenue allowance. A price per service unit is set to recover this based on forecast traffic for the reference period. This model is illustrated below.



The price control for RP2 was based on revenue allowances of £2.7bn (expressed by the CAA in 2012 prices) and provides for a real pre-tax cost of capital of 5.9%. The CAA also sets targets, and provides incentives, for service and environmental performance. It sets a gearing target of 60% of net debt to RAB and cap of 65%. If regulatory and other assumptions are borne out in practice, then NERL would earn a return of 5.9% p.a. It can earn additional returns if it outperforms the CAA's assumptions by being more cost efficient, by financing its business at lower cost, if traffic volumes (after risk sharing - see below) are higher than forecast or if it outperforms service targets. NERL would earn lower returns if the opposite applied.

The EC legislation provides mechanisms which mitigate the impact of certain variations in traffic volumes, inflation and cash contributions to the defined benefit pension scheme from the level assumed. Charges are adjusted on a year 'n+2' basis or in subsequent reference periods, depending on the cause of variation.

The price control for RP3, including the real pre-tax cost of capital and targets, and incentives, for service and environmental performance is subject to the CAA's review and decision.

NATS Services

NATS Services provides services to UK Airports, to the UK MOD through its Defence services, to other UK customers such as airlines and airspace users and to international customers, mainly in Asia Pacific and the Middle East. Also, in partnership with Ferrovial, it provides ATC services in Spain through FerroNATS.

Services to UK Airports (including engineering support) represent c.73% of NATS Services' revenue and Defence services c.13%. Services to UK customers represent c.94% of its revenue. The UK Airports service provided ATC services to 13 major UK airports during the year as well as engineering support and airport optimisation services to UK airport operators. Large UK airports fall within the scope of European SES regulations but are exempted from disclosure requirements and cost efficiency targets. This is because NATS Services operates in a contestable market and faces competition from other ANSPs and airports using an in-house service. The company's strategy is to win and retain UK airport contracts by nurturing the relationship with customers and developing price competitive and innovative technological service solutions.

Engineering support services for UK airport customers deliver complex turnkey projects, mainly integrating new infrastructure at airports. Our competence is in maintaining and developing communications, navigation and surveillance solutions. Our principal competitors include systems integrators, equipment manufacturers and specialist engineering consultancies.

Defence services represent the provision of ATC and related engineering support and other services to the UK MOD. These services are mainly provided through the Project Marshall contract which is being delivered in partnership with Thales by our Aquila joint venture. Project Marshall is a 22-year concession for the provision of engineering and ATC services and a seven-year asset provision contract to upgrade MOD ATC infrastructure.

Other UK Business includes aeronautical information management, design and data services, consultancy and ATC training to airlines and airspace users.

Our International activities focus on the Asia Pacific and Middle East markets and also target specific international airports and ANSPs. Our FerroNATS joint venture provides a service to 13 airports in Spain. Also, we jointly own Searidge Technologies, a Canadian provider of digital tower technology to airports around the world, with NAV CANADA.

We are uniquely placed to help airline and airport customers to realise value by making both airspace and airfield services more efficient. We understand the complex interactions at each stage of a flight between airlines, airport operators and ANSPs, including in some of the busiest airspace in the world and involving, in our en route operation, a seamless transition between the North Atlantic and UK en route services. We understand the benefit we can provide from fuel-efficient flight profiles, approaches and departures, minimising delay, and through arrival and departure management. We recognise that airport tower services are an intrinsic part of overall airport performance and our experiences at Heathrow and, for many years, at Gatwick, and other airports demonstrate our ability to optimise runway performance and apron efficiency. We are also developing digital tower services to benefit airport operators, their investors, and the airlines.

