3. TECHNICAL ANALYSIS

In this chapter we present the results and analysis of the two core elements of the Environmental Measurement and Monitoring System (EMMS) programme: Carbon Management Proficiency (CMP) and Carbon Performance Indicators (CPI). The fundamental principle of the EMMS programme is that a comprehensive approach to carbon management is essential for significant, systematic and sustainable year-on-year reductions in carbon emissions. Effective carbon management involves the implementation of appropriate business principles and systems, clear accountability at senior levels, effective employee engagement, and comprehensive and transparent public reporting.

The first phase of the annual EMMS reporting cycle involves a comprehensive CMP questionnaire. This provides a qualitative assessment of participants' performance against ten management pillars. The second phase, the CPI calculator, is a quantitative assessment of participants' carbon efficiency. During this process, participants are required to report on their carbon emissions and other organisational data that is key to evaluating carbon performance, including electricity consumption, proportion of renewable energy used, transport modes and distances (own and outsourced), postal quantities, and numbers of alternative-fuel vehicles.

Since 2008, IPC annually collects, aggregates, and analyses this information at the group level and transparently reports the results in publicly available IPC Postal Sector Sustainability Reports. These reports illustrate the EMMS group's progress towards our three programme targets, as well as other important performance areas. IPC works closely with Verisk Maplecroft to develop the EMMS programme and deliver the annual IPC Sustainability Reports. Verisk Maplecroft inspects participant data through multiple rounds of plausibility checks and reviews supplementary evidence to ensure high levels of consistency. In addition, we ensure our data is accurate and credible through a third-party review from our external accountant, PwC, providing us with limited assurance (see page 60).

To promote continuous improvement, each participant in the programme is also provided with an individual analysis of their own CMP and CPI results in the form of tailored Scorecards and detailed Assessments. These customised reports include a summary of their performance to date and recommendations for further improvement. In addition, a Briefing Deck is provided, which includes the anonymised performance of all participants, enabling posts to benchmark their achievements against the rest of the group. Each individual participant receives a rating based on progress made towards both improving their carbon management and reducing emissions.

3.1 CMP: Carbon Management Proficiency

Participants can obtain a maximum of 100 points by responding to the questions within each pillar. We supply participants with a comprehensive Guidance Document, which provides background information and guidance, to support the accurate completion of the CMP Questionnaire and ensure consistency in reporting over time and between participants. During a plausibility review, responses are compared with those from previous years to identify significant differences in participants' responses. These processes ensure consistent completion of the questionnaire and identify where additional evidence of substantial improvements may be required.

Overall results are validated by our external auditor PwC.

In the CMP group level analysis, we distinguish between the results of the 18 participants that joined the programme prior to 2010 – referred to as 'the EMMS group' – and the wider group of 19 participants, which includes all current participants. This distinction, which is applied for all years back to and including 2010, is made because the scores for newer participants are typically relatively low in their first few years of reporting. However, we are happy to note that the rate of improvement of the newer participant is now in line with the rate of improvement of the wider EMMS group, and the gap between the two groups continues to narrow each year. Through participation in the EMMS programme, we are confident that new participants will continue to improve their scores from their individual baselines and achieve the shared goals of the EMMS programme.

10 management pillars

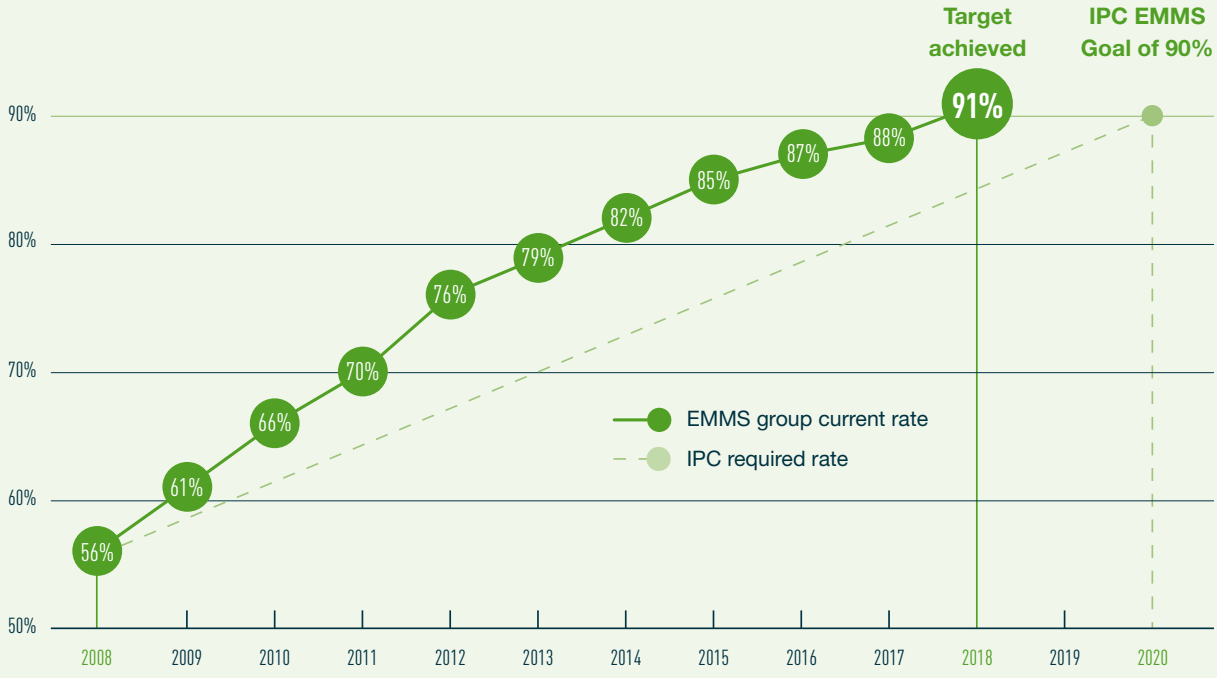
The CMP questionnaire considers the following ten management pillars:

1. Principles & Standards
2. Management & Strategy
3. Policy & Procedures
4. Employee Engagement
5. Activity
6. Measurement & Verification
7. Targets
8. Performance
9. Disclosure & Reporting
10. Value Chain Management

3.1.1 Overall Results

In 2018, the EMMS group surpassed the 2020 target of 90% in carbon management proficiency, achieving 91%. The group's average CMP score increased by 3 percentage points from 88% in 2017. Since the baseline year in 2008, this equates to an overall increase of 35 percentage points, from 56%. Furthermore, the wider group, which also includes the participant that joined after 2010, also met the 2020 target early, scoring an average of 90% up from 86% in 2017.

Figure 6: 2008 - 2018 Overall Carbon Management Proficiency results



Four posts surpassed 90% in 2018, bringing the total to 13 out of the 18 in the EMMS group that have now achieved the CMP target score. Four further participants also scored 80% or more – a fantastic level of performance and evidence of the high standards that the EMMS programme has achieved. We are also impressed with the annual rate of improvement that the group has maintained, and which increased to 3% this year, from 1% last year. The most significant individual improvement from 2017 to 2018 was an incredible 13 percentage points. This is particularly impressive when we consider that this is the tenth year of the programme and such significant improvements are still being made.

Given the progress the EMMS group has made since 2008, participants have clearly demonstrated a readiness to expand on the remit of the current programme. With the SMMS, we will encompass key sustainability issues most pertinent to the postal sector, ranging from sustainable procurement to health and safety. As part of the expanded programme, carbon management proficiency will remain a keen focus. More details of the next stage of the programme can be found in the SMMS section.

The EMMS and expanded SMMS programmes are collaborative endeavours, based on the principle of partnership to drive success. As we broaden the remit to encompass a wider range of sustainability issues, we believe this will create benefits for organisations at all stages of their sustainability management journey. IPC provides several platforms to facilitate information and knowledge sharing, including seminars, webinars, and the annual two-day Sustainability Workshop. A selection of our participants' best practice examples can be found in the Case Studies section of this report.

3.1.2 Results by Pillar; EMMS Group scoring at least 81% in all ten Carbon Management Proficiency areas

The EMMS group's exceptional scores (81% or higher in all ten pillars) are evidence of our participants advanced approach to carbon management. Consistent with previous years, in 2018 the group performed best on issues relating to:

- Policy and Procedures (2018: 100%, 2017: 99%)
- Management and Strategy (2018: 96%, 2017: 93%)
- Targets (2018: 95%, 2017: 94%)

The group has consistently excelled in these areas of carbon management, demonstrating its commitment to implementing ambitious strategies for reducing carbon emissions. Scores of 92% in both Measurement and Verification (2017: 90%) and Disclosure and Reporting (2017: 91%) also demonstrate their ability to verify effective carbon management and provide transparency on their actions. Seventeen out of 18 participants now reference their public reporting in accordance with the Global Reporting Initiative (G4 or GRI Standards), an impressive statistic that shows leadership in this vital area.

