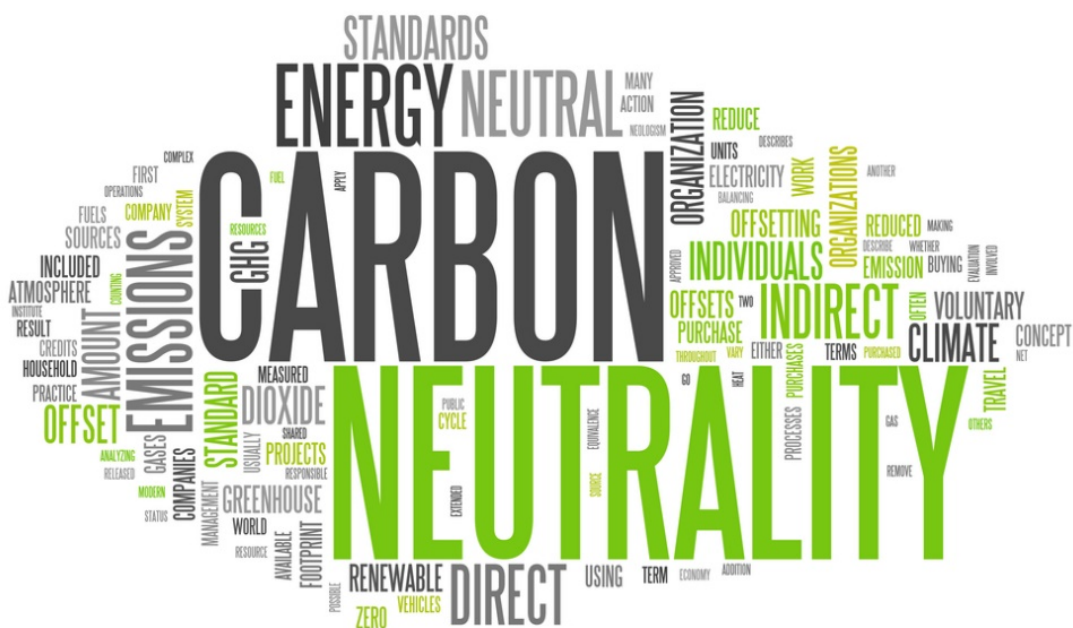


The European Parliament's carbon footprint

Towards carbon neutrality



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Abstract

The study analyses the European Parliament's (EP) carbon footprint in the context of the recent EP resolutions, in which it declared a climate emergency in Europe and requested the development of a strategy to become itself carbon-neutral by 2030. The analysis takes into account the various sources contributing to the EP's greenhouse gas (GHG) emissions, including those related to its function in three different sites and the traveling of its Members and staff. This document was prepared by the Policy Department for Economic, Scientific and Quality of Life Policies, and the Eco-Management and Audit Scheme (EMAS) Unit at the request of the committee on Environment, Public Health and Food Safety (ENVI).

This document was requested by the European Parliament's committee on Environment, Public Health and Food Safety.

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LIST OF ABBREVIATIONS

APAs	Accredited Parliamentary Assistants
CCS	Carbon Capture and Storage
CDJ	Cour de Justice / Court of Justice
CDM	Clean Development Mechanism
CEDEFOP	European Centre for the Development of Vocational Training
CER	Certified Emission Reduction (credits)
CFCs	Chlorofluorocarbons
COP	Conference of the Parties
COR	Committee of the Regions
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
COVID-19	Corona Virus Disease 2019
DG	Directorate-General
EASA	European Union Aviation Safety Agency
EC	European Commission
ECA	European Court of Auditors
ECB	European Central Bank
ECHA	European Chemicals Agency
EEA	European Environmental Agency
EEAS	European External Action Service
EESC	European Economic and Social Committee
EFCA	European Fisheries Control Agency
EIB	European Investment Bank
EIF	European Investment Fund

EIOPA	European Insurance and Occupational Pensions Authority
EMA	European Medicines Agency
EMAS	Eco-Management and Audit Scheme
EMCDDA	European Monitoring Centre for Drugs and Drug Addiction
EMN	Environmental Management Network
EMO	Environmental Management Officer
EMS	Environmental Management System
ENVI	Environment, Public Health and Food Safety (committee)
EP	European Parliament
ESMA	European Securities and Markets Authority
EU	European Union
EUIPO	EU Intellectual Property Office
EUROPOL	European Union Agency for Law Enforcement Cooperation
ETS	Emission Trading System
FAO	Food and Agriculture Organisation (of the UN)
FTE	Full Time Equivalents
GHG	Greenhouse Gas
GIME	Groupe Interinstitutionnel de Management Environnemental / Interinstitutional Group on Environmental Management
GPP	Green Public Procurement
GSC	General Secretariat of the Council
HFCs	Hydrofluorocarbons
ICAO	International Civil Aviation Organization
IMO	International Maritime Organization

IPCC	Intergovernmental Panel on Climate Change
ISO	International Organisation for Standardisation
IT	Information Technology
KPI	Key Performance Indicator
MSs	Member States
NDC	Nationally Determined Contribution
OECD	Organisation for Economic Cooperation and Development
PEB	Positive Energy Building
SDGs	Sustainable Development Goals
t CO₂ eq.	tons of CO ₂ equivalent
TFEU	Treaty on the Functioning of the European Union
UNFCCC	United Nation Framework Convention on Climate Change
WRI	World Resources Institute

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EXECUTIVE SUMMARY

Background

Taking into account the overwhelming scientific evidence, the numerous occurring extreme events, the mobilisation of civil society and the insufficient action by major emitting countries to combat climate change, the EP declared on 28 November 2019 climate emergency in Europe and urged all EU countries to commit to net-zero GHG emissions by 2050. Moreover, it recognised its institutional responsibility to reduce its carbon footprint and to propose the adoption of measures to reduce its own GHG emissions. The European Commission (EC) also stated, in its European Green Deal communication of 11 December 2019, that it is keen to reduce its environmental impact as an institution by presenting a comprehensive action plan in 2020 to become climate neutral by 2030. At the European Council on 12 December 2019, the Member States (MSs) adopted a 2050 carbon neutrality target for the EU, with the exception of Poland which although supporting the 2050 goal was unable to commit to implement this objective.

Aim

On 2 December 2019, the ENVI Committee requested the Policy Department for Economic, Scientific and Quality of Life Policies to prepare a study on the EP carbon footprint and defined also the aims of this study, which were to provide:

- available data on climate emissions related to the EP activities;
- a description of the current environmental management system (EMS) in relation to the EP performances in reducing CO₂ emissions, including a comparison with other EU institutions;
- an analysis of the different sources that contribute to the carbon footprint of the EP including the emissions related to the functioning of two seats; and
- conclusions on the capacity of the EP to reduce its emissions and the related reduction trajectory in view of carbon neutrality.

Since this request, the EP decision and resolution of 14 May 2020 on Discharge 2018 of the EU general budget set a concrete target year for carbon neutrality. It instructs the EP Bureau to amend its current CO₂ reduction plan for reaching carbon neutrality by 2030. Thus, this study discusses the capacity of the EP to reduce its emissions and suggests also short, medium and long-term emissions reduction actions to drastically decrease the EP carbon footprint towards carbon neutrality by 2030.

Concluding remarks

The EP established its EMS, in accordance with EMAS, in 2005 and reviewed periodically its environmental performance through core indicators with increasing level of ambition each time. The GHG emission calculation of the EP includes all direct, semi-direct and indirect emissions for which activity data can be collected and therefore the reported EP carbon footprint pertains the broadest possible scope of emissions. The EP succeeded to reduce its GHG emissions since 2006, when a full year of measurements and the internal audit were put in place for the first time. Overall, the EP carbon footprint expressed in t CO₂ eq. decreased by 15% between 2006 and 2018, while if expressed per person, the decrease is even 37.7% for the same time period. The current carbon footprint target of the EP is to achieve 40% decrease in t CO₂ eq. per person by 2024, a target which will be achieved sooner. Following a 100% offsetting of its irreducible emissions through financial support for projects which reduce GHG emissions in developing countries, the EP has already claimed carbon neutrality since

2016. However, additional significant effort will be needed for the EP to achieve carbon neutrality domestically (without offsetting of its emissions).

Four categories of EP's carbon footprint, namely transport of persons (67%), energy consumed (14%), fixed assets (12%), and purchase of supplies and services (6%), together account for 99% of the total carbon footprint in 2018 (110 570 t CO₂ eq.). Among these four, by far the most significant and critical is the transport of persons, which is divided in three main sub-categories; transport of staff (15%), transport of MEPs (19%) and subsidised visitors (33%). It is clear that the EP subsidised visitors are the main source of the EP GHG emissions and 1/3 of the total EP carbon footprint (33% or 35 896 t CO₂ eq.). Emissions from visitor groups which are not subsidised by Parliament are not included in its carbon footprint scope. In case non-subsidised visitors had been included in the EP carbon footprint scope, another 44 323 t CO₂ eq would have been added.

In order to address the question of "per site" emissions in 2018, a separate analysis was conducted to determine which emissions could be calculated for individual places of work directly from available data. For those categories of emissions for which per site breakdown of data was not available, a partitioning formula was developed to determine what share of total emissions could be attributed to the three places of the EP work (Brussels, Luxembourg and Strasbourg). The detailed breakdown of GHG emissions per site shows that, 84 196 t CO₂ eq. are being attributed to activities in or linked to Brussels, 9 836 t CO₂ eq. attributed to Luxembourg, and 16 538 t CO₂ eq. attributed to Strasbourg, out of the Parliament's total of 110 570 t CO₂ eq. for that year. This means that 76,2% of Parliament's emission is attributable to activities linked to Brussels, 8,9% are linked to Luxembourg, and 14,9% to Strasbourg.

Although the EU Institutions and bodies are exchanging environmental best practices to reduce their carbon footprint via inter-institutional environmental management groups, like the GIME, more effort is still needed to harmonise the way of calculating and reporting their GHG emissions. Moreover, not all of them include their indirect emissions, the use of green public procurement (GPP) is still not obligatory, while there is no common approach for offsetting GHG emissions. Already in 2014 an ECA special report recommended that EU Institutions and bodies need to harmonise the methods and metrics to calculate their carbon footprint. Today, it is still very difficult to directly compare their carbon footprints.

As the international efforts to address climate change are shifting in 2020 from the Kyoto Protocol to the Paris Agreement and the Kyoto implementation mechanisms (e.g. offsets) have shown their limitations, the Parties to the Paris Agreement have not been able yet to agree on the provisions for market-based mechanisms. The difficulty comes from the fact that all countries need to define their emission reduction targets and the offset mechanisms have risks associated with double counting. Inevitably, more effective climate policies need to be implemented domestically in order to reduce global GHG emissions. The European Green Deal aims to achieve its ambitious climate targets without compensation (offsetting) of its GHG emissions through international credits, as it is the case for the current 40% GHG emission reduction target for 2030. Equally, the EP in its recent resolution prior to COP25 reiterated its position on achieving domestically the EU emission reduction targets for 2030 and 2050. In case the EP Bureau decides to become climate neutral by 2030, similarly to the Commission, this study offers suggestions for short, medium and long-term actions to drastically decrease the EP carbon footprint towards carbon neutrality.

1. PROLEGOMENA¹

The EU is one of the most efficient major economies in tackling GHG emissions and it is on course to achieve its emissions reduction target for 2020. In 2018, EU GHG emissions were down by 23%² from the 1990 levels (EC, 2019a), while the EU target for 2020 under the 1997 Kyoto Protocol³ was 20%. However, much more effort is needed in the EU and worldwide to be in line with the 2015 Paris Agreement⁴ target to limit global warming to 2°C, let alone to 1.5°C by the end of this century. Prior to the 2015 climate conference in Paris, the EU introduced the target of reducing its GHG emissions by 40% by 2030 compared to 1990 levels. In order to meet its commitments under the Paris Agreement, the EU adopted a raft of legislation relating to many different economic activities before the end of the parliamentary term in May 2019 (Amanatidis, 2019). The Paris Agreement requests that the signatory Parties this year update their Nationally Determined Contributions (NDCs) by increasing their level of ambition and define their long-term GHG emissions reduction target for 2050. As part of this update, the EP called in its resolution of 25 October 2018 for an update of the EU NDC to a target of 55%⁵ domestic GHG emissions reduction by 2030 compared to 1990 levels, and the adoption of a long-term strategy for net-zero emissions by 2050 (EP, 2018). The new Commission published on 11 December 2019 a communication on the European Green Deal, with the intention to increase the 2030 target to at least 50% emission reductions and even to 55%⁶, subject to the outcome of an impact assessment expected in September 2020 (EC, 2019b). At the European Council on 12 December 2019, the EU MSs adopted a 2050 carbon neutrality target for the EU, with the exception of Poland, which although supporting the 2050 goal, was unable to commit to implement this objective. According to the Council conclusions⁷, transition to carbon neutrality will bring significant opportunities, such as potential for economic growth, for new business models and markets, for new jobs and technological development. A recent study argues that it is not necessary to wait breakthrough technologies to deliver carbon neutrality (or net-zero emissions) by 2050, but instead we can plan using today's technologies with incremental change involving also a public debate about future lifestyles (Allwood et al., 2019).

Since the Paris Agreement, several reports of the Intergovernmental Panel on Climate Change (IPCC) have attracted substantial public attention as they underline the urgency to act now in order to combat climate change and prevent greater harm to humans and the ecosystem. In particular, the IPCC published in October 2018 its special report on the impacts of global warming by 1.5°C above pre-industrial levels and related global GHG emission pathways, in the context of strengthening the global response to the threat of climate change (IPCC, 2018). The report concludes unequivocally that continued action in line with current commitments is not compatible with pathways consistent with limiting warming to 1.5°C. If current commitments made by the Parties to the Paris Agreement were fully implemented, emissions in 2030 would be roughly twice the amount compatible with the long-term temperature goal of 1.5°C. However, the gap is even bigger as many countries have not adopted sufficient measures to reach their Paris commitments. The current state of implementation of policies

¹ Prolegomena is used instead of introduction to refer generally to something that serves as a critical introduction, which sets the overall broad context of the study.

² EU Climate Action Progress Report 2019 - Preparing the ground for raising long-term ambition: <https://ec.europa.eu/transparency/regdoc/rep/1/2019/EN/COM-2019-559-F1-EN-MAIN-PART-1.PDF>

³ The UNFCCC Kyoto Protocol: <https://unfccc.int/sites/default/files/resource/docs/cop3/107a01.pdf>

⁴ The UNFCCC Paris Agreement: http://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english.pdf

⁵ EP resolution of 25 October 2018 on the 2018 UN Climate Change Conference in Katowice, Poland (COP24): https://www.europarl.europa.eu/doceo/document/TA-8-2018-0430_EN.html

⁶ The EC communication on the European Green Deal: https://ec.europa.eu/info/sites/info/files/european-green-deal-communication_en.pdf

⁷ The conclusions of the European Council meeting of 12 December 2019: <https://www.consilium.europa.eu/media/41768/12-euco-final-conclusions-en.pdf>

and measures is likely to result in global warming by 3.2°C. The report underlines that we can already experience the consequences of global warming of 1°C and mentions a number of implications of climate change, which could be avoided by limiting global warming to 1.5°C rather than to 2°C.

Against the background of this overwhelming scientific evidence, the numerous occurring extreme events and the insufficient action by major emitting countries to combat climate change, the involvement of civil society has intensified over the last years. For example, the youth-led protests initiated by Greta Thunberg in summer 2018 have induced the new movement of 'Fridays for Future' which has brought thousands of students to the streets every Friday for the last several months. One of the key demands of youth engaging in Fridays for Future is for politicians to listen to climate science and act accordingly. Moreover, the European public opinion on climate change has been continuously evolving during the last years towards recognizing the disastrous impacts of climate change. In a Eurobarometer survey commissioned by the EP and conducted in October 2019, for the first-time citizens said that climate change should be the top priority for the EP highlighting youth-led protests as great influencers. An absolute majority of Europeans (52%) responded that climate change is their most pressing environmental concern⁸.

On 28 November 2019, the EP declared a climate emergency in Europe and urged all EU countries to commit to net-zero GHG emissions by 2050 (EP, 2019a). The EP resolution, among others, "*recognises its institutional responsibility to reduce its carbon footprint; proposes to adopt its own measures to reduce emissions, including replacing its fleet vehicles with zero-emissions vehicles, and calls on all the Member States to agree to a single seat for the European Parliament*". The EC also calls in its European Green Deal communication⁶ that "*... is also keen to reduce its environmental impact as an institution and as an employer. It will present a comprehensive action plan in 2020 to implement itself the objectives of the Green Deal and to become climate neutral by 2030. It calls on all the other institutions, bodies and agencies of the EU to work with it and come forward with similar ambitious measures*" (EC, 2019b).

In this context, the ENVI coordinators decided on 2 December 2019 to request the Policy Department for Economic, Scientific and Quality of Life Policies to prepare a study on the EP carbon footprint⁹. According to the request, the study should provide the ENVI Committee Members with information on the following aspects:

- *"Available data on climate emissions related to the European Parliament activities;*
- *A description of the current environmental management system in relation to the European Parliament performances in reducing CO₂ emissions, including a comparison with other EU institutions;*
- *An analysis of the different sources that contribute to the carbon footprint of the EP including the emissions related to the functioning of two seats;*
- *Conclusions on the capacity of the European Parliament to reduce its CO₂ emissions and the related reduction trajectory in view of carbon neutrality".*

The EP has been among the first EU Institutions to continuously monitor its carbon footprint and initiate measures to reduce its own GHG emissions. Its Bureau decided to establish on 19 April 2004 an EMS in its premises, which was set up and has subsequently evolved in accordance with International

⁸ EP 2019 Parlameter - Focus on climate change:
<https://www.europarl.europa.eu/resources/library/media/20191129RES67708/20191129RES67708.pdf>

⁹ Carbon footprint glossary: The full quantity of GHGs that can be attributed to an individual, a plant, a company, a product or a whole economy. It is often expressed in t CO₂ eq. Full description of the carbon footprint definition is given elsewhere (Wiedmann and Minx, 2008).

Organisation for Standardisation (ISO) 14001 standard and the requirements set out in the EMAS Regulation¹⁰ No 1221/2009 (EU, 2009). The EP environmental policy contains guidelines for reducing GHG emissions; promoting the efficient use of energy, water and paper and reducing of waste; incorporating environmental guidelines into procurement procedures; taking preventive measures to counter pollution, etc. The EMS applies to all activities of the EP in its three main places of work, Brussels, Luxembourg and Strasbourg. All the EP's buildings in the three places of work are considered, together with the mobility of Members, personnel and visitors, when calculating the environmental indicators and carbon footprint. Every year since 2007, the EP Environmental Statement provides comprehensive information to the public regarding EP's EMS and its environmental performance and compliance with the applicable legal obligations. Among the key indicators of EP's performance is the carbon footprint, which is reported based on the number of employees (FTE- Full Time Equivalents) according to the EMAS Regulation. The latest Environmental Statement for 2018 concludes that the EP carbon footprint, per FTE, decreased by 37.7% compared to 2006 (EP, 2019b). If absolute values of the EP carbon footprint are counted, expressed in tons of CO₂ equivalent (t CO₂ eq), the decrease between 2006 and 2018 is 15% (Annex I).

More recently, after the ENVI Committee request to prepare this study, the EP decision and resolution of 14 May 2020¹¹ states that the EP *"shall lead by example and commit itself to achieving a zero-carbon footprint by 2030; requests that Parliament develop a strategy to become carbon-neutral by 2030; ... instructs its Bureau's EMAS working group to amend the key performance indicators and the current CO₂ reduction plan for reaching carbon neutrality by 2030"* (EP, 2020). In case the EP Bureau adopts such a 2030 target, following a similar pathway by the Commission, this study offers some proposals for short-term, medium-term and long-term emission reduction actions to drastically decrease the EP carbon footprint towards carbon neutrality by 2030.

It is worth noting that according to the Article 341 of Treaty on the Functioning of the European Union (TFEU), the seat of the EU Institutions shall be determined by the common accord of the governments of the MSs. The Protocol 6 of the TFEU establishes the seat of the EP in Strasbourg and sets Brussels and Luxembourg as working places. Any modification of the seat or the working place would require a Treaty change, with the consent of the MSs. The history of how decisions have been taken on EP's functioning in three places is described elsewhere^{12,13}. Currently, the EP plenary meets twelve times a year in Strasbourg, while some of the plenary part sessions and most of the parliamentary committee meetings are held in Brussels. The EP Secretariat is shared between Luxembourg and Brussels, while only a small number of EP staff is permanently located in Strasbourg. The EP has expressed many times in the past its preference to become a single seat Institution. Apart from the environmental criteria mentioned before, economic considerations have been also presented in the EP decision and resolution of 14 May 2020¹¹, which *"recalls that a vast majority of Parliament expressed in various resolutions support for a single seat to ensure efficient spending of Union taxpayers money; notes that the Court estimated that moving from Strasbourg to Brussels could generate annual savings of EUR 114 million plus a one-off saving of EUR 616 million if the Strasbourg buildings are successfully divested, or a one-off cost of EUR 40 million if they are not; notes that a single seat can only be achieved by a unanimous Treaty*

¹⁰ The EU EMAS Regulation 1221/2009 of 25 November 2009: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009R1221&from=EN>

¹¹ EP decision and resolution of 14 May 2020 on Discharge 2018: EU general budget: https://www.europarl.europa.eu/doceo/document/TA-9-2020-0084_EN.html

¹² Article by cvce.eu on the seat of the European Parliament: https://www.cvce.eu/obj/seat_of_the_european_parliament-en-a6f7c847-d88b-40d7-9a3e-8e9f63e857ed.html

¹³ Wikipedia article on the Institutional seats of the EU: https://en.wikipedia.org/wiki/Institutional_seats_of_the_European_Union

change; urges the Council to take note of Parliament's position and take its responsibility and act accordingly" (EP, 2020a).