Our business model

Our business priorities

We set a number of priorities for 2018/19 to focus our employees on the year ahead. These were:

Priorities for 2019	Achieved
Provide safe and resilient air traffic services from our airports and centres	✓
Continue to focus on our people and employee relations as we transform our infrastructure	✓
Deliver electronic flight strips into full operational service in Terminal Control	✓
Develop a plan for RP3 that delivers a balanced outcome for all of our stakeholders	✓
Achieve key milestones to implement digital tower technology at London City and Changi airports	✓
Deploy the next phase of airspace modernisation changes (sectors in the North Sea and lower Scottish airspace around Edinburgh and Glasgow airports)	✓

Our priorities for financial year 2019/20 are:

- Provide safe and resilient air traffic services from our airports and centres;
- Use space-based ADS-B to support our air traffic service in the North Atlantic;
- Agree the RP3 regulatory settlement with the CAA for our services from 2020 to 2024;
- Receive the final operational Prestwick build of our new iTEC tool, a key part of our DSESAR programme, ready for testing, by March 2020;
- Drive airspace modernisation including the delivery of the network airspace designs needed to support the London Airspace Modernisation Project (LAMP);
- Provide a digital tower air traffic service to London City Airport from Swanwick; and
- Invest in our people by launching a new digital workplace and intranet to improve how we collaborate, communicate and stay connected.

Principal risks and uncertainties

The operational complexities inherent in the business leave NATS with a number of significant risks to manage. Our risk management process has identified the key risks that the Board believes are likely to have the most significant potential impact on our business, financial position, results and reputation based on the severity and likelihood of risk exposure. Risks are reviewed and re-assessed regularly. The Board has carried out a robust assessment of the principal risks facing the business, including those that would threaten its business model, future performance, solvency or liquidity. The list is not intended to be exhaustive and reflects the Board's assessment as at the date of this report.

The group focuses on mitigating these risks, although many remain outside of our control – for example changes in regulation, security threats, environmental factors and the impact of longevity and financial markets on pension funding.

These risks have been considered in assessing viability (page 15). A summary of internal control and risk management processes is on page 44.

Safety: the risk of an aircraft accident

A failure of NATS ATM controls that results in an accident in the air or on the ground would significantly impact NATS and its reputation. The reputational damage could result in the loss of future contracts and a reduction in revenue. If notice were given by the Secretary of State requiring NERL to take action as a result of the accident and NERL were unable or failed to comply then ultimately this could result in revocation of NERL's licence.

As a provider of a safety-critical service, safety is the company's highest priority. To further embed our existing safety culture across the organisation and to mitigate safety risk, NATS has developed a Strategy for the Future Safety of ATM and currently supports this with a three-year rolling Safety Plan. The group also maintains an explicit Safety Management System. The latter includes investigations and reviews of operational safety performance and individual incidents to identify and respond to contributors to safety risk.

Maintaining continuous operations

a. Operational contingency

A loss of service would result in a loss of revenue as flow management procedures would be introduced to maintain safe separation. The extent of financial loss would depend on the time necessary to resume a safe service and the resultant level of air traffic delay. NATS has contingency arrangements which enable the recovery of its service capacity.

b. Operational systems resilience

Operational service provision is increasingly dependent on the performance and resilience of engineering systems, including communications, surveillance and flight data infrastructure. A number of mechanisms exist to identify systems resilience risks through an ISO55001 compliant Asset Management system. These include regular checks of system health through structured reviews with evidence-based outcomes. In addition, tactical issues are assessed as a matter of course following engineering updates to NATS' Safety Tracking and Reporting System to determine whether immediate escalation is required and to identify any emerging trends requiring investigation.

Political environment and economic regulation

Policy decisions by the regulator, the UK Government and the EC directly affect our businesses. Changes in policy may impact on the group's ability to meet the requirements of the UK and EC's aviation policies. We seek to mitigate this risk by providing independent input to policy studies, lobbying for policy guidance and taking a leadership role where we believe this is required (such as UK airspace policy and airspace modernisation) and responding to industry consultations. We outlined earlier in this report the importance of proceeding with airspace modernisation and that we will take on a broader project management and coordination role for modernising flight paths both in airspace above 7,000 ft and airspace below this level, which remains the responsibility of others to design and deliver. We will need the engagement and full support of Government, the CAA and industry to ensure this is achieved. If this does not proceed in a timely manner, supported by clear government policy, then UK airspace will reach capacity limits causing increasing delay and constraining aviation growth.