Most improved

The areas in which posts improved the most this year were:

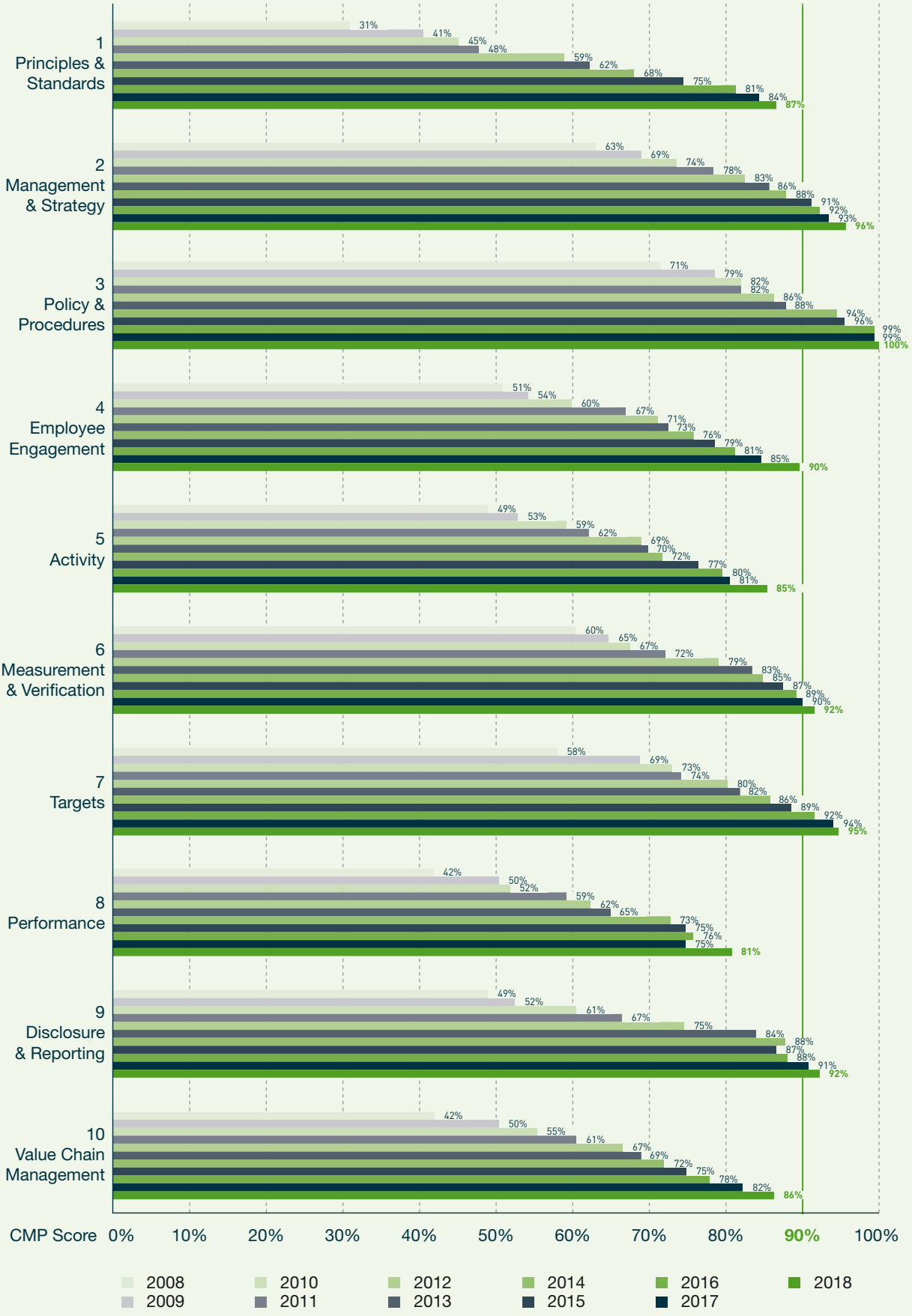
- Performance (2018: 81%, 2017: 75%)
- Employee Engagement (2018: 90%, 2017: 85%)
- Activity (2018: 85%, 2017: 81%)
- Value Chain Management (2018: 86%, 2017: 82%)

This year, three of the group's greatest improvements were also in its lowest scoring areas – Performance, Activity and Value Chain Management. The latter, value chain, is an area of growing concern for the industry and one that our participants have shown increasing aptitude for over the course of the programme. These figures demonstrate our participants' ongoing commitment to continuous improvement even in more challenging areas of management.

Table 2: 2018 CMP Progress Highlights

CMP Question	Number of Participants
Endorsed the United Nations Global Compact (UNGC)	14
Submitted data to the Carbon Disclosure Project (CDP) and/or other equivalent initiatives	14
Environmental management system developed, documented and communicated	17
Responsibility for climate change, carbon management, energy and emissions defined at operational level and board / executive level	18
Estimated future emissions and carried out emissions scenario modelling for future energy options	15
Carbon management objectives linked to at least 90% of managers' performance appraisals and performance-related pay schemes	10
Purchasing or generating at least some renewable electricity for buildings	18
Involved in four levels of external climate initiatives – national, regional, international and sectoral	17
Publicly report energy and emissions indicators, enhancing transparency in the sector	18
Indicators for CO_2 from the production of consumables in the supply chain	16
Publicly stated targets for the reduction of carbon emissions	18
Plan to be carbon neutral by a defined date, and/or have a Science Based Target	11
Achieved at least a 10% reduction in total company emissions per item since 2008, of which…	17
...achieved at least a 20% reduction, of which	14
...achieved at least a 40% reduction or are carbon neutral	7
Produce a report that has been prepared in accordance with the GRI Standards	17
Specific energy or carbon requirements in place for suppliers / subcontractors	14

Figure 7: 2008 – 2018 CMP results by pillar



Performance and Activity

In 2018, the group improved significantly in the two lowest scoring areas of 2017 – Activity (2018: 85%, 2017: 81%) and Performance (2018: 81%, 2017: 75%). Participants' additional 5 percentage points in the Activity pillar are reflective of the many initiatives under way to improve their environmental impact. For example, following a successful pilot of 100 electric vehicles across the UK in 2018, Royal Mail is planning to roll out a further 190 electric vans. With a range of up to 106 miles (170 km) per charge and a load capacity of up to 6.3m^3, the vehicles will operate normal delivery routes in London and surrounding areas.

One area we expect to see additional growth – and one that will be key in continuing to reduce emissions in the future – is in the adoption of alternative fuel vehicles. Since 2017, we have seen an uptick in the adoption of larger electric vehicles for the first time. In Belgium, bpost is expanding its electric vehicle fleet with the Colibus, which is specifically designed for the parcel market. The vehicle will replace diesel vans in urban areas and has a load capacity of more than 100 parcels. Meanwhile, An Post is planning on rolling out electric vans in the six biggest Irish cities, replacing 750 diesel vehicles.

At the national level transport is usually one of the largest contributors of greenhouse gas emissions, and as a logistics industry, the postal sector plays an important role in reducing these emissions. Increasingly, organisations are using innovative ways to engage with their communities to collectively improve environmental impacts, particularly in cities. Posten Norge has partnered with other companies under the #Elskedby ('beloved city') scheme in cities in Norway and Sweden, sharing electric vehicles to reduce emissions, traffic and noise pollution. The city hub scheme is well established in Stockholm where it has resulted in a 73% reduction in CO_2 emissions. This is one way in which Posten Norge hopes to achieve its goal of using only renewable energy sources in its vehicles by 2025.

Of course, road vehicles are not the transport sector's only source of environmental damage. Reducing our reliance on air freight must also be a priority if we are to significantly reduce global carbon emissions. IPC recognises that as demand for faster delivery times increases, the use of air transport can be difficult to avoid in some instances. We are particularly aware of the significant use of air freight in outsourced transportation. However, despite this pressure, the group continues to reduce its use of outsourced air freight. From 2017 to 2018, participants reported 163m fewer tonne-kilometres travelled by subcontracted planes, resulting in a reduction of 115,000 tonnes of Scope 3 carbon emissions.