In order to address the request by the ENVI Committee, this study uses the most recent available annual GHG emission data from all EP activities in 2018, as they are calculated in the latest Environmental Statement for 2018 (EP, 2019b) and presented in the Annex I of this study. However, in this study the carbon footprint of the EP is reported using the absolute carbon emissions from all various sources, and also introduces a methodology to attribute all these emissions (from energy, transport of MEPs, personnel and visitors, purchase of supplies and services, buildings and furniture, waste, etc.) per site (the three working places of the EP). The prolegomena describes the European and international context of climate change and the mandate for this study. Chapter 2 describes the activities, the trends and the achievements of the current EMS and the methodology used to calculate the total EP carbon footprint. Chapter 3 includes the analysis of the various sources of the EP GHG emissions and the breakdown of all emissions in the three sites of the EP work. Chapter 4 describes the EMAS activities in other EU Institutions and bodies aiming to compare the EP footprint with them in terms of emissions per person, despite their difference in scope. The carbon footprint of other international organisations and entities is also presented. Chapter 5 describes the current situation in the EP regarding carbon neutrality which is claimed by using a 100% offsetting of its irreducible emissions. Finally, the study suggests additional mitigation measures to reduce drastically the EP's GHG emissions for achieving carbon neutrality¹⁴ domestically by 2030.

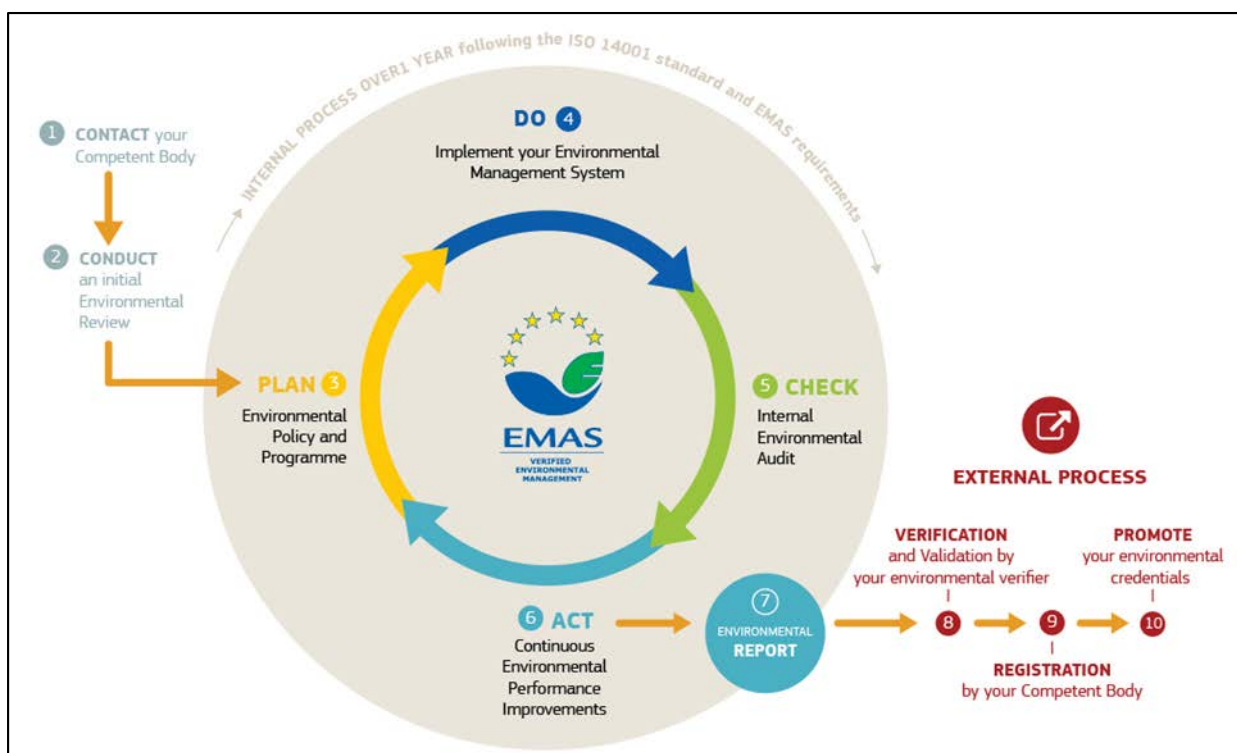
¹⁴ Carbon neutrality throughout the study refers to all GHG or CO₂ eq. emissions and not simply to CO₂ emissions.

2. THE EP ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)

2.1. The history of EMAS in the EP

The EU Eco-Management and Audit Scheme (EMAS) is a voluntary management instrument for companies and other organisations wanting to evaluate, report and continuously improve their environmental performance. In order to register with EMAS, organisations must meet the requirements of the EU EMAS-Regulation (EU, 2009). Currently, more than 4 600 organisations and more than 7 900 sites are EMAS registered¹⁵. EMAS is a comprehensive and demanding premium label, whose implementation requires some financial and personnel resources. In return, EMAS provides organisations with many advantages, ranging from reputational benefits, to regulatory relief, to cost savings. Implementation of EMAS is based on a continuous Plan-Do-Check-Act cycle. Therefore, a key feature of EMAS is an obligation for a registered organisation to continually improve its environmental performance and the effectiveness of its EMS.

Figure 1: Implementation of EMAS and the Plan-Do-Check-Act cycle



Source: The EC EMAS website: https://ec.europa.eu/environment/emas/join_emas/how_does_it_work_step0_en.htm

The EP's administrative and technical work comprises certain aspects that have a direct or indirect impact on the environment: for example, energy consumption for heating and lighting in meeting rooms and offices, production of waste and waste water, consumption of paper and the environmental impact of transport of people and goods. Being aware of these impacts and the need to manage and reduce them, Parliament began the preparatory work necessary for the implementation of an EMS immediately after the entry into force of the first EMAS Regulation¹⁰. An external consultant, working in cooperation with Parliament's services, performed a detailed environmental analysis of Parliament's

¹⁵ The EC EMAS register: https://ec.europa.eu/environment/emas/emas_registrations/register_en.htm

activities. The analysis served as a basis for identifying a series of environmental management objectives for Parliament.

On 19 April 2004 the Bureau decided to establish an EMS in Parliament, in accordance with EMAS. Following additional technical preparations, on 9 May 2005 the Bureau approved the environmental objectives and asked the Secretary-General to establish the EMS required in order to attain them. The first versions of the main EMAS documents were approved by the Bureau on 13 December 2005. The system and necessary documentation, as well as the first internal audit cycle, were put in place in 2006. The first Management Review exercise was carried out in June 2007. Following the decision to adjust the environmental objectives and key actions proposed in the Management Review, the new version of the Environmental Policy of the European Parliament was adopted and signed in November 2007.

Successful external audits led to ISO 14001:2004 certifications for the three sites on 17 December 2007. The application procedure for EMAS registration for the three EP sites was successfully achieved in the course of 2008. Since EMAS registration is renewed for a three-year period, audits to renew the EMAS registration were carried out in 2010, 2013, 2016 and 2019. The 2019 audit was based on the environmental performance data for 2018, which also form the basis for this study. In addition, an external verification in 2018 also confirmed Parliament's compliance with the updated ISO 14001:2015 standard.

2.2. Activities and governance of the EMS

2.2.1. Documentation of the EMS

The EMS is the tool for implementing EP's environmental policy and for evaluating and improving its environmental performance. The EMS incorporates the organisational structure, planned activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing, and managing Parliament's environmental aspects. The EMS applies to all technical and administrative activities of the European Parliament in its three main places of work: Brussels, Luxembourg and Strasbourg. All of the European Parliament's buildings in the three places of work are taken into account when calculating the environmental indicators and carbon footprint.

Parliamentary activities performed by the MEPs within the framework of their mandate are included in the EMS, as e.g. GHG emissions linked to traveling from home country to Brussels and Strasbourg, or outside the three places of work form parliamentary delegations, delegations of committees, or meetings of political groups. However, political activities organised by the MEPs themselves are not included in the EMS. The MEPs' activities, which are included in the carbon footprint scope of the EP, are described in Chapter 3. In defining the elements of Parliament's EMS (its scope, environmental indicators and targets), best practice examples for public administration were taken into account, as described in the relevant EMAS Sectoral Reference Document¹⁶.

Key EMAS documents underpinning Parliament's EMS, as required by the EMAS Regulation, are: Environmental Policy, Environmental Analysis, Environmental Manual, Analysis of Environmental Risks and Opportunities, Compendium of EMAS Procedures, as well as the annually adopted EMAS Action Plan, Environmental Management Review, and Environmental Statement. The latest Environmental Statement for 2018 gives full information for all these key EMAS documents (EP, 2019b).

¹⁶ Sectoral Reference Documents (SRDs) on Best Environmental Management Practice are sector-specific documents produced by the European Commission in order to provide guidance and inspiration to organisations in a given sector on how to further improve environmental performance. They provide an overview of relevant EMAS-related aspects for a particular sector, and contain a set of best practice examples. For the European Parliament's EMS, the relevant SRD is the one for public administration.

The **Environmental Policy** is defined and approved by the EP Bureau. It reflects its vision of the EMS and the main environmental problems and objectives. The EP's first Environmental Policy was adopted by the Bureau and announced by the President on 19 April 2004. The current version of the Environmental Policy has been approved by Parliament's Bureau on 16 September 2019 and signed by the President and Secretary-General on 06 November 2019¹⁷.

The **Environmental Analysis** is a comprehensive initial environmental review identifying and evaluating the environmental aspects, impacts and performance related to Parliament's activities. The environmental analysis is periodically updated. During the latest update of Parliament's environmental analysis, performed in 2018, the EMAS Unit has revised the list of aspects that arise from Parliament's activities. Among eleven main environmental aspects have been identified for the EP is the generation of greenhouse and other gas emissions to the atmosphere.

The **Environmental Manual** is the description of EP's EMS and the manner in which Parliament applies the EMAS Regulation. The latest technical update of the Manual was adopted by the Secretary General on 03 June 2016. Identification of the interested parties with respect to EP's EMS and determination of their relevant needs and expectations is annexed to the Environmental Manual. The current analysis identifies the following 13 categories of interested parties: MEPs; EP staff; management of the EP; Accredited Parliamentary Assistants (APAs); political groups; contractors in technical matters; other contractors; local, regional and national authorities; local residents; visitors; media; EU citizens; and other EU institutions.

The **Environmental Risk and Opportunity Analysis** identifies and analyses risks and opportunities associated with EP's EMS. The analysis contains the description of risks and the assessment of their likelihood, an overview of the preventive and mitigating actions, as well as deadlines and responsibilities, and potential ways to improve environmental performance.

The **Compendium of EMAS procedures** are step-by-step instructions describing how to implement the EMS¹⁸. They are created and maintained by the EMAS Unit in cooperation with other services responsible for particular areas of activity.

The **EMAS Action Plan** is Parliament's environmental programme, containing a description of measures, responsibilities and means taken or envisaged to achieve environmental objectives and targets within fixed deadlines. The Action Plan is adopted by the Steering Committee for Environmental Management on an annual basis. The Action Plan 2020 was adopted on 03 February 2020.

The **Environmental Management Review** is the annual activity report addressed to the Bureau, reviewing the appropriateness and effectiveness of the EMS, including the implementation of the Action Plan, with a view to proposing environmental improvements. The Environmental Management Review for 2018 was adopted by the Steering Committee on 11 July 2019.

The **Environmental Statement**¹⁹ provides comprehensive information to the public regarding Parliament's structure and activities, the Environmental Policy, the EMS and the Action Plan, including its environmental aspects and performance and compliance with applicable legal obligations relating

¹⁷ The EP's Environmental Policy:

<https://europarl.europa.eu/about-parliament/files/organisation-and-rules/environmental-management/en-environmental-policy.pdf>

¹⁸ P-DO-ALL-16 procedure: This procedure explains how procedures are identified, updated and approved. All procedures may be updated at any time in the light of developments concerning the EMS or changes in the requirements. Procedures may include supporting documents, which are model documents that may be used to apply a procedure or an instruction.

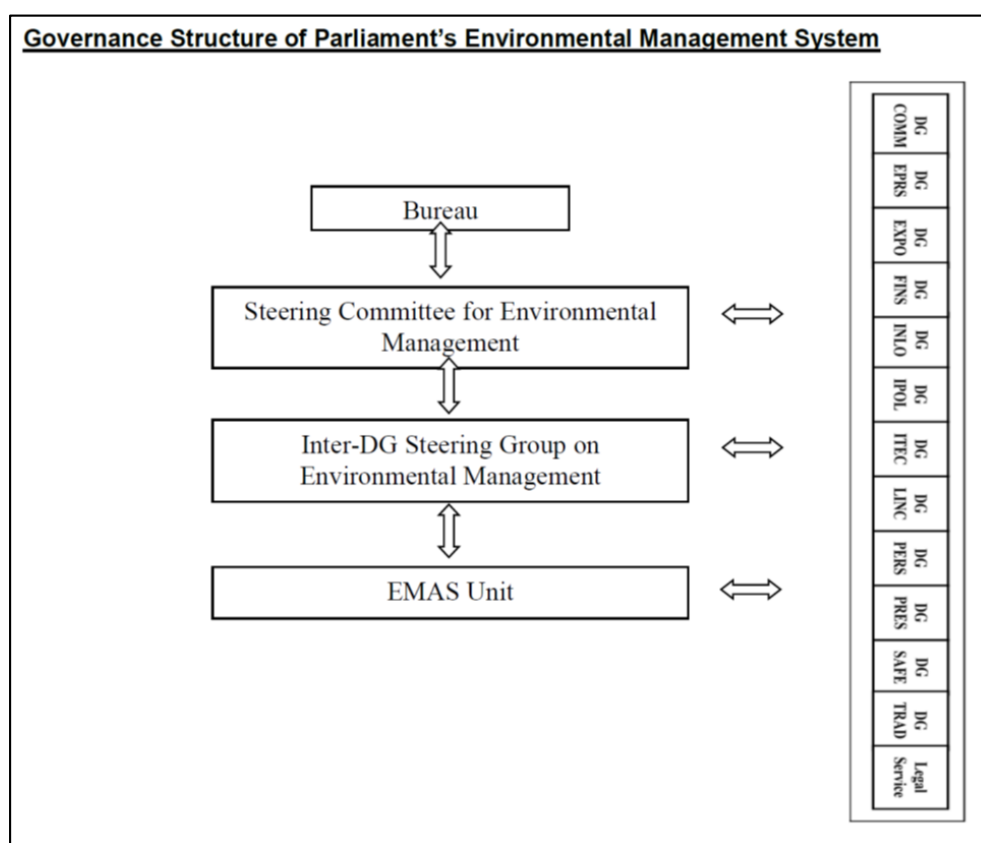
¹⁹ The EP's EMS: <https://www.europarl.europa.eu/about-parliament/en/organisation-and-rules/environmental-management>

to the environment. Its contents are verified annually by an accredited EMAS external verifier, and following their approval, the Environmental Statement is made available to the public and sent to the competent EMAS authorities in MSs in which EP's three main places of work are located. The Environmental Statement for 2018 was adopted by the Steering Committee on 11 July 2019 (EP, 2019b).

2.2.2. Governance Structure of the EMS

The governance structure of the EP EMS includes the following bodies (a schematic of the governance structure is given in Figure 2):

Figure 2: Governance structure of Parliament's EMS



Source: EP Environmental statement 2019 for 2018 (EP, 2019b).

The EP **Bureau** (the political body responsible for dealing with administrative and financial matters, composed of the President and the 14 Vice-Presidents of the EP, and the 5 Quaestors in an advisory capacity) is the political decision-making authority of the EMS. The Bureau adopts and revises the broad outlines of Parliament's approach and commitment to environmental matters, including in particular the Environmental Policy, and allocates the budgetary resources necessary for its implementation.

The **Steering Committee for Environmental Management** is the highest administrative authority of the EMS and meets twice per year in order to endorse Parliament's Environmental Management Review and Environmental Statement and adopt the Action Plan for the following year. Chaired by the Secretary-General, it brings together the Deputy Secretary General, the Directors-General and the Jurisconsult. The Steering Committee is charged with implementation of the Bureau's decisions in the environmental field and with ensuring convergence of the Environmental Policy with its practical implementation through the EMS and the annual Action Plan, verifying that the Action Plan remains in line with Parliament's priorities.

The **Inter-DG Steering Group on Environmental Management** includes environmental management officers (EMOs) from each Directorate-General (DG) which is responsible for the implementation of the EMS in the respective DG. The inter-DG Steering Group meets on a monthly basis and prepares the Steering Committee's work, proposes actions to be included in the annual Action Plan and ensures the follow-up to those actions, helps prepare the draft Environmental Management Review/Environmental Statement and ensures closer horizontal cooperation and coordination at operational level between and within Directorates-General.

The **EMAS Unit**, attached to the Secretary General as a Central Service since 1 January 2014, is responsible for coordinating the implementation of the EMS and reports to the Inter-DG Steering Group on Environmental Management and to the Steering Committee for Environmental Management. The position of the EMAS Unit underlines the horizontal responsibilities of EMAS with respect to all administrative activities of the Parliament.

On the basis of individual needs and resources, each Directorate-General can create an internal **Environmental Management Network (EMN)**, coordinated by the respective EMO, in order to give environmental issues a higher profile. An EMN comprises representatives from within the Directorate-General and seeks to ensure the more efficient implementation of environmental projects, proactive participation in the EMS, greater awareness about the EMS and more fluent communication.

2.3. Activities and achievements of the EMS

2.3.1. Key Performance Indicator (KPI) targets

In accordance with the EMAS Regulation¹⁰, organisations applying EMAS must report on their environmental performance using core indicators. The EMAS Regulation also provides that, for organisations in the non-production sectors (administration/services), the overall annual output of the organisation shall relate to the size of the organisation expressed in number of employees. For that reason, Parliament's indicators are calculated based on the number of employees (FTE).

Following the recommendations from the 2016 Environmental Management Review, new ambitious KPI targets²⁰ for periods beyond 2016 and 2020 had been adopted by the Steering Committee for Environmental Management in 2017 in the areas of gas, oil, and district heating consumption, renewable energy, electricity consumption, paper consumption, water consumption, waste recycling, reduction of non-recycled waste, reduction of food waste, and GPP. Furthermore, also in 2017, the EP Bureau adopted a new target for reducing CO₂ emissions beyond 2020, aiming for a reduction of at least 40% in 2030 compared to 2006. This target replaced the previous 2020 carbon footprint reduction target, reflecting the increased level of ambition following the 2015 Paris Agreement.

In 2019, with the evolution of the political context at the EU and global level, as discussed in Prolegomena, the EP administration reassessed the environmental performance and ambition of EMS. It became evident that the increased urgency and ambition of EU environmental policies could also be mirrored in the objectives and activities of the EMS. Furthermore, many of the targets set in 2017 for 2025 and 2030 had been nearly achieved, and in some cases were already achieved by 2019. This is evidence of good functioning of the EMS to reduce environmental impacts from Parliament's activities, but it also allowed an opportunity to redefine the targets to make them even more ambitious. Therefore, on 16 December 2019, the Bureau adopted new ambitious KPI targets for EP's EMS with a

²⁰ In addition to new targets for the previously tracked indicators, three new indicators (renewable energy, reduction of food waste, GPP) with corresponding targets were introduced to enhance the ability to track EP's environmental performance while reflecting the increased level of maturity and ambition of Parliament's EMS.

unified target date of 2024 for the new legislative term. In addition to the existing areas mentioned above, a CO₂ emissions sub-target in the area of transport of persons was also included. This is the first time that all environmental EP KPI targets were adopted at the Bureau level, reflecting *inter alia* the increased importance and urgency attributed to environmental issues at present. The new climate related performance targets are shown in the Table 1 along with the corresponding performance in 2018, which is the last year for which externally verified figures are available. Most targets are defined against the volume of Parliament's activity expressed in FTE²¹.

Table 1: Climate KPI targets for EP adopted by the Bureau on 16 December 2019

Environmental aspect	Indicator	Performance in 2018	New targets for 2024
CO ₂ emissions	Carbon footprint in tons of CO ₂ eq. per FTE	-37,7% (compared to 2006)	40% reduction between 2006 and 2024
CO ₂ emissions from transport of persons	Carbon emissions resulting from transport of people in tons of CO ₂ eq. per FTE	-20,7% (compared to 2006)	30% reduction between 2006 and 2024
Gas, heating oil, and district heating consumption	Annual consumption of gas, fuel oil and district heating ²² in kWh per FTE	-20,6% (compared to 2012)	25% reduction between 2012 and 2024
Renewable energy	Share of energy used by EP which is generated on-site from renewable resources	19,1%	25% attained by 2024
Electricity consumption	Annual electricity consumption in kWh per FTE	-14,9% (compared to 2012)	20% reduction between 2012 and 2024
Green public procurement	Percentage of contracts (among the priority product categories ²³) classified as "Green" or "Green by Nature"	44.9% in 2018 (55,8% when including all "Green by Nature" contracts)	90% by 2024

Source: EMAS Unit.