Also, the group's air traffic services operate under a European regulatory regime which requires key performance targets to be met. Failure to meet these safety, service, environment and efficiency targets could damage our reputation and lead to even more challenging regulatory arrangements.

NERL's current environment and capacity targets were based on an RP2 investment plan that included the implementation of lower airspace change in the London area. Industry consensus was that this is not possible during RP2 due to factors beyond NERL's control. The company is seeking to mitigate regulatory risk by aiming to achieve its RP2 targets through equivalent environmental and fuel saving benefits via a package of other airspace changes that have industry support.

Finally, the UK market for Terminal Air Navigation Services (TANS) is subject to the market conditions test within EC SES Regulations. If conditions are not met TANS would be subject to economic regulation. The UK Government has advised the EC that market conditions have been established for RP3. This remains subject to EC endorsement.

Defined benefit pension scheme

Adverse movements in the value of scheme assets and liabilities arising from factors such as lower investment returns, lower real interest rates and improving life expectancy may increase the size of the funding deficit and result in significant contributions to fund pension benefits.

The scheme was closed to new entrants in 2009, pensionable pay rises are capped and future service benefits are linked to the Consumer Prices Index. NATS regularly reviews the scheme's funding position and is consulted by Trustees on the design of risk reduction strategies. Also, subject to regulatory review, NERL is able to recover increases in contributions from changes in unforeseen financial market conditions. NATS Services maintains adequate cash reserves to meet its share of pension contributions.

The Trustees completed a formal valuation as at 31 December 2017. This reported a reduction in the funding deficit but with an increase in the cost of future service benefits. Deficit repair contributions will reduce from 1 January 2020. The CAA is consulting on NERL's RP3 business plan, which reflected the outcome of the 2017 valuation.

Principal risks and uncertainties

The directors monitor the funding position of the scheme. The group's financing arrangements and cash reserves, its projected operating cash flows and mechanisms within the established economic regulatory framework for recovery of such costs enable the group to meet the contributions required.

Industry outlook and the impact of Brexit

Poor market and economic conditions can reduce NERL's revenues to levels below those assumed by the economic regulator for a reference period. This in turn could impair shareholder returns. NATS monitors the key industry indicators on a monthly basis against RP2 forecasts and has taken action in the past to realign its cost base with lower revenues. NERL has traffic volume risk-sharing arrangements that mitigate revenue reductions.

In the short term the continuing uncertainty over the UK's decision to leave the EU could affect the demand for air travel and the volumes NATS handles, though traffic volume risk-sharing mitigates the impact. Also, in responding to their consultation, we have asked the CAA to reassess their traffic forecasts for RP3 to take account of the likely impact of Brexit, including a no deal, before finalising the NPP proposals for RP3.

Over the longer term, the impact of Brexit depends significantly on the type of relationship that is forged between the UK and the EU. An important consideration for NATS is the extent of participation in the SES and the legislation governing the economic regulation of NERL. Under the UK Transport Act 2000 the CAA has a duty to ensure that NERL does not find it unduly difficult to finance its activities. Such a duty is not provided for in SES legislation. After leaving the EU, we expect that the UK will no longer be able to participate, with a vote, in the process of drafting and approving SES legislation. This could mean NATS, uniquely in the UK, being economically regulated by a body in which the UK does not vote. We will therefore be keeping the implications of Brexit developments under review with the relevant Government departments and the CAA.

A detailed review of NATS preparedness for Brexit was undertaken during the year and mitigating plans were developed and are being progressed, including how we support EU nationals employed in the UK and mitigate risks to our supply chain.

Security: electronic and other external and internal threats

Malicious attack, sabotage or other intentional acts, including breaches of our cyber security, could damage our assets or otherwise significantly impact on our service performance. NATS seeks to mitigate these risks through its business continuity controls, employee awareness training and cyber and physical security processes and procedures, including monitoring political stability and security risks in countries where it conducts business.

The company has enhanced the physical security of its principal sites and is continuing to enhance its cyber security processes and controls. The company maintains a close liaison with the relevant Home Office Constabularies as well as Government security agencies and departments including security advice from the Centre for the Protection of National Infrastructure (CPNI).

