& the European Border and Coast Guard (EBCG)

Final Report

FRONTEX

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Preface

In order to meet the objective of a climate-neutral EU by 2050, the European Border and Coast Guard (EBCG) needs to focus on opportunities to support climate resilience. In 2021, Frontex made great strides on the sustainability front after taking over the presidency of the Justice and Home Affairs (JHA) agencies' network. On 22 November 2021, the Heads of the JHA agencies signed a joint statement on the EU Green Deal[1], which showed their collective willingness to join forces in support of and their commitment to climate neutrality within their mandates.

The research study on the Green Deal and the European Border and Coast Guard (EBCG) is a response to this increased ambition to tackle climate change. The present document is a final research report developed to inspire and assist in current and future planning of administrative, technological and infrastructure developments, which can have a direct and beneficial impact on the EBCG's overall environmental performance.

The intention behind launching this research study was to develop a shared understanding of how the EBCG impacts the environment and identify mitigation measures to reduce, avoid or offset the potential adverse consequences. Given the large size and geographic reach of the EBCG, success requires establishing proper governance and providing concrete, fact and science-based sustainability targets that do not impede the performance and reliability of mission-critical capabilities. The research study is a solid step in this direction and in initiating an open discussion on EBCG environmental impacts and plans, as well as on the progress, and to inspire the community and stakeholders to follow in sustainability footsteps.

The applicability of the findings is not limited only to the EBCG but might serve as an inspiration to a wider audience, such as the law enforcement community, the EU Justice and Home Affairs agencies, or any public entity which is directing its efforts to decreasing its environmental footprint. The report might also be interesting for industry, innovators and academia, who are involved in advancing sustainability science and technology.

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[1] *https://frontex.europa.eu/media-centre/news/news-release/eu-justice-and-home-affairs-agencies-present-key-achievements-in-2021-bnNNOI*

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The completion of this undertaking would not have been possible without an active support of Frontex staff, EU Member States (in particular the French Ministry of Interior, the Swedish Coast Guard and the Portuguese Navy), EU agencies and institutions (European Defence Agency, European Environment Agency and European Central Bank) and international partners (the US Department of Homeland Security) who shared their knowledge, ideas and inspirations.

About Frontex

Frontex, the European Border and Coast Guard Agency, promotes, coordinates and develops European border management in line with the EU fundamental rights charter and the concept of Integrated Border Management. The Agency also plays a key role in analysing and defining the capability needs in border control and in supporting the Member States in the development of these capacities. Furthermore, it provides qualified expertise to support the EU policy development process in the area of border control.

The Research and Innovation Unit within Frontex is responsible for innovation, creating and testing business solutions, standardisation and performance assessment of border management capabilities. It conducts transformational, needs-driven research with academia, EU agencies, international organisations and industry partners to stimulate and support innovation. The ultimate goal is to consistently enhance the capabilities of the European Border and Coast Guard in line with the Capabilities Development Plan, which includes those of the Member States and of the Agency itself.

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Abstract

As highlighted in the Technical and Operational Strategy for European Integrated Border Management (TO EIBM)[2], climate change is likely to aggravate crises such as droughts, famines, etc. The European Border and Coast Guard (EBCG) is committed to being resilient and is already showing it can be resilient; however, it is also important to contribute to a more sustainable future. As such, environmental sustainability is part of the EBCG's shared responsibility commitment.

In line with the efforts of the European Union, the EBCG is seeking to increase its environmental sustainability in line with global and EU ambitions enshrined in key documents, such as the Green Deal, the 2030 Agenda, the Paris Agreement, and relevant EU strategic roadmaps, instruments and mechanisms. Consequently, the overarching goal of the present research study is to provide Frontex and the wider EBCG community with advice on how to become more environmentally sustainable. This is to support the EBCG in reducing the environmental footprints of its facilities, operations and services in order to achieve, and then maintain, a high level of environmental sustainability.

The most relevant EU and global regulatory framework and the case studies analysed and presented in this research report show that several measures in the area of sustainability can be successfully implemented by the border management and law enforcement community without compromising the efficiency and nature of their operations. The description of the regulatory framework provides both information as well as inspiration as it shows the direction and upcoming priorities in the area of sustainability in specific areas of interest to the EBCG. The case studies, on the other hand, show the feasibility and compatibility between the type of operational work the EBCG does and the wide array of activities to support more environmentally sustainable work. In this vein, and in order to make the most of these insights, the proposed six high-level principles provide the foundation for taking the EBCG on the sustainability journey.

Finally, based on the work described above, the research report presents a set of initiatives that could potentially be implemented in the short, medium and long terms. The ambition was to explore opportunities to move collectively towards developing a resilient and environmentally sustainable community. They include specific practical and feasible processes, technologies, and behaviours that fall into four discrete categories: Green Office, Green Operations, Green Community, and Enabling Change. These four categories effectively frame the key engagement areas that the EBCG should address, and which will bring the EBCG closer to the end goal of achieving carbon neutrality and ecological sustainability.

[2] https://op.europa.eu/en/publication-detail/-/publication/2123579d-f151-11e9-a32c-01aa75ed71a1

1. Introduction

This chapter presents the purpose and the structure of the present final report developed in the context of the research study on the Green Deal and the European Border and Coast Guard (EBCG)[3].

1.1. Purpose of the document

The aim of this document is to provide an overview of the analysis carried out in the course of the research study. The overall intention was to support the EBCG in reducing the environmental footprints of its facilities, operations and services in order to achieve, and then maintain, a high level of environmental sustainability.

This document provides an overview of the global and EU environmental sustainability regulatory framework and main EU instruments relevant for the EBCG as well as case studies on inspiring practices. Furthermore, it proposes a set of high-level principles and initiatives that could be implemented in the short, medium and long terms. These recommendations aim to create long-term sustainability value for the EU by moving collectively towards developing the resilient, low-carbon and environmentally sustainable EBCG.

1.2. Structure of the document

In addition to this introductory chapter, the structure of the report is as follows:

- chapter 2 provides an overview of the methodological approach and the main activities carried out as part of this study;
- chapter 3 presents the current landscape, namely the regulatory framework, relevant networks and funding instruments in the area of sustainability, followed by the case studies developed to extract best practices that could be implemented by the EBCG;
- chapter 4 provides an overview of proposed sustainability principles based on analysis of the operational environment and the regulatory framework;
- chapter 5 highlights the main initiatives and roadmaps that could potentially be implemented by the EBCG;
- chapter 6 provides the concluding remarks;
- annexes include all the detailed documents developed throughout this study for further reference, namely, a detailed overview of the methodological tools, the regulatory framework, abbreviations, and references.

[3] *According to Article 4 of the Regulation (EU) 2019/1896 the EBCG consists of: "the national authorities of Member States responsible for border management, including coast guards to the extent that they carry out border control tasks, the national authorities responsible for return and the European Border and Coast Guard Agency ('the Agency')."*

2. Approach to the research study

This chapter presents the purpose and methodological approach of the study, its context and objectives. It also provides an overview of the methodological tools used and the activities carried out in the context of this study.

2.1. Context and objectives

The EBCG is seeking to increase its environmental sustainability in line with global and EU ambitions enshrined in key international policy documents, such as the 2030 Agenda or the Paris Agreement, and relevant EU strategic roadmaps, instruments and mechanisms. In pursuit of the efforts of the European Union to be a pioneer by adopting relevant strategies, such as the European Green Deal – a key instrument to help the EU in the recovery from the pandemic crisis and enable a just transition to a carbon-free economy, this study is perfectly in line with current EU priorities focused on environmental sustainability.

Sustainability is important for the EBCG and should be considered in its operational work. As mentioned in the Technical and Operational Strategy for European Integrated Border Management (TO EIBM)[4], climate change is likely to aggravate climate-driven crises, such as famines, droughts, heatwaves and floods. In this context, the overall role of the EU is to contribute to, among others, sustainable development. As acknowledged by the TO EIBM, to be able to adapt to the dynamics of international security and migration in a responsible way, it is important to embrace sustainability and social responsibility and contribute to relevant goals of EU policies. The principle of sustainability is acknowledged as a shared responsibility.

In this context, the overarching goal of the assignment was to provide Frontex and the wider EBCG community with advice on where and how to increase environmental sustainability. This will support the EBCG in reducing the environmental footprints of its facilities, operations and services in order to achieve, and then maintain, a high level of environmental sustainability. Retrieving the lessons learnt and best practices across organisations working in law enforcement and border management, which have already started implementing sustainable solutions, aims to serve as an inspiration for the EBCG in its path towards environmental sustainability.

2.2. Methodological approach

In order to achieve the aim of this research study, the study was composed of several activities.

First, a regulatory framework was analysed based on EU and international strategic roadmaps, regulatory instruments and mechanisms. This regulatory framework provides an overview of the opportunities and requirements likely to impact the EBCG in the area of sustainability.

This regulatory framework was then complemented with case studies in order to have a thorough understanding of successful sustainable practices implemented by the border management and law enforcement community, and other relevant bodies from around the world. This created the basis for the sustainability principles developed to serve as an inspiration to the EBCG in its future sustainability endeavours. All these elements contribute to a coherent and complete approach to ensure that the proposed initiatives are as effective and as efficient as possible.

The proposed initiatives aim to help put the sustainability vision of the EBCG in place while structuring the way to reach it in an efficient manner. These initiatives were developed to be implemented by the EBCG in the short, medium and long term. In order to visualise how to reach the desired outcomes, including the major steps and milestones, roadmaps were developed for each key initiative taking into consideration constraints, dependencies and enablers.

As part of this study, the following methodological tools were used in order to carry out the data collection activities:

- Desk research and a literature review were carried out as part of the work on the regulatory framework to retrieve the most relevant information and potential requirements and opportunities arising from EU and international instruments, mechanisms and strategic roadmaps. The principles and initiatives developed, as well

[4] https://op.europa.eu/en/publication-detail/-/publication/2123579d-f151-11e9-a32c-01aa75ed71a1

as the case studies, were also based on desk research in order to learn from best practices that could be implemented by the EBCG.

- Semi-structured interviews with stakeholders[5] were carried out to understand the EBCG's operational environment and gather views on the potential implementation of a sustainability strategy.
- Seven case studies were developed to learn from successful sustainable actions applied in the border management and law enforcement community and other types of organisations from around the world. All the organisations presented during the case studies were consulted to verify the information. Five of them were additionally interviewed to collect detailed information.
- An initiative development and feedback workshop[6] was conducted to present and validate the main findings of potential principles and initiatives that aim to create long-term sustainability value for the EBCG.

These methodological tools were supported with subject matter expertise in the area of environmental sustainability, strategy and change management.

Likewise, the following communication tools were used to present the main findings of the research study.

- Two webinars were prepared to present the EBCG: 1) the regulatory framework and the relevant instruments, roadmaps and mechanisms identified at the EU and international levels; and 2) the overall outcomes of the study. The first webinar took place during the first half of the research study, and the second webinar was organised as part of the finalisation of the study.
- To raise awareness and support knowledge transfer, seven visual insights were presented throughout the study. Moreover, two video clips were developed as well as a visual booklet in order to raise awareness about this study and the EBCG's commitment to supporting the EU's vision in the area of sustainability.

A further detailed description of our methodological approach is available in Annex A.

2.3. Challenges

During the data collection activities, it was not possible to gain access to all stakeholders within the EBCG, limiting the coverage of stakeholders interviewed. Nonetheless, through other activities, such as the webinars and the workshop, Frontex and the EBCG community were able to follow the progress and provide feedback on the study findings and ideas developed throughout the phases, complementing the data collected and analysis carried out. Furthermore, it was possible to complement the initial data collection results through the use of subject matter expertise, desk research and past experience from other organisations. This allowed the research team to understand more thoroughly the context of the EBCG.

Due to the nature and scope of this study, which is focused on the broader EBCG rather than on a particular entity, the study findings remain general enough that they can be implemented by the different EBCG authorities as required. As further explained in the report, the findings can be tailored to a specific context once an assessment of the baseline is made to make these findings as useful and relevant as possible.

Finally, it should be noted that the regulatory framework included in this report provides an overview of the status quo at a specific moment in time[7]. Some regulatory instruments and mechanisms included in this document were under development and/or revision at the time of the analysis, and others might still evolve over time. It is important for the reader to take this into account when going through the analysis and findings in section 3.1 as not everything may still be up to date.

[5] *The interviews were conducted with Frontex staff as well as with benchmarked organisations.*

[6] *The initiative development workshop was organised for Frontex staff and the representatives of the EBCG community. It aimed at reviewing and validating the proposed principles and initiatives. It was conducted online on 20 October 2021.*

[7] *The timeframe of analysis covers June 2021 to beginning of December 2021.*

3. Overview of the status quo

The aim of this chapter is to provide an overview of the global and EU regulatory framework and the most relevant instruments for the EBCG in the area of environmental sustainability (for a further detailed analysis, see Annex B). In addition, an overview of the case studies analysed around existing good practices is provided in order to set the pillars to develop initiatives for the EBCG in their quest for environmental sustainability.

3.1. Regulatory framework

This section presents a framework based on the review of 35 strategic roadmaps, regulatory instruments and mechanisms, and the available literature surrounding these. Additional five certifications have been included as part of the regulatory framework as these are relevant for the set of initiatives and roadmaps presented in chapter 5. The EU and global instruments in scope include the Paris Agreement, the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs), the European Green Deal including proposals that are likely to be of relevance for the EBCG and the "Fit for 55" package, the Green Public Procurement Criteria, relevant funding mechanisms, relevant certifications and reporting frameworks, and networks for the EBCG to potentially engage in such as the Global Environmental Management Initiative (GEMI), and the Greening Network.

3.1.1. Scope

This section presents a framework based on the review of the regulatory framework which can guide the EBCG in its efforts to become more environmentally sustainable. The EU and global roadmaps, regulatory instruments and mechanism in scope include:

Table 1- Overview of roadmaps, instruments and mechanisms in scope

Name	Description
Strategic roadmaps and regulatory instruments	
Paris Agreement	Universal and legally binding global climate change agreement which was adopted by 196 parties on 12 December 2015. It aims to: • set a global framework to limit global warming to 2°C and pursue efforts to limit it to 1.5°C above pre-industrial levels; • enable participating countries to deal with the impacts of climate change and support them in their efforts in doing so; • maintain the registry for Nationally Determined Contributions[8] (NDC) established by the countries under the Paris Agreement.
2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs)	The 2030 Agenda for Sustainable Development was launched at the UN summit in New York in 2015. The Agenda consists of 17 Sustainable Development Goals and 169 targets and sets out a 15-year plan to achieve the Goals to end poverty, protect the planet and improve the lives and prospects of everyone, everywhere.[9]
European Green Deal[10] (including proposals that are likely to be of relevance for the EBCG)	The European Green Deal is a set of measures that aims to help the EU transition to a green economy and achieve climate neutrality. The Commission aims to work with the EU and the Member States to launch new initiatives and implement current legislation successfully. The proposals that have been included within the European Green Deal include:

[8] *NDCs embody efforts by each country to reduce national emissions and adapt to the impacts of climate change. These outline and communicate their climate actions to achieve the goals of the Paris Agreement.*

[9] https://www.un.org/sustainabledevelopment/development-agenda/

[10] *As part of the European Green Deal, the following initiatives from the "Fit for 55" package have also been included in this regulatory framework, namely: Revision of the Regulation setting CO_2 emission performance standards for new passenger cars and for new light commercial vehicles; FuelEU Maritime, ReFuelEU Aviation; Revision of the Renewable Energy Directive; Revision of the Energy Efficiency Directive.*

Name	Description
	• European Climate Pact, • New Circular Economy Action Plan[11] (including the Strategy for a Sustainable Built Environment), • 8th Environment Action Programme (EAP)[12], • New Batteries Regulation, • European Climate Law, • Level(s) - European Framework for Sustainable Buildings • 2030 Climate Target Plan, • EU Strategy for Energy System Integration, • Revision of the Renewable Energy Directive, • Revision of the Energy Efficiency Directive, • New European Bauhaus Initiative, • European Green Deal Investment Plan (Sustainable Europe Investment Plan), • Sustainable and Smart Mobility Strategy, • Regulation setting CO2 emission performance standards for new passenger cars and for new light commercial vehicles, • Revision of the EU System to Monitor, Report and Verify Co2 Emissions from Ships, • FuelEU Maritime • ReFuelEU Aviation, • Renovation Wave Strategy.
Green Public Procurement Criteria	Green Public Procurement (GPP) is a voluntary instrument that allows the public sector to use their purchasing power to promote a more environmentally friendly and resource-efficient economy.
Mechanisms	
Funding Mechanisms	Three funding mechanisms have been reviewed for the purpose of this framework: • Horizon Europe, • European Green Deal Investment Plan, • Next Generation EU Recovery Plan.
Certifications and reporting frameworks	Ten following certifications and reporting frameworks have been reviewed: • ISO 14001:2015, • ISO 31000, • ISO 50001, • Global Reporting Initiative (GRI), • Greenhouse Gas Protocol, • Eco-Management and Audit Scheme (EMAS), • Building Research Establishment Environmental Assessment Method (BREEAM), • Smart Readiness Indicator, • Level(s) – European framework for sustainable buildings, • EU Ecolabel Certification. In addition, five certifications are analysed as part of the initiatives and strategic roadmaps: • BS 8001 British Standard;

[11] The European Commission first published a Circular Economy Action Plan in 2015. It published a new version in March 2020 (https://ec.europa.eu/environment/pdf/circular-economy/new_circular_economy_action_plan.pdf). While some sources refer to this as the new Circular Economy Action Plan, the word "New" is not in the official title. All references in this document to the Circular Economy Action Plan are to the 2020 Plan.

[12] Any references in this document to the to the New Environment Action Programme are to the 8th Environment Action Programme.

Name	Description
	• The Methodology for Assessing Procurement Systems (MAPS); • ISO 20400: Sustainable procurement; • Green Public Procurement Training; • The commercial BREEAM In-Use – self-assessment standard.
Networks	Two networks were reviewed for the purpose of this framework: • Global Environmental Management Initiative (GEMI), • Greening Network.

The framework presented in this section gives an indication of the current and upcoming strategic, regulatory and support mechanism landscape that could potentially impact the EBCG, and either implies meeting requirements or could become an opportunity in the quest for higher environmental sustainability.

Due to the strategic and forward-looking nature of these documents, as well as, for some, their early stage of development, the impact and opportunities may remain very general and/or may still be subject to change. As mentioned in section 2.3, the timeframe of analysis is up to December 2021, which means that legislative texts beyond this date (and their reviews) are not within scope of this report.

3.1.2. Overview

This section is divided into seven broad thematic areas within which the EBCG can further promote sustainability. The categories are:

- digitalisation,
- equipment and fleet,
- infrastructure,
- green procurement,
- governance,
- staff mobility and travel,
- practices (behaviours).

Each area is then further divided into requirements and opportunities[13], and presents the relevant instruments covering the topic, including a short description of these and what the requirements/opportunities for the EBCG would be.

3.1.2.1. Digitalisation

Opportunities

The research team has identified one strategic roadmap with key takeaways relevant to the area of digitalisation:

- Shaping Europe's Digital Future

Shaping Europe's Digital Future

The European Commission envisages the following actions to implement its digital strategy and fulfil its goals under the 2020 Communication on Shaping Europe's Digital Future[14]:

- revise the EuroHPC Regulation[15] on super-computing;
- accelerate investments in Europe's Gigabit connectivity by:

[13] The classification of requirements and opportunities stems from the extent to which some of the regulatory framework analysed throughout this document might lead to an obligation for Frontex and/or national border authorities, for example when a requirement is legally binding and must be incorporated into national law of the Member States. If this is the case, they are considered requirements. If it is not the case, then they are considered opportunities: Frontex and national border authorities can get inspired by the targets or measures that are not (necessarily) applicable to them, but they can help improve their environmental footprint.

[14] https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX:52020DC0067

[15] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2018%3A0008%3AFIN

- revising the Broadband Cost Reduction Directive[16];
- updating the Action Plan on 5G and 6G[17];
- launching a new Radio Spectrum Policy Programme;

- set up a European cybersecurity strategy and promote the single market for cybersecurity;
- propose a Data Act in 2021;
- launch Destination Earth, which aims to promote a high precision digital model of the Earth to increase environmental prediction and crisis management capabilities;
- set up the Circular Electronics Initiative to ensure durability of electronic devices, secure the right to repair, and avoid premature obsolescence;
- strategise initiatives to accomplish climate-neutral, energy-efficient and sustainable data centres by 2030.

The opportunity that has been identified for the EBCG is:

- to benefit from the EU's Circular Electronics Initiative and showcase its electronic stewardship. It can do so by purchasing electronic devices that are manufactured in an eco-friendly manner, use less energy and are durable, repairable and recyclable.

Additionally, this presents a good opportunity to minimise the impact of data centres and server rooms, which may consume significant amounts of energy. For more information, see section 5.4.8.2.

3.1.2.2. Equipment and fleet

Requirements

The research team has identified one regulatory instrument with key takeaways relevant for the EBCG:

- New Batteries Regulation[18]

New Batteries Regulation

The new Batteries Regulation aims to modernise the EU legislation on batteries to ensure the sustainability and competitiveness of EU battery value chains. This regulation is likely to impact the EBCG's daily operations.

The following requirements have been identified for the EBCG.

- While the majority of the Regulation's requirements are focused on the producers, recycling operators and Member States, there are some requirements for end-users in terms of recycling and treatment of batteries, e.g., a prohibition on sending batteries for landfill or incineration.
- Non-rechargeable batteries must be phased out and replaced with alternatives.
- The recycling processes must achieve minimum recycling efficiencies, laid down in Annex XII, which will increase over time. These requirements apply to lead-acid batteries, nickel-cadmium batteries, lithium-based batteries and other batteries (Art 56).
- Contracting authorities and contracting entities need to include technical specifications and award criteria to take account of the environmental impacts of the chosen product over their life cycle with a view to ensuring that these impacts are minimised (Art 70).

Opportunities

The research team has identified five regulatory instruments with key takeaways relevant to the area of equipment and fleet:

- Circular Economy Action Plan;
- Revision of the EU System to Monitor, Report and Verify CO2 Emissions from Ships;
- Revision of the Regulation setting CO2 emission performance standards for new passenger cars and for new light commercial vehicles;
- FuelEU Maritime;
- RefuelEU Aviation.

[16] https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex%3A32014L0061

[17] https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A52016DC0588

[18] *Currently it is a proposal for a Regulation.*

Circular Economy Action Plan

The Circular Economy Action Plan covers how products are designed, promotes circular economy processes, encourages sustainable consumption, aims to ensure that wastage is prevented, and the resources used are kept in the EU economy for as long as possible. Under the plan, the Circular Electronics Initiative will address the issues of products becoming obsolete because they cannot be repaired or because the software is no longer supported. These issues will be addressed by promoting longer product lifetimes.

The following opportunities have been identified for the EBCG.

- The sustainable use of textiles as a product category with significant potential for circularity: through the future EU Strategy for Sustainable Textiles, measures will be implemented on textile waste collection, sorting and recycling. This strategy is likely to impact the EBCG in the area of uniforms for border and coast guards.
- Under the Circular Electronic Initiative, existing and new instruments will be mobilised to promote longer product lifetimes and will include regulatory measures for electronics and ICT including mobile phones, tablets and laptops under the Ecodesign Directive so that devices are designed for energy efficiency and durability, reparability, upgradability, maintenance, reuse and recycling.
- Use of the 'right to repair'.
- Proper collection and treatment of waste electrical and electronic equipment. This is likely to become a requirement through future regulations.

Revision of the EU System to Monitor, Report and Verify CO2 Emissions from Ships Regulation

The Revision of the EU System to Monitor, Report and Verify CO2 Emissions from Ships Regulation[19] was taken up to streamline certain aspects of the monitoring, reporting and verification system, and align the EU system with the global data collection system introduced by the International Maritime Organisation (IMO). The proposed revision aims to facilitate the simultaneous application of the two systems, while preserving the objectives of the current EU legislation. The existing Regulation is the basis for collecting data on shipping emissions for policymaking and incentivising emission reductions by providing information on ships' efficiency to relevant markets. It has mandated companies to monitor, report and verify the fuel consumption, CO2 emissions and energy efficiency of their ships on voyages to and from European Economic Area (EEA) ports, annually since 2018. This also applies to CO2 emissions within EEA ports.

The following opportunities have been identified for the EBCG.

- While the current Regulation does not apply to naval auxiliaries nor government ships used for non-commercial purposes, it could inspire the EBCG authorities to monitor and reduce the CO2 emissions from the current vessels.
- The EBCG authorities can carry out monitoring on a per-voyage basis in accordance with parameters such as:
  - amount and emission factor for each type of fuel consumed in total,
  - CO2 emitted,
  - distance travelled,
  - time spent at sea,
  - cargo carried,
  - transport work.
- The EBCG authorities can carry out monitoring on an annual basis in accordance with parameters such as:
  - amount and emissions factor for each type of fuel consumed in total,
  - total aggregated CO2 emitted within the scope of this Regulation,
  - aggregated CO2 emissions from all voyages between ports under a Member State's jurisdiction,
  - aggregated CO2 emissions from all voyages which departed from ports under a Member State's jurisdiction,
  - aggregated CO2 emissions from all voyages to ports under a Member State's jurisdiction,
  - CO2 emissions which occurred within ports under a Member State's jurisdiction at berth,
  - total distance travelled,
  - total time spent at sea,
  - total transport work,
  - average energy efficiency.

[19] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1549375615180&uri=COM:2019:38:FIN

Revision of the Regulation setting CO_2 emission performance standards for new passenger cars and for new light commercial vehicles

In July 2021, as part of the "Fit for 55" package, the Commission presented a legislative proposal as regards strengthening the CO2 emission performance standards for new passenger cars and new light commercial vehicles in line with the Union's increased climate ambition.[20] The proposal sets more ambitious targets for reducing CO_2 emissions of new cars and vans. The emissions registered would have to be 55% lower for new passenger cars and 50% lower for new vans than the 2021 levels under the current legislation. By 2035 emissions of all new passenger cars and light commercial vehicles would have to be zero.[21] The aim of strengthening CO_2 emission reduction requirements is also to incentivise an increasing share of zero-emission vehicles being deployed on the Union market while providing benefits to society, such as air quality, energy savings and innovations in the automotive value chain.[22] This regulation applies as a requirement to the Commission and to the responsible authority designated by each Member State. Both the Commission and the responsible authority from the Member State are required to monitor and report for the purposes laid out in the Regulation. For instance, the Commission needs to monitor real-world CO_2 emissions and report on these. This regulation does not bring requirements for the EBCG since some of their vehicles are not within the scope of the Regulation and in terms of monitoring and reporting obligations, these are not to be carried out by the EBCG but rather by the manufacturers, the Commission and the authority designated by the Member State. Therefore, it is rather an opportunity to use some of the criteria laid out in the Regulation as inspiration and monitor their fleet's emissions as a way to reduce these, whenever possible.

The following opportunities have been identified for the EBCG.

- To improve the monitoring of the vehicle emissions, the EBCG authorities could report the following data that under this Regulation is required to be collected:
  - the average specific emissions of CO_2 in the preceding calendar year;
  - the specific emissions target in the preceding calendar year;
  - the difference between the fleet's average specific emissions of CO_2 in the preceding calendar year and the fleet's specific emissions target for that year;
  - fuel and/or electric energy consumed;
  - total distance travelled;
  - for externally chargeable (plug-in) hybrid electric vehicles, the fuel and electric energy consumed, and the distance travelled distributed over the different driving modes.
- Taking inspiration from the above could give the EBCG authorities an in-depth understanding of the environmental impact its own vehicles and better develop data-based targets that comply with the needs of the EBCG.
- Since the Commission will evaluate, no later than 2023, the possibility of developing a common Union methodology for the assessment and the consistent data reporting of the full life-cycle CO_2 emissions of passenger cars and light commercial vehicles that are placed on the Union market, this represents an opportunity to be inspired by the methodology presented in order to implement it internally as part of the monitoring procedures, if any.

FuelEU Maritime

FuelEU Maritime[23] is part of broader measures being taken to decarbonise maritime transport. It will entail a series of measures to promote alternative fuel solutions to support the decarbonisation of the maritime sector. While the proposal does not apply to warships, naval auxiliaries or government ships used for non-commercial purposes, the future measures included in the Regulation could support and/or inspire the EBCG to decarbonise its vessels.

The following opportunities have been identified for the EBCG.

- As part of this proposal, organisations are required to monitor and report on the relevant data during a reporting period for each of their ships. Monitoring and reporting has to cover the energy used on-board by ships, while the

[20] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0556

[21] https://www.europarl.europa.eu/legislative-train/theme-a-european-green-deal/file-co2-emission-standards-for-cars-and-vans-post-euro6vi-emission-standards#:~:text=On%2014%20July%202021%2C%20as,cars%20and%20light%20commercial%20vehicles.&text=For%20new%20vans%2C%20the%20reduction,CO2%2Fkm%20in%202021)

[22] https://ec.europa.eu/info/sites/default/files/amendment-regulation-co2-emission-standards-cars-vans-with-annexes_en.pdf

[23] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2021:562:FIN

ships are at sea as well as at berth. The monitoring and reporting have to be consistent and comparable over time. To achieve this, the same methodologies and data sets have to be used. This monitoring and reporting can be an opportunity for the EBCG as a baseline to achieve future emission reductions from their maritime assets, where possible. This is an opportunity to check regularly, and at least annually, whether a ship's monitoring plan reflects the nature and functioning of the ship and whether any of the monitoring plan's data can be improved in the event of unavailable or incorrect data.

- The monitoring plan could include the following elements:
  - a description of the energy conversion systems installed on-board (if any), and the related power capacity expressed in megawatt;
  - a description on whether the equipment was installed and certified to allow connection to onshore power supply, at a specified voltage and frequency, including the gear specified in IEC/IEEE 80005-1 (High Voltage) and IEC/IEEE 80005-3 (Low Voltage) or is equipped with substitute sources of energy or a zero-emission technology;
  - a description of the intended source(s) of energy to be used on-board while in navigation and at berth;
  - a description of the procedures for monitoring the fuel consumption as well as the energy provided by substitute sources of energy or a zero-emission technology;
  - well-to-wake[24] emission factors;
  - a description of the procedures used for determining activity data per voyage, including the procedures, responsibilities, formulae and data sources for determining and recording the time spent at sea between the port of departure and the port of arrival, and the time spent at berth;
  - a description of the procedures, systems and responsibilities used to update any of the data contained in the monitoring plan over the reporting period;
  - a description of the method to be used to determine surrogate data for closing data gaps;
  - a revision record sheet to record all the details of the revision history.
- Moreover, the EBCG could benefit from the results of the common projects aimed at the rapid deployment of renewable and low carbon fuels in the maritime sector. These projects aim to stimulate the production of greater quantities of renewable and low carbon fuels for the maritime sector, facilitate the construction of appropriate bunkering facilities or electric connection ports in ports, and support the development, testing and deployment of the most innovative European technologies in the fleet to achieve significant emission reductions. These projects will be funded from the revenues generated from the payment of penalties for non- compliance with the Regulation.

RefuelEU Aviation

RefuelEU Aviation[25] is an initiative of the European Union (EU) to boost the production, deployment and supply of affordable, high quality sustainable aviation fuels in Europe, in line with the goals of the Paris Agreement and the EU's aim of achieving climate neutrality by 2050. This initiative aims to boost the production and supply of Sustainable Aviation Fuels (SAF) and is an important element of the policy landscape to reduce emissions and decarbonise European aviation.

The following opportunities have been identified for the EBCG.

- Union airports are required to facilitate the access of aircraft operators to aviation fuels containing minimum shares of sustainable aviation fuels. This represents an opportunity for the EBCG authorities to have access to these sustainable fuels, should the nature of their operations allow for the use of sustainable fuels.
- Moreover, the EBCG authorities could internally monitor and report its aircraft operations in order to have an overview of its emissions and a strategy to reduce these when possible. The following information could be used during the monitoring process:
  - the total amount of aviation fuel uplifted at each airport (in tonnes);
  - the annual aviation fuel required per airport (in tonnes);
  - the annual non-tanked[26] quantity per airport, if any;

[24] *"Well-to-wake" is a method for calculating emissions that takes into account the greenhouse gas impact of energy production, transport, distribution and use onboard, including during combustion.*

[25] *https://ec.europa.eu/info/sites/default/files/refueleu_aviation_-_sustainable_aviation_fuels.pdf*

[26] *Refers to the practice of uplifting more aviation fuel than necessary at a given airport to avoid refuelling partially or fully at a destination airport where aviation fuel is more expensive.*

- the total amount of sustainable aviation fuel purchased from aviation fuel suppliers, for the purpose of operating their flights departing from airports (in tonnes);
- for each purchase of sustainable aviation fuel, the name of the aviation fuel supplier, the amount purchased expressed in tonnes, the conversion technology, the characteristic and origin of the feedstock used for productions, and the lifecycle emissions of the sustainable aviation fuel. If a purchase has different sustainable aviation fuels, the reports could provide the information of each type of sustainable aviation fuel.

3.1.2.3. Infrastructure

Requirements

The research team has identified five strategic roadmaps and regulatory instruments with key takeaways relevant to the area of infrastructure:

- Renovation Wave;
- Strategy for a Sustainable Built Environment;
- Revision of the Renewable Energy Directive;
- 2030 Climate Target Plan;
- Revision of the Energy Efficiency Directive.

Renovation Wave

The Renovation Wave Strategy is a key initiative under the European Green Deal. It aims to drive energy efficiency in buildings and deliver on the objective of climate neutrality (net zero emissions) by 2050. Since the Renovation Wave was developed in consultation with several industry players, NGOs and government organisations, there is a strong possibility of widespread adherence to its objectives. While it is currently at the initial phase, there are potential requirements should the initiative give rise to instruments that are legally binding.

The following potential requirements have been identified for the EBCG.

- There may be stronger requirements to renovate public buildings by extending article 5 to all public buildings.
- The Energy Performance Certificates (EPC) may be reinforced and strengthened by introducing a more standardised format for digital use and improved accessibility, supported by smart technologies. New features may be added such as the digital building logbook, the building renovation passport and the smart readiness indicator.
- A phased introduction of minimum energy performance standards for existing buildings may be mandated as part of the Energy Performance of Buildings Directive (EPBD).
- Under the Energy Efficiency Directive, energy audit requirements may be extended to larger and more complex non-residential buildings than at present, such as offices, to also maximise complementarity with EPCs.

Strategy for a Sustainable Built Environment

The Strategy for a Sustainable Built Environment is due to be launched in 2022 as a part of the Circular Economy Action Plan. This Strategy will ensure coherence across the relevant policy areas such as climate, energy and resource efficiency, management of construction and demolition waste, accessibility, digitalisation and skills. The focus of the Strategy for a Sustainable Built Environment will be to address sustainability throughout the lifecycle of buildings. It aims to increase materials efficiency and reduce the climate impacts of the built environment by promoting circularity throughout the life cycle of buildings. It will address the sustainability performance of construction products in the context of the revision of the Construction Products Regulation, for instance, by introducing recycled content requirements. The Commission has already indicated that it will:

- revise the Construction Products Regulation to improve the sustainability performance of construction products, possibly introducing recycled content requirements for certain construction products;
- promote circular economy principles for building design and the development of digital logbooks for buildings;
- use Level(s), which is the European framework for sustainable buildings, to integrate life cycle assessment in public procurement and the EU sustainable finance framework;
- consider a revision of EU waste legislation, focusing on material recovery targets for construction and demolition waste, and its material-specific fractions (the waste streams concerned are still to be defined).

Revision of the Renewable Energy Directive

The EU Renewable Energy Directive (RED II)[27] of 2018 is under revision as part of the "Fit for 55" package. The proposed revision[28] is the latest in a series of revisions since the first directive on promotion of energy from renewable sources promulgated in 2001. The revision proposes increasing the binding EU minimum share of renewable energy sources (RES) in final energy consumption from 32% in 2030 to 40%. There are sub-targets for the transport sector, which will become more stringent if the Revision is adopted as proposed. The proposed Revision will also introduce a sub-target for industry and tighten the sub-target rules for heating and cooling. It introduces a benchmark of 49% of renewables use in buildings by 2030. As the Renewable Energy Directive is a binding Union document, some of the requirements that will come with implementation of this Directive will apply to the EBCG.

The following potential requirements have been identified for the EBCG.

- The EBCG will need to comply with their own Member States' national contributions to meeting, collectively, the binding overall Union target as part of the Member States' integrated national energy and climate plans.
- A new article has been added in the Revision (Article 15a) on mainstreaming renewable energy in buildings. The key provisions are that the Member States are required to:
  - set an indicative target for the share of renewables in final energy consumption in their buildings sector in 2030 that is consistent with an indicative target of at least a 49% share of energy from renewable sources in the buildings sector in the Union's final consumption of energy in 2030. This also applies to the armed forces' building stock to the extent that there is no conflict with the nature and primary aim of the activities of the armed forces and with the exception of material used exclusively for military purposes.
  - introduce measures in their building regulations, codes and, where applicable, in their support schemes, to increase the share of electricity as well as heating and cooling from renewable sources in the building stock. Moreover, national measures will also be included relating to substantial increases in renewables self-consumption, renewable energy communities and local energy storage, in combination with energy efficiency improvements relating to cogeneration and passive, nearly zero-energy and zero-energy buildings.
  - ensure that public buildings at national, regional and local level fulfil an exemplary role regarding the share of renewable energy used. Member States may allow that obligation to be fulfilled by providing for the roofs of public or mixed private-public buildings to be used by third parties for installations that produce energy from renewable sources.

Implementation of the revised Directive is likely to impact the EBCG through the contribution it will be encouraged or obliged to make to reaching the indicative target, through compliance with new regulations and codes, and with encouragement to move to the various options for increasing renewable energy use identified in the directive, store energy, and make efficiency improvements, as well as fulfilling an exemplary role as the owners or operators of public buildings.

2030 Climate Target Plan

As part of the European Green Deal and following the European Commission's December 2019 announcement of the 2050 zero carbon target across the EU, the EC presented its 2030 Climate Target Plan on 17 September 2020. The Plan covers increasing the EU's GHG emissions reduction target for 2030 to a minimum of 55%, compared to the earlier target of 40% of 1990 levels. The 2030 Climate Target Plan envisages that by 2030, EU renewable electricity production will at least double from the present level of 32% of electricity production to around 65%. In terms of energy efficiency, the Renovation Wave will launch a set of actions to increase the renovation rate of individual buildings and at district level, promote a switch to renewable fuels for heating solutions, the uptake of smart systems, and building-related infrastructure for charging e-vehicles, etc. The Commission will also consider the possibility of establishing a mandatory requirement to improve worst-performing buildings and gradually tighten the minimum energy performance requirements.

The following potential requirements have been identified for the EBCG.

- Use of renewable energy for the heating and cooling systems in buildings and industry by 2030;

[27] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32018L2001

[28] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0557

- Monitoring developments, as the Commission will consider the possibility of establishing mandatory requirements to improve the current conditions of worst-performing buildings and gradually tightening minimum energy performance requirements.

Revision of the Energy Efficiency Directive

The Energy Efficiency Directive (EED) was adopted in 2012 with the goal of achieving a 20% reduction in final energy consumption by 2020. The Directive was amended in 2018 to incorporate an additional target of a 32.5% reduction by 2030.[29] This Directive places an upper limit on total EU energy consumption and includes a series of provisions to help Member States collectively meet the goal. Due to the EU's now more ambitious climate goals of cutting GHG emissions by 55% by 2030, a further revision is needed as part of the "Fit for 55" package, i.e. a reduction of 36% in final energy consumption by 2030 (and a reduction in primary energy consumption of 39%).The Reference Scenario against which this is measured is that of 2020, which updates the Reference Scenario used in earlier iterations of the Directive.[30] The revision also provides a legal basis in Article 3 for Member States to apply the "Energy Efficiency First" principle in planning, policy and investment decisions on energy systems and in non-energy sectors if the decisions will have an impact on energy consumption and energy efficiency.

The following potential requirements have been identified for the EBCG.

- Member States will take measures that are likely to oblige or encourage steps to ensure a reduction in final energy consumption greater than was previously envisaged. The EBCG will need to contribute to reaching these targets.
- The addition of Article 5 introduces a requirement for the public sector to lead in energy efficiency by ensuring that the total final energy consumption of all public bodies[31] combined is reduced by at least 1.7% each year, when compared to year X-2 (with X as the year when this Directive enters into force). Member States will include in their national energy and climate plans, and in any updates, a list of public bodies which will contribute to the fulfilment of these obligations, the amount of energy consumption reduction to be achieved by each and the measures they plan to achieve it.
- Regional and local authorities will establish specific energy efficiency measures in their decarbonisation plans, and these could include provisions with which the EBCG may have to comply.
- At least 3% of the total floor area of heated and/or cooled buildings owned by public bodies will have to be renovated each year to be transformed at least into nearly zero-energy buildings. Where public bodies occupy a building that they do not own, they should exercise their contractual rights to the extent possible and encourage the building owner to renovate the building to a nearly zero-energy building. When concluding a new contract for occupying a building they do not own, public bodies should aim for that building to fall into the top two energy efficiency classes on the energy performance certificate.
- Member States will be required to encourage public bodies to use energy performance contracting for renovations of large buildings. For renovations of large non-residential buildings with a useful floor area above 1000 m^2, Member States must ensure that public bodies assess the feasibility of using energy performance contracting. Member States may encourage public bodies to combine energy performance contracting with expanded energy services including demand response and storage.

Opportunities

The research team has identified five strategic roadmaps and regulatory instruments with key takeaways relevant to the area of infrastructure:

- New European Bauhaus;
- New European Climate Pact;
- EU Strategy for Energy System Integration;
- Revision of the Renewable Energy Directive;
- Sustainable Development Goals.

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[29] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0558

[30] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2018.328.01.0210.01.ENG

[31] *For the purposes of this Directive, "public bodies" means "contracting authorities" under Directive 2014/24/EU. "Contracting authorities" means the State, regional or local authorities, bodies governed by public law or associations formed by one or more such authorities or one or more such bodies governed by public law.* https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014L0024

New European Bauhaus

The New European Bauhaus initiative was launched in September 2020. It aims to serves as a link between science and technology, art, culture, and social inclusion to solve everyday problems. With sustainability, aesthetics, and inclusivity as the core principles, the initiative seeks to bring European creative minds together to generate new ideas and solutions to transform Europe's environmental, economic, and cultural goals. Closely aligned with the Europe Union's Renovation Wave Strategy and the vision of becoming a climate-neutral continent by 2050, the New European Bauhaus initiative will support the construction of climate-friendly structures without sacrificing culture or aesthetics by using creativity, innovation, and imagination. The New European Bauhaus initiative will be deployed in three phases:[32]

1. Co-design (From October 2020 to Summer 2021): explore ideas and examples;
2. Delivery and Dissemination (September 2021 onwards): set up and implement New European Bauhaus pilots;
3. Dissemination (January 2023 onward): amplify the ideas and reach out beyond Europe's borders.

The following opportunities have been identified for the EBCG.

- The three phases mentioned above represent an opportunity for the EBCG to learn from potential pilot projects and see how sustainability is incorporated in these. The EBCG can participate in the digital networks and platforms during the delivery phase in order to introduce best practice into its infrastructure, for example into the design of Frontex new premises.
- The dissemination phase is an opportunity to engage with a broad network and learn from knowledge sharing as well as replicate some of the approaches, solutions or prototypes by the EBCG.

European Climate Pact

The European Climate Pact was launched in December 2020. It has three primary targets:

- encouraging participation of people and organisations in dialogues, assemblies, climate initiatives, pledges, and the "Count Us In" global campaign;
- making the best use of digital tools;
- building on and supporting existing green initiatives.

The following opportunities have been identified for the EBCG.

- The Pact can act as a link between public sector, government, civil society and citizens of Europe and encourage debates to bring in various perspectives.
- The Pact can improve the implementation of actions and speed up the green transition using the latest digital technologies and services, such as sensors and Artificial Intelligence.

EU Strategy for Energy System Integration

The Energy System Integration Strategy aims to combine renewable energy supply with efficient technologies such as electric motors, heat pumps, and fuel cells. High levels of GHG emission reductions can be achieved only through such a combination. The electrification of buildings is expected to play a central role, particularly through the roll-out of heat pumps for heating and cooling. The strategy is founded on three complementary and mutually supportive elements:

1. the creation of a circular energy system, where no energy is wasted, such as facilitating the reuse of waste heat from industrial sites;
2. the usage of cleaner electricity produced from renewable sources. With the development of renewables, it will become cheaper, thereby providing cleaner electricity;
3. the promotion of renewable and low-carbon fuels in sectors that require powerful high-carbon fuels such as heavy transport. This can be done by utilising the potential of sustainable biomass, renewable hydrogen, synthetic fuels, enabling carbon capture, etc.

The following opportunities have been identified for the EBCG:

- apply the energy efficiency first principle in new facilities, reducing the overall costs associated with energy use;
- access to renewable power generation technologies;
- efficient electrification through the roll-out of heat pumps for space heating and cooling.

[32] https://europa.eu/new-european-bauhaus/about/about-initiative_en

Revision of the Renewable Energy Directive

As part of the Revision of the Renewable Energy Directive, which aims to increase the binding EU minimum share of RES in final energy consumption to 40% by 2030, there are some opportunities for the EBCG when complying with the requirements resulting from this Directive.

The following opportunities have been identified for the EBCG.

- Since Member States have to ensure that information on support measures is made available to all relevant actors, such as consumers and suppliers, the EBCG authorities will be able to receive information such as the net benefits, cost and energy efficiency of equipment and systems for the use of heating, cooling and electricity from renewable sources. Moreover, information on the qualified and certified installers will also be made publicly available.
- The EBCG authorities may be entitled to participate in a renewable energy community while maintaining the rights or obligations as final customers, and without being subject to unjustified or discriminatory conditions or procedures that would prevent the participation in a renewable energy community.

Sustainable Development Goals

Three of the seventeen SDGs have a component that is relevant to infrastructure.

- Clean water and sanitation (Goal 6): focuses on efficient water use across all sectors.
- Affordable and clean energy (Goal 7): to ensure access to affordable, reliable, sustainable, and modern energy for all.
- Industry, innovation and infrastructure (Goal 9): to build resilient infrastructure, promote inclusive and sustainable industrialisation, and foster innovation.

The following opportunities have been identified for the EBCG:

- Clean water and sanitation (Goal 6):
  - As per the targets set for achieving SDG 6 and the recommendations made by the SDG 6 Global Acceleration Framework33, the EBCG could deploy ICT-based solutions to improve monitoring of water usage and reduce the risk of overexploitation of water resources. ICT can also help in treatment and recycling of wastewater along with use of smart water meters, automation, and usage tracking applications.
- Affordable and clean energy (Goal 7):
  - The EBCG authorities can follow Goal 7 by ensuring energy efficiency in new construction and upgrading to more energy-efficient infrastructure. For instance, the EBCG authorities can use electric heating generated by renewables for the current buildings.
  - Policy initiatives such as conducting energy audits can indicate how to lower the environmental impact of infrastructure. The EBCG can also set internal targets with respect to the total electricity generation mix to, for instance, increase the use of renewables in their supplies by some percentage. It may be possible to contribute to grid flexibility to help balance electricity supply and demand and reduce the EU's overall need for generating capacity.
  - On the technological front, the use of digital technologies such as smart meters can help provide a real-time picture of the Agency's energy consumption and forecast future consumption.
- Industry, innovation and infrastructure (goal 9):
  - SDG 9 puts an emphasis on ICT for sustainable infrastructure. Green ICT, which includes smart building management, sustainable transport and e-logistics, can help reduce materials consumption, enhance work efficiency and reduce waste emissions, which as a result helps reducing GHG emissions.

[33] *This Acceleration Framework is a new unifying initiative that aims to deliver fast results at an increased scale. Action is driven by 5 accelerators: financing, data and information, capacity development, innovation, governance. For more information: https://www.unwater.org/sdg6-action-space/*

3.1.2.4. Green procurement

Requirements

The research team has identified two strategic roadmaps with key takeaways relevant to the area of green procurement:

- Circular Economy Action Plan
- Revision of the Energy Efficiency Directive

Circular Economy Action Plan

The Circular Economy Action Plan includes some provisions that complement the Green Public Procurement criteria.
The following potential requirements have been identified for the EBCG.

- Substantiation by suppliers of environmental claims using Product and Organisation Environmental Footprint methods. The Commission will test the integration of these methods in the EU Ecolabel and include more durability and recyclability content in the EU Ecolabel criteria. Through the Product Environmental Footprint organisations measure the environmental performance of a product or service. The Organisation Environmental Footprint applies the same method and approach to measure the environmental performance of organisations.
- The Commission will propose minimum green public procurement (GPP) criteria and targets, and slowly phase in compulsory reporting to monitor the progress of Green Public Procurement (GPP). The criteria are further detailed below under Green Public Procurement.

Revision of the Energy Efficiency Directive

The Revision of the Energy Efficiency Directive also includes some provisions in the area of public procurement that may impact the EBCG.

The following potential requirements have been identified for the EBCG.

- In terms of public procurement, contracting authorities and contracting entities, when concluding public contracts and concessions with a value equal to or greater than the thresholds under the public procurement directives[34] will be required to purchase products, services, buildings and works with high energy-efficiency performance.
  - This obligation applies to the armed forces only to the extent that its application does not cause any conflict with the nature and primary aim of the activities of these. The obligation does not apply to contracts for the supply of military equipment.
- To ensure transparency in the application of energy efficiency requirements in the procurement process, Member States will make publicly available information on the energy efficiency impact of contracts with a value equal to or greater than the thresholds mentioned above. Contracting authorities may decide to require that tenderers disclose information on the life cycle global warming potential of a new building and may make that information publicly available for the contracts, in particular for new buildings having a floor area larger than 2000m^2.
- Member States will support contracting authorities and contracting entities in the uptake of energy efficiency requirements, including at regional and local level, by providing clear rules and guidelines, including methodologies on the assessment of lifecycle costs and environment impacts and costs, set up competence support centres, encouraging cooperation amongst contracting authorities, including across borders, and using aggregated procurement and digital procurement where possible.
- Member States will establish the legal and regulatory provisions, and administrative practices, regarding public purchasing and annual budgeting and accounting, necessary to ensure that individual contracting authorities are not deterred from making investments in improving energy efficiency and from using energy performance contracting and third-party financing mechanisms on a long-term contractual basis.

Opportunities

The research team has identified three strategic roadmaps and regulatory instruments with key takeaways relevant to the area of green procurement:

- Circular Economy Action Plan;
- Green Public Procurement criteria;
- Sustainable Development Goal 12.

[34] https://ec.europa.eu/growth/single-market/public-procurement/legal-rules-and-implementation/thresholds_en

Circular Economy Action Plan

As part of the Circular Economy Plan, the Commission is recommending the revision of EU consumer law to ensure the availability of relevant information on products on aspects such as repairability and durability at the point of sale. Stronger consumer protection laws, such as those against 'greenwashing' and premature obsolescence, will be put in place. A new 'right to repair' will also be established and new horizontal material rights for consumers will be examined, for example on the availability of spare parts or access to repair.

The following opportunities have been identified for the EBC.

- Public buyers are better protected and have correct information on products in terms of product lifespan, availability or repair services and overall consumer protection.
- The Commission will continue to support capacity building with guidance, training and dissemination of good practices. It will encourage public buyers to take part in a "Public Buyers for Climate and Environment" initiative, which will facilitate exchanges among buyers committed to GPP implementation.

Green Public Procurement

GPP criteria are developed to facilitate the inclusion of green requirements in public tender documents. The criteria aim to achieve a good balance between environmental performance, cost considerations, market availability and ease of verification. Procuring authorities may choose, according to their needs and ambition level, to include all or only certain requirements in their tender documents[35]. The EU's Green Public Procurement (GPP) criteria and guidelines are an opportunity for the EBCG, as GPP has a key role in the EU's efforts to become a more resource-efficient economy.

The following opportunities have been identified for the EBCG.

- GPP can help stimulate a critical mass of demand for more sustainable goods and services which would otherwise find it difficult to get onto the market. GPP is therefore a strong stimulus for eco-innovation.
- Public authorities can use their purchasing power to choose environmentally friendly goods, services and works, and contribute to sustainable consumption and production.

Sustainable Development Goal 12

The objective of Sustainable Development Goal 12 is to ensure responsible consumption and production patterns. Within SDG 12, the targets that are most relevant to the EBCG are:

- by 2030, achieve sustainable management and efficient use of natural resources;
- promote public procurement practices that are sustainable, in accordance with national policies and priorities.

3.1.2.5. Governance

Requirements

The research team has identified two regulatory instruments with key takeaways relevant to the area of governance:

- European Climate Law;
- Paris Agreement.

The European Climate Law

The European Climate Law incorporates a legally binding target of net zero greenhouse gas emissions by 2050. The relevant EU Institutions and the Member States are bound to take the necessary measures at EU and national level to meet the target.

By 30 September 2023, and every five years thereafter, the Commission will assess the progress made towards climate neutrality and monitor the consistency of relevant Union and Member State measures with the climate neutrality objective and the adequacy of relevant EU and national measures for progressing on climate adaptation.

The following requirements have been identified for the EBCG:

- take the necessary measures at Union level to enable the collective achievement of the climate-neutrality objective of no net emissions of greenhouse gases by 2050;

[35] https://ec.europa.eu/environment/gpp/eu_gpp_criteria_en.htm

- ensure continuous progress in enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change.

Paris Agreement

The Paris Agreement[36] is a legally binding global climate change agreement on climate change, global warming, and greenhouse-gas emission reduction adopted by 196 parties in Paris on 12 December 2015, and which came into force on 4 November 2016. Under the category of governance, articles 13 and 14 focus on transparency, accountability and review exercises to collect information on progress on goal implementation. In that way, countries can review their climate targets, set new ones that are more ambitious and promote compliance.