Improving the energy efficiency of buildings continues to play a key role in reducing the group's carbon footprint. Participants continue to make progress in this area even after more than a decade of activity. In February 2019, bpost opened an innovative new distribution centre in the city of Mons. Solar panels, insulation and smart energy systems have enabled bpost to significantly improve its resource efficiency at the centre, furthering the aims of several of the UN SDGs, including SDG 11 – sustainable cities and communities.

The United States Postal Service (USPS) has also been using technology to optimise its resource use. The company has created the Corporate Energy Interface (CEI), a tool that extracts data from existing USPS systems. The data is used to achieve energy reduction targets, planning sustainability projects related to resource use, and to carry out energy and greenhouse gas reporting.

The importance of recycling and reuse, as well as reducing consumption, in improving the sustainability of our operations is reflected in the new SMMS focus area on Circular Economy. Our participants are contributing to the transition to a circular economy by adopting initiatives that close the loop on consumables and reduce waste. For example, Australia Post is supporting the government's Container Deposit Scheme (CDS) in Queensland and New South Wales by providing facilities for returns food and beverage containers at local post offices. The scheme not only encourages recycling and reduces waste but aims to hold the food and beverage industry accountable for its contribution to consumption patterns. This is an excellent example of the postal sector leveraging its position to engage with government and other industries on sustainability issues.

More details on all these endeavours can be found in the Case Studies section of this report.

Employee Engagement

Another area of significant improvement this year was Employee Engagement (2018: 90%, 2017: 85%). Each year, the EMMS group demonstrates new and innovative ways of engaging employees on carbon and climate related issues. Their continuous improvement in this area also shows their commitment to embedding effective carbon reduction within their organisations. For example, Poste Italiane has introduced Poste Pedala (Post & Ride) to encourage cycling to work at its head office in Rome. Around 200 employees (roughly 3% of the workforce) have participated so far. In 2020, the scheme will be extended to other offices, with the aim of eventually rolling out to all corporate offices.

As we have seen over the past ten years of the EMMS programme, cultural change is key to achieving sustainability goals within organisations. Our participants have shown the extent of employee training required to achieve the necessary level of change. Deutsche Post DHL Group continues to roll out its GoGreen programme to further its climate goals. Aiming to reach 80% of its workforce – around half a million employees – the group-wide initiative involves training staff to become Certified GoGreen Specialists. This is a great example of making sustainability a key part of company culture in order drive progress. We wish Deutsche Post DHL Group the best of luck in the future of its programme.

> The EMMS group's exceptional scores (81% or higher in all ten pillars) are evidence of their advanced approach to carbon management

Employee-focused initiatives can have the combined effect of benefitting not only the organisation, but the workforce itself, and therefore furthering the aims of UN SDG 8 – decent work and economic growth. Increasingly, posts are leveraging their roles as large employers and their positions as public organisations to bring benefits to society. In Sweden, PostNord has partnered with the Swedish Public Employment Service to build a model for self-sufficiency and provide stable employment for disadvantaged groups. The PostNord Driver Academy aims to recruit long-term unemployed and recent immigrants.

We have also seen posts engage their employees, and the public, on global issues. Following Cyclone Idai in March 2019, CTT Portugal Post delivered more than 70 tonnes of donations to Mozambique, in response to a request from the company's subsidiary in the country, CORRE. CTT Portugal Post volunteers sorted donations from the workforce and later distributed over 200,000 boxes to post offices around Portugal to collect donations from the public.

More details on all these impressive initiatives can be found in the Case Studies section of this report.

Value Chain Management

Supply chain management is increasingly present on corporate sustainability agendas, as more organisations extend their commitment to responsible practices into their value chains. Through the development of sustainable supply chain programmes, organisations are contributing to the advancement of sustainable development under the aims of the UN SDGs and demonstrating leadership in the corporate responsibility arena. Proactive engagement with suppliers and subcontractors has the potential to deliver tangible benefits to companies, society and the environment.

IPC recognises the many social and environmental benefits the postal sector can generate through engaging with its supply chain. This is reflected by the inclusion of Scope 3 emissions from outsourced transport within the most recently set EMMS target in 2014. The target was one of the first 12 to be approved by the Science Based Target Initiative, meaning it is in line with the level of decarbonisation necessary to meet the goals of the Paris Agreement.

In carbon management, the EMMS group has over the years developed responsible sourcing policies, requirements and standards for suppliers and subcontractors. Nearly all of the EMMS group (17 out of 18) have carbon management standards or requirements for all their significant primary suppliers or subcontractors, and 12 also commit to actively favouring primary and secondary tier suppliers with effective carbon managements or a lower carbon footprint. These standards demonstrate a commitment to effective and robust sustainable supply chain management. For example, since 2017, all Swiss Post's new suppliers must submit information on environmental and social criteria in public service tenders. The information is included in award decisions.

> IPC recognises the many social and environmental benefits the postal sector can generate through engaging with its supply chain

Active engagement with suppliers and customers on sustainability issues is vital for effective supply chain management. In 2018, Scope 3 emissions from outsourced road and air transport were nearly three times the volume of Scope 1 emissions from owned road and air transport. The need to exert influence and drive improvements throughout the value chain is more urgent now than ever for the postal sector. Fifteen out of 18 in the EMMS group now have initiatives with both customers and suppliers to improve their carbon management, and 13 have introduced systematic approaches to continually assess interest in these issues from both suppliers and customers.

In 2018, PostNL developed the Fashionpack for the clothing and apparel industry. The letterbox vacuum-packed parcel is specifically designed to use less resources, be easier to transport and to make use of the declining letter mail network infrastructure. In 2018, 150,000 units were sold to the industry, with an emissions-saving potential of 33.3 tonnes CO_2 each year. More details can be found in the Case Studies section of this report.

These initiatives are not only pursuant to the goals of UN SDG 9 – responsible consumption and production – but also demonstrate the value of partnerships underlined by UN SDG 17 – partnerships for the goals. The significance of supply chain sustainability is therefore reflected in the inclusion of Sustainable Procurement as a focus area of our new SMMS programme (the expansion of the original EMMS). More details on the SMMS can be found in the SMMS Programme section of this report.

The Value Chain and beyond

There are significant potential financial benefits from encouraging responsible business practices in the value chain. Cost savings from initiatives such as recycling and reusing of paper and packaging materials, and the monetisation of marketing opportunities from proactive engagement with other industries all contribute to the business case for sustainability. Posten Norge's city hub is a great example of the postal industry's potential for a wider reach beyond its own operations.

The potential benefit of our industry on local communities is reflected in the identification of UN SDG 11 – sustainable cities and communities – as one of the five SDGs most relevant for the postal sector. In the SMMS, we will assess the group on its efforts to reduce emissions to air and also more broadly, to the development of a more circular economy.

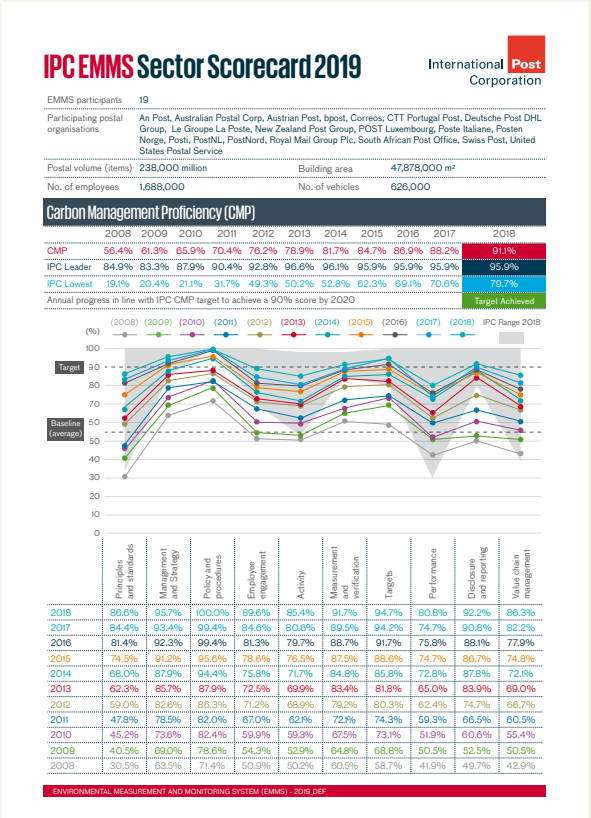
Increasingly, posts are also investing in the development of products or initiatives that reduce the environmental impact of their customers. Swiss Post has developed in partnership with the Swiss Red Cross, a scheme whereby used uniforms are sold at a low cost or donated to Swiss Mountain Aid. Some are also transformed into new products such as laptop bags and jackets – saving resources along the way. Since 2015 the company has donated between ten and 15 tonnes of clothing to charity every year.