²¹ In accordance with the EMAS Regulation 1221/2009, organisations applying EMAS must report on their environmental performance using core indicators relating to the overall output of the organisation. The EMAS Regulation also provides that, for organisations in the non-production sectors (administration/services), the overall annual output of the organisation shall relate to the size of the organisation expressed in number of employees. The FTE figures reflect the size of the European Parliament based on the number of people working for and at the Parliament, and visiting it. Therefore, calculation of FTE takes into account Members, Accredited Parliamentary Assistants, political group staff, administrative staff (officials, temporary and contract agents, and seconded national experts), trainees, subsidised visitors, and external contractors working at EP premises (mainly in security, IT, catering, cleaning, maintenance, and temporary work).

²² Calculated as a rolling average of the last three years to even out the effects of climatic variation.

²³ Priority product categories defined in the EP Implementation Guide on GPP. Currently, these categories are: buildings; Cleaning; Food and Catering; Furniture; Gardening and Green Areas; IT and Imaging Equipment; Lighting; Office Supplies; Paper; Sanitary and Water Equipment; Textiles; Vehicles and Transport; Waste management.

2.3.2. Achievements of the EMS in climate related areas

a. Carbon emissions

Parliament is already approaching its 2024 target in this area. The sizeable reduction in carbon emissions already achieved since 2006 has been mainly due to:

- 100% 'green' electricity in the three places of work;
- improved energy efficiency of the technical installations (heat pumps, cooling systems, etc.);
- use of high-speed trains instead of charter flights between Brussels and Strasbourg;
- mobility projects, such as co-financing staff's public transport costs;
- gradual increase in the number of parking places and charging stations for e-cars;
- continuous renewal of the car fleet, including through the purchase of electric vehicles and hybrid cars (15 fully electric cars and 62 hybrid cars in 2019), as well as the continuous extension of the bicycle fleet and the introduction of e-bikes;
- occasional teleworking, which has led to 18 600 days teleworked by staff by the end of 2018. In addition to other beneficial effects, this has resulted in an 86 ton reduction in Parliament's CO₂ emissions;
- videoconferencing, which has made it possible to hold 11 729 virtual meetings in 2018. Furthermore, the launch of the WebMeeting tool in early 2020 (making it possible to join a meeting from any kind of device from both inside and outside the EP) proved to be extremely useful during the COVID-19 pandemic; and
- increased use of economy class for travel by Members.

b. Carbon emissions offsetting

Parliament's environmental policy, as implemented in the EMAS Action Plan, is based on the principle of preventing emissions and, where emissions are unavoidable, of limiting them. However, emissions cannot be reduced to zero and, once emissions cannot be limited any further, other options have to be explored. In this context, CO₂ offsetting, i.e. the purchase of carbon offsets to compensate for the purchaser's own emissions, is a part of the current EP's strategy to tackle climate change, as an ultimate option in a complete carbon management plan. Offsets are typically achieved through financial support for projects such as renewable energy, energy efficiency, etc., which reduce GHG emissions.

Since 2016, Parliament offsets all of its irreducible carbon emissions based on the decision of the Bureau of October 2015, as follows:

- aim at offsetting the total amount of Parliament's carbon emissions, including emissions from flights by MEPs between their country of origin and Brussels and Strasbourg, on an annual basis but limit it to financial means available under budget-line 2390 (currently 249 000 EUR);
- allow for projects in the African, Caribbean and Pacific Group of States (ACP-countries), or, if such projects are not available, either in countries encompassed by the European Neighbourhood Policy (ENP) with established National Action Plan Projects or in countries encompassed by the Euro-Mediterranean Partnership (EuroMed)/Union for the Mediterranean (UfM), in candidate countries or in EU MSs; and

- specify the widely recognised Gold Standard as a quality standard for offsetting projects in developing countries.

The total carbon footprint of the European Parliament in 2018, including emissions from MEP flights between their home countries and Brussels and Strasbourg, was offset in 2019 following a procurement procedure corresponding to the above listed parameters. The three projects which generated the credits which offset Parliament's 2018 carbon footprint were: an integrated biomass energy conservation project in Malawi, improved cook stoves (energy conservation) project in Ghana, and improved kitchen regimes project in Uganda. The total cost to offset these emissions was EUR 209 252,39. For comparison purposes, the offsetting contract covering Parliament's emissions from 2017 (signed in 2018) was for a total amount of EUR 184 095,80. It is also worth noting, that the 2019 offsetting exercise marked the first time that unavoidable carbon emissions were offset jointly with another EU institution, the European Central Bank, through a common procurement procedure. Additional EU institutions will start participating in the joint offsetting approach as of 2020, based on Parliament's offsetting parameters and with Parliament as the lead institution.

c. Energy consumption

Consumption of gas, heating oil, and district heating per FTE was reduced by 20.6% from 2012 to 2018. With respect to energy savings for heating, a strong performance has generally been maintained over the years, reflecting the success of both active (heating systems) and passive (thermal insulation) energy efficiency measures taken over time.

Parliament is also on track to achieve its target of reducing its electricity consumption by 20% from 2012 to 2024. A number of energy-saving projects have helped in this regard:

- installing more energy-efficient cooling units in buildings;
- placing low-energy bulbs in the common areas;
- improving the management of the lighting in meeting rooms;
- installing more energy-efficient heat pumps in Strasbourg;
- heating the buildings by means of cogeneration (or tri-generation), which produces electricity from excess heat; and
- setting up passive-energy buildings.

d. Renewable energy

Every year since 2008, all electricity purchased by the European Parliament has been 'green' (produced from renewable sources), with appropriate certificates of origin.

The EP also generates its own renewable energy on-site in Strasbourg (heat pumps) and Brussels (heat pumps, cogeneration, and solar photovoltaic). In 2018, this renewable energy represented 19.1% of the Parliament's total energy consumption. For Strasbourg, the share of renewable energy generated on-site in terms of total energy use was 59.5%, whereas for Brussels it was 0.76%. In December 2019, Parliament moved into the first block of the new Adenauer building in Luxembourg; once the work on the building is fully finished, all Luxembourg-based staff will be transferred to it, vacating the office buildings they currently occupy. The new building's energy needs will be covered by a state-of-the-art tri-generation plant (a plant that combines three functions – power generation, heating and cooling – in one), a geothermal heating and cooling system, and a mix of photovoltaic and thermal solar panels.

e. Green Public Procurement (GPP)

Parliament's GPP approach is based on the classification of contracts with respect to their greenness and on monitoring performance at the level of the Parliament as a whole. This includes greening targets for specific groups of products/services considered to have a high environmental impact and a significant potential for greening in buildings, cleaning, food and catering, furniture, gardening, IT, waste management, etc., but also in circular economy (Neubauer et al., 2016). Examples of contracts of the Parliament that have been classified as very green or green in 2018 include: a) purchase of office supplies and accessories at the three places of work, b) maintenance of the green spaces in Strasbourg, c) finishing construction works in Brussels, d) subsidised public transport for Brussels-based staff, and e) greening catering contracts, including gradual reduction of plastic and plastic waste.

To provide practical help with introducing green elements into contracts, an interinstitutional GPP helpdesk has been established for eight participating EU institutions and bodies through a public procurement procedure, with Parliament as the lead institution. The EP also provides training to its staff on GPP, including thematic presentations dedicated to a particular product group.

Relevant services of the Parliament have been taking part in the GPP criteria development process of the EC Joint Research Centre (JRC), since 2014. The EMAS Unit informs the DGs about the upcoming criteria development procedures, and coordinates responses and input of the Parliament's administration.

2.3.3. Recognition and awards

In 2017, the EP was the first EU institution to become the national European EMAS Award laureate of a Member State (France). In May 2017, at the EU EMAS Award ceremony in Malta, the Parliament was awarded the second prize in the public administration category.

In October 2016, Bruxelles Environnement/Leefmilieu Brussel (the public service responsible for the environment and energy at the Brussels-Capital Region) awarded the '*Label Entreprise Ecodynamique*' to the Parliament for its excellent overall environmental performance.

In June 2017, the '*Prix Luminus de l'Energie et de l'Environnement*' was awarded to the construction company Atenor and the EP for the Wilfried Martens building's high energy-efficiency standard (excellent insulation and efficient heating/air-conditioning systems incorporating ground-source heat pumps).

In 2018, the EP and its catering service provider, Compass Belgilux, were awarded the Good Food Label for the self-service restaurants in the Spinelli and Spaak buildings in Brussels. The Good Food label is awarded by Bruxelles Environnement/Leefmilieu Brussel and is a guarantee of high-quality food that is sustainable, obtained in ways that are respectful of the environment, and in line with fair trade practices. A significant element of assessment for obtaining this label is the carbon impact of the food served and the catering operation as a whole.

3. THE EP TOTAL CARBON FOOTPRINT

3.1. Methodology and scope

The calculation of EP's carbon footprint is necessary to monitor its environmental performance and achievements in line with the EMAS Regulation and the Environmental Policy. This chapter aims to present and explain the EP's carbon footprint, using 2018 as representative year. The calculation and reduction of the carbon footprint constitutes the first objective of the EMAS Action Plan (Table 1), with the aim of cutting EP's carbon emissions by 40% by 2024 (commitment officially made in the Bureau Decision of 16 December 2019).

The whole carbon reduction initiative of the EP takes place within the context of its EMS. Reduction of carbon emissions is one of the EMS main objectives and is integrated in the EMAS organisational structure, using its resources to improve reliability and enhance communication and transparency.

a. Methodology

EP's carbon footprint calculation is conducted using the Bilan Carbone methodology, developed by ADEME (Agence De l'Environnement et de la Maîtrise de l'Energie) in France²⁴. This methodology reviews all the physical streams related to the organisation (people, objects, energy, raw materials, etc) and derives the corresponding GHG emissions generated by each stream. These emissions are consolidated item by item (for example road haulage of goods, or in-house use of fuels, etc.). Bilan Carbone method is compatible with the norm ISO 14064, the GHG Protocol initiative and the terms of the Directive No 2003/87/EC relative to the EU Emission Trading System (ETS).

A unique attribute of the Bilan Carbone method is the fact that it also takes into account the indirect carbon footprint of an organisation. This method therefore allows an organisation to understand its global carbon impact, and consequently all its possibilities for GHG emission reduction.

The Bilan Carbone method has been proven to be one of the most accurate and precise methods which exist today for calculating a carbon footprint of an organisation. It is this precision, combined with relevance of the emission factors and broad calculation scope that made it particularly suitable for calculating Parliament's carbon emissions. The latest version of the methodology, used in 2019 for calculation of Parliaments carbon footprint for 2018 is *Bilan Carbone version 7.81*.

b. Emission factors and GHGs

In most cases, it is not feasible to measure the GHG emissions directly arising from a given activity. While the concentration of GHGs in the air is commonly measured, it is rare that the emissions themselves can be directly measured. The only way to estimate these emissions is to derive them from activity data. The figures that allow observable data obtained within an organization to be converted into GHG emissions, expressed in terms of carbon equivalent, are called emission factors. As the Bilan Carbone calculation approach is primarily based on average emission factors; the tool aims above all to provide orders of magnitude, the objective being to allow practical decisions to be taken on the actions needed to reduce these emissions. Generally speaking, an emission factor is a representative value that attempts to relate the quantity of a pollutant released into the atmosphere with an activity associated with the release of that pollutant. The emission factor values, including those factors in the

²⁴ Calculation methods for GHG accounting:
https://www.bilans-qes.ademe.fr/en/accueil/contenu/index/page/calculation_methods/siGras/0

Bilan Carbone method, are determined through scientific study, using theoretical models, laboratory or real measurements, or a combination thereof. These measurements, usually from multiple studies, are then corrected and averaged in order to be broadly applicable at the desired spatial and temporal scale. It is important to note that emission factors are continuously reassessed and are sometimes updated, as a result of new, more precise measurements and studies, or as a consequence of technological development leading to a different relationship between an activity and its emissions - as is the case, for example, with vehicles on average becoming more efficient and less polluting over time.

The GHGs considered in the Bilan Carbone method are essentially those covered by international agreements, i.e.:

- Carbon dioxide (CO₂), that persists in the atmosphere for about one century.
- Methane (CH₄), that persists in the atmosphere for about one decade.
- Nitrous oxide (N₂O), that persists in the atmosphere for about one century.
- Hydrofluorocarbons (HFCs) that persist in the atmosphere for periods ranging from a few weeks to a few centuries.
- Sulphur hexafluoride (SF₆) that persists in the atmosphere for several thousand years.
- Perfluorocarbons (C_nF_{2n+2}), with an atmospheric life from a few centuries to several tens of thousands of years.

There are other well-known anthropogenic GHGs with non-negligible effects (such as ozone, chlorofluorocarbons (CFCs) or water vapour in the stratosphere), but they are not covered by the Kyoto Protocol³, the international agreement for reducing GHGs up to 2020. These gases are not included in the ISO scopes for GHGs.

However, one exception has been made in Parliament's carbon footprint. Non-Kyoto GHGs have been taken into account in the case of flights, since the Bilan Carbone methodology allows for it. This decision is supported by the fact that about 50% of the GHGs produced by flights are due to non-Kyoto gases. Since flights contribute to a high percentage of the EP emissions, excluding non-Kyoto GHG would neglect a very important source of these emissions and would lead to some inconsistencies. For this reason, non-Kyoto GHGs from flights are calculated separately, but are included in the final results.

c. Base Year, Reporting Period and Responsibilities

A meaningful and consistent comparison of emissions over time requires that organisations set a performance date with which to compare current emissions. This performance period is referred to as the base year emissions. The EP has chosen the calendar year 2006 as the base year, since it was the year for which the most recent information was available at the time the first carbon footprint was calculated.

The EMAS Unit is responsible for the calculation of the carbon footprint every year and for the presentation of the results in the annual EP's Environmental Management Review and the Environmental Statement. The EMAS Unit has among its staff a carbon footprint expert, who is in charge of the calculation. The calculation is performed by an external contractor under guidance and supervision of the EMAS Unit.

When it comes to collecting activity data on which the calculation is based, every relevant unit in Parliament's administration is responsible for sending the requested information every year to the

EMAS Unit, which then processes and validates these data before using them to calculate Parliament's carbon footprint.

d. Emissions scope

To help delineate direct and indirect emission sources, improve transparency, and provide benefits for different types of organizations and different types of climate policies and business goals, three "scopes" (scope 1, scope 2 and scope 3)²⁵ are defined for GHG accounting and reporting purposes, as follows:

- **ISO Scope 1** corresponds to the narrowest reporting scope under the ISO standard, which is limited to emissions from directly owned sources, both stationary and mobile. For ISO Scope 1 reporting the following emissions are registered:
 - Emissions due to the use of fuel on the premises of the reporting entity or activity (industrial processes and space heating, for the most part) but only from sources that are owned by the organization.
 - Non-combustion emissions (chemical reactions other than combustion, evaporation and leakage) released by sources owned by the reporting entity.
 - Direct emissions coming from the vehicle fleet directly owned by the reporting entity, regardless of what is transported and the purpose of transport.
- **ISO Scope 2** reporting includes the items registered under Scope 1, and adds outside emissions linked to electricity and steam purchases. Accordingly, the list of items reported are the following:
 - All ISO Scope 1 emissions.
 - Emissions from purchased electricity and steam (emissions that thus occur at the energy producers' sites), including transmission losses, and electricity used for mobile sources of emissions.
- **ISO Scope 3** includes Scope 1 and 2 emissions and adds all other indirect sources of emissions. Accordingly, the list of items reported are the following:
 - All ISO Scope 1 and 2 emissions.
 - Work-related travel by employees, as well as their home-to-work travel.
 - In-company transport of merchandise.
 - Deliveries to customers, or, for retail or government activity, any eventual travel by customers or users to the site(s).
 - Freight shipments by suppliers to the site(s).
 - Manufacturing of products and materials incorporated into the company's production (including materials for packaging).
 - Construction of buildings occupied, even if the organization rents them.
 - Manufacturing/construction of machinery used.

²⁵ ISO 14064 definition.

- Disposal of direct waste (waste in company rubbish bins) and indirect waste (product packaging if any, that is destined to become waste).
- Consumption of products or services sold or supplied, over their useful life.
- End-of-life emissions for products/services sold or supplied.

The GHG emission calculation of the EP includes all direct, semi-direct, and indirect emissions (Scope 1, 2 and 3) for which activity data can be collected, and therefore reported carbon footprint figures pertain to the broadest possible scope of GHG emissions.

3.2. Analysis of various different sources of GHG emissions

The EP includes in its carbon footprint all activities carried out in all of Parliament's buildings in its three main working places i.e. Brussels, Luxembourg and Strasbourg (excluding the external Liaison Offices), as well as travel and transport among and outside of the three working places. Parliament's carbon footprint is divided into the following seven emissions streams, each containing multiple sub-categories:

- **Energy in house**

This category includes, for every building occupied by Parliament in the three main working places:

- Combustion (direct use of combustible fossil or organic fuels for heating).
- Electricity (purchased electricity including for heating purposes).
- Line Losses (loss of energy due to its transport to the buildings).

- **Non-energy in house**

This category includes GHG emissions caused by leakage from refrigerant gases in all the buildings in the three main working places. In this category, Bilan Carbone covers HFCs because they are also GHGs.

- **Freight**

This category includes the transport of goods by EP vehicles and vehicles belonging to subcontractors. It covers road (car, bus and trucks), air, sea and rail travel:

- Between the different buildings within each place of work.
- Between the sites concerned.
- Outside of the three sites.

- **Transport of persons**

This category includes:

- Commuting by EP staff and Member's assistants between home and work.
- Duty and mission travel by EP staff and Member's assistants between and outside the three places of work.
- Travel of Members for parliamentary work taking place in Brussels and Strasbourg.
- Travel of Members out of the three main sites (for parliamentary delegations, missions of parliamentary committees and Political Group meetings).
- Transport of Members using official and hired cars.
- Transport of subsidised visitors.

The manufacturing phase of the private cars in the home-work commuting calculation is excluded from the scope of the carbon footprint.

- **Supply of equipment and services provided by outside parties**

This category aims to account for incoming streams of materials and services used by the entity consumed at the site. In particular for the European Parliament it concerns mainly of:

- Services provided by outside parties (e.g. translation, interpretation, cleaning, catering, information technology (IT), etc.).
- Purchase of office supplies, including paper.
- Catering supplies.
- Food supplies.

- **Direct Waste**

This category is used to estimate the GHG emissions linked to end-of-life disposal of waste arising directly from Parliament's activities.

- **Fixed assets**

This category covers investments in durable goods (those that are amortized in financial accounts) that generated GHG emissions when they were manufactured. By convention in this method, the GHG emissions are spread out over a certain period of time, as is the case with financial amortization, so that carbon balances carried out at successive intervals will be comparable. For the EP, the following assets are included:

- Buildings and car parks belonging to or used by Parliament.
- Office equipment (i.e. chairs, desks, meeting tables, cupboards, etc.).
- IT hardware (computers, printers, TVs, telecommunications equipment, and other devices).
- Catering equipment (i.e. washing machines, coffee machines).

In the global carbon footprint reporting, these streams are partitioned according to the different ISO scopes as defined in the previous chapter.

a. Managing uncertainty

Different criteria can be used to qualify uncertainty - or margin of error - in calculating a carbon footprint. If for example we consider that a given calculation result has a margin of error of 8%, it means that the probability is greater than 95% that an estimated value (determined by the calculation) will be different from the real value (true emissions, which are not necessarily measurable or observable) by 8% or less.

In the Bilan Carbone tool, the margin of error is estimated using a formula that calculates for each item the degree of uncertainty associated with the emissions predicted for the item.

The degree of uncertainty for each item combines an estimation of the margin of error for the emission factor and an estimation of error for the collected activity data.

In Table 2, the following general criteria are used to set the margin of uncertainty for collected data. To note that in some cases collected data are built from several individual data points that can be obtained using several methods (extraction from a database plus assumption). In these cases, aggregated uncertainty for collected data must take into account all methods and origin used.

Table 2: General criteria to set the margin of uncertainty for collected data

Origin and methodology used to collect data	Margin of uncertainty
Bills, meter readings or other reliable supporting documents	0-10%
Database extractions	5-25%
Questionnaires	15-40%
Assumptions	30-50%

Source: Bilan Carbone tool.

On the other hand, emission factor uncertainty is intrinsic to each emission factor, and like the emission factor value, it is determined through scientific study. Emission factor uncertainty is a consequence of measurement uncertainty in the study itself, and also of averaging models and measured emissions to be applicable to a wider range of sources, geographical locations and time frames. Therefore, emission factor uncertainties provided by the Bilan Carbone method are a given and are not modified internally in the EP. They are not affected by data collection methodology or the design of the annual EP carbon footprint calculation.

The formula used for total GHG calculation uncertainty is:

Total uncertainty = 1 - (1 - emission factor uncertainty) * (1 - data uncertainty).

Uncertainty coefficients for data (internally) and for emission factors (externally) are continuously reassessed and adapted according to circumstances.