Employee relations and staff resourcing

The deployment of technology through the DSESAR programme and the group's response to the challenging competitive environment in the UK and overseas will require changes across our organisation. Changes of this nature have the potential to create challenges in employee relations if not managed sensitively, with a corresponding impact on our service performance. Therefore, every effort is being made to continue to build and sustain good employee relations, including joint working groups with union representatives as part of an employee relations improvement project.

A people and organisation strategy is being implemented to ensure we have the right numbers of staff and mix of skills in future to meet our strategic objectives, particularly given the demographic profile of our workforce today.

Technology

The complex deployment of new DSESAR technology and retirement of legacy systems could affect our ability to maintain service levels during transition and require additional costs to sustain legacy systems and support deployment during this period. We maintain good programme governance and risk management processes overseen by the executive and Board, and Transformation Review Committee.

Financial risks

In addition to the top risks set out above, the main financial risks of the group relate to the availability of funds to meet business needs (including meeting obligations to the pension scheme), the risk of default by counterparties to financial transactions, and fluctuations in interest and foreign exchange rates. A detailed description of each of these risks and specific mitigations are set out in note 20.

Non-financial risks

A number of other non-financial and non-operational risks are described in the responsible business statement below.

Service line performance

We organise our activities according to service lines, which reflect the customer groups to which we provide our products and services.

The principal financial performance measures are revenue, including intra-group revenue, and contribution, which reflects the operating costs which managers are able to influence directly. A reconciliation of service line contribution to operating profit is provided in the notes to the financial statements.

Airspace

	2019	2018
Financial performance:		
Revenue from customers (£m)	**714.7**	735.1
Other revenue: EU funding passed to customers (£m)	**9.7**	-
Revenue from other sources (£m)	**4.2**	4.2
Total revenue (£m)	**728.6**	739.3
Service line contribution (£m)	**313.8**	345.0
Capital expenditure (£m)	**149.9**	180.0
Operational performance:		
Flights handled ('000s)	**2,544**	2,515
Risk-bearing airprox (no.)	**nil**	nil
Average delay per flight (seconds)	**11.5**	7.2
Average delay per flight (seconds)*	**12.5**	6.2
Environmental efficiency (3Di score)*	**29.2**	29.6

*for the calendar year to 31 December

Airspace (see Our business model on page 20 for an explanation) generated revenue of £728.6m compared with £739.3m in the prior year. This mainly reflected real price reductions required by the RP2 Performance Plan, which benefited customers, and offset the growth in volume of flights handled this year.

	2019 ('000s)	2018 ('000s)	Year on year change %
Chargeable Service Units	**12,167**	11,674	4.2%
Total UK traffic (flights):			
Domestic	**377**	389	(3.1%)
North Atlantic	**400**	383	4.4%
Other	**1,767**	1,743	1.4%
Total	**2,544**	2,515	1.2%
Oceanic traffic (flights):			
Chargeable flights	**502**	494	1.6%

Airspace incurred a small service penalty of £0.3m (2018: £2.6m bonus) for failing to meet its 2018 calendar year regulatory targets for delay. Attributable average delay per flight at 12.5 seconds was higher than the target of 10.8 seconds. Much of this additional delay was anticipated as a result of the transition to electronic flight strips. This technology is an important enabler to the airspace modernisation we will undertake in RP3 and for this reason we introduced this early in our transformation programme. In order to ensure the safe transition agreed last year with airlines and airports, we applied flow regulations to traffic in the affected airspace sector for a short period after deployment. This added 4.8 seconds per flight of NATS attributable delay to our underlying service performance of 7.7 seconds per flight. Overall, for the financial year, 98.9% (2018: 99.3%) of flights experienced no air traffic delay.

Our flight efficiency (the environmental performance of our network) was within the economic regulator's target range. In addition, Airspace enabled CO_2 savings of 113,700 tonnes (2018: 273,600 tonnes restated), which is equivalent to fuel savings of 35,750 tonnes (2018: 71,721 tonnes), worth £18.4 million (at an average fuel price for the financial year of £515 per tonne).

