MAY 2024

Net zero 2050 plan

Copenhagen Airports

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This plan will showcase our plan for achieving net zero by 2050 as well as subgoals for 2030, through our subsequent strategies for sustainability overall. Accountability and transparency are key in achieving an impactful transition.

Preface

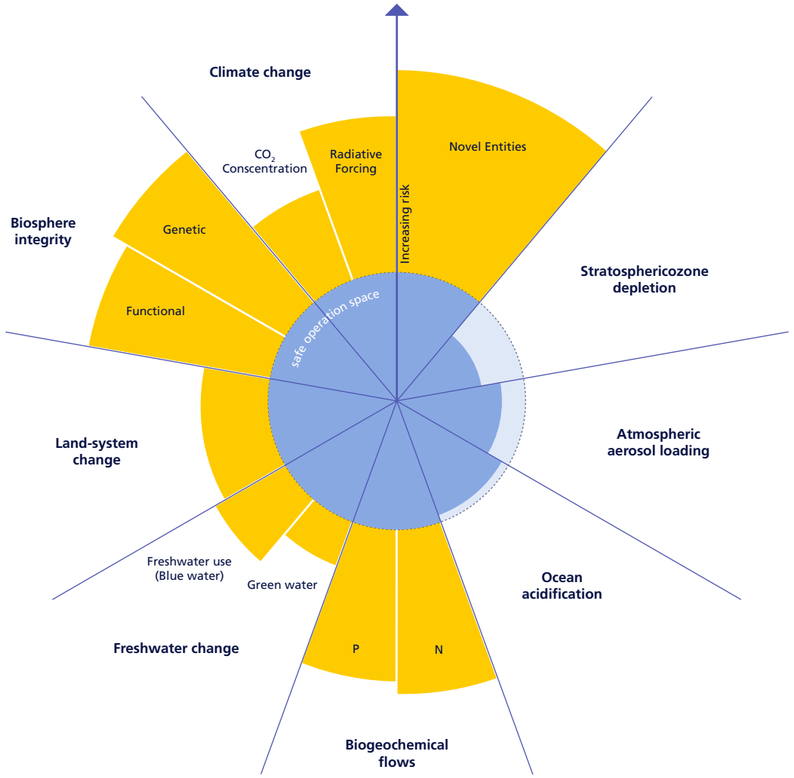
Prioritizing sustainability is paramount for companies globally, and at Copenhagen Airports A/S (this also includes Roskilde Airport, from here both will be referred to as Copenhagen Airport), we believe that actively working to lower our environmental footprint is fundamental for our license to operate. Consequently, we acknowledge our impact on the environment and the inseparable responsibility this induces. Since the 1980s, we have worked towards reducing our impacts within areas such as noise and pollution. Additionally, we have worked on improving air quality and reducing CO_2e emissions since the early 2000s. However, we need to continuously strive to be and do better.

We are focused on ensuring high involvement and successful implementation across Copenhagen Airport, inducing close collaboration with our partners and stakeholders such as airlines, suppliers and tenants. This collective effort is essential as we recognize the need to act as a unified force. Therefore, one of our primary objectives for 2024 is to share knowledge, provide information, and actively engage our employees and stakeholders to ensure the successful implementation of our sustainability goals.

As I have embarked on my journey as CEO in Copenhagen Airport, it has been important for me to ensure that sustainability is a key principle guiding our actions and how we operate our business. Sustainability must permeate everything we do, but we have not reached that point yet. This plan is only one step towards a more sustainable and responsible airport. A journey that is still to some extent unknown.

Christian Poulsen
Chief executive officer, Copenhagen Airports

1 Responsibility



Our responsibility and the impact of aviation

Aviation plays a significant role in connecting the world by, amongst others, facilitating tourism, trade, connectivity, generating economic growth and providing jobs. Copenhagen Airport has a significant socioeconomic role in the region of Greater Copenhagen; for example, in 2023, our airport contributed around 80.9 billion DKK to the economy in the region. Aviation also has a significant impact on the environment, contributing to substantial CO_2e emissions around the globe. It is important to understand the context of this plan and the reasons why such a plan is necessary for the future of aviation, as the climate is changing.