The requirement that has been identified for the EBCG is:

- EU Member States should have transparency arrangements on communication, reports, assessments and reviews linked to the progress of their goal implementation.

Opportunities

The research team has identified one strategic roadmap with key takeaways relevant to the area of governance:

- 8th Environment Action Programme.

8th Environment Action Programme

Under the latest Environment Action Programme (EAP), the eighth, the EBCG can work together with other national, regional and local agencies and non-governmental organisations (NGOs) to comply with environmental policies and legislation to help protect natural resources. The proposal for the 8th EAP states that achieving the priority objectives requires the support of various stakeholders for the development and implementation of legislation at all levels. The European Commission, along with the European Environment Agency (EEA) and the European Chemicals Agency (ECHA) will be responsible for monitoring and reporting the progress of the EU and the Member States.
To achieve the priority objectives there are several enabling conditions which are not all applicable to the EBCG.

The following opportunities have been identified for the EBCG.

- Since the 8th EAP aims to increase coherence and synergies between actions across all levels of governance, the EBCG can measure progress towards environmental and climate objectives in an integrated way. A new monitoring mechanism is introduced in the 8th EAP.

3.1.2.6. Staff mobility and travel

Requirements

The research team has identified four relevant strategic roadmaps and regulatory instruments with key takeaways relevant to the area of mobility:

- Sustainable and Smart Mobility Strategy;
- Circular Economy Action Plan;
- New Batteries Regulation;
- 2030 Climate Target Plan.

Sustainable and Smart Mobility Strategy

The Sustainable and Smart Mobility Strategy of December 2020 includes 82 initiatives to guide transport policies in Europe for the next four years (2021-2025). The objectives include increasing the uptake of zero-emission vehicles, making sustainable alternative solutions available, supporting digitalisation and automation, and improving connectivity.[37] Since the European Green Deal requires a 90% reduction in GHG emissions in transport for the EU to become climate-neutral by 2050, three pillars have been established for future actions:

- make all transport modes sustainable through measures to reduce current dependence on fossil fuels;
- make sustainable alternatives widely available in a multimodal transport system;
- establish the right incentives to drive the transition.

[36] https://unfccc.int/sites/default/files/english_paris_agreement.pdf

[37] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0789

The following requirements have been identified for the EBCG based on measures the Commission is planning:

- CO_2 standards for cars, vans and heavy-duty vehicles;
- more stringent air pollutant emissions standards for combustion engine vehicles to ensure that only future-proof low-emission vehicles come to market;
- measures such as carbon pricing, taxation, road charging, and the revision of rules on the weights and dimensions of heavy-duty vehicles;
- promotion of ambitious standards for vessel design and operations;
- integrated electricity systems, hydrogen and other low-carbon fuels, and testbeds for waste reuse to make inland and seaports more energy efficient;
- review of EU legislation on ship recycling to promote sustainable ship recycling practices;
- revision of the EU ETS (EU Emissions Trading System) Directive to reduce the free allowances for aircraft and extension of the ETS to the maritime transport sector;
- a major review of existing legislation on flag state responsibilities, port state control and accident investigation;
- Improved regulations, such as on the cybersecurity certification framework for automated vehicles.

Circular Economy Action Plan

Under the Circular Economy Action Plan, the European Commission will propose a new regulatory framework for batteries to improve the sustainability of the emerging battery value chain for electro-mobility and the circular potential of all batteries.

The Commission will also propose the revision of rules regarding end-of-life vehicles to promote more circular business models by linking design issues to end-of-life treatment, considering rules on mandatory recycled content for certain materials of components, and improving recycling efficiency. Currently, there are no requirements identified for the EBCG on this.

New Batteries Regulation

As mentioned above, the New Batteries Regulation will be a part of the Circular Economy Action Plan. This Regulation is likely to impact the EBCG's daily operations. A shift towards electrical vehicles, for instance, will have to consider future conformity with battery-related laws ranging from green procurement to partnerships with agencies responsible for the recycling of waste batteries.

The requirements that have been identified for the EBCG are:

- measures to improve the collection and recycling rates of all batteries;
- phasing out and replacing non-rechargeable batteries with alternatives;
- strengthening the sustainability and transparency requirements for batteries, such as the carbon footprint of battery manufacturing.

2030 Climate Target Plan

The 2030 Climate Target Plan highlights different areas that are important for future forms of mobility. Clean hydrogen will be crucial for decarbonising heavy-duty transport. Electric vehicles, advanced biofuels and other renewable fuels will lead to the transport sector increasing its share of renewable energy use. Other sustainable transport modes, such as inland waterways and short sea shipping, will also be used to increase decarbonisation, particularly for freight transport. The revision of the Alternative Fuels Infrastructure Directive will boost the transition to alternative models of vehicle, such as electric cars, which will require appropriate infrastructure for recharging and refuelling.

The requirements that have been identified for the EBCG are:

- all transport sectors (road, rail, aviation and waterborne transport) will have to contribute to the 55% reduction effort. Conventional cars will need to gradually be displaced by zero emission vehicles, and greater use should be made of sustainable collective transport services;
- greater use of sustainable transport modes and multi-modal solutions;
- changes to fuel mix;

- both the aviation and maritime sectors will need to scale up efforts to improve the efficiency of aircraft, ships and their operations, and to increase the use of sustainably produced renewable and low carbon fuels.

3.1.2.7. Practices (behaviours)

Opportunities

The research team has identified three strategic roadmaps and regulatory instruments with key takeaways relevant to the area of practices:

- New European Climate Pact;
- Circular Economy Action Plan;
- Sustainable Development Goal 14.

New European Climate Pact

The New European Climate Pact is an opportunity for the EBCG as it will provide support around green skills. The European Commission estimates 1.2 million additional green jobs will be created between December 2020 and 2030 to comply with Europe's Paris Agreement commitments alone.

The following opportunities have been identified for the EBCG.

- Member States will be encouraged to develop green skills among public authorities.
- The Commission will encourage involvement of organisations and sectors important for the transition to a climate-friendly economy in the Pact for Skills. The Pact for Skills aims to mobilise private and public stakeholders to create partnerships for the upskilling and reskilling of people of working age and support the ambitions of the green and digital transitions.[38]
- Member States will have access to the new European Social Fund Plus for 2021-2027 and the Recovery and Resilience Facility, which will enable people to be trained for green jobs, green recovery, and a new platform to support innovation, to be launched in 2021. The ESF+ Managing Authorities in each country will dedicate the money to projects that are run by public and private organisations, responding to the country- and region-specific needs.

Circular Economy Action Plan

The Circular Economy Action Plan laid out measures for several areas, notably plastics. The European Strategy for Plastics in a Circular Economy provided a comprehensive set of initiatives in 2018. The aim of this Strategy is to improve design and support innovation to make plastics and plastic products easier to recycle; expand and improve the separate collection of plastic waste; expand and modernise the EU's sorting and recycling capacity; and create viable markets for recycled and renewable plastics. However, since consumption of plastics is expected to increase in the coming 20 years, the Commission will take additional steps to tackle the sustainability challenges of plastic, including a systematic approach to tackling plastics pollution at the global level. Some of them are:

- mandatory requirements for recycled content and waste reduction measures for key products, such as packaging, for better acceptance of recycled plastics and more sustainable use of plastics;
- addressing the presence of microplastics in the environment through measures such as:
  - narrowing down methods for measuring unintentionally released microplastics, especially from tyres and textiles;
  - developing a policy framework on sourcing, labelling and use of bio-based plastics along with biodegradable or compostable plastic based on positive benefits to the environment and other criteria;
- timely implementation of the new directive on single-use plastic products and fishing gear to tackle the problem of marine plastic pollution;
- introducing several measures for the products covered by the directive on single-use plastics, including an EU-wide ban on single-use plastic products when alternatives are available.[39] The directive on single-use plastic products aims to lower the impact of certain plastic products on the environment and promote the transition to a circular economy through these measures.

[38] *To apply to the Pact for Skills, the form can be found at: https://ec.europa.eu/eusurvey/runner/Pact_for_Skills_FORM*

[39] *https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32019L0904*

The opportunities identified for the EBCG are linked to the fact that the European Commission is focusing on bringing in mandatory requirements for recycled content to increase acceptance of recycled plastics. Consequently:

- the use of biodegradable or compostable plastics;
- in the area of waste reduction and textiles, the EBCG may need to contribute to the Member States' efforts for achieving high levels of separate collection of textile waste, which could be an opportunity for the EBCG to become pioneers in this area.

Sustainable Development Goal 14

Considering the EBCG's activities and operations, SDG 14 represents an opportunity for the EBCG. Goal 14: Life below water includes suggestions in the areas of pollution, ocean acidification, the marine and coastal environment, including spatial management, scientific knowledge and research capacity. The EBCG can contribute by ensuring that surveillance activities do not do harm to marine ecosystems. Moreover, Frontex's operations put it in a position to collect and share information relevant to fisheries control and detection of pollution which contribute to the targets of SDG 14.

3.1.3. Mechanisms

In order to support the assimilation of the requirements and opportunities depicted above, this section provides an overview of measures that can support the EBCG community by providing funding, certification and reporting frameworks, as well as networks to exchange information, good practice and learning.

3.1.3.1. Funding

Three relevant funding mechanisms[40] have been analysed:

- Horizon Europe;
- European Green Deal Investment Plan;
- NextGenerationEU Recovery Plan.

The key takeaways are described below, together with the opportunities that have been identified for the national authorities. It is important to mention that there is no funding available for EU agencies, so the funding instruments referred to here are only for national authorities. Nevertheless, Frontex could ultimately still benefit from the outputs achieved by the use of these funding mechanisms.

Horizon Europe

Horizon Europe is the European Union's key funding programme for research and innovation to ensure a sustainable and inclusive future. On 15 March 2021 the Strategic Plan[41] for 2021-2024 was adopted and on 29 April 2021 Regulation 2021/695[42] established Horizon Europe and set the budget for the programme at EUR 95.5 billion at current prices for the period 2021-2027. This research and innovation funding programme will commit a sizeable financial effort to supporting the twin transitions to a green and digital recovery for Europe.

The Horizon Europe programme is the successor to the Horizon 2020 (H2020) seven-year framework funding programme for research and development. The last call under the H2020 Programme and just ahead of Horizon Europe was the Green Deal Call, worth EUR 1 billion. With 10 different areas of intervention, the H2020 Green Deal Call offered the opportunity and resources to achieve the primary objective of a sustainable Europe and planet by tackling the current major environmental, climate, and societal challenges.

Horizon Europe is divided into three pillars, each with a different role – promoting the best science, finding solutions to societal and industrial problems, and funding small companies. The programme also introduces five 'research and innovation missions', as part of the second pillar, to address specific contemporary societal challenges. These missions are:

- Mission Area 1: Adaptation to Climate Change, including Societal Transformation;
- Mission Area 2: Cancer;

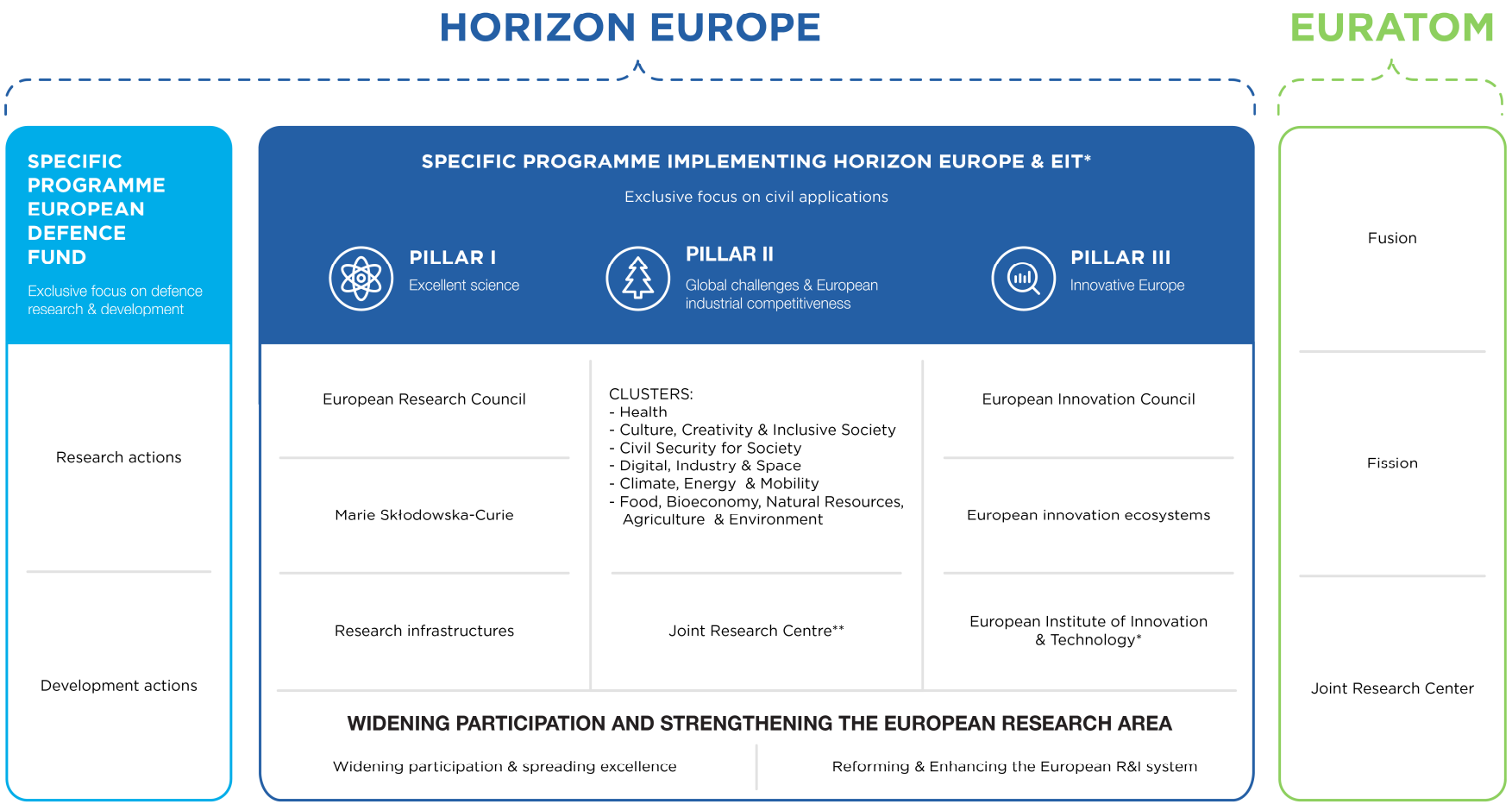
[40] *Other EU-wide funding mechanisms include LIFE, INTERREG, the Connecting Europe Facility (CEF), the European Investment Bank (EIB).*

[41] https://ec.europa.eu/commission/presscorner/api/files/document/print/en/ip_21_1122/IP_21_1122_EN.pdf

[42] https://eur-lex.europa.eu/eli/reg/2021/695/oj

- Mission Area 3: Healthy Oceans, Seas, Coastal and Inland Waters;
- Mission Area 4: Climate-Neutral and Smart Cities;
- Mission Area 5: Soil Health and Food.

Figure 1- Horizon Europe structure



Source: figure adapted by Deloitte from Publications Office of the European Union website - https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/93de16a0-821d-11eb-9ac9-01aa75ed71a1

Moreover, under Horizon Europe, there are six clusters focused on: health (cluster 1); culture, creativity and inclusive society (cluster 2); civil security for society (cluster 3); digital, industry and space (cluster 4); climate, energy and mobility (cluster 5); and food, bioeconomy, natural resources, agriculture and environment (cluster 6). For the EBCG, the cluster that has been identified as relevant is cluster 3.

- **Cluster 3 - Civil Security for Society:** The vision of Cluster 3 is to support and strengthen EU responses to security challenges by investing in security research to make the European civil security industry sector globally competitive. Security research will serve as a tool for the EU to change from a reactive approach to a proactive approach based on foresight, prevention and anticipation. This cluster will support the Commission's priorities like Promoting our European way of life, Europe fit for the digital age, and the European Green Deal.
  - As part of Horizon Europe, the EBCG and the Directorate-General for Migration and Home Affairs co-signed a dedicated Terms of Reference, which lays the foundation for closer partnership and contributes to maximising joint goal-oriented efforts. Under these Terms of Reference, Frontex provides its assistance to DG HOME among others in the areas of programming, monitoring and the uptake of projects results. Frontex participates in selected activities, such as tests, trials and demonstrations of technologies.[43]

The following opportunities have been identified for the national authorities.

- Collaborative research and innovation activities help in incorporating green technologies and infrastructure that reduce GHG emissions and improve climate resilience and environmental quality.
- Horizon Europe identifies international collaboration as a priority in tackling common challenges. It provides access to resources, technological know-how, value chains and global markets. Research and innovation activities, consortia, participation and leadership in multilateral alliances with research institutes, universities, and forward-thinking companies can help the EBCG identify and realise innovative solutions to operational challenges, spurring public-private partnerships.

European Green Deal Investment Plan

The European Green Deal Investment Plan is the investment pillar of the European Green Deal and will mobilise EU funding and create an enabling framework to facilitate and stimulate public and private investments to achieve the objective of climate neutrality. The Commission plans to mobilise at least EUR 1 trillion of sustainable investments over the next decade. The Investment Plan will provide customised support to public administrations and project promoters to identify and execute sustainable projects.

The following opportunities have been identified for the national authorities:

- the annual investment requirements include for example energy-related investments, renovation of buildings, the transport sector, and human capital investments;
- digitalisation is also a key enabler in the Green Deal. The Investment Plan provides strategies to mobilise investment for various environment-friendly projects. For example, at least 60% of the Connecting Europe Facility budget, which supports transport, energy, and digital infrastructure, will target climate objectives;
- the aid that will be given under the plan to improve energy efficiency of buildings, phasing out fossil fuels, and moving to a circular economy.

Next Generation EU Recovery Plan

The EU's response to the coronavirus crisis included a stimulus package worth EUR 2 018 trillion. Of this, EUR 1 211 trillion comes from the EU's long-term budget, or the Multiannual Financial Framework (MFF) for 2021 to 2027. This is topped up by EUR 806.9 billion through NextGenerationEU, a temporary instrument to power the recovery. The Next Generation EU Recovery Plan aims to help Europe recover from the adverse impacts of the COVID-19 pandemic. It will be operational from 2020 to 2023. It envisions a post-COVID Europe that is greener, digital-savvy, healthier, stronger, and treats everyone equally. Additionally, as part of the NextGenerationEU and the MFF, there will be funding opportunities in the area of migration and border management through the Integrated Border Management Fund[44], which has a total budget for 2021-2027 of EUR 7.39 billion. This Fund is made of two components: the Border Management and Visa Instrument (BMVI), and

[43] https://frontex.europa.eu/future-of-border-control/eu-research/introduction/

[44] https://ec.europa.eu/info/funding-tenders/find-funding/eu-funding-programmes/integrated-border-management-fund_en

the Customs Control Equipment Instrument (CCEI). The first one, with a budget of EUR 6.38 billion aims to ensure strong and effective European integrated border management at the external borders and support the common visa policy. The latter, with a budget of EUR 1 006 million, aims to help to equip customs authorities of the EU Member States with state-of-the-art customs control equipment for more efficient and effective customs controls.

The following opportunities have been identified for the national authorities.

- The Just Transition Fund is an instrument with an overall budget of EUR 17.5 billion, of which EUR 7.5 billion is from the Multiannual Financial Framework (MFF) and EUR 10 billion from NextGenerationEU. National authorities can use the Just Transition Fund in some of the following ways:
  - environmental rehabilitation;
  - clean energy projects;
  - transformation of existing carbon-intensive installations where this transformation leads to substantial emission cuts and job protection;
  - research and innovation.
- Under the Border Management and Visa Instrument, the beneficiaries[45] will receive funding in a wide range of initiatives such as:
  - improving border controls, in line with the European Agenda on Migration and in compliance with the Charter of Fundamental Rights of the EU;
  - funding efficient services to visa applicants;
  - investing in common large-scale IT systems and their interoperability in the area of borders management and visa policy;
  - investing in infrastructure and equipment, systems and services, trainings, exchange of experts, deployment of immigration liaison officers, innovative solutions and new technologies, studies;
  - providing operating support for the implementation of the European integrated border management and of the common visa policy.
- Through the Customs Control Equipment Instrument, Member States will be able to purchase, maintain and upgrade state-of-the-art customs equipment[46] such as new scanners, automated number plate detection systems, teams of sniffer dogs and mobile laboratories for sample analysis. The customs equipment can also be used for other compliance controls such as visa and police provisions where applicable.

3.1.3.2. Certifications and reporting frameworks

The research team has identified the following certifications and reporting frameworks relevant for the EBCG:

- ISO 14001:2015;
- ISO 50001;
- ISO 31000;
- Global Reporting Initiative Standards (GRI);
- Task Force on Climate Related Financial Disclosures (TCFD);
- Greenhouse Gas Protocol;
- Eco-Management and Audit Scheme (EMAS);
- Building Research Establishment Environmental Assessment Method (BREEAM);
- Smart Readiness Indicator;
- Level(s) – European framework for sustainable buildings;
- EU Ecolabel Certification;
- BS 8001 British Standard;
- The Methodology for Assessing Procurement Systems (MAPS);

[45] *The beneficiaries will include: constituent elements of the European Border and Coast Guard, i.e. national authorities of Member States responsible for border management; state and federal authorities; local public bodies; non-governmental organisations; international organisations; European Union agencies; private and public law companies; networks; education and research organisations.* https://ec.europa.eu/home-affairs/funding/borders-and-visa-funds/integrated-border-management-fund-border-management-and-visa-instrument-2021-27_en

[46] *Equipment will be eligible for purchase under the new rules only if it relates to at least one of the six following purposes: non-intrusive inspection; indication of hidden objects on humans; radiation detection and nuclide identification; analysis of samples in laboratories; sampling and field analysis of samples; and handheld search.* https://ec.europa.eu/taxation_customs/national-authorities/customs-control-equipment-instrument_en

- ISO 20400: Sustainable procurement;
- Green Public Procurement Training;
- The commercial BREEAM In-Use – self-assessment standard.

These certifications and reporting frameworks, and the key takeaways, are described below. The applicability and use of these certifications are provided in chapter 5, further detailing initiatives and roadmaps.

ISO 14001:2015 Environmental Management System

ISO 14001:2015 is an international standard that specifies requirements for an effective Environmental Management System (EMS). It is a systematic framework that helps enhance the environmental performance of an organisation's products, processes and services. This certification can help the EBCG implement an effective EMS that will improve cost and resource efficiency, ensure legal and environmental regulatory compliance, and reduce the environmental impact of operations.

Through the systematic framework of ISO 14001, the EBCG could strengthen its operational strategies to meet its environmental objectives. ISO 14001:2015 could enable the EBCG to improve its overall environmental performance, by adopting sustainable processes for waste management and disposal, optimising fleet management, and improving environmental risk management, thereby aiding a smooth transition to low-carbon, climate resilient and green operations.

ISO 50001 Energy Management

The ISO 50001 standard provides a practical way to improve energy use, through the development of an energy management system (ENM). ISO 50001 provides a framework of requirements for organisations to[47]:

- develop a policy for more efficient use of energy;
- fix targets and objectives to meet the policy;
- use data to better understand and make decisions about energy use;
- measure the results;
- review how well the policy works;
- continually improve energy management.

ISO 31000 Risk Management - Guidelines[48]

ISO 31000 provides a framework and a process for managing risk. It can be used by any organisation regardless of its size, activity or sector. Using ISO 31000 can help organisations increase the likelihood of achieving objectives, improve the identification of opportunities and threats, and effectively allocate and use resources for risk treatment.

Global Reporting Initiative Standards (GRI)[49]

GRI is the independent international organisation that helps organisations take responsibility for their impacts by providing them with global common language to communicate those impacts. The Standards are advancing the practice of sustainability reporting and enabling organisations and their stakeholders to act and make better decisions that create economic, environmental and social benefits.

The Standards are designed as an easy-to-use modular set, starting with the universal Standards. Topic Standards are then selected, based on the organisation's material topics – economic, environmental or social. Organisations can either use the GRI Standards to prepare a sustainability report in accordance with the Standards, or they can use selected Standards, or parts of their content, to report information for specific users or purposes, such as reporting their climate change impacts for their stakeholders.

The standards have a flexible framework for reporting in which organisations can either report on all their material topics in accordance with the GRI standards or they can use selected GRI standards or parts of their content to report information with reference to these. The information reported can be published or made accessible in a range of formats (electronic,

[47] https://www.iso.org/iso-50001-energy-management.html

[48] https://www.iso.org/iso-31000-risk-management.html

[49] https://www.globalreporting.org/about-gri/

paper-based, etc.) across one or more locations (e.g., standalone sustainability report, web pages, annual report, etc.) and in one of two ways:

- **reporting in accordance with GRI standards**: this provides a complete and balanced picture of an organisation's material topics and related impacts, and how it manages these topics;
- **reporting with reference to the GRI standards**: an organisation can use selected GRI standards or parts of their content to report information that meets the needs of specific information users for specific purposes, such as complying with regulatory requirements.

Task Force on Climate Related Financial Disclosures (TCFD)

The Task Force on Climate Related Financial Disclosures (TCFD) provides information to investors about what companies are doing to mitigate the risks of climate change, as well as be transparent about their governance. It was established in December 2015 by the G20 Financial Stability Board and is chaired by Michael Bloomberg. It consists of reporting guidelines on four major pillars: governance, strategy, risk management, and metrics and targets. Its guidelines are voluntary, but are, however, strongly recommended by various stock exchange organisations. The European Commission incorporated the TCFD recommendations into its *Guidelines on Reporting Climate-Related Information*[50] in 2019 and they are applied in Switzerland and the UK in certain cases. The objective of the disclosure guidelines is to raise awareness among companies and investors on the strategic importance of climate risks (transformational and physical).

Greenhouse Gas Protocol (GHG) [51]

The Greenhouse Gas Protocol provides standards, guidance, tools and training for business and government to measure and manage climate-warming emissions. It establishes comprehensive global standardised frameworks to measure and manage greenhouse gas emissions from private and public sector operations, value chains and mitigation actions. The GHG Protocol works with governments, industry associations, NGOs, businesses and other organisations. They offer online training on GHG standards and tools, as well as the Built on GHG Protocol review service and the quality label, which recognises sector guidance, product rules and tools that are in conformity with GHG Protocol Standards.

The GHG Emissions Calculation Tool is a free, Excel-based tool from Greenhouse Gas Protocol and the World Resources Institute (WRI) that helps organisations estimate their greenhouse gas (GHG) emissions based on the GHG Protocol. The tool offers users a step-by-step process to estimate company emissions for specific cross-sectoral emissions sources. Detailed instructions for use and examples of calculations are provided throughout the tool.

Eco-Management and Audit Scheme (EMAS)

The Eco-Management and Audit Scheme (EMAS) is a management instrument developed by the European Commission to improve and promote sustainable and responsible environmental performance and resource-efficient production. As a voluntary tool, EMAS helps organisations to evaluate, report and improve their environmental performance. EMAS is applicable in all sectors and open to all types of organisations, in the public and private sector, that seek to improve their environmental performance.

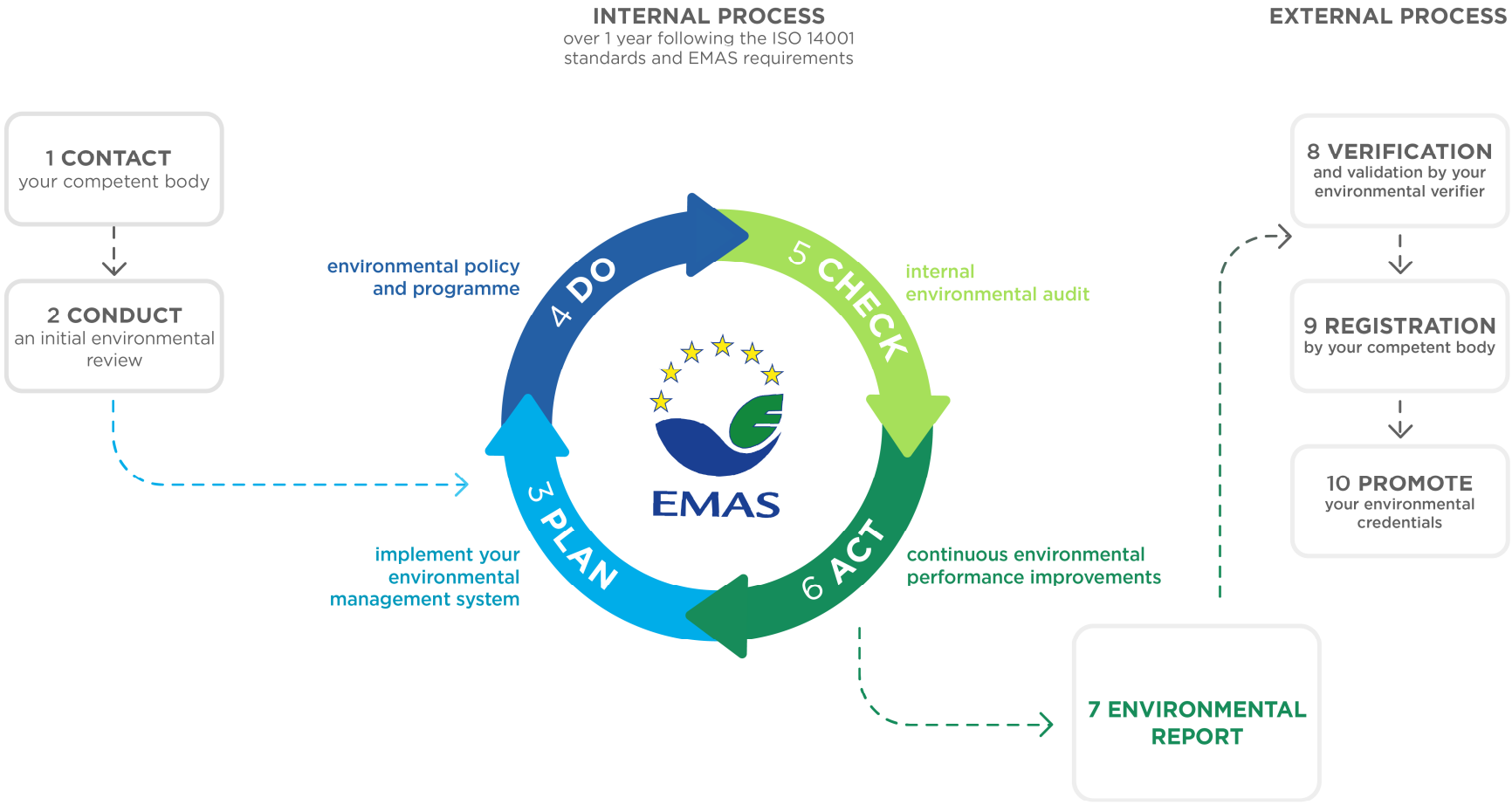
In order to be certified, organisations need to go through a ten-step procedure and resort to different bodies, as depicted in Figure 2. While the procedure is the same throughout the EU, the competent bodies handling certification vary from one country to another depending on the country in which the organisation is located.[52] In the case of Frontex, the first step in starting the procedure would be to contact the Competent Body in Poland, the General Directorate for Environmental Protection.

[50] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52019XC0620%2801%29

[51] https://ghgprotocol.org/about-us

[52] *Both Competent Bodies and Accreditation and Licensing Bodies per country can be found here:* https://ec.europa.eu/environment/emas/emas_contacts/competent_bodies_en.htm#c-poland

Figure 2- EMAS certification process



Source: figure adapted by Deloitte from the European Commission, Eco-Management and Audit Scheme website:
https://ec.europa.eu/environment/emas/join_emas/how_does_it_work_step0_en.htm

Building Research Establishment Environmental Assessment Method (BREEAM)[53]

The Building Research Establishment Environmental Assessment Method (BREEAM) is a globally recognised green building rating system that sets standards and measures environmental performance of buildings. The EBCG authorities can apply for BREEAM certification for any new construction/renovation projects or buildings, thereby increasing their energy and resource efficiency, and reducing their operational costs. The sustainable assessment criteria used in the BREEAM certification can help align systems and processes to meet sustainable targets and globally recognised standards.

Smart Readiness Indicator (SRI)[54]

The Energy Performance of Buildings Directive (EPBD) is the EU's main legal instrument to promote optimal energy performance of buildings. To modernise the EPBD and further encourage the use of smart building technologies and ICT, the European Commission has introduced a Smart Readiness Indicator (SRI) for buildings. The SRI aims at making the added value of building smartness more tangible for building users, owners, tenants and investors. More specifically, the SRI is intended for measuring the capability of a building to use information and communication technologies and electronic systems to:

- adapt the operations of buildings to the needs of the occupants;
- adapt to signals from the grid (energy flexibility);
- optimise energy efficiency and overall performance of buildings.

Level(s)[55]

Level(s) is a common assessment and reporting framework for sustainable buildings in Europe. It promotes lifecycle thinking while measuring and improving residential buildings and offices from the design to end-of-life stages. It is a voluntary instrument. However, it is part of EU policy on sustainable buildings and might be legally binding in the future. Hence early consideration and adoption of the indicators and practices suggested by the framework can put the EBCG authorities in a favourable position regarding national and regional laws.

EU Ecolabel[56]

EU Ecolabel certification can facilitate Green Public Procurement (GPP), drive eco-innovation and play a key role in the EU's efforts to become a more sustainable, resource-efficient economy. The EU Ecolabel can help public authorities – as major consumers – in procurement of green products and/or services as they can draft the technical specifications in the procurement criteria to require conformity to the Ecolabel's requirements. Furthermore, ecolabels can help check compliance with these requirements as a means of proof.

BS 8001 British Standard

The BS 8001 British Standard is the world's first standard for implementing circular economy principles. It has been written in a way so that can be applied to any organisation regardless of location, size, sector and type and is built on six principles:

- Systems thinking: Organisations take a holistic approach to understand how individual decisions and activities interact within the wider system;
- Innovation: Organisations continually innovate to create business value through the sustainable management of resources in products and services;
- Stewardship: Organisations manage the direct and indirect impacts of their decisions and activities across their system;
- Collaboration: Organisations collaborate internally and externally through formal and/or informal arrangements to create mutual business value;
- Value optimisation: Organisations keep all products, components and materials at their highest value and utility at all times;

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[53] https://www.breeam.com/discover/how-breeam-certification-works/

[54] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12364-Establishment-of-a-smart-readiness-indicator-for-buildings_en

[55] https://ec.europa.eu/environment/levels/lets-meet-levels/how-does-levels-work_en

[56] https://ec.europa.eu/environment/ecolabel/

- Transparency: Organisations are open about decisions and activities that affect their ability to transition to a more sustainable and circular mode of operation and are willing to communicate these in a clear, accurate, timely, honest and complete manner.

The Methodology for Assessing Procurement Systems (MAPS)

The Methodology for Assessing Procurement Systems (MAPS) is an international standard and the universal tool to evaluate any public procurement system anywhere in the world.

ISO 20400: Sustainable procurement

Guidance provided to organisations, independent of their activity or size, on integrating sustainability within procurement. It is intended for stakeholders involved in, or impacted by, procurement decisions and processes, complementing ISO 26000 (Guidance on social responsibility) by focussing specifically on the purchasing function.

Green Public Procurement Training

The GPP Training Toolkit is designed for use by public purchasers and by GPP trainers, or as integration in general public procurement training courses and workshops. It consists of six independent modules and ten operational modules, with PowerPoint presentations (including trainer notes) and accompanying guidance.

The commercial BREEAM In-Use – self-assessment standard[57]

As a recognised comprehensive system, it is suggested to apply the Building Research Establishment Environmental Assessment Method (BREEAM) In-Use standard. BREEAM is the longest running and best-established method for assessing, rating, and certifying sustainability metrics and performance for buildings. It leads the way in providing end-to-end key performance sustainability indicators for building performance, captured in one comprehensive standard. The standards are highly flexible and may be applied to any building in any location.

BREEAM In-Use is a comprehensive environmental assessment method for buildings that enables property investors, owners, managers, and tenants to identify and implement sustainable improvements in the operational, process and cost performance of buildings. By applying this standard, the building managers have the ability to perform sustainability benchmarks and provide analyses for all buildings according to one consistent sustainability performance model.

BREEAM In-Use is a scheme specifically structured for existing buildings, helping building managers reduce running costs and improve environmental performance of existing assets. This contrasts with other BREEAM standards such as BREEAM International New Construction. For this reason, BREEAM In-Use is best applicable to sustainable retrofitting initiatives.

The BREEAM In-Use categories are used to assess performance, benchmark, and certify in two parts. Each part is independently scored and assessed, allowing clients to choose which aspect to measure depending on what they would find most valuable:

- Part 1 Asset performance: The performance of the building itself
- Part 2 Management performance: The building management processes

The BREEAM In-Use (BIU) self-assessment process works through an online platform that allows an organisation to register any number of assets and evaluate them based on defined parts. This platform offers building performance modelling and dynamic scoring that ensures immediate results and comparisons. It also includes a reporting function that allows the user to track and improve the performance of their resources. It takes users through a set of questions that are used to assess performance against these categories to determine an overall BIU rating from poor to outstanding.

[57] *The EU Level(s) framework was considered, however was omitted on the grounds that BREEAM provides deeper, more comprehensive and better-established substantive guidance, based on which an organisation may more clearly evaluate and assess the available measures. The Level(s) framework does not conflict with BREEAM, and organisations may freely choose to make use of the framework in tandem.*

3.1.3.3. Networks

The research team identified two relevant networks with key takeaways relevant for the EBCG:

- Global Environmental Management Initiative (GEMI);
- The Greening Network.

The Global Environmental Management Initiative (GEMI)

The Global Environmental Management Initiative (GEMI) is an organisation of Director- and Manager-level corporate sustainability leaders dedicated to fostering global environmental, health and safety (EHS) and sustainability excellence through the sharing of tools and information to help businesses achieve environmental sustainability excellence.[58] While the network's membership is focused on trade organisations and businesses, this network is relevant for the EBCG because of the possibility of retrieving best practices and solutions from GEMI's activities and programmes, and applying them within the EBCG.

Relevance for the EBCG:

- leverage the solutions and best practices from GEMI's activities and programmes to inform sustainability goal-setting and policy frameworks. For instance, GEMI's Quick Guide for Engaging Employees in Sustainability can help the EBCG design its own employee initiatives. An example of this is the Canada Border Service Agency (CBSA)'s Department of Sustainable Development Strategy: the Department is working in partnership with Public Services and Procurement Canada on an initiative to provide alternative workspaces for Government of Canada employees to allow them to work closer to home and reduce commute times.[45]

The Greening Network

The Greening Network is a network of EU agencies whose objectives are:

- exchange information and good practices on environmentally related topics;
- learn and develop a common understanding of environmental and sustainable management (EMS);
- develop and track performance indicators for benchmarking purposes within the network of agencies;
- exchange methodology, programmes, information material, templates, etc.;
- have a special focus on the implementation and registration of as many agencies/bodies/institutions as possible under the EMAS (Eco-Management and Audit Scheme) Regulation.

Each year, a Greening Network meeting is organised by the EU agencies on greening related issues.

Relevance for the EBCG, which can be leveraged by the participation of Frontex:

- exchange best practices and be inspired by what other EU agencies are doing in terms of environmental sustainability;
- learn and exchange methodologies with other EU agencies;
- demonstrate good practices and position Frontex as a leader in the transition to sustainability.

[58] https://www.cbsa-asfc.gc.ca/agency-agence/reports-rapports/sds-sdd/sds-sdd-20-23-eng.html

3.2. Case studies

The purpose behind analysing case studies, was to present Frontex and the EBCG community with an overview of the sustainable actions undertaken by organisations (of a similar context), so as to identify applicable best practices and inspirations.

Case studies were identified and selected on the basis of two dimensions: context-specific relevance to Frontex and the EBCG community (through a high degree of applicability to operations and structure), and international standards relating to the professional management of sustainability risks expected of many organisations (beyond regulatory compliance minimums). The suitability of selected organisations was evaluated by the research team, to ensure relevance of the best practices identified.

Combined with the separate analysis of the regulatory framework and the high-level sustainability principles, the case studies aim to provide a supporting foundation for developing initiatives for the EBCG (see chapter 5) to consider in its quest for environmental sustainability.

3.2.1. Case Study Selection

3.2.1.1. Deloitte - The Edge NL office

The Edge is an office building in the Zuidas business district in Amsterdam, with a gross floor area of over 50 000 m^2. It was purpose-designed for Deloitte (as its main tenant). The design and parameters took form in close partnership with the developer (OVG Real Estate). The project aimed to consolidate Deloitte's employees from multiple buildings throughout the city into a single environment, and to create a 'smart building' in which Deloitte could leverage digital solutions to increase sustainability and energy efficiency. Sustainability was established as a central guideline and goal shaping the design and features of The Edge. A 10-year payback period was defined in the planning and selection of sustainable measures, and BREEAM[59] Excellent rating was set at the outset as a minimum target. During the course of construction, it was noted that BREEAM Outstanding standards were within reach, and these were subsequently attained. The Edge became praised as one of the most sustainable buildings in the world at the time.[60]

Construction and Design

Several design features outlined below make The Edge a sustainable building.

- The south façade of the building has heavy load-bearing walls that provide effective thermal mass through heat gain. The Edge is oriented and shaped so as to optimally utilise the sun; daylight is made to last as long as possible, without the heat from the sun influencing internal temperature. On the south side of building, there are high-efficiency solar panels (keeping heat out and absorbing radiation when it is strongest) – enough to fully power the building and its users. Solar panels are additionally placed on the roof, as well as on roofs rented on nearby/neighbouring buildings (in a 10km radius). This enables enough energy to be generated for The Edge and makes the building a zero-energy zone. Thicker glass of different transparencies, providing sound insulation and sunlight management: glass thickness was increased to 47 mm, offering 5dB better sound insulation to support staff comfort.
- There is parking for 500 bicycles in the basement, as well as electric car chargers.
- The Edge was built with future retrofits in mind, extending Internet of Things (IoT) capabilities for the future as new solutions become available or necessary.
- There is an ecological corridor adjacent to building, for bats and nesting birds.
- The ventilation systems installed at The Edge circulate air in the rooms, pushing stale air into the atrium and then to a central air handling unit on the roof.
- Rainwater is collected and recycled to flush toilets and irrigate the surrounding landscape.
- The heating is regulated with the aid of aquifer thermal energy storage pumps. There are two groundwater sources 130m below ground, one cold one warm. The pumps utilise solar power, and pump warm or cold water in or out of the building depending on needs and the inner/outer temperature.

[59] *BREEAM is sustainability assessment method for masterplanning projects, infrastructure and buildings.*

[60] *Bloomberg, 2015. The Smartest Building in the World: Inside the connected future of architecture. Available from: https://www.bloomberg.com/features/2015-the-edge-the-worlds-greenest-building/*

It has been estimated that by using geothermal energy differentials and other sustainable solutions, The Edge has reduced its environmental impact by 42 million kg of CO_2 over a decade, while continuously saving energy. The construction phase used prefabricated components that were assembled on site, saving time – thus reducing project lead times and increasing project feasibility and cost management.

Main challenges:

- financial risk (associated with designing, permitting, certifying the project, delay cost, lack of knowledge and experience);
- regulatory risk (shift in government priorities, regulatory incentives);
- sufficiently experienced consultants and contractors;
- availability of green materials, proper materials selection;
- cohesive decision making and the knowledge to ensure the most appropriate strategies.

Best practices inspired by the case study and their applicability to the EBCG:

- **Certificate for sustainable buildings:** relevant to energy-intensive use of the EBCG premises
- **Recycling and resource efficiency solutions:** applicable to resource-intensive nature of operations (e.g. water, energy, and materials use)
- **Building with sustainability as a guiding parameter:** relevant to meeting long-term environmental goals by reducing the emission intensity of new buildings, with the aid of leading technologies

Operational dimension

The Edge is a pioneer in building management. Its building management innovations enable collection and monitoring of building usage data, automated visualisation of energy performance, and post-processing for energy analysis. As most of its specifications were prepared for future retrofits, the IoT (Internet of Things) capabilities in The Edge are themselves extensible, adding a layer of adaptable intelligence to building management for years to come. Each floor of the building is equipped with building management computers that are connected to zone controllers. By locally monitoring occupancy and facility usage throughout the building, The Edge leverages intelligent digital mapping. Deloitte continuously collects data on employee activity and interaction. The data is managed by an outside firm that can observe and predict areas in the office that require more maintenance than others. This allows them to monitor the occupancy of individual rooms and inform cleaning staff about which areas need more attention.

Examples of operational features implemented in The Edge.

- Building management innovations: leveraging live data. Digital mapping of floors serves to optimise resource use, e.g. foot traffic is monitored, and rooms that have only been lightly used are excluded from cleaning rotas – saving on the use of cleaning products, energy, and water.
- Sensors connected to personal devices, allowing interface and tracking by employees (via a dedicated mobile app). The app allows users to regulate the “climate” of their workspace from their phone. Users are able to monitor their individual energy and lighting usage – with access to weekly and monthly reports, and benchmarking against employee averages.
- 6000 low-Energy LEDs connected to daylight, temperature, infrared and motion sensors were installed, which are active only when necessary. The lights emit 300 lux, rather than the standard 500 lux, halving watts/m2.
- A security robot patrols the atrium after workhours. It is equipped with visual sensors, a 360-degree camera and badge scanner, with live connectivity to an offsite 24-hour security service provider.
- Licence plate recognition allows for automatic opening of parking facilities, connected to the receptionists and guest registration system at the entrance.
- Electric charging stations are connected through the app, notifying users when their car is fully charged.

Main challenges:

- malfunction of technologies and systems in the building;
- proper employee training;
- integration of all building management systems;

- selection of office management organisation that properly analyses data;
- personal data protection;
- cost of maintaining data privacy.

Best practices inspired by the case study and their applicability to the EBCG:

- **Energy and water performance analysis:** monitoring to maximise efficient use of resources (e.g. cleaning offices only where high foot traffic was recorded);
- **Sustainable solutions in building management:** applicable to resource and energy-intensive use of premises and infrastructure across the EBCG
- **Collection and use of data:** live monitoring of premises applicable to resource and energy-intensive use of infrastructure and premises, to maximise efficiency through smart technology
- **Specification prepared for future retrofits:** relevant to long-term planning and necessity of adaptability to future changes in regulations and norms

3.2.1.2. European Central Bank (ECB)

Environmental Management System

The European Central Bank adopted an environmental policy in 2007. The ECB has been registered with the European Eco-Management and Audit Scheme (EMAS) and certified in accordance with ISO 14001 since 2010.[61]

As of 2013, the ECB's updated policy focuses on raising staff awareness and implementing behavioural changes through targeted actions. This includes an invitation for all ECB staff to integrate environmental policy into their daily routine and tasks, so as to actively contribute to meeting environmental objectives. The policies also focus on carbon emission reductions, using resources efficiently and responsibly, integrating environmental considerations into procurement and complying with environmental legal obligations.

A designated "Green ECB Team" is responsible for monitoring, maintaining and developing all EMS-related aspects. The team additionally coordinates related activities across all ECB business areas. Within the team, an Environmental Coordinator (reporting directly to the Chief Services Officer) and an Environmental Officer are appointed by the Executive Board. The team additionally includes environmental specialists and is supported by a group of Environmental Representatives and deputies – appointed by the senior management of their respective business mandates.

Roles and Responsibilities:[62]

- The Environmental Coordinator:
  - sets strategic environmental goals and supervises policy compliance
  - steers the EMS – ensuring effectiveness and that senior management are integrated and supportive
  - adopts the Environmental Management Handbook.
- The Environmental Officer:
  - is responsible for EMS and coordinates all matters in the field of environmental protection management
  - acts as internal contact person for environmental issues and incidents with environmental impact
  - leads the Green ECB team and their initiatives, as well as the team of Environmental Representatives
  - supports local initiatives by business areas on environmental topics and advises on implementation of training measures
  - maintains the employee suggestion scheme and assesses staff proposals.
- Environmental Representatives:
  - ensure all interests of each business area are considered within the EMS
  - maintain horizontal communication on EMS-related matters
  - support the implementation of EMS in ECB business areas and units.

[61] *More information on EMAS and ISO 14001 available in section 3.1.*

[62] *European Central Bank, 2019. ECB Environmental Statement 2019.*

The European Central Bank's general governance framework integrates the EMS, in particular via the Environmental Management Handbook – which contains binding rules and operational procedures designed to support implementation of the EMS throughout the organisation in accordance with applicable standards.

Every year, a stakeholder analysis is conducted, along with an analysis of risks, opportunities, and impacts – for the purposes of fine-tuning the environmental management system. All ECB business areas are internally verified within a three-year cycle; the frequency of the internal verification checks varies in accordance with the environmental relevance of the areas. Furthermore, the ECB undergoes an annual environmental verification exercise conducted by an external verifier to check compliance with ISO 14001 and EMAS. The ECB's environmental performance is reported annually on the ECB's website: detailed publications and reports are issued every three years, with annual updates published to supplement relevant parts. Environmental data is collected annually, with some data points collected with more frequency during the data collection exercise, which leads to an analysis of performance, assessment of performance against the set objectives and identification of attention areas to be brought to the attention of management via the annual environmental management reviews.

Main challenges:

- ensuring all business areas integrate environmental concerns in daily operational considerations (stakeholder management);
- reaching out further in the organisation via awareness raising;
- adapting the EMS to a hybrid/virtual environment;
- aligning emission reduction goals to the Paris Agreement (after 10 years of EMS, most low-hanging fruits have already been tackled).

Best practices inspired by the case study and their applicability to the EBCG:

- **Environmental Management System:** relevant to structuring and systematising environmental management initiatives and green governance across the EBCG
- **Environmental Management Handbook:** applicable to staff in need of training and guidance in the development and maintenance of Environmental Management Systems

Climate Change Centre

The ECB established a Climate Change Centre in early 2021. This is a new operational unit with the purpose of strengthening and bringing together ECB work on climate by coordinating five separate workstreams for implementing climate change considerations across the business. As a strategic unit, the Climate Change Centre will steer the bank's climate agenda. The five workstreams which the centre will focus on are:

- financial stability and prudential policy
- macroeconomic analysis and monetary policy
- financial market operations and risk
- EU policy and financial regulation
- corporate sustainability.

The new structure (incorporating a dedicated Climate Change Centre) is set to undergo a review after three years, given the ultimate goal of incorporating climate considerations into the routine business of the ECB. The activities of the Green ECB team fall under the umbrella of the Corporate sustainability workstream.

Best practices inspired by the case study and their applicability to the EBCG:

- **Dedicated Change Management body**: relevant to catalysing changes and coordinating action across thematic workstreams and operational areas (which traditionally do not integrate sustainability as a key consideration within their remit and function)
- **Environmental representatives:** applicability as above – driving further awareness and implementation of sustainable initiatives in daily operations

Sustainable Building

The ECB's main building (located in the Ostend area of Frankfurt am Main) was designed to be environmentally friendly. It was inaugurated in late 2014, and though it was a new building, it also sought to integrate an existing historic building. The design and sustainability measures implemented ensure that the building exceeded by 29% Germany's federal energy saving requirements (set by the 2007 Energy Saving Directive "*Energieeinsparverordnung*"). The measures implemented with the aim of mitigating the building's environmental footprint include the following:[62]

- rainwater is collected from the roof to irrigate gardens as well as for sanitary use;
- heat from the computer centre is recycled to heat offices;
- geothermal energy is used for heating and cooling the building;
- an automatic façade system regulates blinds to manage the light and temperature in offices;
- all systems are centrally managed and automated by a facility management control centre, which monitors energy use 24/7;
- rooms were designed to maximise natural lighting to stimulate staff during the working day;
- grounds of the building landscaped to connect with (and thereby extend) the city's green belt.

In the city centre, the ECB rents the Eurotower and the Japan Centre. Environmental considerations are included in the lease agreements and played an important role in major refurbishments carried out in 2015. The retrofitting included:[62]

- installing energy-efficient sun-shading systems;
- insulating the concrete core;
- installing new combined heat and power plants;
- updating the air conditioning systems to improve energy efficiency;
- increasing the energy efficiency of the lifts;
- integrating an LED lighting system into the offices.

Main challenges:

- financial investment necessary for retrofitting and environmental improvements, especially in rented premises;
- logistical challenges (temporary relocation of staff during retrofitting).

Best practices inspired by the case study and their applicability to the EBCG:

- **Energy performance analysis:** monitoring used to maximise efficient use of resources; facility management control centre supporting optimisation of energy use
- **Collection and use of data:** live monitoring of premises applicable to resource- and energy- intensive use of premises, to maximise efficiency through smart technology
- **Retrofitting existing buildings to enhance energy efficiency:** ensuring EBCG authorities stay ahead of regulatory requirements

3.2.1.3. European Defence Agency (EDA)

Energy and Environment Programme (EnE)

The Energy and Environment Working Group (EnE WG) was formed at the direction of the EDA Steering Board (SB) in 2014. Building on previous work conducted under the EDA's Military Green initiative, it was formed to take account of the transverse and complex nature of energy and environmental factors in the Defence sector and to offer a structured approach to all aspects on issues that affect the EDA's participating Member States (pMS). The EnE WG is an extrovert scheme, seeking synergies and cooperating with other entities sharing similar concerns.