Packaging is traditionally an area of significant environmental impact for the postal sector. In Spain, Correos' Caja Verde ('Green Line') packaging range uses recycled and sustainably sourced materials, reducing both the impact of production and volumes of packaging waste. The company also uses environmental and social criteria in its purchasing decisions. As one of the country's largest employers, Correos recognises its role in encouraging responsible business practices throughout the value chain and beyond.

In order to achieve their sustainability objectives, IPC acknowledges that posts will be required to make significant investment in the coming decades. 'Green' finance is another area of interest to the sector that continues to grow and offers an innovative mechanism to raise the required investment capital. In France, Le Groupe La Poste became the world's first postal operator to issue a green bond in November 2018. The launch was incredibly successful, with the initial €500m release of bonds hugely oversubscribed. The post will invest in sustainable solutions with the capital raised by the issuance.

Further details of all these initiatives can be found in the Case Studies section of this report.

IPC EMMS Sector Scorecard



IPC EMMS Sector Scorecard 2019

International Post Corporation

EMMS participants	19		
Participating postal organisations	An Post, Australian Postal Corp, Austrian Post, bpost, Correos, CTT Portugal Post, Deutsche Post DHL Group, Le Groupe La Poste, New Zealand Post Group, POST Luxembourg, Poste Italiane, Posten Norge, Posti, PostNL, PostNord, Royal Mail Group Plc, South African Post Office, Swiss Post, United States Postal Service		
Postal volume (items)	238,000 million	Building area	47,878,000 m²
No. of employees	1,688,000	No. of vehicles	626,000

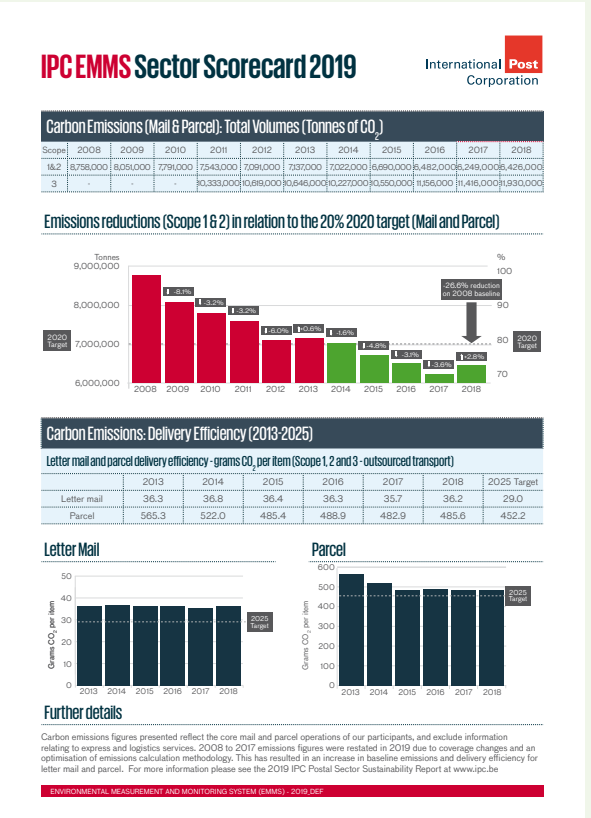
Carbon Management Proficiency (CMP)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
CMP	56.4%	61.3%	65.9%	70.4%	76.2%	78.9%	81.7%	84.7%	86.9%	88.2%	91.1%
IPC Leader	84.9%	83.3%	87.9%	90.4%	92.8%	96.6%	96.1%	95.9%	95.9%	95.9%	95.9%
IPC Lowest	19.1%	20.4%	21.1%	31.7%	49.3%	50.2%	52.8%	62.3%	69.1%	70.6%	79.7%

Annual progress in line with IPC CMP target to achieve a 90% score by 2020 — Target Achieved

	Principles and standards	Management and Strategy	Policy and procedures	Employee engagement	Activity	Measurement and verification	Targets	Performance	Disclosure and reporting	Value chain management
2018	86.6%	95.7%	100.0%	89.6%	85.4%	91.7%	94.7%	80.8%	92.2%	86.3%
2017	94.4%	93.4%	99.4%	84.6%	80.6%	89.5%	94.2%	74.7%	90.8%	82.2%
2016	81.4%	92.3%	99.4%	81.3%	79.7%	88.7%	91.7%	75.8%	88.1%	77.9%
2015	74.5%	91.2%	95.6%	78.6%	76.5%	87.5%	88.6%	74.7%	86.7%	74.8%
2014	68.0%	87.9%	94.4%	75.8%	71.7%	84.8%	85.8%	72.8%	87.8%	72.1%
2013	62.3%	85.7%	87.9%	72.5%	69.9%	83.4%	81.8%	65.0%	83.9%	69.0%
2012	59.0%	82.6%	86.3%	71.2%	68.9%	79.2%	80.3%	62.4%	74.7%	66.7%
2011	47.8%	78.5%	82.0%	67.0%	62.1%	72.1%	74.3%	59.3%	66.5%	60.5%
2010	45.2%	73.6%	82.4%	59.9%	59.3%	67.5%	73.1%	51.9%	60.6%	55.4%
2009	40.5%	69.0%	78.6%	54.3%	52.9%	64.8%	68.8%	50.5%	52.5%	50.5%
2008	30.5%	63.5%	71.4%	50.9%	50.2%	60.5%	58.7%	41.9%	49.7%	42.9%

ENVIRONMENTAL MEASUREMENT AND MONITORING SYSTEM (EMMS) - 2019_DEF



IPC EMMS Sector Scorecard 2019

International Post Corporation

Carbon Emissions (Mail & Parcel): Total Volumes (Tonnes of CO_2)

Scope	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
1&2	8,758,000	8,051,000	7,791,000	7,543,000	7,091,000	7,137,000	7,022,000	6,690,000	6,482,000	6,249,000	6,426,000
3	-	-	-	10,333,000	10,619,000	10,646,000	10,227,000	10,550,000	11,156,000	11,416,000	11,930,000

Emissions reductions (Scope 1 & 2) in relation to the 20% 2020 target (Mail and Parcel)

Carbon Emissions: Delivery Efficiency (2013-2025)

Letter mail and parcel delivery efficiency - grams CO_2 per item (Scope 1, 2 and 3 - outsourced transport)

	2013	2014	2015	2016	2017	2018	2025 Target
Letter mail	36.3	36.8	36.4	36.3	35.7	36.2	29.0
Parcel	565.3	522.0	485.4	488.9	482.9	485.6	452.2

Letter Mail

Parcel

Further details

Carbon emissions figures presented reflect the core mail and parcel operations of our participants, and exclude information relating to express and logistics services. 2008 to 2017 emissions figures were restated in 2019 due to coverage changes and an optimisation of emissions calculation methodology. This has resulted in an increase in baseline emissions and delivery efficiency for letter mail and parcel. For more information please see the 2019 IPC Postal Sector Sustainability Report at www.ipc.be

ENVIRONMENTAL MEASUREMENT AND MONITORING SYSTEM (EMMS) - 2019_DEF

3.2 Carbon Performance

3.2.1 Methodology and Definitions

In the Carbon Performance Indicators (CPI) element of the EMMS, the quantitative impact of posts' carbon management is assessed. Participants submit data on carbon emissions, energy use and vehicle fleets. Emissions are calculated using internationally recognised greenhouse gas accounting standards, such as the World Resources Institute Greenhouse Gas (GHG) Protocol. We refer to the Protocol's direct and indirect emissions using the following Scope 1, Scope 2 and Scope 3 terminology:

Scopes

Scope 1	All direct GHG emissions from operations that are owned or controlled by the company, including those from buildings and transport.
Scope 2	Indirect GHG emissions from the generation of purchased electricity, heat, steam, or cooling consumed by the company.
Scope 3	Other indirect emissions from sources within the company's value chain, including transport-related activities by vehicles not owned or controlled by the reporting entity, business travel and employee commuting, outsourced activities, etc.