As temperatures rise and weather patterns become increasingly more unpredictable, the consequences for both the environment and its inhabitants, become more pronounced. The ***planetary boundaries***, as a framework, exemplify the need for change. They showcase what is considered a safe operating space for humans, and where areas of the planet have overstepped the boundary for such a space. The framework consists of 9 boundaries, all related to climate, resources, the environment, or a combination of all three. The latest version was updated in 2023, revealing that 6 out of the 9 have been exceeded, highlighting the need for action by public bodies and private entities.

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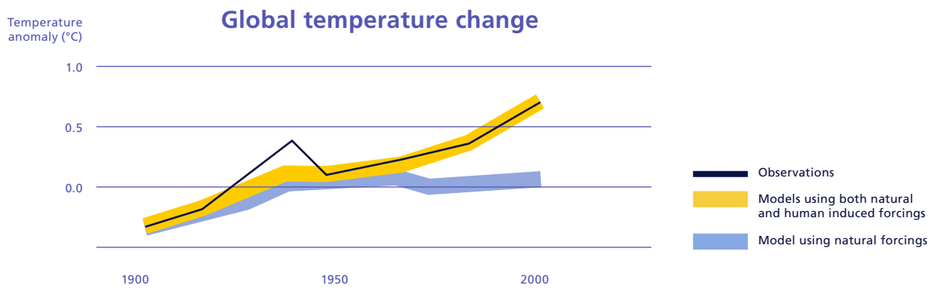
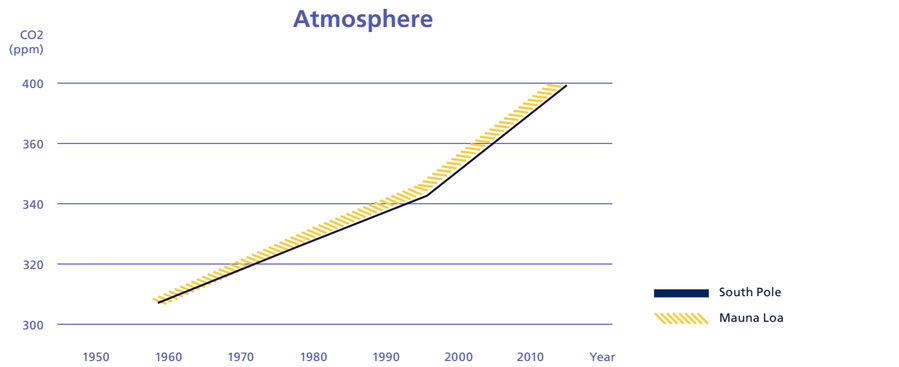
Therefore, international organizations, policymakers and industries are called upon to enact change and share responsibility for the transition. The United Nation's ***International Civil Aviation Organization (ICAO)*** states that the aviation sector accounts for approximately 2 % of the global human-induced emissions. Why, the aviation sector bears a significant responsibility of global warming, making a transition of the industry necessary. Therefore, it is immensely important that the aviation sector works towards ensuring a future with a smaller environmental impact.

The transition of aviation needs to be accelerated, which includes the development of new technologies upon which the industry heavily depends. Securing the right technologies will require a joint effort involving airports, airlines, governments, as well as other public and knowledge institutions. When looking at all activities in Copenhagen Airport, the emissions predominantly stem from aircraft but also emerge from procurement, construction, waste etc. – accounting for over 90 % of total emissions. Thus, while not directly under the control of Copenhagen Airport, this will be elaborated on later in this plan. The 10 % remaining come from our operations – electricity, heating, as well as transport in and around our airports. This underpins the urgency of reducing own emissions, as well as taking responsibility for emissions within the value chain.

As the plan extends towards 2050, we expect to evolve, improve as we learn, and continuously set more ambitious goals.





Commitments through ACI and ACA

Copenhagen Airport is a member of the Airports Council International (ACI), which serves as the trade body for airports worldwide and represents over 500 airports in 55 countries. ACI aids in maintaining and leading the airport industry and fostering links between airports globally. In 2019, we entered into an agreement with several European airports committing to becoming net zero by 2050 at the latest, in scope 1 and 2, where we are committed to this already in 2030.