3.3. EP 2018 emissions and its representativeness at annual level

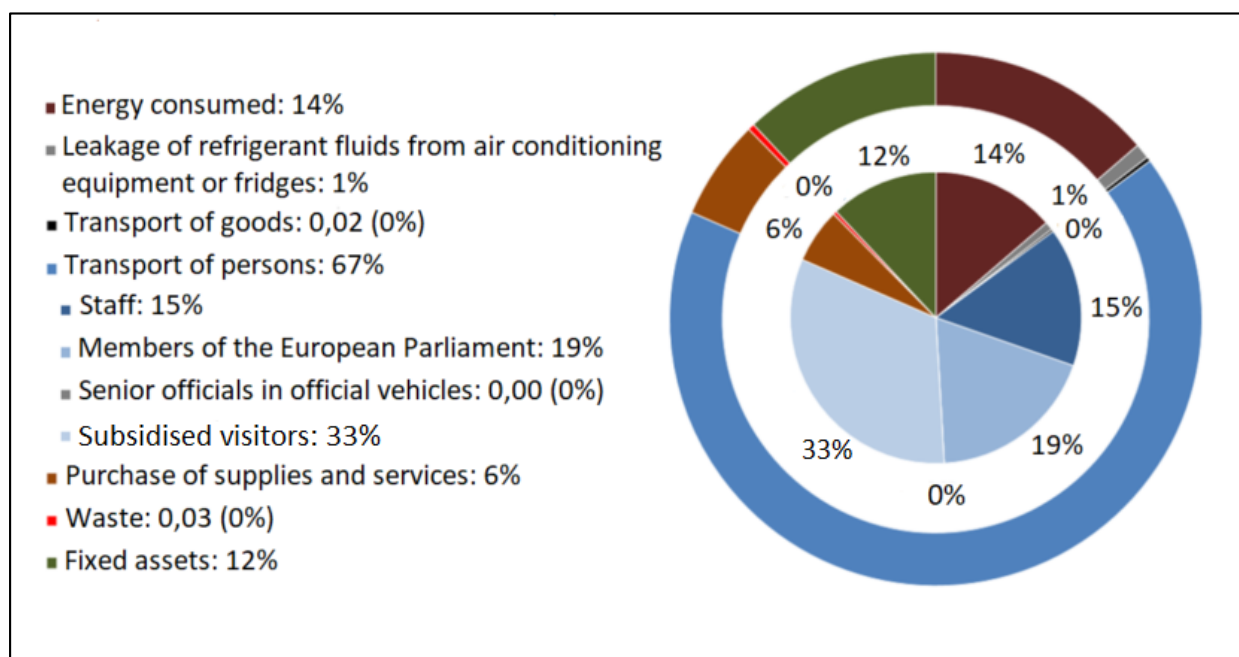
To present the overall emissions caused by the European Parliament's activities over the course of a calendar year, 2018 was chosen as a representative year. This is because it is the latest year for which full and externally verified and validated data exist. As carbon management is an ongoing process at the Parliament, only recent figures will fully reflect the current state of play, i.e. the results of improvements made over time, but also the remaining challenges. Furthermore, it is important to note that Parliament's carbon footprint also shows some cyclical variation, linked to different types and levels of activity in particular years. Most notably, this concerns the European election years, when certain activities with a large impact on the carbon footprint, such as business travel linked to the work of parliamentary delegations and committees, are reduced. As a consequence, Parliament's carbon footprint tends to be lower in an election year, with a subsequent "rebound" in the following year. Since 2018, unlike 2019, was not an election year, it can also be considered representative with respect to this cyclical variation.

The total carbon footprint of the EP in 2018, expressed in t CO₂ eq., as it was calculated in the latest Environmental Statement for 2018 (EP, 2019b), is presented in the Annex I of this study. In 2018, Parliament's activities caused the emission of 110 570 t CO₂ eq. This is slightly lower than in the previous year, 2017, when the total emissions were 110 823 t CO₂ eq.

Parliament's carbon footprint scope includes emissions from subsidised visitor groups, whose visits are financially supported by Parliament. Emissions from visitor groups which are not subsidised by Parliament are not included in its carbon footprint scope. However, because data on those groups are available and to ensure completeness and transparency in reporting, the total emissions including non-subsidised visitors' groups are also calculated and reported in the annual Environmental Statement. In

2018, the total carbon emissions of the European Parliament, including non-subsidised visitor groups which are not taken into account for the emission reduction target, was 154 893 t CO₂ eq.

Figure 3: The EP 2018 GHG emissions per category (%)



Source: Calculations made for the purpose of this study based on the data of Annex I.

Figure 3 shows the Parliament's carbon footprint as divided into the 7 emission categories of Chapter 3.2. It is evident from Figure 3 that four areas of Parliament's carbon footprint, namely transport of persons, energy consumed, fixed assets, and purchase of supplies and services, together account for 99% of the total carbon footprint. With regard to CO₂ emissions management, Parliament should therefore primarily focus its efforts on these areas. Among these four, by far the most significant and critical is the transport of persons, which is divided in 4 sub-categories; transport of staff, MEPs, senior officials in official vehicles and visitors. It is clear that the EP subsidised visitors are the main source of the EP GHG emissions and 1/3 of the total EP carbon footprint (33% or 35 896 t CO₂ eq.), while another 44 323 t CO₂ eq. would have been added in case non-subsidised visitors had been included in the EP carbon footprint scope. However, certain opportunities for improvement should not be neglected in relation to the other three categories of emissions. It may be easy to find measures in these categories which would be simple and economical to implement. Moreover, certain fields can have a strong impact in terms of their high public profile, despite comprising a small share of total emissions, while others have a significant environmental impact in fields other than CO₂ emissions.




3.3.1. Verification and validation

The European Parliament's carbon footprint calculation and reporting is verified annually by an accredited external verifier, against the ISO 14064 standard for quantification and reporting of GHG emissions. The desired level of accuracy assurance is always "Reasonable", which is the highest possible in the ISO 14064 classification.

For the 2018 carbon footprint calculation, which was completed in early 2019, the external verification took place in June 2019, and included an on-site visit and controls of operational units from which data were sourced. On 8 July 2019, the final verification report confirmed that Parliament's 2018 carbon

footprint, as calculated and as reported in the key EMAS documents, was materially accurate and in compliance with the ISO 14064 standard (Box 1).

Box 1: Verification and validation certificate for the 2018 carbon footprint calculation

 European Parliament	 	
EUROPEAN PARLIAMENT EMAS UNIT	External verification/validation statement Carbon Footprint Year 2018	08/07/2019 Page 9 / 23

7. CONCLUSION – VERIFICATION 2018

In response to the request the European Parliament made on 21th May 2019 and as an external auditor/validator having a valid Bilan Carbone® "level 2" operating license, we conducted verification/validation work that enables us to provide a reasonable level of assurance on the data contained in the calculation of the Carbon Footprint of the EP in 2018 (ref : CF-2018-EP_D_v1.xls) and concerning total annual emissions of 110.570 tons of CO2 equivalent for the year 2018, as well as on the information system and its controls developed by the EP and described mainly in the Carbon footprint Manual Version 12 of June 2019 (*EP_Carbon_footprint_manual-v12-20190606.doc*) and its Annexes.

We have carried out our work in accordance to the rules defined by standards ISO 14064-1:2006; ISO 14064-3: 2006 and the Methodology Bilan Carbone ADEME (version 81) consistent with the scope, objectives and verification/validation references defined above.

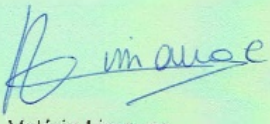
The conclusion of our work is based on a detailed analysis of various information, documents and different interviews that took place during the visit on June 11th 2019.

Conclusion:

Based on the processes and procedures that were followed during the assessment verification/validation work and subject to the items listed below, we can assure with a reasonable level of assurance(=high) that the GHG emissions assertion for 2018 :

- ✓ is materially correct and a good representation of GHG data and information and,
- ✓ is prepared in compliance with the ISO 14064-1 standard for quantification and reporting of greenhouse gases emissions and removals and in compliance with Bilan C® methodology by ADEME for the scope defined by the EP.

Date: Waregem, 08/07/2019


 Valérie Limaugue
 In possession of a Bilan Carbone® operating license
 "level 2" issued by the ADEME
 For Schneider Electric ESS bvba
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Approved by	
Schneider Electric	European Parliament

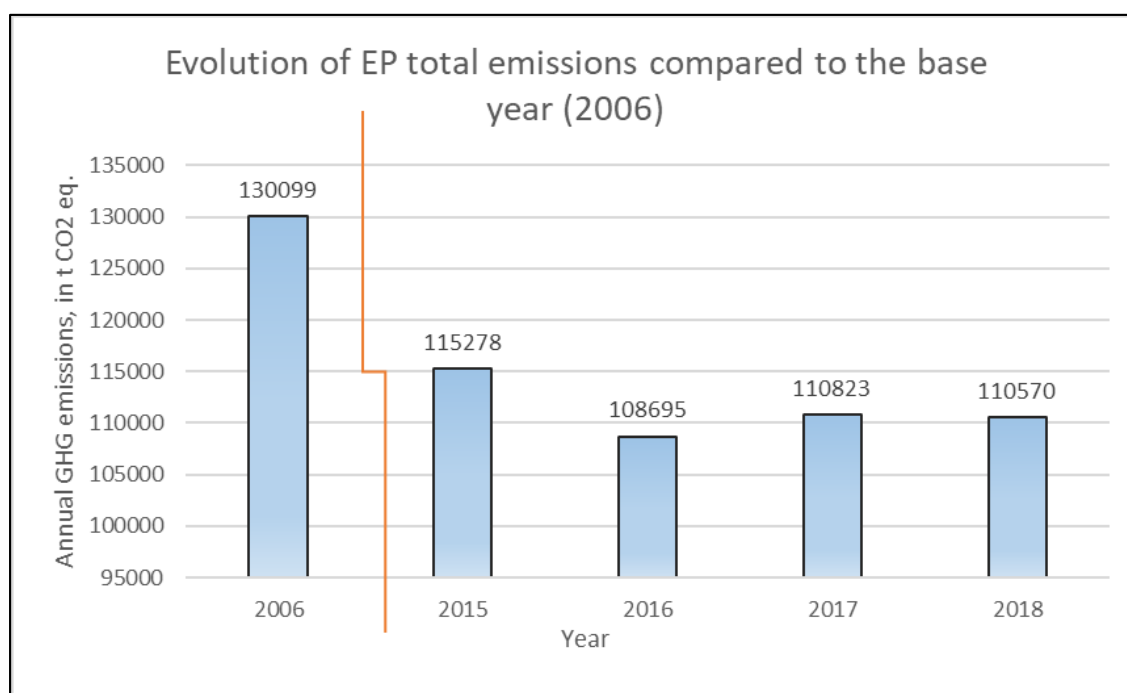
Source : EMAS Unit.

3.3.2. Evolution of Parliament's absolute carbon emissions since 2006

Since 2006, which is the first year for which Parliament's carbon footprint was calculated and therefore became a base year for comparing subsequent performance, carbon emissions have been reduced both in absolute terms and relative to the number of FTEs. In 2006, Parliament's emissions were 130,099 t CO₂ eq., compared to 110,570 t CO₂ eq. in 2018, despite a significant increase in Parliament's size, level of activity, and number of employees, contractors and visitors. Overall, the EP carbon footprint, per FTE, decreased by 37.7% compared to 2006, while in absolute values of the EP carbon footprint decreased by 15% between 2006 and 2018 (Annex I). This shows that numerous emission reduction measures taken over the years through the EMAS Action Plans were successful overall. However, in line with the principle of continuous improvement underpinning Parliament's EMS, additional sustained efforts and activities are planned, aimed at further reducing Parliament's GHG emissions.

The Figure 4 below provides the evolution of EP's carbon emissions, expressed in t CO₂ eq., over the years 2015-2018, when compared to the base year 2006. These EP total carbon emissions decreased only slightly during 2015-2018, while the decrease is quite important once they are compared to 2006.

Figure 4: The evolution of Parliament's carbon footprint over the past four years, when compared to the base year



Source: Figure made by the authors for the purpose of this study.

In addition to the general trend towards decreasing emissions, it should be noted that observed variability between years can also be due to small changes in scope, for example when a new CO₂ reduction target is adopted, or changes in calculation methodology are made, such as updates of emission factors. Furthermore, as better and more precise data become available over the years, it might affect the outcome of the calculation through reducing the need for assumptions. For this reason, occasionally individual years are not fully comparable to each other, and this is especially true for years that are far apart, leading to accumulation of the aforementioned differences. However, in order to accurately track progress towards the reduction target, whenever any changes are made to the calculation methodology, the base year emissions are also recalculated using the latest methodology and emission factors.

For example, a significant relative decrease in carbon emissions reported since 2015 is due to a technical adaptation of the calculation for the base year, mainly involving a correction of several emission factors, at the request of the external carbon footprint auditor. This adjustment resulted in an increase of calculated emissions for the base year, and consequently the relative decrease reported for subsequent years, including for 2018, became larger.

Emissions from transport of persons contribute by around 67% to Parliament's carbon footprint. Particular attention should therefore be paid to this sector. The Table 3 indicates that absolute emissions from transport of persons continue to increase, even though mobility-related emissions per FTE, including the flights of Members from their countries of origin to Brussels and Strasbourg, decreased by 20,7% between 2006 and 2018 (EP, 2019b). However, there was an additional increase in mobility-related emissions from transport of persons in 2018 when compared to the previous year, both in absolute terms and per FTE, building on the increase in emissions in 2017 when compared to 2016. The areas with largest increase in emissions were missions of Members and staff outside the three places of work, followed by commuting of staff and Members' assistants. On the positive side, Parliament managed to significantly reduce emissions from its own vehicle fleet through using more efficient vehicles, such as plug-in hybrids and battery electric vehicles, training drivers in eco-driving techniques, and generally increasing the efficiency of fleet management.

Table 3: Recent trends in emissions resulting from transport of persons, compared to the base year with FTE

Carbon emissions: transport of persons	2006	...	2013	2014 ²⁶	2015	2016	2017	2018
Carbon emissions generated by the transport of persons (t CO ₂)	68 143		75 715	65 439	83 484	69 508	71 291	73 719
Number of full-time equivalents (FTE)	10 689		13 547	13 353	13 468	13 982	14 303	14 579
'Carbon emissions generated by the transport of persons per FTE' indicator (t CO ₂ /FTE)	6,37		5,59	4,90	6,20	4,97	5,03	5,06
% change with respect to 2006 (%)	---		-12,3%	-23,1%	-2,8%	-22,0%	-21,8%	-20,7%

Source: 2019 EP Environmental Statement for 2018 (EP, 2019b).

Most of the reported reductions in transport emissions per FTE between the base year and present time are due to better quality of data starting from 2016, leading to a big one-time reduction compared to the previous year, because better data allowed the differentiation between business and economy flights for Members, which led to reduction in emissions because in the absence of such breakdown in the past, all Member flights were treated as business class. When these effects are removed, it is evident that emissions from transport of persons remain problematic as no significant reductions can be

²⁶ Incomplete data on Members' flights from their home countries to Brussels and Strasbourg.

observed over the past few years, and in fact the overall emissions from transport of persons increased by approximately 6% in 2018 when compared to 2016, and by 8% when compared to 2006.

3.4. Methodology for attribution of emissions per site

Parliament's EMS covers all its technical and administrative activities at the three main places of work in a unified manner. Therefore, all environmental indicators and targets are assessed and reported for Parliament as a whole, and are not split per working place. This also applies to the carbon footprint calculation. Because of this, when it comes to partitioning emissions according to site, several problems arise. The first and most significant is the availability of data. While some data are recorded and collected in such a way they can easily be separated at site or even building level (e.g. consumption of electricity or gas), for others, such as purchase of office supplies or acquisition of external services, data is not available per site. Another set of problems relates to carbon accounting decisions, to ensure all emissions are correctly attributed to a particular site while avoiding double counting.

In order to address the question of "per site" emissions in 2018, a separate analysis was conducted to determine which emissions could be calculated for individual main places of work directly from available data. It turned out that for the majority of data sources, per site breakdown was possible using available data, usually only requiring additional data treatment and/or new calculations. Finally, for those categories of emissions for which per site breakdown of data was not available, a partitioning ratio was developed to determine what share of total emissions would be attributed to each place of work. The aim was to approximately attribute a portion of the overall emissions, i.e. those calculated only for the EP as a whole, to each site. The starting point for developing this partitioning ratio was the concept of FTE, as it is already an established part of the EMS as a measure of the overall size of the EP and volume of its activities, as described in the previous chapter. The assumption is that global emissions should be apportioned to each site based on that site's respective FTE, adjusted for the differential activity levels at all three sites during Strasbourg plenary sessions.

Therefore, the basic FTE concept was adjusted to determine the average FTE for each of the three places of work, taking into account Members, Accredited Parliamentary Assistants, political group staff, administrative staff (officials, temporary and contract agents, and seconded national experts), trainees, subsidised visitors, and external contractors working at EP premises (mainly in security, IT, catering, cleaning, maintenance, and temporary work) at each of the sites. An additional factor which had to be taken into account is the move of Members, Accredited Parliamentary Assistants, Parliament's staff, representatives of other EU institutions, journalists, and visitors to Strasbourg for the plenary sessions. This activity in fact temporarily "lowers" the FTE for Brussels and Luxembourg during plenary session weeks, while significantly increasing it for Strasbourg. Therefore, to calculate final annual FTE values for each site, the "Strasbourg plenary" FTE values were applied for 48 days a year - accounting for twelve 4-day sessions, whereas the "normal" FTE was applied for the remainder of the year. For Brussels and Luxembourg, the "normal" FTE is reduced during plenary session weeks, as Members, most APAs, and some staff leave those places of work for Strasbourg. The share of FTE for Luxembourg comes as a consequence of a part of Parliament's administration being permanently based there, with over 2000 staff members and contractors working in seven buildings at this place of work in 2018.

Table 4: Calculation of the partitioning ratio per site for those emissions where direct split per site from the raw data is not possible

	Site		
	Brussels	Luxembourg	Strasbourg
Number of Members, staff and APAs ^a	5437	2193	305
Full-time equivalents - FTE for site (including contractors and visitors) ^b	10404	2851	1430
Non-session time (days avg) ^c	162		
Session FTE ^d	7153	2351	7181
Session time (days avg) ^e	48		
Session-adjusted FTE ^f	9660,91	2736,71	2744,51
Ratio (percentage share "FTE load"^g)	63,80%	18,07%	18,13%

Source: Table made by the authors for the purpose of this study.

a) Based on occupancy records of Parliament's buildings/offices

b) Basic FTE, i.e. not taking into account the effects of Strasbourg plenary sessions, calculated according to the standardised methodology set out in the EP Environmental Manual

c) Share of the total average FTE work time (excluding public holidays, office closing days, and personal leave time, and totalling 210 work days per year) which takes place while Parliament is not in session in Strasbourg

d) FTE per site during sessions, taking into account reduced activity and occupancy in Brussels and Luxembourg, and increased occupancy in Strasbourg. This figure also takes into account external contractors, and visitors.

e) Share of the total average FTE work time (excluding public holidays, office closing days, and personal leave time, and totalling 210 work days per year) which takes place while Parliament is in session in Strasbourg

f) a composite measure taking into account "session" and "non-session" FTE figures, weighted by their relative frequency, i.e. the number of days for which they apply

g) Share of each respective site's session-adjusted FTE in Parliament's total FTE figure. It is used as an approximation for levels of activity, and therefore as a basis for apportioning emissions to a particular site in cases where they cannot be calculated directly for each site.

Table 4 shows the sequence of the various steps in order to calculate the partitioning ratio per site for those emissions where direct split per site from the raw data is not possible. The final result was the "percentage share" of FTE as follows: 63,8% for Brussels, 18,07% for Luxembourg and 18,13% for Strasbourg. When similar analysis was performed for earlier years, the emission ratios obtained have been very similar, within a $\pm 5\%$ margin. This validated the consistency of this methodological approach and indicated that the aforementioned ratio represents a good approximation of the share of each respective site in Parliament's overall activity, and therefore any emissions for which data per site are not available can be partitioned per site according to these ratios.