Service performance: calendar year to date	**2018 Target**	**2018 Actual**	2017 Target	2017 Actual
C1: avg. En route delay at FAB level (seconds)	**15.6**	**16.9**	15.6	9.7
C2: avg. delay per flight (seconds)	**10.8**	**12.5**	10.8	6.2
C3: delay impact (score)	**26.0**	**17.0**	27.0	12.7
C4: delay variability (score)	**2,000.0**	**16.1**	2,000.0	0.6
C3Di: 3Di metric (score)	**26.7-29.5**	**29.2**	27.5-30.3	29.6

The C1 metric is a Functional Airspace Block (FAB) level target introduced for RP2. C3 target is the C3 Upper target adjusted for traffic based CY 2018 actual traffic.

Overall, Airspace contribution of £313.8m (2018: £345.0m) was 9.0% lower. This mainly reflects the real price reductions in RP2 and the investment in additional staff to meet both the growth in air traffic volumes, which has been greater than the RP2 Performance Plan assumed, and to progress our technology change and airspace programmes.

Service line performance

UK Airports

	2019	2018
Financial performance:		
Revenue from customers (£m)	**147.0**	171.5
Revenue from other sources (£m)	**0.5**	0.3
Total revenue (£m)	**147.5**	171.8
Service line contribution (£m)	**27.5**	28.7
Capital expenditure (£m)	**2.0**	2.3
Operational performance:		
Airports served: UK (no.)	**13**	14
Risk-bearing airprox (no.)	**nil**	nil
Significant milestones:		
Electronic flight progress strips at Farnborough and Bristol airports		April/Nov
Replacement voice communication equipment at Bristol Airport		May
Installation of ATC simulator at Heathrow Airport		May
Replacement instrumented runway visual range systems at Bristol and Southampton airports		July/Oct
Heathrow Airport demand capacity balancing		March
London City Digital Tower factory acceptance test and live images relayed to Swanwick Virtual Tower		March
Durham Tees Valley Terma Radar factory acceptance test		March
Glasgow Airport Terma Radar site acceptance test		March

During the year we provided ATC services to 13 UK airports directly and ATC related engineering services to these and a number of other airports in the UK.

UK Airports maintained its safe service performance during the year and delivered a number of important engineering solutions to customers.

Revenue recognised from these services at £147.5m (2018: £171.8m) was £24.3m lower. In addition to the impact of IFRS 15 of £10.4m (see above), this mainly reflected the transfer of the Edinburgh Airport contract to another provider at the end of the last financial year and lower recharges of pass-through rental costs (with no margin impact). These factors were partly offset by higher airport engineering income.

Service line contribution at £27.5m (2018: £28.7m) was £1.2m lower. Overall, the transfer of the Edinburgh Airport contract was partly offset by stronger airport engineering contract performance and lower staff costs, including a lower accrual rate for the defined benefit pension scheme.

A key strategic objective is to win and retain UK airport ATC contracts. Our response to the market has been to develop a deeper collaborative strategic relationship with our customers. This year we won a new 10 year ATC and engineering contract at Cardiff and St Athan airports.

We completed a number of engineering projects in the year including transitioning from paper to electronic flight progress strips at Bristol and Farnborough airports. Electronic flight progress strips replace handwritten paper flight strips with multiple touch screen displays. This improves operational efficiency with increased electronic coordination and flight data sharing at the airport.

At Heathrow Airport we completed a demand capacity balancing project which will help the airport to continue to optimise its performance.

Our ATC unit at Aberdeen Airport is the first to provide ground based ADS-B which enhances safety for helicopters operating in the North Sea. In this environment ADS-B performs better than land-based secondary surveillance radar, as the location of the remote sensors allows aircraft to be seen at much lower altitudes.

We have made good progress with testing the infrastructure to provide London City Airport with a digital tower service from our ATC centre in Hampshire, which is now receiving live video feeds from cameras at the airport.