The EnE WG provides capability-conscious and strategically informed advice on Energy and Environmental factors affecting Europe's Armed Forces, delivering tangible benefits in accordance with pMS guidance. The WG identifies opportunities and supports the collective journey of the participating Member States (pMS) towards increasing the resilience of Ministries of Defence (MoDs) and Armed Forces, and Defence technological and industrial sectors to existing and emerging vulnerabilities resulting from strategic considerations concerning energy security and dependence on fossil

fuels, security of supply of resources, water security, and environmental change. Additionally, the EDA's EnE WG further promotes a collaborative and integrated approach, aiming to:

- explore opportunities to move collectively on a journey towards developing resilient, low-carbon, environmentally sustainable Ministries of Defence (MoDs) and Armed Forces by reducing environmental footprints, by realising the benefits of sustainable resource consumption and production, and reducing emissions and energy consumption both of operations and at home, for sea, land and air capabilities;
- assess the impact of future energy policy on military capability and develop adaptation strategies for alternate fuel and energy sources;
- assess the impact of current and emerging global sustainability considerations, including environmental policy and wider geopolitical risks, on military capabilities and develop adaptation strategies;
- conduct a Technology Watch in support of, for example, military energy efficiency, alternative fuels, power supplies, energy storage, treatment and reduction of emissions and related control systems, developed in full coherence with other strategic documents;
- develop a Strategic Research Agenda for energy and wider sustainability issues of relevance to the planning, development and generation of military capability;
- develop metrics and statistical analysis for energy consumption and related environmental parameters of Europe's Armed Forces;
- improve knowledge dissemination of best practices in the energy and environmental field related to Defence;
- provide collective education and training in priority areas identified by pMS.

Main challenges:

- properly defined climate change roadmap;
- capability development – address environmental aspects, consumption, and production;
- data collection;
- sharing access to information, publications.

Timeline: Since 2014

Planned actions:

- data Collection, Analysis and Sharing project;
- energy Management Systems training for Member States;
- technology Assessment;
- demand Management Technical Demonstrator;
- water Management project;
- using Defence estate for energy generation;
- biofuels.

1. EnE WG will continue its role as a platform for exchanging best practices among the pMS to address climate change. While the EnE will become a Capability Technology group (CapTech)[63] in order to increase its capacity to propose and implement technology projects to address climate change, the EnE will retain its advisory role as specified in the draft Terms of Reference for the Energy and Environment CapTech.
2. EU Member States to be represented in the EnE WG: the EDA will encourage MS non-participants to the EnE WG to designate a Point of Contact.
3. EnE WG when transformed to a CapTech will have an enhanced structure including members from industry and academia. The EnE CapTech will then have the capacity to function not only as a platform for sharing but also for developing best practices.

Documented information: EDA regularly publishes information on the EnE Programme on its website.

[63] *Capability Technology groups undertake research and technology activities in response to agreed defence capability needs.* https://eda.europa.eu/what-we-do/research-technology/capability-technology-areas-(captechs)

Best practices inspired by the case study and their applicability to the EBCG:

- **Foresight evaluations and adaptation plans on impacts of future energy policy**: relevant in preparing for future impacts of EBCG operational activities as they relate to the use of vessels, aircraft and land vehicles
- **Adaptation strategies for alternative fuel and energy sources:** applicability as above
- **Conducting a technology watch to keep track of the latest innovations:** important for identifying novel technologies relevant for reducing the environmental impact of EBCG operations
- **Providing education and training**: relevant to preparing the EBCG for adoption of new processes and/or technologies
- **Formal knowledge-sharing platform**: valuable for sharing best practices and opportunities between EBCG authorities and other EU agencies and bodies
- **Cooperation with other entities and integrated approach across MS**: applicable given the multinational nature of the EBCG and need for coordination with other EU agencies and bodies

Consultation Forum for Sustainable Energy in the Defence and Security Sector (CF SEDSS)

CF SEDSS is a European Commission initiative managed by the EDA to assist the European Union Ministries of Defence to move towards green, resilient and efficient energy models. As the largest European defence energy community, the CF SEDSS provides a unique platform for sharing knowledge and promoting collaborative defence research and innovation in the field of sustainable energy while contributing to the EU's objective of climate neutrality by 2050.

The Consultation Forum helps EU Ministries of Defence and Armed Forces improve energy efficiency and building performance, utilise renewable energy sources in the defence sector, increase the resilience of defence-related critical energy infrastructure, and address cross-cutting topics, such as energy management and policy, emerging and disruptive energy technologies, funding and financing.

Main challenges:

- exchange of good practices and skills;
- funding;
- mindset and behaviours;
- technology;
- regulations and processes;
- incentives.

Timeline: 2015-2023

Planned actions: CF SEDSS was divided into three phases. Phase III is currently being conducted. It aims to present the defence and security sector with an economic, operational, and strategic opportunity to reduce reliance on fossil fuels, minimise energy costs and footprints, and enhance operational effectiveness and resilience. Sustainable energy and green transition matter for the defence sector. The Forum is well placed to support the defence sector in balancing military needs and priorities with climate change adaptation and energy transition.

Periodic verification of results achieved: Documents and reports on the project are published online on a regular basis. Results are verified regularly.

Best practices inspired by the case study and their applicability to the EBCG:

- **Improving energy efficiency and utilising renewable energy sources:** applicable given fuel-intensive nature of EBCG operational activities, premises and infrastructures
- **Energy management and policy:** applicability as above
- **European Commission co-operation and support (EC initiative with EDA governance). Leadership buy-in and coordination helping catalyse real engagement:** applicable given the multinational nature of the EBCG and need for coordination with the EU agencies and bodies

Energy Defence Data Collection, Analysis and Sharing (E-DCAS) Support Frame Project

This project aims to gain a better overview and understanding of the types and volumes of energy resources used by the Armed Forces on an annual basis. It proposes a holistic approach to addressing the identified need to structure energy information collection and analysis to grasp valuable insights, as well as to systematise the process.

Objectives:

- Establish a methodological framework (SOP – Standard Operating Procedure) for collecting and monitoring the defence energy data of the pMS, including energy-related defence terminology.
- Include a set of quantitative indicators, guidance for data collection and analysis; propose recommendations to address data gaps.
- Collect, evaluate and process MoDs' building and transportation statistics and provide a snapshot of the current status of the pMS defence energy performance.
- Set up a methodology for the continuous monitoring of the building stock.
- Maintain a dedicated webpage to present the data collected as well as other communication tools (presentations, factsheets, etc.) to raise awareness further and enhance participation.

Risks:

- Considerable numbers of smart metering devices are required in order to partition the energy consumption into relevant uses, due to:
  - Significant sizes of the building stock, which is widely dispersed
  - Complex internal electricity distribution grids
  - Financial resources to procure adequate numbers of smart metering devices to cover the existing building stock
  - There are cases in which the Armed Forces are just occupants of the infrastructure and, in that capacity, any intervention (including the installation of smart metering devices) has to be carried out by the owner

Timeline: Since 2016

Best practices inspired by the case study and their applicability to the EBCG:

- **Establishing a methodological framework for collecting and monitoring data:** relevant given the multinational nature and scale of EBCG operations; essential for managing the complex and voluminous data necessary for effective sustainability risk management, monitoring, and reporting
- **Raising awareness and enhancing participation by maintaining a dedicated website:** valuable tool for enhancing cooperation and knowledge-sharing between EBCG authorities. Additionally, relevant in addressing any potential scepticism regarding the relevance of sustainability and possible conflicts with EBCG priorities, and mitigating risks to successful implementation of sustainability strategy

SmartBlue Water Camps (SBWC)

The SmartBlue Water Camp profiling tool was developed to assess the sustainability of water management in military camps using a KPI framework tailored to the management practices and specifics of the military sector. Responsible water use is important for the achievement of three Sustainable Development Goals: SDG 6 (Clean Water and Sanitation), SDG 12 (Responsible Consumption and Production), and SDG 14 (Life Below Water). The project assessed existing military water management systems and installations at chosen military sites in five participating Member States. The selection of the military camps was based on two distinct criteria: the willingness of the camp's leadership to participate and existing knowledge on the camp's water cycle. The opportunities that were presented by military camps in terms of improved water management included abundant space for the deployment of water demand management technologies e.g. sustainable draining systems, rainwater harvesting and recycling systems, green roofs and walls, similarity of military installations from an upscaling perspective, transferability of case studies and knowledge, and the capacity for long-term commitments by the military (from a continuation perspective).

Main challenges:

- proper modelling of water and wastewater cycle;

- consideration of social, economic, environmental, and technical context;
- assessment of scenarios.

Project KPIs: The SmartBlue Water Camp profiling tool comprises 31 Performance Indicators (PI) to evaluate the sustainability of water management in a camp, covering all aspects of the military water cycle, and 15 Context Factors (CF) that assess the background characteristics of the surrounding area, enabling a deeper understanding and interpretation of the PI values. The framework aims not only to enable a quick understanding of water management conditions in the camps assessed but also to allow comparisons and identification of opportunities for change (need to decrease water supply, opportunities to increase water reuse, requirements for renovation, gaps in personnel allocation for water management etc.)

Performance Indicators assess the efficiency, effectiveness and sustainability of the delivery of water services that result from the combination of several variables. The Performance Indicator set consists of 31 indicators in nine categories:

- **PI1: Water supply:** Water supply per person, Water supply self-abstraction
- **PI2: Water use:** Water use per person, Potable water use, Irrigation water use, Military operations water use
- **PI3: Wastewater**: Reused water vs treated and discharged, Reused water vs abstracted, Reused water vs used, Military operations' wastewater treatment, Secondary wastewater treatment, Tertiary wastewater treatment, Sewage sludge recycling
- **PI4: Infrastructure:** Water system leakages, Age of sewers, Age of water supply pipes, Storm water separation, Percentage of green and blue areas
- **PI5: Governance:** Water and wastewater action plans, Water and wastewater management personnel
- **PI6: Energy:** Energy intensity, Energy recovery from Wastewater Treatment, Fraction of renewable energy
- **PI7: ICT:** ICT services for water management, ICT services for wastewater management
- **PI8: Population:** Population change rate, Population variation (min-max), Permanent staff availability
- **PI9: Flood vulnerability:** Camp vulnerability to river floods, Camp vulnerability to sea level rise, Camp vulnerability to urban drainage floods

Context Factors assess the inherent environmental, social and economic background characteristics of the area where the military installations are located and explain the values of the performance indicators. Fifteen context factors have been identified, divided into eight categories:

- **CF1. Water Quantity**: Freshwater scarcity, Groundwater scarcity, Groundwater mineralisation
- **CF2. Water Quality**: Surface water quality, Groundwater quality
- CF3. Flood Risk
- CF4. Heat Risk
- **CF5. Economic Factors:** Total government expenditure, Deviation of budget allocation, Country policies
- **CF6. Population evaluates:** Country population change rate, Military population change rate
- **CF7. Climate Change**: Climate change adaptation, Water Framework Directive implementation, Flood Directive implementation
- CF8. ICT factors

Timeline: during 2017 and 2018

Best practices inspired by the case study and their applicability to the EBCG:

- **Improving water management and introducing water management technologies, such as sustainable drainage systems, rainwater harvesting and recycling systems:** relevant to high water-use cases across core operations and premises
- **Comprehensive and robust range of Performance Indicators for effective monitoring; inclusion of Context Factors which impact water use (e.g. governance, energy, and ICT):** relevant given the multinational nature and scale of EBCG operations; essential for managing the complex and voluminous data necessary for effective sustainability risk management, monitoring, and reporting

Infrastructure management

The EDA has launched a project to look for alternative headquarters due to constraints in the current one in terms of office space, meeting rooms and sustainability. It is also interested in EMAS and BREEAM or similar certifications after the relocation.

The EDA is developing a service catalogue which will better explain the services offered and how these services can be used. Actions that affect infrastructure management include:

- regular inspections of technical installations to confirm their proper functioning;
- tightening the recycling policy: paper, plastic, organic waste, glass, plastic bottles, masks, and sanitation;
- minimising the amount of non-recyclable waste;
- giving a second life to outdated appliances as part of a project to donate them to charity;
- using LED office lighting;
- installing a VTC system in most meeting rooms to encourage video conferencing instead of meetings with physical presence;
- limiting the running time of HVAC (heating, ventilation and cooling) technical installations, bearing in mind the wellbeing of employees;
- increasing the purchase of environmentally friendly office equipment items;
- restrictions on employees' use of a dishwasher. Only the cleaning company is allowed to run the dishwasher and only after it is fully loaded may it be turned on.

Main challenges:

- communication obstacles;
- renting sustainable buildings;
- set purchasing criteria;
- appropriate agreement with the landlord (shared renovation costs).

Planned actions:

- EMAS and BREEAM (or other international certification) declaration, verification and validation for headquarters

Best practices inspired by the case study and their applicability to the EBCG:

- **Improving energy efficiency:** applicable given energy-intensity in use of EBCG premises
- **Raising awareness among building users:** applicable to changing behaviours regarding waste reduction and energy saving practices
- **EMAS registration ambition:** applicable to enhancing environmental management
- **Regular building performance monitoring:** applicable in relation to frequent improvement of EBCG premises and infrastructure against sustainability criteria (e.g. energy efficiency and resource intensity)
- **Recycling and waste reduction:** applicable to resource-intensive nature of operations requiring extensive use of products and items (e.g. weapons, uniforms, vehicles, electronic equipment, office stationery and paper, and furnishings)
- **Catalogue explaining services offered:** increasing awareness about the use of the infrastructure and the services provided in the building

3.2.1.4. French Ministry of Interior – Ministère de l'Intérieur

Sustainable development strategy

The French Ministry of Interior (MoI) has implemented a common cross-government sustainable development strategy which aims to create sustainable public services. The strategy was formulated by the Prime Minister and the Ministry of Sustainable Development for all publics services that come under the jurisdiction of the state – including ministries and other public institutions.

The strategy comprises three pillars: compliance with 20 mandatory measures relating to sustainability, and involvement of public servants. The 20 mandatory measures relate to sustainable transport, purchasing, building, biodiversity, circular economy and green IT. In terms of compliance with the mandatory requirements, the French MoI has started to perform carbon footprint assessments and is drafting local travel plans in order to prevent air pollution. Every Ministry must perform a carbon footprint assessment every three years. The carbon footprint is calculated based on the methodology guide for carbon footprint assessment issued by the French Ministry of Sustainable Development. The French MoI has also started to involve public servants in making public services more sustainable.

Main challenges:

- setting targets for GHG emissions reduction, step-by-step plan to achieve neutrality in 2050 – no defined decarbonisation map for carbon footprint;
- lack of resources to achieve set targets, multitasking of resources;
- lack of appropriate training in methodology and lack of data;
- scale of organisation;
- communication;
- involving public servants in making services more sustainable.

Project KPIs:

The State has committed to sustainable mobility for its employees

Measure 1: The State has committed to introduce a sustainable mobility package of EUR 200 for State civil servants who travel to work by bicycle or carpool.

Measure 2: The State has committed to establish partnerships with carpooling actors to support and encourage all its agents to carpool during their daily home-work trips. A solution, open to other employers (both public and private), is currently being developed in the Grand Est and Auvergne-Rhône-Alpes Regions.

Measure 3: The State has deployed carpooling management software for work-related travel for all government agencies (decentralised services and public institutions).

Measure 4: The State has accelerated the installation of charging stations for electric vehicles at its sites: at least 500 additional charging stations are envisaged by the end of 2021.

Measure 5: The State has committed to ensuring that all new vehicles for ministers, secretaries of state and prefects are electric or plug-in hybrids (except for armoured vehicles). In addition, at least 50% of the service and official vehicles acquired by the State and its public institutions must be electric or plug-in hybrid vehicles. The results of this measure are made public annually.

Measure 6: The State has undertaken to install secure bicycle parking spaces for its employees in all of its parking lots and to provide bicycle parking spaces in sites open to the public.

Measure 7: Each ministry is to fund projects to combat greenhouse gas emissions up to the amount of CO2 emissions generated by the air travel of its employees. Air travel is allowed when the travel time by rail is more than 4 hours. In specific cases where the trip is made in the same day, air travel is authorised when the total travel time (round trip) by rail is greater than six hours.

Measure 8: In order to reduce travel, the State is to provide all its employees with a videoconferencing solution.

The State is committed to more responsible purchasing

Measure 9: The State has committed to no longer purchasing single-use plastic for use in the workplace and at events it organises.

Measure 10: When renewing its contracts, the State will include in its calls for tender provisions on taking into account the risk of deforestation (in particular in relation to products mentioned in the national strategy to fight imported deforestation). In order to accelerate this transition, the State will draft standard clauses to support public purchasers and secure their contracting procedures.

Measure 11: The State has committed to systematically using recycled office paper whenever it is available. Otherwise, it may only use paper from sustainably managed forests.

The State is committed to a more environmentally friendly food supply

Measure 12: When renewing contracts, the State and its public establishments will implement, in advance of the deadline set by law, the objectives for sourcing quality and sustainable products (at least 50%, including at least 20% organic products) in their catering services. They display and monitor at least once a year the proportion of these products in the meals served in their collective restaurants. They promote the quality and diversity of protein intake.

The State is committed to reducing energy consumption in public buildings

Measure 13: The State has committed to deploy a tool for monitoring energy consumption in order to obtain a reliable energy map of its buildings and optimise its energy bill, and to publish in open data the list and/or map of buildings owned by the State, specifying their surface area and the type of energy used for their heating.

Measure 14: The State has committed to prohibit the purchase of new oil-fired boilers or the carrying out of major repair work on these boilers, and to completely eliminate oil-fired boilers in its buildings by 2029, with the exception of the Ministries of the Interior and of the Armed Forces, which will be given an additional period of time, given the specific nature of their buildings.

Measure 15: As part of the Major Investment Plan (Grand Plan d'Investissement), the State has set ambitious targets for 39 administrative buildings that are emblematic of the State's presence in the regions, with a two-thirds reduction in energy bills and a 50% reduction in greenhouse gas emissions by the time this 2018-2022 Plan is complete.

Measure 16: The State has launched an action programme for its buildings, with a budget of EUR 20 million and open to innovation, for the implementation of simple work to rapidly reduce energy consumption (control and regulation devices for lighting, heating and air conditioning systems, etc.), with the goal of mass implementation by 2022.

Measure 17: The State has launched an awareness and involvement campaign for civil servants, for the entire State administration and its operators, aimed at developing energy-saving and responsible behaviours that will reduce energy consumption.

The State is committed to reducing the use of phytopharmaceutical products

Measure 18: The State no longer uses phytopharmaceutical products for the maintenance of green spaces, forests, roads and promenades, whether or not these areas are open to the public.

The State is committed to the circular economy and responsible digital technology

Measure 19: The State is setting up a platform enabling its departments to exchange goods and give associations the goods and equipment it no longer uses. It is committed to systematically offering associations and actors in the social and solidarity economy the equipment that it no longer has any use for.

Measure 20: The State will develop a strategy to reduce the public sector's digital carbon footprint. This will include an initiative to raise awareness of digital eco-actions among employees and the purchase of reconditioned equipment or consumables.

Best practices inspired by the case study and their applicability to the EBCG:

- **Involvement of public servants:** relevant to the EBCG for securing support and coordination for the benefit of successful implementation of strategy
- **Performing carbon footprint assessments:** fundamental stage for the EBCG necessary for subsequent tailoring and planning of sustainability strategy and initiative selection
- **Top-down control and coordination across enacting entities:** applicable given the multinational nature and need for coordination with other EU agencies and bodies. Furthermore, valuable in addressing wider systems and mitigating the risk of opportunity restrictions in the form of mismatched policy
- **Green IT expressly considered in strategy:** relevant to Frontex and the EBCG community given extensive use of information systems and environmental risk management potential offered
- **Comprehensive and coordinated approach:** comprehensive list of clear measures categorised by commitment areas; coordination between the EBCG authorities to adopt common strategy

Pilot – Vehicle solar roof panels

During the IUCN World Conservation Congress in Marseilles in 2020, a police force numbering in the thousands secured the Congress. Police used flexible solar panels on the roofs of their vehicles to provide electricity to charge the batteries of the radio rather than letting the engine run. The project ran as a pilot phase testing this measure, and after success in the pilot, the MoI is looking to expand this initiative further (by mounting solar panels on a larger number of police vehicles).

Best practices inspired by the case study and their applicability to the EBCG:

- **Solar panel auxiliary charging for vehicles/vessels:** relevant to decarbonisation of fleets and additionally increasing operational resilience

Sustainable event certification ISO 20121

ISO 20121 offers guidance and best practice in event management – namely limiting the social, economic, and environmental impact. Examples include using tap water instead of water in plastic bottles, encouraging the use of public transport, and separating waste. It covers all stages of the supply chain, as well as monitoring and measurement guidelines. Certification was obtained for the G7 Ministries of Interior and Home Offices meeting in Paris in April 2019. The communication department has also recently received this certification.

Main challenges:

- understanding stakeholder requirements;
- promoting responsible behaviour by suppliers and visitors;
- developing a responsible purchasing policy;
- improving the energy efficiency of property;
- organising efficient events in a social, energy and environmental context.

Best practices inspired by the case study and their applicability to the EBCG:

- **Implementation of ISO 20121:** ISO 20121 is recommended by the European Commission

Green fleet

The French Ministry of the Interior is participating in France's recovery plan: 1 200 electric and hybrid cars have been ordered for the police. There are plans to purchase 1 900 more in 2021.

Main challenges:

- operational efficiency;
- cost efficiency;
- cost-reduction initiatives;
- implementing green fleet initiatives;
- change management (overcoming resistance to electric vehicles for fear of unreliability).

Best practices inspired by the case study and their applicability to the EBCG:

- **Increasing use of electric vehicles in fleet:** applicable due to vehicle-intensive nature of EBCG operations

Protecting biodiversity

MoI has announced a call for applications. Last year, the MoI financed 70 projects. Projects may be boxes for birds, bats, insects, or henhouses, as well as the planting of trees, building vegetable gardens and eco-pasture. Following this project, the MoI commenced a partnership with the French league for the protection of birds and the Ministry of Sustainable Development to prevent helicopter pilots and mountain rescuers from flying over the nests of endangered bird species in the mountains.

Best practices inspired by the case study and their applicability to the EBCG:

- **Involving communities in environmental initiatives:** relevant to the EBCG for better understanding of the range of biodiversity impacts core operations may involve (particularly through vehicle and aircraft use beyond urban areas, and use of vessels), and identification of mitigation opportunities

Sustainable development incubator – SYMBI'Ose

The French MoI has created a sustainability incubator – SYMBI'Ose, which aims to improve the sustainability of the ministry with innovative solutions that can be deployed on a large scale – across 300,000 employees. The programme aims to engage employees in aspects of sustainability. An information campaign was organised to inform them about the opportunity to participate in the programme. It was conducted on a large scale through a newsletter and intranet. The project leader is the Chief Administrative Officer, who encourages involvement and secures resources. Managers are not allowed to discourage employees. More than 100 sustainability innovation projects were submitted from various disciplines. Due to a lack of innovation expertise, an outside firm was hired to help select innovations. In the first phase, 20 projects were selected. Then two workshops were held after which 10 projects were selected. Interviews have been conducted and two projects will be selected. These two projects will be implemented throughout the organisation.

Main challenges:

- new project and developing new experience;
- cooperation, communication among teams within the organisation;
- setting appropriate timeframe for the project;
- cooperation with external company specialising in social entrepreneurship;
- change management (to encourage managers to accept sustainability as additional responsibility);
- essential to secure financial and human resources.

Best practices inspired by the case study and their applicability to the EBCG:

- **Sustainability incubator to test and innovate solutions:** applicable to the EBCG for the enhanced testing and preparation of solutions, to model and anticipate impacts within the range of differing operations, allowing for more effective tailoring of environmental solutions to needs and ensuring solutions do not affect operations negatively
- **Innovation Centre:** sustainability incubator could become part of, or the basis for, a wider innovation centre which would serve to test and trial run innovative solutions to the EBCG community's problems and needs

Reducing waste

The French MoI has established a professional recycling network for clothing with other public and private actors called FIREX. It has integrated environmental clauses on eco-design into clothing calls for tender so as to foster recycling and extend their lifespan. The MoI also promotes access for start-ups to public procurement. Such initiatives have allowed for 50% savings and avoidance of the extraction of 4 tonnes of raw materials and emissions of CO2. An example of such a project was the proposal to create an app in order to enable all police officers in France to give back or exchange their uniforms if they no longer fit, so as to reuse them instead of throwing them away.

Main challenges:

- scale of the organisation (all over France);
- not all elements of the uniform are recyclable;
- change management;
- cost efficiency;
- security: ensuring official uniforms are not sold on the internet or to the public.

Best practices inspired by the case study and their applicability to the EBCG:

- **Recycling:** applicable to the resource-intensive nature of operations requiring extensive use of products and items (e.g. weapons, uniforms, vehicles, electronics, office stationery and paper, and furnishings)
- **System for re-use and redistribution of uniforms:** as the EBCG uses uniforms extensively, they may find re-use systems effective in reducing resource use
- **Increasing employee involvement in sustainable activities:** relevant in addressing any potential scepticism regarding the relevance of sustainability and possible conflicts with EBCG priorities

ISO 20400 standard – Sustainable procurement

The French MoI is introducing the ISO 20400 standard on relations with suppliers and sustainable procurement. It involves all buyers and suppliers in the commitment to sustainable procurement and social responsibility as well as continuous improvement throughout the whole buying process. MoI has also started partnership with Réseau Gesat, a network that aims to help disabled people integrate in the world of work while delivering sustainable products and services and ensuring healthy work conditions. In order to do so, the MoI puts social integration clauses into its public procurement with EPEC (Ensemble Paris Emploi Compétences – Together Paris Employment Skills) as a facilitator.

Main challenges:

- communication about approach and objectives;
- willingness to get the certification;
- understanding the "scale" of the project;
- involving the entire supply chain in the process.

Timeline: until June 2022 to implement all requirements

Planned actions: The ambition is for every French ministry to be ISO 20400 certified.

3.2.1.5. Portuguese Navy – Marina Portuguesa

Interview with Portuguese Navy – Marinha Portuguesa was not carried out. Information is based on desk research and provided materials.[64] Portuguese Navy – Marinha Portuguesa was consulted to verify information.

ISO 14001 Environmental Management System Certification

The Portuguese Navy has implemented an environmental management system (EMS) on the basis of certification of International Organisation for Standardisation (ISO) standard ISO 14001 to proactively manage their environmental impact through a commitment to pollution prevention, legal compliance and continual improvement. This certification embeds environmental management within an organisation's strategic plans. The Portuguese Navy defined a methodology for monitoring, analysis and evaluation of ISO-relevant criteria, analysed environmental considerations and their impact, and implemented environmental policies within its internal structure accordingly. The Portuguese Navy also improved personnel qualifications by implementing the required education and training. A number of actions are worthy of mention. First, with the introduction of energy management, efficiency was improved significantly. In addition, intelligent consumption and freshwater management were implemented. The Portuguese Navy also introduced solid waste management and waste water management. Finally, the emergency response was improved.

Decision-making process: ISO 14001[65] facilitates and structures the engagement of top management in their environmental leadership efforts. Environmental aspects and related risk assessment need to be considered in decision-making processes. Environmental criteria and life cycle perspectives need to be included in purchasing process.

Project KPIs: Implementation and certification of ISO 14001 Standard and monitoring of associated indicators.

Periodic verification of results achieved: In accordance with the ISO 14001 requirement to monitor and periodically verify environmental KPIs, the Navy is tracking progress.

Best practices inspired by the case study and their applicability to the EBCG:

- **Application of systematised approach (ISO 14001)**: relevant given multinational nature and scale of EBCG operations; assists in managing the complex and voluminous data necessary for effective sustainability risk management, monitoring, and reporting
- **Analysis of environmental impact:** fundamental stage necessary for subsequent tailoring and planning in sustainability strategy and initiative selection – further necessary given complexity and scale of EBCG's operations
- **Managing environmental impact through commitment to pollution prevention, legal compliance, and continual improvement:** applicability as above
- **Implementing education and training:** applicable to introduction of novel monitoring systems and readying the EBCG for new processes

Sustainable vessel

The Portuguese Navy introduced the NRP *Viana do Castelo* patrol vessel class in 2005 and the first vessel was commissioned in 2010. It is classified as an ocean patrol anti-pollution vessel. It was planned by and for the Portuguese Navy. The process of introduction was split between strategic and operational levels. At the strategic level, introduction of the Government Programme, Defence Strategic Environmental Directive and Portuguese Navy Strategic Directive acted as the legislative foundation. At the operational level, technical manuals, Standard Operating Procedures and education and training were fundamental. The solutions implemented allowed for a reduction in emissions, improved energy

[64] *Source: Marinha Portuguesa, Environmental Thinking Inside the Naval Environment Presentation, 2020. Material used as source for subsequent Portuguese Navy initiatives and actions.*

[65] *International Organisation for Standardization. Available from: ISO - ISO 14000 family — Environmental management*

efficiency and better waste management. This class has 2 Diesel Engines (DE), 2 Electric Motors, 2 Shaft lines and a Controllable Pitch Propeller. It complies with International Maritime Organisation (IMO) Tier II emission standards and subsequent ships will be prepared to be compliant with IMO Tier III. Electric propulsion is possible up to 10 knots. The ship is also able to sail with just one Diesel Engine at up to 15 knots. Energy efficiency is achieved by using diesel engine cooling water in the heating system and through automated energy management controls.

Waste management includes a system for recovery and transfer of pollutants spilled at sea, including a de-oiler was implemented for oily waters. There is an internal steam circulation coil to allow the heating of the existing pollutants inside the tanks to facilitate their extraction. The vessel has a sewage system for black/greywaters. There are organic and non-organic waste processing units, and clear standard operating procedures to ensure no waste is dumped at sea. Cooled storage is used for organic waste.

Main challenges:

- compliance with international law and specific port administration laws;
- mission details are considered sensitive information;
- given the ship design, market availability of parts and equipment;
- demanding equipment maintenance;
- regular training and education for the crew.

Timeline: The vessel was launched on 1 October 2005 and has been in commission since March 2010.

Best practices inspired by the case study and their applicability to the EBCG:

- **Introducing sustainable class of vessel:** relevant given vessel-intensive nature of EBCG operations
- **Providing education and training:** applicable to successful implementation of new environment-oriented policies and practices
- **Implementing technological solutions:** relevant to capturing novel opportunities for the reduction of environmental impacts across diversified core operations
- **Process of introduction was divided between strategic and operational levels: government ensured a legislative foundation, which in turn supported operational measures like technical manuals, standard operating procedures and education:** valuable in supporting efficacy and feasibility of implanting sustainable strategies by the EBCG authorities

Plan for the decarbonisation and energy efficiency of the Lisbon Naval Base[66]

This project was conducted in collaboration with the Infrastructure Directorate of the Portuguese Navy, the Institute of Science and Innovation in Mechanical and Industrial Engineering (INEGI) and the Institute for Systems and Computer Engineering, Technology and Science (INESC TEC). The project was initiated in line with the national strategy of decarbonisation of public infrastructure, with the objective of promoting the energy and environmental sustainability of the activity of the Lisbon Naval Base, a complex of port infrastructures, facilities, and services whose main function is logistical support to units moored in Lisbon. INEGI found that the Base could reduce the energy consumption of five buildings and infrastructure by 33% and thus save up to EUR 136 000 annually. It also identified a possible reduction of 457 tonnes in CO2 emissions annually. In order to reduce the environmental footprint of this complex, INEGI carried out an analysis of the breakdown of energy consumption at the Base. This enabled it to identify the five buildings with the highest energy consumption and the greatest potential for energy savings. In these buildings, an energy audit was carried out to identify the starting point and the inefficiencies from the perspective of energy performance.

Based on the information collected in the audit and with the support of technical and economic feasibility studies, solutions for improvement were identified. These ranged from energy efficiency measures (such as thermal insulation

[66] *Source: INEGI, "INEGI traces decarbonisation plan for Lisbon Naval Base at the request of Portuguese Navy" press release, 2020*

and the replacement of technologies in the technical systems of the buildings) to the integration of renewable energies, and electric and thermal energy generation systems for auto-consumption.

Best practices inspired by the case study and their applicability to the EBCG:

- **Reducing energy consumption and implementing energy efficiency measures:** relevant given the energy-intensive nature of EBCG's core operations and use of premises
- **Conducting an energy audit:** a fundamental stage necessary for subsequent tailoring and planning in sustainability strategy and initiative selection – further necessary given the complexity and scale of EBCG's operations
- **Introducing technological solutions in the technical systems of buildings:** relevant to capturing novel opportunities for the reduction of environmental impacts across premises and infrastructure used by the EBCG authorities
- **Quick-win prioritisation of actions:** targeting worst "offenders"; relevant for defining a feasible roadmap and maximising environmental benefits through pragmatic prioritisation

3.2.1.6. Swedish Coast Guard (SCG)

Policy and planning

The Swedish Coast Guard (SCG) has identified a number of areas for improvement, which are helping shape internal strategy. The SCG has evaluated technical ship specifications and instances when the ships are operated. It has identified the fact that technical specifications do not perfectly match the operational use of ships; operational profiles are not optimised for efficiency. Without an accurate operating profile, it is difficult to build a ship that is optimal in how it uses energy and also mitigate the risks of engine breakdowns. The SCG initiated a pre-study for an energy measuring system that can be used to analyse both behaviour and the effect of energy efficiency measures, which will inform the latest newbuilding and retrofit projects and better predict operating profiles. Furthermore, it will be used to learn more about how to best operate ships and supplement the education of future crews.

The SCG has suggested reserving budget funds for environmental and efficiency projects. Some energy efficiency measures have been implemented, particularly in lifetime extensions of older vessels. However, for existing vessels, all projects compete within the same budget together with safety issues, corrective maintenance and preventive maintenance. The result is that most projects are transferred from one year to the next without securing necessary funding.

It has been suggested that the need for large tanks for recovered oil be reconsidered and re-evaluated to confirm whether they are necessary, or whether the capacity issue can be solved another way. The suggestion was based on the reasoning that large tanks typically lead to larger ships, which typically leads to higher fuel consumption across a vessel's lifetime.

A strategy is taking shape in the SCG; a strategy for a fossil-free fleet was sent to the Swedish government in January 2021, and an internal report suggesting actions the SCG should take in 2021-2025 in order to meet 2030 and 2045 targets is nearing completion. The internal SCG strategy has identified speed management and the need for updated ship specific-manuals and instructions as areas of improvement. A process has been started to prepare a training course in eco-driving.

Main challenges:

- limited coordination between initiative leaders (unstructured);
- unclear what objectives should be followed/prioritised; no person responsible for energy;
- different persons working within their own area (e.g. vehicles, fleet, aviation, travels); ad hoc support on collegiate basis;
- goals lacking necessary resources;
- low Budget; SCG top management stress the need for a total budget increase if the fossil-free fleet strategy is to be implemented feasibly.

Best practices inspired by the case study and their applicability to the EBCG:

- **Education and training (e.g. eco-driving):** relevant to preparing the EBCG for adoption of new processes and/or technologies
- **Defining dedicated strategy, integrating sustainability into operations:** relevant to increasing success of initiatives and ensuring sustainability considerations are not side-lined in favour of traditional operational concerns

Strategy for a fossil-free fleet

The Coast Guard's proposed strategy for achieving fossil-free operations is to work in parallel with fuel replacements, a greater climate focus in the management of operations (steering), energy efficiency of the vessels, and increased electrification of the fleet. Policies, energy efficiency and increased electrification are estimated to hold the potential to reduce fossil fuel needs by up to 50% versus current needs today. The remaining SCG emissions are to be eliminated with the aid of more sustainable fuel substitutes, e.g. HVO (hydrotreated vegetable oil) or e-MGO ("green" marine gas oil). In accordance with the strategy, renewable fuel use should be built up so that the SCG may gradually bring emissions down to zero by 2045.

In the Energy Efficiency Pillar, the SCG has started a pre-study on ship energy efficiency management plans and energy measuring systems. Work has also started to investigate if shore connections can be accessed in a greater number of ports. At present shore connections are mainly in home ports.

Within the Electrification Pillar, a pre-study has been started with the aim of identifying a suitable battery installation on the SCG's three largest MPVs (multi-purpose vessels) together with an estimated cost. Budget funds will then be requested from the government in order to proceed with this solution.

In terms of fuel substitutes the SCG has introduced HVO100, a sustainable (and low carbon) biodiesel, in one patrol boat as a test. HVO is currently considered to have the best potential for a transition to fossil-free operations in the Coast Guard and the Swedish Maritime Administration fleet. Engines which run on HVO can also run on traditional diesel, providing flexibility and security in the event of emergencies or threats to the supply of HVO. Depending on funding, the amount of HVO being used will increase in future.

Main challenges:

- innovation restrictions due to stakeholder requirements (Navy can commandeer ships during crisis and they must be compatible with the Navy's primary fuel: diesel);
- scale and infrastructure for alternative fuels in turn limits possibility for change: security concerns/limitations.

Best practices inspired by the case study and their applicability to the EBCG:

- **Improving green and sustainable fleet:** applicable to fuel-intensive nature of EBCG operations, relying on fossil-fuelled vehicles, aircraft and vessels
- **Transition to bio-fuel alternatives where electrification not suitable:** applicability as above
- **Introducing energy and fuel efficiency systems:** applicability as above, with additional relevance to use of premises: systematising management of energy-use across complex operational areas

3.2.1.7. US Department of Homeland Security (DHS)

Interview with U.S. Department of Homeland Security was not carried out. Information is based on desk research.[67] DHS was consulted to verify information.

3.2.1.8. Sustainability and Environmental Programmes (SEP)

The Department of Homeland Security (DHS) is committed to reducing greenhouse gas emissions, energy, water, and waste and operating high-performance, sustainable buildings and fleets. It has implemented Sustainability and Environmental Programs (SEP) which provide policy, guidance, training, technical support, and Department oversight through coordination with DHS components and consultation with the public. As a result, energy and resilience, sustainability and environmental compliance, environmental planning and historic preservation programmes are appropriately integrated throughout the activities, operations, and programmes of the DHS and its stakeholders.

Best practices inspired by the case study and their applicability to the EBCG:

- **Providing policy, guidance, training and technical support:** applicable given the multinational nature of and need for coordination within the EBCG and other EU agencies and bodies
- **Integrating sustainable programmes with their own activities and operations:** applicability as above
- **Departmental oversight and management to ensure appropriate integration and implementation:** applicability as above
- **Reducing greenhouse gas emissions, use of energy, water and waste:** applicable given energy- and resource-intensive nature of core operations, and use of premises

Scorecard on Sustainability and Energy

The DHS also uses a Scorecard on Sustainability and Energy as a benchmark to identify and track the best opportunities for reducing pollution, improving efficiency and cutting costs. Based on this benchmark, the DHS updates its Sustainability Report and Implementation Plan. The DHS is committed to an energy efficiency strategy, reducing fleet petrol consumption, conserving water, reducing waste and greenhouse gas emissions, leveraging federal purchasing power to promote environmentally preferred products and technologies, and accelerating its sustainable buildings programme.

Best practices inspired by the case study and their applicability to the EBCG:

- **Tracking the best opportunities to reduce pollution, improve efficiency and cut costs:** relevant given scale and energy-intensity of EBCG core operations and use of premises
- **Leveraging government purchasing power to promote preferred products and accelerate programmes:** applicable given the EBCG context and role in the EU communities, and relations with national and EU governing bodies
- **Leveraging energy performance contracting to achieve energy reductions, water efficiencies and facility resilience at key locations:** applicable given energy and water use by the EBCG

Green fleet

The DHS Motor Vehicle Programme has a 10-year plan to electrify a portion of the Department's fleet. The Department currently has around 51,000 vehicles within its fleet inventory and over the current decade plans to replace fossil fuel vehicles with electric vehicles, where appropriate, to optimise the fleet.

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[67] *Source: U.S. Homeland Security, Sustainability and Environmental Programs, Sustainability and Environmental Programs | Homeland Security (dhs.gov)*
U.S. Department of Homeland Security, 2019 Sustainability Report and Implementation Plan, Department of Homeland Security 2019 Sustainability Report and Implementation Plan
Homeland Security, 2018. Sustainability Report and Implementation Plan. Available from: https://www.dhs.gov/2018-SSPP
Material used as source for subsequent DHS initiatives and actions.

Best practices inspired by the case study and their applicability to the EBCG:

- **Plans to replace fossil fuel vehicles with electric vehicles where appropriate to optimise fleet:** applicable to EBCG operations given extensive reliance on conventionally (fossil) fuelled land, sea, and air vehicles within performance of core operations

Water efficiency

The DHS plans to increase water efficiency by 2.5% in 2021. The Coast Guard recapitalised its Advanced Metering Initiative (AMI) and Energy Data Management System (EDMS) in 2019. Tracking and managing water at locations with advanced water meters is becoming more effective.

Best practices inspired by the case study and their applicability to the EBCG:

- **Increasing water efficiency through enhanced monitoring of use:** applicable to reducing water intensity across EBCG operations and buildings use, as part of environmental impact mitigation

Waste management

The DHS plans to reduce non-hazardous solid waste generated in 2021 by 50% relative to 2020. The Federal Law Enforcement Training Centres' Recycling Program sites generated almost USD 500,000 in gross revenues from the sale of recyclables during 2019.

Best practices inspired by the case study and their applicability to the EBCG:

- **Recycling centres to maximise economies of scale in recycling:** applicable to reducing impact of waste, as part of environmental impact mitigation

Sustainable acquisition/procurement

The DHS sustainable acquisitions guidance is included in the Homeland Security Acquisition Manual (HSAM) and the DHS Affirmative Procurement Plan. Based on this guidance, the DHS issues a Sustainable Acquisitions Checklist for the acquisition workforce. The checklist assists programme and contracting staff in selecting sustainable products and services for procurement. The HSAM addresses sustainability considerations, spanning environment, energy, water efficiency, and renewable energy technologies (amongst others). An example within energy efficiency is the direction to procure ENERGY STAR® or FEMP (Federal Energy Management Program) certified products. Other examples include the direction to give procurement preference to products using recovered materials (as part of the Resource Conservation and Recovery Act – particularly for a designated list of items (such as paper products, office products, construction products etc.), or the direction to purchase WaterSense labelled products where possible (under the voluntary Environmental Protection Agency programme that identifies products conserving the nation's water supply – e.g. efficient and low-flow water heads and toilets).

Best practices inspired by the case study and their applicability to the EBCG:

- **Sustainable procurement guidelines and checklist:** applicable to the EBCG given major volumes of procured technologies and products necessary for the performance of core operations

3.2.2. Summary of inspirations

As an outcome of desk research and interviews with Frontex staff, the following benchmark organisations were selected to best fit Frontex's unique characteristics:

- Deloitte The Edge NL Office
- European Central Bank
- European Defence Agency
- French Ministry of Interior – Ministère de l'Intérieur
- Portuguese Navy – Marinha Portuguesa
- Swedish Coast Guard
- U.S. Department of Homeland Security

Projects and initiatives for sustainable environment were investigated based on a desk review for all the organisations indicated above. Additionally, five of the organisations were interviewed by the research team to supplement desk review outcomes. All organisations were consulted to verify research and findings.

The analysis shows that certain types of initiative, like reduction of emissions or increasing energy efficiency, are more often recognised as universal across the different organisations, while some others like biodiversity are less so. For the purpose of this research study, representative examples of project types which could be applicable to the EBCG were selected.

An overview of initiative types implemented by benchmark organisations is collated in Table 2.

Table 2- Overview of organisational initiatives and related principles.

Agency	Initiative[68]	Best practice inspirations	Related principles[69]
Deloitte: The Edge NL	Construction and design	- Engaging employees in eco-friendly mobility - Certificate for sustainable buildings - Recycling and resource efficiency solutions - Building with sustainability as a guiding parameter	1, 5, 6
	Operational dimension	- Collection and use of data: monitoring used to maximise efficient use of resources (e.g. cleaning offices only where high foot traffic was recorded) - Energy and water performance analysis - Sustainable solutions in building management - Specifications prepared for future retrofits	2, 3, 4, 5, 6
European Central Bank	Environmental Management System	- Environmental Management System - Environmental Management Handbook	2,4,5
	Climate Change Centre	- Dedicated Change Management body - Environmental representatives	1,3,6
	Sustainable Building	- Energy performance analysis - Collection and use of data - Retrofitting existing buildings to enhance energy efficiency	1,3,4

[68] List of initiatives provided is not exhaustive, but rather a selection of those relevant for the EBCG. Organisations implement other initiatives outside the scope of this review.

[69] More information about these principles can be found in section 4.2. Principles were assigned by the analyst on the sole basis of initiatives selected as relevant for this review. Organisations may apply other principles which fell beyond the scope of analysis.

Agency	Initiative[68]	Best practice inspirations	Related principles[69]
European Defence Agency	Energy and Environment Programme EnE	- Cooperation with other entities - Collaborative and integrated approach across MS - Formalised knowledge sharing platform - Reducing environmental footprint - Reducing emissions and energy consumption - Foresight evaluations and adaptation plans for impacts of future energy policy on military capability	1, 2, 3, 5
	Consultation Forum for Sustainable Energy in the Defence and Security Sector CF SEDSS	- Improving energy efficiency - Utilising renewable energy sources in the defence sector - Energy management and policy - European Commission co-operation and support (EC initiative governed by the EDA): leadership buy-in and coordination helping catalyse real engagement.	1, 2, 3, 5
	EDCAS Support Frame Project	- Establishing a methodological framework for collecting and monitoring data - Raising awareness and enhancing participation by maintaining a dedicated website	1, 3, 4
	SmartBlue Water Camps (SBWC)	- Improving water management - Introducing water management technologies such as sustainable draining systems, rainwater harvesting and recycling systems - Comprehensive and robust range of Performance Indicators for effective monitoring: inclusion of wider indicators which impact water use (e.g. governance, energy, and ICT). - Integration of digital element as an indicator	2, 3, 4, 5
	Infrastructure Management	- Regular building performance monitoring - Recycling and waste reduction - Promoting eco-friendly mobility - Improving energy efficiency - Raising awareness among building users - Service catalogue explaining services offered - EMAS registration ambition	2, 3, 5
French Ministry of Interior	Sustainable development strategy	- Involvement of public servants - Performing carbon footprint assessments - Top-down control and coordination across enacting entities (here ministries) - Green IT expressly considered in strategy - Comprehensive and coordinated approach	1, 2, 3, 5

Agency	Initiative[68]	Best practice inspirations	Related principles[69]
	Solar Panels on roofs of vehicles	- Solar panel auxiliary charging for vehicles/vessels	5
	Sustainable event certification ISO 20121	- Implementation of ISO 20121	1, 2, 3, 4, 5
	Green Fleet	- Increasing use of electric vehicles in fleet	1, 2, 5
	Protecting biodiversity	- Involving communities in environmental initiatives	1, 6
	Sustainable development incubator – SYMBI'Ose	- Sustainability incubator to test and innovate solutions	1, 2, 3, 5, 6
	Reducing waste	- Recycling - System for re-use and redistribution of uniforms - Increasing employee involvement in sustainable activities	1, 4, 5, 6
	ISO 20400 standard	- Recycling centres to maximise economies of scale in recycling	1, 2, 3, 6
Portuguese Navy	ISO 14001 Certification - EMS	- Managing environmental impact through commitment to pollution prevention, legal compliance and continual improvement - Implementing education and training - Analysis of environmental impact - Application of ISO 14001 in EMS: systematised approach	1, 2, 3, 4, 5, 6
	Sustainable vessel	- Introducing a sustainable class of vessel - Providing education and training - Implementing technological solutions - The process of introduction was divided into strategic and operational levels: government ensured a legislative foundation, which in turn supported operational measures like technical manuals, SOP and education	5
	Plan for decarbonisation and energy efficiency of the Lisbon Naval Base	- Reducing energy consumption - Conducting environmental audit - Introducing technological solutions in the technical systems of buildings - Implementing energy efficiency measures - Quick-win prioritisation of actions: targeting worst offenders	1, 2, 3, 5
Swedish Coast Guard	Policy and Planning	- Education and training - Defining dedicated strategy, integrating sustainability into operations	1
	Strategy for a fossil-free fleet	- Improving green and sustainable fleet - Transition to bio-fuel alternatives where electrification is not suitable - Introducing energy efficiency system	1, 2, 3, 4, 5, 6
U.S. Department for Homeland Security	Sustainability and Environmental Programs SEP	- Providing policy, guidance, training and technical support - Integrating sustainable programmes with own activities and operations	1, 5

Agency	Initiative[68]	Best practice inspirations	Related principles[69]
		- Departmental oversight and management to ensure appropriate integration and implementation. - Reducing greenhouse gas emissions, use of energy, water and waste	
	Scorecard on Sustainability and Energy	- Tracking best opportunities to reduce pollution, improve efficiency and cut costs - Leveraging governmental purchasing power to promote preferred products and accelerate programs	2, 3
	Green Fleet	- Plans to replace fossil fuel vehicles with electric vehicles where appropriate to optimise fleet	5
	Water Efficiency	- Increasing water efficiency through enhanced monitoring of use	2, 3, 5
	Waste Management	- Recycling centres to maximise economies of scale in recycling	2, 3, 5
	Sustainable Acquisition/Procurement	- Sustainable procurement guidelines and checklist	1

3.2.2.1. Implications and inspirations for the EBCG

The table above summarises a range of actions the benchmarking organisations have undertaken (or plan to) within the sphere of environmental management and sustainability. They can be treated as inspiration for the EBCG for development of initiatives where they may be absent, or there is a potential for application of, and benefit from, lessons learned.

During a review of the case studies, it was possible to identify certain process-oriented best practices for the EBCG relating to implementation:

- Good governance and clear roles within environmental/climate action proved essential to supporting accountability and successful implementation
- Where a comprehensive approach to strategy was taken, the scale of positive impacts not only increased, but also appeared to be more robust, helping to embed environmental issues across wider operations
- A systemic approach by management at the operational level, following recognised international sustainability standards, is invaluable in successfully coordinating and implementing complex initiatives
- Piloting new technology supports the effective development and dissemination of environmentally friendly solutions
- Fact-based monitoring and targets not only helped set realistic goals, but also provided more accurate data for reporting purposes
- Voluntary self-regulation, voluntary agreements between stakeholders and overall innovative approach proved valuable in uncovering, and better defining, the appropriate areas of engagement.

A brief restatement of certain key challenges identified along the way may also offer a useful framework for further reflection on the approach to be implemented by the EBCG. Awareness of such challenges may prove essential in the tailoring and construction of the strategy to ensure it will be fully achievable.

Funding was mentioned by some organisations as a significant barrier.

Albeit a traditional barrier, the importance of funding is worth restating. Operational overhauls, and adoption of cutting-edge technologies at scale, require significant investments and capital. If organisational budgets and funding sources are not prepared, implementation of a strategy will inevitably stall.

Further support and coordination from leadership is key to successful implementation of sustainable initiatives.

Sustainability considerations typically fall beyond the core function of a department or organisation and are rather an additional layer wrapping it. Consequently, a strong executive leadership and senior management structure is necessary to elevate the commitment to, and importance of, sustainability across the organisation. Leadership buy-in is essential, and the weight of persons with the pertinent authority must support the strategy to truly catalyse and mobilise action.

Innovation and initiative restrictions.

At times, constraints outside the organisations' direct control were noted as severely undermining the capacity of a given organisation to realise identified potential actions. This highlighted the importance of systems thinking[70] (and further stressed the value of executive leadership coordination – e.g. at the governmental level), to ensure that requirements and targets are not being set for entities which are limited by the contexts of a wider organisational ecosystem. Efforts should be made to comprehensively evaluate the organisational ecosystem, identify dependencies, and work with all stakeholders to ensure that there are no bottlenecks in the pipeline to success.

Performance risk.

A final limitation relates to the maturity of technology. The implementation of a sustainability strategy cannot come at the cost of effectively fulfilling core duties and functions. At times, this may limit the suitability of novel technologies, on the grounds that using the technology could undermine the success of operations (e.g. introducing novel fuel supply will reduce reliability or replicability). Where significant budgets may in certain cases mitigate such risks, the opportunity costs of such investments must be carefully evaluated, as an equal amount of funds may bring greater environmental benefits elsewhere. A strategic roadmap should take such limitations into account, giving appropriate amounts of time for governments and organisations to support and scale the infrastructure and facilities needed to ensure feasibility of the implementation without compromising the effectiveness of operations.

[70] *A holistic approach to investigating wider factors and interactions that could contribute to a possible outcome.*

4. Set of sustainability principles

The high-level principles are expected to serve as inspiration for the EBCG in its future endeavours, and as the basis for the identification of initiatives and their associated costs, as well as the creation of roadmaps. The principles are intended to be used as a guide to support the EBCG in setting the direction and decision-making processes associated with environmental sustainability.

4.1. Background

The following section provides a list of six high-level sustainability principles based on analysis of Frontex's operational environment, the regulatory framework and relevant instruments, as well as research into and benchmarking of best practice, global expertise of the research team and interviews with stakeholders.

Figure 3- Set of sustainability principles

- Principle No 1, *environmental issues should be embedded in strategies and decision-making processes*, implies implementing management systems, setting priorities, applying the precautionary principle, defining initiatives and roadmaps, and appointing a sustainability officer and a dedicated team.
- Principle No 2, *to reduce the organisation's environmental footprint effectively, targets should be science- and fact-based*, implies relying on science to set targets and prioritise initiatives.
- Principle No 3, *the development and diffusion of environmentally friendly technologies should be encouraged and embedded in decision-making processes*, implies high-level guidelines on how to foster environmentally friendly technologies.
- Principle No 4, *the organisation's environmental impact should be monitored and reported*, implies establishing a baseline, monitoring the progress of KPIs against this baseline and reporting on them.
- Principle No 5, *accountability and transparency should be demonstrated by regularly disclosing publicly the progress in implementing the sustainability targets*, ensures transparency, accountability and the trust of stakeholders.
- Principle No 6, *climate awareness and environmental issues should be raised with and amongst the stakeholders and community*, implies change management.