3.5. Analysis of total GHG emissions per site

For the calculation of the per site emissions for each of the three main EP places of work in 2018, the GHG emissions expressed in t CO₂ eq. were used, as calculated in the latest Environmental Statement for 2018 (EP, 2019b) and presented in Annex I. For most emission categories, direct calculation of per

Table 5: Parliament's 2018 GHG emissions per site

EP GHG emissions 2018 (t CO ₂ eq.)	EP Total	Brussels	Luxembourg	Strasbourg
1. ENERGY CONSUMED	15 145	12 380	2 049	716
1.1. Natural gas	13 902	11 912	1 552	438
1.2. Oil	207	0	159	48
1.3. District heating and cooling	237	0	237	0
1.4. Electricity (100% renewable since 2008)	799	468	101	230
2. LEAKAGE OF REFRIGERANT FLUIDS (from air conditioning equipment or fridges)	1 051	709	257	85
3. TRANSPORT OF GOODS (FREIGHT)	311	150	38	123
3.1. Internal freight (between the three places of work)	209	80	22	107
3.1.1. Freight between the three places of work: sessions	84	0	0	84
3.1.2. Freight between the three places of work: mail and other	125	80	22	23
3.2. External freight (outside the 3 places of work) - road/sea	89	57	16	16
3.3. External freight (outside the 3 places of work) - air	13	13	0	0
4. TRANSPORT OF PERSONS	73 719	59 096	3 741	10 882
4.1. Staff	17 050	9 978	3 741	3 331
4.1.1. Home-office commuting	6 453	3 149	2 886	418
4.1.2. Missions between the three places of work	2 939	192	78	2 669
Missions by car	2 442	163	70	2 209
Missions by train	254	10	4	240
Missions by plane	126	0	0	126
Missions by other means of transport	117	19	4	94
4.1.3. Missions outside the three places of work	7 658	6 637	777	244
Missions by plane (short-haul - economy class)	3 142	2 411	565	166
Missions by plane (short-haul - business class)	2	2	0	0
Missions by plane (long-haul - business class)	3 194	3 090	104	0
Missions by plane (long-haul - economy class)	884	856	28	0
Missions by train	47	30	9	8
Missions by car	371	237	67	67
Missions by bus	18	11	4	3
4.2. Members of the European Parliament	20 720	16 766	0	3 954
4.2.1. Travel in official vehicles and rented buses	300	72	0	228
4.2.2. Meetings outside the three places of work	4 896	4 896	0	0

EP GHG emissions 2018 (t CO ₂ eq.)	EP Total	Brussels	Luxembourg	Strasbourg
Political groups	625	625	0	0
EP committees	2 191	2 191	0	0
Inter-parliamentary delegations	1 987	1 987	0	0
Transport at meeting location (bus, taxi, limousine, etc.)	18	18	0	0
Other	75	75	0	0
4.2.3. Travel to Brussels or Strasbourg	15 524	11 798	0	3 726
Travel by plane (economy class)	3 470	2 637	0	833
Travel by plane (business class)	12 054	9 161	0	2 893
4.3. Senior officials in official vehicles (SG, SGs of political groups, Deputy SG, etc.)	53	40	0	13
4.4. Subsidised visitors	35 896	32 312	0	3 584
5. PURCHASE OF SUPPLIES AND SERVICES	6 697	4 015	1 271	1 411
5.1. External services (maintenance, cleaning, consultants, security, external translators and interpreters)	4 030	2 579	725	726
5.2. Office supplies (paper, envelopes and other supplies)	563	360	102	101
5.3. Catering supplies (plastic cups, cans, plastic bottles, etc.)	177	107	20	50
5.4. Purchase of food for restaurants	1 927	969	424	534
6. WASTE	445	341	42	62
7. FIXED ASSETS (emissions generated during construction or manufacture of durable goods)	13 202	7 505	2 438	3 259
7.1. Construction of buildings	8 590	5 026	1 425	2 139
7.2. Office furniture (tables, chairs, cupboards, etc.)	654	353	181	120
7.3. IT equipment (desktops, laptops, printers, telephones, servers, televisions, etc.)	3 910	2 102	825	983
7.4. Other equipment (washing machines, coffee machines, refrigerators, etc.)	48	24	7	17
Total carbon footprint, calculated with Version.8 of Bilan Carbone	110 570	84 196	9 836	16 538
Percentage per site	100%	76.2%	8.9%	14.9%

Source: Table made by the authors for the purpose of this study.

site emissions from raw data was possible. The 63,8%-18,07%-18,13% split described in the previous chapter had to be applied to emissions in Chapter 3.1.2. "Freight between the three places of work: mail and other", 5.1. "External services (maintenance, cleaning, consultants, security, external translators and interpreters)", and 5.2 "Office supplies (paper, envelopes and other supplies)". Emissions in category 3.1.1. "Freight between the three places of work: sessions" was assigned to Strasbourg in its entirety, as it concerns freight linked specifically to Strasbourg plenary sessions. The emissions linked to repositioning of the EP car fleet to Strasbourg for the sessions (part of the Chapter 4.2.1. "Travel in official vehicles and rented buses") was also assigned to Strasbourg. For external freight transport

(Chapters 3.2 and 3.3), emissions are assigned to a place of work from which the freight transport originated, or which was its destination.

When it comes to missions between the three places of work, emissions from each mission were assigned to a site that was the mission destination. The logic behind duty travel between the main places of work is that there is work to be performed at the mission site, and therefore emissions arising from that mission can be linked to activities of a site that was the mission destination. On the other hand, when it comes to missions outside the three main places of work, such as for work of parliamentary committees and delegation, meetings of political groups, external training or conferences, etc., those emissions are assigned to the site from which the mission originated, as they are linked to work usually performed at that site.

A detailed breakdown of GHG emissions per site is presented in the Table 5. It results that, 84 196 t CO₂ eq. are being attributed to activities in or linked to Brussels, 9 836 t CO₂ eq. attributed to Luxembourg, and 16 538 t CO₂ eq. attributed to Strasbourg, out of the Parliament's total of 110 570 t CO₂ eq. for that year. That means that 76,2% of Parliament's emission is attributable to activities linked to its Brussels site, 8,9% are linked to Luxembourg, and 14,9% to Strasbourg.

It should be noted that, while all emissions included in EP's carbon footprint can be assigned to a particular place of work using the methods outlined above, this does not imply that a hypothetical elimination of a site would remove all its emissions from Parliament's balance sheet. In fact, given that emissions are linked to concrete activities which would need to continue, a large share of the emissions would simply be "transferred" to other place(s) of work where these activities would resume. Furthermore, a part of site-specific emissions concerning construction or production of fixed assets (buildings, furniture, IT equipment, etc.) have already been emitted and are simply spread out in Parliament's annual balance sheets over the course of the useful life of those assets. Having already been emitted, those emissions cannot in any case be eliminated.

On the other side, it is clear that the EP plenaries in Strasbourg make additional people travelling in Strasbourg (such as Commission and Council staff, stakeholders, journalists, lobbyists, etc.), whose GHG emissions are not included in the EP carbon footprint, but they add to the carbon footprint of their Institutions and organisations with unavoidably negative effects on climate. The calculation of their GHG emissions is not known and it goes beyond the aim of this study.

It is worth noting that in a previous 2007 study commissioned by the Greens/European Free Alliance (EFA) group of the EP to ECO-Logica Ltd. calculated that total CO₂ emissions attributable to the operation of the Strasbourg site amount to 18 884.5 tons of CO₂ (Wiedmann and Barrett, 2007). The direct comparison of the attributable to Strasbourg emissions from the two studies is difficult, because of the different mandates of the studies. For example, the 2007 study (2006 data) includes the emission difference between the MEP travel from their home to Strasbourg and to Brussels (only 84 tons), while it includes 584 and 239 tons CO₂ for the 3000 Commission staff missions and for 150 journalists travel from Brussels respectively. Taken also into account that the absolute values of the EP carbon footprint decreased by 15% between 2006 and 2018 (Annex I) due to the measures described in Chapter 2.3.2, and the different assumptions made in the two studies, overall the carbon footprint from the Strasbourg operation is of the same order of magnitude.

4. COMPARISON OF THE EP CARBON FOOTPRINT WITH OTHER EU INSTITUTIONS

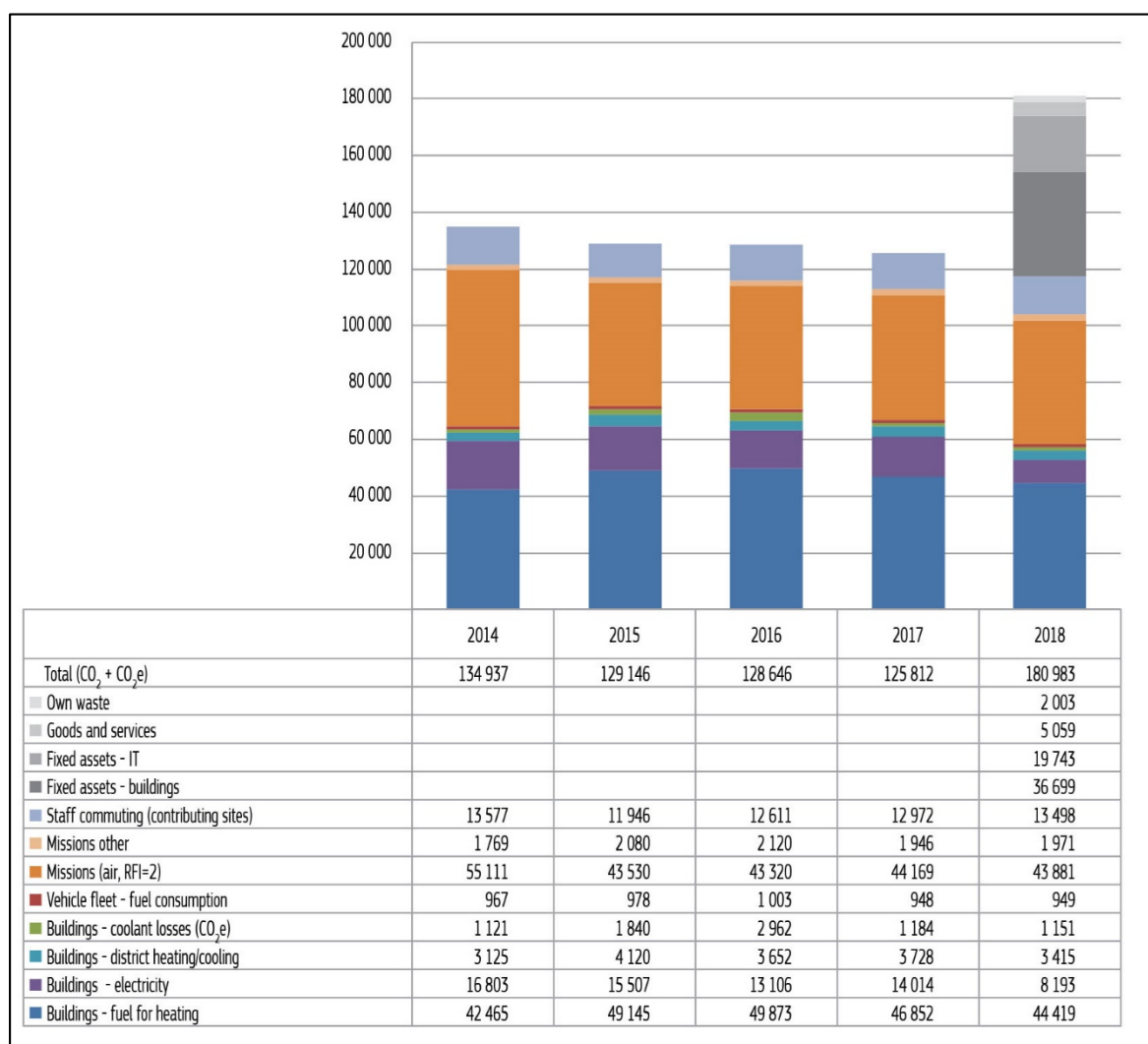
4.1. EMAS activities in other EU Institutions

Many of the European Institutions and bodies (Agencies, Offices, Centres, Foundations, etc.) are implementing an EMS EMAS and/or the ISO 14001, aiming continuously to reduce their environmental impact over the years²⁷. There are currently fifteen EU Institutions and bodies with an EMS in place, representing approximately 61 000 staff and making up to 81% of the total. The list of the fifteen EU Institutions and bodies include the EC, the EP, the EEA, the ECA, the General Secretariat of the Council (GSC), the Committee of the Regions (CoR), the European Economic and Social Committee (EESC), the Court of Justice (CDJ), the EU Intellectual Property Office (EUIPO), the European Investment Bank (EIB), the European Central Bank (ECB) the European Food and Safety Authority (EFSA), the European Securities and Markets Authority (ESMA), the European Medicines Agency (EMA) and the European Chemicals Agency (ECHA). Six more will be EMAS-registered by 2020/2021, i.e. the European Union Agency for Law Enforcement Cooperation (EUROPOL) and the European Training Foundation (ETF) in 2020, and the European Maritime Safety Agency (EMSA), the European Centre for Disease Prevention and Control (ECDC), the European Foundation for the Improvement of Living and Working Conditions (EUROFOUND) and the European Banking Authority (EBA) in 2021.

The EEA was the first EU body to introduce an EMS in 2004 and received its EMAS registration in spring 2005 in order to reduce its environmental impact²⁸. Although the EMAS project in the EP was launched by the Bureau in 2004, the EC has been the first EU Institution to be EMAS-registered for a part of its sites already in 2005, with its EMAS system now covering the eight main sites of the Commission in Europe (Brussels, Luxembourg, Petten, Geel, Sevilla, Karlsruhe, Ispra and Grange), located in seven MSs. This represents about 35 000 persons and 1 587 460 m². In Brussels, where the Commission has long-term verified data, the results show the following changes between 2005 and 2018: Buildings energy consumption reduced by 65% in MWh per person; Per km vehicle fleet CO₂ emissions (manufacturer specifications) reduced by 53%; CO₂ emissions from buildings reduced by 87% in tons per person²⁷. Figure 5 shows the evolution of GHG emissions (t CO₂ eq.) generated by the EC from 2014 (when all eight sites have been considered) to 2018. The EC extended the scope of its carbon footprint in 2018 to include also indirect emissions, such as related to the manufacturing and components of IT materials and buildings, purchased goods and services, waste and upstream energy emissions. This brings the EC's carbon footprint scope closer to the broad scope under which the EP calculates its carbon emissions.

²⁷ EMAS in the European Institutions: https://ec.europa.eu/environment/emas/emas_registrations/emas_in_the_european_institutions_en.htm

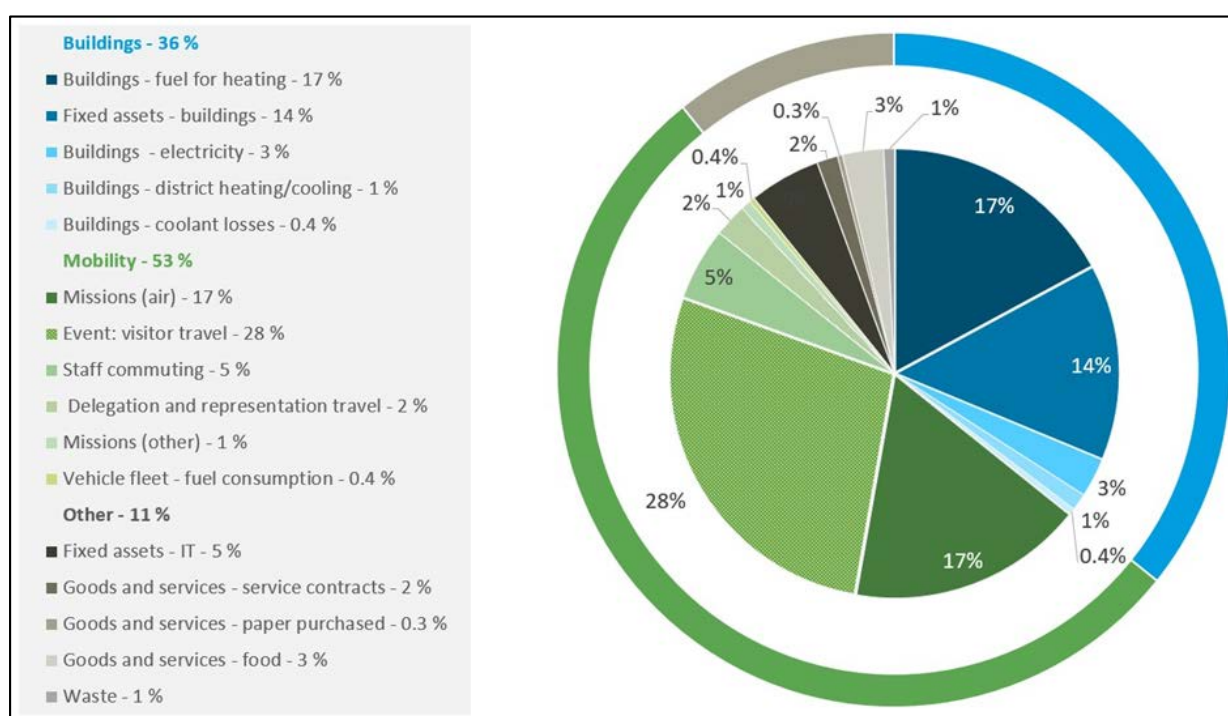
²⁸ EEA Environmental Management: <https://www.eea.europa.eu/about-us/emas/index.html>

Figure 5: Emissions of GHG in t CO₂ eq. generated by the Commission from 2014 to 2018

Source: EC's Carbon Footprint (EC, 2020).

The last EC's carbon footprint calculation for 2018 shows that its GHG emissions amounted to 180 983 t CO₂ eq. The downward trend in total emissions (excluding the new categories included in 2018) is due to the fact that the fuel used for heating the buildings has been decreasing since 2015 due to energy efficiency measures, and that most of the sites have been switching to green electricity contracts (EC, 2020). Concerning the EC GHG emissions by site, Brussels (65,3%, 28 410 staff, 4,17 t CO₂ eq. per person), Ispra (17,8%, 2 285 staff, 14,10 t CO₂ eq. per person) and Luxembourg (9,1%, 5 016 staff, 3,28 t CO₂ eq. per person) generated about 92% of the GHG emissions (Ramboll and CO2logic, 2020). Figure 6 shows emissions of GHG per category generated by the EC in 2018, in which buildings (36%) and mobility of staff (53%) are the main origin of the EC GHG emissions.

Figure 6: Emissions of GHG per category generated by the European Commission in 2018



Source: Ramboll and CO2logic, 2020.

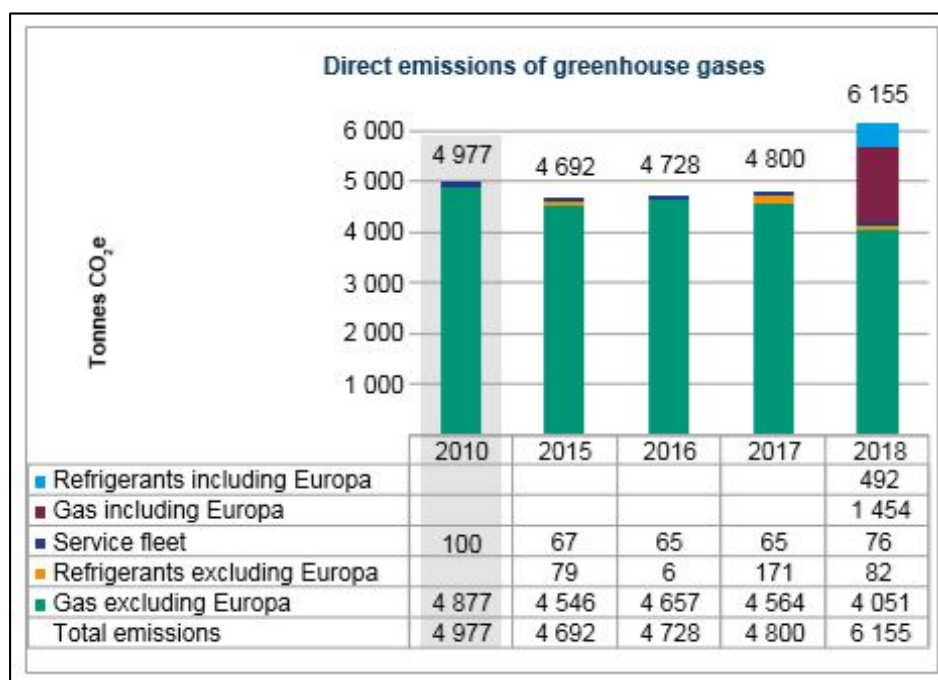
Following the 2018 communication on a climate-neutral economy by 2050 (EC, 2018), aiming to be frontrunner in the fight against climate change, the EC has asked Ramboll and CO2logic to undertake a feasibility and scoping study on how a climate-neutral Commission can be achieved as early as possible prior to 2050. After the Green Deal communication (EC, 2019b), the objective of the study now defines 2030 as the target year for the EC to achieve climate neutrality. The study aims at providing insights on the methodologies to set an ambitious target and on a realistic process for achieving it. The expected outcomes of the study, which scheduled to be delivered by fall 2020, are among others, recommendations for a possible GHG monitoring system, identification of interim emission reduction milestones and a list of tools of an action plan to eventually deliver the proposed objective (Ramboll and CO2logic, 2020).

In the Council of the EU, the GSC has been working since 2010 to reduce this impact on the environment and climate through environmental management which applies to all GSC activities in the buildings it occupies in Brussels. Among the main goals of the GSC's environmental programme include cutting primary energy consumption through renewable energy production and efficient energy use and reducing GHG emissions (Council of the EU, 2019). In February 2015, environmental management in the Lex and Crèche buildings earned the eco-dynamic enterprise label, awarded by the Brussels region. The GSC obtained ISO 14001 certification and the EMAS registration in January 2016 with its three buildings (Justus Lipsius, Lex and Crèche)²⁹. The transfer of ownership of the Europa building from the Belgian State to the Council of the European Union has not yet taken place. However, since the building has been occupied by the GSC since January 2017, it is included in the scope of the Environmental Statement from 2018 onwards (Council of the EU, 2019). The total direct emissions of GHGs include emissions from the boilers, the cogeneration systems, the service fleet and refrigerant

²⁹ Environmental management at the GSC:
<https://www.consilium.europa.eu/en/general-secretariat/corporate-policies/environmental-management/>

leakages (Figure 7). These direct emissions fluctuate considerably from one year to another, owing mainly to variations in the demand for heating in winter but also to accidental leaks in refrigeration systems. For 2018, the Figure 7 shows an increase in total losses since the addition of the Europa building's new installations, but a decrease in refrigerant leakages and emissions from boilers and cogeneration systems between 2017 and 2018 in the other buildings.

Figure 7: Total direct GHG emissions at CGS from various sources measured in t CO₂ eq.