Service line performance

Defence services

	2019	2018
Financial performance:		
Revenue from customers (£m)	**27.1**	20.9
Revenue from other sources (£m)	**-**	-
Total revenue (£m)	**27.1**	20.9
Service line contribution (£m)	**1.6**	(6.2)
Capital expenditure (£m)	**2.5**	1.0
Operational performance:		
Airfields served (no.)	**4**	4
Significant milestones:		
22 MOD radio sites commissioned and entered service		
Three MOD tower sites commissioned and entered service		
Testing the first stage of a military flight planning tool upgrade		
Transfer of RAF Woodvale and RAF Barkston Heath ready to commence ATC services from 1 April 2019		

The major source of income for Defence services is support provided to the MOD's Project Marshall contract. This is a 22-year concession awarded to our Aquila joint venture for the provision of ATC services and the upgrade of MOD ATC infrastructure. The service provision elements of this contract are provided by NATS and are performing as planned and include ATC services to Wattisham Airfield, Netheravon Airfield and AAC Middle Wallop and to Gibraltar Airport. In April 2019 we also commenced services provision at two further airbases: RAF Woodvale and RAF Barkston Heath.

Revenue at £27.1m (2018: £20.9m) reflected progress with the asset provision contract, which faced schedule challenges in the previous year. This year Defence services reported a contribution of £1.6m (2018: £6.2m loss). In the prior year we re-assessed the profitability of the asset provision contract and our share of Aquila's result. The outlook for this contract remains break-even.

Other service lines

	2019	2018
Financial performance:		
Revenue from customers (£m)	**27.7**	25.2
Revenue from other sources (£m)	**0.2**	0.2
Total revenue (£m)	**27.9**	25.4
- Other UK business	***14.7***	*15.2*
- International	***13.2***	*10.2*
Service line contribution (£m)	**7.6**	5.4
- Other UK business	***6.8***	*6.5*
- International	***0.8***	*(1.1)*
Capital expenditure (£m)	**2.1**	2.3
Operational performance:		
Airports served: Spain (no.)*	**13**	9
Secured order value:		
UK contracts (£m)	**15.4**	16.3
Overseas contracts (£m)	**11.9**	74.6

* Service provided by our FerroNATS joint venture

Other UK business revenue of £14.7m (2018: £15.2m), mainly from services to wind farm operators, was broadly in line with last year and contributed £6.8m (2018: £6.5m).

International revenues at £13.2m (2018: £10.2m) were £3.0m higher, mainly as a result of revenues from our contract to provide ATC specialists to the Airport Authority of Hong Kong and for services to Singapore's Changi Airport. At a contribution level, including the group's share of FerroNATS and Searidge Technologies, international activities reported a profit of £0.8m (2018: £1.1m loss).

Overseas orders worth £11.9m were secured in the year (2018: £74.6m).

People and responsible business statement

People

One of our priorities for the year was the continuing focus on our people. In particular, to ensure our people have the skills required to deliver today's operational service as well as the right mix of capabilities for the future as we develop the technology that drives our operation, and that we manage our people through this change.

Our People and Organisation Strategy aims to attract, retain and reward employees with the talent we need both now and in the future while ensuring that we continue to develop exciting careers and enhance the skills of our current workforce. Our culture must be open, inclusive and supportive to ensure that we remain a high performing organisation as we evolve.

In transforming our operation we will require specific skills, including those in digital and cyber technologies which are highly sought after in the market. We are also developing strategies to meet the needs of the future workforce, such as providing more flexible careers and online learning opportunities, with career planning activity to ensure we effectively manage replacing skills as long-serving employees retire.

This year we re-designed our process for recruiting ATCOs to enable us to meet future traffic growth and effectively manage expected retirements over the next few years. We continue to focus on improving our management of employee relations, with a programme that enhances management capability at all levels, focusing on joint problem solving and dispute avoidance through our conflict resolution approach and training programme. This supports valuable and effective dialogue with our unions ensuring employees have a meaningful voice in the decisions that are taken.

We have also improved our leadership development with particular focus on those identified through our talent process as having growth potential, with targeted, accelerated development and assessment opportunities that will support their future careers and enhanced contribution. Our focus remains to develop leadership capability at all levels.