The EMMS CPI Guidance Document provides participants with guidelines on reporting procedures for Scope 3 emissions, since the boundaries for emissions from the value chain can be very broad. We provide a consistent set of parameters for sector-wide reporting of Scope 3 emissions, based on the framework set out in the GHG Protocol Corporate Value Chain (Scope 3) Standard.

In response to participant feedback and analysis of past years' data, we continue to use a well-defined data collection coverage that encompasses the following four core categories, which collectively make up over 95% of total Scope 3 emissions:

- Outsourced or subcontracted road transport
- Outsourced or subcontracted air transport
- Employee commuting
- Business travel.

The further 11 GHG Protocol categories, such as capital goods and use of sold goods, are excluded as they are currently considered immaterial to the postal sector. So that the EMMS participants can better understand the implications of their corporate activities on their value chain carbon emissions, it is important to establish Scope 3 inventories. Data on emissions from the above-mentioned sources are examined in this report as part of our commitment to continuous improvement and to build a more comprehensive and accurate account of carbon emissions across the EMMS group. Unfortunately, several posts are currently unable to collect data on employee commuting for privacy/legal reasons. As such, where appropriate, national averages have been used instead. In these instances, company mitigation activities focused on employee commuting will not result in measurable decreases in emissions from this source. As this is a significant source of Scope 3 emissions, we will continue to strive for more complete reporting of all participants.

Although IPC recognises subcontractors as having primary responsibility for their carbon emissions, we know that EMMS participants can have a positive influence on this component of the value chain. Moreover, posts are encouraged not to reduce Scope 1 emissions at the expense of increasing Scope 3 emissions through outsourcing and subcontracting. To this end, our delivery efficiency target includes emissions from subcontracted transport.

Over the duration of the programme, there have been a number of changes to the composition of the group of participants. Five new participants have joined since 2009, two posts have merged to make one post, while four of the original EMMS group participants no longer report to the programme. In order to ensure that the programme remains dynamic and progressive, the aggregated results of the 19 participants that submitted data in the 2018 reporting year are presented (unless otherwise stated). Figures from posts that did not report data for this year have therefore been excluded from this and previous reporting years (back to and including the baseline year), so that a direct comparison can be made. We believe that this will enable us to

more accurately track the reporting groups' progress towards the EMMS programme's carbon emissions targets. In order to achieve this, we have used the earliest data reported by the new participants and assumed these figures to be stable for all previous years to estimate 2008 baseline figures. Please see Annex Exclusions and Estimations for EMMS participants reporting details.

In addition, circumstances may arise in which participants need to restate their data from previous years, due to factors such as changes to internal company methodologies or reporting scope. EMMS participants are continually seeking opportunities to more accurately measure their carbon performance, which in some cases results in updated approaches and calculation and measurement methodologies. In order to ensure transparency and consistency of reporting, in cases where the restatements have a material impact on the group-level figures, we will restate past group figures to include the revised data. This also enables accurate assessment of the group's emissions reductions over time. For further details on restatements and a breakdown of the figures, please refer to the Restatement Details section in the Annex.

3.2.2 Progress towards Targets

Delivery Efficiency

The EMMS group made impressively fast progress towards the its original absolute carbon emissions reduction target - to reduce its combined Scope 1 & 2 emissions by 20% by 2020, from a 2008 baseline - achieving it in 2014. In the last ten years, the e-commerce boom has been driving a continuous growth in parcel deliveries, and by extension demand for outsourced transport. The industry has demonstrated an ability to adapt to an ever-changing market, one aspect of which is the way its impact is measured. Therefore in 2014, we set a new target, to reduce CO_2 emissions (Scope 1, 2 and 3 – outsourced road and air transport) per letter mail and per parcel by 20% by 2025, from a 2013 baseline. This target places greater emphasis on delivery efficiency, which we consider vital to reducing the carbon footprint of the postal sector, given these industry trends. This target also extends the scope of our monitoring to include Scope 3 emissions from outsourced and subcontracted transport. In January 2016 the target was approved as a sectoral benchmark by the Science Based Targets (SBT) Initiative's Steering Committee. This approval recognises that our targeted emissions reductions are in line with the reductions required to meet the Paris Agreement's goal of limiting global warming to a maximum of 2°C.

The delivery efficiency target includes Scope 1, 2 and 3 (outsourced or subcontracted road and air transport) and excludes Scope 3 emissions from business travel and employee commuting. IPC and EMMS participants agree that these sources do contribute to the sector's carbon footprint, despite being unrelated to core operations. In 2018, business travel and employee commuting contributed 25% of Scope 3 emissions. However, as part of the target setting discussions the group established that these categories should be excluded from the group target-setting, although figures will continue to be reported. One of the key reasons is that several posts in Europe cannot collect data on employee commuting for privacy reasons and therefore must use national estimates. Efforts to reduce emissions from these activities would therefore not be reflected in their company's figures, which jeopardises the robustness of the group's data. The feasibility of including business travel and employee commuting in a group target will be continually assessed. IPC also encourages posts to set individual company targets for these emissions, implement measures to achieve them, and share best practice.

As Table 3 shows, the 2025 target of a 20% improvement in delivery efficiency corresponds to CO_2 emissions of 29.0 grams per letter mail item and 452.2 grams per parcel item. This table also illustrates participants' progress towards the 20% target to date. For details of the methodologies used by participants to allocate their emissions to letter mail and to parcel categories see Annex 'Allocation methodologies for letter mail and parcel emissions'.

Table 3: Letter mail and parcel delivery efficiency 2013 – 2018

Delivery Efficiency	2013	2014	2015	2016	2017	2018	2025 Target
Letter mail (grams CO_2 per item)	36.3	36.8	36.4	36.3	35.7	**36.2**	29.0
Parcel (grams CO_2 per item)	565.3	522.0	485.4	488.9	482.9	**485.6**	452.2

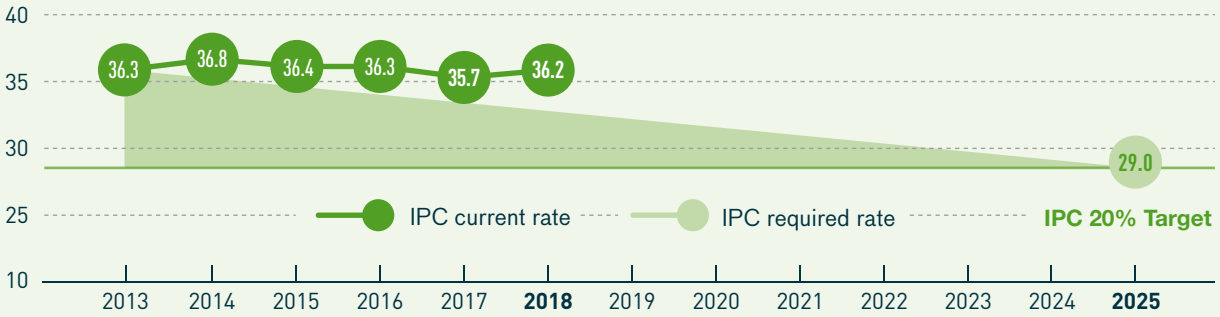
*2013 to 2017 figures, and therefore also the 2025 target, were restated in 2019. See Restatements Annex on Page 56 for more details.

Delivery Efficiency: Letter Mail

As shown in Figure 8, letter mail delivery efficiency has remained stable since the 2013 baseline, with the group reporting 36.2 grams of CO_2 per item in 2018 compared to 36.3 grams per item in 2013. This is despite the ongoing challenge of declining letter mail volumes, which have fallen 13.4% over the period. We congratulate the group's collective efforts to reduce associated emissions by 13.6% in that time, equating to a decrease in emissions per item of 0.2%. Although letter mail volumes are declining, the Universal Postal Obligation dictates that postal carriers must maintain a minimum service to all areas of their country of operation. As a result, posts face limitations to the degree to which operational efficiencies can been achieved. Therefore a 13.6% decrease in associated carbon emissions is all the more notable.

We are confident that as the focus on sustainability throughout the postal sector's supply chain increases, further reductions in Scope 3 emissions per letter mail will be made possible, particularly given the renewed global focus on climate change in 2019, ongoing technological developments, and ensuing cost reductions that will drive improvements in the coming years. Specifically, we expect to see an increase in the use of alternative fuel vehicles in the next five to ten years which will significantly improve delivery efficiency.