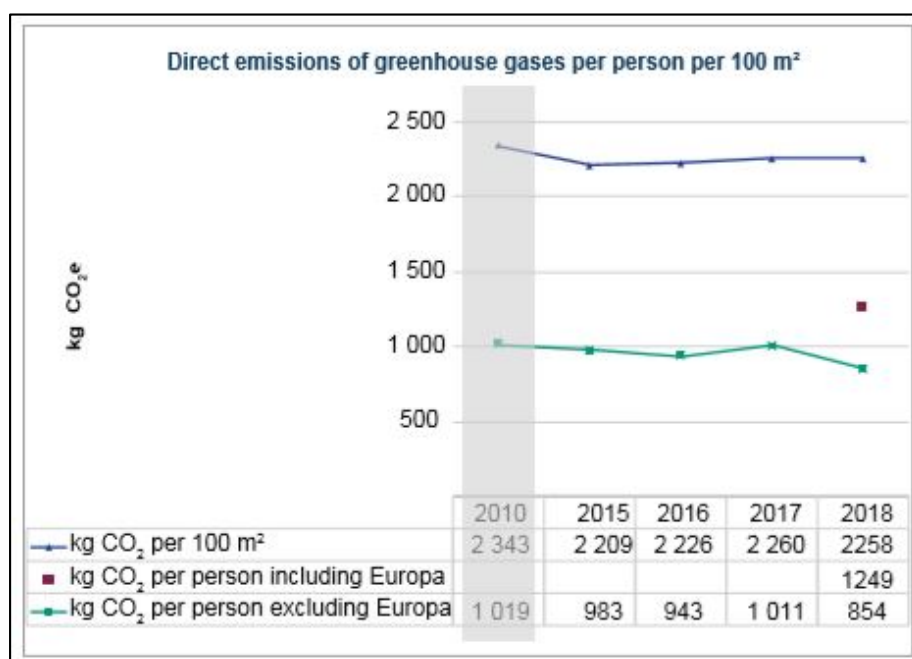


Source: Council of the EU, 2019.

The 2019 Environmental Statement shows the trend in direct GHG emissions, which fell from 1019kg CO₂ eq.³⁰ per person and per 100m² in 2010 to 854kg CO₂ eq. in 2018 (Council of the EU, 2019). However, by including emissions from the Europa building, the CO₂ eq. per person and per 100m² in 2018 increased to 1249kg³¹ (Figure 8).

³⁰ 1 ton (t) CO₂ eq. equals 1000 Kilograms (Kg) CO₂ eq.

³¹ The Environmental Statement 2019 (2018 data) of the Council of the EU:
https://www.consilium.europa.eu/media/43368/2020-039_declaration-environnementale_en_web.pdf

Figure 8: The trend in direct GHG emissions at GSC per person and per 100m²

Source: https://www.consilium.europa.eu/media/43368/2020-039_declaration-environnementale_en_web.pdf

4.2. Interinstitutional EMAS activities

The EU Institutions and bodies are exchanging environmental best practices striving for environmental excellence via inter-institutional environmental management groups like the Groupe Interinstitutionnel de Management Environnemental (GIME)³² and the Greening Network in line with the European Green Deal⁶ towards a climate neutral Europe by 2050. In 2005 the European Parliament and several EU Institutions and bodies created the GIME to encourage and facilitate information exchange and good practice on environmental issues, and to promote implementation of EMAS among the GIME members. The GIME, chaired by the Commission, seek a common understanding through the framework it provides for environmental governance and the guidelines it issues on how to implement and maintain EMAS, so that the EU Institutions and bodies reduce their environmental impact through measures such as reducing resource consumption, applying GPP, and where appropriate compensating³³ GHG emissions. The Greening Network of EU Decentralised Agencies (involving approximately 20 Agencies) is an informal network aiming to the exchange of environmental best-practices among EU Decentralised Agencies, with a rotating presidency every 6-months and an annual 2-day meeting. Currently the network's coordination is managed by ECHA. The Commission, as the chair of GIME, participates in all the Greening Network meetings.

In 2014, ECA published a special report on how the EU Institutions and bodies calculate, reduce and offset their GHG emissions³⁴. 15 EU Institutions and bodies have been audited, among them the EC, EP, GSC, EEAS, EESC, CoR, CDJ, ECB, EIB, EIF and ECA. Box 2 give the executive summary of the ECA report summary, which found that emissions caused by EU institutions and bodies as a whole have been decreased only due to reduced energy consumption in buildings. The overall reductions achieved by 2014 are largely attributed to the purchase of electricity generated from renewable sources, which

³² GIME Governing Rules - version n° 1 of 21/04/2016 - Ares(2016)6135682 - 26/10/2016.

³³ GIME agreed to use the term 'compensate' instead of 'offset' in its reports.

³⁴ The ECA Special Report 14: https://www.eca.europa.eu/Lists/ECADocuments/SR14_14/QJAB14014ENC.pdf

counts as (near) zero emission in carbon footprint calculations (ECA, 2014). The special report made four recommendations, asking Institutions to adopt: a) a common policy to reduce greenhouse gas emissions; b) a harmonised calculating and reporting of emissions, including the indirect emissions; c) a common approach to voluntary compensating; and d) full implementation of EMAS and GPP.

Box 2: The executive summary of the 2014 ECA special report No. 14 on “How do the EU Institutions and bodies calculate, reduce and offset their greenhouse gas emissions?”

Executive summary

07

I

For the European Union's climate policy to be credible, the EU institutions and bodies need to be at the cutting edge in designing and implementing policies for reducing their greenhouse gas emissions ('carbon footprint') as public administrations. After 2005, the EU institutions and bodies managed to reverse the trend of increasing emissions related to their buildings. However, they missed the opportunity to draw up and implement a common policy for contributing to the Union's 2020 goal of reducing emissions by 20 % below the level of 1990.

II

Six of the 15 audited EU institutions and bodies did not report their emissions in 2012 and those doing so did not calculate or disclose the full extent of these emissions. Consequently, the full carbon footprint is not known and the patchy information available risks undermining the credibility of reporting and mitigation efforts.

III

Evidence that emissions caused by EU institutions and bodies as a whole have been falling exists only for energy consumption in buildings. Data available on other emissions, notably those caused by mobility, do not allow a clear trend to be identified.

IV

The overall reductions achieved so far are largely attributable to the purchase of electricity generated from renewable sources, which counts as a zero emission in carbon footprint calculations.

V

The EU institutions and bodies do not make full use of the environmental management tools promoted by the Commission. Progress in introducing the European eco-management and audit scheme (EMAS) is slow. EMAS registration for public administrations has been possible since 2001 and in June 2014 seven of the 15 audited EU institutions and bodies had been registered. Green procurement is treated as an option rather than an obligation and only a few institutions and bodies used it systematically.

VI

The upcoming EU 2030 target for reducing greenhouse gas emissions provides the EU institutions and bodies with a new opportunity to develop and implement a common policy.

VII

The Court recommends that the Commission propose a common policy for reducing the carbon footprint of the EU institutions and bodies. Such a policy should include a quantified overall reduction target for greenhouse gas emissions for the year 2030. EU institutions and bodies should:

- (a) introduce a harmonised approach for reporting their emissions, also including all relevant indirect emissions;
- (b) develop a common approach to compensate on a voluntary basis for those greenhouse gas emissions which they cannot avoid;
- (c) make full use of the environmental management tools promoted by the Commission, in particular as regards green public procurement.

Source: The 2014 ECA special report No. 14 (ECA, 2014).

The EC response to the ECA special report identified EMAS, compatible with ISO 14001, as the appropriate policy tool for implementing the recommendations and therefore indicated that no additional proposals were necessary. A GIME working group was formed to establish guidelines for the EU Institutions and bodies on how to calculate, report, reduce and compensate GHG emissions resulting from their day to day activities. In November 2017, GIME published an internal document with guidelines for European Institutions and bodies for calculating, reporting, reducing and compensating GHG emissions (GIME, 2017). Among the guidelines, GIME requested that each Institution: shall calculate GHG emissions according to the GHG Protocol (ISO 14064)³⁵; shall measure emissions from Kyoto GHGs³⁶ and optionally the non-Kyoto GHGs; and should use GPP in a systematic manner. Concerning offsetting, the GIME guidelines stress that Institutions shall follow a hierarchical approach to reducing emissions, firstly by avoidance, secondly by reduction and only as a last (and voluntary) resort, by compensation. Moreover, where offsetting is undertaken, Institutions shall clearly indicate the activities to which the compensation applies, which shall be additional, permanent and not double counted.

Regarding the practices of the EU Institutions and bodies, a survey is carried out every year in the framework of GIME; the latest was in November 2019. The survey consists of a questionnaire (Annex II) that is sent to all European Institutions and bodies requesting them to report on the current state of the calculation of carbon footprint and offsetting in their organisation. Table 6 presents the EP reply to the GIME questionnaire in November 2019 on its GHG emission calculation and compensation.

As a result from these surveys during 2016-19, Table 7 shows a comparative analysis of GHG emissions' calculation and compensation schemes implemented by the EU Institutions (Sanchez Martinez et al., 2019). There is progress every year in number of participating Institutions and bodies, the staff represented and the GHG emission calculation schemes. Table 7 includes 19 EU Institutions and bodies (out of 45), which calculate (fully or partly) their GHG emissions and represent approximately 66 500 staff, making up 91% of the total. Concerning fulfilling the recommendations by the ECA report, more effort is still needed to harmonise the way of calculating and reporting of GHG emissions, as different calculation schemes are still used, and to report all indirect emissions. Moreover, the use of GPP is still not obligatory, while there is no common approach for offsetting GHG emissions.

It is obvious from the above description of the current situation and despite the 2014 ECA special report recommendations, it is very difficult to directly compare the carbon footprint of the European Institutions and bodies. The creation of GIME is in the right direction, however it needs to evolve from a body exchanging environmental best practices to a structure implementing mandatory tasks for the harmonisation of the methods and metrics to calculate the carbon footprint of the European Institutions and bodies.

³⁵ GHG Protocol is a partnership between the World Business Council for Sustainable Development (WBCSD) and the World Resource Institute (WRI). Founded in 1997, the first protocol was published in 2001 (The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard). The protocol is used by a large number of corporations and organisations worldwide including the EU Emissions Trading Scheme. The protocol has been adopted by the ISO, as the basis for their ISO 14064-1 standard.

³⁶ The 6 Kyoto Protocol GHGs are carbon-dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF₆).

Table 6: EP reply to the GIME questionnaire in November 2019 on the GHG emission calculation and compensation

EU Institution implementing an EMS	EMS in place (first year registration)	Compensation of residual GHG emissions? Key issues/constraints	Welcome a coordinated approach of the GIME members?	Details on the calculation of GHG emissions	Main purpose of GHG emissions calculation	Main constraints related to GHG emissions calculation	Activities in place to reduce carbon emissions related to business travel
European Parliament	ISO 14001 (2007) EMAS (2007)	YES From 2012 to 2014: 30% compensation. Since 2015: 100% compensation (or maximum EUR 249 000) including MEP travels to/from country of origin. Compensation done yearly by public procurement. The criteria are : - Price - Geographical location - Quality of information on the impact of the credits purchased - Quality of credits (Gold Standard) Issues: - price variations - availability of good quality projects - matching compensation need with project size	YES On: (a) carbon footprint calculation; (b) climate mitigation actions; (c) long term greenhouse gas reduction goals; (d) carbon compensation	Since 2016 calculations are done by an external consultant in compliance with ISO 14064. <u>Scope 1</u> : Natural gas and fuel for heating, Emissions of refrigerants from cooling units, Internal transport of goods and persons; <u>Scope 2</u> : Electricity consumption, District heating and cooling; <u>Scope 3</u> : Employees' travel and commuting, MEP's travel, Car fleet, Visitors; Supplies of equipment and services (External services (translation, cleaning...), Office supplies, Catering/Food); Direct waste; Fixed assets (Buildings, Office equipment, IT hardware, Other). Contracts: 1/ verification of the calculation (framework contract) - Duration 4 years - Price: 7 000 each year; 2/certificate of the carbon footprint (framework contract) - Duration 4 years - Price: 11 000 each year plus 3 000 in case of deviation of the calculation - Human resources: Internal 1 FTE (plus contacts in the DGs)	To measure and take responsibility for our impact on the environment as required by EMAS.	1) Level of uncertainty of some data. 2) Time for data collection (travels, ...)	Between the three places of work: - charter train Brussels - Strasbourg - car sharing - video conferences - organisational changes External travels: - revised missions rules - cuts in missions budget
Main location	Calculation of GHG emissions?						
Brussels Luxembourg Strasbourg	YES (since 2006) - Bilan Carbone Method, Scope 1, 2 & 3.						

Source: Table made by the authors for the purpose of this study.

Table 7: Comparative analysis of GHG emissions' calculation and compensation schemes, conducted by the EC EMAS Coordination Team in the framework of GIME survey in November 2019

Results of GIME GHG emissions' survey among EU Institutions and bodies	2016*	2017**	2018***	2019****
Number of EU Institutions and bodies already calculating their GHG emissions (partly or fully)	16	19	19	19
Number of staff they represent	56 209	59 510	59 819	66 582
% of the total	90%	91,3%	92%	91%
Applied GHG emissions' calculation schemes				
Bilan Carbone	5	7	7	7
GHG Protocol	5	6	6	7
Other	6	6	6	5
Compensation schemes for GHG emissions				
Only missions	2	2	1	2
Only energy	0	1	1	0
Missions and energy	0	0	1	1
All residual emissions	3	3	3	4
Total	5	6	6	7

Source: Sanchez Martinez et al., 2019.

*In total 42 EU Institutions and bodies took part in the GIME survey in 2016, representing **62 434 staff**.

In total 43 EU Institutions and bodies took part in the GIME survey in 2017, representing **65 144 staff.

***In total 44 EU Institutions and bodies took part in the GIME survey in 2018, representing **64 976 staff**.

****In total 45 EU Institutions and bodies took part in the GIME survey in 2019, representing **73 543 staff**.

Additional clarifications:

1. In 2019, the following 19 EU Institutions and bodies calculate their GHG emissions (partly or fully) by the following methodologies:

- (a) Bilan Carbone (7): EP (Scopes 1, 2, 3), GSC (Scopes 1, 2, 3), ECA (Scopes 1, 2, 3), CDJ (Scopes 1, 2, 3), EFCA (Scopes 1, 2, 3) and EESC/CoR (Scopes 1, 2, 3)
- (b) GHG Protocol (7): EUIPO (Scopes 1, 2, 3), ECB (Scopes 1, 2, 3), EIB (Scopes 1, 2, 3), ECHA (Scopes 1, 2, 3), EUROPOL (Scopes 1, 2, 3), EC (EMAS-Scopes 1, 2, 3) and EEA (only missions)
- (c) Other (5): EMCDDA, EMA (Defra Methodology), CEDEFOP (IPCC Guidelines), ESMA and EASA (My Climate, Scopes 2 and 3).

2. In 2018, the following 6 EU Institutions and bodies compensate their GHG residual emissions (partly or fully), specifically:

- (a) Only missions (2): EEA and EIOPA, and (b) Only energy and missions (1): EASA
- (c) All residual emissions (4): EP, ECB, EIB and EUIPO. Moreover, CDJ, ECA and EESC/COR are considering to join EP's GHG-emissions' compensation scheme.

4.3. Carbon footprint of other international organisations and entities

Not only the EU Institutions, but also other international organisations, private companies and citizens are trying to address their carbon footprint through measuring properly their GHG emissions, reducing them as much as possible by their own actions and compensating them those that cannot be avoided by purchasing carbon credits. Among the most prominent initiatives is the Climate Neutral Now³⁷, launched by UN in 2015, to encourage everyone in society to take action to help achieve a carbon neutral world by mid-century. It is obvious that only if carbon neutrality is achieved on a global scale by 2050, the rise in average temperature could be kept within the 1.5°C limit, as enshrined in the Paris Agreement (Purr et al., 2019). A growing group of leading organisations and individuals have joined this initiative to incentivize behavioural changes which in turn will drive the change within their industries and networks, helping align them with the Paris Agreement and the Sustainable Development Goals (SDGs). Climate Neutral Now participants take action by addressing their own climate footprint through a three-step method: estimating their emissions, acting to reduce them, and compensating the emissions that could not be avoided by supporting green projects in developing countries. The Climate Neutral Now Initiative has meanwhile passed the milestone of 300 participants, bringing the number up to 355³⁸.

Among the organisations which joined the Climate Neutral Now initiative in 2018 is the Organisation for Economic Cooperation and Development (OECD). In its recent Greening report³⁹, OECD calculates its carbon footprint based on the GHG Protocol methodology and reports a reduction by 1% compared to 2018, reaching 12 055 t CO₂ eq., which is around 3.3 t CO₂ eq. per FTE (OECD, 2020). The Greening report describes the OECD Carbon Pricing initiative, introduced at the OECD in 2013, which aims to compensate the environmental cost of carbon emissions and encourages management and staff to consider environmental aspects when making their travel arrangements, which could include reducing the number of staff travelling for the same mission, selecting 'train' over 'plane', etc. (OECD, 2020).

Some big private entities are developing ambitious programmes to achieve carbon neutrality or even to become carbon negative in the coming decades. For example, Microsoft announced on 16 January 2020 that by 2030 will be carbon negative, and by 2050 will remove from the environment all the carbon the company has emitted either directly or by electricity consumption since it was founded in 1975⁴⁰. As it can be seen in Figure 9, Microsoft plans to abandon offsetting and develop/support/invest in removal technologies, such as afforestation and reforestation, soil carbon, bioenergy with carbon capture and storage, and direct air capture projects. Its ambitious programme includes not only the company's direct emissions, but also those of the entire supply and value chain. Microsoft will use the newly established \$1 billion innovation fund and foresees an expansion of its internal carbon fee in order to finance its ambitious programme.

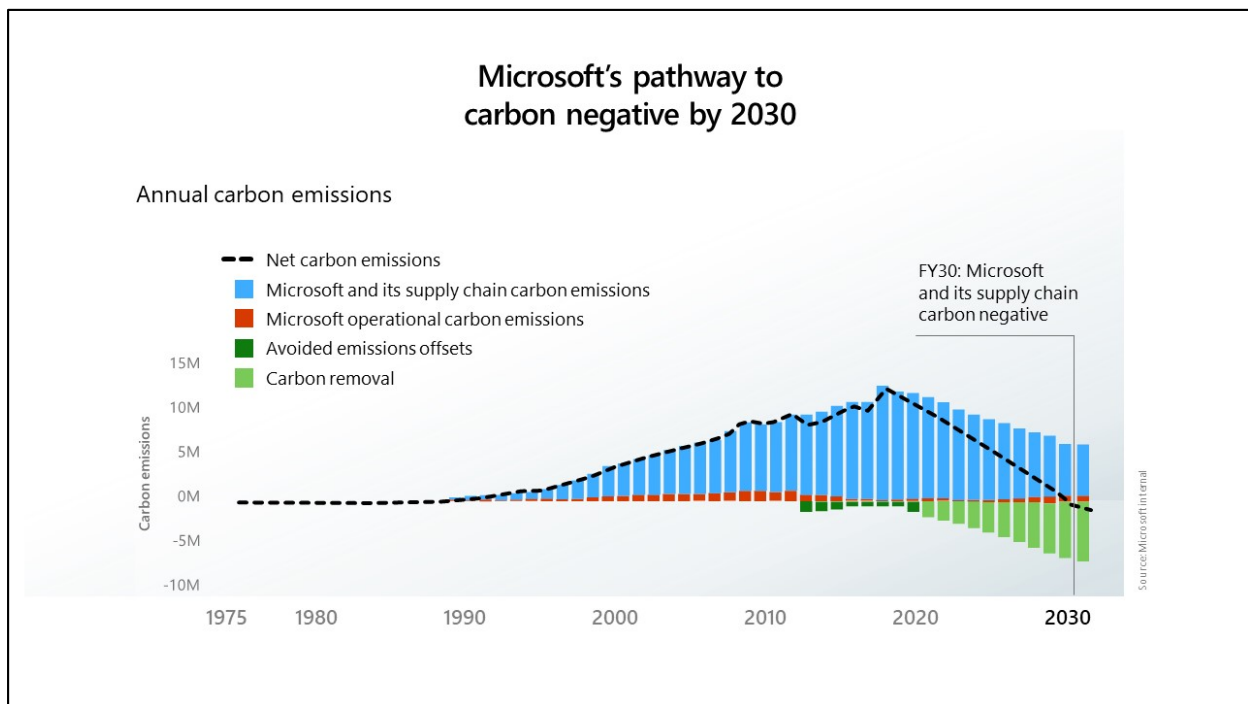
³⁷ UN initiative Climate Neutral Now: <https://unfccc.int/climate-action/climate-neutral-now>

³⁸ The participants of the UN initiative Climate Neutral Now: <https://unfccc.int/news/climate-neutral-now-initiative-passes-300-participant-milestone>

³⁹ OECD Greening Report 2020: https://greening.oecd.org/EXT_Greening%20report%202020.pdf

⁴⁰ The Microsoft programme to become carbon negative by 2030: <https://blogs.microsoft.com/blog/2020/01/16/microsoft-will-be-carbon-negative-by-2030/>

Figure 9: Microsoft annual carbon emissions



Source: Microsoft, 2020 : <https://blogs.microsoft.com/blog/2020/01/16/microsoft-will-be-carbon-negative-by-2030/>

5. REDUCTION TRAJECTORY OF EP'S GHG EMISSIONS IN VIEW OF CARBON NEUTRALITY

5.1. Carbon neutrality under the Kyoto Protocol and the Paris Agreement

The year 2020 is a turning point in the international global effort to address the disastrous effects of climate change. The fight against climate change by the international community is shifting from the Kyoto Protocol to the Paris Agreement. The second commitment period 2013-2020 of the Kyoto Protocol, which was agreed in 1997, ends in December 2020. Under the Kyoto Protocol, only the developed countries had obligation to decrease their GHG emissions (Annex I Parties) through concrete national targets, while the developing countries (non-Annex I Parties) had not. As a result, additional means of reaching these national targets have been introduced under the Kyoto Protocol, mainly market based mechanisms, i.e. the Clean Development Mechanism (CDM), the Joint Implementation (JI) and the Emission Trading (ET)⁴¹. For example, the CDM, defined in Article 12 of the Kyoto Protocol, allows a country with an emission commitment under the Kyoto Protocol to implement an emission-reduction project in developing countries. Such projects can earn saleable Certified Emission Reduction (CER) credits, each equivalent to one ton of CO₂, which can be counted towards meeting Kyoto targets. It is the first global, environmental investment and credit scheme of its kind, providing a standardized emissions offset instrument, i.e. CER credits. A CDM project activity might involve, for example, a rural electrification project using solar panels or the installation of more energy-efficient boilers. The mechanism aims to stimulate sustainable development and emission reductions, while giving developed countries some flexibility on how they meet their emission reduction or limitation targets⁴².