More broadly, we are continuing to encourage young people to consider careers in aviation. We are a corporate member of the WISE campaign, a network of over 200 companies across different industries taking action to support women in STEM. Finally, we partnered with the Jon Egging Trust charity. Our mutual links to aviation, our passion for inspiring young people around technology and for supporting local communities makes this a great partnership. We are actively participating in the Trust's programmes, which also gives NATS employees the chance to gain new experiences.

Responsible business statement

1. Introduction

Our investors, customers, suppliers and other stakeholders are aware of the need for, and benefits of, responsible business. Our commitment to the welfare of society, including our employees, and the natural world is an increasingly important measure of our overall performance. We recognise growing expectations from the public and policymakers of reporting transparently on our outcomes. Our annual Responsible Business report provides more detail.

2. Materiality

We have identified in this report the most important issues, taking account of the views of our customers, suppliers and employees. Material issues include:

a. key performance areas subject to regulatory targets such as safety, delay, flight efficiency and cost efficiency, which are discussed in this report and in our 2018 report to customers[10];

b. key responsible business issues including modern slavery, environmental performance and gender pay, among others; and

c. our commitments, which are not regulatory targets, to reduce airspace CO_2 emissions by 10% per flight and to minimise and, where possible, reduce aircraft noise. These are discussed in our Responsible Business report.

People and responsible business statement

3. Governance

Our Chief Executive is accountable for our responsible business policy. The Board will monitor and review performance in the 2020 financial year as required by the UK Corporate Governance code. The responsible business policy comprises a set of core principles which cover a wide range of non-financial matters. The policy is supported by appropriate business objectives, which are reviewed by the NATS Executive.

We have adopted a number of management systems to mitigate business risks, many of which are certified, such as: ISO9001 (quality), ISO14001 (environment), ISO27001 (information security), ISO55001 (asset management) and OHSAS18001 (health and safety). Governance processes ensure oversight of these management systems.

Anti-bribery and anti-corruption matters
Board oversight is provided by a panel of executive and senior managers monitoring compliance, effectiveness and process improvements.

Environment matters
Oversight of environmental performance lies with the NATS Executive. An Environmental Benefit Delivery Panel manages airspace related issues and is responsible for overseeing delivery of initiatives to meet airspace environmental targets. An Environment Management Group manages conventional ground based environmental impacts.

Employee matters
An established people and organisation strategy is reviewed by the Board twice a year, while oversight lies with the NATS Executive.

Social and human rights matters
An Oversight Group, reporting to the NATS Executive, oversees our commitment to the prevention of slavery and human trafficking in our corporate activities.

The outcomes of our responsible business policy are described qualitatively and quantitatively in our Responsible Business report.

4. Strategy

Our responsible business strategy covers a number of single issue strategies which focus on setting out the ambition and approach for each. These are integrated into the group's long term business transformation programme.

Anti-bribery and anti-corruption matters
At the heart of our approach is employee training and awareness. We have updated our training for all employees, including executive and Board directors, which individuals are mandated to complete.

Environment matters
Our environmental management system applies across the business to mitigate risks, identify opportunities and ensure alignment with customer and stakeholder expectations. Challenging targets have been adopted for airspace efficiency, energy and CO_2 emissions.

Employee matters
We encourage an inclusive environment that supports diversity where colleagues can thrive and bring their authentic selves to work. Our first employee network, SkyPride, champions LGBT+ equality within the company and provides a peer support and networking forum for LGBT+ colleagues. Other employee networks will be launched during 2019/20. We strive to create an environment where everyone is rewarded equitably for their contribution. Addressing our gender imbalance and our gender pay gap is an important part of this and the progress we have made to date will help us to deliver longer term change.

Social and human rights matters
Our commitment to prevent slavery and human trafficking is underpinned by internal policies, employee codes, risk assessments, supplier due diligence and training.

People and responsible business statement

5. Risk management

Our risk management process spans the business and includes financial, safety, operational, regulatory and other risk areas. The process is used to identify and manage a number of risks associated with responsible business issues.