Figure 8: Letter mail delivery efficiency (grams CO_2 per item)



Delivery Efficiency: Parcel

The group's parcel delivery efficiency has improved considerably since 2013. Participants reported collective emissions per item in 2018 of 485.6 grams CO_2, compared with 565.3 grams CO_2 in the baseline year - a decrease of 14.1%. In that time, parcel numbers have increased by an enormous 58.4%, from 7.4bn parcels to 11.8bn parcels in 2018, as the boom in e-commerce drives increasing demand for deliveries. Associated emissions have increased by a comparatively low 36.1% over the period, demonstrating the group's improvements in efficiency within both its own operations (Scope 1 and 2) and within that of its suppliers (Scope 3).

Figure 9: Parcel delivery efficiency (grams CO_2 per item)

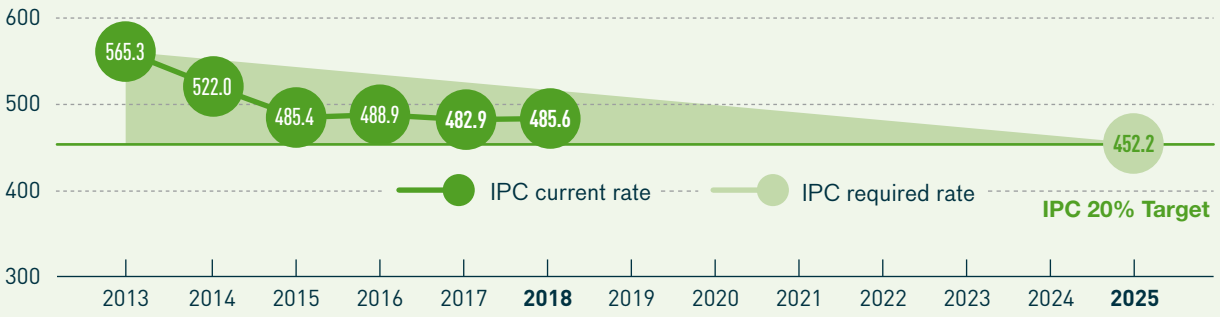
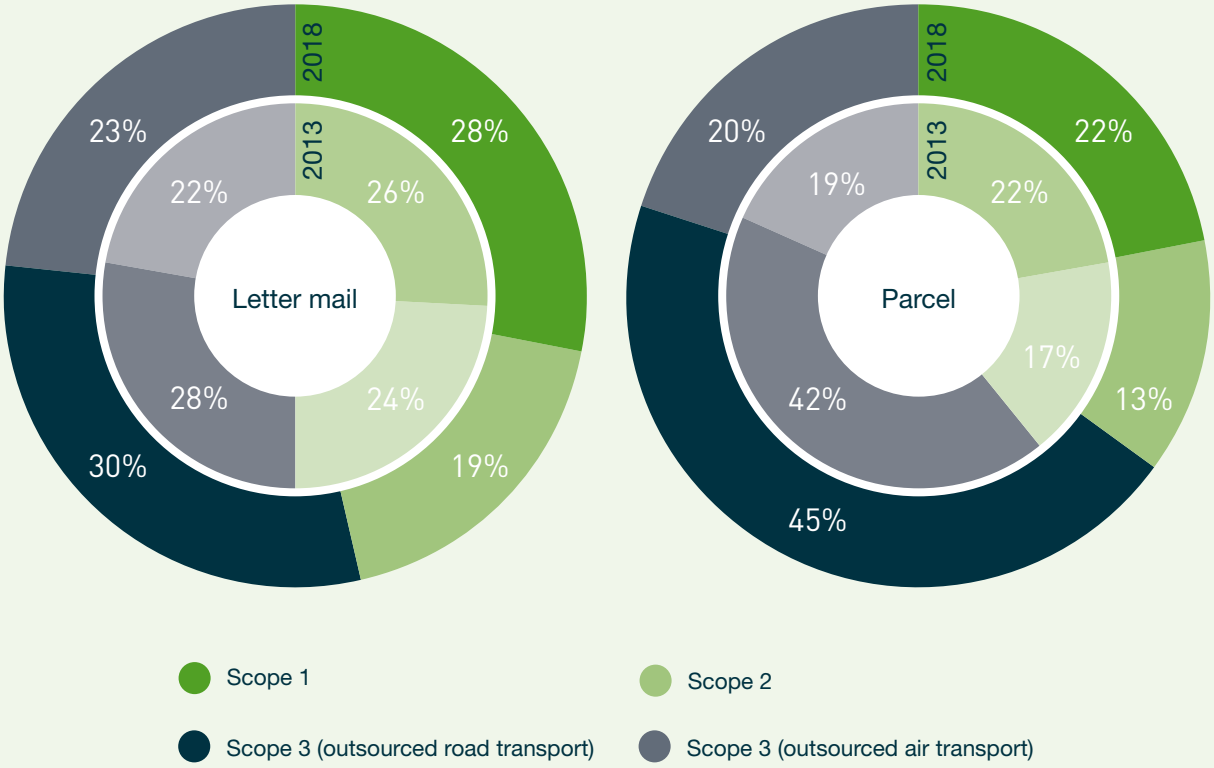


Figure 10: 2013 and 2018 letter mail and parcel emissions by scope



Scope 3 emissions from outsourced transport still make up the largest contribution to the postal sector's carbon footprint. The importance of this impact is reflected in the inclusion of these emissions in the EMMS target set in 2014. The EMMS participants have made impressive progress on improving delivery efficiency however there are still significant improvements to be made. Particularly when we consider the continued acceleration of the parcel market and the demands on transport that future growth will require, postal operators must play an ongoing part in influencing the value chain positively. Partnerships and collaboration with the transport sector will be key to making significant changes going forward.

We commend the group's progress towards delivery efficiency targets although we recognise that there are still considerable improvements required. It is important to consider the various potential constraints that may impede continued reductions in per items emissions. Firstly, some posts are designated providers of a Universal Service Obligation (USO) as part of statutory legislation. This requires them to meet aspects such as daily (or six-day) deliveries to every household in the country, often at a set price. The USO therefore places considerable cost and operational pressures on those participants who are subject to such regulation. Secondly, some members of the group may be required to respond to politically motivated decisions, such as keeping a post office open in a rural area. Thirdly and perhaps most importantly, posts must respond to changing industry trends: the downturn in letter mail combined with the growth in demand for parcels is placing increasing pressure on current business models. Added externalities such as rising energy prices and increased competition from other service providers increase pressure on postal operators. With these factors in mind we congratulate the group on sustaining their carbon delivery efficiency thus far and we are confident that with the ongoing focus on sustainability and the development of technology they will make good progress towards the targets in the coming years.

Absolute Scope 1 and 2 Carbon Emissions

The group continues to make impressive reductions in absolute Scope 1 and 2 carbon emissions, despite having already successfully reached the EMMS programmes target of a 20% reduction from the 2008 baseline in 2014, six years ahead of the 2020 target year. Since 2014, the group has reduced annual reported emissions by 596,000 tonnes (8%), from 7,022,000 in 2014 to 6,426,000 in 2018. The year-on-year change from 2017 was a small increase in combined Scope 1 and 2 emissions. The group reported 6,249,000 tonnes emissions in 2017, equating to an increase of 3% in 2018. This was driven largely by an increase in Scope 1 emissions, in part due to the unusually cold winter experienced by some posts in 2018.

However, since the 2008 baseline, the group has achieved an impressive reduction in annual Scope 1 and 2 emissions of 27%. This amounts to 2,332,000 fewer tonnes CO_2 in 2018, compared to the baseline of 8,758,000, mainly due to significant improvements in energy efficiency and the increasing use of renewable electricity. In that time, the group has reduced Scope 2 emissions from electricity by an incredible 49%, from 4,442,000 tonnes in 2008 to 2,283,000 tonnes CO_2 in 2018. Since the start of the programme, participants have also reduced emissions from Scope 1 heating by 375,000 to 809,000 tonnes, or by 32%.

Due to advancements in energy efficiency measures, Scope 2 emissions have consistently fallen faster than Scope 1 emissions. Over the past ten years, total Scope 1 emissions have fallen by 6% from 4,315,000 to 4,046,000, at a rate of 27,000 tonnes a year. In the same period, total Scope 2 emissions have been reduced by 46%, from 4,442,000 to 2,380,000 tonnes. This equates to an average decrease of 206,000 tonnes per year. Overall the reduction in total Scope 1 and 2 emissions from 2008 equates to an annual average decrease of 233,000 tonnes. These trends are discussed further in the Emissions Analysis: Scope 2 section.