These principles are part of a whole and interlinked. They feed into each other and can touch on similar topics but from different angles. Some are more central, e.g. principles Nos 1, 2 and 3, as they target the core of the organisation. Some

relate more to the organisation's external environment. This is the case of principles Nos 4, 5 and 6. Some are highly inter-related, e.g. principles No 4 and No 5 because monitoring and reporting enable accountability and transparency.

First, each principle is described and explained in detail. This description should allow the reader to understand what is behind the principle and what it encompasses. At that stage, the principle remains high-level and broad, underlies a strategy and could be applied across the EBCG. Second, the subsection provides more insights into how the principle can be applied the EBCG authorities. The principles were designed for Frontex and the EBCG community, and specifically for those Member State border management authorities who are just beginning to incorporate environmental sustainability in their strategies and operations. For those who are further along the road to environmental sustainability, the principles might help them systematise their approach. And those, like the French Ministry of the Interior, who are well advanced, are presented in this document as case studies.

4.2. Principles

4.2.1. Principle No 1 - Environmental issues should be embedded in strategies and decision-making processes

4.2.1.1. Description

The first principle is crucial for an environmentally sustainable strategy as it is about embedding environmental issues into relevant strategy and decision-making process across the EBCG. It entails an increase in self-regulation, guided by appropriate codes, charters, initiatives and knowledgeable people. A sustainable vision in line with strategic ambitions must be laid out before starting to assess a baseline, set targets, and implement a change management plan.

Best practice is implementation and independent assurance through internationally recognised environmental management systems to guide and support the journey to a sustainable environment. The most widely recognised references are the EU Eco-Management and Audit Scheme (EMAS)[71] and ISO 14001:2015 Environmental Management Systems[72]. Setting up an environmental management system will state a policy and specific procedures that will support target setting, management and monitoring at operational level, as well as form a platform for policy and impact communication. Frontex and national border management authorities should consider adopting the objective of EMAS Certification, to assure transparency and demonstrate ambition to external stakeholders.

To set priorities in order to decrease environmental impact requires clear definition of organisational scope and boundaries taking into account the geographical dimension and organisational processes. Scope and boundaries are a reference to the definition of aspects which are under the organisation's direct control and aspects outside its direct control. Guidance for scope and boundary definition can be found in reference documents such as the Greenhouse Gas Protocol[73], ISO 50001 (energy management)[74], EMAS or ISO 14001 (Environmental Management Systems).

For example, Greenhouse Gases (GHG) are categorised into three groups or 'Scopes' by the most widely used international accounting tool, the GHG Protocol (see Figure 4). Scope 1 covers direct emissions from owned or controlled sources. Scope 2 covers indirect emissions from the generation of purchased electricity, steam, heating and cooling consumed by the organisation. Scope 3 includes all other indirect emissions that occur in an organisation's value chain. The level and the kind of targets and ambitions for an organisation's environmental engagement need to be adjusted to the level of real impact as well as the level of potential control over the decisions and processes which cause environmental impacts.

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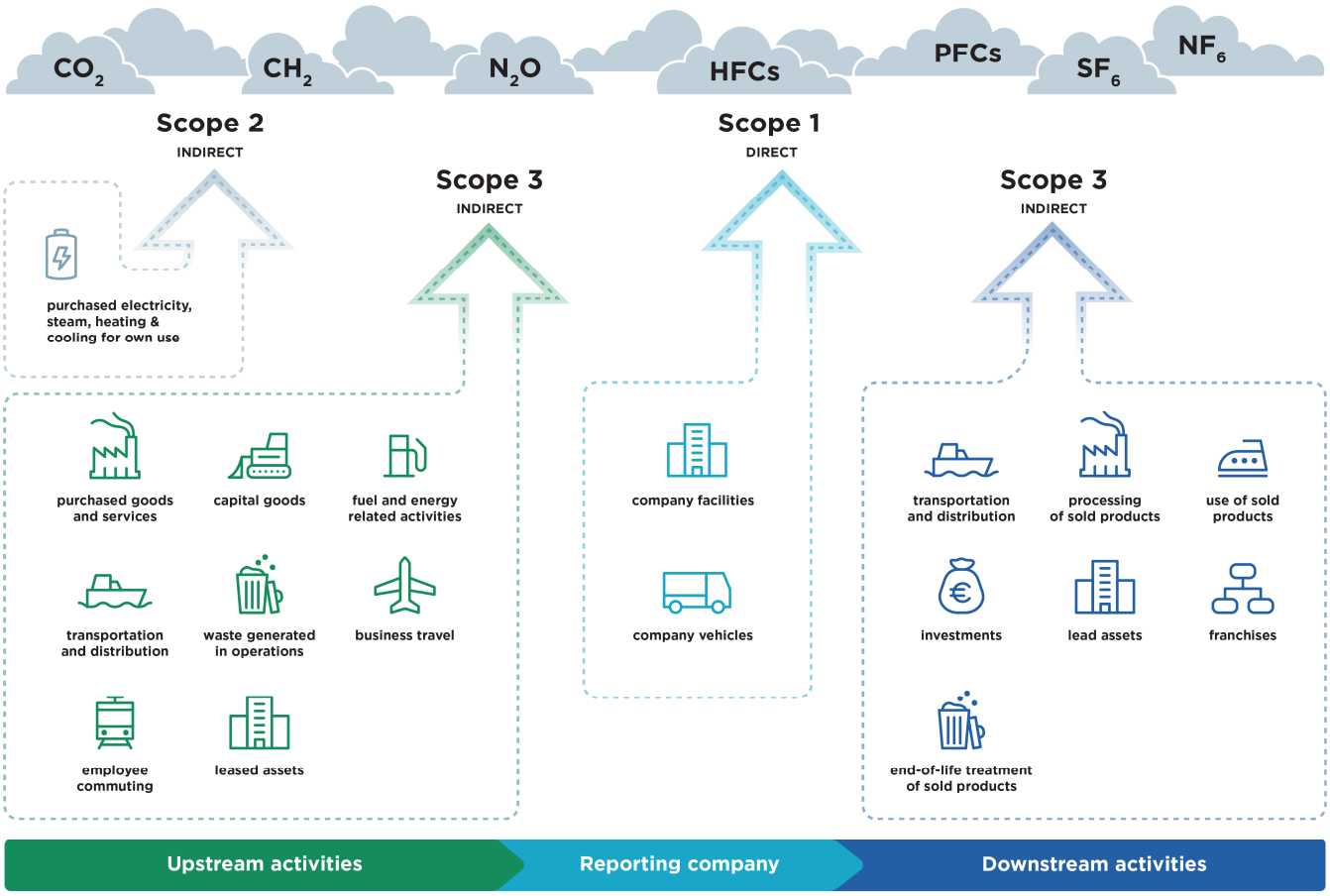
[71] The Eco-Management and Audit Scheme (EMAS) is a premium management instrument developed by the European Commission for companies and other organisations to evaluate, report, and improve their environmental performance. EMAS is open to every type of organisation eager to improve its environmental performance. It spans all economic and service sectors and is applicable worldwide.

[72] ISO 14001 has become the international standard for designing and implementing an environmental management system. The standard is published by ISO (the International Organisation for Standardisation), an international body that creates and distributes standards that are accepted worldwide.

[73] The Greenhouse Gas Protocol establishes comprehensive global standardised frameworks to measure and manage greenhouse gas (GHG) emissions from private and public sector operations, value chains and mitigation actions.

[74] ISO 50001 is a company level certification based on a standard published by the International Organisation for Standardisation (ISO). The specification requires use of an energy management system with a main purpose of using energy more efficiently.

Figure 4- Overview of GHG Protocol scopes and emissions across the value chain



Source: figure adapted by Deloitte from the Corporate Value Chain (Scope 3) Accounting and Reporting Standard, GHG Protocol

To embed environmental issues, it is also essential to translate a precautionary approach to environmental challenges into the organisation's environmental/sustainability guidelines. This should be closely related to risk management, e.g. by reference to ISO 31000 (risk management) standard guidance. The precautionary principle enables decision-makers to adopt precautionary measures when scientific evidence about an environmental hazard is uncertain and the stakes are high. Therefore, uncertain environment-critical and high consequences of particular actions should drive prioritisation processes to put irreversible issues above the financial aspects. References such as ISO 14001 and EMAS provide guidance on the organisation's risk and emergency preparedness, which is the specific precautionary approach to environmental challenges that needs to be taken into account.

Another important aspect is to define guiding, high-level sustainable principles considering environmental and climate goals and their importance within a strategy and risk management system. The present chapter will help the EBCG achieve this first step.

In an organisation where environmental concerns are new, the effort towards environmental sustainability is often diluted at different levels. In addition, the efforts are polluted by seemingly false good ideas on what the organisation should do or not do to be more sustainable, and better ideas and opportunities are missed. Moreover, short-term priorities may overburden the organisation's capabilities, which may impact the future potential for achieving medium- and long-term goals. These are pitfalls that prevent the organisation from effectively reducing its impact on the environment. EMAS and ISO 14001 clarify that targets and monitoring should address significant environmental impacts within normal, subnormal and emergency operations. For specific climate and energy management issues, the ISO 50001 standard could be used as a guideline for setting energy efficiency targets, but because EMAS and ISO 14001 already address significant environmental aspects, such as energy usage, ISO 50001 is not needed at the beginning of a sustainability journey.

In order to avoid wasting time and money on ineffective initiatives, the EBCG authorities should allocate financial and human resources to build a team dedicated to environmental sustainability. By appointing a Chief Sustainability Officer (CSO), reporting to the top management, who can then create a team of people dedicated to environmental issues, sustainability will be better positioned in the organisation's agenda and receive a sufficient amount of support from the top level. A recent Deloitte research paper[75] highlights three conditions where it makes sense to have a CSO.

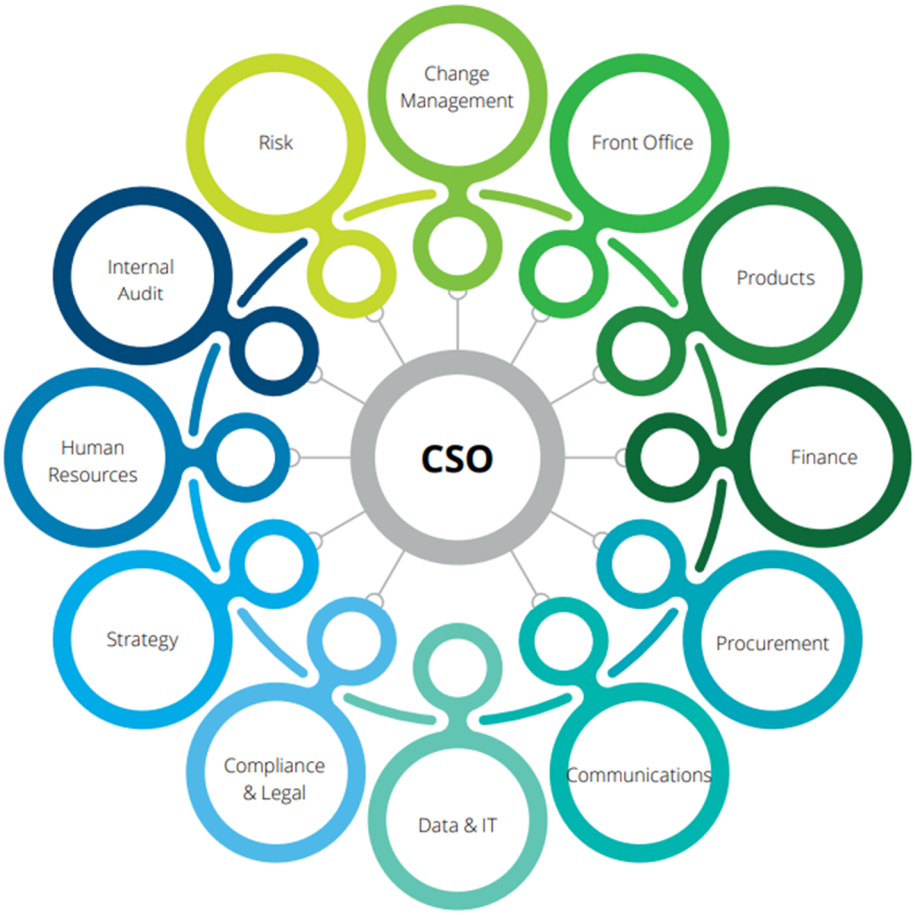
- The external environment is changing more quickly than the interior of the organisation, so it needs someone to help it adapt.
- External stakeholder scrutiny is intensifying, as are expectations of the organisation, and it has not yet found a way to deliver within its current structure, executives and governance frameworks.
- The organisation acknowledges that Environmental, Social and Governance (ESG) risks are substantial enough to be strategic.

According to the same Deloitte research paper, the CSO has three mandates:

1. Make sense of the external environment and bring insight back to the organisation
2. Help the organisation reconfigure its strategy
3. Engage, educate and connect.

Figure 5 shows the CSO in the middle of the organisation's sustainability efforts, not because they are responsible for all the detailed work that is needed but because in a transformation this large there is a role for a senior expert to educate colleagues, orchestrate change, and connect the organisational dots.

Figure 5- Interactions of a CSO in a typical organisation with respect to sustainability



Source: Deloitte, The future of the Chief Sustainability Officer Sense-maker in chief

[75] *The future of the Chief Sustainability Officer Sense-maker in chief, Deloitte, 2021*

4.2.1.2. Relevance for the EBCG

Frontex has already expressed its desire to speed up the transition towards climate neutrality in line with the Green Deal priorities. For example, this year, under the Frontex presidency, the Justice and Home Affairs Agencies' Network is directing its efforts towards two strategic topics: sustainability and digitalisation. Additionally, by launching the 1st Sustainability and Resilience Expert Group Meeting at Frontex or the present research study, Frontex is already applying the first principle *"Environmental issues should be embedded into the strategies and decision-making processes"*. This shows that Frontex is aware of the strategic importance of environmental sustainability and is implementing some positive actions to become more sustainable. However, without clear strategies and directions, the actions and impacts might not be sufficient to reach the ambitions and high-level goals (e.g. 2050 EU Green Deal Net Zero ambitions).

During the initiative development and feedback workshop, mention was made of the fact that the nature of the EBCG operations might impede efforts towards environmental sustainability. The study research team understands the need for the EBCG to prioritise the performance and reliability of mission-critical capabilities. However, first of all, a significant effort can already be made to reduce the environmental impact of capabilities that are not mission-critical, such as those arising from offices, employee travel, etc. case studies of the European Defence Agency and the French Ministry of the Interior carried out for this study showcase practical examples of that. Significant environmental issues should be taken into account and embedded into strategies and decision-making processes while nevertheless supporting operations, not at their expense. It needs to be understood that economy is a subsidiary of an environment and not the opposite.

In addition embedding environmental issues into operational strategies and decision-making will require enhanced capabilities planning from the EBCG. The longevity of some of its equipment and fleet[76] will undoubtedly limit the short-term decrease in the environmental impact the EBCG can achieve. However, this needs to be taken into account right now in long-term strategies if the EBCG wants to reach its ambitions in 10, 20 or 30 years from now. While planning for future capabilities, an organisation where environmental issues are embedded into decision-making processes will choose a more energy-efficient fleet or equipment to replace the current ones immediately and over time. Frontex is already injecting environmental criteria into its strategic planning documents, which is a good practice of applying this first principle. In addition, Principle No 3, *the development and diffusion of environmentally friendly technologies should be encouraged* and the Sustainable Procurement initiative (see section 5.4.7), detail how EBCG authorities can adjust their procurement guidelines to incentivise their suppliers to develop greener alternatives.

At Frontex, there is a clear desire to decrease the environmental impacts. As voiced during the initiative development and feedback workshop, the EBCG community shares this desire, and believes science- and fact-based targets could prove more effective than small bottom-up initiatives, in achieving this goal. Given the large size and geographical reach of the EBCG, as well as its multi-dimensional objectives and multi-stakeholder environment, success requires establishing proper governance and providing concrete targets. Having a person (CSO) and/or a team dedicated to this can bring efficiency while ensuring all the different objectives and responsibilities of the different teams and entities are met. It is essential to have dedicated people to look into the targets and the best ways to meet these (including tools, grants, frameworks, etc.) as this will allow other teams to focus their energy on their own responsibilities. Allowing the other teams to focus on their core operations is an important element for the Agency such as Frontex because of the mission-critical nature of its operations. It does not mean that other teams should not have sustainability knowledge, interest or reflexes, but, as the transition will not happen in a day, having a dedicated team can support a quicker and assured transition.

Finally, Frontex does not currently have a Chief Sustainability Officer or any role of the sort. The interviews led by the research team with Frontex's staff highlighted the fact that several efforts have been made within the Agency to accelerate the transition towards climate neutrality but without a dedicated high-level person with a clear mandate, it was often difficult to have a meaningful impact.

It is also worth mentioning that, depending on the level of environmental awareness in the organisation, it is also possible to simply integrate a sustainability a person/team (without a CSO) in the procurement department, as is the case at the

[76] *The fleet includes terrestrial and maritime vehicles, and aircrafts, such as patrol cars, vessels, aircraft, helicopters, etc.*

French Ministry of the Interior. This team would then report directly to the top management, who are already aware of environmental issues.

Case study identified to illustrate this principle:

- Sustainability and Environmental Programs (SEP) – US Department of Homeland Security
- Sustainable development strategy – French Ministry of the Interior
- European Defence Agency

4.2.2. Principle No 2 - To reduce the organisation's environmental footprint effectively, targets should be science- and fact-based

4.2.2.1. Description

Public organisations have a pivotal role to play in ensuring that global environmental goals are met. However, their current targets are oftentimes not ambitious enough or too vague to be actionable. This principle entails setting targets, and initiatives should rely on science- and fact-based evidence in order to reduce the environmental footprint effectively and efficiently. In other words, knowledgeable people using recognised tools should be in charge of paving the way to environmental sustainability, securing reasonable, ambitious and achievable goals in the form of an operationalised roadmap.

Therefore, in addition to having skilled and knowledgeable people with the right mandate inside the organisation as described in Principle No 1, it is also crucial to use the right tools to set science-based targets. For example, the Science-Based Targets initiative (SBTi), a partnership between the Carbon Disclosure Project (CDP), the United Nations Global Compact, the World Resources Institute (WRI) and the World Wildlife Fund (WWF) offers a robust approach for organisations to manage their emissions over the long haul. The SBTi provides a clearly defined pathway for organisations to reduce their greenhouse gas (GHG) emissions, helping them prevent the worst impacts of climate change and future-proofing organisational operations.

According to the SBTi (climate-specific agenda guidelines) targets are considered science-based if they are in line with what the latest climate science deems necessary to meet the goals of the Paris Agreement – limiting global warming to well below 2°C above pre-industrial levels and pursuing further efforts to limit warming to 1.5°C.

> *"The latest climate science sends a clear warning that we must dramatically curb temperature rise to avoid the catastrophic impacts of climate change.*
> *Science-based targets show companies how much and how quickly they need to reduce their greenhouse gas (GHG) emissions to prevent the worst effects of climate change."*
> The SBTi

Although the popularity of SBTi initiatives has increased significantly over the years, the SBTi does not currently assess targets for cities, local government, public sector institutions, educational institutions or non-profit organisations. However, it could be inspiring to have a look at how they work and apply their approach within the EBCG. With these types and levels of decarbonisation ambition targets, the organisation's sustainability efforts are validated, placed in the bigger sustainability picture, and aligned with the CDP (Carbon Disclosure Project)[77] and the GHG Protocol.

The GHG Protocol methodology for the calculation of greenhouse gas emissions can be applied as a standard for the definition of baseline emissions as well as an ongoing monitoring process of continuous improvements towards decarbonisation pathways. The GHG Protocol is developing standards, tools and online training that helps countries and organisations track progress towards their climate goals. Applying such standards would enable to generate sound fact- and science-based GHG emission baselines.

[77] *CDP is a not-for-profit charity that runs the global disclosure system for investors, companies, cities, states and regions to manage their environmental impacts.*

Best practices in data gathering lie in the definition of a Data Collection Plan[78] and dedicated supporting IT tools to address the accountability, accuracy, verification and validation of data gathered, serving as the base for further calculations, monitoring, forecasting, scenario planning and target setting.

4.2.2.2. Relevance for the EBCG

EBCG's long-term sustainability vision will benefit from setting science-based targets as it avoids the risk of a change in management and priorities overriding overall ambitions on climate change. In addition, setting science-based targets adds transparency and external credibility to internal sustainability goals. This aspect is further developed in Principle No 6, *climate awareness and environmental issues should be raised with and amongst the stakeholders and community*.

Case study identified to illustrate this principle:

- Sustainable development strategy – French Ministry of the Interior
- Plan for the decarbonisation and energy efficiency of the Lisbon Naval Base – Portuguese Navy

4.2.3. Principle No 3 - The development and diffusion of environmentally friendly technologies should be encouraged and embedded in decision-making processes

4.2.3.1. Description

This is a principle inspired by the Ten Principles of the UN Global Compact.[79] [80] It implies that technologies that mitigate or compensate for negative impacts on the environment should be encouraged. This principle also implies the EBCG using such technologies in their daily operations.

> *"Environmentally sound technologies, as defined in Agenda 21 of the Rio Declaration, should protect the environment, are less polluting, use all resources in a more sustainable manner, recycle more of their wastes and products and handle residual wastes in a more acceptable manner than the technologies for which they were substitutes. They include a variety of cleaner production processes and pollution prevention technologies as well as end-of-pipe and monitoring technologies. Moreover, they include know-how, procedures, goods and services and equipment as well as organisational and managerial procedures. Where production processes that do not use resources efficiently generate residues and discharge wastes, environmentally sound technologies can be applied to reduce day-to-day operating inefficiencies, emissions of environmental contaminants, worker exposure to hazardous materials and risks of environmental disasters."*
>
> *The United Nations Global Compact*

In order to encourage the development of sustainable technologies, the EBCG could follow the recommendations outlined below.

- The implementation of environmentally sustainable technologies should apply both to the organisational management level and the asset management level. The organisational management level relates to organisational processes, governance, and operations (e.g. sustainable vehicle technology or cloud-based work).

[78] *A Data Collection Plan is a proven tool for the Six Sigma methodology. It is an approach to collecting both baseline data as well as data that can provide clues to root causes. The plan includes where to collect data, how to collect it, when to collect it and who will do the collecting.*

[79] *The UN Global Compact is a United Nations initiative launched in 2000 to encourage the world's businesses to act in a socially responsible manner by committing to integrating and promoting a number of principles relating to human rights, international labour standards, the environment and anti-corruption. Although primarily targeted at the business community, the Global Compact also encourages the participation of civil society, governments, UN agencies, academia and other organisations.*

[80] *Ten Principles of the UN Global Compact, United Nations Global Compact, https://www.unglobalcompact.org/what-is-gc/mission/principles/principle-9*

The asset management level primarily relates to buildings and premises (e.g. HVAC, modern lighting technology, and Building Management Systems).

- Environmentally friendly technologies should be mapped to all direct and indirect environmental aspects identified by the organisation. Best practice is to follow Best Available Technologies (BAT) sourced by recognised references like the European Commission's Joint Research Centre. An increasing number of countries use BAT as a tool to establish evidence-based environmental permit conditions for industrial installations, in order to prevent and control industrial pollution, and thus to ensure a high level of human health and environmental protection. BAT are state-of-the-art techniques that are developed at a scale that enables implementation under economically and technically viable conditions.
- The EMAS Sectoral Reference Documents (SRDs) should be used as reference. The SRDs include Best environmental management practices, Environmental performance indicators, and Benchmarks of excellence. In this way, the SRDs aim to encourage organisations to consider the most advanced and effective techniques, measures and actions that front-runner organisations in their sector are implementing to improve their environmental performance. The use of the SRDs is open to any organisation desiring to improve its environmental performance. However, EMAS-registered organisations are required to take SRDs into account when developing and implementing their environmental management system. The European Commission has adopted official SRDs (available in all official languages of the EU) in the following sectors: retail trade, tourism, food and beverage manufacturing, car manufacturing, electric and electronic equipment manufacturing, public administration, agriculture and waste management.
- The building sector is crucial for achieving the EU's energy and environmental goals. Since Frontex is growing as well as its need for new facilities (e.g. Frontex new Antenna offices), the Agency should look into ways to boost the energy performance. For example, Frontex could look into the legislative frameworks established by the EU that include the Energy Performance of Building Directive (EPBD). One of the focal points of the EPBD is to better tap into the potential of smart technologies in the building sector. As part of this focus, the EPBD sets out provisions to establish a Smart Readiness Indicator (SRI)[81] as an instrument for rating the smart readiness of buildings. This optional common EU scheme will assess the technological readiness of buildings to interact with their occupants, to work with connected energy grids and to operate more efficiently.
- JRC Science Hub publications on best available technologies in specific areas like Energy Efficiency in Heating and Cooling should be leveraged, as energy efficiency in buildings is essential. Other sources may include: the GHG Protocol, the SBTi, the IEA (International Energy Agency) and the EEA (European Environment Agency).
- Environmentally sustainable technologies should be used for all energy sources, energy transition, energy use and energy consumption areas, and lead to optimisation and environmental impact reduction.
- It is highly recommended that area-specific and sector-specific solutions be followed, e.g. a building management system (BMS) which enables monitoring, supervision and control, and reports on the technology system of a smart building or Electronic Product Environmental Assessment Tool (EPEAT)[82] that helps purchasers in the public and private sectors evaluate, compare and select electronic products.
- All collected data in the area of sustainability might require the implementation of dedicated IT solutions to support data gathering monitoring and a verification system (which is also closely linked to the concept of Internet of Things). All data should be digitalised to enable comprehensive data processing and machine learning.
- Frontier technologies should be investigated and piloted. These provide the EBCG with innovation opportunities to expedite their transformation towards unique cyber-physical systems, capitalising on data exchange among heterogeneous agents, while encapsulating the concepts of smartness and sustainability in their operations. Frontier technologies include artificial intelligence (AI), IoT, digital twins, wearable technology and virtual/augmented reality.
- The decision-making process connected with design, definition or review of standards and requirements, as well as strategic investment decision processes (infrastructure, processes, projects, systems), should take into consideration the potential for technologies to be environmentally friendly or to be enhanced to become more environmentally friendly. The environmental impact of decision "objectives" should be evaluated and assessed against targets and Key Performance Indicators (KPIs), and/or internal and external benchmarks. Decision makers should be given a sound and complementary information package, showing scenarios and multicriteria analysis

[81] *Please see the section 3.1. Regulatory framework for detailed information about the SRI.*

[82] https://www.epeat.net/

of different technologies with a cost/benefit approach while considering a decision that may cause different levels of environmental impacts.

4.2.3.2. Relevance for the EBCG

There are two distinct aspects to this principle for the EBCG. They are discussed below.

1. ***Fostering internally and externally the development and diffusion of environmentally friendly technologies***
   Since Frontex has a Capacity Building Division, the Agency should leverage the position of this Division to investigate, pilot and implement new energy-efficient and sustainable technologies. There is an opportunity for Frontex to continuously develop its sustainability standards and use KPIs to encourage the use of environmentally friendly technologies by the EBCG community. Similar measure could be introduced at the Member State level, respecting the roles and competencies of the different national authorities involved in border and coast guard management.

2. ***Reducing the environmental impact of the supply chain***
   Decreasing the environmental impact of the supply chain is essential to achieving overarching sustainability ambitions. The EBCG requires suppliers of equipment, assets, leasing contracts, canteens, etc. There are different levers for decreasing the environmental impact of the supply chain without assessing the baseline of and setting targets for each different actor. These include providing incentives for low-carbon products or requiring suppliers to meet specific environmental criteria. Two example mechanisms can be applied while contracting with suppliers:
   - Incorporate sustainable procurement standards into the acquisition and decision-making process, such as environmental criteria for the object of the contract. For example, Frontex could include a criterion such as "the supplier needs to execute the contract in a way that minimises CO2 emissions".
   - Demand from each supplier that they have ambitious targets in terms of environmental sustainability. For example, Frontex could only contract with companies that every year publish a clear carbon-reduction plan.

These mechanisms would directly provide incentives for companies to reduce the environmental footprint of their products and operations if they want to contract with Frontex.

Case study identified to illustrate this principle:
- Green Fleet – US Department of Homeland Security
- Sustainability Acquisition/Procurement - US Department of Homeland Security
- Sustainable vessel – Portuguese Navy
- Reducing waste – French Ministry of the Interior
- ISO 20400 standard – French Ministry of the Interior

4.2.4. Principle No 4 - The organisation's environmental impact should be monitored and reported

4.2.4.1. Description

This principle entails the development of a baseline assessing the environmental impact, ensuring follow-up and monitoring in order to analyse important trends, managing the targets and the risks, reporting accurately and showing progress over time. Monitoring should help reporting and this should help the EBCG improve in this domain and, subsidiarily, contribute to its transparency efforts. Transparency will naturally bring accountability, which will increase trust in the ecosystem of the community.

Establishing a baseline is critical when setting environmental sustainability targets. The baseline is a description of the current status of the environmental impact of an organisation on its surroundings. A baseline forms the foundations against which the initiatives are assessed. Therefore, the initial assessment of the current environmental impact of the

organisation must be sufficiently detailed and accurate to ensure that the effects arising both during the development of the initiative and in the future can be correctly assessed. Once the baseline is assessed and the targets or KPIs are set, it is important to monitor and report on the progress of the organisation. For example, the Global Reporting Initiative (GRI) Standards for sustainability reporting can be used, as they are a common language to report on organisations' sustainability impacts in a consistent and credible way. The GRI Standards help organisations understand and disclose their impacts in a way that meets the needs of multiple stakeholders.

A series of eight reporting rules is deemed fundamental to achieving high-quality sustainability reporting according to the GRI Standards.

- Accuracy: the organisation needs to report information that is factually correct and detailed enough to enable the assessment of the organisation's impacts.
- Balance: the organisation needs to report information in an unbiased way and provide a fair representation of the organisation's negative and positive impacts.
- Clarity: the organisation needs to present information in an accessible, understandable and usable way.
- Comparability: information needs to be selected, compiled and reported in a consistent manner to enable the analysis of changes in the organisation's impact over time and the analysis of these impacts relative to other organisations.
- Completeness: sufficient information needs to be provided to enable the assessment of the organisation's impacts during the reporting period.
- Sustainability context: the organisation needs to report information on its impacts in the wider context of sustainable development.
- Timeliness: information needs to be made available in time for information users to make decisions.
- Verifiability: information needs to be gathered, recorded and compiled in a way that it can be examined to establish its credibility.

GRI Standards are a good example of what monitoring and reporting of sustainability impacts should be. Other examples are EMAS and ISO 14001 (environmental management system) standards. Although one was developed by the European Union and the other by the International Organisation for Standardisation (ISO), both systems are very similar in terms of scope of requirements. The main difference is that EMAS requires public disclosure of an organisation's environmental policy, environmental targets and the environmental results attained while ISO 14001 leaves it to the organisation itself to define its external communication about its environmental targets and results.

4.2.4.2. Relevance for the EBCG

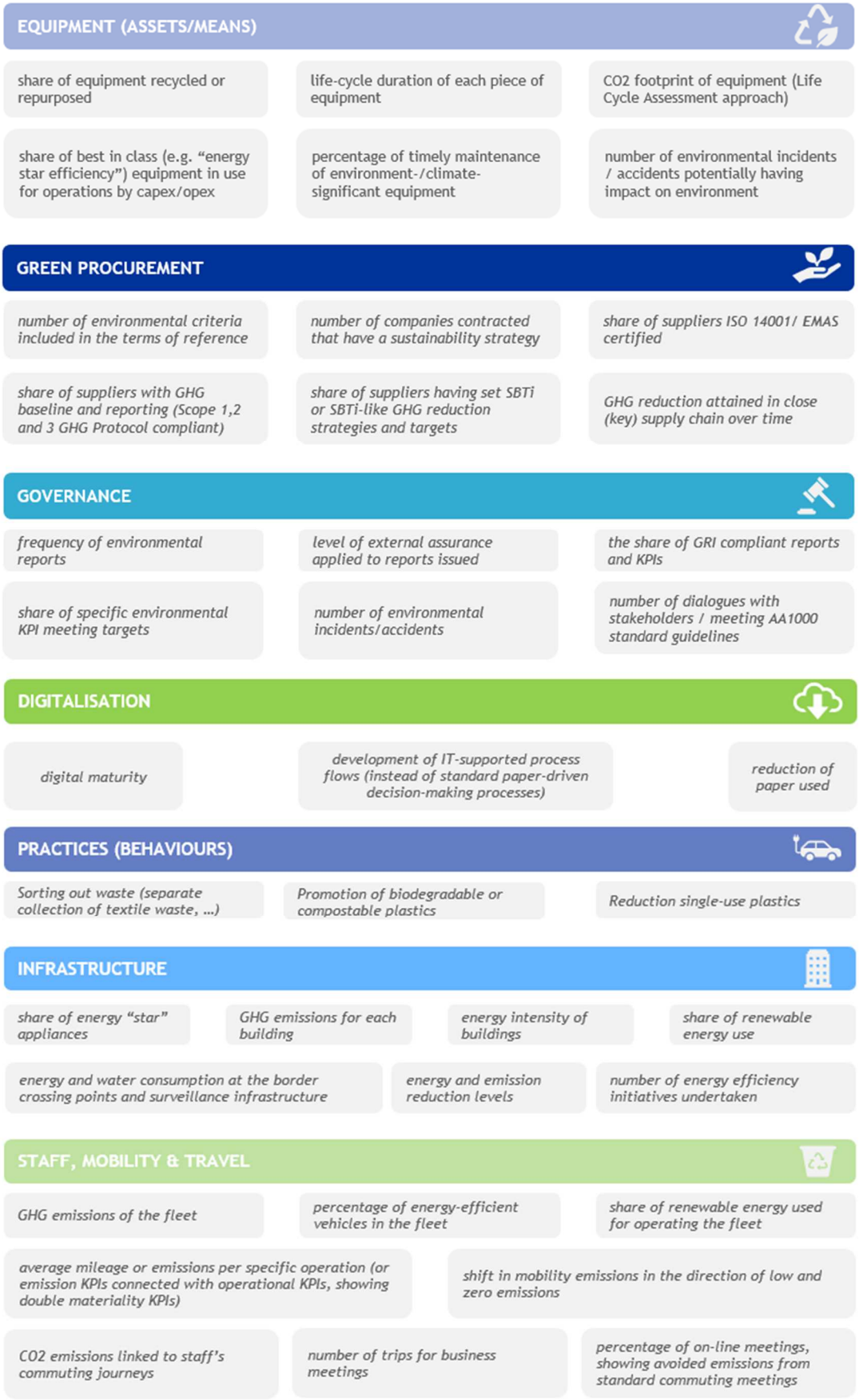
During the interviews with Frontex's staff, there was mention of some targets having been set with the aspired to-be situations known, but no baseline having yet been established, let alone any kind of regular environmental impact monitoring and reporting. This makes this principle particularly relevant to Frontex.

Setting a baseline is a difficult but necessary exercise taking into account the complexity of the full supplier landscape. Indeed, the Agency such as Frontex usually have single suppliers and unique products which prevent the creation of an ecosystem generating mutual benefits for the organisation and its suppliers. However, the work required to understand the baseline can begin immediately, basing it on existing good practice (e.g. The *Canada Border Services Agency – CBSA*[83]) and advice from experts. For example, for Frontex, the baseline of Scope 1 and 2 emissions can be quantified with significant accuracy using the GHG Protocol methodology or SBTi. National border management authorities may establish similar targets, in line with local and national requirements.

Applying principle 2, targets should be science-based and ideally follow the SMART principle. Once that has been achieved, the EBCG should implement an appropriate system for measurements, monitoring and verification. This must be done for every domain in which there are environmental impacts.

[83] https://www.cbsa-asfc.gc.ca/agency-agence/reports-rapports/sds-sdd/sds-sdd-20-23-eng.pdf

Figure 6- Examples of KPIs to monitor for the EBCG



To be able to monitor and report its KPIs efficiently and coherently, Frontex should agree on reporting rules and methods, and set up periodic verification of the level of achievement of the targets (the verification period should be linked with Risk Assessment). Frontex would then be able to report on the status of fulfilment of both mandatory and voluntary objectives and initiatives it has undertaken. This is touched upon in the next principle that talks about accountability and transparency.

Case study identified to illustrate this principle:

- Support Frame Project – European Defence Agency
- ISO 14001 Environmental Management System Certification – Portuguese Navy
- Operational dimension – The Edge

4.2.5. Principle No 5 - Accountability and transparency should be demonstrated by regularly disclosing publicly the progress in implementing the sustainability targets

4.2.5.1. Description

This principle implies transparency about the progress achieved in environmental sustainability. All available information about the environmental footprint and impact should be disclosed as a norm. Transparency is crucial for building the organisation's reputation and value in the form of a timely and predictive response to expectations and requirements in professional, trustworthy, accountable and traceable external communication. It is also an essential element for accountability which will allow internal and other external (and potentially independent) actors to support the organisation in staying on the right track.

Transparency applies to processes that take place both within the organisation and in its external environment. It could be achieved by systematic and professional internal and external communication and reporting processes. The processes applied should support the integrity of financial and non-financial reports, include information on reporting implementation and pre-defined oversight principles, such as an obligation to publish integrated reports externally and achieve compliance with reporting standards and guides (GRI, TCFD[84]). As noted above (see section 4.2.4.1.) EMAS requires public communication and disclosure of the organisation's policies and achievements, whereas ISO 14001 (environmental management system) allows freedom to define and decide on the organisational approach on the scope of external communication.

Transparency on environmental impact is a business-critical component to consider. Transparency breeds accountability, which is a large part of what drives change and leads to reduced environmental impact. Indeed, a key characteristic of transparency in sustainability is an increased reliance on monitoring and reporting as a means to enhance accountability for environmentally desirable or harmful impacts, and thus to improve sustainability performance. The importance of reporting regularly on progress made is key. Stakeholders will keep track of it more easily and see it as systematic integration of environmental sustainability at the core of the EBCG community rather than something that is done superficially every now and then.

4.2.5.2. Relevance for the EBCG

Similar to any other organisation or company, the EBCG needs to build solid relationships with its ecosystem. Transparency assures accountability and builds trust, which is a fundamental element of the relationship with communities, employees and stakeholders. For this reason, in fact, a Local Community Engagement and Stakeholder Management Policy initiative (see section 5.4.10.) has been proposed, to specifically strengthen our work in this area. By regularly disclosing its progress towards climate neutrality to the public, the EBCG will build trust and be recognised as a leader and role model. This is in line with the current Frontex approach to facilitating public access to documents.

[84] *TCFD is the Task Force on Climate-related Financial Disclosures. It was formed by the Financial Stability Board, an international body that seeks to strengthen and protect global financial markets from systemic risks such as climate change.*

This principle is particularly relevant for Frontex given its ambition of leading the way for the entire EBCG community to embrace the transition to climate neutrality. By publicly showing progress and by being transparent about initiatives and pitfalls, Frontex can inspire its community to also set (additional) targets for their own environmental impact and, for those who already have them, to further share what they do.

Case study identified to illustrate this principle:

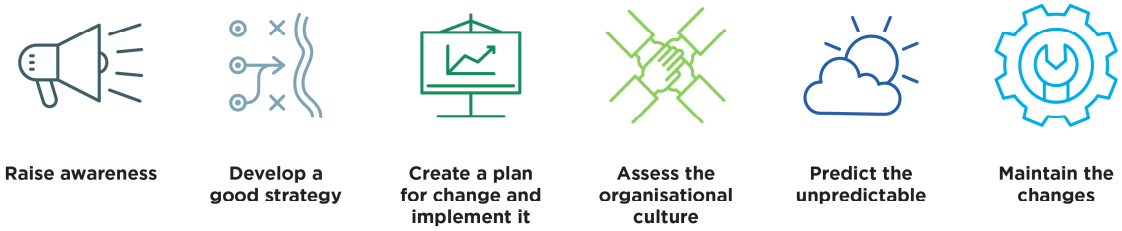
- Sustainable development strategy – French Ministry of the Interior

4.2.6. Principle No 6 – Climate awareness and environmental issues should be raised with and amongst the stakeholders and community

4.2.6.1. Description

Change management and knowledge exchanges can be used as tools to facilitate the adherence of the EBCG and its stakeholders to the environmental transition. Change management entails open and timely communication on environmental and sustainability plans, as well as on progress, to inspire the community and stakeholders to follow in the organisation's footsteps. Collaboration with stakeholders to help others understand environmental sustainability would also be desirable.

Figure 7- Guidelines for implementing changes



To be effective in implementing changes taking account of awareness climate and environmental issues, the EBCG will probably need to:

1. ***Raise awareness - why the organisation needs the change***
   Changes should be planned properly and implemented gradually, with good communication at every level concerned, starting from the highest. Depending on the level of resistance to change from the management and employees, it is worth considering how changes are communicated. At each stage, it is important for each employee to be aware of why the changes are introduced, as well as to see real benefits stemming from them.

2. ***Develop a good strategy and vision for change – gain support***
   Any changes in the organisation should start by creating a vision of the change, considering its impact on the strategy or the scope of activity, and only then should the organisational structure and how the organisation operates be changed. People from all levels of the organisation, both management and employees, should be involved in the implementation, to gain support. In addition, Frontex must also cooperate effectively with stakeholders and the EBCG community right from the planning stage.

3. ***Create a plan for change and implement it gradually***
   Change in the organisation is a series of activities that are meant to bring specific results and meet specific objectives in a specified time. This process, like any other, can be divided into smaller stages, which will be

implemented in a specific order and time frame. This approach will streamline the process and prevent a situation in which changes are introduced chaotically.

4. ***Assess the organisation culture***
   Knowing the culture allows the organisation to assess which elements of change are more likely to be met with resistance, and which will be supported by the organisational culture. Knowledge of accepted informal rituals allows the organisation to reach the people who participate in them more easily. It may be that these informal activities will make it possible to observe the attitude of employees to the change, to listen to their opinions and/or to dispel their concerns.

5. ***Predict the unpredictable, be ready to face problems***
   Every change involves some risks and surprises. It is worth remembering that there are risks that can be mitigated, so an appropriate strategy should be planned to manage them. Of course, there may be events that cannot be predicted in advance, but the organisation needs to be prepared for such situations to be able to react quickly and limit the effects of the unpredictable event as much as possible.

6. ***Maintain the changes***
   Introducing changes is often quite easy, but maintaining their effect turns out to be much more challenging. That is why there is a need to monitor whether new goals are being implemented properly, employees are not reverting to old habits or managers are supervising teams properly. It is crucial to realise that change is only effective when it is permanent, and it is not just short term.

Knowledge exchange is key to accelerate the change. Members of the community could leverage previous work and avoid pitfalls others might have experienced. For better knowledge exchange, a communication plan needs to be developed on communication with internal and external stakeholders. The plan should take into account all reporting obligations and goals. This plan will define the next steps in communication channels, roles, authorities and responsibilities in the communication process.

Good practice in organising the communication plan is to develop a communication matrix with identified groups of people to reach, what their communications needs are, how much effort is required to reach them, etc. It is important to involve participants in the process of developing common solutions. Critical elements of the communication matrix should be translated into operational instructions.

Communication processes with stakeholders are also required for building-specific standards like BREEAM (Building Research Establishment Environmental Assessment Method) or BREEAM In-Use, but they must be specific depending on asset location, the local environment and community/civil society.

4.2.6.2. Relevance for the EBCG

Making the EBCG more sustainable means inevitably bringing change to a complex structure with established operating models and practices. This is why incentives for the right behaviours need to be implemented to succeed. Behavioural change is essential in order to reduce the environmental impact of daily operations.

Frontex's staff will need to understand the cultural change required to achieve the ambition. In addition, it is also Frontex's responsibility to raise awareness amongst its community about environmental issues and to lead the transition to climate neutrality. This sixth principle should guide Frontex communication in achieving that.

As shown earlier (see Figure 4), the environmental impacts of the EBCG can be categorised into three scopes. The indirect impact is always the most difficult to reduce. However immediate action can be taken to influence people in charge of these impacts to reduce them. These actions include raising awareness and incentivising the stakeholders.

In addition to that, during interviews with stakeholders, it was mentioned that, although several initiatives had been taken within the EBCG, there was no collaboration or knowledge exchange system in place. Establishing proper communication channel and knowledge exchange processes will help the EBCG leverage existing work and reach its goals faster.

Case study identified to illustrate this principle:

- Consultation Forum for Sustainable Energy in the Defence and Security Sector – European Defence Agency
- Policy and Planning – Swedish Coast Guard
- Sustainable development incubator – French Ministry of the Interior

4.3. Conclusion

The six high-level principles proposed in this chapter are set out as anchor guidelines for the EBCG to achieve a reduced environmental impact in the short and long term. They constitute the basis for further research, innovation and development.

In the following chapter, a series of initiatives are identified and translated into roadmaps. Within the first initiative proposed in section 5.4.1. below, a Change Management Office is suggested to potentially serve as a governance backbone behind a coordinated and centralised change management effort, which would subsequently support implementation of all other initiatives, and achievement of wider goals across the EBCG. This Office would naturally be itself guided by Principle 6 but would additionally be charged with determination and oversight of how best to apply and embed all six principles across the EBCG in the course of its sustainable transformation efforts.

5. Set of initiatives and roadmaps

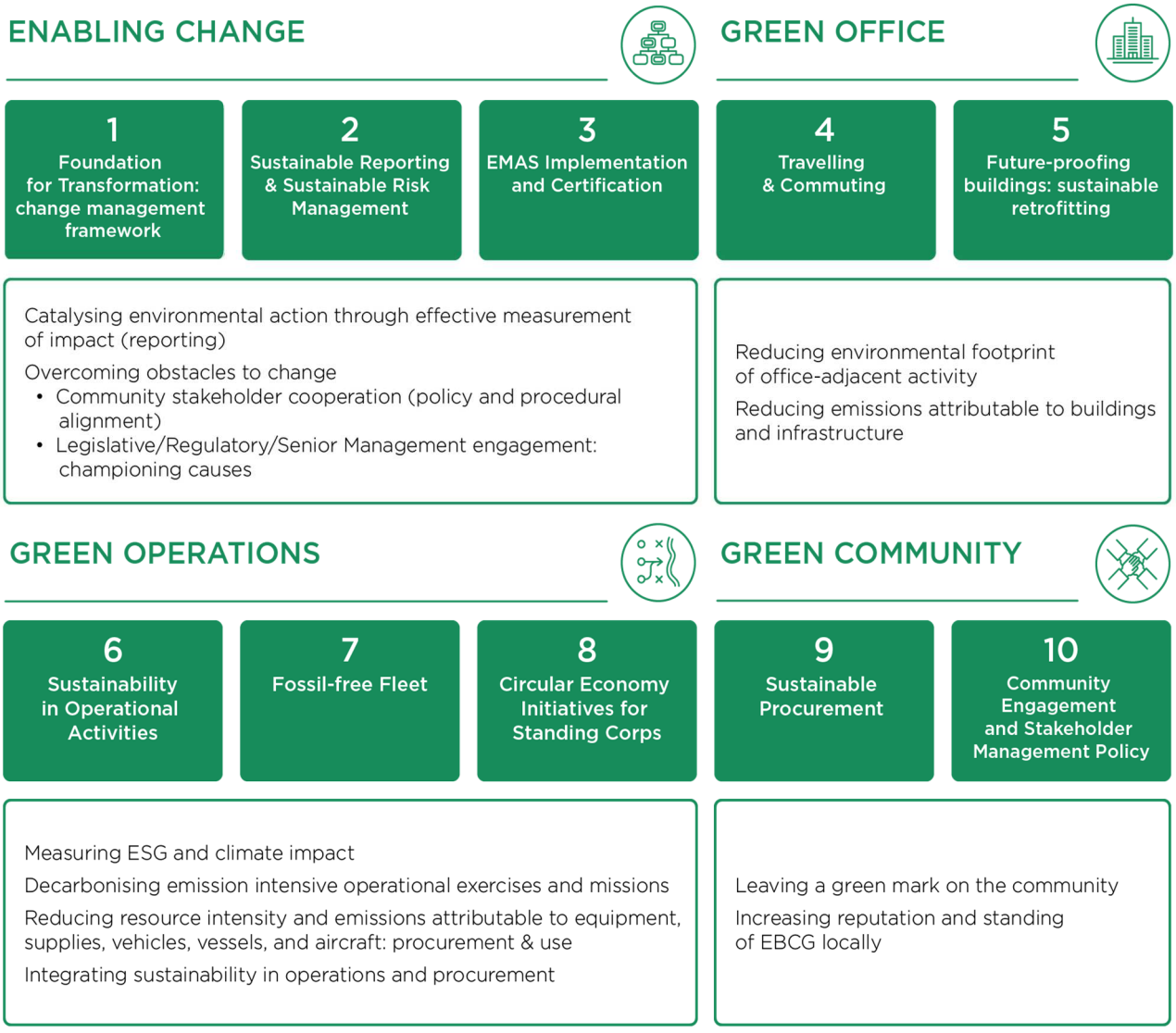
This chapter identifies and explores potential initiatives (down to the level of specific measures) that the EBCG may wish to consider in the course of responding to the European Green Deal and aligning sustainability performance with EU targets. The initiatives, measures and roadmaps aim to serve as inspiration for the EBCG, for analysis and identification of those most applicable and feasible.

5.1. Background

By extending and deepening the work done in previous stages and incorporating the feedback collected during the initiative development and feedback workshop with Frontex staff and the EBCG community, this chapter seeks to clearly define and explore potential initiatives the EBCG may wish to implement.

As a result of the project work, 10 initiatives were identified, spanning four thematic categories according to their purpose and subject. The proposed classification is presented in Figure *8*.

Figure 8- Scope of initiatives and roadmaps



5.2. Assumptions and approach

The final range of initiatives was the product of collaborative work by the research team that included:

1. Developing a long-list of proposed initiatives;
2. Pre-selection of a shortlist of initiatives for further development with the Frontex Project Team;
3. Introduction of the list of proposed initiatives to the EBCG and subjecting them to discussion during the workshop;
4. Final agreement on the list of 10 initiatives to be introduced in detail in the final research study report;
5. Selection of measures to be described within each initiative;
6. Development of roadmaps to present an example of the process involved in implementation of each initiative.

5.2.1. Assumptions

In developing the initiatives below, a number of assumptions were applied:

- The research team's main goal was to provide an overview and evaluation of specific initiatives which the EBCG could consider as part of its response to the changing regulatory landscape and expectations of sustainability performance. The initiatives were selected and structured so as to maximise applicability to the EBCG; an appropriate degree of generality was assured to give each EBCG authority the scope and flexibility to define ambition levels and tailor initiatives to its specific structure, needs and context.
- The initiatives explored were not drawn up or analysed with any single EBCG authority in mind, which precluded the establishment of baselines. Evaluations of the resources required were therefore made on the basis of expert assessment and in the context of each individual initiative.
- Each initiative is described in accordance with the same framework: an overview of the subject matter of an initiative, a presentation of the most important measures, and an indication of high-level conceptions of the necessary human resources, investment, and timescales[85]:
    - **Human resources** are described in accordance with a dichotomy of broader organisational engagement and targeted specialist engagement. This indicates the potential nature of the involvement necessary, helping highlight which initiatives may typically be delivered using broader internal resources, and which may require targeted use of specialists (internal, or external where competencies do not exist internally).
    - **Scale of investment** is described on a relative scale from low to high to provide an indication of which measures may require the preparation of special budgets. This method was chosen to account for the vast discrepancies in costs that may be associated with differing regional and organisational contexts, as well as the broad scale of possible interventions; the choice of the approach to implementation is in all cases a matter for each organisation to decide on the basis of its own cost-benefit analyses.
    - **Implementation timescales** of the measures is defined for short-, medium- and long-term time horizons, representing less than 6 months, less than 12 months, and more than 12 months respectively. These timescales are counted from the moment that administrative preparation and decision-making has been completed, i.e. starting only at the moment of actual kick-off, in order to allow for differing organisational agilities and speeds in internal processes.

For more information on the relevant certifications and professional standards signposted in the initiatives below, see section 3.1. Regulatory framework. For more information on the case studies which provided input in drawing up the list of initiatives, see section 3.2. Case studies.

5.2.2. Approach to Roadmaps

The roadmaps were developed to complement the 10 initiatives detailed below by presenting a potential range (and order) of steps which might be taken as part of the implementation process. The roadmaps accordingly present the possible process underpinning implementation of the initiative described.

These roadmaps are to be treated as examples and broad guidelines rather than prescribed parameters. They have not been developed as interlocking elements, but rather as isolated paths (as far as possible) to simply provide an indication

[85] *An exception is the Change Management Framework, a cross-sectional (horizontal) initiative that - because of its nature - needs to be dealt with separately. The second exception is the Future-proofing Buildings initiative, which due to the extreme variation in the resources needed, deviates from this framework.*

of the degree of complexity, signpost the administrative steps that may need to be considered, and provide information on broad time horizons. It is therefore not assumed that the starting point for all initiatives is the same. The processes described in many cases lay a foundation for subsequent substantive implementation of the initiative. That implementation may in fact fall beyond the time horizon of the roadmaps — and in some cases continue for years after the preliminary governance and processes have been implemented. The roadmaps accordingly prioritise presentation of a more immediate perspective.

Interpreting the Roadmaps
The roadmaps have not been drawn up for individual entities as that would require setting defined objectives and processes on behalf of the implementing authority. The key measures necessary are described in detail in the specific actions proposed under the initiatives. Beyond these measures, the process will ultimately vary significantly depending on the internal governance and accepted procedures.