On the contrary, all Parties to the Paris Agreement have compliance GHG emissions targets, the so-called NDCs, which are nationally determined mitigation measures to be pursued domestically. As a consequence, it is clear that a CDM mechanism as such cannot be implemented under the Paris Agreement and therefore the NDCs do not take into account any voluntary market based mechanism. Although the 2015 Paris Agreement includes provisions on carbon markets in its Article 6, it has not been possible for the Parties to agree since then on the implementation rules for this Article 6, which is among the most complex of the Agreement. The challenge that this Article represents is clear from the fact that it was the only part of the Paris Rulebook which was not agreed in 2018 COP24 in Katowice. As there was no agreement even in 2019 COP25 in Madrid, Article 6 remains subject for negotiation in Glasgow COP26, postponed due to COVID-19 to 2021. The environmental integrity of the Paris Agreement is at stake in case Article 6 compliance offset mechanisms are not correctly implemented, as there are risks associated with double counting and the 'additionality'⁴³ of such GHG emission reductions (Henderson, 2007).

Past experience from the implementation of CDMs under the Kyoto Protocol has shown that it is questionable whether the Kyoto offsets are delivering real, measurable and additional GHG emission reductions. A recent study commissioned by the EC, showed that 85% of the projects covered in their

⁴¹ UNFCCC mechanisms under the Kyoto Protocol: <https://unfccc.int/process/the-kyoto-protocol/mechanisms>

⁴² The CDM defined in Article 12 of the Kyoto Protocol: <https://unfccc.int/process-and-meetings/the-kyoto-protocol/mechanisms-under-the-kyoto-protocol/the-clean-development-mechanism>

⁴³ Under CDM, approved projects are required to show 'additionality'. This is a contested term with two main interpretations: 'environmental additionality', which holds that a project is additional if the emissions from the project are lower than the baseline; and 'project additionality', defined as projects that would not have happened without the CDM. Advocates of the CDM tend to agree it is not possible to establish with absolute certainty what would have happened without the CDM or in absence of a particular project. http://hdr.undp.org/sites/default/files/henderson_caspar.pdf

analysis and 73% of the potential 2013-2020 CERs supply had a low likelihood that emission reductions were additional and were not over-estimated. Only 2% of the projects and 7% of potential CERs supply had a high likelihood of ensuring that emission reductions were additional and were not over-estimated (Cames et al., 2016). This study concludes that with the adoption of the Paris Agreement, implementing more effective climate policies domestically becomes key to bringing down emissions quickly on a pathway consistent with the “well below 2°C” target.

At the moment and without an agreement on the implementing rules of Article 6, demand for international credits is also uncertain. Only a few countries, including Japan, Norway and Switzerland, have indicated that they intend to use international credits to achieve their climate mitigation pledges. An important source of demand could come from the offsetting plans pursued under the International Civil Aviation Organization (ICAO) and its Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)⁴⁴, and possibly from a market based approach pursued under the International Maritime Organization (IMO). For these demand sources, avoiding double counting with emission reductions under NDCs will be a challenge similar to that of avoiding double counting between countries. The limitations of offsetting in addressing the urgent need for reducing GHG emissions have been stressed by many organisations, scientists, activists and concerned citizens who have started to voice openly their concerns over how carbon offsets have been used by polluters as a free pass for inaction⁴⁵.

In this context, the European Green Deal aims to achieve its ambitious climate targets without compensation of its GHG emissions through international credits. It is worth recalling that, the EU and its MSs submitted their NDC to the UNFCCC prior to the Paris Agreement on 6 March 2015, committing equally to a binding domestic reduction target of at least 40% in GHG emissions by 2030. The EP in its recent resolution prior to COP25 reiterated its position on achieving domestically the EU emission reduction targets for 2030 and 2050⁴⁶ (EP, 2019c). The European Green Deal⁶ makes no reference to ICAO’s offsetting plans through CORSIA, and instead prevails ET, kerosene taxation and new fuels, which have the potential to really cut aviation GHG emissions. The EP maintains even a harder stance, contesting the overall environmental integrity of the ICAO offsetting plans and calls on the Commission to present as soon as possible an ambitious review of the Energy Taxation Directive, including an end to the tax exemptions currently applied to kerosene and maritime fuels⁴⁷.

Equally the terminology of carbon neutrality evolved from the Kyoto era to the post-2020 period. According to the ECA report, carbon neutrality is reached at “a state where net carbon emissions related to a product or activity equals zero once offsetting has taken place for emissions which could not be avoided” (ECA, 2014). In other words, carbon neutrality could be reached by offsetting emissions which could not be avoided through one or more of the Kyoto mechanisms, i.e. CDM, JI or ET. Nowadays, carbon neutrality must be obtained through carbon sinks which could be any system that absorbs more carbon than it emits. Removing CO₂ from the atmosphere and then storing it is known as carbon sequestration⁴⁸ which could be biological (in plants, soils and oceans), geological (in underground geological formations or rocks through CCS) or innovative technologies (direct air capture, graphene production, etc.). According to the IPCC glossary therefore, carbon neutrality or net

⁴⁴ The ICAO CORSIA and how it works: https://www.icao.int/environmental-protection/Pages/A39_CORSIA_FAQ2.aspx

⁴⁵ UNEP article on carbon offsets are not our get-out-of-jail free card: <https://www.unenvironment.org/news-and-stories/story/carbon-offsets-are-not-our-get-out-of-jail-free-card>

⁴⁶ The EP resolution of 15 January 2020 on the European Green Deal: https://www.europarl.europa.eu/doceo/document/TA-9-2020-0005_EN.html

⁴⁷ The EP resolution of 28 November 2019 on the 2019 UN Climate Change Conference in Madrid, Spain (COP 25): https://www.europarl.europa.eu/doceo/document/TA-9-2019-0079_EN.html

⁴⁸ University of California Davis publication on carbon sequestration: <https://climatechange.ucdavis.edu/science/carbon-sequestration/>

zero emissions are achieved when anthropogenic emissions of GHGs to the atmosphere are balanced by anthropogenic removals over a specified period (IPCC, 2018). IPCC uses also the term 'climate neutrality' concept of a state in which human activities result in no net effect on the climate system. Achieving such a state would require balancing of residual emissions with emission removal, as well as accounting for regional or local bio-geophysical effects of human activities that, for example, affect surface albedo or local climate (IPCC, 2018).

The carbon neutrality term has been used in the recent past with different meanings occasionally. Instead of aiming at zero net emissions, some countries seem to misinterpret carbon neutrality as stabilizing emissions at a certain level. For instance, Costa Rica's NDC would "achieve carbon neutrality by 2021 with total net emissions comparable to total emissions in 2005," while Ethiopia's goal is to "achieve carbon-neutral middle-income status before 2025" and at the same time "limit its net GHG emissions in 2030 to 145 Mt CO₂ eq. or lower"⁴⁹. Many more countries or entities are claiming carbon neutrality with the Kyoto Protocol terminology, i.e. using extensive offsetting possibilities.

5.2. Current situation in the EP regarding carbon neutrality

Given its carbon management and offsetting approach described in Chapter 2.3.2 above, which includes activities aimed at eliminating or reducing carbon emissions as far as possible in a given year, subject to the continuous improvement requirements specified in the EMAS Regulation¹⁰, and then offsetting its residual emissions, the EP has already claimed carbon neutrality since 2016. In its respective Environmental Statements since this time, Parliament is referred as the first carbon neutral EU institution, following a 100% offsetting of its irreducible emissions through financial support for projects which reduce GHG emissions in developing countries (EP, 2019b). The Environmental Statements of the EP, including this claim of carbon neutrality, have been verified and certified by an independent external EMAS verifier, and accepted by the national competent authorities of the MSs in which the three main places of work are located, enabling prolongation of the EP's EMAS registration.

EP's carbon neutrality has been mentioned in the EP resolution of 14 May 2020 on Parliament's estimates of revenue and expenditure for the financial year 2021⁵⁰, which "*underlines that since 2016, Parliament is the first Union institution to become carbon neutral, because after making all possible efforts to reduce its CO₂ emissions, it offsets 100% of its irreducible emissions*" (EP, 2020c).

Furthermore, the fact that the EP is, under its current definition and scope, a carbon neutral institution has been communicated repeatedly through multiple internal and external channels, including being made available to the public through press briefings (e.g. the press release prior to 2015 Paris COP21⁵¹). As a consequence, EP's carbon neutrality has been reported in different EU media over the last few years.

It is worth noting that the EP's offsetting is conducted by purchasing and cancelling carbon credits on the voluntary offsetting market, as part of the Kyoto protocol's CDM. The credits used to offset EP's emissions are certified under the widely recognised, premium scheme - The Gold Standard - guaranteeing additionally to projects, certified emission reductions, and positive impact of projects on other SDGs in addition to carbon emission reductions.

⁴⁹ COP21 Glossary of Terms Guiding the Long-term Emissions-Reduction Goal: <https://www.wri.org/blog/2015/12/cop21-glossary-terms-guiding-long-term-emissions-reduction-goal>

⁵⁰ EP resolution of 14 May 2020 on Parliament's estimates of revenue and expenditure for the financial year 2021: https://www.europarl.europa.eu/doceo/document/TA-9-2020-0123_EN.html

⁵¹ EP press release of 13 November 2015: <https://www.europarl.europa.eu/news/en/press-room/20151113IPR02622/parliament-is-first-eu-institution-to-become-100-carbon-neutral>

In the framework of EMAS, the EP Bureau decided on 16 December 2019 to reduce its CO₂ eq. emissions per FTE by at least 40% by 2024 in comparison to 2006, as well as a number of other climate performance indicators, including CO₂ eq. emissions from transport of persons, renewable energy use, gas, fuel oil and electricity consumption, etc. (Table 3). According to the 2018 EMAS data, CO₂ eq. emissions per FTE have been already reduced by 37.7%, while the other environmental performance targets are also on track to be achieved by 2024 (EP, 2019b).

Following the declaration of climate emergency (EP, 2019), the EP wants to lead by example and commit itself to achieving carbon neutrality domestically by 2030. In its decision and resolution of 14 May 2020, the EP instructs its Bureau's EMAS working group to amend the key performance indicators and the current CO₂ reduction plan for reaching carbon neutrality by 2030 (EP, 2020).

5.3. Conclusions on the capacity of the EP to reduce its GHG emissions in view of carbon neutrality without using offsetting

In case the EP decision and resolution of 14 May 2020¹¹ for reaching carbon neutrality by 2030 is adopted by the EP Bureau, ambitious climate goals need to be defined accordingly for 2030. Carbon neutrality strategies need to be also developed by the EP; meanwhile, a proper balance should be found between GHG emission reduction measures and application of carbon removal technologies during the next decade. Given the argumentation in Chapter 5.1, it is clear that the EP needs to emphasise domestic actions to drastically reduce its GHG emissions; in other words, mainly “insetting” methods should be increasingly prioritised over time when compared to offsetting.

The COVID-19 pandemic has provided an image on how working and operational conditions of the EP could look like in 2030, in case a carbon neutrality pathway is implemented. Extensive teleworking of staff would render the need of many offices and parking infrastructure unnecessary. Improved teleconference facilities would make most of missions redundant, with important implications in the operational conditions of the EP Committees and the Plenary itself. Subsequently, the energy consumption and the transport necessity/usefulness would drastically decrease, leading to substantial reduction of GHG emissions and air pollutants. Improved city mobility due to teleworking would reduce traffic jams. The increase of bicycling lanes in the main streets would make car-use much less attractive and favour bicycling (and walking), which will improve road safety and reduce air pollution. Some of these win-win (or virtuous cycle) situations in Institution and the broader society will make some of the suggestions proposed in this study realistic during the coming decade.

Public administrations, including the EP, before COVID-19 had already been preoccupied, mainly for economic reasons, by how to implement a modern way of working for their staff using flexible working hours and places, by accessing remote working digital tools. A recent study published by the Austrian Presidency of the EU using surveys by the European Public Administration Network (EUPAN) and entitled “New Way of Working in Public Administration” has shown the potential to improve working conditions, work outcomes and quality of work (Korunka et al., 2018). This study concludes that the increased facilitation of temporal and spatial flexibility in public administration seems to be partially caused by the need of public employers for higher productivity and improved performance, as well as by public employees' needs for this flexibility, in order to help them to balance work demands with their family and other personal responsibilities and interests. Although environmental criteria were not strongly considered in this study, it is obvious that temporal and spatial flexibility in public administrations will be beneficial to their carbon footprint.

As described in Chapter 4.1, following the Green Deal communication (EC, 2019b), the EC is aiming to become a carbon neutral Institution by 2030. A feasibility and scoping study will, later this year, propose

how such a climate-neutral Commission could be achieved by the end of the next decade (Ramboll and CO2logic, 2020). In case the EP decide to follow a similar pathway as the Commission, this study offers some suggestions for short, medium and long-term emission reduction actions to drastically decrease the EP carbon footprint towards carbon neutrality. Although the classification of measures in the above three time-defined categories is indicative, it is clear that some measures could be implemented immediately with zero or low cost, accepted easily, and reduce emissions quickly; while some other measures might require big institutional and human behavioural changes with significant costs. For some of these measures further analysis is needed about their applicability to the EP; however the study gives an idea of the panoply of measures that could be applied in an eventual carbon neutrality pathway.

5.3.1. Short-term actions (up to one year)

- Define an inspirational GHG emission reduction target for 2030.** The quick definition of such a target for 2030, in addition to the existing one for 2024, is a prerequisite for any ambitious shift of the EP towards carbon neutrality. On climate change, the sooner action is taken, the higher chances are for the targets to be reached. If the Commission strategy is followed, reverse engineering techniques (first defining the ambitious long-term target and later the measures to achieve it) must be followed. The EP must expand substantially its current emissions reduction strategies (relatively easy to achieve targets, which are updated periodically with achievable ambition) and mobilise its potential and resources accordingly to eventually reach carbon neutrality by 2030. In order to mitigate its GHG emissions, the EP could prioritise direct emissions, i.e. those belonging to Scope 1 according to the ISO classification, and possibly semi-direct emissions, i.e. those belonging to Scope 2, as these emissions take place with assets and processes which are owned by EP or under its direct control.
- Replace EP visitor groups by virtual tours or Liaison Office presentations.** The EP subsidised visitors are the main source of the EP GHG emissions and 1/3 of the total EP carbon footprint (33% or 35.896 t CO₂ eq., as shown in Figure 3 and Table 5), a quick and substantial emission reduction could be obtained in this emission category. The EP could replace these visits by organising virtual tours or investing in presentations of the EP work by the EP Liaison Offices in the countries of origin of the visitors. Significant financial resources could be saved and made available to support other cost intensive actions, such as investments in sustainable carbon-neutral buildings and other GHG emission reduction/removal options.
- Involve EP staff in this ambitious target and foster healthier lifestyles.** Achieving carbon neutrality in the EP depends strongly on the engagement of its staff to such an ambitious target. Top management implication is also essential, but all staff need to feel ownership of the change that is required. Information campaigns, involvement of unions and climate staff associations, like the EU staff4climate and the EU Cycling Group (EUCG), should be activated in order to encourage a major behavioural change. Another impetus in such behavioural change is the health benefits from the physical activity that walking and cycling to work implies. This may include, reducing meat consumption from ruminant animals (beef and lamb) in the EP restaurants in order to promote diet alternatives associated with smaller GHG emissions⁵² (Opio et al., 2013).

⁵² A Food and Agriculture Organisation (FAO) global life cycle assessment on GHG emissions from ruminant supply chains: <http://www.fao.org/3/i3461e/i3461e.pdf>

- **Extend mobility support systems.** Aiming to decrease drastically the 15% of the EP carbon footprint which is due to staff mobility, the current home-office commuting support system could be extended to support 100% of the costs incurred using public transport; or alternatively to facilitate the use of electric and/or rented bicycles. This should be conditioned with abandoning the availability of free parking in the EP buildings by the return of parking “vignettes”. Limited exemptions for free entrance in the EP parking places could be granted for staff members with disabilities, electric vehicles or temporary to all on days with transport strikes. A substantial decrease of available parking places in the EP buildings should accompany this measure. Car parking places should be partly transformed into changing facilities with lockers and showers, secure cycle parking, bicycle repair facilities, etc.
- **Limit and optimise travel time for missions.** Reduce the annual budget for staff missions and introduce a better balance between expenditures on missions and IT solutions for virtual meetings. Revise the mission rules in order to favour environmental friendly transportation decisions. Positive reimbursement incentives should be introduced to use environmentally friendly modes of transport; missions that can be made within, for example, a 5-hour train ride should become obligatory and air travel should not be allowed. Train stations are conveniently located in city centres and trains are quick to board. Furthermore, they permit working during travel time, hence, such a trade-off between the transport modes is well justified. Productive travel time could be monetised and taken into account in case of more expensive train tickets.
- **Implement new working conditions for staff.** Progressive implementation of extended teleworking, temporal and spatial flexibility in working hours, maximum remote use of mobile IT tools and communication facilities could substantially reduce the EP carbon footprint in the coming years. Such new working conditions for staff will permit employees to have a better balance between work, family and leisure, while at the same time reducing commuting time, building space and energy consumption in their administration. Moreover, these conditions will also become an established work arrangement for societal and environmental reasons, air pollution and traffic congestion, professional equality between women and men in the civil service, etc. A reasonable balance between the interests of the employees and their employers has to be reached which should be found on task-based work and trust-based working hours.
- **Encourage energy efficiency.** Despite the progress in energy efficiency during the last years, there is room for further improvements in existing buildings, which should be improved on the basis of results from energy audits and should be progressively renovated to achieve better standards, e.g. in the heating/cooling and the insulation of buildings. Reduction in electricity consumption could be achieved through increasing energy efficiency of IT equipment and data centres, eliminating energy inefficient lighting fixtures in all buildings and their replacement with energy efficient LED lighting, and installing motion and occupancy sensors in buildings with automatic auto-sleep functions. Tailor-made information provided to users on the appropriate functioning of heating and cooling installations in each building should be provided in order to increase energy efficiency. Create energy efficiency training for on-boarding new staff, and to be taken progressively by all staff as an obligatory one. A campaign involving all staff in the daily environmental management should be initiated, for example to encourage them to turn off the lights once they are leaving their office even for a short time, turn off heating/cooling at night, and wear more appropriate clothing to cool/heat less during the day.

5.3.2. Medium-term actions (2 to 5 years)

- **Introduce GPP in all procurement procedures.** Although the EP has already established a 90% GPP target for 2024, a 100% implementation of strict GPP rules should be implemented for all goods and services purchased. Green elements in all procurement procedures relating to priority product categories must be introduced, as well as an obligatory a-priori consultation of the GPP Helpdesk. An ex post system of independent verification of green criteria introduced in tenders should be established, including an assessment of the appropriateness of the assigned green classification. Due to climate friendly criteria in public procurement, an increase of the costs in purchase of goods and services could be observed.
- **Revise the 2009 EMAS regulation.** In accordance with the EMAS Regulation, organisations applying EMAS must report on their environmental performance using KPIs. The EMAS Regulation also provides that, for organisations in the non-production sectors (e.g. public administrations such as the EP), their carbon footprint KPI relates to the size of the organisation expressed in number of employees (FTE). In a carbon neutrality pathway, the increase of personnel could mask the real situation as expressed by the absolute values of GHG emissions in t CO₂ eq. A revision of the EMAS Regulation is needed because the absolute GHG emission values are the important metric to express the carbon footprint of an organisation and base strategies for avoiding climate change impacts.
- **Introduce carbon budget⁵³ rules.** The EP could consider to set a carbon budget target^{54,55} for the institution itself in line with the Paris Agreement target to limit global warming to well below 2°C or even to 1.5°C by the end of this century. By doing so, the EP GHG emissions could be capped within one of the above global temperature increase levels and contribute its fair share to global climate mitigation efforts. Carbon budget rules could be applied to travelling, consumed goods and services, and/or to Directorate-Generals, Directorates, Units or alternatively to the three EP sites. Such carbon budget rules could create a positive competition between departments in terms of GHG emission performance.
- **Develop a feasibility study for removal of emissions.** As the EP will accelerate the efforts to mitigate its GHG emissions, there will be remaining emissions to be still tackled in its pathway towards carbon neutrality. For its GHG emissions not possible to be eliminated entirely, the EP needs to examine and invest in carbon sequestration⁴⁸ or carbon removal technologies^{56,57,58}. As some of these methods and technologies have recently started to be in use, while some others are under development and they will need an environmental assessment during their demonstration and deployment phase, the EP should launch a feasibility study on how to remove its remaining GHG emissions and so explore the possibilities and the challenges to

⁵³ Carbon budget glossary (according to Cambridge dictionary): an amount of CO₂ that a country, company, or organization has agreed is the largest it will produce in a particular period of time. Usually is expressed per t CO₂ eq. per year.