> Scope 1 emissions from heating reduced by 375,000 tonnes (32%) since baseline

Emissions Analysis: Scope 1

Within the EMMS programme participants report on Scope 1 emissions produced from buildings (including from electricity generation sources and heating) and transport (including road, rail, ship, and air). In 2018 total Scope 1 emissions increased by 4%, or 169,000 tonnes, to 4,046,000 tonnes CO_2 compared with 3,877,000 tonnes in 2017.

Emissions from buildings accounted for 20% of Scope 1 emissions in 2018, while emissions from transport accounted for 80%. Emissions produced from buildings increased between 2017 and 2018, by 82,000 tonnes (11%), and emissions from owned road and air transport increased by 87,000 tonnes (3%). This was driven by an increase in road vehicle emissions associated with parcel deliveries. Continually reducing annual emissions will become more difficult, particularly as demand for parcels increases, but we are confident that the overall trend in emissions will decrease again in the future.

Scope 1 emissions have now decreased by 270,000 tonnes (6%) compared to the 2008 baseline. Emissions from the group's own road and air transport have increased in that time, by 87,000 tonnes (3%), which reflects the expansion of parcel demand and the other challenges faced by the postal sector. Illustrating the benefits of participants' extensive efficiency improvements, emissions from heating have decreased by 375,000 tonnes (32%).

Owned road transport emissions increased by 83,000 tonnes (3%) from 2017. This reflects the current trend of rising parcel volumes, which individually have a higher carbon footprint than letter items due to their size and weight. The challenge of reducing emissions is therefore increasing for the postal sector. As e-commerce continues to expand, growing demand for road transport over long distances makes it more difficult to reduce carbon-intensive delivery methods – particularly as it is easier to integrate smaller alternative-fuel vehicles for last-mile or urban area routes.

Additionally, larger alternative-fuel vehicles designed for longer distances are being developed but are not yet economically viable in large numbers nor have enough distance range. Electric vehicle charging infrastructure is also more prevalent in city centres. The use of biogas or other lower carbon fuels is not yet prevalent amongst the group, for reasons discussed in the Alternative-fuel Vehicles section of this report.

Driver training is another key way in which participants can achieve emissions reductions from own transport. Many of our participants have already introduced eco-driving initiatives and communications campaigns for their drivers and are already making progress in this area. Moreover, the participation of nine postal companies in IPC's fifth International Drivers' Challenge in April 2018 illustrates participants' ongoing commitment to reducing emissions from transport and commitment to engaging employees in sustainability issues, a key part of effective carbon management. Through this event, which was hosted at the legendary Estoril Racing track in Portugal, IPC aims to emphasise the importance of economic and fuel-efficient driving behaviour, and to demonstrate the benefits of investment in eco-driving initiatives. For the first time, the event included an electric vehicle driving test, highlighting the growing role that those vehicles will play in the future of the EMMS group's fleet. We have observed several additional business benefits to participation in the event, with participating posts recognising cost savings and lower emissions, which is reflected in the group's results (see Business Case on page 10).

Following the success of the event, the sixth edition of the International Drivers' Challenge will be held in the Netherlands in March 2020. Electric vehicle piloting and integration was also discussed at this year's Annual Conference on postal sector sustainability, and IPC hosted a two-day Best Practice Seminar on alternative-fuel vehicles in October 2017. Other measures that posts can focus on to improve the efficiency of their transportation include route optimisation and working with partners to develop vehicle efficiency.

> Scope 2 emissions from electricity reduced by 2.16 million tonnes (49%) since 2008

Emissions Analysis: Scope 2

Between 2017 and 2018, total Scope 2 emissions increased marginally, by 0.3% (8,000 tonnes). Emissions from electricity use in buildings accounted for 96% of total Scope 2 emissions from the EMMS group in 2018. Emissions from heating decreased by 2.6%, or 2,500 tonnes. However, Scope 2 emissions from electricity increased slightly, by 0.5% from 2017 (or 11,000 tonnes), more than offsetting the reductions from heating. By comparison however, electricity use (from non-renewable sources) increased by 2.5% in that time. This reflects the results of ongoing efficiency efforts by participants, as well as a general 'greening' of national grids.

However, since 2008, Scope 2 emissions from electricity have reduced by 2,158,000 tonnes (49%) with the total Scope 2 reduction of 2,062,000 tonnes (46%). This commendable progress has been achieved by the group's commitment to reducing energy consumption and increasingly sourcing renewable electricity. Participants have lowered total electricity consumption by 18% from 9.22 TWh in 2008 to 7.55 TWh in 2018 (see section Business Case on page 10 for related financial savings), while the proportion of renewable electricity used in buildings increased from 16% to 31% in 2008 and 2018, respectively.

Emissions Analysis: Scope 3

The majority (75%) of Scope 3 emissions come from combined road and air transport, followed by employee commuting (24%) and business travel (1%). Total Scope 3 emissions increased by 5%, from 2017 to 2018.

Due to large-scale diversion efforts, the group successfully managed to reduce emissions from outsourced air transport by 3%. This was more than offset however, by a 7% increase in emissions from outsourced road transport. This reflects the growing demand for long-haul road transportation, although we commend participants on their efforts to reduce the use of air freight.

Emissions from business travel and employee commuting increased by 6% and 9% respectively. We understand that often taking a car is more cost effective than a train for business purposes, and participants are under constant cost pressure. We hope that with the development of technology allowing more remote working, that these emissions will come down again in the future. Posts' efforts to reduce outsourced transport emissions as they strive to remain competitive amid the growing parcel volumes associated with an expanding global e-commerce market are detailed in the Value Chain Management section on page 41. Nonetheless, rising emissions from subcontracted transport are to be expected, and it was for this reason that these emissions were included within the new delivery efficiency target. In doing so we encourage participants to place greater emphasis on efficiency and to enhance their value chain engagement.

Table 4: Carbon performance data in tonnes of CO_2
(table subject to PwC limited assurance assignment)

Indicator	2008 baseline	2017	2018
Scope 1: Transport (vehicles, aviation, rail)	3,131,000	3,132,000	3,219,000
Scope 1: Heating (gas, heating, fuel, oil, steam)	1,184,000	727,000	809,000
Other Scope 1	-	19,000	19,000
Scope 2: Electricity (including electric vehicles)	4,442,000	2,273,000	2,284,000
Other Scope 2	-	98,000	96,000
Sub-total: Scope 1 and 2	8,758,000	6,249,000	6,426,000
Scope 3a: Outsourced road and air transport	-	8,635,000	8,906,000
Sub-total: Scope 1, 2 and 3a	-	14,884,000	15,331,000
Scope 3b: Employee commuting and business travel	-	2,781,000	3,025,000
TOTAL		**17,665,000**	**18,356,000**
Percentage of renewable electricity used in buildings	16%	31%	31%
Percentage of alternative-fuel vehicles in fleet	10%	23%	24%

Please see Annex for more information on indicator definitions, details on reporting participants, and the PwC assurance report.