Where there is an overlap between different steps, which may appear as though they should follow each other instead, the overlap is permitted to represent not only a degree of flexibility, but specifically the opportunity to feed back into and improve processes still underway.

The timeline in organised by quarters (Q): short-term (Q1-Q2), medium-term (Q3-Q4) and long term (Q5-Q8 and Q9-Q12). The first year (Q1-Q4) will typically be the busiest and most informative in implementing steps the EBCG authorities may wish to consider. To improve readability and stress flexibility, steps past the third year (Q12) have not been represented. Where substantive steps are placed in the final column (Q9-12), this implies that they may still be ongoing past Q12, i.e. they fall beyond a three-year time horizon.

EBCG authorities undertaking multiple initiatives are encouraged to develop their own tailored roadmaps, overlaying them on these roadmaps and integrating steps that are currently discrete. White tabs have been added as titles categorising certain groups of related steps, and do not in themselves represent a distinct activity (e.g. EMAS Certification or Establishing Decarbonisation Guidelines).

5.3. Initiatives and roadmaps

Of the 10 sustainable initiatives, five are primary in nature, i.e. they introduce tangible pro-ecological changes to the way the EBCG operates on a daily basis. Five are enabling in nature, i.e. they complement or support the primary initiatives.
The primary initiatives are:

- Fossil-free Fleet;
- Sustainable Procurement;
- Circular Economy Initiatives for Standing Corps;
- Future-proofing Buildings: Sustainable Retrofitting;
- Sustainable Travelling and Commuting.

The enabling initiatives are:

- Foundation for Transformation: Change Management Framework;
- Sustainable Reporting and Risk Management;
- EMAS Implementation and Certification;
- Sustainability in Operational Activities;
- Local Community Engagement and Stakeholder Management Policy.

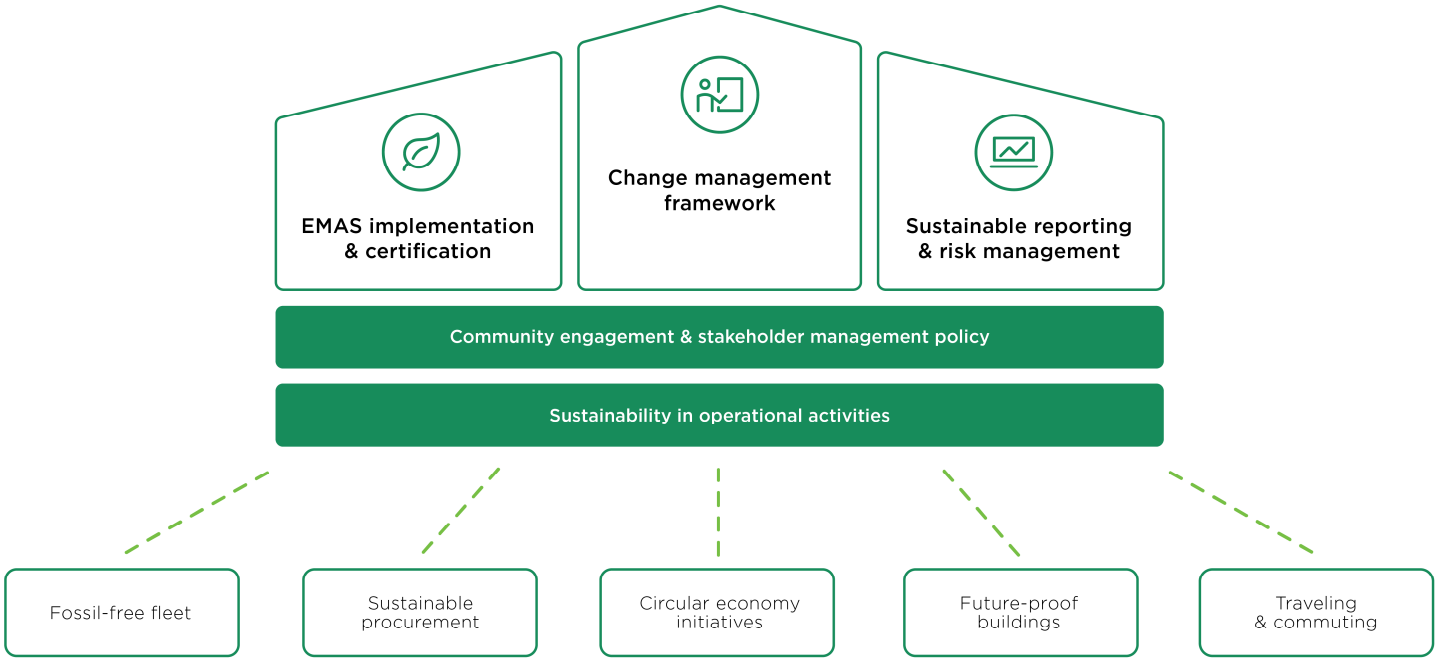
These enabling initiatives contribute indirectly to improving the ‘green’ metrics, e.g. Sustainable Reporting is applied to measure the impact of all the primary initiatives on CO_2 emissions; Local Community Engagement is set up to foster participation of the broader EBCG’s stakeholders in co-creation of common rules for implementation of the sustainable initiatives.

5.3.1. Foundation for Transformation: Change Management Framework

5.3.1.1. Classification of sustainable initiatives

The distinction between primary and enabling initiatives is important from the perspective of Change Management. Enabling initiatives will play an important role as the active elements of the Change Management Framework. The primary initiatives will be subject to planning, monitoring, coordination etc. by these elements of the Framework.

Figure 9- Classification of sustainable initiatives for change framework



Implementation of sustainability initiatives by Frontex and/or national border management authorities will in many cases require significant changes to daily operations. It is natural that change requires conscious effort, both at organisational and individual levels. Change Management is a framework designed to support the adoption of new ways of working by people as individuals and by the EBCG collectively.

5.3.1.2. Change Management Framework

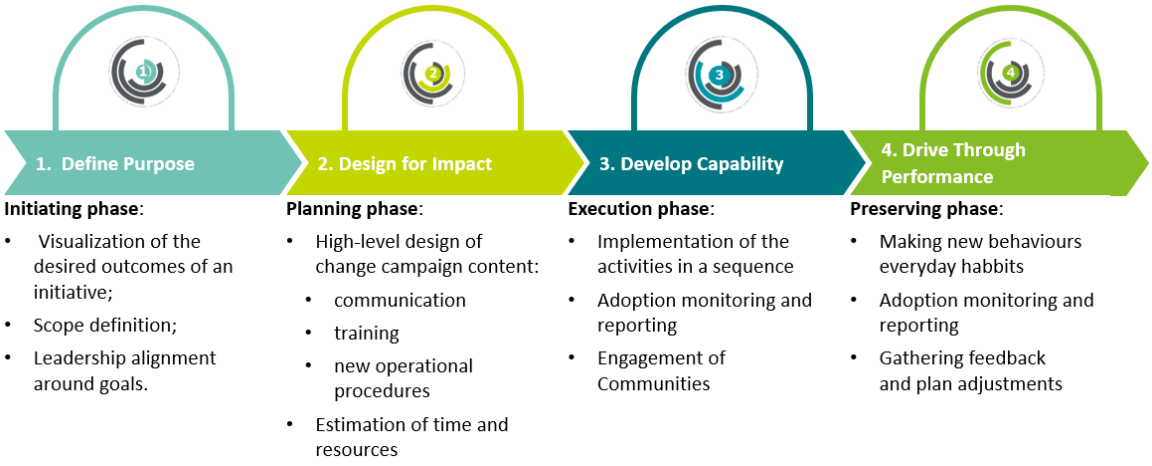
During the initiative development and feedback workshop (see section 2.2. Methodological approach), the EBCG representatives identified the development of a Change Management Framework as one of the most important measures to help overcome barriers to successful sustainability transitions. Participants noted internal and external barriers such as: possible organisational resistance, low prioritisation of sustainability, external stakeholder limitations, and conflicting regulatory obligations. Furthermore, it was recommended that actions within change management should target operational staff, and specialised training should be provided for all staff, including administrators. Additionally, it was noted that environmental considerations should be integrated in operational plans and codes of conduct/ethics.

The practice of Change Management is science-based and data-driven. It is applied as a set of practical steps recommended for successful implementation of all the sustainability initiatives. The proposed Framework is proven and applicable to pro-ecological initiatives regardless of their scope, range and impact intensity. It will also reinforce the application of the six high-level principles across the EBCG (see section 4.2. Principles).

5.3.1.2.1. Change Management Framework – phase overview

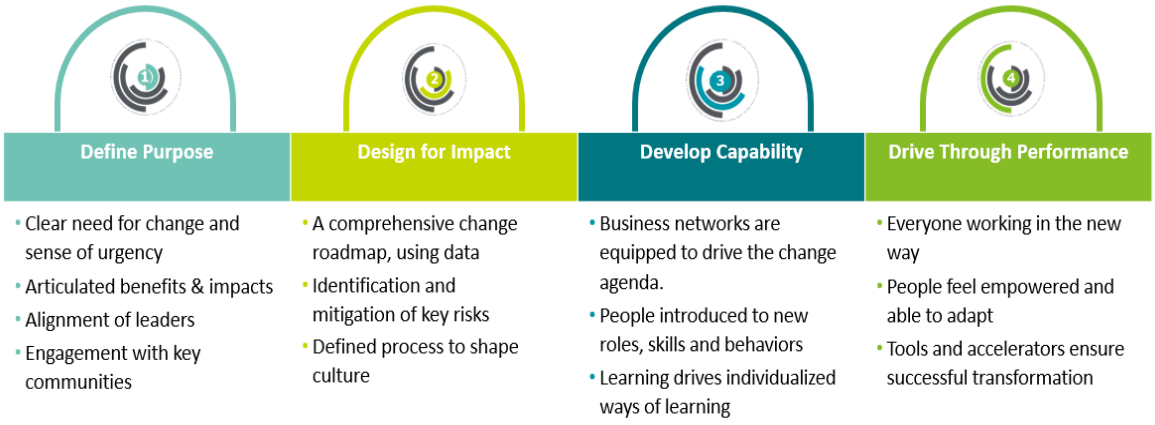
The Change Management Framework guides the organisation through the following four essential phases of Change Management: from **[1] initiation** (Define Purpose) by formulating vision and leadership alignment, through **[2] planning** (Design for Impact) and **[3] execution** (Develop Capability) of impactful change interventions, to **[4] preserving** (Drive through Performance) the new ways of working. The phases are applicable at the level of each individual initiative and should be coordinated and aligned across the EBCG to the extent possible.

Figure 10- Purpose and scope of the phases of the change framework



Each of the four phases delivers tangible value as described in Figure *11*.

Figure 11- Value delivered in the phases of the change management framework



The Framework can help the EBCG in understanding what needs to change and why, and how that change impacts various groups of stakeholders, what is required of them, and what support they need to embrace the change. It is aligned with the **guidelines for implementing changes** presented in **Principle No 6** – *Climate awareness and environmental issues should be raised with and amongst the stakeholders and community* (see section 4.2.6)

Raise awareness

Guideline 1 (Raise awareness) is material in the Define Purpose phase, in particular for those in leadership positions. Once aligned around a common vision and a clear sense of urgency, the leaders communicate the message down through the layers of the organisation with the purpose of raising awareness in the entire organisation. This is carried through in the Design for Impact phase in the form of a communication plan and later, in the Develop Capability phase, as the plan is being executed.

Develop a good strategy

Guideline 2 (Develop a good strategy) guides the work in the first two phases: Initiating and Planning. Not only is this when the strategy emerges, but it also serves as the central theme around which the whole EBCG unites in the common effort to include all relevant perspectives and needs, including input from stakeholders, and builds on ideas from around Europe.

Create a plan for change and implement it

The Design for Impact phase of the Change Management efforts is dedicated to planning and is therefore in line with Guideline 3 (Create a plan for change). Planning the implementation of multiple initiatives simultaneously, and across the EBCG, requires a structured approach and a gradual cascading down from high level to more detailed and localised planning.

Assess the organisational culture

Guideline 4 'Assess the organisational culture' is a component of the Design phase. In order to be able to develop an implementation strategy for the green initiatives, the Change Management Office must have a clear understanding of the 'cultural landscape' it is about to re-shape with the new initiatives. The green transformation will only be successful if the existing cultural traits, such as values, principles, language, or habits are respected. Transformation should be built upon everything that the EBCG already values and stands for, not destroying the 'as-is', but incorporating the 'to be' into it.

Predict the unpredictable

In external circumstances that are changing at a pace and on a scale that is unprecedented, surprise and deviation from plans is inevitable. Guideline 5 'Predict the unpredictable' could serve as an ever-present motto for the management team, especially during the Execution phase – Develop Capability. Agile delivery processes and continuous close cooperation between Frontex and all Member States will help in staying flexible and prepared for adjustments. Continuous feedback from the 'field', e.g. Standing Corps officers, will be a valuable source of information on the need for course correction.

Maintain the changes

The Change Management Framework devotes the whole last phase – Drive through Performance, to ensuring the sustainability of the initiatives implemented. Guideline 6 'Maintain the changes' would be at the heart of monitoring how adoption of the new ways of operating is proceeding and reacting accordingly with relevant interventions in the event of a threat of an unwanted return to old habits. It could take considerable time for the changes to settle across the entire EBCG. It is worth the effort to stay vigilant and maintain monitoring for up to one year from the implementation of any initiative, as culture change is by nature a slow process.

5.3.1.2.2. Implementation approach

Applied to each primary sustainable initiative, the Framework delivers tangible results which drive implementation. The recommended activities should serve as road signs and milestones for the delivery managers and teams of each of the initiatives.

Activities in the "Define Purpose" phase

Vision statement

Confirm the initiative's vision. This is the key first step. It is often realised in the form of (a) *top leaders' workshop(s)*. The Vision then serves as the overarching message for communication across the entire EBCG. The message should provide compelling answers to the questions: *What is changing and why? Why now? What would be the consequences of doing nothing?* The Vision Statement should create awareness and a sense of urgency for all stakeholders involved.

Leadership engagement

Identify key stakeholders who will sponsor the initiative at Frontex as well as in all Member States. This is the key moment for appointment of the Change Management Officer and all the members of the Sustainability Committee (see Figure 12, which is illustrative).

User network identification

Identify and activate networks of users across the EBCG as a whole. It is important to invite volunteers and critics to ensure a broad perspective that will be helpful during detailed solution design. Among end-users, influencers and key opinion leaders should be identified. Sub-communities could be formed for specific initiatives.

Activities in the "Design for Impact" phase

Change Impact Assessment

The central part of change management is understanding the specific impact an initiative will have on the entire EBCG. Built by means of thorough analysis of requirements, practices, tools etc., it should contain a comprehensive list of all changes in scope.

User persona and journey maps

The change points must be then mapped onto the EBCG landscape: who will be affected and to what extent, and what will need to change for them to assure uninterrupted operations. The 'who' is presented in the form of selected key User Personas bearing the most common characteristics of specific user groups. The 'what' is illustrated in the form of Journey Maps, which show how the users experience change in their daily activities.

Engagement and Communication Plan

Once a good understanding of what will change, for whom and how much has been built, the logical next step is to design a concrete plan of communication and impactful activities which will support the users in change adoption. The activities may include training, new procedures, behavioural nudges, which activate and strengthen new habits etc. Plans of this kind are best created in brainstorming workshops, using collaborative tools and good facilitators. It is here that the user network has a critical role to play and must be fully engaged.

Organisational Change Strategy

The Organisational Change Strategy summarises all previous analyses and plans into a comprehensive roadmap with a clear approach, outlining the involvement of the key stakeholders, a defined timeline, the estimated necessary resources and planned check-points. The Change Management activities must be prioritised, phased and focused. The most prospective activities and messages should be selected to trigger desired behaviours.

Activities in the "Develop Capability" phase

Engagement and communication materials

The materials for communication and training are designed, produced and distributed on an ongoing basis during this delivery phase. It is worth keeping in mind that brief, focused, visually appealing materials are usually more effective as often 'less is more'.

Learning curriculum and content

The learning curriculum results directly from the Impact Analysis, User Personas and/or Journey Maps. Learning about sustainability may take various forms: online, trainer-led, individual, group, on the job, etc. It is important to gather feedback on a regular basis and to continuously update and improve the learning content.

User network engagement

During Delivery, as during the Planning Phase, intensive and extensive engagement of networks of users is most valuable. Shared discussion platforms, experience-sharing meetings, common problem-solving sessions, Q&A sessions, meetings with local authorities and communities etc. can serve as a powerful stimulant of change adoption.

Change adoption dashboard

Change adoption must be measured. This is achieved through regular pulse checks, e.g. in the form of short surveys, that would feed the Change Adoption Dashboard. Data should be gathered on two levels: leading metrics, such as participation rates in events organised, and lagging metrics such as the end-results of implemented changes, e.g. reduced CO2 emissions and other 'green' metrics.

Activities in the "Drive Through Performance" phase

Change adoption evaluation

The Change Adoption Dashboard serves continuously throughout the entire programme to measure its results. It should be transparent and available not just to the Change Management Office and Sustainability Committee but also to the entire EBCG as it is the proof that efforts are bringing results (see Figure 12, which is illustrative).

Behaviour Rewards Strategy

Early signs of adoption must be recognised and rewarded. The stimulation of desired behaviours and perpetuation of new 'green' habits should be intentionally planned and monitored.

Post-implementation campaign

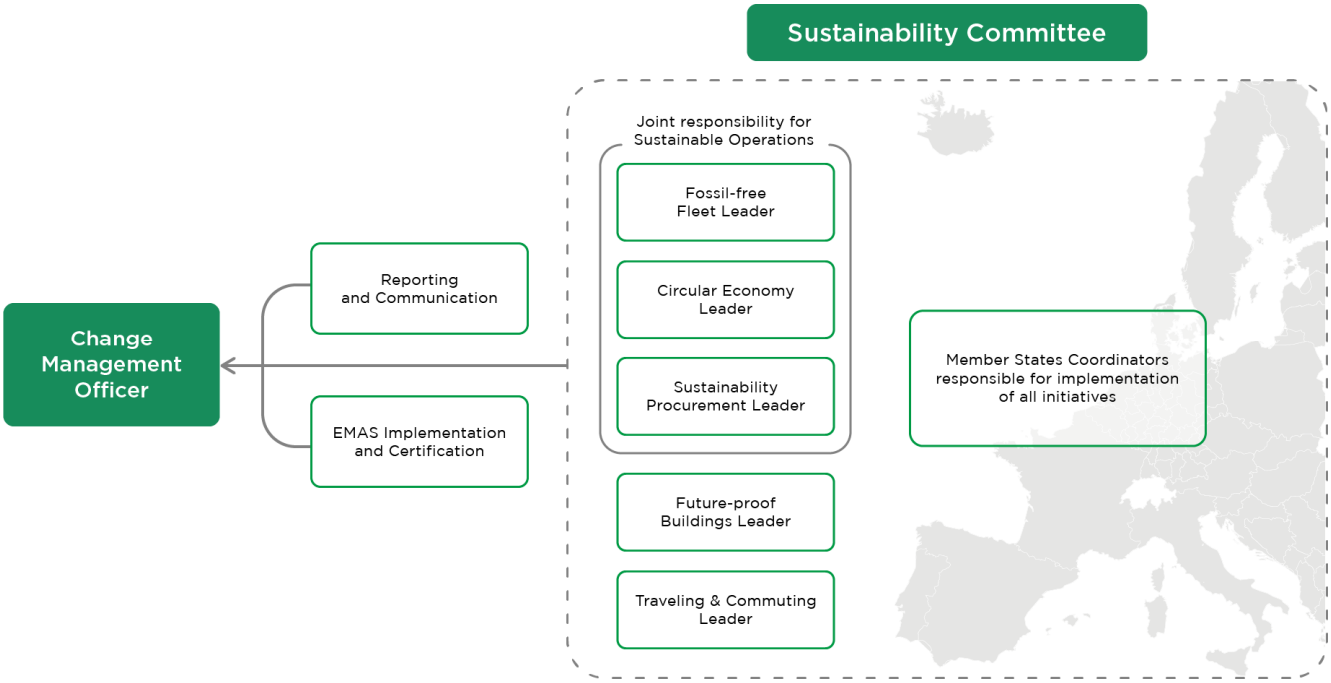
The communication and engagement should not stop once the implementation plan has been delivered. To assure stable adoption and strongly rooted habits, it is worth staying in contact with the user network and looking out for possible signs of roll-back to old ways of working. Be ready to act immediately.

5.3.1.2.3. Governance

Governance structure

The implementation of the set of sustainable initiatives requires excellent coordination and governance. Given the pan-European nature of the EBCG, Frontex is well-placed to serve as a supportive organisation helping to coordinate change and provide a matrix for the interface between EBCG Sustainability Leaders. Frontex may additionally support key common functions, such as high-level policy setting and reporting, which could be coordinated at the central level. An illustration of a possible governance structure is provided below.

Figure 12- Change management governance structure (illustrative)



The overall responsibility for change management for implementation of sustainable initiatives could remain at the Frontex level in the Change Management Office (ChM). The two initiatives, EMAS Implementation and Certification, and Sustainable Reporting and Sustainable Risk Management, can be centralised at the ChM Office level for a consistent approach in overall roll-out at Frontex. Thus, after having gathered adequate resources and experience, Frontex could further advise and support particular border management authorities in the Member States in implementing these initiatives at national levels.

The governance structure for implementation of the primary initiatives should be a matrix: Initiative / Member State. Members of this structure would constitute the Sustainability Committee. Each of the primary initiatives should have a Leader, whose responsibility would be to support the implementation of initiatives in the relevant space across the entire EBCG in all Member States. Analogically, each Member State should appoint a Coordinator, who would oversee all the initiatives being implemented in a given Member State. These roles would be jointly responsible for Sustainability in Operational Activities with regard to specific initiatives.

The Change Management Office would additionally be charged with overseeing how best to apply and entrench the high-level principles (see section 4.2. Principles). Principle 6 would furthermore specifically guide the work of the Change Management Office.

Professional qualifications for change management

Change Management as a practice requires not only excellent project management skills but also knowledge of human behavioural patterns. It is important to recognise, understand and be able to react to the most common risks, which are listed in the illustration (Figure 13) and which may hinder implementation.

Figure 13- Common change adoption risks

It is recommended that, for each initiative, the change office recruits professionals with relevant experience capable of effective implementation of the change management process steps described earlier in this chapter. Subject matter experts in communication, facilitation and development of learning materials should be involved as well.

5.3.1.3. Resources needed

Within the change management, the essential resource to appoint is a Chief Sustainability Officer (please see section 4.2.1. Principle No 1), or body of persons, with the responsibility for overseeing and coordinating the changes, and the authority to catalyse the implementation of selected initiatives. This would represent broader organisational engagement as a long-term process. The number of such dedicated specialists depends on the ambition level as well as the number and complexity of initiatives approved for implementation.

Relevant Case Study:

- The European Central Bank (ECB): Climate Change Centre

5.3.1.4. Relevant principles

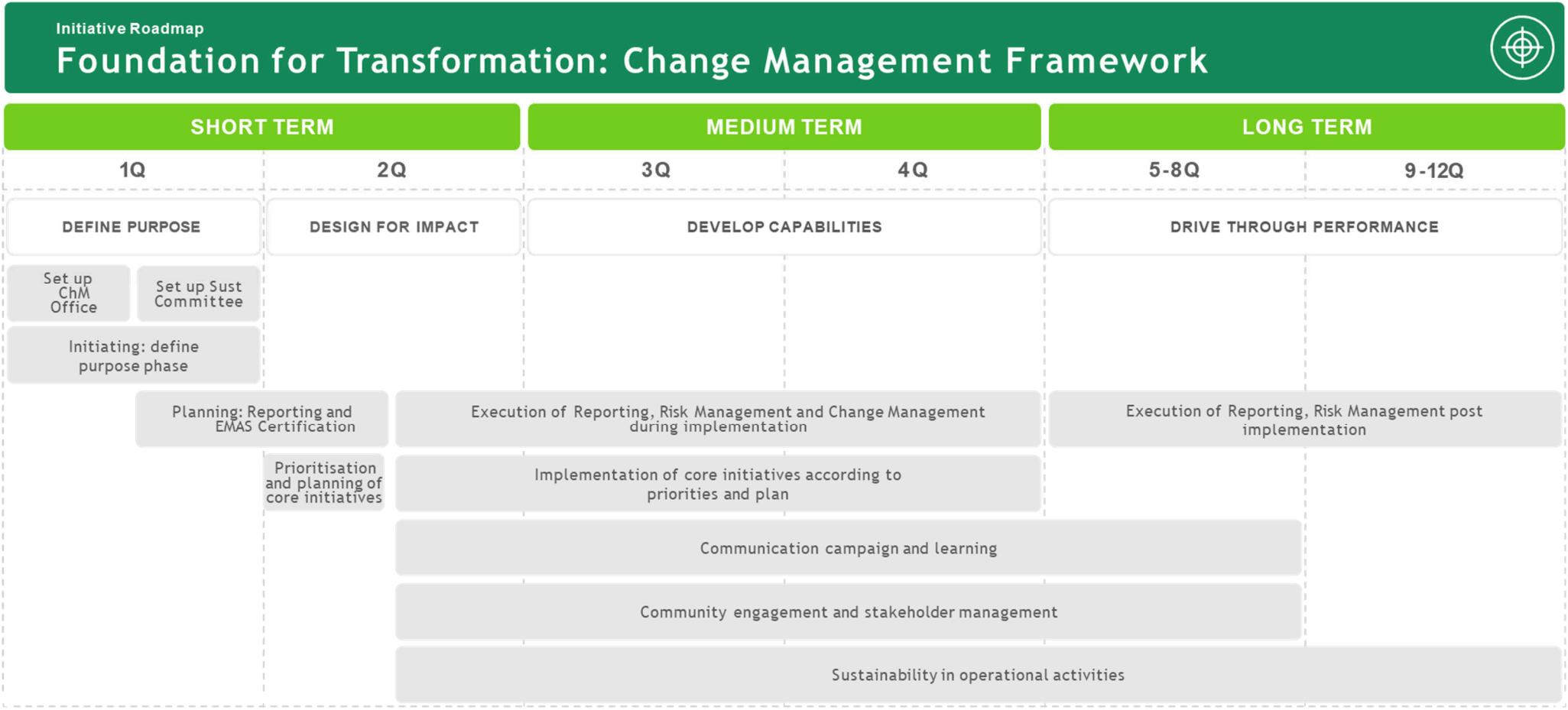
Table 3- Relevant principles: Foundation for Transformation

Principle	Relevance
No. 1: Environmental issues should be embedded into strategies and decision-making processes.	The Change Management Office should be the entity facilitating and coordinating the implementation of the initiatives and responsible for reporting and, if required, escalation to executive management.
No. 2: Targets should be science- and fact-based to reduce the organisation's environmental footprint effectively.	N/A
No. 3: The development and diffusion of environmentally friendly technologies should be encouraged and embedded into decision-making processes.	The governance structure is designed in such a way as to be effective in making and cascading decisions. The change process covers the engagement of the stakeholders impacted in the detailed design of specific implementation activities.
No. 4: The organisation's environmental impact should be monitored and reported.	The Reporting function is one of the key elements of the central Change Management Office in order to assure qualitative and regular monitoring of progress.
No. 5: Accountability and transparency should be demonstrated by regularly disclosing publicly the progress in implementing the sustainability targets.	The Reporting function covers not only reporting but also communication, so that the internal and external information flow is assured.

Principle	Relevance
No. 6: Climate awareness and environmental issues should be raised with and amongst the stakeholders and community.	The change process covers the engagement of the stakeholders impacted in the detailed design of specific implementation activities. This participation has a major impact on dissemination and adoption of change.

5.3.1.5. Roadmap

Figure 14- Roadmap: Foundation for Transformation: Change Management Framework



5.3.2. Sustainable Reporting and Risk Management

5.3.2.1. Description

Any action taken to address an organisation's environmental impact must be rooted in a true understanding of what that impact is currently. Without establishing and verifying baselines, the EBCG will not only struggle to perform the cost-benefit analyses necessary to prioritise tasks, and the investments and initiatives necessary to meet sustainability goals but will also struggle to demonstrate and evidence progress with decarbonisation.

The initiative development and feedback workshop (see section 2.2. Methodological approach) came down decidedly in favour of sustainability reporting in line with recognised standards and tools. It was noted that whilst some moderate organisational effort is necessary to initiate the relevant processes, the initiative as a whole is relatively more straightforward than others – particularly where data collection processes already exist. Development of KPIs was considered valuable, as was the development of size-neutral indicators (e.g. emissions per staff member), allowing the organisation to report progress consistently without results being skewed by organisational growth/expansion. Auditing was raised as a helpful means of ensuring the validity of data, as well as the commitment to meeting targets.

5.3.2.2. Specific measures recommended

Establish a reporting governance structure

Environmental, Social, and Governance (ESG) / sustainability reporting means disclosure of non-financial performance data. This data will concern environment and climate impact, social impact, stakeholder relationships, organisational responsibility, ethics and corruption issues, employees, or social involvement. While the public sector may not be under the same pressure to disclose non-financial data as the private sector, reporting sustainability performance is a good practice the EBCG should follow. Reporting is more than just an essential exercise to align with principles No 4 and 5 (see 4.2.4 and 4.2.5). It is an effective catalyst for change, forcing the EBCG to directly confront environmental performance, allowing them to clearly see where they stand, and raising accountability – altogether improving the likelihood of the EBCG aligning with EU sustainability targets.

According to the Global Reporting Initiative[86] (GRI), the most internationally recognised guidelines for non-financial reporting, reporting should show the management basics and how ESG activities are linked with a strategy, achieved results and plans for the next reporting period. One of the first steps in implementing reporting procedures should be the approval of leadership to take action or even take education measures emphasising the importance of ESG factors and transparency in this regard. It is likely to be relevant to incorporate risk assessments in the strategy, e.g. through the use of ISO standard 31000 on Risk Management.

Define data management and gathering plan, and tools

One of the biggest challenges in ESG / sustainability reporting is data consistency and the multiplicity of frameworks that can be used for reporting. Therefore, it is worth using a recognised international reporting standard like the Global Reporting Initiative (GRI).[87] In the near future, organisations may switch to a new uniform reporting standard being developed at EU level as part of the work on updating the Non-Financial Reporting Directive (Directive 2014/95)[88] (proposal for a Corporate Sustainability Reporting Directive, CSRD).[89] Basing itself on the list of material topics, each organisation should select indicators that need to be gathered and presented as part of the report. The process of indicator selection should take into account regulatory obligations such as Directive 2014/95 as well as market-recognised guidelines or recommendations like the TCFD recommendations.[90]

To perform data gathering processes, the EBCG authorities could appoint a person(s) responsible for coordinating the process and responsible for monitoring it. Additionally, to perform this process, timely and cost-effective data should be

[86] *Global Reporting Initiative. https://www.globalreporting.org/*

[87] *Global Reporting Initiative. https://www.globalreporting.org/*

[88] *https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32014L0095*

[89] *European Commission, 2021. Proposal for a Corporate Sustainability Reporting Directive. More information available from: https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en*

[90] *Recommendations available from: https://www.fsb-tcfd.org/recommendations/ and https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0189*

collected in a standardised form, by for example by using Excel data collection tools. Processes should be also improved by implementing an IT system for automatic data collection. Such platforms for collecting non-financial data are increasing popular and can certainly improve data collection processes. The data gathering process should be preceded by a workshop for staff explaining the data collection process, the scope of the information collected and the methods for calculating them, as well as an explanation of the tools used and the timeline for the process.

Define data verification process

Usually the Management Board is responsible for the compliance and quality of the published data. Therefore an extremely important stage in developing ESG / sustainability reporting is to define the (internal/external) data verification process. The main purpose of subjecting reports to verification is to improve the quality of published information, thus increasing recognition, trust and credibility, and lowering the risk level. Verification of reports should consist of two main stages:

- a preliminary verification of the report, in particular to check compliance with the guideline under which the report is prepared;
- a final verification, including checking the accuracy of the data presented against source documentation.

A solution also recognised on the market is to subject reports to external verification. An external assurance provider issues an independent assurance report once the procedures have been completed – with confirmation of the validity and reliability of quantitative and qualitative data presented in the report published by the organisation. This is attached to the report and summarises the report for internal use with complete information on the results of the verification and specific recommendations on organising the reporting process in the future. One of the most popular standards for performing non-financial assurance is the International Standard on Assurance Engagements 3000 Revised (ISAE 3000)[91], which makes it possible to obtain limited certainty as to the accuracy of the data contained in the report prepared by the organisation.

Define material ESG aspects for reporting

The fundamental purpose of reporting is to communicate useful information for decision-making with respect to the most material ESG factors, i.e. those issues which are most likely to impact overall performance and those posing a significant risk. An important step is identification of the ESG factors that are the most important for the organisation. Not all EBCG authorities will consider the same ESG issues as being of the same importance. Their relevance will vary across locations and with local specificities.

According to GRI Standards, the emphasis within a report is expected to reflect relative priorities. To assess whether the topic is material, internal and external factors should be considered. Internal and external factors should be considered in evaluating the importance of information in reflecting significant economic, environmental, and/or social impacts, as well as for stakeholders' decision-making.

Therefore, the identification of material aspects may include sectoral benchmarking, expectations expressed in international standards and agreements, interviews/surveys with employees, suppliers and non-governmental organisations (NGOs) as well as dialogue sessions, risk workshops, and assessment of regulatory obligations. Stakeholder Inclusiveness constitutes one of the 10 key Reporting Principles[92] as part of the reporting process in accordance with GRI guidelines. When making decisions about the content of the report, the reasonable expectations and interests of stakeholders need to be considered. Dialogue with stakeholders can serve as a tool in understanding stakeholder expectations and interests, as well as their information needs. It is important to decide with which stakeholders to engage, as well as how and when best to engage with them.

Stakeholder dialogue can play an important role in informing the initial materiality analysis. The next step of the materiality assessment can take the form of a validation workshop with operational teams and then organisational leadership to confirm the final list of material topics and issues which should be presented in the report, and the methods for presenting the selected data.

The process by which the priority of topics was determined should be explained as part of ESG / sustainability reporting. A summary of the identification of material aspects can be presented in the materiality matrix showing two dimensions:

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[91] *International assurance standard for assurance engagements, both for financial and non-financial purposes.*

[92] *Consolidated Set of GRI Sustainability Reporting Standards, 2020. Available from: https://www.globalreporting.org/standards/media/1036/gri-101-foundation-2016.pdf#page=8*

Influence on stakeholder assessments and decisions, and Significance of economic, environmental and social impacts. According to best practices, good climate reporting should also focus among others on "double" materiality, the impact on the climate and the impact on climate risks (in alignment with TCFD[93] guidelines). The TCFD has released climate-related financial disclosure recommendations[94] designed to help provide better information to support informed capital allocation. The TCFD framework's basic elements of governance, strategy, risk management, and metrics and targets are likewise relevant to the public sector, as are the recommended TCFD processes, such as identifying climate risks and opportunities and undertaking scenario analysis.

Preparation of ESG external reporting format

Content of the ESG / sustainability reporting should be engaging, encouraging the reader to read its content – storytelling can be used for this purpose. The report should contain content that is important to individual groups in an engaging and interesting way. Additionally important is the choice and presentation of key information, highlighting numbers, stakeholder profiles or applying comparisons. This becomes crucial in building credibility – storytelling should become "story-doing". It is very important to communicate in a clear, careful and transparent way when presenting ESG commitments/goals and updates on implementation (e.g. maturity in meeting KPIs shown in a time perspective – scorecards can be a useful tool).

The foundation of every ESG website is providing a possibility for stakeholders to read or download all sustainability and ESG policies and strategies (full governance disclosure). ESG reporting microsites could form part of, or feed into, the Frontex website, allowing for central collation of ESG reporting data.

The EBCG authorities might consider supplementing presentation of sustainability performance with the use of sustainability indicators and ratios – e.g. emissions per employee or per "mission". While nominal improvements are important for tracking purposes, complementing them with indicators such as these in a growing organisation, which is likely to emit more in absolute terms despite a reduction effort can prove valuable. This is particularly important for an Agency like Frontex due to its rapid growth and expanding activities.

5.3.2.3. Relevant certifications and professional standards

- Global Reporting Initiative (GRI)
- Task Force on Climate-related Financial Disclosures (TCFD)
- ISO 31000 Risk Management

5.3.2.4. Resources needed

Table 4- Resources needed: Sustainable Reporting and Risk Management

Measure	Cost categories		
	Human Resources	Scale of Investment	Time /Implementation potential/
Establishing reporting governance structure	Broader engagement / Targeted specialist engagement	Low	Short | < 6 months
Define data management and gathering plan, and tools	Targeted specialist engagement	Low	Short | < 6 months
Define data verification process	Targeted specialist engagement	Low	Short | < 6 months
Dialogue with stakeholders to define material ESG aspects for reporting	Broader engagement	Low	Short | < 6 months

[93] *Task Force on Climate-related Financial Disclosures established by the Financial Stability Board in 2017. Recommendations available from: https://www.fsb-tcfd.org/recommendations/*

[94] *Ibid.*

Measure	Cost categories		
	Human Resources	Scale of Investment	Time /Implementation potential/
Preparation of ESG external reporting format	Targeted specialist engagement	Low	Short | < 6 months

Human Resources

Sustainability reporting and sustainability risk management requires broad engagement of individuals, including top management. Further to the implementation phase, there will be a need to engage various experts, among others:

- Communication and reporting specialists;
- Environmental specialists;
- Energy and climate specialists;
- Risk management specialists;
- Strategy representatives;
- Lawyers and compliance specialists;
- Administrative specialists.

Scale of Investment

Sustainable Reporting and Risk Management measures does not require any significant technology-related investments and focuses on activities related to policy setting and implementation of standards across the organisation.

It is critical to align the implementation of this and every single initiative described in this chapter with any other initiatives that might be interconnected. To this end, there should be alignment on the dedication of resources required and close cooperation with the Change Management Office (ChM) – for reference, please see initiative *5.3.1. Foundation for Transformation: Change Management Framework*.

5.3.2.5. Relevant principles

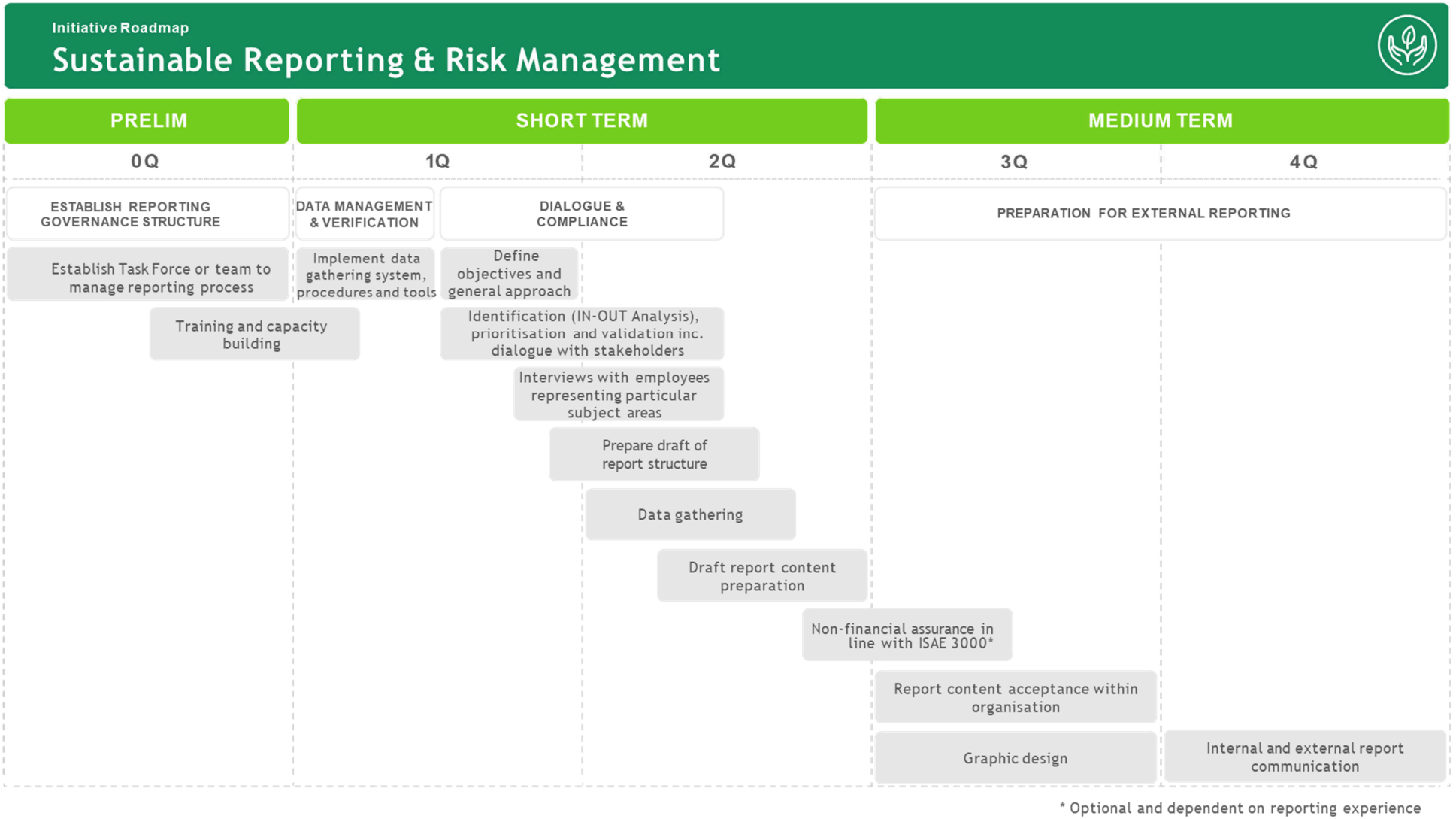
Table 5- Relevant principles: Sustainable Reporting and Risk Management

Principle	Relevance
No. 1: Environmental issues should be embedded into the strategies and decision-making processes.	Reporting forms a fundamental step through which EBCG authorities can embed environmental issues in strategy.
No. 2: Targets should be science- and fact-based to effectively reduce the organisation's environmental footprint.	Reporting and monitoring are key parts of establishing reasonable and fact-based targets.
No. 3: The development and diffusion of environmentally friendly technologies should be encouraged and embedded into decision-making processes.	N/A
No. 4: The organisation's environmental impact should be monitored and reported.	The initiative embodies the principle No. 4.
No. 5: Accountability and transparency should be demonstrated by regularly disclosing publicly the progress in implementing the sustainability targets.	Reporting is the key method by which transparency is maintained.

Principle	Relevance
No. 6: Climate awareness and environmental issues should be raised with and amongst the stakeholders and community.	Reporting and materials published by the EBCG authorities, are important informational channels for raising awareness amongst stakeholders and the community.

5.3.2.6. Roadmap

Figure 15- Roadmap: Sustainable Reporting and Risk Management



5.3.3. EMAS Implementation and Certification

5.3.3.1. Description

The EU Eco-Management and Audit Scheme (EMAS)[95] is a premium management instrument and standard developed by the European Commission for companies and other organisations to evaluate, report, and improve their environmental performance. EMAS defines the requirements for an Environmental Management System (EMS). EMAS is applicable and open to every type of organisation eager to improve its environmental performance. It spans all economic and service sectors and is applicable worldwide – but particularly in Europe. EMAS is comparable to the ISO 14001 standard, with some modifications e.g. obligatory disclosure of environmental policy and environmental impacts to stakeholders. EMAS is regarded as going further than an EMS such as that structured under the ISO 14001 standard. An EMS such as the ISO 14001 standard, can be regarded as an integral part of EMAS; in fact, EMAS registration attests that the organisation complies with the requirements of ISO 14001.

EMAS could be implemented by Frontex and also by any national border management authority in the Member States. For a detailed overview of the EMAS procedure, requirements and indicators, please see section 3.1. Regulatory framework.

5.3.3.2. Specific measures recommended

Initial environmental review

The first step in successful implementation of the EMS is to conduct a thorough analysis of the structure and the internal activities of the EBCG. The aim is to identify the environmental impacts associated with various activities. Another important objective of the environmental review is to define any areas posing potential regulatory risks – for example, EMAS sets total environmental law compliance as a no-compromise requirement.

The results of the initial environmental review define a basis for further development of the EMS - its scope, policy and the definition of formal EMS procedures.

Normally 2-3 months are needed to perform and document the initial environmental review.

Environmental management system definition and implementation

The biggest part of engagement – especially of internal staff – is dedicated to definition, drafting, writing and implementation of the EMS. Internal regulation with regard to the EMS will cover definition of upgrades in the following areas:

- organisational structure,
- planning activities,
- responsibilities/roles,
- practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy and managing the environmental aspects.

The amount of work connected with new procedures depends mostly on the existing procedures within the administrative and operational documentation describing how critical environmental impacts are managed (energy, fuel, water, sewage, waste etc.), measured, monitored, and reported. Normally, to appropriately address a typical EMS system, it is necessary to describe environmental management system requirements within 4-8 organisational procedures within the following areas e.g.:

- document issuing and control (internal regulation implementation and control),
- records management procedure (management of results of internal processes and measurements),
- internal audit procedure,
- corrective and preventive action implementation and monitoring,
- compliance management,
- risk management,
- management review process.

[95] *For more information, please see the section 3.1. Regulatory framework and Annex B.*

In addition, the following documents addressing environmental impact should be developed:

- Environmental Policy;
- Environmental Programme Plan and Results Register;
- Environmental Aspects and Impacts Register;
- Environmental Regulatory Compliance Register;
- Plus additional operational environmental procedures/instructions in areas where lack of those may lead to non-compliance with defined policy, regulatory compliance and obligations coming from internally defined goals and KPIs.

After all necessary regulations and procedures have been defined and approved, all staff taking part within the defined scope of the EMS should be trained – with a special focus on those engaged in environmentally important activities, e.g. operations with potential environmental impacts, environmental compliance, environmental measurement, and corrective/preventive actions.

Additionally, EMAS requires registered organisations to report on key performance indicators in the key environmental areas mentioned above. These measures need to be included in the design and implementation of the environmental programme, and the results of environmental measurement and monitoring have to be disclosed in the organisation's environmental statement.

The EBCG may decide to report on a larger number of environmental KPIs (see Figure 6). These would refer directly to its established and communicated policy and objectives, showing that it is implementing its environmental and climate obligations in a timely manner and effectively.

Normally, the implementation phase – definition of EMS internal regulations (policy, procedures and monitoring rules) – lasts 6-12 months, depending on the scope and complexity of the system, and the extent of the need for detailed regulation of organisational environmental impacts at the operational level.

EMAS certification and registration

In 2021, there were approximately four thousand globally verified and registered EMAS organisations, more than 400 of which were registered as public administration organisations. The European Commission was the first EU Institution to become EMAS-registered. In 2021, 12 EU Institutions and bodies were EMAS-registered (among them, the European Environment Agency, the European Parliament, the European Union Intellectual Property Office, the European Central Bank, the European Economic and Social Committee/the European Committee of the Regions, the European Council and Council of the European Union, the Court of Justice of the European Union, the European Court of Auditors, the European Food Safety Authority and the European Investment Bank Group).

To seek verification and certification, the EBCG authorities need to engage third-party (verification/certification) bodies. These are available in all EU countries. Global assurance sector players include BVQI, DEKRA, DNV, LR and TÜV. There are also local country certification-accredited organisations.

While preparing for external audit – third party verification of compliance with an established and implemented EMS to EMAS requirements, it is vital to ensure that the entire scope of the system requirements were covered by the initial audit process, and that the environmental statement has been prepared and reviewed internally, and that the organisation's management performed a formal management system review to check its compliance with defined policy, compliance with environmental regulation and effectiveness with regard to established goals and KPIs.

Practical considerations and hints for the EBCG on EMAS implementation and certification:

- the greatest organisational involvement and effort is needed in the pre-audit phase – particularly regarding environmental compliance status (where strong involvement of an experienced consultant is recommended);
- assistance from a qualified consultant is also recommended in identification of the significant and material environmental aspects, particularly in the provision of a defined and proven assessment methodology;
- of great importance is a good definition of what is meant to be documented and where (in terms of existing legislation, or the organisation), in order not to increase the associated administrative burden;
- the EBCG authority seeking to implement EMAS may find education and internal training of all employees to be a significant challenge; mandatory online training (such as through webinars) is recommended;

- there will be a need to define and train a group of internal auditors; EMAS requirements require that the entire system (and all EMS processes) be audited before the certification audit;
- it is desirable that the management review (including the summary of the results of monitoring environmental KPIs and internal audits / corrective actions) be aligned with the timing of annual summaries (Q1 or Q2), so that the EMAS management review can be incorporated into standard annual management reporting / summary meetings

Relevant Case Study:

- The European Central Bank (ECB): EMAS registration and ISO 14001

5.3.3.3. Relevant certifications and professional standards

- EMAS
- ISO 14001

5.3.3.4. Resources needed

Table 6- Resources needed: EMAS Implementation and Certification

Measure	Cost categories		
	Human Resources	Scale of Investment	Time /Implementation potential/
EMAS implementation	Broader engagement / Targeted specialist engagement	Medium	Medium | < 12 months
EMAS certification	Targeted specialist engagement	Low to medium	Short | < 6 months

Human Resources

Typically, a team is created in which a manager coordinates the entire project with representatives of units that are mostly engaged in the activities, i.e.:

- environmental specialist;
- energy specialist;
- quality – organisation management unit representatives;
- HR and training staff;
- procurement unit representatives;
- regulatory specialist;
- lawyers and compliance specialist;
- administrative specialist;
- internal auditors;
- communication and reporting specialist.

The individuals most occupied are those engaged directly in the initial environmental review, development of the environmental programme and preparation of environmental operational procedures. Other specialists engaged intensively are those who will execute the internal audits of the management system, when procedures are defined to check how effectively environmental procedures and how well monitoring (of environmental programmes) is being implemented. Lastly, engagement of environmental and communication experts is important in order to prepare regulation-compliant environmental statements, communicating vital issues to major stakeholders effectively.

Scale of Investment

EMAS implementation should not be counted as an investment. Normally it is not measured by Net Present Value or Return on Investment. Implementation and certification of an environmental management system (EMAS) is perceived as a strategic obligation and the cost of compliance with a set strategy. The level of costs connected with implementation typically arises from engaging external experts to deliver:

- initial environmental review;
- define procedures;
- support to training of personnel;
- training of internal auditors;
- other consultancy within implementation and certification steps.

Costs are dependent on a number of variables, including the scope of the organisation's processes and impacts, the number of employees, the volume of operational procedures and monitoring necessary. Implementation costs could fall in the EUR 100 000-300 000 range for the implementation phase for an organisation with 500+ employees. The certification phase costs are likely to be EUR 50 000-100 000 for an initial certification audit, and EUR 20 000-30 000 for yearly periodic audit costs. Certification (third party assurance) cycles last three years, so after two periodic audits, the organisation will need to go through another so-called re-certification audit (cost comparable to the initial certification audit).

While implementation of EMAS is not an initiative of a nature enabling clear calculation and attribution of returns, the European Commission stresses the following benefits:[96]

- enhanced credibility, transparency and reputation;
- enhanced environmental risks and opportunities management;
- enhanced environmental and financial performance;
- enhanced employee empowerment and motivation.

5.3.3.5. Relevant principles

Table 7- Relevant principles: EMAS Implementation and Certification

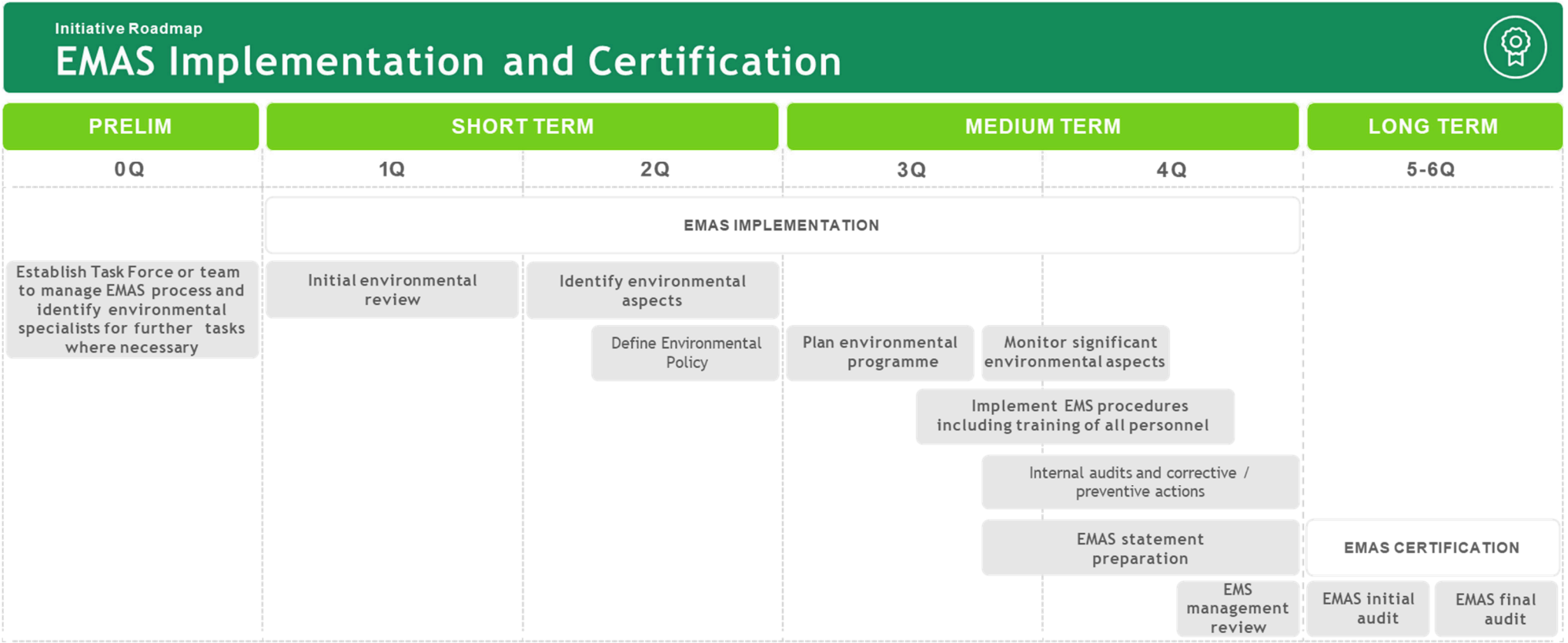
Principle	Relevance
No. 1: Environmental issues should be embedded into the strategies and decision-making processes.	EMAS is a standard offering an overall systemic approach - ensuring that significant environmental aspects are well established within the organisational and decision-making process agenda.
No. 2: Targets should be science- and fact-based to effectively reduce the organisation's environmental footprint.	According to the EMAS requirements, environmental aspects and impacts must be measured and monitored in a clearly defined way. Measures must represent the environmental impact of the EBCG, so they refer to specific environmental footprints e.g. emissions - impact on climate and air quality, water usage, waste generation, biodiversity impact etc.
No. 3: The development and diffusion of environmentally friendly technologies should be encouraged and embedded into decision-making processes.	N/A directly EMAS requirements do not directly refer to technologies used.
No. 4: The organisation's environmental impact should be monitored and reported.	According to the EMAS requirements, the EBCG would have to measure and monitor environmental aspects and impacts in a clearly defined way. Additionally, EMAS requires external reporting of organisational policy and environmental objectives and impacts.