Under ACI, the Airport Carbon Accreditation (ACA) was launched in Europe in 2009 and serves as a voluntary global carbon management standard for airports. It aims to encourage and enable airports to implement best practices in carbon management and achieve emissions reductions. Through the accreditation there are seven advancing levels, and at level 3 and 4, airports can choose to compensate their residual emissions gaining either level 3+ or 4+, with the newest addition of level 5, requiring the airport to have achieved net zero.

Copenhagen Airport became accredited under ACA in 2013, further achieving the then highest level of accreditation (4+) in 2019. The work conducted under ACA complements the efforts made as part of the sustainability strategy and aids Copenhagen Airport in positioning among the most ambitious.

2 Sustainability

Our approach to sustainability

Sustainability as a concept has evolved and broadened since its first mainstream definition by the United Nations. At its core, sustainability means allowing the ongoing use of resources without compromising the ability of future generations to access those same resources. We consider sustainability as our ability to operate responsibly, to take care of our employees and the environment, and to act as a responsible corporate citizen and neighbour. These fundamental elements reinforce our license to operate. In general, sustainability is most often categorized in three main areas: social, economic and environmental. The focus of this net zero plan will be on environmental sustainability. We consider it our responsibility to society to work on limiting greenhouse gas (GHG) emissions from Copenhagen Airport, as well as the environmental footprint and impact on the local environment stemming from airport operations. Beyond the importance of sustainability as an overarching driver, new EU directives are also applicable for many large corporations, including Copenhagen Airport, specifically the new ***Corporate Sustainability Reporting Directive (CSRD)***. This directive emphasizes the need for an understanding of all the impacts, negative as well as positive, that an airport has.

The monitoring of the various disclosure points of the CSRD is underway and will be collected during 2024, and the first reporting will take place in 2025, with majority of the environmental data related to climate change and emission reductions.

Below we will introduce our three environmental programs under our sustainability strategy before deep diving into the decarbonization of the airport.

Circularity

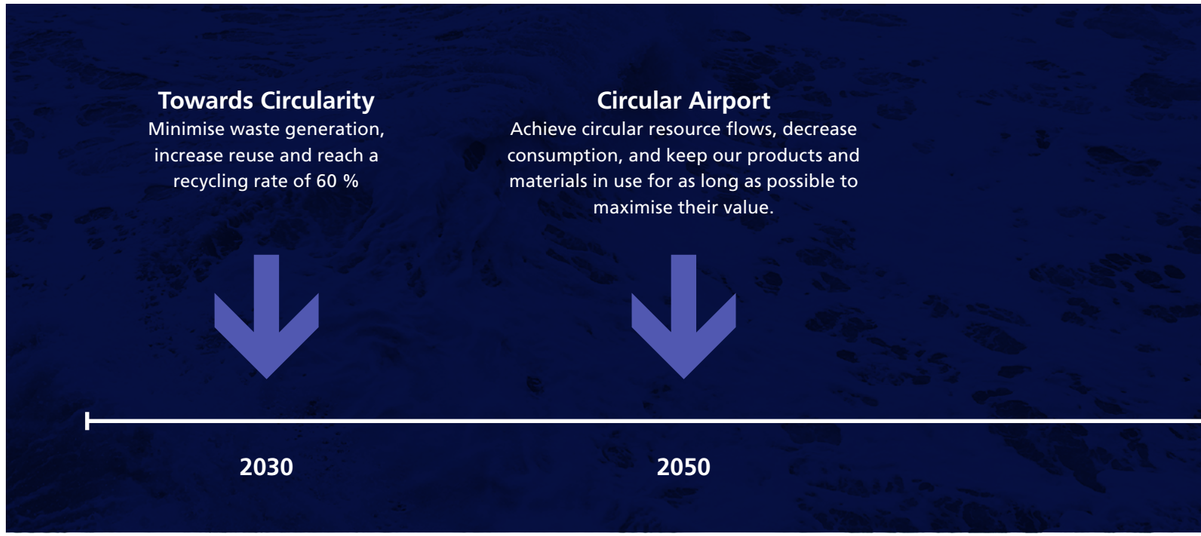
Circular economy contrasts with the traditional linear take-make-dispose model. At its core, circular economy is a system where materials and products are kept in the loop through processes like reuse, maintenance, remanufacture, refurbishment, and recycling. Thus, implying that waste is reduced to a minimum. Circular economy can work as a tool to help tackle challenges within climate change, biodiversity, pollution, and waste, by decoupling economic growth from the consumption of resources.