⁵⁴ A Carbon Tracker Initiative article on carbon budgets explainer: https://carbontransfer.wpengine.com/wp-content/uploads/2018/02/Carbon-Budgets_Explained_02022018.pdf

⁵⁵ The EU CONSTRAIN project report zeroes in on the remaining carbon budget: <https://constrain-eu.org/wp-content/uploads/2020/02/CONSTRAIN-Zero-In-On-The-Remaining-Carbon-Budget-Decadal-Warming-Rates.pdf>

⁵⁶ A WRI article on carbon removal including the latest working paper (Mulligan et al., 2020): <https://www.wri.org/our-work/project/carbon-removal>

⁵⁷ A UK Royal Society with the Royal Society of Engineering publication on GHG removal (The Royal Society, 2018): <https://royalsociety.org/-/media/policy/projects/greenhouse-gas-removal/royal-society-greenhouse-gas-removal-report-2018.pdf>

⁵⁸ A WRI article on 6 ways to remove carbon pollution from the sky: <https://www.wri.org/blog/2020/06/6-ways-remove-carbon-pollution-sky>

reach carbon neutrality through removal methods and technologies, similar to the Microsoft ones mentioned previously⁴⁰.

5.3.3. Long-term actions (6 to 9 years)

- **Invest in positive energy buildings (PEBs).** As the EP implements a building strategy, including a long term renovation planning, it needs to continue investing during the next decade in sustainable building design both for new constructions and for renovations of existing ones. The EU energy performance for buildings directive (EU, 2018) requires all buildings to be nearly-zero energy by the end of 2020⁵⁹. Although this directive decreases the carbon footprint of a building and contributes to circular economy and resource efficiency principles throughout the building lifecycle, a PEB refers to building's operations that do not emit CO₂ emissions into the atmosphere and produce more renewable energy that the building needs (Magrini et al., 2020).
- **Advocate for consensus amongst the MSs for a single seat of the EP.** Instead of its current three sites (Brussels, Luxembourg and Strasbourg), in a carbon neutrality pathway, it is evident that the EP needs to consider operation in one site. Although the emission difference for the MEPs travel from their home to Brussels or Strasbourg is not big, additional GHG emissions are associated for example with the traveling of EP (plus EC and Council) staff, stakeholders, journalists, lobbyists, etc. The Article 341 of TFEU foresees that the seat of the EU Institutions shall be determined by the common accord of the governments of the MSs. Any modification of the seat or the working place of the EP would require a Treaty change with the consent of the MSs. The EP has expressed many times in the past its preference to become a single seat Institution, the latest in the EP decision and resolution of 14 May 2020⁶¹. It is therefore necessary to develop consensus within the European Council during the next decade in order to rationalise the EP operations and in connection eventually with the seats of other European Institutions and bodies.
- **Introduce an internal carbon fee.** As an ultimate measure, the EP could examine the introduction of an internal carbon fee in various emission sources, such as travel, commuting, food, energy use, purchase of goods, etc. Similarly to the EU ETS for the heavy industries, the internal carbon fee puts a price on carbon. Many organisations are setting up such a fee in order to reduce their carbon footprint^{60,61}. A prominent example is the 2019 Climate Action Plan⁶² of the Government of Ireland which is aiming to introduce in 2020 a carbon price of EUR 26 per t CO₂ emitted from air travel of government staff and which could reach EUR 80 by 2030. The use of such a carbon fee sends the strong message that an organisation incentivises the most climate friendly option, instead of the most economic one. The organisation should decide which emission source should be taxed, who pays the fee and where the money collected should be spent. It is important to ensure the fairness and the credibility for such a fee in order to be acceptable inside the organisation.

⁵⁹ Nearly zero-energy buildings:
https://ec.europa.eu/energy/topics/energy-efficiency/energy-efficient-buildings/nearly-zero-energy-buildings_en

⁶⁰ A UK Energy Research Centre working paper on personal carbon budgeting:
https://ukerc.rl.ac.uk/UCAT/PUBLICATIONS/Personal_Carbon_Budgeting_-_What_people_need_to_know.pdf

⁶¹ An EnergyCities article on climate-mainstreaming municipal budgets (EnergyCities, 2019):
https://energy-cities.eu/wp-content/uploads/2019/01/climate-mainstreaming_budgets.pdf

⁶² A Government of Ireland Climate action plan 2019 to tackle climate breakdown:
https://www.dccae.gov.ie/en-ie/climate-action/publications/Documents/16/Climate_Action_Plan_2019.pdf

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ANNEXES

Annex 1: EP carbon footprint for 2006 and 2018 expressed in t CO₂ eq.

The first and second columns show emissions in t CO₂ eq. per flow for 2006 and 2018, with emissions per FTE in brackets. The third column indicates each flow's percentage in the total carbon footprint, while the fourth column shows the change of emissions per FTE between 2006 and 2018.

EMISSION FLOWS	2006	2018	Percentage of the 2018 carbon footprint	Change 2006-2018 per FTE
1. ENERGY CONSUMED	36 044 (3,37)	15 145 (1,04)	13,7%	-69,2%
1.1. Natural gas	11 894 (1,11)	13 902 (0,95)	12,6%	-14,3%
1.1.1. Brussels	7 636 (0,71)	11 913 (0,82)	10,8%	14,4%
1.1.2. Luxembourg	2 237 (0,21)	1 552 (0,11)	1,4%	-49,1%
1.1.3. Strasbourg	2 020 (0,19)	438 (0,03)	0,4%	-84,1%
1.2. Oil	471 (0,04)	207 (0,01)	0,2%	-67,8%
1.2.1. Brussels	210 (0,02)	0 (0,00)	0,0%	-100,0%
1.2.2. Luxembourg	204 (0,02)	159 (0,01)	0,1%	-42,9%
1.2.3. Strasbourg	57 (0,01)	48 (0,00)	0,0%	-38,5%
1.3. District heating and cooling	472 (0,04)	237 (0,02)	0,2%	-63,2%
1.3.1. Brussels	0 (0,00)	0 (0,00)	0,0%	NA
1.3.2. Luxembourg	472 (0,04)	237 (0,02)	0,2%	-63,2%
1.3.3. Strasbourg	0 (0,00)	0 (0,00)	0,0%	NA
1.4. Electricity (100% renewable since 2008)	23 208 (2,17)	799 (0,05)	0,7%	-97,5%
2. LEAKAGE OF REFRIGERANT FLUIDS FROM AIR CONDITIONING EQUIPMENT OR FRIDGES	736 (0,07)	1 051 (0,07)	1,0%	4,7%
3. TRANSPORT OF GOODS (FREIGHT)	781 (0,07)	311 (0,02)	0,3%	-70,8%
3.1. Internal freight (between the three places of work)	335 (0,03)	209 (0,01)	0,2%	-54,3%

3.1.1. Freight between the three places of work: part-sessions	160 (0,01)	84 (0,01)	0,1%	-61,3%
3.1.2. Freight between the three places of work: mail and other	176 (0,02)	125 (0,01)	0,1%	-48,0%
3.2. External freight (outside the 3 places of work) - road/sea	117 (0,01)	89 (0,01)	0,1%	-43,9%
3.3. External freight (outside the 3 places of work) - air	329 (0,03)	13 (0,00)	0,0%	-97,2%
4. TRANSPORT OF PERSONS	68 143 (6,37)	73 719 (5,06)	66,7%	-20,7%
4.1. Staff	12 565 (1,18)	17 050 (1,17)	15,4%	-0,5%
4.1.1. Home-office commuting	4 544 (0,43)	6 453 (0,44)	5,8%	4,1%
Brussels (including Members' assistants)	2 286 (0,21)	3 149 (0,22)	2,8%	1,0%
Luxembourg	2 220 (0,21)	2 886 (0,20)	2,6%	-4,7%
Strasbourg	38 (0,00)	418 (0,03)	0,4%	707,0%
4.1.2. Missions between the three places of work	3 439 (0,32)	2 939 (0,20)	2,7%	-37,3%
To and from Strasbourg: By car	1 731 (0,16)	2 209 (0,15)	2,0%	-6,4%
To and from Strasbourg: By train	17 (0,00)	240 (0,02)	0,2%	957,7%
To and from Strasbourg: By plane (short-haul - economy)	1 175 (0,11)	126 (0,01)	0,1%	-92,1%
To and from Strasbourg: By bus from Luxembourg	0 (0,00)	117 (0,01)	0,1%	NA
Luxembourg-Brussels: By car	480 (0,04)	234 (0,02)	0,2%	-64,3%
Luxembourg-Brussels: By train	35 (0,00)	14 (0,00)	0,0%	-71,5%
Luxembourg-Brussels: By plane (short-haul - economy)	0 (0,00)	0 (0,00)	0,0%	N.A.
4.1.3. Missions outside the three places of work	4 566 (0,43)	7 658 (0,53)	6,9%	23,0%
By plane (short-haul - economy)	1 820 (0,17)	3 142 (0,22)	2,8%	26,6%
By plane (short-haul - business)			0,0%	NA


By plane (long-haul - business)	2 680 (0,25)	3 194 (0,22)	0,8%	NA
By plane (long-haul - economy)			2,9%	-12,6%
By train	7 (0,00)	47 (0,00)	0,0%	393,6%
By car	60 (0,01)	371 (0,03)	0,3%	357,2%
By bus	0	18 (0,00)	0,0%	NA
4.1.4. Transport between buildings in Luxembourg (KAD-GOL, KAD-PRE)	16 (0,00)	0 (0,00)	0,0%	-100,0%
4.2. Members of the European Parliament	27 385 (2,56)	20 720 (1,42)	18,7%	-44,5%
4.2.1. Travel in official vehicles and rented buses	576 (0,05)	300 (0,02)	0,3%	-61,9%
4.2.2. Meetings outside the three places of work	5 108 (0,48)	4 896 (0,34)	4,4%	-29,7%
Political groups	1 200 (0,11)	625 (0,04)	1,0%	-63,6%
EP committees	756 (0,01)	2191 (0,15)	2,0%	1400,0%
Inter-parliamentary delegations	3 124 (0,29)	1987 (0,14)	2,0%	-51,7%
Transport at meeting location (bus, taxi, limousine, etc.).	29 (0,00)	18 (00)	0,0%	0,0%
Other	NA	75 (0,01)	0,0%	N.A.
4.2.3. Meetings in Brussels or Strasbourg	21 700 (2,03)	15 524 (1,06)	14,0%	-47,5%
4.3. Senior officials in official vehicles (SG, SGs of political groups, Deputy SG, etc.)	47 (0,00)	53 (0,00)	0,0%	-16,7%
4.4. Subsidised visitors	28 146 (2,63)	35 896 (2,46)	32,5%	-6,5%
Brussels	20 926 (1,96)	32 312 (2,22)	29,2%	13,2%
Strasbourg	7 213 (0,67)	3584 (0,24)	3,2%	-63,6%
5. PURCHASE OF SUPPLIES AND SERVICES	8 115 (0,76)	6 697 (0,46)	6,1%	-39,5%
5.1. External services (maintenance, cleaning, consultants, security, external translators and interpreters)	2 725 (0,25)	4 030 (0,28)	3,6%	8,4%

External restaurant staff	236 (0,02)	137 (0,01)	0,1%	-57,4%
External consultancy	201 (0,02)	214 (0,01)	0,2%	-21,8%
Freelance interpreters	368 (0,03)	1 969 (0,14)	1,8%	292,9%
Freelance translators	500 (0,05)	431 (0,03)	0,4%	-36,8%
External IT staff	329 (0,03)	350 (0,02)	0,3%	-22,0%
External maintenance staff	116 (0,01)	223 (0,02)	0,2%	40,5%
External cleaners	506 (0,05)	470 (0,03)	0,4%	-31,9%
Temporary staff	22 (0,00)	13 (0,00)	0,0%	-57,7%
External security staff	449 (0,04)	163 (0,01)	0,1%	-73,3%
5.2. Office supplies (paper, envelopes and other supplies)	1 880 (0,18)	563 (0,04)	0,5%	-78,0%
5.3. Catering supplies (plastic cups, cans, plastic bottles, etc.)	313 (0,03)	176 (0,01)	0,2%	-58,7%
5.4. Purchase of food for restaurants	3 197 (0,30)	1 927 (0,13)	1,7%	-55,8%
6. WASTE	311 (0,03)	445 (0,03)	0,4%	4,9%
7. FIXED ASSETS (emissions generated during construction or manufacture of durable goods)	15 969 (1,49)	13 200 (0,91)	11,9%	-39,4%
7.1. Construction of buildings	7 731 (0,72)	8 590 (0,59)	7,8%	-18,5%
7.2. Office furniture (tables, chairs, cupboards, etc.)	369 (0,03)	654 (0,04)	0,6%	29,9%
7.3. IT equipment (desktops, laptops, printers, telephones, servers, televisions, etc.)	7 851 (0,73)	3 909 (0,27)	3,5%	-63,5%
Desktops	1 777 (0,17)	2 113 (0,14)	1,9%	-12,8%
Flat screens	2 634 (0,25)	995 (0,07)	0,9%	-72,3%
Laptops	0	145 (0,01)	0,1%	N.A.
Individual printers	136 (0,01)	43 (0,00)	0,0%	-76,6%
Network printers	567 (0,05)	202 (0,01)	0,2%	-73,8%

Telephones (landlines and mobiles)	87 (0,01)	14 (0,00)	0,0%	-87,8%
Servers, switches, routers	646 (0,06)	21 (0,00)	0,0%	-97,6%
Televisions	265 (0,02)	273 (0,02)	0,2%	-24,7%
Other IT equipment	1 740 (0,16)	103 (0,01)	0,1%	-95,7%
7.4. Other equipment (washing machines, coffee machines, refrigerators, etc.)	17 (0,00)	47 (0,00)	0,0%	109,3%
Number of FTEs	10.689	14.579		36,4%
Total EP carbon footprint (per FTE in brackets)	130.099 (12,17)	110.570 (7,58)		-15,0% (-37,7%)

Source: EP 2019 Environmental Statement for 2018 (EP, 2019b).

Annex 2: GIME Questionnaire for the calculation of carbon footprint and approach to offsetting in EU Institutions and Bodies

	<p style="text-align: center;">GIME <i>(Groupe Interinstitutionnel de Management Environnemental)</i></p> <p style="text-align: center;">Questionnaire: <i>Calculation of carbon footprint and approach to offsetting in EU Institutions and Bodies</i></p>
Current state on the calculation of carbon footprint and offsetting in your organisation	
<p>Introduction</p> <p>In its special report "How do the EU institutions and bodies calculate, reduce and offset their greenhouse gas emissions?" the Court of Auditors recommends that "All EU institutions and bodies should: (a) introduce a harmonised approach for reporting their emissions, also including all relevant indirect emissions; (b) develop a common approach to compensate on a voluntary basis for those greenhouse gas emissions which they cannot avoid".</p> <p>The objective of this questionnaire is to evaluate how the EU institutions and bodies calculate their carbon footprint and implement any voluntary offsetting for their greenhouse gas emissions.</p> <p>Please be as kind as to return this questionnaire EC-EMAS@ec.europa.eu the latest by Monday 19 August 2019.</p> <p>Based on your responses, we will have a clear understanding of the current state and evaluate any necessary actions by the Commission in order to improve the situation.</p> <p>I would like to thank you in advance for your contribution.</p> <p style="text-align: right;">Celso Sanchez Martinez <i>EMAS Management Representative of the European Commission & Chairman of GIME</i></p>	
General information (<u>for ALL</u>)	
1. Name of EU institution/body:	
2. Number of staff: <i>(main location/total)</i>	
3. Organisation's main location:	<input type="checkbox"/> Brussels <input type="checkbox"/> Luxembourg <input type="checkbox"/> Multi-sited (specify)..... <input type="checkbox"/> Other.....
4. Main point of contact for environmental matters in your organisation: <i>(Name and position)</i>	

5. Link to the organisation's environmental statement <i>(if applicable)</i>		
6. Does your organisation calculate its carbon footprint? <input type="checkbox"/> Yes Please state the applied methodology, including scope: Please state the year of your first carbon footprint calculation: <input type="checkbox"/> No		
7. Does your organisation maintain an offsetting scheme to compensate on a voluntary basis for those greenhouse gas emissions? <input type="checkbox"/> Yes What type of emissions do you compensate? How do you compensate (call for tender, agreement with an NGO...)? Please provide details about the collaborating scheme/association/NGO: Please state the year of your first offsetting scheme: <input type="checkbox"/> No Please elaborate on related offsetting plans, if any:		
8. Would you welcome a joint approach of the GIME members on: (a) carbon footprint calculation <input type="checkbox"/> Yes <input type="checkbox"/> No (b) carbon offsetting <input type="checkbox"/> Yes <input type="checkbox"/> No (c) green public procurement (GPP) aspects? <input type="checkbox"/> Yes <input type="checkbox"/> No <i>Any additional comments:</i>		
Part A (<u>ONLY</u> for organisations that do NOT calculate their carbon footprint)		
9. Is your organisation considering calculating its carbon footprint?	<input type="checkbox"/> Yes Please state the possible methodology: Please state your target for the first calculation: <input type="checkbox"/> No	
10. Does your organisation have an environmental action plan/environmental programme?	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>(If yes, please attached it to the questionnaire)</i>	
11. Additional comments and remarks <i>(Please be specific for each remark, avoid mixing themes in one remark where possible.)</i>		

Part B (ONLY for organisations that calculate their carbon footprint)

GHG emissions' terminology

The [GHG Protocol](#) defines direct and indirect emissions as follows:

- **Direct GHG emissions** are emissions from sources that are owned or controlled by the reporting entity.
- **Indirect GHG emissions** are emissions that are a consequence of the activities of the reporting entity, but occur at sources owned or controlled by another entity.

The GHG Protocol further categorizes these direct and indirect emissions into three broad scopes:

- **Scope 1:** All direct GHG emissions.
- **Scope 2:** In addition to Scope 1, indirect GHG emissions from consumption of purchased electricity, heat or steam.
- **Scope 3:** In addition to Scope 1 and Scope 2, other indirect emissions, such as the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g. T&D losses) not covered in Scope 2, outsourced activities, waste disposal, etc.

See also: <http://www.ghgprotocol.org/calculation-tools/faq>

12. Is the calculation of your organisation's carbon footprint done internally or via an external consultant?

(Alternatively please explain any other arrangement).

☐ Internally

☐ Via an external consultant

Please state the name of your external consultant/consulting company:

13. Does your organisation calculate its direct and/or indirect emissions?

☐ Direct

☐ Indirect

14. Please provide below a detailed description of the activities included under each scope of your carbon footprint calculation *(According to the GHG Protocol definition).*

Scope 1	Scope 2	Scope 3

15. Please give a rough estimation (and breakdown) of your organisation's total annual resource commitment (both financial and human) for carbon footprint calculation. *(If multi-year contract(s), please express total contract cost, duration and therefore equivalent annual cost for each).*

Financial resources (for external consultants, software licenses, etc.):

Human resources (in FTE):

Human resources of the contractors (in FTE)

16. Please explain your organisation's main purpose(s) for evaluating its carbon footprint and how it uses the results of the calculations *(e.g. serve as a basis for the setting up of a Climate Action Plan)*

17. What are the key issues you are facing concerning the calculation of the carbon footprint in your organisation? <i>(Please list in decreasing order of importance, maximum three.)</i>				
1) 2) 3)				
18. Additional comments and remarks <i>(For analytical purposes, please be specific for each remark, avoid where possible mixing themes in one remark.)</i>				
Part C (for ALL)				
19. To what extent does your organisation offset GHG emissions? <i>(Please indicate the percentage of emission offset regarding the total amount)</i>		<input type="checkbox"/> All emissions (Full carbon neutral) <input type="checkbox"/> Emission reduction at source (e.g. agreements with certain providers to deliver carbon-free services/products) <input type="checkbox"/> Emissions related to building-related operations (energy consumption, heating and cooling etc.) <input type="checkbox"/> Emissions related to business flights <input type="checkbox"/> Emissions to cover the gap between your organisation's emission reduction targets and the actual reduction achieved <input type="checkbox"/> We do not offset, but we are planning to implement an offsetting policy <input type="checkbox"/> We do not offset carbon emissions <input type="checkbox"/> Other(s), please specify = % of the total amount of emissions		
20. What kind of offsetting do you use, how do you procure carbon offsets and where are your offsetting projects located? <i>(Please explain)</i>				
21. How do you ensure the quality of your offsetting scheme? <i>(Please explain)</i>				
22. What is your organisation's yearly spending on carbon offsetting? If possible, please distinguish between budgeted amounts (estimates) and real costs (expenditure) over the past two years and the estimated budget amount for the next year (2016). Any additional details are welcome (e.g. public procurement, via contracted travel agency, compensation via estimations or donations etc.).				
Carbon offsetting		2016	2017	2018
Budgeted amounts (estimate)				
Real costs (expenditure)				
23. Does your organisation have incentives/activities in place to reduce carbon emissions related to business travel?				
Incentives	Outcomes, effectiveness		Comments	

<p>24. What are the key issues in setting up and/or maintaining an offsetting policy? <i>(Please list in decreasing order of importance, maximum three.)</i></p> <p>1)</p> <p>2)</p> <p>3)</p>
<p>25. Additional comments and remarks <i>(For analytical purposes, please be specific for each remark, and avoid where possible mixing themes in one remark.)</i></p>

Source: GIME-members' questionnaire on the calculation of carbon footprint and approach to offsetting, July-August 2019.

The study analyses the European Parliament's (EP) carbon footprint in the context of the recent EP resolutions, in which it declared a climate emergency in Europe and requested the development of a strategy to become itself carbon-neutral by 2030. The analysis takes into account the various sources contributing to the EP's greenhouse gas (GHG) emissions, including those related to its function in three different sites and the traveling of its Members and staff. This document was prepared by the Policy Department for Economic, Scientific and Quality of Life Policies, and the Eco-Management and Audit Scheme (EMAS) Unit at the request of the committee on Environment, Public Health and Food Safety (ENVI).