[96] *European Commission, 2012. Eco-Management and Audit Scheme: Key Benefits. Available from: https://ec.europa.eu/environment/emas/emas_for_you/premium_benefits_through_emas/key_benefits_en.htm*
See also 3x3 Good Reasons for EMAS Brochure, available from: https://ec.europa.eu/environment/emas/pdf/other/Brochure_3x3_Good_reasons_for_EMAS.pdf

Principle	Relevance
No. 5: Accountability and transparency should be demonstrated by regularly disclosing publicly the progress in implementing sustainability targets.	EMAS requires external reporting of organisational policy and environmental objectives and impacts.
No. 6: Climate awareness and environmental issues should be raised with and amongst the stakeholders and community.	N/A directly EMAS requirements do not directly refer to raising climate awareness amongst stakeholders. However, EMAS requires training of all staff who have an impact on the environment – taking into account the organisation's own staff and those working on behalf of the organisation. Systematic reporting / disclosing company policy and its impacts on the environment also indirectly address this principle.

5.3.3.6. Roadmap

Figure 16- Roadmap: EMAS Implementation and Certification



5.3.4. Sustainability in Operational Activities

5.3.4.1. Description

Integrating sustainability into operational strategy

Efforts must be made to ensure sustainability is not side-lined as secondary to traditional, business-as-usual operational considerations. To achieve success in the major overhaul necessary to align with the significant emission reduction targets set by the EU, sustainability cannot be treated as a mere addendum and must be integrated into operational strategy. Chief Sustainability Officers must be present in the highest levels of leadership to ensure the initiatives are given due attention and priority. Sustainability considerations must be integrated into core strategy in order to shape operational strategies *ab initio* where it matters most. This is because the necessary changes, initiatives, and decarbonisation cannot take the form of offsets (with little bearing on operations) but must instead be found precisely in the operations themselves.

An underrated benefit of sustainability is that it forces a re-evaluation of every aspect of operational activities and identification of new more efficient ways of working. The process of integrating sustainability in operational strategy should begin with an understanding of the current impacts and emissions. After identifying high emission zones and consulting internal stakeholders, the EBCG authorities can then define ambitions, perform cost-benefit analyses of available measures, and build roadmaps on which to base implementation of a newly defined sustainability strategy – under the oversight of implemented sustainability governance and monitoring structures.

In the initiative development and feedback workshop (see section 2.2 Methodological approach), EBCG participants stressed the importance of creating a formalised, binding strategic document that would commit the leadership to action and ensure the agenda is given stable support even in the event of any personnel changes. Participants acknowledged that the diversity of the EBCG is such that extensive consultation and individual analysis would be necessary to develop appropriately tailored initiatives and emphasised that executive-level decisions are needed to quickly begin creating the dedicated teams/roles necessary for managing the transition processes. The necessity of introducing KPIs to track progress effectively was also raised, leading to strong recommendations for each EBCG authority about establishing individual baselines before deciding upon subsequent strategies.

Substantive initiative selection and implementation

The measures below together form a catalytic framework, which serves to increase the chances of success in achieving the ultimate environmental goals. Before selecting and initiating substantive operational changes and measures, it is essential that each EBCG authority clearly identify where it stands, what it hopes to achieve, where the boundaries of operational feasibility lie, and what vision exists to achieve the objectives set. Having done this essential groundwork, it is then possible to select the most appropriate initiatives (based on cost-benefit analyses). Environmental impact mitigation efforts (relating to operations) can be categorised in one of two major initiative spaces: circular economy and a fossil-free fleet. Between these two initiative areas, it is possible to capture not only the operational impacts (i.e. fuel combustion) of vehicle and vessel use, but also all the related supply chain impacts of those vehicles, as well as all equipment, uniforms, tools etc. The two subsequent initiatives are therefore dedicated to these spaces (5.3.5 Fossil-free Fleet and 5.3.6 Circular Economy Initiatives for the Standing Corps), and the EBCG is encouraged to explore the solutions presented.

5.3.4.2. Specific measures recommended

ESG Impact Assessment for core operational categories

To formulate cohesive sustainability strategies, it is advisable to undertake a comprehensive Environmental, Social, and Governance (ESG) Impact Assessment for operations. Before setting and meeting environmental targets, or designing roadmaps, it is essential to understand the present impacts of the EBCG. ESG Impact Assessment will allow baselines to be set from which targets may be defined, as well as help clarify the scale of effort necessary to meet governmental and EU objectives and commitments.[97]

[97] *For more information, please see 3.1. Regulatory framework and Annex B.*

Impact Assessment is a structured process for analysing present activity and proposed measures in relation to society and the environment, with reflection on governance structures and their efficacy in supporting the organisational efforts. The aims of Impact Assessment include:

- providing decision-useful information based on analysis of environmental and social impacts;
- identifying procedures and monitoring methods in policy and project cycles;
- promoting transparency and ensuring the participation of relevant internal and external stakeholders in the process of initiative identification and implementation.

ESG Impact Assessment typically requires consultation of external experts to guide the organisation through the process, helping manage stakeholders and supporting the exploration and analysis of relevant ESG impact areas based on extensive expertise in the field.

Carbon Footprinting – defining the baseline for decarbonisation

ESG Impact Assessment provides a framework to analyse sustainability issues comprehensively. Measuring and reporting progress in meeting climate goals requires a more technical analysis of an organisation's carbon footprint, in line with the Greenhouse Gas Protocol (GHG Protocol).[98] Measurement of an organisation's emissions in compliance with a recognised carbon reporting standard is an essential first step before objectives and initiatives can be defined.

The EBCG authorities need to know where the key emission sources lie, and exactly what volume of emissions must be mitigated in order to align with EU goals and commitments, in order to conduct cost-benefit analyses and prioritisation of mitigation efforts. Each organisation's emissions should be presented in accordance with three scopes (see Figure 4 for more details):

- **Scope 1: Direct emissions** – coming from owned and operated emission sources (own or leased fleet, machines, boiler rooms, refrigerants in HVAC installations);
- **Scope 2: Indirect emissions** – coming from supplied electricity and heat from external emission sources;
- **Scope 3: Other indirect emissions** – coming from all upstream and downstream value chain suppliers and subcontractors.

On average Scope 1+2 emissions are several times smaller than Scope 3 emissions. This implies that the EBCG should not only focus on their direct activities and impacts but should also analyse, measure, engage and manage its indirect emissions.

Measuring GHG emissions is always the starting point in defining climate impact ambitions and a further detailed Decarbonisation Strategy, enabling organisations to comply with Paris Agreement climate obligations.

Policy setting and prioritisation of sustainability

Operational teams/units are naturally inclined to prioritise operational efficacy, potentially viewing sustainability as a secondary consideration, particularly where budgets are such that the choices appear mutually exclusive. Meeting sustainable goals should not come at the cost of operational efficacy. It is important for leadership to show that sustainability and performance are far from mutually exclusive and support operational teams in both recognising the co-benefits and meeting environmental goals.

With respect to decarbonisation, operational activities constitute a priority space for the EBCG. Given the significant reliance on vehicle and fuel use, as well as related consumption of energy and supplies, operations are both the most important activity and the most environmentally impactful. Operations have the most impact in Scope 1 as well as in Scope 3 (using the GHG Protocol definitions).

Committing operational teams to prioritisation of sustainability is essential but must also be strongly supported (in order to be both effective and ensure operational efficacy is not compromised). Policies must be developed which place sustainability goals at the forefront, integrating clear KPIs and criteria for operational teams to achieve. At the same time, educational and capacity-building exercises, the securing of necessary expertise, and appropriate budgeting are key enablers. Policies must be accepted and entrenched at the highest possible levels in order to ensure continuity of effort throughout any personnel changes.

Training all personnel and holding target workshops to support integration of sustainability in operational strategy will be necessary to spotlight for teams how sustainability not only need not come at a cost to efficacy, but in many cases

[98] *For more information on the GHG Protocol, please see the section 3.1. Regulatory framework and Annex B.*

can provide operational co-benefits. Examples may include modular design of equipment enabling more frequent upgrades (whilst reducing waste), or the purchase of vessels with carbon fibre hulls, which may prima facie appear to exceed budgetary limitations, but where life cycle analysis can show that they pay off through fuel savings, translating to reduced emissions (and potentially higher top speeds on account of reduced weight).

After ESG Impact Assessment and carbon baseline footprinting (in all three Scopes), organisational leadership will be able to set targets based on cost-benefit analyses, stakeholder expectation analysis, prioritisation of outcomes, and defined climate ambition levels. It is suggested, however, that they preliminarily consider targets of a minimum of 45-50% emissions reduction over a 10-year timespan in order to align with the 1.5ºC scenario under the Paris Agreement.

ESG risk workshops

ESG Risk Workshops can serve to better define the material ESG risks in operations – giving operational teams greater ownership of solutions (increasing feasibility and engagement), but also providing opportunities to take all considerations into account and identify operational barriers flagged by engineers or operational staff. These workshops may be run by the aforementioned sustainability teams in an implemented sustainability governance structure, which will then enable continuity and closer ties to working groups and project teams, strengthening the efficacy of collaboration across the EBCG. ESG workshops provide a valuable opportunity for internal stakeholder consultation, which may then be taken into account when subsequently designing tailored roadmaps for decarbonisation of operational activities.
Workshop subject matter should include:

- presentation of the context behind policy changes and ambitions, helping to raise acceptance of priority changes:
  - explanation and exploration of the environmental impacts that operations may present (e.g. emissions contributing to climate change or pollution threatening biodiversity or health); known impacts may be presented, and supplemented through consultation with operational teams, in a workshop format to pool additional information from the operational perspective;
  - presentation of regulatory pressure binding Member States and public organisations to align with recently introduced or upcoming environmental legislation and regulations – further stressing the non-voluntary nature of initiatives;
- consultation of proposed initiatives with operational teams and internal experts to support assessment of expected environmental impacts that planned measures may have (e.g. analyses of fuel efficiency gains or pollutant reductions) as well as provide an opportunity for operational impacts to be assessed and flagged (feeding into cost-benefit analyses regarding initiative selection).

Implementation of ESG risk management procedures

EMAS or ISO 14001 standards may assist EBCG authorities in structuring Environmental Management Systems (EMS) enabling effective sustainability risk management and improved strategic planning. While these standards were mentioned above (and are explored in more detail in section 3.1 Regulatory framework), it is worth re-emphasising their role in shaping strategies for decarbonising operations. The standards may assist by effectively providing a checklist of considerations, processes and measures requiring implementation, such as:[99]

- determining needs and expectations of interested parties;
- determining the scope of the EMS, with consideration of e.g.:
  - compliance obligations,
  - organisational units, functions and physical boundaries,
  - activities, products and services,
  - authority and ability to exercise control and influence;
- demonstrating leadership and commitment by e.g.:
  - ensuring environmental policy and objectives are compatible with the strategic direction and context,
  - ensuring the resources needed for the EMS are available,
  - communicating the importance of the EMS;
- top management establishing, implementing and maintaining an environmental policy that:
  - is appropriate to the purpose and organisational context,
  - provides a framework for setting environmental objectives,
  - includes a commitment to the protection of the environment.

[99] *International Organization for Standardization, 2015. ISO 14001:2015(E). See: https://www.iso.org/standard/60857.html*

Adherence to such standards, and commitment to the elements they entail, serves not only to help structure the formation of a decarbonisation strategy but also increases the probability of success; accountability is elevated, and organisational buy-in grows as a result of effective communication and consultation.

Building tailored decarbonisation roadmaps for major operations

Decarbonisation roadmaps are the foundation of implementation strategies. The EBCG should build dedicated Decarbonisation Roadmaps for each major operation – as they may be dependent on different technological and societal/regulatory constraints.

The roadmaps will provide template estimations to provide insight into typical cases; each EBCG authority may choose a different selection of initiatives and is likely to find unique circumstances based on organisational, budgetary, and regulatory and contexts – thus affecting individual roadmaps. Roadmaps may be inspired by the template guidelines, though it is suggested that a process of developing a tailored roadmap is essential to reflect the specificity of initiatives ultimately selected by leadership and sustainability officers on the basis of findings from ESG Impact Assessments, Carbon footprinting processes, and ESG risk workshops.

Updating codes of conduct and operational plans

Sustainability considerations should be further integrated into daily procedures and behavioural norms through updates to the codes of conduct (applicable to all those participating in operational activities) as well as the operational plans which frame cooperation between Frontex and Member States. The updates may prove useful in changing ways of working, incentivising change and raising the profile of sustainability in daily operations. This can support sustainable staff behaviour in particular, insofar as staff are needed to help implement and maintain certain sustainable measures (e.g. within circular economy initiatives, with daily action such as waste sorting and collection, or personal choices such as refraining from using single-use plastic cups). The updates may remind staff of the necessity to change common practices in favour of greener alternatives, and convey sincerity and urgency on behalf of leadership. They may include not only values and desired behaviours, but also standard considerations and preferences staff are expected to apply in the course of their duties. The documents can thus supplement the management level policies and strategies developed by providing complementary guidance for operations units and staff.

5.3.4.3. Relevant certifications and professional standards

- GHG Protocol
- ISO 14001 and EMAS
- Science-Based Targets Initiative

5.3.4.4. Resources needed

Table 8- Resources needed: Sustainability in Operational Activities

Measure	Cost categories		
	Human Resources	Scale of Investment	Time /Implementation potential/
ESG Impact Assessment for Core Operational Categories	Targeted specialist engagement / Broader engagement	Low	Short | < 6 months
Carbon Footprinting	Targeted specialist engagement / Broader engagement	Low to medium	Short | < 6 months
Policy Setting and Prioritisation of Sustainability	Targeted specialist engagement / Broader engagement	Low	Short | < 6 months
ESG Risk Workshops	Broader engagement	Low	Medium | < 12 months

Measure	Cost categories		
	Human Resources	Scale of Investment	Time /Implementation potential/
Implementation of ESG Risk Management Procedures	Targeted specialist engagement / Broader engagement	Low to Medium	Medium | < 12 months
Tailored Decarbonisation Roadmaps for Major Operations	Targeted specialist engagement / Broader engagement	Low to medium	Medium | < 12 months
Updating Codes of Conduct and Operational Plans	Broader engagement	Low	Short | < 6 months

Human Resources

When planning implementation of sustainability aspects within core operations, it is essential to engage top management in order to have support for ESG and climate objectives and engagement as being of the highest priorities.

Scale of Investment

The financial expenditures will under this initiative be largely dependent on the extent to which external experts need to be contracted. Measures which can be conducted fully in-house (e.g. updating codes of conduct and operational plans) which will cost very little. Where outside experts are contracted to support (e.g. in performing carbon footprinting), these costs may require comparatively higher investments, depending on the body chosen and rates negotiated.

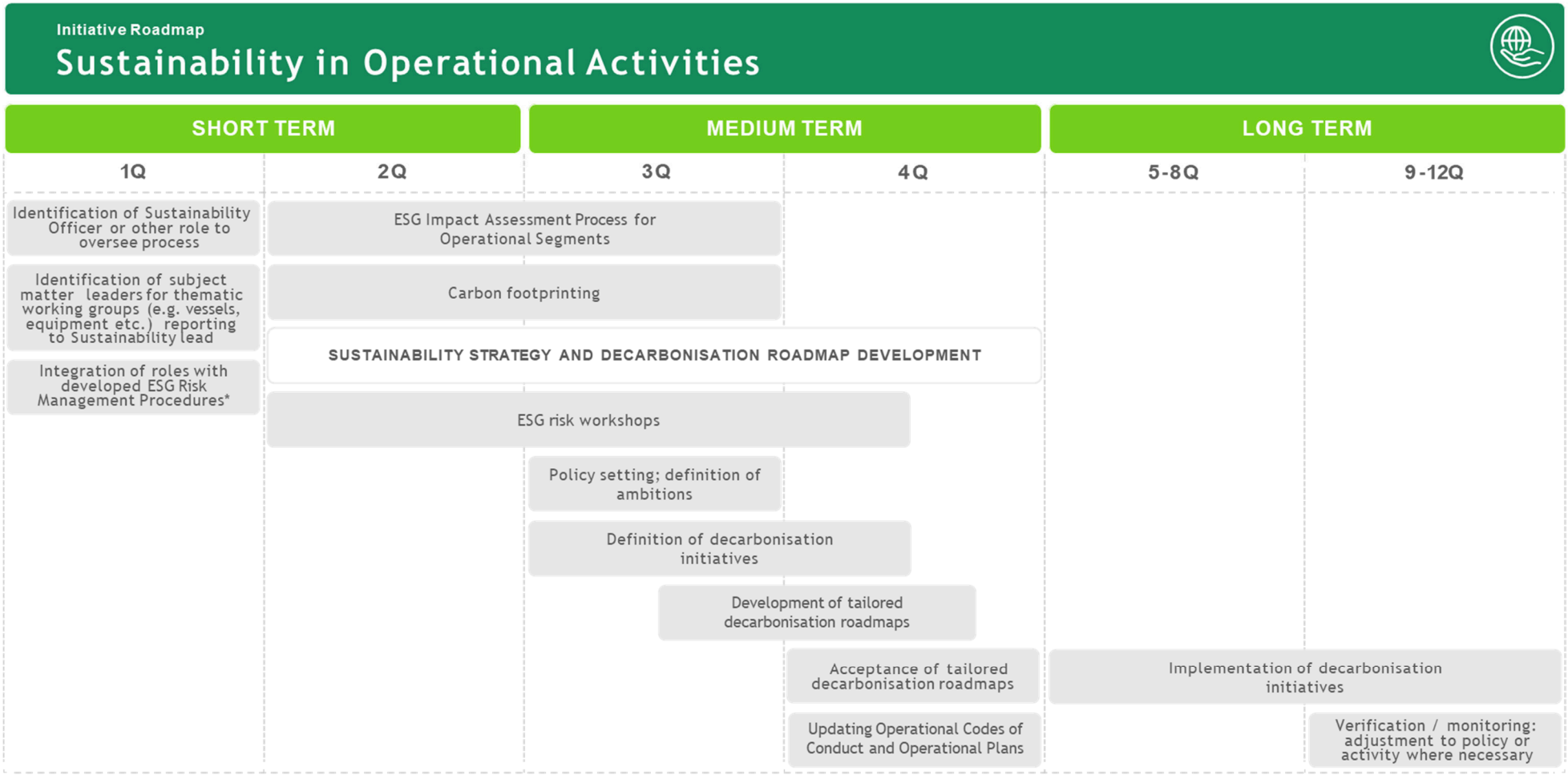
5.3.4.5. Relevant principles

Table 9- Relevant principles: Sustainability in Operational Activities

Principle	Relevance
No. 1: Environmental issues should be embedded into the strategies and decision-making processes.	Environmental impact assessment and development of strategies integrating sustainability into operations directly embeds environmental issues in decision-making processes.
No. 2: Targets should be science- and fact-based to effectively reduce the organisation's environmental footprint.	Conducting audits of the environmental performance of major operations enables fact-based emission reduction targets to be set through realistic assessment of impacts and mitigation opportunities.
No. 3: The development and diffusion of environmentally friendly technologies should be encouraged and embedded into decision-making processes.	Environmental impact assessment or innovative carbon footprinting tools involve the application of environmentally friendly technologies supporting the decision-making process.
No. 4: The organisation's environmental impact should be monitored and reported.	Through the environmental impact assessment methods implemented and carbon footprint calculation, the organisational impact on the environment will be known, reported and monitored.
No. 5: Accountability and transparency should be demonstrated by regularly disclosing publicly the progress in implementing sustainability targets.	Tools and policies aimed at monitoring emissions of major operations will enable the collection of information required for disclosure purposes.
No. 6: Climate awareness and environmental issues should be raised with and amongst the stakeholders and community.	N/A

5.3.4.6. Roadmap

Figure 17- Roadmap: Sustainability in Operational Activities



* Implementation of ESG Risk Management Procedures treated as a necessary precursor to Sustainability in Operational Activities initiative. Establishing Sustainability Governance may take up to 12 months, prior to initiating ESG Impact Assessments and Footprinting.

5.3.5. Fossil-free Fleet

5.3.5.1. Description

The fleet used in the course of operational activities represents a significant emission source, which the EBCG must seek to mitigate. Operations rely on vehicles, which become central to the fulfilment of core objectives and missions. The definition of the EBCG fleet spans vehicles used on land, sea and in the air; this includes patrol cars, vessels, aircraft, and helicopters. These vehicles are both the most important and yet the most challenging area to decarbonise, as there may be resistance to adjusting assessment criteria to include considerations felt to be secondary to functional performance – particularly in contexts of tight budgets. Operational teams may be wary if they believe sustainability is to come at a cost to performance.

It is important that the EBCG take steps to assure operational teams/units that sustainability and operational performance are not mutually exclusive and support the teams in ensuring this is the case through adequate support – including budgeting and careful construction of policy (which fully engages with the relevant internal stakeholders to engage with their concerns).

The EBCG participants raised a number of points in the initiative development and feedback workshop – particularly on infrastructure and costs. Participants agreed a fossil-free fleet is a keystone in meeting environmental objectives, but noted that certain measures (such as a wider transition to biofuels) would at present involve notable cost increases. Participants raised the need for technological roadmaps, in part to support a smooth transition by tracking technological developments that may increase the feasibility of certain options. Synergy with the Change Management initiative was briefly noted, as participants recognised the need to keep decision-makers well informed on: the need for a fossil-free future, the present market and infrastructural barriers, and future developments which may change the market and technological landscape, enabling action.

Regarding vessel retrofitting and green vessel choices, a discussion emerged in the workshop underlining the need to re-adjust conventional organisational thinking and decision-making regarding such assets and purchasing. The longer-term and the product lifecycle were stressed as essential considerations in order to avoid being undermined by short-term budgetary criteria. There are benefits and drawbacks to each decision and potential measure that must be carefully considered, e.g.:

- installation of a battery to convert a vessel for hybrid propulsion may displace other important equipment. Saddled with extra weight, the vessel could see reduced mileage;
- in a vessel with full fuel tanks, the fuel (nestled low in the hull) contributes significantly to stability. As the fuel is consumed and the tanks empty, the benefits of stability disappear; in fact the fuel produces counter-productive dynamic forces (through free surface effects as fuel sloshes around in partially full tanks).[100] Batteries, by contrast, provide a more stable weight, and can be positioned in the vessel so as to improve mass moment inertia, keeping the vessel more upright.[101]

In chartering aircraft from commercial operators, a number of selection criteria might be considered to identify more sustainable operators and flights – thus reducing emissions attributable to return operations. In practice, decisions must always be based on individual analysis, as a number of variables will impact the viability of different options, such as the number of people to be returned, the distance to the destination, and the number of operators running flights to those destinations. In many cases, it may simply not be possible to find lower-emission flights, as operators will not be able to provide them. However, where the routes are such that a selection exits, Frontex and individual Member States might consider the following criteria in choosing flights:

- **engine technology**: turboprop engines are considered more efficient than turbofan engines for shorter and lower altitude flights. Operators may therefore employ turboprop planes for shorter distances, and Frontex should choose such planes on account of significantly reduced fuel consumption per passenger.
- **route construction**: direct flights might not always be lower emission flights; combinations of multiple (shorter) flights may result in lower total emissions. Combining modes of transport may also provide an optimal travel mix.

[100] *United States Coast Guard, 2021. Energy and Fuel Matters. Volume 11, Issue 2. Office of Energy Management. p.8.*

[101] *Ibid, p.9*

- **fuel**: EU policies and regulations are steadily raising obligations for airlines to utilise Sustainable Aviation Fuels (SAF).[102] As uptake of SAF grows, Frontex may find more SAF flights to choose from; a SAF certification system is expected to enable organisations and travellers to claim the emission-saving benefits when covering price premiums.[103] The cost benefit of the premiums should be assessed first, however, to ensure alternative carbon offsetting measures do not prove more economical. Market mechanisms will provide the most optimal outcomes, but time is needed for biofuel production to ramp up in response to growing pressure (and consequent demand).

The above are examples of the considerations that must be taken into account by operational units, who should consider not only costs, but the fully operational co-benefits of any measure. It was agreed that the necessity of such analyses further affirms the need to commit to tailoring strategies to individual contexts and needs.

5.3.5.2. Specific measures recommended

Decarbonisation guidelines for operational vehicles

After conducting Carbon footprinting to determine emissions attributable to vehicle portfolios, and determining ambition levels for decarbonisation at the organisational level, leaderships should:

- endeavour to undertake a cost-benefit analysis of decarbonisation measures available that are applicable to vehicle portfolios;
- secure experts to support the cost-benefit analyses, ensuring that the full range of technologies, vehicles, operational impacts and decarbonisation opportunities are carefully considered, and operational teams are supported in effecting transitions;
- draft and formalise a dedicated policy for operational vehicles, establishing the necessary minimum environmental performance criteria, as well as overall decarbonisation targets;
- secure the necessary financial resources to empower operational units to implement the necessary changes and initiatives, and/or procure the necessary vehicles.

The policies and guidelines identified should form headline streams in wider organisational strategies and roadmaps – serving as keystone initiatives.

Sustainable fleet strategies may be based on categories of measure such as:

- fuel and technology transition: aiming to reduce emissions attributable to operations by transitioning from fossil fuels towards cleaner energy sources, such as biofuels or hydrogen, or electricity;
- energy efficiency improvements: helping reduce vehicle fuel use (e.g. reducing km per litre) through driver performance and vehicle maintenance;
- vehicle use demand management: seeking to reduce the kilometres travelled by vehicles, such as through route management and optimisation, or consideration of alternative methods to perform missions (e.g. replacing patrol cars in remote areas with battery-powered drones).

Electrification

Land vehicles offer the best potential for decarbonisation through electrification. With electric vehicles seeing growth in registrations,[104] the infrastructure necessary to support electric vehicle uptake is set to grow also, increasing the feasibility of wider-scale uptake. With EU legislation specifically targeting emissions from cars and vans, electric vehicles are expected to only grow in importance with respect to decarbonisation efforts. The EBCG authorities with sizeable fleets are exposed to such regulations and policies, and must prepare to act and transition in order to align with policies and avoid the costs of non-compliance. Examples might include operations in urban areas, where cities are increasingly designating low-emission zones and charging penalties for polluting vehicles.

Given the technological limitations, full electrification (i.e. purely electric, non-hybrid propulsion technology) for aircraft and vessels may in the short term prove not to be feasible – in part due to costs, but also to operational limitations (such

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[102] *European Commission, 2020. Sustainable aviation fuels – ReFuelEU Aviation. Available from: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12303-Sustainable-aviation-fuels-ReFuelEU-Aviation_en*
Legislative Train Schedule available from: https://www.europarl.europa.eu/legislative-train/theme-a-european-green-deal/file-refueleu-aviation

[103] *WEF, 2021. New Certificates Offer Flyers a Sustainable Fuel Option to Cut CO2. Available from: https://www.weforum.org/press/2021/06/new-certificates-offer-flyers-a-sustainable-fuel-option-to-cut-co2/*

[104] *European Environment Agency, 2021. https://www.eea.europa.eu/ims/new-registrations-of-electric-vehicles*

as impacts of battery weight or resilience risks). Land vehicles, however, have proven a viable candidate for full electrification.

Electrification of operational vehicles presents synergies applicable to decarbonising non-operational travel and commuting by staff in the form of shared infrastructure. The infrastructure necessary to support this shift (through the installation of EV charging points) may be utilised by staff's non-operational vehicles, supporting the decarbonisation of commutes.

Fleets are considered a priority action that must decarbonise first if Europe is to meet decarbonisation goals. This is in part due to the scale of fleets (which account for 6 out of 10 new cars sold and registered), and the disproportionate impact through higher mileage (with company cars being reportedly driven 2.25 times further on average than private cars).[105] Whilst this refers to company car use, the implications not only remain applicable to EBCG staff (through commutes), but also to use of vehicles in operations. Electrification is a solution the EBCG must consider to lead the way and set the best example.

Biofuel integration (HVO)

The use of HVO100 (100% Hydrotreated Vegetable Oil biodiesel) has been proven a viable fuel substitution measure to decarbonise vessel use in operations.[106] HVO is considered to have the best potential for transitioning to fossil-free operations. Engines which run on HVO can also run on traditional diesel, providing flexibility and security in the event of emergencies or threats to biofuel supply. This has enabled certain restrictions to be overcome (for example where the vessels needed to be able to run on the primary fuel of choice used by the navy – diesel, in the event of coast guard vessels needing to support the navy in an emergency).

According to a report by the International Energy Agency,[107] HVO production has seen strong growth in both supply and demand, but while the technology is considered mature, the future price is highly dependent on the availability of sustainable feedstocks; with virgin vegetable oil feedstock (such as palm oil) becoming increasingly unacceptable, the success of substitutes (such as algae lipids) in keeping feedstock costs low, will have a significant bearing on long-term price projections. Depending on cost-benefit analyses and the extent of decarbonisation necessary to align with EU climate goals, the EBCG may wish to either:

- become advance adopters and lead the way, in part due to decarbonisation pressures, or;
- begin trialling biofuel use in preparation for wider scale adoption when biofuel processes reach desired price thresholds; or
- prioritise investments in other initiatives (which require up-front capital expenditure) to temporarily keep increases in operational costs low while significant investments are being made elsewhere – leaving biofuel uptake as a transition only when fuels are cost-competitive.

Investigation into hydrogen fuel capabilities

According to a report by the Hydrogen Council, scaling up hydrogen infrastructure and decreasing the costs of catalysers (with scaled up manufacturing) could lead to significant reductions in the costs of renewable hydrogen production in the coming decade – with cost reductions estimated to be as high as 60%.[108] The report considers the cost reduction to be significant enough to make many applications of hydrogen power cost-competitive under normal conditions by 2030. This includes heavy-duty trucks, coaches, small ferries, large passenger vehicles, SUVs and mid-size long range vehicles.

The suitability of hydrogen as a transport fuel is presently debated, particularly in comparisons with electric vehicles. Renewable hydrogen (i.e. hydrogen produced using renewable energy-powered electrolysers) presents similar environmental benefits to electric power (in vehicle use) in that emissions at the tailpipe are negligible. Hydrogen might be considered to present advantages through swifter refuelling, but developments in fast-charging technology complicate the comparison. Difficulty in assessing the costs and benefits is compounded when factoring in the resilience benefits by

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[105] *European Federation for Transport and Environment, 2020. Company cars: how European governments are subsiding pollution and climate change. Available from: https://www.transportenvironment.org/wp-content/uploads/2021/07/2020_10_Company_cars_briefing.pdf*

[106] *See the section 3.2. Case studies for more information.*

[107] *IEA Bioenergy, 2020. Advanced Biofuels – Potential for Cost Reduction. Available from: www.ieabioenergy.com/wp-content/uploads/2020/02/T41_CostReductionBiofuels-11_02_19-final.pdf*

[108] *Hydrogen Council, 2020. Path to hydrogen conversion: A cost perspective. Available from: https://hydrogencouncil.com/en/path-to-hydrogen-competitiveness-a-cost-perspective/*

comparison with electric vehicles, such as solar panels on vehicle roofs capable of charging during operation,[109] or the lower cost of operational infrastructure; expanding hydrogen refuelling networks will always be higher cost than tapping into existing electrical grids. It may also prove easier to verify electric vehicles as carbon neutral when charged with local renewable energy capacity. The sustainability of hydrogen becomes more complicated in that real emissions are reliant on the emissions attributable to transport of the hydrogen, the source of the hydrogen, and the production method. Electric vehicles at present appear to be a safer sustainable option and are proven to be operation-ready. However, the development of hydrogen infrastructure should be closely monitored for the long term, as cost reductions in production (and expansion of infrastructure) may result in hydrogen proving a useful supplementary fuel in a majority electrical fleet – for reasons including diversification of energy supply (increasing resilience) and providing fuel security in regions where electrical infrastructure is assessed as more vulnerable (to environmental disruption or grid shutdowns).

Route management and planning (efficiency-focus)

Route management involves the optimisation of mission routes to reduce unnecessary vessel movements and increase efficiency. This may not only involve planning trips so as to avoid unnecessary journeys, but also choosing routes to avoid storms, high waves or strong undercurrents. Deep analysis of journey data may be necessary to identify scope for improvement. The data may be more precise and detailed than information which can be obtained from crews, particularly as it may be difficult to recall and accurately average a significant number of journeys and full details of speeds, distances, locations and fuel use.

Training in eco-driving is suggested to supplement route management. In addition to training, systems might be installed to provide captains with instant feedback on how manoeuvring affects fuel consumption, allowing for immediate corrections and adjustments where appropriate.

Vessel retrofitting, modification and maintenance

Hull roughness management and propeller roughness management refer to maintenance of streamlining properties by addressing corrosion damage and fouling (such as barnacles), which increase frictional drag and accordingly raise energy demand and fuel consumption.

Autopilot software improvement might be upgraded to assist the crew by making calculated decisions to optimise rudder movements – reducing energy consumption.

Propeller pitch optimisation involves adjusting pitch to increase efficiency by tailoring propellor pitch to each vessel's operational profile and stern hydrodynamics.

Where an EBCG authority holds a large number of older vessels in its naval portfolio, it may find that retrofitting older classes of vessels proves a more viable option and that they could be converted into hybrid-powered vessels, amongst other improvements, such as:[110]

- Energy source, engine configuration and engine improvement:
  - engine upgrade;
  - dual-fuel engines;
  - variable speed operation of propeller;
  - electric battery installation for harbour approach;
- Generators:
  - power management to improve use of generators;
  - variable-speed generators;
- Auxiliary systems:
  - autopilot improvement;
  - installation of energy efficient equipment;
  - waste heat recovery systems;
- Operation and maintenance:
  - vessel trim adjustment;
  - analysing and cleaning hull;
  - analysing and cleaning propeller;

[109] *See French Ministry of Interior Case Study.*

[110] *CORDIS EU research results, 2015. Retrofitting ships with new technologies for improved overall environmental footprint. 7th Framework Programme. Available from: https://cordis.europa.eu/project/id/285420/reporting*

- propeller pitch optimisation;
- load balancing

- Reduction of NOx:
  - SCR (Selective Catalytic Reduction) System;
  - EGR (Exhaust Gas Recirculation) System;
- Reduction of SOx emissions through installation of SOx scrubbers (where low sulphur fuels are unavailable).

Relevant Case Study:
- The Swedish Coast Guard (SCG)
- Policy and Planning
- Fossil-free Fleet Strategy

5.3.5.3. Relevant certifications and professional standards

- GHG Protocol
- Science-Based Targets Initiative

5.3.5.4. Resources needed

Table 10- Resources needed: Fossil-free Fleet

Measure	Cost categories		
	Human Resources	Scale of Investment	Time /Implementation potential/
Decarbonisation guidelines for operational vehicles	Broader engagement / Targeted specialist engagement	Low	Medium | < 12 months
Electrification	Targeted specialist engagement	High	Long | > 12 months
Biofuel integration (HVO)	Targeted specialist engagement	High	Long | > 12 months
Investigation into hydrogen fuel capabilities	Targeted specialist engagement	Low[111]	Long | > 12 months
Route management and planning	Targeted specialist engagement	Low	Short | < 6 months
Vessel retrofitting, modification and maintenance	Targeted specialist engagement	High	Long | > 12 months

Human Resources

The human resources necessary for implementation of Fossil-free Fleet initiatives are those outlined under Human Resources in section 5.3.4.4 above. The sole difference is that within this initiative, there will be a greater need for technical experts – though it is expected that in many cases the organisation's existing in-house engineers may have the skills necessary to implement the initiatives. Those personnel presently in charge of managing and maintaining fleet assets will necessarily take on roles within the initiatives, and will be best placed to determine the skills needed for successful implementation.

[111] *Monitoring of technological developments is to be considered low-cost – though future implementation of hydrogen technology in a fleet (pending economic viability) will naturally involve high capital expenditures.*

Scale of Investment

The Fossil-free Fleet initiative is one of the most demanding financially; organisations will need to prepare budgets in anticipation of these measures. Biofuel integration may require capital investments in upgrading vessels, as well as impose higher operational costs for as long as biofuels are more expensive than conventional fuel alternatives. Depending on fuel consumption rates (albeit hopefully mitigated to some extent by investments in fuel efficiency), these costs may prove very significant. It will be the responsibility of each operational team to undertake a cost-benefit analysis based on past operations data, to determine whether the measures are optimal methods of mitigating impacts – bearing in mind budgetary constraints.

Vessel retrofitting and electrification will in the long-term offset investments through reduced fuel costs, but will likewise require significant investments in assets and infrastructure. Individual cost-benefit analyses must be performed to ensure that investments are suitable for the individual organisational context.

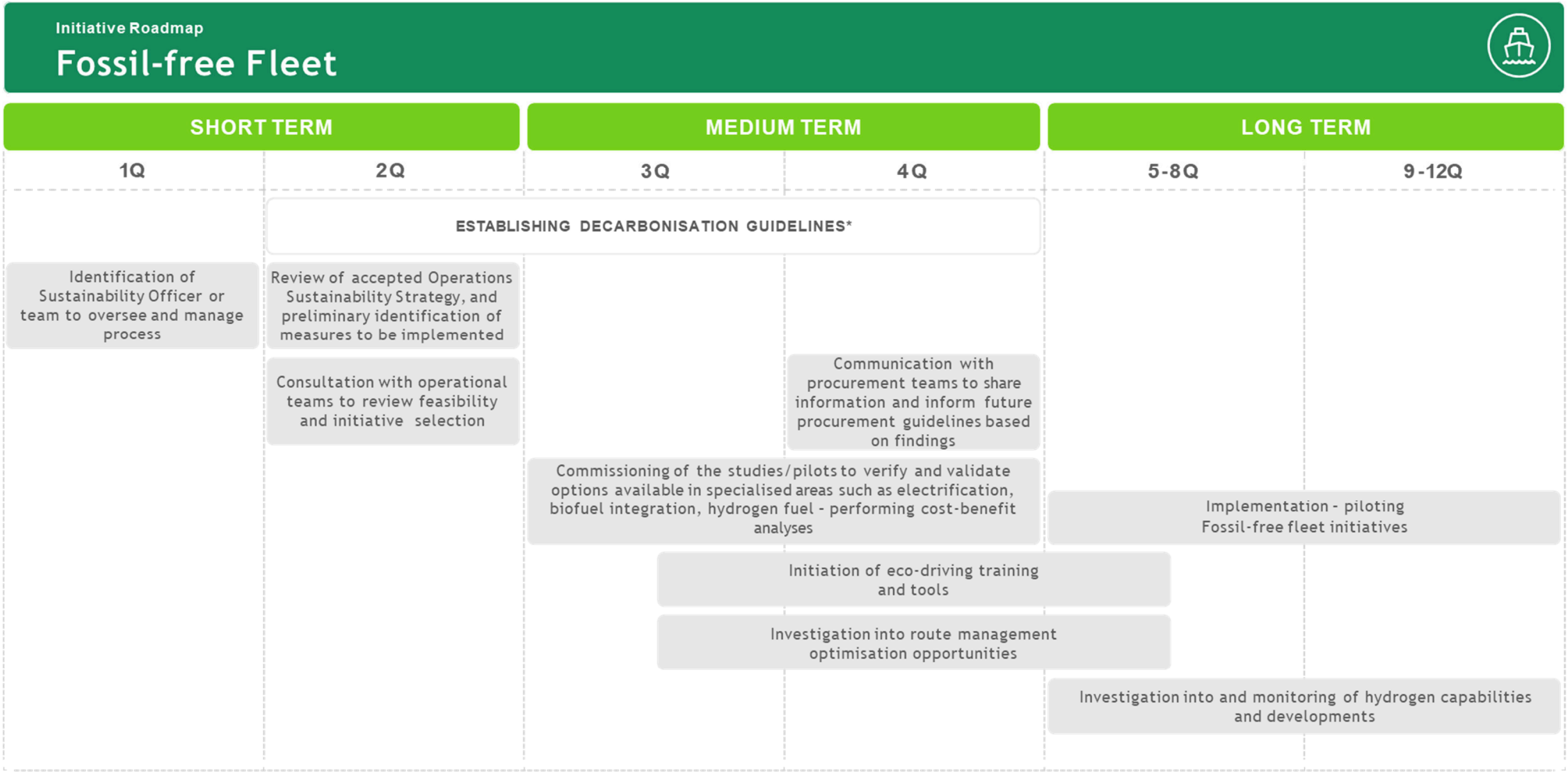
5.3.5.5. Relevant principles

Table 11- Relevant principles: Fossil-free Fleet

Principle	Relevance
No. 1: Environmental issues should be embedded into the strategies and decision-making processes	Directly addressing environmental performance and embedding in core strategies, through changes in key sustainability parameters for operational fleet components.
No. 2: Targets should be science- and fact-based to effectively reduce the organisation's environmental footprint.	Policies and decarbonisation initiatives based on prior studies, carbon footprinting data, cost-benefit analyses and sustainability reporting standards to ensure feasibility and evidence-based environmental footprint mitigation.
No. 3: The development and diffusion of environmentally friendly technologies should be encouraged and embedded into decision-making processes.	Incorporation of leading technologies as part of emissions mitigation in operational fleet.
No. 4: The organisation's environmental impact should be monitored and reported.	Monitoring of emissions will be reported in line with best practice and reporting standards, particularly to demonstrate progress in emissions mitigation through fossil-free fleet initiatives and investments.
No. 5: Accountability and transparency should be demonstrated by regularly disclosing publicly the progress in implementing sustainability targets.	Applicability as above.
No. 6: Climate awareness and environmental issues should be raised with and amongst the stakeholders and community.	Operational teams and administration will include sustainability performance in the course of designing and determining viability of initiatives.

5.3.5.6. Roadmap

Figure 18- Roadmap: Fossil-free Fleet



* Establishing decarbonisation guidelines, as a stage, is treated as building on prior sustainability strategy development. Wider strategy is to set overarching goals for which operational teams and working groups must develop feasibility evaluations and implementation plans.

5.3.6. Circular Economy Initiatives for the Standing Corps

5.3.6.1. Description

The continuously growing pressure on natural resources will be among the top challenges of future generations. The circular economy refers to a leading sustainable paradigm designed to decouple economic growth from resource use. Instead of discarding assets after only one product cycle, new ways to continually re-acquire and reintroduce these assets to the market are developed.

The principles of the circular economy (or "circularity") apply to organisations in the public sector as much as the private sector, as the resources used represent the same environmental impact. Circularity, and the reduction of resource use, not only confers economic benefits through reduced costs in the long term, but also directly addresses the central premise underpinning Sustainable Development, as defined by the Brundtland Report: meeting the needs of the future without compromising the ability of future generations to meet their own needs.[112] Circularity achieves this through optimisation of resource use, ensuring that the lifespan of natural resources is extended (as a result of reduced demand for virgin raw materials). The circular economy has also been identified as a key measure in fighting climate change. The Ellen MacArthur Foundation identifies circularity as capable of mitigating up to 20% of total emissions that must be eliminated by 2050.[113] Circle Economy estimates this potential as even greater – suggesting that circular economy strategies could mitigate up to 39% of global greenhouse gas emissions.[114] While estimates may vary, a consensus exists that shifting to a circular economy is a significant and essential development in climate action. For the EBCG, this means circular economy initiatives offer significant environmental co-benefits (beyond increased resilience, resource efficiency, and cost savings), thereby helping to meet climate goals.

The circular economy can therefore be summarised as supporting sustainability by:

- keeping the value of the material for as long as possible;
- freeing economic growth from the consumption of scarce resources;
- optimising the use of resources through re-design and maintenance of materials in circulation;
- developing innovation and stimulating the development of new technologies;
- increasing system performance by identifying and mitigating negative externalities (such as emissions).

5.3.6.2. Specific measures recommended

While the following recommendations were designed with the Standing Corps in mind, they are in fact widely applicable across the EBCG community. Circularity is very much a paradigm applicable to any and every product and supply chain.

During the initiative development workshop, the EBCG participants recommended that there be a top-down directive sharing best practices on circular economy models of operation. It was suggested that the Frontex Standing Corps might provide an effective medium for testing and propagating certain circular initiatives. It was noted that while the circular economy initiatives could in many cases require a significant implementation and education effort, the long-term benefits would prove highly effective.

Circular policy setting

Frontex is encouraged to formalise internal guidelines setting tailored circular economy principles identified as feasible to which they can publicly commit. Commitment to a formal policy could help raise circularity as a prescient consideration, and through established KPIs and targets, sustainability officers can maintain the accountability, and ensure initiatives receive the necessary attention and funding.

[112] *Brundtland Commission, 1987. Our common future. Report of the World Commission on Environment and Development.*

[113] *Ellen MacArthur Foundation, 2021. Completing the Picture: How the circular economy tackles climate change. Available from: www.ellenmacarthurfoundation.org/completing-the-picture*

[114] *Circle Economy, 2021. The Circularity Gap Report. Platform for Accelerating the Circular Economy. Available from: www.circularity-gap.world/2021*

In setting internal guidelines in regard to circularity, Frontex may wish to:

- take into consideration all aspects of the Agency's activity as a whole, including operations on the ground, internal services, digital resources, etc. and analyse how the aspiration for circularity can be ensured in each area;
- communicate with partners and suppliers to establish a common understanding and cooperate on the goal of closing the loop in the economy;
- in setting rules and commitments, consider the abilities not only of the organisation itself, but also those of partners and suppliers to outline roadmaps that are ambitious, yet realistic;
- familiarise itself with market standards and benchmark actions against comparable organisations in other countries, aiming to become a leader and an example for others to follow suit;
- prepare both an internal and external communication plan on the policy, creating awareness among all stakeholders who should adhere to its principles.

Recyclability and plastics reduction in rations, field supplies and operational equipment

Plastic waste resulting from the EBCG operations must be reduced as far as possible, and diverted from landfill, in order to reduce environmental impacts. In waste hierarchies, incineration is typically a last resort action preferable only to landfill (on account of the heat energy recovered) but remains a poor solution. Removal of plastics in all cases where possible or feasible should be a priority. An example would be replacement of single-use plastics with reusable alternatives or reducing the weight of plastics as part of a wider item. Increasing the recyclability of plastics is an essential step that may require re-design of products, such as replacement of multi-material composites which are hard to recycle with mono-material alternatives.

Rations ("Meal, Ready to Eat") packaging represents a source of plastic for which the U.S. military has found a new use as a feedstock of recycled polymer to 3D print useful components or items on forward bases, reducing reliance on regular re-supplies – increasing resilience in operations whilst simultaneously reducing disposal costs and environmental impacts for rations packaging.[115]

Increasing the lifespan of equipment and uniforms

Recycling forms only one aspect of the economy. An important activity is the prevention of waste in the first place, such as through the repair and maintenance of tools, equipment, clothing and other products, extending their lifespan. This is particularly applicable to materials which may be typically replaced and disposed of rather than repaired as a standard practice.

An example of life extension of clothing would be the repair of boots, as exemplified by the Dutch military, which as part the Dutch Ministry of Defence's circular economy initiative (through the clothing and personal equipment unit) is repairing boots at an orthopaedic shoe repair facility located on a military base.[116]

Re-design can be an important step in supporting the repairability and maintenance of products, equipment and uniforms. With 80% of the environmental impacts of products determined at the design stage, product design has the potential to make significant improvements in the durability and recyclability of products. Products should therefore be designed with eco-criteria embedded into core design parameters to enable impact mitigation down the value chain. Cooperation with suppliers may prove essential in catalysing a shift towards products designed with sustainability and resilience in mind. Examples might include not only saving on volumes of material used (and making production processes themselves leaner), but also selection of longer lasting, higher quality materials (in preference to cheaper but less resilient alternatives), as well as design of modularity where appropriate. Modular design allows for precision upgrades or replacements of small parts of an item, preventing obsolescence or the need to replace an entire item as a result of a small or localised fault. It is suggested that a review be conducted of items used to identify on a cost-benefit basis those items where modular design might in the long-term significantly reduce costs of frequent replacements.

[115] *Recycling International, 2018. US army recycles plastics to repair military equipment. Available from: https://recyclinginternational.com/plastics/army-recycles-plastic/17171/*

[116] *Available from: https://www.epe.admin.cam.ac.uk/boot-repair-military-base*

Textile recovery from uniforms (instead of incineration)

Textiles represent one of the most polluting industries, with production using large amounts of water, land, energy and chemicals. Measures should be taken to reduce this impact by reducing the reliance on virgin raw materials and new textiles. Recycling textiles emerges as an effective solution, as exemplified by the Dutch Ministry of Defence.[117] While used uniforms have traditionally been incinerated for security reasons, the Dutch MoD has shown the viability of recovering the value from used uniforms, while maintaining security (through the mutilation of uniforms prior to materials recovery).

Less than 1% of material used to produce clothing globally is recycled into new clothing, representing a loss of more than USD 100 billion of materials each year. Textile recycling not only leads to better economic, environmental and societal outcomes, it may result in significant savings, proving invaluable for the EBCG in bolstering budgets to support other necessary sustainable initiatives.

As an example, in partnership with organisations such as Circle Economy, Salvation Army ReShare, and Recover, the Dutch MoD established a process to collect used defence workwear, mutilate uniforms (through shredding) to prevent misuse, strip non-recyclable elements, and then use the recovered fibres to spin new yarn composed 80% of recycled material and 20% virgin polyester. The process has been found to significantly reduce water consumption, energy consumption, and greenhouse gas emissions attributable to new (100% virgin material) textile production. In addition to saving significant volumes of CO2 emissions per year, textile recovery initiatives have been shown to provide additional organisational savings.

Ammunition downcycling

In addition to the recycling of spent shell casings for ammunition, EBCG authorities utilising weapons might additionally consider the valorisation of residual energetic material from ammunition, utilising the recovered material in the production of civil ammonium nitrate-based emulsion explosives. A study has suggested that this may be a sustainable and circular solution, helping overcome drawbacks such as energy requirements and high costs of traditional disposal.[118] Energetic material in obsolete ammunition is regarded as frequently usable, albeit not viable for re-use in weapons as a result of high safety standards and costs – a barrier absent in downcycling for use in civil explosives (as an alternative to expending energy for disposal). This approach follows the circular economy principle, as articulated inter alia in BS 8001:2007[119], by providing a new service to a residue through its incorporation into a new product.

In testing the feasibility of such novel ammunition downcycling solutions, the EBCG might consider pooling resources. This could prove beneficial in achieving the economies of scale necessary to improve cost-effectiveness and viability. The EBCG could partner to pool spent ammunition and process it centrally (where existing national ammunition recycling procedures and programmes are not in conflict with this approach).

Ship breaking: safe materials recovery and re-use[120]

Recycling ships, a practice referred to as “ship breaking”, involves the dismantling of decommissioned vessels for the recovery of valuable raw materials. It represents a major economic activity in certain countries, such as Bangladesh, India and Turkey. The recycling of scrap metals from ships reduces the demand for mining raw materials, an activity with significant environmental impacts. In this way, it is a vital part of the circular economy — which seeks to minimise waste and recycle certain materials infinitely. Vessel recycling (through ship breaking) is therefore an important element of the circular economy for EBCG authorities relying on naval assets.

The ship breaking industry has, however, long been plagued with criticisms of highly unsustainable practices, such as “beaching” of vessels which fail to be fully dismantled and are left to rust on the coastlines of non-European countries.

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[117] European Defence Matters, 2020. Issue 20: Cards on the Table: Circular Economy in Defence. Available from: https://eda.europa.eu/webzine/issue20/in-the-field/advancing-circular-economy-in-defence

[118] Ferreira, C., Ribeiro, J., Clift, R. and Freire, F., 2019. A circular economy approach to military munitions: Valorisation of energetic material from ammunition disposal through incorporation in civil explosives. Sustainability, 11(1), p.255.

[119] British Standards Institution, 2021. The rise of the Circular Economy: BS 8001 – A new standard is available. Available from: https://www.bsigroup.com/en-GB/standards/benefits-of-using-standards/becoming-more-sustainable-with-standards/BS8001-Circular-Economy/

[120] While not applicable to Frontex and the Standing Corps, ship breaking has been flagged as an important consideration relating to the circular economy, applicable for all members of the EBCG utilising vessels.