Both business representatives and governmental organizations stress an increasing pressure on planetary boundaries and global resources due to human-made activities. The circular economy is a promising approach to reduce global pressure on the environment.

The foundation of circular economy is to “design out” waste. Therefore, products must be designed for disassembly, repair, and reuse to remain in a closed loop. Circularity avoids disposal and even recycling to a certain extent, where other solutions are possible. Largely, circularity replaces consumers as a concept with users, thus calling for new business models. A circular business model should therefore support durable products through renting, leasing, and sharing schemes.

Denmark is one of the highest consuming and polluting countries in Europe regarding scope 3 emissions and material consumption per capita. As a major Danish company, we hold a significant responsibility in participating in the sustainable transition of Danish society. With this aspiration, we have set ambitious targets to drive the organization towards a more circular operation.

We aim to transition to a circular airport by using less, better, and for longer durations.



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The circularity program consists of four workstreams: Procurement, the Shopping Centre, Construction, and Waste Management. General principles on how we intend to work with circularity were drawn up and approved in 2023.

The next step will be to develop and implement two-year action plans for each workstream to gradually lead us towards our goal of using less, better, and longer. This plan will primarily focus on decarbonization rather than the circular economy principles. However, due to circularity's numerous synergies with decarbonization, this aspect will continuously be integrated into this plan.

Circularity principles for the four workstreams:

Procurement

We will work to avoid or postpone the procurement of products and materials by utilizing existing resources. Requirements will be set, and collaboration with suppliers will be the goal to become circular. Furthermore, we will strive to facilitate the reuse and sharing of already purchased goods, as well as focusing on procuring products with eco-labels or a minimal environmental impact wherever possible.

Shopping Centre

We aim to enable tenants to become circular units, as well as increase cooperation with partners who share the same ambitions and targets. Furthermore, we will support the increase of solutions minimizing its impact on the environment and explore the opportunity for retailers with a higher focus on sustainability where possible. Lastly, we will develop concepts for reconstruction and maintenance of stores.

Construction

We will work towards avoiding unnecessary new construction and components, as well as designing for longevity, adaptability, and disassembly. Furthermore, constructing efficiently will be a core element, with a reduced use of virgin materials and enable reuse overall. The area of construction will be further explored in this ***section.***

Waste Management

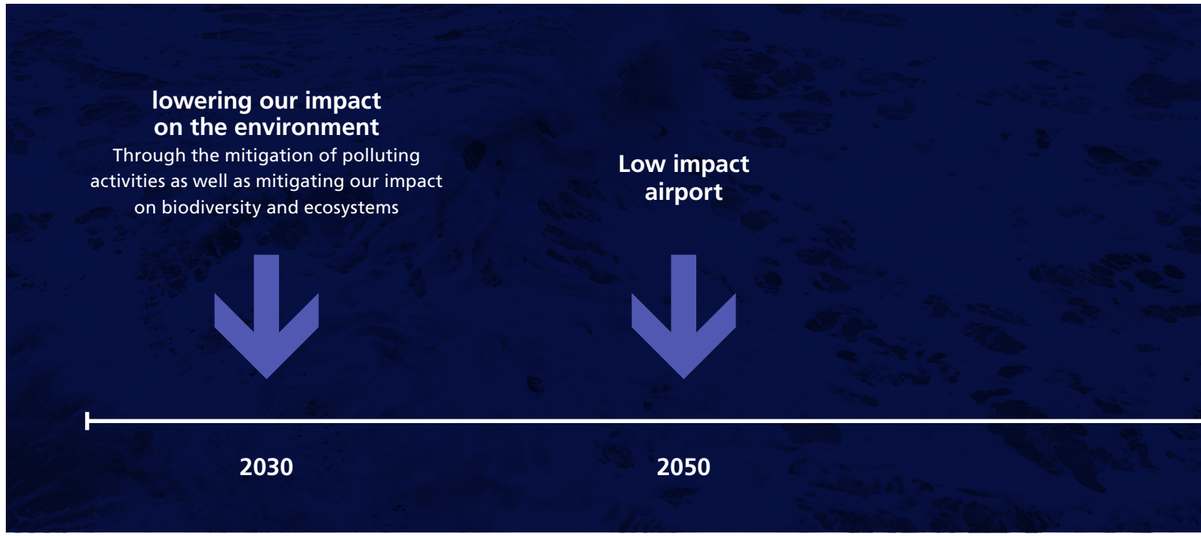
We will analyze the waste streams and consequently optimize the resource flows. Furthermore, we will strive to keep materials in use for as long as possible to minimize the generation of waste. Recycling will be conducted to the greatest possible extent, and efforts will be made to divert waste from landfills by making it as intuitive for our users as possible.