3.3 Activity Indicators

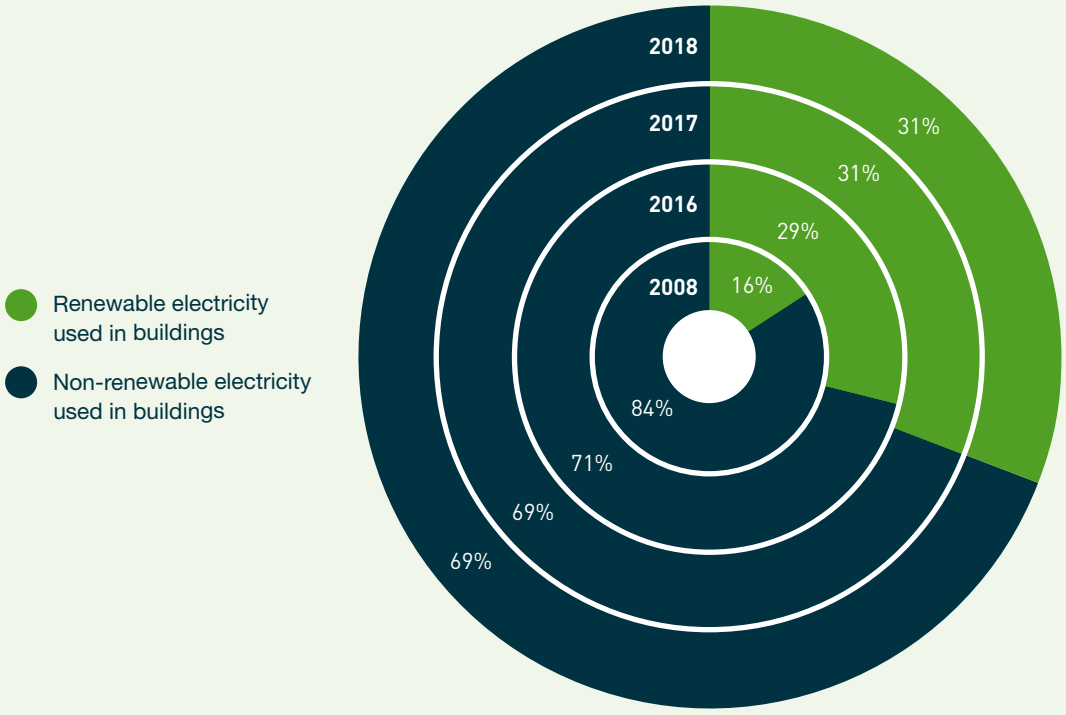
3.3.1 Renewable Electricity

The EMMS group has significantly reduced its carbon footprint since 2008 by increasing its consumption of renewable electricity. In 2018, participants reported 31% renewable electricity across the group. Since the beginning of the programme, the proportion of green energy used by the group has consistently increased. Scope 2 emissions from electricity have been reduced by 49% (2,158,000 tonnes) as a result.

Participants continue to drive down carbon emissions by reducing their consumption of energy derived from fossil fuels. In 2018, the group reported that 31% of total electricity used in buildings was from renewable sources. This is almost double the proportion of green electricity use since 2008 and has led to the significant decrease observed in Scope 2 electricity emissions since the start of the programme (discussed in the Emissions Analysis: Scope 2 section). Seventeen posts out of the group of 19 now report some volume of renewable energy use. Seven participants have now made the impressive transition to using 100% renewable electricity.

The growth in green energy consumption has resulted in a 53% reduction in emissions from electricity use in buildings from the 2008 baseline, a commendable achievement. However, there remain 2.3m tonnes of emissions associated with non-renewable electricity use left to be reduced. We should expect downward pressure on these emissions from structural changes, as national grids continue to increase the proportion of power derived from more sustainable sources. But as always, there are further opportunities available for participants, such as switching to a green electricity provider, or developing their own renewable energy supplies. By making the maximum reduction in Scope 2 emissions from electricity, combined Scope 1 and 2 emissions could be reduced by a further 26% of the 2008 baseline, in addition to the 27% reduction that has already been accomplished. We therefore continue to encourage and support participants in furthering their efforts to transition to purchased or self-generated renewable electricity in order to achieve immediate and substantial emissions reductions.

Figure 11: Proportion of renewable electricity usage in buildings (2008 vs 2016, 2017, 2018)



3.3.2 Alternative-Fuel Vehicles

Road transport remains the single biggest source (48%) of Scope 1 and 2 emissions. With this in mind, we encourage participants to transition towards alternative-fuel vehicles where possible. In order to track this progression, the group has been reporting the breakdown of their fleets by fuel type for the past seven years.

Participants report on the numbers of alternative-fuel vehicles under the following ten categories: CNG, LNG, LPG, E85, M85, Electric, Hybrid, Hydrogen, Bioethanol and Other. For the first time last year, we also began collecting information on the different types of electric vehicles used by participants, which include vans, trucks, trolleys, walk-buggies, e-bicycles, scooters, motorbikes and cars for business travel. The group reported an impressive total of 148,000 alternative-fuel vehicles in 2018, up from 144,000 in 2017. This statistic underlines the group's commitment to adopting new technologies in order to reduce carbon emissions.

Since 2017, traditional bicycles (self-propelled) are excluded from vehicle numbers to more accurately capture the transition from fossil fuel vehicles to vehicles powered by alternative-fuels. E-bicycles are included under 'electric vehicles' to show the speed of electric vehicle integration within the fleet and to demonstrate the range of options used by participants. As a result of changes to the coverage of the EMMS programme in 2018 we have restated vehicle figures back to 2012. Please see Annex 'Restatements' for more details.

We continue to monitor the number of delivery routes performed by self-propelled bicycles. Aside from the obvious environmental benefits, we encourage participants to consider the positive impact on employee health, and related business benefits, of increasing deliveries by foot and bicycle. Where feasible, posts should prioritise carbon neutral modes of transport over less sustainable alternatives, such as choosing normal bicycles over e-bicycles, and where possible replacing vans and cars with traditional bicycles rather than electric models. These recommendations are designed to encourage the removal of unsustainable models from fleets.

Since 2012, the total number of vehicles has increased by 88,000 (16%), while the total number of alternative-fuel vehicles has increased by an impressive 80,000 (116%). In 2018, alternative-fuel vehicles account for 24% of the group's combined fleet, compared to 13% in 2012. This demonstrates participants' ongoing efforts to increase the proportion of alternative-fuel vehicle models within their vehicle fleets.

Table 5: 2012*–2018 comparison of % of alternative-fuel vehicles

	2012	2017	2018
Total vehicles	538,000	618,000	626,000
Total alternative-fuel vehicles	69,000	144,000	148,000
% of alternative-fuel vehicles in current EMMS group	13%	23%	24%

*Due to coverage changes in 2019 we have restated vehicle numbers back to 2012. Vehicle figures previously reported in the 2018 Sustainability Report can be viewed in the Annex 'Restatement Details'.

The number of electric vehicles reported increased by 9,300 between 2017 and 2018, such that electric models now account for 55% of all alternative-fuel vehicles and 13% of the total vehicle fleet. In 2012, electric vehicles made up 25% of the alternative fuel vehicle fleet, and just 3% of the total vehicle fleet. This impressive growth is another demonstration of our group's dedication to reducing emissions and the postal sector's position as a leader in the transition to low carbon transport.

Many participants are now piloting or trialling electric vehicles. For example, Royal Mail plans to follow up its successful roll out of 100 electric vehicles in 2018, with a further 190 electric vans, and over the next four years An Post plans to replace 750 diesel vans with electric vehicles. For more information and for other examples, please see the Case Studies section of this report.

The group does not operate any M85 (methane) or hydrogen vehicles, which could be a result of purchase costs, availability of national infrastructure, fuel efficiency, and range. We have also seen a decrease in the use of biogas vehicles in recent years in the fleet. While research, development, and piloting of new models is occurring in partnership with manufacturers, the investment required is often substantial, and can be prohibitive for posts. This is often the case if the fuel is not already widely available through the national infrastructure. With the focus currently on electric vehicle adoption in a lot of - mostly European - countries, these other alternative fuels may be unlikely to gain critical mass. However, we will still monitor the take-up of such options as they are a viable and preferable alternative to fossil fuel powered vehicles.

IPC congratulates participants on the ongoing adoption of alternative fuel vehicles in spite of the potential obstacles. In 2018 we observed a significant increase in the reporting of many different types of lower carbon transport.

Many posts are leading the way in adopting alternative-fuel technologies in their respective countries. IPC will continue to support posts in reducing emissions from transport. We continue to encourage posts to use alternative-fuel capable vehicles through best practice sharing and initiatives such as the IPC International Drivers' Challenge.

Table 6: 2017-2018 comparison of alternative-fuel vehicle types

Type	2017	2018	2017-2018 Change
E85 (Ethanol fuel blend)	42,400	41,300	**-2.6%**
Electric (bicycle, scooter, van)	73,000	82,300	**12.8%**
Others – including hybrid, Compressed Natural Gas (CNG) and Liquid Propane Gas (LPG)	28,400	24,800	**-12.6%**
Total alternative-fuel vehicles	**143,800**	**148,500**	**3.3%**

Figure 12: 2017-2018 comparison of alternative-fuel vehicle types

Although we no longer categorise traditional bicycles as vehicles, we still collect data on the distance travelled by postal deliveries made in this way. In 2018, more than 161m km were covered by self-propelled bicycles - equivalent to cycling the circumference of the Earth approximately 4,000 times. A further 56m km were covered on foot (including both owned and subcontracted postal delivery), illustrating participants' commitment to utilising the most sustainable delivery modes available. We recognise that transport will continue to contribute a major source of the EMMS group's emissions as the parcel market continues to grow. However, through our group's efforts to reduce the distance travelled by carbon-intensive modes of transport, they are dually advancing the transition to lower carbon transport and directly reducing the postal sector's carbon footprint.