In 2015, only a small portion of European-owned vessels were recycled in modernised facilities.[121] Since 2018, European vessels may only be recycled at facilities found on an approved list of ship recycling facilities via Commission Implementing Decision (EU) 2021/1211.[122] Vessel recycling policies might need to be reviewed, and ships be designated for recycling at approved European facilities in preference to sale of vessels to parties who may in turn fall outside EU ship recycling regulations.

In the long term, the EBCG authorities may wish to consider pooling purchasing power and combining resources for joint procurement in order to catalyse deeper and longer-standing relations with ship construction and design partners. This might enable the incorporation of fully closed loops through established systems for the collection, breakdown, and part-for-part recycling of old vessel materials (in the construction of new orders), with decommissioned vessels supplied enabling discounts through reduced material costs.

5.3.6.3. Relevant certifications and professional standards

- ISO 14001 and EMAS)
- BS 8001

5.3.6.4. Resources needed

Table 12- Resources needed: Circular Economy Initiatives for the Standing Corps

Measure	Cost categories		
	Human Resources	Scale of Investment	Time /Implementation potential/
Circular Policy setting	Targeted specialist engagement / Broader engagement	Low to medium	Short I < 6 months
Recyclability and plastics reduction in rations, field supplies, and operational equipment	Targeted specialist engagement	Medium	Medium I < 12 months
Increasing the lifespan of equipment and uniforms: increasing durability and reparability	Targeted specialist engagement	Low	Short I < 6 months
Textile recovery from uniforms (over incineration)	Targeted specialist engagement	Low	Short I < 6 months
Ammunition downcycling	Targeted specialist engagement	High	Medium I < 12 months
Ship breaking: safe materials recovery and re-use	Targeted specialist engagement	High	Medium I < 12 months

Human Resources

As defined in the previous section, each initiative requires a similar level of involvement from the Human Resources perspective. However, the type of targeted specialist support will differ, depending on a specific action, as described below.

[121] *Science for Environment Policy (2016). Ship recycling: reducing human and environmental impacts. Thematic Issue 55. Issue produced for the European Commission DG Environment by the Science Communication Unit, UWE, Bristol.*
Available from: *https://ec.europa.eu/environment/integration/research/newsalert/pdf/ship_recycling_reducing_human_and_environmental_impacts_55si_en.pdf*
[122] *Available from:* *https://ec.europa.eu/environment/topics/waste-and-recycling/ships_en*

Circular policy

Setting Circular Policy as a measure is distinct from the other measures below. Definition and development of the policy may require targeted specialist support, but in order to effect adherence to its terms (both internally and externally), it requires broader engagement from the organisation in the long term as well. A policy also needs regular revisions (approximately every 2 years) to stay relevant to market conditions, so there should be a designated person responsible for this task internally. Circular policy should also involve input from the person(s) responsible for supplier/partner relations as well as consultation with the procurement departments.

Recyclability and plastics reduction in rations, field supplies and operational equipment

In the circular economy, the ideal solution is truly "closed loops" by keeping materials in the same product chain – i.e. part-for-part recycling where materials from recycled products are utilised for products of the same type, to be used in the same way. (An example is collection of spent brass ammunition casings to recycle into new ammunition.) Unfortunately, this approach is not always possible, or financially feasible, particularly with more complex composite material products with low recyclability.

Finding new uses for plastics is an action that requires target specialist knowledge. Typically, that would require conduct of a "plastics audit" by an experienced professional, supplemented by the knowledge on how the plastic can be replaced, recycled or reduced. Ideas such as using single-used plastics as 3D printing feedstock are a very good solution to a large problem, but need, however, to be carefully reviewed by experts in the fields of plastic use (equipment, supplies, etc.)

Increasing the lifespan of equipment and uniforms

This initiative can be implemented as a one-off transition to the most durable or modular products currently being produced, but it can also be a long-term goal, assuming constant monitoring of developments (although more so in the area of equipment than uniforms) and incrementally changing the equipment as it reaches the end of its lifespan. Taking that into consideration, an approach to implementing this initiative would most often be a rather standard project that simply increases the overall durability of the products used and requires low to medium engagement from the specialists who would advise on and support the purchase of equipment and uniforms made from more resilient materials and with better opportunities for reuse and repair. For a more ambitious project, effort and support from internal research and innovation and/or engineering teams may be necessary in working closely with suppliers to develop products with a longer lifespan and tailored to individual needs.

Textile recovery from uniforms

Focussing on a narrow aspect of activity, the initiative would require specialist support to make the transition from incineration of uniforms to the recycling of the textiles. Inside the organisation, it would call for engagement of the procurement division and re-evaluation of their processes so that they favour recycled textiles as well as cooperation with administrative or operational units to streamline collection systems for used uniforms. Externally, this initiative requires a recycling partner that could provide uniforms of equal quality to those made from non-recovered virgin resources. The procurement division will have the responsibility for identifying suitable partners. However, once the process is established, it should require minimal human resources to maintain as the core work will most likely be done by the external partners, with the organisation working only to collect and potentially transport uniforms – activities which it is likely organisations already perform in the course of present disposal procedures.

Ammunition downcycling

As with textile recycling, ammunition downcycling would predominantly be affected through external partnerships, releasing the organisation from significant human resource obligations.

Ship breaking

In partaking in sustainable ship breaking, the human resource requirements should be similar to those for textile recycling; with the competencies found externally, the EBCG authorities must primarily establish procedures and relationships with ship breakers found on the approved EU list and opt to support the better regulated and more sustainable European ship recycling industry. These efforts will largely be incorporated as part of policy-setting. Persons and units presently responsible for the decommissioning/disposal of vessels are expected to accommodate any new responsibilities that may be dictated by policy changes and be capable of implementation with no extra resources necessary.

Scale of Investment

The circular economy is a somewhat recent development in the field of sustainability, and many ideas are only now being developed into full-scale solutions. The biggest benefit of circular solutions is the preservation of non-renewable resources. That benefit can transfer into quantifiable savings, such as lower utility charges or less frequent capital expenditures due to the extended longevity of used goods. These reductions in long-term expenditures nevertheless require initial investments to set in motion. However, every circular economy initiative should aspire to pay for itself. By definition, the collection and valorisation of waste should be expected to at least break even. Where estimates suggest the savings or additional revenue streams for proposed processes will fail to offset costs, the initiatives must be considered unsuitable.

Circular policy

Development of the document itself is unlikely to involve significant costs; the involvement of various divisions and the extent of monitoring and enforcement of commitments that must be applied internally and externally has the potential to increase costs, though these will remain relatively low in comparison to the capital expenditures necessary for other initiatives. Insofar as the initiatives proposed are implemented successfully, the expenditures on developing a tailored and actionable policy are expected to generate a strong return on investment. The costs will largely depend on whether an external expert is contracted to support the process, or whether the Sustainability Officer is able to lead such a process.

Recyclability and plastics reduction in rations, field supplies, and equipment

Reducing plastics use and increasing recyclability requires a short-term investment. This would carry mostly savings – from limiting waste disposal fees to a lower need to purchase virgin plastic. As a growing number of regulations are focused on limiting plastic in the environment, it is expected that the cost of virgin material and products that contain it will increase over time. Setting up schemes that reuse plastic can help avoid those additional costs. However, the investment might require notable financial input in order to adjust existing systems and plastic value chains.

Increasing the lifespan of equipment and uniforms

The investment scale of this initiative is dependent on the ambition levels established. If the initiative seeks only to procure higher quality equipment and uniforms (with the purpose of increasing durability), cost increases may be categorised as low, depending on volumes. This evaluation will need to be based on an analysis of savings attributable to the increased lifespan (and consequently deferred replacement). Going a step further, by establishing improved repair and maintenance systems, may require higher short-term capital expenditure, but once again it can be expected that the investment would be fully recouped through cost savings in the mid-term. The speed of returns on investment will be a function of the total cost of items repaired, and repair rates.

Textile recovery from uniforms

Such an initiative would be suggested only in circumstances where an appropriate and established recycling and textiles processing partner(s) can be found. With existing plants in place, the investment expected on behalf of the organisation supplying uniforms for recycling is expected to be very low (weighted towards operational costs of collection and delivery primarily). The initiative would therefore (depending on volume and partnerships within the EBCG community) offer a short payback period.

Ammunition downcycling

As a novel waste valorisation opportunity, ammunition downcycling (through residue recovery and use in civil explosives) is a high-cost activity that will likely not be feasible at present. The technology and opportunity should instead be monitored, and opportunities to collaborate in order to reduce costs considered, so that the initiative can be implemented in the mid-term where the business case is proven.

Ship breaking: safe materials recovery and re-use

As another form of recycling, ship breaking can possibly be a source of revenue, not only avoiding penalties from improper disposal but also benefiting from materials retrieved from an old fleet. The costs relate to setting up a system and establishing partnerships in terms of transportation and recycling of ships. Given that procedures already exist for

managing the disposal of vessels, it is expected that those procedures can accommodate changes to vessel decommissioning and disposal policy at marginal cost.

Implementation Potential

It is recommended that Frontex regard circular economy policy setting as a multi-year commitment – an ongoing, continuous process of assessment and improvement which can last several years and keep adherence of the organisation in terms of circularity updated with changing needs and regulations.

In terms of individual initiative timeframes, estimations of implementation horizons are highly dependent on specific contexts, needs, and ambition levels, resulting in significant ranges for estimated timescales. Operational limitations affecting execution timeframes may also include, for example, shifting organisational priorities or resource re-allocation.

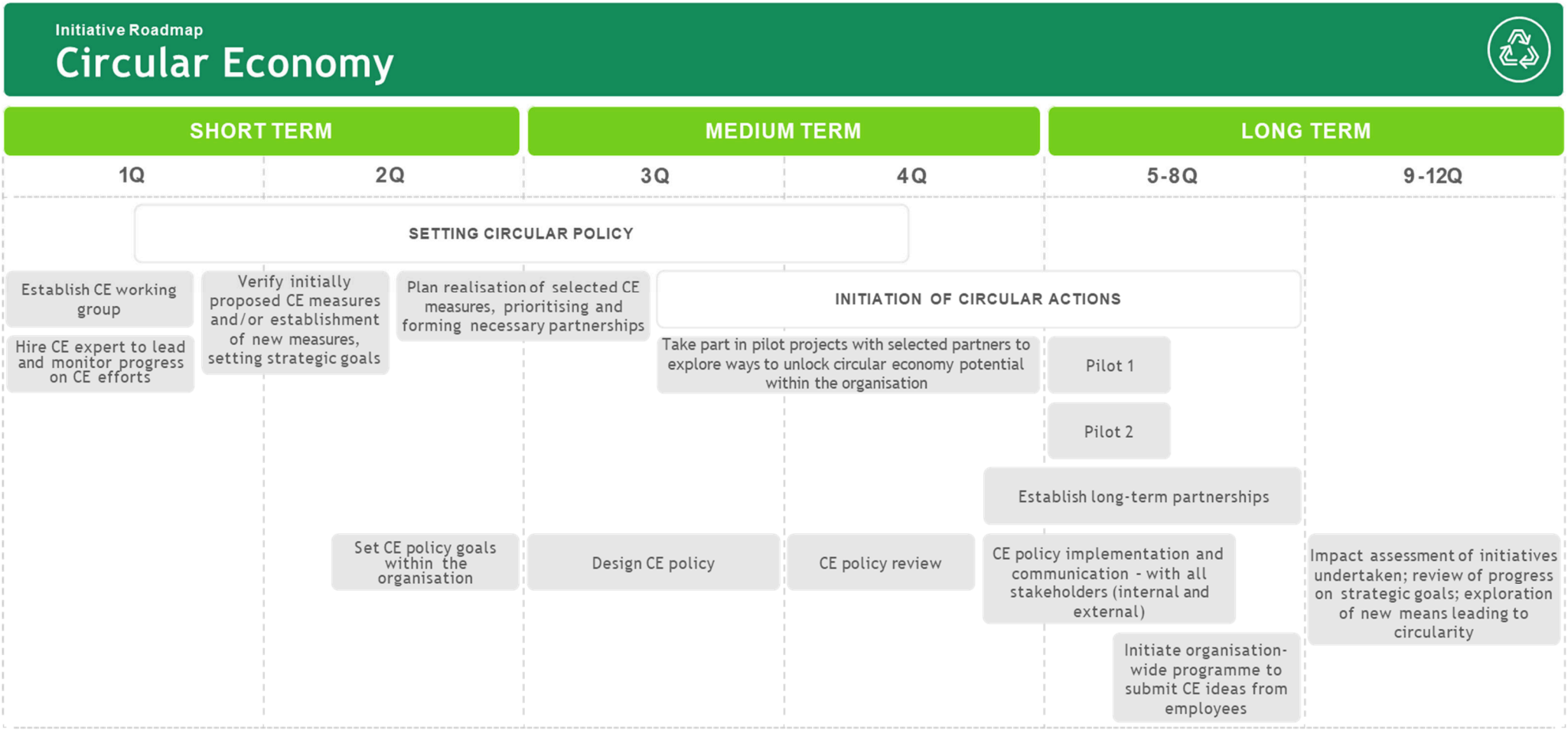
5.3.6.5. Relevant principles

Table 13- Relevant principles: Circular Economy Initiatives for the Standing Corps

Principle	Relevance
No. 1: Environmental issues should be embedded into the strategies and decision-making processes	Circular policy directly embeds environmental considerations in wider strategy, and dramatically alters key decision-making processes in procurement and resource use.
No. 2: Targets should be science- and fact-based to effectively reduce the organisation's environmental footprint.	Circular initiatives will be based on strict analysis of product value chains, to ensure and verify opportunities and scales of reduction in resource intensity and savings.
No. 3: The development and diffusion of environmentally friendly technologies should be encouraged and embedded into decision-making processes.	In the course of identifying new opportunities to "close the loop" in the use of products, innovations may lead to development and diffusion of new technologies in novel areas (such as through product redesign to transition to modularity, or through enhanced material recovery techniques).
No. 4: The organisation's environmental impact should be monitored and reported.	Impact remains monitored as part of wider reporting obligations; circular initiatives are closely monitored to measure and report on success in resource intensity and emissions reductions.
No. 5: Accountability and transparency should be demonstrated by regularly disclosing publicly the progress in implementing sustainability targets.	Progress in implementation of initiatives, and KPI tracking, will be published in line with reporting commitments.
No. 6: Climate awareness and environmental issues should be raised with and amongst the stakeholders and community	Implementation of circular initiatives will involve raising environmental issues with suppliers, and training staff in new practices to support circular initiatives.

5.3.6.6. Roadmap

Figure 19- Roadmap: Circular Economy Initiatives for the Standing Corps



5.3.7. Sustainable Procurement

5.3.7.1. Description

The EBCG authorities, as a collective of public sector organisations, have the potential to leverage significant purchasing power, triggering positive feedback loops which make sustainable procurement more commonplace, easier, and cheaper in the longer term. By promoting and following sustainable procurement guidelines, the EBCG authorities can provide the industry with real incentives for developing green technologies and products. In the Commission's Communication COM (2008) 400 – Public procurement for a better environment, the capability that public procurement has to shape production and consumption trends, increase demand for "greener" products and services, and provide incentives for companies to develop environmentally friendly technologies is clearly emphasised.[123]

Sustainable procurement covers many purchasing activities by public entities.[124] It requires a holistic view of the purchases of goods and services considering the product's lifespan, its origin, durability, transport, packaging (both individual and collective), or the carbon footprint it leaves behind. It requires awareness raising, training and employee engagement throughout the organisation, as it applies not only to employees dedicated to public procurement, but also to substantive units defining the technical conditions of contracts (here predominantly operational units). Procurement should be seen as a strategic process and a way of delivering business objectives through a supply chain. The process of purchasing could include tools i.e. market analysis, forward commitment, life cycle assessment, risk management, whole-life costing, scenario modelling, and a social return on investment. Sustainable procurement aims to make purchases that have the lowest possible impact on the environment in the long run, and at the same time requires quantifying criteria that will be used to select the best offer.

The introduction of sustainable procurement by the EBCG authorities can be based on the following phases:

- **Phase 1. Design:** Development of a sustainable sourcing strategy, introduction of the approach to internal stakeholders:
  - Sustainable procurement requires setting up the basic sustainable principles to be followed while purchasing and selecting suppliers and business partners. They need to be first internally recognised, defined and then communicated to the whole organisation. One of the ways to define the principles is to conduct a workshop, including representatives of all internal divisions. The next step can be to prepare a risk matrix in terms of sustainability in the context of suppliers, products and services ordered, as a well as an As-Is analysis to assist in defining priorities.
  - An integral element of a "Sustainable Sourcing Strategy" should be a document defining criteria for the selection of suppliers, and the principles they must meet – a so-called "Suppliers' Code of Conduct". This document regulates the fundamental principles (both in terms of environmental and desired social performance) which should guide organisations seeking to cooperate with Frontex or the EBCG community. In the Sustainable Sourcing Strategy developed, further steps must be established as part of supplier verification to ensure compliance with the Code of Conduct developed.
- **Phase 2. Deployment:** Further development and application of the strategy across several divisions and design of tools to improve strategy implementation:
  - Introducing sustainable procurement requires optimal tools, so the purchases can be made easily meeting all established sustainability criteria. These various criteria ultimately form the procurement guidelines to be followed. There are several options to use in a process of public procurement:
    - **Selection Criteria (SC):** apply to the tenderer, i.e. the company tendering for the contract, and not to the product being procured; they may relate to suitability to pursue the professional activity, economic and financial standing, and technical and professional ability;
    - **Technical Specifications (TS):** set minimum compliance requirements that must be met by all tenders regarding the goods or services which are being purchased;
    - **Award Criteria (AC):** include sustainable criteria in evaluation of the bids. For many types of goods and services to be purchased, an internal list of evaluation criteria should be prepared to be used by tendering

[123] *European Commission, 2008. Communication from the Commission to the European Parliament COM(2008) 400: Public procurement for a better environment; https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0400:FIN:EN:PDF*

[124] *https://ec.europa.eu/environment/gpp/pdf/criteria/EUGPP_roadtransport_technicalreport.pdf*

divisions. This will ease the procurement process as well as ensuring that sustainability issues are taken into account during the purchase. Award criteria can be used to stimulate additional environmental performance without being mandatory and, therefore, without foreclosing the market for products not reaching the proposed level of performance. The award criteria may favour suppliers which take economic, innovation, environmental, social, employment or anti-discrimination considerations into account provided these criteria are relevant to the contract's purpose;

- **Contract Performance Clauses (CPC):** used to specify how a contract must be carried out. Contract performance clauses are not scored for award purposes.

- **Phase 3. Integration:** Formalisation of purchasing process and governance structure; development of tools for measuring performance, monitoring and verification. Communication may play a role in integration, ensuring all suppliers and other relevant stakeholders are well informed of changing policies ahead of time. Internal workshops may help in providing touchpoints for teams to provide feedback for the purposes of monitoring, feedback and review. Within the integration phase, it may also prove necessary for the organisation to cooperate with suppliers and help support them (where feasible) in becoming compliant with newly adopted best practice standards. This may involve knowledge sharing and guidance on key indicators that must be improved to meet new guidelines.

CSR / Sustainability / ESG Clause[125]

In order to address the ever-growing requirements for the transparency of the supply chain, contracts with suppliers should also address environmental, social and management issues, combining implications offered by soft and hard law. These references take the form of the so-called **CSR / Sustainability / ESG Clause**, which may prove to be an effective way to guarantee compliance from vendors through the entire value chain.

There are **four key features of a CSR clause**, which retain relevance regardless of the legal system the contract is drawn up under. These four features can be seen as essential building blocks for a sustainability clause: reference to ESG standards, obligation for assessment or certification, and consequences in case of breach.

1. **Reference to ESG standards**

In addition to stating that the supplier must comply with the relevant legal provisions, CSR clauses refer to two types of instruments: internal standards (code of conduct, policy, ethics charter) and external instruments (Global Compact, ILO conventions, OECD guidelines, ISO 26000 etc.) This integration of non-contractual standards into a contract makes them binding. Reference to the standards defines the scope of the clause, i.e. what issues are important in a given business relationship.

2. **Obligation for assessment or certification**

An important element of a well-written CSR clause is the ability to verify that sustainability commitments are met. The evaluation provision makes it mandatory that the supplier be assessed against its CSR performance. Adding an element of an obligation for assessment against the standard to the clause, and not only compliance with the standard, means that the supplier cannot refuse an audit by a customer or a third party. However, there are a number of operational elements to consider for this kind of clause, such as ensuring that audits are unannounced, deciding their frequency or who meets the cost of the assessment. These elements may be specified in an annex to the contract.

3. **Consequences in case of breach**

Specifying the consequences of breaking the clause provides buyers with greater certainty and it strengthens in the eyes of suppliers the fact that the CSR clause is an essential part of contracts, just like any other commercial clause. The effectiveness of this enforceability is contingent on a number of factors, including the question of whether or not a reasonable share of responsibility lies with the supplier. If this is not the case, the clause can be deemed unenforceable.

4. **Tier-n reach (coverage depth)**

CSR clauses should include (in line with upcoming EU law[126]) obligations on subcontractors and affiliates. However, extending the enforceability of the CSR clause beyond a direct business relationship raises operational and legal difficulties, regardless of the law applicable to the contract.

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[125] *CSR- Corporate social responsibility; ESG – Environmental, social and governance*

[126] *E.g. the proposed Corporate Sustainability Reporting Directive and the proposed directive on Corporate Due Diligence and Corporate Accountability.*

Areas most often included in CSR clauses

Most CSR clauses cover the main areas of **ESG due diligence**. The choice of CSR issues can be justified in accordance with a risk evaluation (supply chain risk mapping). ESG risks, which form the substance of CSR clauses, vary considerably sector by sector, supplier country or position within the supply chain.

This is why taking these differences into account helps ensure effective diligence. It is important to first identify risks associated with the purchase categories, which requires considerable documentation work. This risk map must be updated regularly, taking into account sector initiatives, new sector-specific regulations and relevant government and non-government reports. To ensure a CSR clause is effective it has to be defined by a number of parameters specified in the contract, such as the country, sector, supplier size, etc., outlining how it applies to the given transaction. Catch-all clauses should be avoided. These provisions should be examined one by one.

Aspects most often referred to in the CSR clauses can be collected in five areas:

- **Environment** → usually referring to: type of material used for product (recycled, circular, certified), lack of hazardous chemicals, animal testing, managing energy and water usage, reducing GHG emissions);
- **Human rights** → usually referring to: child labour, no discrimination, sexual harassment, harsh or inhumane treatment;
- **Labour standards** → freedom to choose employment, freedom of association, working conditions, living wages, working hours;
- **Health and safety** → meeting regulatory standards;
- **Governance** → e.g. prevention of corruption.

Examples of specific clauses in the sustainability domain can be found at: Environmental and Social Sustainability Sample Clauses | Law Insider.

Certificates / labels / qualifications to be sought within tenders - examples

With regard to the specific technical or quality requirements of individual products and services, two paths of action can be adopted. Technical specifications can be formulated as a minimum requirement - this means that the providers of products and services concerned absolutely must follow them. Or acceptable eco-labels that meet expectations can be introduced if preferred. In order to use the criteria underpinning ecolabels in procurement procedures, these must satisfy certain quality requirements:

- they must be suitable for defining the characteristics of the particular supply or service, i.e. specifications from ecolabels can only be used that refer to the object of the contract;
- the criteria of the ecolabel must have been established scientifically and in a procedure that is open to interested parties (e.g. government bodies, consumers, manufacturers, distributors and environmental organisations);
- the ecolabel must be available for all manufacturers.

The following overview presents examples of globally recognised ecolabels and further certification systems recommended for sustainable procurement:

Table 14- Examples of recognised ecolabels and certification systems

Quality label / organisation	Main object of certification	Geographical distribution	Further information
Global Ecolabelling Network (GEN)	The Global Ecolabelling Network is an association of national ecolabel organisations from all over the world.	Worldwide	A comprehensive overview of ecolabels available worldwide can be found here: www.globalecolabelling.net
Blue Angel	Over 100 products and services (incl. ICT, textiles, building materials, lighting).	Germany Products available worldwide	www.blauer-engel.de www.ral-guetezeichen.de Overview:

See also: https://eur-lex.europa.eu/legal-content/EN/HIS/?uri=CELEX:52021PC0189; https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12548-Sustainable-corporate-governance_en)

Quality label / organisation	Main object of certification	Geographical distribution	Further information
			https://www.blauer-engel.de/de/produkte
EU Ecolabel	Over 30 products and services (incl. ICT, textiles, building materials, lighting).	EU and some other countries	An overview can be found at the following: EU Ecolabel - Environment - European Commission (europa.eu); EU Ecolabel: Ecolabel Products - European Commission (europa.eu); and EU Ecolabel: EU Ecolabel Hotels - European Commission (europa.eu)
ENERGY STAR	Energy consumption of electronic devices (incl. white goods, computers, multi-functional devices)	Worldwide	www.energystar.gov
Forest Stewardship (FSC)	Wood, paper, carton products	Worldwide	www.fsc.org
Programme for the Endorsement of Forest Certification (PEFC)	Wood products	Worldwide	www.pefc.org
Fairtrade Labelling Organisation International (FLO)	Fair trade products such as foodstuff, textiles and sports goods	Worldwide	www.fairtrade.net
World Fairtrade Organisation (WFO)	Products from fair trade such as foodstuff, textiles and sports goods	Worldwide	www.wfto.com
Rainforest Alliance (RA)	Products from fair trade such as foodstuffs, travel	Worldwide	www.rainforest-alliance.org
EU Energy Labelling Scheme	Energy consumption of appliances	EU	Overview: About the energy label and ecodesign | European Commission (europa.eu)

Additionally, the following databases provide an informative overview on quality labels and standards:

- www.standardsmap.org;
- green companies, organisations and government bodies | Global Ecolabelling Network.

Apart from the abovementioned ecolabels, the main certificates and/or qualifications that might be requested from the tenderers are:

- ISO14001 or EMAS as for Environmental Management System;
- ISO 50001 for an Energy Management System;
- OHSAS 18001 for subcontractors' safety operations;
- SBTi commitment and/or targets or Climate Decarbonisation Goals Established;
- BREEAM, LEED or Levels Certification for Offices.

5.3.7.2. Specific measures recommended

Policy setting green principles - internal workshop and communication

This action is the first step for sustainable public procurement. Before organising the tools and communicating the process to all stakeholders, the principles of green public procurement must be established and followed in the future. According to the International Organization for Standardization (ISO), the seven key areas to address within sustainable procurement are:

- the environment;
- organisational governance;

- human rights;
- labour practices;
- fair operating practices;
- consumer issues;
- community involvement and development.

All the above areas should therefore be covered during the workshop and as a result the list of green procurement policies should be drawn up[127].

Sustainable procurement guidelines for vehicle, vessel and aircraft acquisitions

The guidelines should be a tool for the EBCG in defining all the criteria and technical specifications for a vehicle, vessel or aircraft purchase. All possible criteria (both core and additional) should be predefined. One of the ways to prepare a list of possible criteria is to make use of the lists of EU Green Public Procurement criteria which are developed to facilitate the inclusion of green requirements in public tender documents. The list of criteria for Road Transport[128] may prove helpful and provide guidance in all significant emission areas to be covered while developing the guidelines, e.g. CO_2 emissions and energy efficiency, air pollutant emissions, energy consumption displays, traffic information and route optimisation, zero tailpipe emission capability etc. It is suggested that the list be prepared by the procurement department in close cooperation with operational units and with external experts to ensure the criteria are comprehensive, feasible, meet the necessary thresholds for effecting the desired changes in environmental performance, do not compromise operational efficacy, and are in line with decarbonisation guidelines described under the Fossil-free Fleet initiative (see 5.3.5).

Sustainable procurement guidelines for office supplies, operational equipment and services

A predefined list of possible criteria regarding office supplies, operational equipment and services should likewise be prepared by the procurement team and may also require external expertise (regarding specific operational equipment). The list may use criteria predefined in the EU Green Public Procurement Criteria, especially in the following categories:

- cleaning products and services;[129]
- computers, monitors, tablets and smartphones;[130]
- copying and graphic paper;[131]
- data centres, server rooms and cloud services;[132] [133]
- electricity;[134]
- food catering services and vending machines;[135]
- furniture;[136]
- imaging equipment, consumables, and print services;[137]
- office building design, construction and management.[138]

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[127] *As an example, sustainable procurement principles may include directions for a supplier to:*
Reduce their environmental footprint through: conservation of resources, including the use of energy, water and materials, waste minimisation, within their operations and through reduction of packaging, reducing the impact of deliveries and maximising local sourcing;
Deliver benefits to society through compliance with International Labour Organisation principles in respect to human rights and conditions of employment, ensuring that slavery and human trafficking are not taking place in any of their supply chains and in any part of their business;
Drive economic growth by: supporting job creation and facilitating opportunities for small-and-medium-sized enterprises (SMEs) and social businesses, considering the life-cycle cost of products, providing the Living Wage (at a minimum) to employees and contractors.

[128] https://ec.europa.eu/environment/gpp/pdf/criteria/EU%20GPP%20criteria%20for%20road%20transport.pdf

[129] https://ec.europa.eu/environment/gpp/pdf/toolkit/cleaning_product/en.pdf

[130] https://ec.europa.eu/environment/gpp/pdf/210309_EU%20GPP%20criteria%20computers.pdf

[131] https://ec.europa.eu/environment/gpp/pdf/toolkit/paper_GPP_product_sheet.pdf

[132] https://ec.europa.eu/environment/gpp/pdf/20032020_EU_GPP_criteria_for_data_centres_server_rooms_and%20cloud_services_SWD_(2020)_55_final.pdf

[133] *As an example, in 2021, the European Environment Agency migrated their IT infrastructure from their main premises to an external and newly built data centre. The data centre was selected via green procurement and offers innovative air-to-air evaporative cooling systems that use natural outdoor air to cool the server and thereby enable energy savings of even up to 30% compared to industry average, without loss of quality.*

[134] https://ec.europa.eu/environment/gpp/pdf/criteria/electricity.pdf

[135] https://ec.europa.eu/environment/gpp/pdf/190927_EU_GPP_criteria_for_food_and_catering_services_SWD_(2019)_366_final.pdf

[136] https://ec.europa.eu/environment/gpp/pdf/toolkit/furniture_gpp.pdf

[137] https://ec.europa.eu/environment/gpp/pdf/20032020_EU_GPP_criteria_for_imaging_equipment_2020.pdf

[138] https://ec.europa.eu/environment/gpp/pdf/swd_2016_180.pdf

Communication on principles and guidelines and their everyday use

The principles and guidelines need to be communicated to the whole organisation, ensuring their everyday usage. This might take several forms, including:

- workshops or internal conferences;
- e-mail communication, newsletters;
- introduction to the public procurement process and tools already used, as well as to the procedure for electronic document circulation;
- short internal e-learning with a passing score.

Regardless of the communication tools and methods selected, the procurement team should ensure a proper understanding of the sustainable procurement principles as well as the guidelines and predefined criteria.

Monitoring and review

The process of sustainable procurement, as well as the above-mentioned guidelines, should be reviewed in cooperation with operational units at least once a year to ensure that all new and emerging sustainable technologies, and guidelines are taken into account. Moreover, tools for measuring performance, monitoring and verification should be prepared – e.g. information about the number of predefined criteria used or compatibility with the guidelines – for a given purchase.

5.3.7.3. Relevant certifications and professional standards

- The Methodology for Assessing Procurement Systems (MAPS)
- ISO 20400
- GHG Protocol – Scope 3 guidelines
- SBTI initiative – Scope 3 reduction guidelines
- OHSAS 18001
- ISO 50001
- Green Public Procurement Training
- EU GPP Criteria

5.3.7.4. Resources needed

Table 15- Resources needed: Sustainable Procurement

Measure	Cost categories		
	Human Resources	Scale of Investment	Time /Implementation potential/
Policy setting green principles - internal workshop and communication	Broader engagement / Targeted specialist engagement	Low	Short | < 6 months
Sustainable procurement guidelines for vehicle, vessel and aircraft acquisitions	Targeted specialist engagement	Low	Short | < 6 months
Sustainable procurement guidelines for office supplies, operational equipment and services	Targeted specialist engagement	Low	Short | < 6 months
Communication regarding principles and guidelines and their everyday use	Broader engagement	Low	Short | < 6 months
Monitoring and review	Broader engagement	Low	Medium | < 12 months

Human Resources

The proposed steps mainly require involvement of the public procurement team, though, as mentioned, operational units will need to be closely consulted and incorporated in the policy-setting process to obtain approval, buy-in, and verification that proposals do not come at a cost to operational efficacy.

The definition of sustainable procurement principles needs to be prepared internally, with the participation of representatives of all divisions/departments. Preparation of guidelines requires subject matter knowledge on both the purchased good as well as possible sustainable technologies and tools used while producing and sourcing that good. Therefore, the preparation of procurement guidelines may require external support.

The communication process, as well as monitoring and review, fall within the remit of the public procurement team working closely with other divisions/departments such as communication or finance.

While the investments in human resources are considered low for each measure individually, it should be noted that management of all measures together may require a dedicated person to oversee sustainable procurement workstreams in their entirety.

Scale of Investment

Policy setting and communication of established principles are low-cost measures. Monitoring and review may be slightly more resource-intensive. However in terms of scale, the costs will be negligible compared to the real costs of actually procuring vehicles and equipment. The scale of these costs is highly dependent on the vehicle, product and organisation in question which can often be calculated based on data on procurement history.

When the EBCG authorities are undertaking Sustainable Procurement initiatives three considerations are important.

- First, only the incremental increase in cost is relevant. A sustainable purchase in the order of millions of euros cannot necessarily or fairly be branded as ultra-high cost if the conventional alternative is priced in the same range and is perhaps only a single percentage point cheaper.
- Second, sustainable procurement must be grounded in rigorous analysis. Careful cost-benefit analysis may prove that costs either level out over the lifetime of a product or are otherwise necessary as relatively affordable marginal abatement costs for emissions (e.g. the purchase may not pay for itself in use, but remains a more affordable method of emissions abatement, thus nevertheless justifying the purchase).
- Third, with the rigorous analysis in mind, operational units must be closely involved in the sustainable procurement process and cost-benefit analysis to potentially overcome resistance to change through the identification of operational co-benefits. Operational units may initially be wary of additional non-operational criteria imposed on equipment or vehicles or may consider the criteria an undesirable opportunity cost within tight budgets. However, it may be that analysis shows cheaper does not always mean better. Operational co-benefits might include things such as increased maximum speeds, as a co-benefit of reduced fuel-intensity as a result of a more expensive but lighter carbon fibre hull. While the incremental cost increase of such a hull may seem large, the rigorous analysis may find that over a lifetime of decades and thousands of nautical miles travelled, the savings from improved fuel economy offset that cost.

5.3.7.5. Relevant principles

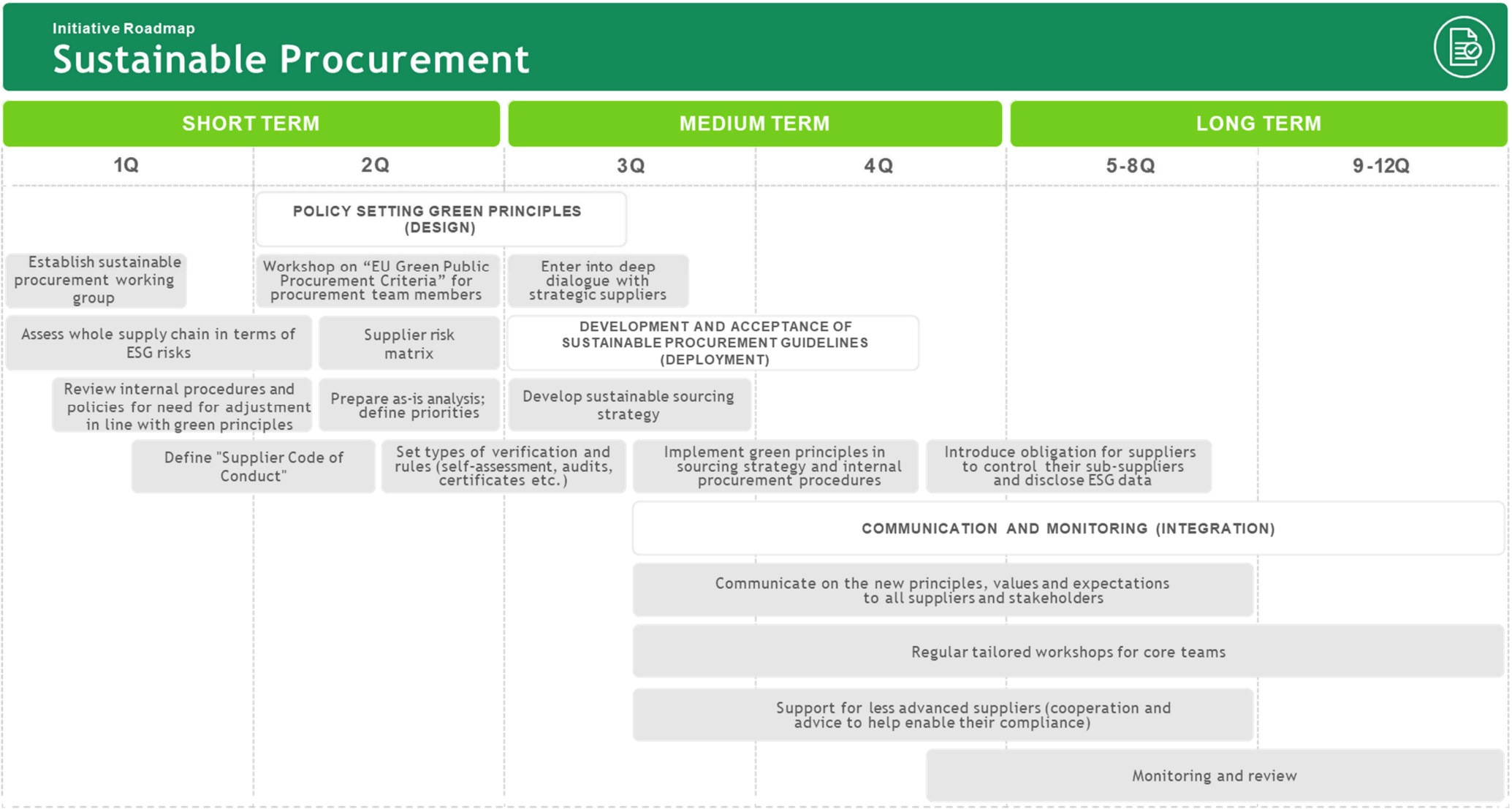
Table 16- Relevant principles: Sustainable procurement

Principle	Relevance
No. 1: Environmental issues should be embedded into the strategies and decision-making processes	All purchasing decisions must take environmental issues into account.
No. 2: Targets should be science- and fact-based to effectively reduce the organisation's environmental footprint.	The technical specifications as well as all the criteria in the public procurement process need to be based on current knowledge and facts on environmentally friendly technologies. The criteria used in the process must be quantifiable.
No. 3: The development and diffusion of environmentally friendly technologies should be encouraged and embedded into decision-making processes.	One of the main tasks of sustainable public procurement is to encourage bidders to use environmentally friendly technologies, leaving the lowest environmental footprint possible.

Principle	Relevance
No. 4: The organisation's environmental impact should be monitored and reported.	The usage of criteria encouraging sustainability needs to be monitored. Also, there should be a review of the guidelines on sustainable procurement at least annually. The review might need to consider new, developing technologies.
No. 5: Accountability and transparency should be demonstrated by regularly disclosing publicly the progress in implementing sustainability targets.	N/A
No. 6: Climate awareness and environmental issues should be raised with and amongst the stakeholders and community	N/A

5.3.7.6. Roadmap

Figure 20- Roadmap: Sustainable Procurement



5.3.8. Future-proofing Buildings: Sustainable Retrofitting

5.3.8.1. Description

Retrofitting was selected as the primary initiative for buildings to ensure the widest applicability across the EBCG, which presently rents or owns existing buildings. For new buildings, such as the planned Frontex Headquarters, guidance on new builds is presented at the end of the initiative. It should be noted, however, that the substantive guidance applicable to retrofitting is equally worthy of consideration for new builds – where the exercise simply changes in nature, shifting from correction and improvement to implementation and design ab initio.

Optimisation of asset and building performance

Older buildings are less likely to meet modern standards and expectations, particularly in terms of efficiency – to the detriment of both the environment and occupants (who shoulder higher energy costs). Sustainable retrofitting for buildings refers to the practice of undertaking improvements and changes to existing structures, so as to improve their performance against specified environmental criteria. Retrofitting applies to a broad range of actions, though sustainable retrofitting will for Frontex and the EBCG community centre on energy efficiency and modernisation, with a view to reducing and decarbonising energy use.

Sustainable retrofitting requires total and comprehensive measurement of asset and management performance. A structured approach will identify categories to assess performance, benchmark and potentially certify against a recognised professional standard, such as BREEAM In-Use.[139] This should score against key environmental categories that provide a comprehensive assessment of a building's environmental performance and management, such as:

- management
- resilience
- water
- energy
- resources
- pollution
- land Use
- ecology
- transport/mobility
- health and wellbeing.

These categories are based on the most influential factors that affect a building's environmental impacts and performance. The BREEAM In-Use environmental assessment method itself notes a number of benefits attributable to investments in sustainable improvements and the operational performance of buildings, including:[140]

- a reduction in running costs, leading to savings;
- growth in market value of building assets;
- improved health and wellbeing – leading to increased productivity and satisfaction of occupants;
- resilience against a range of risks, including climate risk, pollution, flooding, natural hazards and security;
- strengthening of the circular economy through circular solutions implemented to further reduce waste and increase resource efficiency in daily use of premises;
- achieving net-zero carbon and mitigating GHG emissions – aligning with governmental climate policies.

Implementation of sustainable retrofitting measures is best structured and tailored to individual organisational needs by following the BREEAM In-Use Sustainability Assessment Method, a self-assessment methodology which directs an organisation to conduct a self-assessment with the aid of an extensive list of metrics. This assessment process is in itself necessary for the identification of the improvement and retrofitting opportunities most relevant to each building, and enables prioritisation based on individually assessed cost-benefit estimations. This occurs in part through the process itself, catalysing the process of investigating environmental exposure vectors further, and looking into appropriate actions.

[139] *For more information, please see the section 3.1. Regulatory framework and Annex B*

[140] *BREEAM, 2021. What is BREEAM In-USE. Accessible via: https://www.breeam.com/discover/technical-standards/breeam-in-use/ accessed 08.09.21.*

5.3.8.2. Specific measures recommended

Sustainability audit

A sustainability audit should be the first step undertaken to ascertain in a nuanced fashion the needs and opportunities applicable to each building. This requires contracting an independent firm qualified to assess sustainability and energy performance. The data acquired in this way should then inform selection of subsequent initiatives and their cost-benefit analyses. Following the BREEAM In-Use self-assessment method would supplement and help structure this process, and after professional auditing would create a foundation for evaluating the necessity and benefits of subsequent initiatives for each building assessed.

Lighting modernisation

Increasing the energy efficiency of installed service systems within the building potentially offers quick wins in the form of emission and energy savings attributable to retrofitting lighting systems. Replacing lighting with modern LED substitutes can typically generate quick and positive results. This generates both qualitative benefits and savings in energy consumption, acting additionally as an enabler for the construction of a refinancing model for any modernisation.

Insulation

Within insulation, both sound (acoustic) aspects and the energy efficiency of the building envelope and pipe systems should be considered:

- Sound insulation should be considered to allow for safe use with minimal disturbance to the asset occupants and surrounding residents during the building's operating hours – addressing noise pollution risks as well as the wellbeing of building users.
- Building insulation increases energy savings and reduces losses. In combination with heating systems, improved insulation allows construction of an optimal thermal model for building users. Insulation as a material should also be additionally considered as part of a circular economy operational strategy for the organisation and all buildings in use.

HVAC performance and upgrades

In the area of Heating, Ventilation and Air Conditioning (HVAC), the following should be considered:

- Establishment of a standard repeatable technical process including monitoring and technical reviews;
- Testing of cleanliness, tightness of systems and channels, as well as thermal imaging tests;
- For refrigerants, it is suggested that approved and certified substances generating the lowest possible environmental impact be used, particularly those with the lowest possible Global Warming Potential index level;
- Optimisation of HVAC system operation parameters settings, including improvements at the level of the BMS (Building Management Systems) as well as installation of additional sensors and controllers;
- Installation of high-efficiency equipment and systems, including consideration of energy recovery from waste heat;
- Consideration of alternative heating and cooling mechanisms certified to reduce energy use as compared with conventional systems;
- A manual for users to raise their awareness of operation and energy consumption, which can feed into implementation of a Green Workplace strategy.

Distributed energy: integration of renewable energy sources

Development of an integrated operational energy strategy – setting organisational policies and targets for the implementation of distributed energy technologies (with emphasis on installation or increase of renewable generation capacity on-site). Two key aspects are:

- renewable energy systems that produce energy, such as heat pumps or photovoltaics, combined into one system with heat and/or electricity storage;
- energy recovery and balancing systems in a comprehensive energy model, e.g. in the model of energy production, transmission or storage in electric cars.

Green leases

Green leases are commercial leases with the purpose of aligning tenant and landlord interests in energy-efficient investments. Every green lease is different. There are not, therefore, particular clauses that all green leases must

include. However, green leases will typically require the proactive engagement of both parties, where they take on additional responsibilities relating to sustainability and energy efficiency, securing commitments from the counterparty (relating to monitoring and disclosure, or energy use parameters, for example). Green leases should additionally align financial incentives, so that both the tenants and the building owners benefit from the adoption of green measures.

Under a green lease, a tenant may be committing themselves to certain energy performance standards. Such a commitment is not only a powerful catalyst for implementing the necessary changes that will reduce the tenant organisation's ecological impacts and emissions, but it is also an additional tool to ensure external contractors and project managers hired to renovate or retrofit premises to environmental specifications receive an annex of clear performance parameters in their contracts. A green lease may therefore help increase transparency and hold contractors to account, as the clear performance caps, targets, and standards defined in such a lease, leave contractors less open to interpretation of what materials, fixtures, devices, or equipment meets the benchmark of "sustainable". The additional monitoring and reporting commitments (placed on building owners) and the performance commitments (made by tenants) make green leases a strong step towards sustainable certification.

A green lease need not be complicated. Often, it merely requires structuring terms and agreements already in place, such as temperature settings and building operating hours, in a fashion that provides sustainable cost savings without negatively impacting building performance and occupant comfort. Implementing a green-lease strategy is not overwhelming, but it must be undertaken through a careful process to assure maximum effectiveness, sustainable success and savings.

Building User Guide

The complexity of modern buildings demands that we all have a greater understanding of how to operate buildings to achieve the optimum benefits, sustainability performance and cost savings. The Building User Guide serves as an important guide for tenants and operators of the building to understand and meet the building's performance and operational needs. It should provide staff with a simple, quick and easy guide to the daily functions of the building, and ways of working necessary to make the best use of the sustainable installations. The Building User Guide may prove invaluable as an easy-to-use reference tool for:

1. bridging the knowledge gap between building occupants, users and operators and the design concepts.
2. staff training and induction to ensure familiarity with the building.

Example subject matters that may be explained to building users include:

- the principles behind the design of the building and how these affect its operation;
- the building's performance standard;
- energy efficiency measures;
- water-saving measures;
- means of operating heating, lighting and cooling systems, and the consequences of incorrect operation;
- access, security and safety systems;
- methods for reporting problems;
- car parking and cycling provision, local public transport, car sharing schemes, etc.;
- waste management;
- training.

The Building User Guide may benefit from a technical annex (or Building Owner's Logbook) used to capture the current status and function of the building, a log of future changes to the building, and agreed summaries of energy, water, all costs and maintenance work. This may support in-house or contracted staff in finding technical information quickly as well as consideration of future refurbishment.

Green data centres and server rooms

Data centres are energy-intensive and pressure is growing to address the resource use associated with the growing utilisation of technology. In line with the Climate Neutral Data Centre Pact (which is an example of a best practice self-

regulatory effort by data centre operators to respond to the Green Deal and support EU climate goals), data centres should:[141]

- adopt aggressive energy efficiency and power use effectiveness targets, particularly where power demand from the data centre exceeds 50KW;
- strive for the maximum utilisation of clean energy; the Pact sets a target of 75% renewable energy by 2025, and 100%;
- conservation of water – adopting water usage effectiveness metrics and setting ambitious water conservation targets;
- application of circular economy principles, through the reuse, repair and/or recycling of used server equipment;
- integration of servers in Circular Energy models, whereby heat from servers is captured/utilised for space heating.

Smart workspace and technology-enabled energy management system

In creating a smart workspace capable of advanced energy management for the premises, the EBCG might consider:

1. building an energy management process model at the levels of buildings, organisation and building functions, supported with user guidance manuals and training (Green Workplace);
2. installing additional energy sub-meters with continuous reading of energy consumption through the Building Energy Management platform at the level of the building and its infrastructure;
3. leveraging sensors and Internet of Things (IoT) technology to create independent zones within floors capable of isolated "modular" management (e.g. lighting and cooling for targeted workspaces instead of whole floor);
4. generating statistics and indicators, sharing them with the technical staff of the building as well as users and divisions/departments to support behavioural and technological management processes regarding energy use;
5. building a model of incentives and rewards which can be agreed in the Green Workplace model;
6. considering gamification as a means of further incentivising energy efficiency among staff;
7. leveraging modern solutions in the field of automation and IoT to build advanced models and a profile of building functions depending on the weather and/or the specificity and behaviour of users;
8. building a central image-building platform for all locations of buildings in-use and related infrastructure to enable comprehensive determination of energy consumption and a comprehensive emission model for the organisation, with the possibility of detailed analysis for each location – further supporting the energy management and optimisation processes implemented;
9. installing smart lift systems where a programme serves to optimise elevator route orders;
10. collecting data for future modelling to better inform construction and retrofits in the future, utilising data for the construction of digital twins to better model the use of buildings and the efficacy of the technologies implemented.

More information on smart and environmentally friendly technologies can also be found in the description of Principle No. 3, in section 4.2.3.

[141] *Self-Regulatory Initiative - Climate Neutral Data Centre Pact*

New buildings

While retrofitting naturally concerns buildings in use, it is important to note best practices relating to new builds. Circumstances may favour new construction, for example because:

- a new build is already in the organisation's development/relocation/expansion pipeline (e.g. the new Warsaw headquarters building of Frontex and new Antenna offices in the Member States);
- a new building is financially viable;
- existing green lease opportunities on the local market fail to meet the necessary criteria.

The design of sustainable buildings and workspaces is the first "Action Domain" of six noted in a DG CLIMA study, investigating avenues for the European Commission to become climate neutral by 2030. New construction offers the best opportunities for integrating sustainability into the core design and parameters of a building. It is advisable, therefore, that the opportunity should be fully utilised and maximised by ensuring that planning and development teams are bound by overarching sustainability goals, which are integrated by the organisation into the construction project's success criteria.

The definition and adoption of wider sustainability goals and targets (and subsequently derived Green Building criteria) should ideally be completed by organisational leadership prior to consulting construction management partners or issuing a call for tender. A target certification may help frame the necessary measures and choices; the organisation should aim (for example) for a new building to meet BREEAM Excellent certification standards as a minimum – potentially raising the target to a rating of Outstanding if during construction this appears feasible and within budget. This will enable a call for tender to already disclose the full requirements and expectations regarding sustainability performance and sustainable construction. It has also been shown, however, that barriers such as technical difficulties, low staff responsiveness and inadequate budget lead to reduced success/implementation rates. Before embarking on such a process, organisations are therefore encouraged to pre-empt and mitigate common failure factors such as these in order to increase the chances of meeting the sustainability goals it has established.

While the design of the building, the sustainable certification ambitions, and the consequent methods, tools and technologies to be used or implemented remain highly dependent on the collaborative process between the organisation and the construction partner, the following examples may provide guidance on measures worthy of consideration:

- direct utilisation of reused/recycled materials in construction;
- orientation of the building to better utilise sunlight, extending hours of natural light;
- installation of Solar Panels for renewable energy generation, not only on the building's exterior, but also on neighbouring buildings (where possible); agreements to lease roof-space on neighbouring buildings may be entered into, within an appropriate radius, to better meet the energy needs of the building through low-carbon sources;
- collection of rainwater for use in the building (e.g. for flushing toilets);
- building an eco-corridor to help create a buffer to mitigate impacts on local fauna;
- increasing glass thickness to improve sound insulation and staff comfort;
- building design that serves to increase ventilation and air conditioning efficiency;
- mindful positioning of plumbing (hot water pipes) to maximise the co-benefit of space heating;
- building with future retrofits in mind; design and construction in a manner enabling easier upgrade, refurbishment, and installation of new technology in the future – reducing the costs of long-term adaptations to enhanced regulatory requirements;

- installing reduced-lux LED lighting for improved efficiency and reduced energy use per m2;
- building management innovations:
    - extensive use of sensors, enabling the organisation to leverage live data for monitoring and optimisation of energy and resource use; e.g. smart lighting automatically switching on/off depending on whether staff presence is detected, or foot-traffic monitoring data used to optimise cleaning regimens; improved management of specific monitored zones;
    - smart window opening systems; energy efficient alternative to conventional HVAC solutions;
    - output of data collected through a dedicated application, providing staff with the ability to see their individual (or their team's) tracked energy use, enabling benchmarking with organisational averages. Increased connectivity translates into increased utility. For example, if electric vehicle car chargers are installed on the premises, the same app may be used to inform staff when their car has finished charging;
    - licence plate recognition and visitor onboarding streamlining; visitors may be provided with a QR code which will enable admittance to a carpark as well as selective floor access, reducing the need for passes to be issued or tickets to be printed.