Environment

The state of the environment globally is under pressure and, therefore, it is an area for which we take responsibility. The environment encompass an interplay of complex factors, such as climate, soil, and various species, all influencing an ecological community. We have both a direct and indirect impact on the environment.

As a consequence, environmental compliance serves as our license to operate and is mandated by law and overseen by regulatory authorities. However, we are committed to work beyond regulatory demands and take into consideration our impact on the environment close to and beyond Copenhagen Airport.

Looking ahead to 2050, we are working to set ambitious goals to reduce our impact across key areas within pollution, biodiversity and ecosystems, and climate adaptation.



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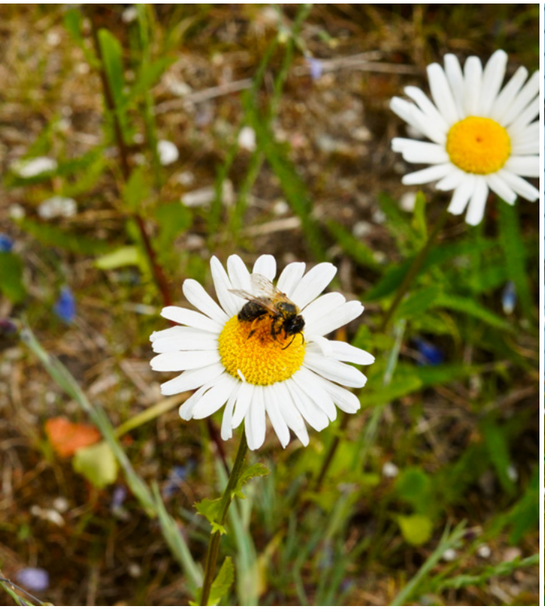


In 2024 we began collaborating with the Danish NGO Vild med Vilje by following their principles on biodiversity promotion at dedicated areas. However, the work to promote a higher degree of biodiversity at our own areas must coexist with an airport infrastructure and must not compromise safety or overall functions enabling operations.

Pollution

We acknowledge the impact of our daily airport operations and the pollution it generates, whether it be pollution of our air quality, water and soil, or through noise. Within these areas, we work ambitiously to ***mitigate*** these pollutions through our own initiatives as well as by aiding and following the development of new technologies.

We collaborate closely with our partners to reduce air pollution from ground operations, including ground support equipment (GSE), closely linked to and part of the decarbonization. Further within the area of noise, we actively work to mitigate the impact as best possible. Here the cooperation with airlines is a key step in lowering our impact towards 2050, as the airlines' investment in new and more efficient aircraft is a major factor in noise mitigation at Copenhagen Airport. Additionally, we diligently monitor and maintain records of environmental pollutants present in soil and water. With a proactive approach to pollution reduction, we actively map pollution sources and implement containment and treatment measures. As an example, we have in 2023, established a new ***PFAS*** treatment plant in Roskilde, which means we now have a total of four plants actively protecting water resources across Roskilde and Copenhagen.

We are committed to protecting soil and water through pollutant containment to the best of our ability, water reuse, and the ongoing development of technical solutions for collecting and treating water from various airport activities.