We also recognise that some of these risks, which currently are low or not imminent, both individually and collectively have the potential to be material and warrant a set of management controls.

Anti-bribery and anti-corruption matters
Employees working overseas and in other areas of risk undertake computer-based training which concludes with a robust assessment to ensure they have understood NATS' requirements and their obligations.

Environment matters
As part of our ISO14001 certified environmental management system, a management review is prepared annually detailing risks and changing circumstances, alongside the outcomes of regular internal and external audits.

Employee matters
Gender pay reporting is included in a broader non-financial risk in our risk management system. In addition to the strategy outlined in our Gender Pay Report 2018[11], the NATS Executive sponsors a 'Working Together' initiative with Trades Unions.

Social and human rights matters
Modern slavery is included in our risk management system and a strategy and appropriate controls are in place to mitigate the risk. This is highlighted in our Slavery and Human Trafficking statement[12].

6. Measurement

We use a range of metrics, targets and commitments to drive actions linked to our responsible business policy.

Environment matters
For a number of years we have reported on the impact of our business on the natural world, including airspace efficiency and GHG emissions from our operations.

Airspace efficiency (3Di)
We are targeted by the CAA on airspace efficiency, which is how efficiently we manage flight profiles, using the 3Di metric. The annual targets during RP2 have become more challenging each year. When these were set, it was assumed that airspace structures would be modernised in RP2 but this was paused by the industry. The CAA is consulting on the targets for RP3, which we expect will form part of the NPP.

The 3Di score for the 2018 calendar year at 29.2 was within the regulator's target range. The first few months of that year were challenging, partly due to the weather which resulted in more days of easterly operations for the main London airports handled by our TC operation. Our operation is most efficient when TC is operating on westerlies. Improvements in efficiency included a focus on traffic management and tools for reduced holding (particularly in TC), identifying differences in watch performance, working with airlines to improve flight planning, airspace changes and the deployment of electronic flights strips which improved efficiency in TC.

Greenhouse gas emissions (GHG)
We measure and report on a number of sources of GHG relating to direct (scope 1: such as from onsite heating and cooling), indirect (scope 2: such as from electricity generation) and other indirect GHG emissions (scope 3). We also report other environmental performance metrics, including water and energy consumption. The most material of these are set out in the table of KPIs on page 16. Additional KPIs are reported in our Responsible Business report and in our CDP report[13].

We have set a 6% CO_2 reduction target from energy use from a 2015 baseline to 2020 and in the 2019 financial year we achieved 39%. As of April 2019, our electricity and gas is almost entirely from renewable sources. Together with approximately 1km^2 of solar photovoltaic panels installed across our estate and a number of energy efficiency projects, we are making significant progress in reducing our scope 1 and scope 2 emissions. However, this has been offset by the effect of dual running of legacy and new equipment during this phase of our technology transformation programme.

People and responsible business statement

6. Measurement (continued)

Employee matters
In our 2017 Gender Pay report, we set a target to increase the proportion of women in senior roles by 5% by 2020, as part of a broader strategy to address the causes of our gender pay gap. We are making progress against this target and have created an action plan but acknowledge that meaningful improvements to our gender imbalance is a long term commitment that will require a sustained focus at all levels of the organisation. Our commitment to this reaches beyond our organisation with the promotion of technology-based education and careers options.

We are also reviewing our strategy for attracting new employees to ensure our recruitment practices are consistent with a gender neutral approach and broader diversity strategy, and we have partnered with Business in the Community and Stonewall, a charity which advances equality and acceptance of LGBT+ people, to further develop our approach to diversity and inclusion.

7. Supporting information

KPIs reported on page 16 have been prepared in accordance with the CDSB Framework, the recommendations of the Task Force on Climate-related Financial Disclosures and guidance on non-financial reporting from the Financial Reporting Council and EC. Verification of certain environmental, energy and airspace data (marked *) has been undertaken to meet the ISO14064 standard.

The Strategic report was approved by the Board of directors on 27 June 2019 and signed by order of the Board by:

Richard Churchill-Coleman
Secretary