Whereas a retrofit may be structured under the BREEAM In-Use self-assessment process, an equivalent is recommended for new builds: BREEAM New Construction. The substantive standards remain the same, but this method provides a framework for approaching and designing a building to ensure the appropriate measures are taken and considered ab initio. BREEAM New Construction standards (whether UK or International) assist in moderating the design and construction process between the organisation, architects, developers and design teams.

BREEAM recommends undertaking a plethora of analyses, which in practice are sometimes neglected – typically in attempts to reduce costs. It is strongly advised that a longer-term approach be adopted, as failure to undertake certain analyses in the design stages can often lead to dramatically increased costs in future. Lifecycle cost analyses of equipment, technology and materials selection are particularly recommended, as these analyses will ensure that short-sighted cost savings do not backfire through significantly raised maintenance, repair and replacement costs in future.

Before handover or "acceptance" of the building, and release of the final payment, the organisation should ensure thorough testing is performed to ensure the building has in fact met the required and agreed specifications. A building assessor / certification expert should be consulted to advise which tests are most important. Failure to undertake such tests and verify performance may significantly affect the property value in the event of deficiencies – as well as undermine the desired environmental performance.

Relevant Case Study:
Deloitte's Office: The Edge - sustainable measures implemented on the path to BREEAM Outstanding certification (see section 3.2.1.1).

5.3.8.3. Relevant certifications and professional standards

- BREEAM In-Use
- EMAS
- Smart Readiness Indicator
- EU Ecolabel Certification

5.3.8.4. Resources needed

Human Resources

In terms of retrofitting, typically a team is created in which a manager coordinating the entire project is appointed for many buildings, and for each building, independent experts from the market are involved or, ideally, a person / persons involved in direct management of the building in the area of asset and building performance (from the asset and facility management area), where the second option is much better for determining quality and obtaining building data.

It is necessary to identify or contract a person who is trained and qualified to conduct condition surveys in accordance with legislative requirements (if any) and who has led or made a significant contribution to at least two condition surveys of assets of a comparable function type, size and age in the last five years.

The following examples may be considered as an example of the competent persons who may need to be engaged in retrofitting processes:

- facilities management/asset management professionals;
- civil engineers or engineers from other relevant engineering disciplines;
- energy efficiency auditors/CO2 verifiers;
- BREAM experts;
- architects;
- building surveyors;
- members of institutions who have undergone appropriate due diligence or training to conduct condition surveys.

To seek verification and certification, the EBCG authorities need to engage a licensed BREEAM In-Use Assessor.

Scale of Investment

Example payback periods have been calculated for selected measures, based on a typical 30–40-year-old building with energy-use of around 140 kWh/m^2:

Measure	Payback Period
Lighting modernisation	1-5 years
HVAC Optimisation	7-15 years
Distributed Energy (RE)	5-12 years
Smart Technology-enabled Energy Management System	2-8 years

It is important to stress that the sustainability and energy audits are essential for determining the true payback periods for individual buildings. This is because buildings rented and owned by the national border authorities are unique, and the cost-benefit analysis determining payback periods hinges on a significant number of variables, averages for which cannot be accurately modelled. Seemingly small variations in such variables may in fact translate into major fluctuations in financial estimates. Qualities ranging from those as large as the size, location or age of a building to as small as the type of concrete, the type of electrical wiring, or the thickness of the walls – can change costs by orders of magnitude.

In circumstances of resource constraints, the EBCG authorities may wish to consider engaging an Energy Service Company (ESCO), and utilisation of alternative financing mechanisms, such as a Shared Savings Energy Performance Contract (EPC-SS). Under an EPC-SS, an ESCO takes on performance and credit risks, and provides the capital, equipment and engineering necessary to deliver an energy efficiency project; the ESCO is then renumerated through the energy savings measured.

This solution can relieve budgetary pressure on certain measures, while making it possible to retain the environmental benefits associated with the improvements (as well as the savings in the long-term, after the EPC has been paid for in full).

Implementation Potential

BREEAM recommends undertaking the self-assessment process as a multi-year commitment – an ongoing, continuous process of assessment and improvement which can last several years and keep performance of the building reliable and compliant with current needs and regulations.

Estimations of implementation horizons for the individual measures discussed above are highly dependent on individual contexts and needs, resulting in significant ranges for estimated timescales.

A balanced method requires a multi-threaded approach and cross-verification of a given context / project to other areas. Divergence and diversity in implementation horizons may result from the size of the building, its technical structure as differentiated by the functions and existing structure of the building, and potential scenario analyses where, in addition to energy or financial efficiency, products with a low carbon footprint or higher durability (at a cost to budgets and schedule) should be considered. In addition, time differences may result from the potential requirements of adapting a new solution to the existing infrastructure, as a new technology is never identical to the one previously installed. The time horizon can and should also be analysed for potential risks or delays resulting from the availability of products (e.g. production to order) and resources for their assembly. A condition for each project will be a comprehensive inventory combined with an audit justified for a given context, both to build a report and guidelines for the project on this basis, but also so that the project implementation fits the corporate models of base coefficients; here an important aspect will be to secure appropriate internal or external resources with appropriate authorisations, e.g. to perform necessary audits.

Operational limitations affecting execution timeframes may also include, for example, the location of the building, the time availability resulting from the fact that the works can be carried out only at a certain time, e.g. only at night or only during working hours, or the availability of certain functions of the building depending on its type, size or location.

5.3.8.5. Relevant principles

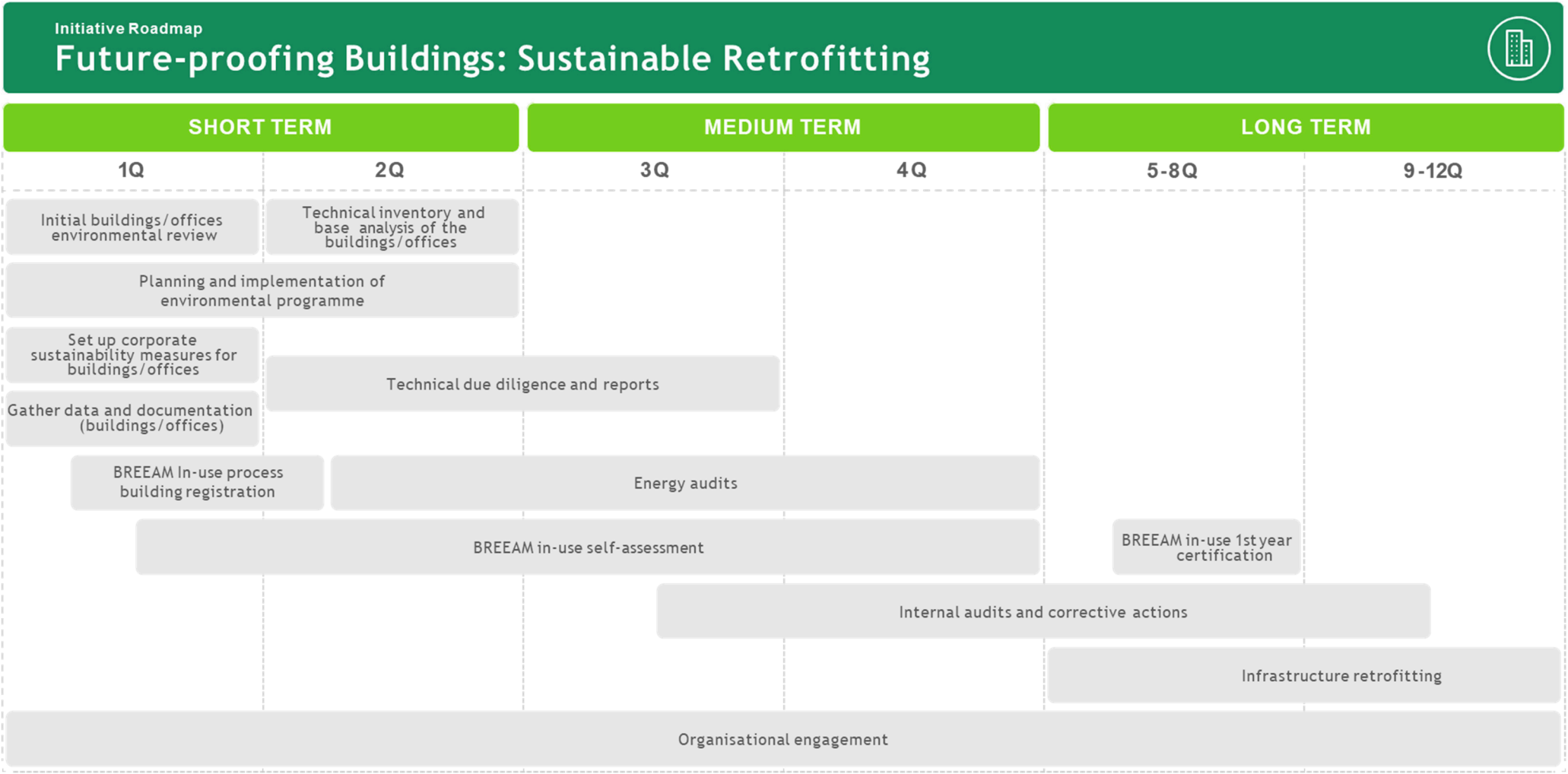
Table 17- Relevant principles: Future-proofing Buildings

Principle	Relevance
No. 1: Environmental issues should be embedded into the strategies and decision-making processes	N/A
No. 2: Targets should be science- and fact-based to effectively reduce the organisation's environmental footprint.	Conducting audits of the environmental performance of buildings enables fact-based emission reduction targets through realistic assessment of impacts and mitigation opportunities.
No. 3: The development and diffusion of environmentally friendly technologies should be encouraged and embedded into decision-making processes.	Sustainable retrofitting involves the application of environmentally friendly technologies. Integration of renewable energy sources shows the organisation's dedication to sustainability at the strategic decision level. Application of the BREEAM In-Use process requires a system (standardised) approach with regard to operational decisions.
No. 4: The organisation's environmental impact should be monitored and reported.	The BREEAM In-Use process requires close monitoring of building performance, supporting accurate reporting. The Smart Technology-enabled Energy Management System enables close monitoring of energy impacts and defining correlations with regard to operational activities.

Principle	Relevance
No. 5: Accountability and transparency should be demonstrated by regularly disclosing publicly the progress in implementing sustainability targets.	The BREEAM In-Use process requires close monitoring of building performance – enabling transparency through reporting of building standards across the organisation.
No. 6: Climate awareness and environmental issues should be raised with and amongst the stakeholders and community	N/A

5.3.8.6. Roadmap

Figure 21- Roadmap: Future-proofing Buildings



5.3.9. Sustainable Travel and Commuting

5.3.9.1. Description

Integrating sustainability into travelling and commuting

The impact of travelling on the environment is significant. Commuting and business travel are major sources of emissions, which accordingly offer significant scope for improvement. With regard to the EBCG authorities, there are two key areas of opportunity to reduce climate impacts: travelling for work-related purposes (i.e. business travel, such as flights to meet EU representatives), and daily commuting to the office or border stations by staff.

The COVID-19 pandemic has forced changes to ways of working which have proven the viability of remote working and online solutions. Lessons learned, and adaptations implemented in this space, may prove to be invaluable in preserving environmentally beneficial changes. With the proven efficacy of new models of working, the case can be made for updating policies and practices to retain and entrench these norms for the long term. Adjustments to meeting guidelines may now be a viable solution to reducing the need for emission-intensive business travel, supported by increased global acceptance of, and familiarity with, relevant online tools. Maintaining hybrid modes of working, where appropriate, may take pressure off commutes, and when supported by increasing public transport incentives could catalyse a significant shift in the way we work while at the same time reducing the environmental footprint. It is however important to consider that not all employees will be able to limit travelling and commuting. Therefore, it is crucial to integrate sustainable measures into travelling and commuting to increase efficiency, reduce travel time and mitigate emissions attributable to travel and commuting.

5.3.9.2. Specific measures recommended

Policy adjustment: preferring remote meetings over travel

The pandemic cast light on the immediate benefits reductions in travel may bring. Daily global CO_2 emissions decreased by 17% by early April 2020 compared with mean 2019 levels[142].The impact of travel for in-person meetings can be substantial. Due to COVID-19, a vast range of measures supporting remote meetings were introduced. Modes of communication have changed and have proven fully viable and functional. Employees have undergone training related to remote working, new communication tools, and new operational software, which has been widely installed. With the proven effectiveness of such modes of work, they may be retained – particularly when weighed against the emission intensity of the previous status quo (supporting frequent business travel).

The transition from face-to-face meetings to virtual meetings (where possible) is a significant and highly cost-effective step the EBCG authorities can immediately take (or entrench) for the improvement of sustainability performance. In order to increase remote meetings in preference to travel, remote meeting attendance for employees through enhanced video-conference facilities might be developed. Furthermore, guidelines and procedures must be updated to ensure the relevant systems are accepted and verified, and that meeting counterparties and stakeholders are consulted or informed. In some cases, persuading regular meeting partners to accept a similar transition may be necessary. Formal rules and policies should be updated to reflect contemporary modes of working.

The best practices in this area include implementing carbon thresholds when deciding on travelling methods. It is also beneficial to integrate sustainability measures with travel booking systems in order to compare the carbon footprints of possible choices.

Some travel cannot be limited or reduced. This is particularly relevant for the border guards, who are most typically deployed at border stations. For work purposes, they must necessarily commute long distances. It is suggested that guidelines be established that may nevertheless help limit this environmental footprint. This may include efficient route planning, eco-driving training, or electrification – measures which potentially present synergies when applied as part of decarbonising operations or fleets. Example could include providing staff (who must necessarily commute long distances) with electric cars, which could be charged on the work premises fuelled by installed distributed energy generation (such as photovoltaic panels).

Sustainable travel policies have become a priority for many organisations' travel programmes. However, despite growing emphasis on ESG matters, many policies lack measures related to business travel. It is essential to formally define

[142] https://www.capgemini.com/ca-en/wp-content/uploads/2021/01/2021-03-08_New-working-paradigm-POV_Brochure_Interactive_Final.pdf

principles for business travel. These may include measuring the carbon footprint, mandating the use of sustainable suppliers, purchasing carbon offsets, selecting flights with lower emissions ratings or incentivising alternative modes of travel (such as rail or coach). However, such measures should all defer to remote meetings as the most sustainable preference.

In the short term, it would be beneficial to commit to reducing non-essential travel. In the medium term, it would be reasonable to undertake a further review of essential travel, considering all emission-relevant aspects from the choice of routes to the mode of transport.

The organisation's travel policy should include guidelines on choosing a mode of travel. This may include a formalised set of questions to assess whether in-person travel is required in the first place. Furthermore, measures may include implementation of flight restrictions and opting for ground travel where viable. For unavoidable flights, it is necessary to establish rules that would result in the reduction of attributable greenhouse gas emissions. This can include prioritisation of airlines investing in ecological compensation schemes, developing carbon budgets. For the most unavoidable air travel, carbon offsetting may be considered as a final resort. However, this practice is increasingly frowned upon as "greenwashing" – particularly in cases of significant reliance on carbon offsetting, and so should not form a major pillar of decarbonisation efforts or strategy.

When integrating sustainability considerations into travel and commuting, the EBCG authorities should focus on continuous and transparent monitoring and reporting of travel habits in order to verify and demonstrate the impacts made.

EBCG "Planet Day" event

Earth Day or other annual events aiming to support environmental protection may be a way for the Agency to promote sustainability among Frontex staff and the EBCG community. Initiatives could last only for one day and focus on raising awareness and engaging staff by making a real impact on environment on that day. They may, however, also be constructed for longer durations or for the long term.

Frontex could promote sustainability by inviting an expert to speak to employees during a particular day dedicated to building awareness internally – as a supplement to Earth Day or other recognised annual events. This could be conducted as a workshop, lecture or talks with employees, and could focus on recycling, energy efficiency in the workplace, new technology and its role in environmental sustainability, mobility programmes, as well as climate change and its impact on the EBCG. Engaging employees and the community in conversations and exposing them to the sustainability themes raised would form part of knowledge-sharing and awareness-raising efforts. The opportunities and themes around which to structure Planet Days are vast, and may also include planting trees, volunteering, or helping the EBCG community start their own environmental programmes. The most important principle should be that those events would contribute to awareness-raising, as well as involved real engagement of the employees that can result in a long-term change of behaviour to being more environmentally friendly.

CO_2 impact personal calculator

Carbon calculator programmes calculate approximate amounts of carbon dioxide produced by the activities of businesses, organisations, or individuals. Introducing personal CO_2 impact calculators may prove effective in influencing staff behaviour, particularly relating to travel. The personal calculator may be available as a stand-alone application for mobile phones, or through a website – but may also be integrated with travel planning systems. Personal CO_2 calculators should also indicate what corrective actions can be taken to minimise the impact. Questionnaires might be sent to employees every month, or they might be offered a website/application where they would be able to use the calculator and make use of advice at any time.

The information provided may not only prove useful in changing staff's entrenched behaviours but may also provide useful information for the EBCG by supplementing data collection and by indicating where staff might take action.

Electric vehicle (EV) charging infrastructure

It is important to note that shifting to public transportation is not always possible. Some employees are likely still need to need to use personal cars to commute. It is therefore important to introduce measures which would nevertheless enable reductions in environmental footprints. At this point electrification stands as a recommended solution to decarbonising commutes. Installation of electric vehicle charging points is additionally regarded as suitable insofar as

synergies can be identified with the simultaneous need for electrification of operational vehicles. The EV charging infrastructure may serve both commuting staff, and patrol cars or SUVs etc.

Building EV charging infrastructure is an important effort the EBCG could support, as infrastructure limitations are an important barrier to wider EV uptake. By contributing to the EV charging infrastructure landscape and securing a convenient charging site at their place of work, the staff might be provided with an effective incentive to switch to EVs. It is also advisable to arrange a dialogue with city representatives who may be involved in such developments to secure permissions, verify electrical loads, and potentially obtain support or partnerships.

When deciding on electric vehicle charging infrastructure, it is important to consider types of chargers. Chargers falls into categories that are characterised by low and high power. The time to charge electric vehicles depends on multiple factors, such as battery capacity, type of current, maximum charging power a vehicle can take, and the supply by the charger. Depending on these, charging may take from 30 minutes to as much as 10 hours. The EBCG should consider the types of vehicles employees may use, and which would form the EV fleet, considering also the optimal acceptable charging times when deciding on the most appropriate chargers.

Incentivising public transport commuting

The main priority is to reduce individual staff member personal vehicle use in commutes. This can be supported by providing public transportation passes, reducing in-person days in the office and introducing infrastructure at the workplace that facilitates biking (bike racks and accessibility to bikes), walking or jogging. By providing access to protected bike rooms, showers, lockers, and other similar amenities, bikers, runners and walkers can more seamlessly transition from their commute to their workday.

Another recommendation is to change standard hours of work of employees. This would include promoting staggered or shifted start and finish times, allowing employees to arrive and leave outside of peak hours, helping not only avoid traffic (reducing emissions), but also increasing the attractiveness of public transport (where time shifts allow for reductions in overcrowding and therefore increased comfort).

Frontex has been successfully applying these forms of incentives; other EBCG authorities could consider implementing similar measures, depending on needs and available budgets.

Awareness and training for employees on ESG

Employees should know why the topic of ESG is important, how they can personally contribute to making a change, and what initiatives are taking place in the workplace. To achieve this, training on ESG issues for staff could be implemented. This training might include theoretical approaches to sustainability and address general matters related to the environment, social issues and governance – as well as stressing the obligations and goals which must be met in order to align with EU targets and commitments.

Awareness-raising should be continuous. This can be addressed through online training, regular newsletters, including information about policies, regulations and innovations, as well as information on internal ESG activities. Travelling and commuting can be integrated with the provision of a personal carbon calculator.

Training and awareness-raising can also be implemented through dedicated sustainable travelling programmes. These may include offering employees discount schemes for public transport passes, granting access to reserved parking for staff sharing rides, and introducing incentives for biking or walking.

5.3.9.3. Relevant certifications and professional standards

- GHG Protocol
- Science-Based Targets Initiative (SBTI)

5.3.9.4. Resources needed

Table 18- Resources needed: Sustainable Travel and Commuting

Measure	Cost categories		
	Human Resources	Scale of Investment	Time /Implementation potential/
Policy adjustment: preferring remote meetings over travel	Broader / Targeted specialist engagement	Low	Short | < 6 months
EBCG "Planet Day" event - promotion of sustainability	Broader engagement	Low	Short | < 6 months
CO2 impact personal calculator	Targeted specialist engagement	Medium	Medium | < 12 months
Electric vehicle charging infrastructure	Targeted specialist engagement	High	Long | > 12 months
Incentivising public transport commuting	Targeted specialist engagement	Low	Short | < 6 months
Awareness and training for employees on ESG	Broader engagement	Low	Short | < 6 months

Human Resources

A designated Sustainability Officer would be expected to lead and organise internal policy adjustments and Planet Day Events, drawing on the support of wider administration or sustainability teams for larger events. Organisational HR structures will necessarily support the Sustainability Officer in promoting awareness-raising and training efforts.

Installation of EV charging infrastructure and development of the CO2 impact personal calculator will usually rely on external contracting, and so will mostly involve the engagement of procurement and premises planning teams.

Scale of Investment

EV charging infrastructure will pose the highest level of investment within this initiative, as a significant capital investment is needed for construction. Where this initiative also serves to support fleet electrification, the investment will in the long term be offset by reduced fleet fuel costs. A CO2 impact calculator may present a moderate investment, where outside specialists must be contracted to develop the application – as a one-off payment. The remaining measures are expected to rely primarily on internal resources or require comparatively little expense (as compared with EV charging infrastructure, for example).

5.3.9.5. Relevant principles

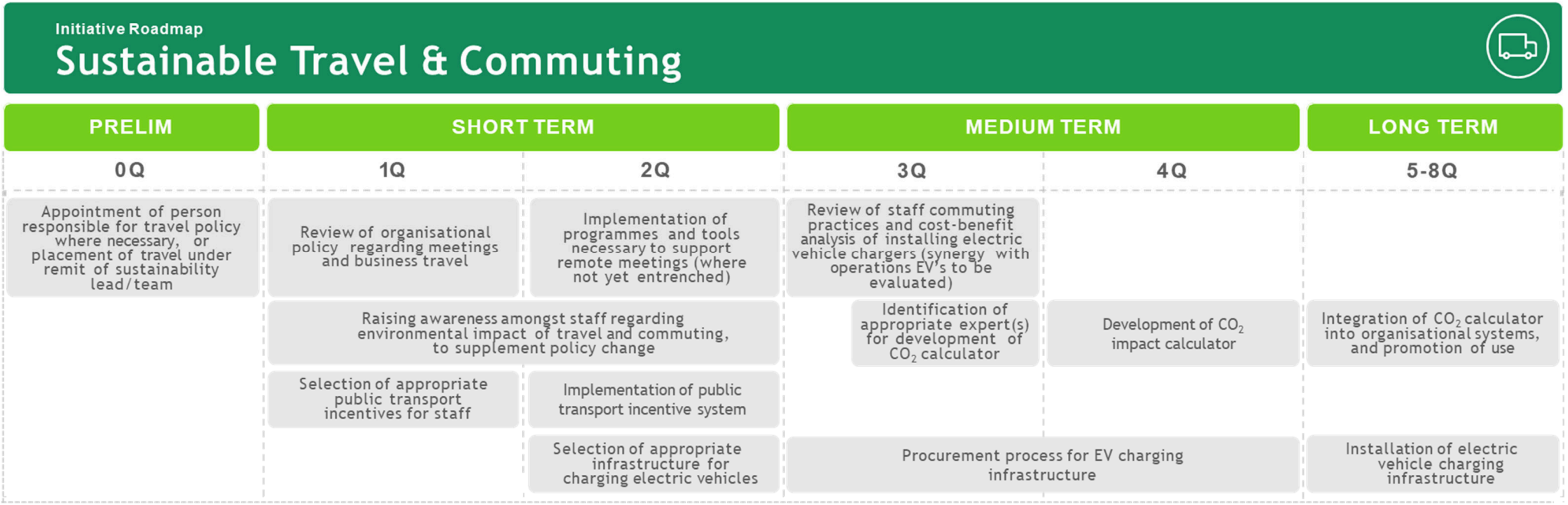
Table 19- Relevant principles: Sustainable Travel and Commuting

Principle	Relevance
No. 1: Environmental issues should be embedded into the strategies and decision-making processes	Sustainable travelling and commuting should be introduced to the organisation through policies and strategies, especially in the area of work-related air travel and commuting.
No. 2: Targets should be science- and fact-based to effectively reduce the organisation's environmental footprint.	In order to demonstrate progress, the organisation is expected to base policies in fact and monitor results.
No. 3: The development and diffusion of environmentally friendly technologies should be encouraged and embedded into decision-making processes.	Virtual communication technologies should be highlighted as they have the greatest impact on reducing travel and commuting.

Principle	Relevance
No. 4: The organisation’s environmental impact should be monitored and reported.	N/A
No. 5: Accountability and transparency should be demonstrated by regularly disclosing publicly the progress in implementing sustainability targets.	N/A
No. 6: Climate awareness and environmental issues should be raised with and amongst the stakeholders and community	N/A

5.3.9.6. Roadmap

Figure 22- Roadmap: Sustainable Travel and Commuting



5.3.10.Local Community Engagement and Stakeholder Management Policy

5.3.10.1.Description

Green community

The sustainability initiatives undertaken by the EBCG will provide experience and knowledge which should be shared to extend the positive impacts as far as possible beyond the organisation itself. During the initiative development and feedback workshop (see 2.2 Methodological approach), the participants agreed that the EBCG must build strong relationships with local communities, both in the course of operations and as part of sustainable transformation, recognising the importance of stakeholder engagement for credibility, reputation, and positive impacts. For the purposes of this initiative the (local) community is defined as all individuals, organisations, bodies and authorities (external to Frontex or the EBCG), who have either direct contact with, or exposure to, operations or the immediate supply chain. This would include, for example:

- residents in close proximity to offices, bases of operations or other buildings (ranging from the district to the entire town where the premises are located, depending on an impact assessment), or who are otherwise considered to be exposed to the impacts of operations;
- local businesses and services with connections through the supply of goods or services;
- local government and authorities in districts of operation.

Transparency ensures accountability and builds trust, which is a fundamental element of the relationship the EBCG needs to have with its communities, employees and stakeholders. Therefore, the Green Community initiative is focused on raising awareness, sharing best practice, sharing knowledge, supporting local communities, informing and cooperating on specific activities (building retrofitting). By regularly disclosing its progress towards climate neutrality to the public, the EBCG will build trust and be recognised as a leader and role model. This is in line with the current Frontex approach to facilitating public access to documents.

5.3.10.2.Specific measures recommended

Stakeholder mapping

A map of stakeholders should be the first step undertaken so as to ensure that each group is taken into account while planning the initiatives affecting them. All stakeholder groups should be identified (e.g. neighbouring residents exposed to operations, such as through light or noise pollution; local authorities, such as municipalities, responsible for planning permission and, potentially, rented properties, and local suppliers, such as caterers) together with a brief description of their roles, and existing green community engagement initiatives. Stakeholders may additionally be prioritised by importance and proximity to operational matters, thus helping better inform cost-benefit analyses of subsequent initiatives. The stakeholder map should also include information on the way the EBCG authorities maintain relationships with them (e.g. based on working agreements).

Stakeholder and community dialogue rules and guidelines

After preparing the map of stakeholders, rules and guidelines on dialogue with them should be documented. Good practice is to develop a communication matrix with identified groups of people to reach, what their communication needs are, how much effort is required to reach them, etc. The list of principles and guidelines for communication with stakeholders should provide a compact overview for those working directly with communities on how to communicate and undertake sustainability activities: what kind of activities can take place during site visits, familiarisation visits as well as during joint operations. Successful relationships with the wider community rely on honest communication, trust, and mutual respect. Organisations which consider their stakeholders' interests are likely to benefit in the long term.

In terms of local community engagement, rules and guidelines in the area of sustainability could be included in the codes of conduct/ethics for border and coast guards. Guidelines can expressly establish a procedure to gather the views of the community. Dialogue should be meaningful and regular, and outcomes should be communicated effectively.

In the process of engagement with all stakeholders, the EBCG authorities could:

1. develop an approach for gathering workforce views which are tailored to the circumstances;
2. implement a procedure for gathering local community views and inputs;
3. report on engagement activities;

4. establish a robust governance framework to link engagement processes to governance processes, which should include terms of reference, as well as policies and procedures to document the links with engagement activities;
5. analyse and act on feedback. Rigorous analysis of the feedback collected will be necessary in order distil a wide range of views into clear findings. The actions developed should be realistic and practical, and genuinely respond to feedback received;
6. build the knowledge and capacity for effective engagement activities;
7. plan and conduct engagement events using a range of channels in order to receive reliable feedback, as well as to maximise the reach of engagement activities.

Implementing a digital communication platform (informing the local community of operations and work done)

This step is addressed to local communities in which the EBCG activities are undertaken. The proposal for a digital communication platform is intended to increase recognition of the EBCG and the activities undertaken by the border and coast guard officers in local communities. The platform should be accessible to the general public available and contain information about the activities undertaken – especially in the areas of ESG (environment, social, governance), indicating the actions taken along with their impact on the environment or society.

The platform set up by Frontex could inform local communities about activities that are being taken by the officers deployed at local and regional level in the field of sustainability (e.g. chemicals/hazardous substance handling and supply chain/production process, carbon and other GHG emissions, waste management, diversity and equal opportunity policy), which would have a positive impact on the overall reputation of Frontex. National border authorities in the respective Member States are likewise encouraged to establish similar communication platforms, by themselves or together with Frontex, in order to reap the same benefits.

This platform could be established in partnership with local government bodies or councils, to increase reach and accessibility in the community.

Hosting workshops with community leaders: outreach and planning

Local and regional communities should not only be informed about the initiatives that the EBCG takes but should also be involved as far as possible in order to raise awareness and share knowledge. The plan for workshops should include the map of stakeholders, which will be one of the main sources for defining workshop participants. It should also be prepared with a focus on knowledge exchange of the practices undertaken by the EBCG as well as local communities' practices. These meetings may be planned to coincide with meetings on other topics, so that the exchange of knowledge can lead to a specific initiative faster without waiting for a large conference or meeting.

Cooperation with local governments and communities

The EBCG is encouraged to cooperate and work with local governments and authorities to help spread good practices on sustainability, share knowledge, support local communities through joint activities with local government (for example through joint investments utilising EU funds), and ultimately help leave a "green footprint" in the areas where the EBCG operates – both during the period of operation and beyond. An example of such a green footprint might be working with local government to jointly retrofit and enhance premises designated for short- to mid-term use by the EBCG. After a pre-agreed period of use, the local government could take over the premises, retaining not only a new sustainable building, but also the experience on how to further propagate sustainable construction and retrofitting practices in the area.

The EBCG could (public procurement policies permitting) seek to partner with local community members and businesses for the successful implementation of other initiatives. In an example noted above (see 5.3.6.2), local shoe repair workers were key to establishing a boot repair centre on base. Similarly, contracting with the local community may be an invaluable way to support local economies significantly, which falls within the social considerations of ESG.

This initiative is also in line with the Technical and Operational Strategy for European Integrated Border Management[143]. The strategy emphasises the process of continuous enhancement of the EBCG's capabilities in a spirit of shared

[143] *Technical and Operational Strategy for European Integrated Border Management*, https://op.europa.eu/en/publication-detail/-/publication/2123579d-f151-11e9-a32c-01aa75ed71a1

responsibility, solidarity and interoperability. The EBCG authorities should act in a fully integrated manner together and engage in further cooperation with local governments and communities. Where barriers are identified to the practical implementation of such actions, the Change Management Office ought to be notified and the issue should be added to the list of those championed with European regulators (so as to remove barriers to positive change).

Reporting on community engagement and impact

Reporting should be undertaken with a specified frequency (e.g. quarterly), together with an indication of the persons responsible for the preparation of the report, conclusions and subsequent actions. The most important point in reporting is lessons learned and subsequent steps to greater involvement of communities. The format and content of the report should be predefined.

5.3.10.3. Relevant certifications and professional standards

- BREEAM In-Use (regarding building retrofitting)
- The Eco-Management and Audit Scheme (EMAS)
- ISO 14001

5.3.10.4. Resources needed

Table 20- Resources needed: Local Community Engagement and Stakeholder Management Policy

Measure	Cost categories		
	Human Resources	Scale of Investment	Time /Implementation potential/
Stakeholder mapping	Broader engagement	Low	Short | < 6 months
Stakeholder and community dialogue rules and guidelines	Broader engagement	Low	Short | < 6 months
Implementing a digital communication platform	Targeted specialist engagement	Medium	Medium | < 12 months
Co-financing and planning with local government the green retrofitting of mid-term local premises	Targeted specialist engagement	Low to medium	Long | > 12 months
Hosting workshops with community leaders: outreach and planning	Broader engagement	Low	Short | < 6 months
Reporting on community engagement and impact	Broader engagement	Low	Long | > 12 months

Human Resources

Implementing a digital communication platform might require appointing external services and cooperation with the Sustainability Officer responsible for the content of the platform.

Joint projects with local government bodies should be supported by the Sustainability Officer and team responsible for managing the internal implementation of the relevant measures.

The map of stakeholders, the guidelines for communication as well as report templates and then reporting could be prepared within a limited team, with the main responsibility held by a Sustainability Officer or Sustainability Committee. Hosting workshops might take place as an add-on to events already planned, but it will require additional organisational effort.

Scale of Investment

Most of the proposed steps require the involvement of Frontex deployed officers together with cooperation with the national border management authorities. This cooperation does not in itself require significant financial investment, particularly where existing human resources are utilised. Implementing a digital communication platform requires funding for the platform preparation and maintenance, with a medium-level value of investment. Joint projects could be in part financed by local authorities and public/EU funds.

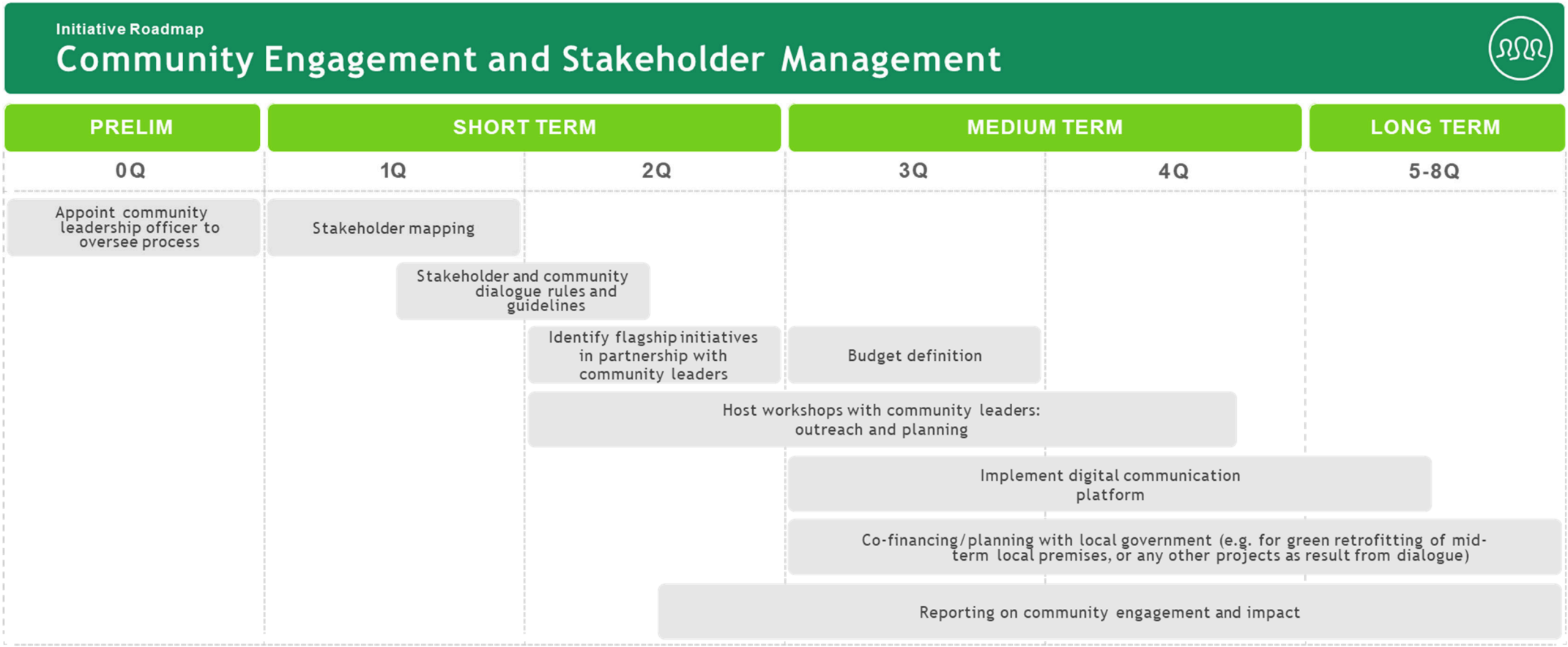
5.3.10.5. Relevant principles

Table 21- Relevant principles: Local Community Engagement and Stakeholder Management Policy

Principle	Relevance
No. 1: Environmental issues should be embedded into the strategies and decision-making processes	N/A
No. 2: Targets should be science- and fact-based to effectively reduce the organisation's environmental footprint.	N/A
No. 3: The development and diffusion of environmentally friendly technologies should be encouraged and embedded into decision-making processes.	Sharing knowledge and best practices with local government bodies aligns with the goals behind Principle 3, whereby EBCG experience is used to further the sustainability goals and performance of others.
No. 4: The organisation's environmental impact should be monitored and reported.	Reporting on community engagement and impact will cover environmental impacts as well.
No. 5: Accountability and transparency should be demonstrated by regularly disclosing publicly the progress in implementing sustainability targets.	Implementing a digital communication platform is one of the tools to demonstrate accountability and transparency.
No. 6: Climate awareness and environmental issues should be raised with and amongst the stakeholders and community	All the proposed steps require community engagement and are prepared in a way to involve local communities, to communicate better with stakeholders, and exchange best practices.

5.3.10.6.Roadmap

Figure 23- Roadmap: Community Engagement and Stakeholder Management



5.4. Conclusion

The ten proposed initiatives fall into four discrete categories:

Table 22- Initiative categorisation

Enabling Change	Green Operations	Green Office	Green Community
• Foundation for Transformation: Change Management Framework • Sustainable Reporting & Risk Management • EMAS Implementation and Certification	• Sustainability in Operational Activities • Fossil-free Fleet • Circular Economy Initiatives for the Standing Corps • Sustainable Procurement	• Future-proofing buildings: sustainable retrofitting • Travelling & Commuting	• Community Engagement and Stakeholder Management Policy

These four categories effectively frame the key engagement areas the EBCG should address in responding the EU Green Deal and aligning with EU objectives.

What: Green Office and Green Operations

The office and operations together form the key environmental impact zones on which the EBCG must focus its decarbonisation efforts. Engaging with these areas, for example through the proposed initiatives, will go a long way in helping the EBCG align with national and EU environmental regulations and objectives. Implementing the proposed initiatives in a cohesive framework would help:

- mitigate the environmental footprint of existing buildings (and commuting staff);
- decarbonise operational fleets;
- reduce the environmental impact (and attributable emissions) for all significant resource use, through the implementation of circular economy principles in all suitable supply chains;
- limit future impacts through mindful purchasing – implementing sustainable procurement guidelines to help both avoid unnecessary emissions (attributable to purchased goods) and reduce operational emissions (e.g. through more efficient vehicles).

Together, these initiative spaces create a robust response to the EU Green Deal.

How: Enabling Change and Engaging Communities

Enabling change is an important consideration in such a challenging environment. The difficulties of effecting a sustainable transformation must be consciously recognised and addressed to help avoid the common pitfalls undermining success. The EBCG is facing real regulatory obligations it will need to meet. Therefore, real change is required. Meeting professional standards for reporting and the implementation of certified environmental management systems are crucial to planning all subsequent action and evidencing success. Considering the (operational and regulatory) complexity of EBCG activities, active Change Management will significantly strengthen governance systems and help the EBCG overcome barriers to success. Engaging with the community and local stakeholders will help raise the positive profile of the EBCG locally and share the best practices implemented (with local government – thus extending the positive impacts).

A summary of all initiatives is presented in Table 23, categorised by time horizon (defined as up to 6 months, up to 12 months, and more than 12 months, for short, medium, and long term respectively).

Table 23- Summary of initiatives

Initiative	Measures
Short Term	
Sustainable Reporting	Establishing reporting governance structure
	Define data management and gathering plan and tools
	Define data verification process
	Dialogue with stakeholders to define material ESG aspects for reporting
	Preparation of ESG external reporting format
EMAS	EMAS certification
Operational Activities	ESG Impact assessment for core operational categories
	Carbon footprinting
	Policy setting and prioritisation of sustainability
	Updating codes of conduct and operational plans
Fossil-free Fleet	Route management and planning
Circular Economy	Circular policy setting
	Increasing life of equipment and uniforms: increasing durability and repairability
	Textile recovery from uniforms (in lieu of incineration)
Sustainable Procurement	Policy setting green principles – internal workshop and communication
	Sustainable procurement guidelines for office supplies, operational equipment and services
	Sustainable procurement guidelines for vehicle, vessel and aircraft acquisitions
	Communication regarding principles and guidelines and their everyday use
Sustainable Travel and Commuting	Policy adjustment: preferring remote meetings over travel
	EBCG "Planet Day" event – promotion of sustainability
	Incentivising public transport commuting
	Awareness and training for employees on ESG
Local Community Engagement	Stakeholder mapping
	Stakeholder and community dialogue rules and guidelines
	Hosting workshops with community leaders: outreach and planning
Medium Term	
EMAS	EMAS implementation
Operational Activities	ESC risk workshops
	Implementation of ESG Risk Management procedures
	Tailored decarbonisation roadmaps for major operations

Initiative	Measures
Fossil-free Fleet	Decarbonisation guidelines for operational vehicles
Circular Economy	Ammunition downcycling
	Recyclability and plastics reduction in rations, field supplies, and operational equipment
	Ship breaking: safe materials recovery and re-use
Sustainable Procurement	Monitoring and review
Sustainable Travel and Commuting	CO2 impact personal calculator preparation and promotion
Local Community Engagement	Implementing a digital communication platform in cooperation with local government bodies
Long Term	
Fossil-free Fleet	Biofuel integration (HVO)
	Electrification
	Investigation of hydrogen fuel capabilities
	Vessel retrofitting, modification and maintenance
Sustainable Travel and Commuting	Electric vehicle charging infrastructure
Local Community Engagement	Co-financing/planning with local government the green retrofitting of mid-term local premises
	Reporting on community engagement and impact
Future-proofing buildings: Sustainable Retrofitting	Self-assessment process as a multi-year commitment[144]
Foundation for Transformation	Change Management Framework as a multi-year commitment

The majority of initiatives are capable of implementation by the EBCG in a short-term time horizon, and do not require significant capital expenditures. This is not to say that the initiatives are to be initiated as a priority, as some may require groundwork in the form of other initiatives or supplementary measures (as indicated in the example Roadmaps). However, this remains an indication that – resources permitting – many initiatives responding to the EU Green Deal need not span a period of years but can be implemented in a far more manageable timeframe. Nevertheless, it is a matter for each EBCG authority to decide on the prioritisation of initiatives, and the timescales suitable for tailored strategic roadmaps.

Next steps

Not all proposed initiatives will be equally suitable or feasible for each EBCG authority. As an indicative list proposing ideas for engagement, the first step is to evaluate which initiatives are most applicable, and how they might be tailored

[144] *Estimations of implementation horizons for the individual measures discussed in the section 5.4.8. Future-proofing buildings: Sustainable Retrofitting and 5.4.1. Foundation for Transformation: Change Management Framework are highly dependent on individual contexts and needs, resulting in significant ranges for estimated timescales.*

to individual needs and context. A starting point should be Reporting, Sustainability Risk Management, and Change Management. It must be first ensured that the appropriate monitoring tools, reporting frameworks/procedures, and sustainability governance are in place. Baselines must be established, as these will be key to effectively monitoring and evidencing progress. Carbon footprinting and ESG Impact Assessments will be elementary measures setting the foundations for the necessary subsequent cost-benefit analyses, which have to be conducted in the process of formulating and defining sustainability strategies and designing the most appropriate initiatives.

6. Final conclusions and implications for the EBCG

The overarching goal of the research study was to provide Frontex and the wider EBCG community with advice on where and how to increase their environmental sustainability. With that aim, firstly, a regulatory framework was defined based on EU and international strategic roadmaps, regulatory instruments and mechanisms. This regulatory framework provided an overview of the opportunities and requirements likely to impact the EBCG in the area of sustainability. In addition, case studies were analysed to present an overview of the sustainable activities undertaken by other organisations (with similar needs and relevant contexts). By exploring how the selected organisations approach sustainable operations and environmental protection, a range of relevant best practices were identified, which in turn, together with the regulatory framework, served as inspiration for the definition of a set of key high-level principles and initiatives tailored to the EBCG.

6.1. Guiding principles to facilitate the EBCG journey towards environmental sustainability

Based on the information provided during the interviews and the workshop, one of the biggest challenges for the EBCG remains cooperation in the area of sustainability. Having a common strategy and general understanding of where the EBCG is heading in terms of sustainability would help bring everyone behind the same goals and ambition. In addition, it was mentioned that having a rigid common strategy would be a less effective way to achieve that than preparing guiding principles and best practices. This is why the study identified best practices through case studies and created a set of guiding principles.

The analysis of the sustainability activities of seven organisations through the use of case studies made it possible to collect useful information on relevant experiences and build on lessons learnt. This helped visualise what has already been done before, what is feasible and what to avoid, to ease the journey towards sustainability. The study cases on the European Defence Agency or the French Ministry of Interior showcased how it is possible to have a top-down control and coordination across enacting entities. Case studies such as the Swedish Coast Guard or the French Ministry of Interior showcased examples of a greener fleet and how it was achieved. Other cases can be found in the study about greener infrastructure, green procurement, change management and more.

As a first main output, the research team developed a set of principles capitalising on the experience and input provided by the organisations, stakeholders consulted, complemented by the subject matter expertise. These principles were defined to provide the necessary foundation to start the sustainability journey and are meant to be used as a guide to support the EBCG in setting the direction and decision-making processes associated with environmental sustainability. The relevant principles identified were:

- Principle No 1, *environmental issues should be embedded in strategies and decision-making processes*, implies implementing management systems, setting priorities, applying the precautionary principle, defining initiatives and roadmaps, and appointing a sustainability officer and a dedicated team.
- Principle No 2, *to reduce the organisation's environmental footprint effectively, targets should be science- and fact-based*, implies relying on science to set targets and prioritise initiatives.
- Principle No 3, *the development and diffusion of environmentally friendly technologies should be encouraged and embedded in decision-making processes*, implies high-level guidelines on how to foster environmentally friendly technologies.
- Principle No 4, *the organisation's environmental impact should be monitored and reported*, implies establishing a baseline, monitoring the progress of KPIs against this baseline and reporting on them.
- Principle No 5, *accountability and transparency should be demonstrated by regularly disclosing publicly the progress in implementing the sustainability targets*, ensures transparency, accountability and the trust of stakeholders.
- Principle No 6, *climate awareness and environmental issues should be raised with and amongst the stakeholders and community*, implies change management.

These principles are part of a whole and interlinked. They feed into each other and can touch on similar topics but from different angles. They represent an overarching framework that is easy to understand and communicate. Stemming from the set of principles, the research team identified and described a number of initiatives that are more concrete and specific topic by topic.

6.2. Concrete initiatives to consider to allow the EBCG to become an inspiring pioneer in sustainability

The principles (see above) are the foundations on which the initiatives were built. By extending and deepening the work done in previous stages, the research team sought to identify and explore potential initiatives the EBCG may wish to consider in aligning its sustainability performance with the European Green Deal and EU targets.

The final list of initiatives was the product of collaborative work by the research team, as well as the feedback provided by Frontex staff and the EBCG community, who participated in the interviews and initiative development and feedback workshop.

As mentioned by multiple stakeholders consulted in the context of this study, it is important to acknowledge the diversity of the EBCG across the EU. All offices are different and have different structures. For instance, having a zero-emissions building might be possible at Frontex in Poland but might be more difficult in Brussels, simply because Frontex will own the building in Poland but is only renting the office in Belgium. This is why, for the time being, the initiatives were designed with a desire to ensure the widest applicability across the EBCG – whilst maintaining relevance to the key environmental impact areas, and also creating as robust response to the EU Green Deal as possible. The diverse nature of the EBCG, with many authorities with different needs and contexts, precluded establishment of baselines. The initiatives were therefore developed to provide examples of initiatives that could be implemented as part of sustainability-oriented approach. These serve to signpost best practices, standards and resources which the EBCG authorities may wish to consider in the formulation of strategies tailored to their needs.

The research team selected the following ten initiatives to detail in this study.

1. *Foundation for Transformation: Change management framework* implies a set of practical steps recommended for successful implementation of all the sustainability initiatives.
2. *Sustainable Reporting and Risk Management* implies the implementation of ESG internal and external reporting and compliance, a dialogue with stakeholders to define material ESG aspects for reporting, defining a data management and gathering plan and tools, defining data verification processes and the preparation of an ESG external reporting format.
3. *EMAS Implementation and Certification* implies the implementation and certification of EMAS, which is a premium management instrument and standard for companies and organisations to evaluate, report and improve their environmental performance.
4. *Sustainability in Operational Activities* implies the integration of sustainability into operational strategy through the understanding of current impacts and emissions, the definition of ambitions, a cost-benefit analysis of available measures, and the construction of roadmaps on which to base implementation of a newly defined sustainability strategy.
5. *Fossil-free Fleet* implies decarbonisation guidelines for operational vehicles, electrification, biofuels integration, investigation into hydrogen fuel capabilities, route management and planning, and vessel retrofitting, modification and maintenance.
6. *Circular Economy Initiatives for the Standing Corps* implies setting circular policy, increasing the lifespan of equipment and uniforms, recyclability and plastics reduction in rations, field supplies and operational equipment, ammunition downcycling, etc.
7. *Sustainable Procurement* implies promoting and following sustainable procurement guidelines to incentivise the development of green technologies and products by industry – through updated requirements to be used during tender processes.
8. *Future-proofing Buildings: Sustainable Retrofitting* implies the optimisation of assets and building performance with regards to sustainability metrics.

9. *Sustainable Travel and Commuting* implies adjusting of policy on remote meetings vis-à-vis travel, the preparation and promotion of the CO_2 impact personal calculator, the installation of charging infrastructure, the training of employees and more.
10. *Local Community Engagement and Stakeholder Management Policy* implies sharing information on all the actions regarding sustainability undertaken by the EBCG to maximise positive impact.

Each EBCG authority should prioritise initiatives in the Enabling Change category[145], so as to lay the necessary foundations for subsequent substantive initiatives. Establishing individual baselines (through reporting, monitoring, impact assessments and carbon footprint) will be essential to the identification of opportunities, the performance of cost-benefit analyses, and in evidencing progress. Change management and risk management frameworks form important supportive mechanisms to further increase the chances of success in meeting environmental goals, whilst mitigating common pitfalls and barriers to sustainable transformation. The remaining initiatives, by contrast, collectively represent the substantive measures that directly address the highest environmental impact areas the EBCG authorities are exposed to, and suggest actions which may be taken to reduce environmental footprints.

6.3. Opportunities for a smooth handover

As mentioned earlier, the initiatives described in this study were designed to ensure the widest applicability across the EBCG. In order for each EBCG authority to start or continue their sustainability journey, the research team identified opportunities for a smooth handover from this study.

- Each EBCG authority can already start the discussion around the guiding principles and how to best apply these according to its needs and ambitions. The guiding principles are made to be inspirational and can serve as a communication tool to bring everybody towards the same ambition.

- It is a matter for each EBCG authority to decide on the prioritisation of initiatives, and the timescales suitable for their tailored strategic roadmaps. Most can be implemented in the short term and do not require significant capital investments. This is not to say that the measures are to be initiated as a priority, as some may require groundwork in the form of other initiatives or supplementary measures (as indicated in the example roadmaps). However, this remains an indication that – resources permitting – many initiatives responding to the EU Green Deal need not span a number of years but can be implemented in a far more manageable timeframe.

- As an indicative list proposing ideas for engagement, each EBCG authority must, in the first place, evaluate which initiatives are most applicable, and how they might be tailored to the individual needs and context.

- Reporting, Sustainability Risk Management, and Change Management should be the starting point. The EBCG must first ensure the appropriate monitoring tools, reporting frameworks/procedures, and sustainability governance are in place. Baselines must be established, as these will be key to monitoring and reporting progress effectively.

- Sustainability relies on fresh and innovative ideas to continuously optimise and find efficiencies. An underrated benefit of sustainability it that it forces organisations to re-evaluate every aspect of their operational activities and identify new, more efficient ways of working.

- Communication and knowledge-sharing between the EBCG authorities is key to accelerating the EBCG's sustainability journey. Proper sharing of best practices and lessons learnt can only act as a lever for more efficient implementation of the initiatives. Internal communication is also key to ensuring employee commitment to the goals. It is important to build a culture of transparency between employees and management as it engages employees in the organisation's priorities.

[145] *Change Management Framework, Sustainable Reporting, and EMAS implementation.*

- Before starting anything, the EBCG authorities should look within themselves to see what is already being done. It might be the case that some initiatives are already ongoing or are planned but not promoted well enough. Each EBCG authority should leverage current efforts and acknowledge initiatives before engaging in new ones.