Biodiversity and ecosystems

The focus area of biodiversity and ecosystems encompasses the consideration for all natural surroundings and hereunder the understanding of the importance of biodiversity and ecosystem functions. We will work to promote planting with focus on biodiversity at our own areas as well as engage in knowledge forums to collaborate and learn from relevant stakeholders, as well as actively work to mitigate our impact through our procurement and subsequent suppliers, to the extent possible. Furthermore, in the next few years, the mapping of our actual impact on biodiversity and subsequent ecosystems will be conducted, as well as promoting biodiversity and nature conservation projects beyond the area of our airports.

Climate adaptation

Lastly, as part of this program, the need for climate adaptation is a crucial aspect of the path towards 2050. As a critical piece of Danish infrastructure, we must take into consideration the impacts of climate change, leading to a necessity for climate adaptation, especially considering the placement of Copenhagen Airport. Both near-future impacts, such as increased precipitation and extreme heat, as well as more distant-future impacts, such as rising sea levels, are part of the consideration for us. Therefore, plans will be further developed to ensure that we can operate effectively and safely in changing climates.

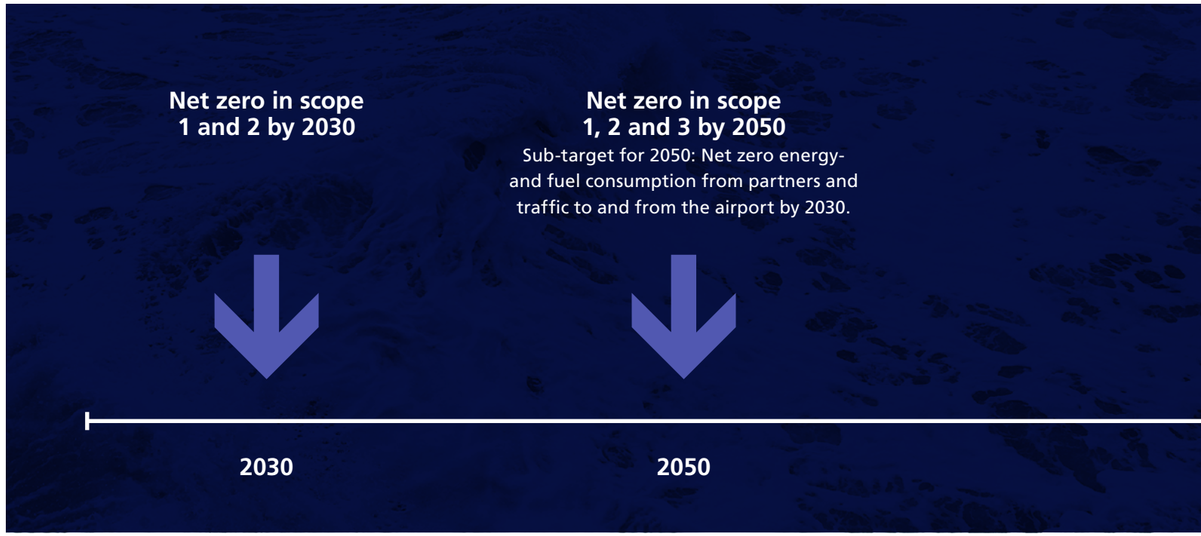
Decarbonization

Decarbonizing the aviation industry is a significant challenge, and the journey towards a less CO_2e-heavy industry is long and complex. Therefore, it must be approached by tackling one challenge at a time. Although the combustion of fossil fuels is one of the main contributors of climate impact within aviation, there are several other activities at the airport that must also be addressed. Therefore, it is crucial that we put in determined efforts to mitigate the climate impact directly associated with our own operations and address the impact from our entire value chain.

Further the impacts of ***non-CO_2*** effects also hold significant impacts on the climate, however the main focus of this plan will be on the emission of greenhouse gases, why the consideration for non-CO_2 will not be further developed here within.

We aim to reach net zero greenhouse gas (GHG) emissions by 2050, as well as achieving interim targets to achieve substantial reduction in emissions of scope 1, 2 and 3 by 2050 or earlier. Net zero is defined as the GHGs emitted into the atmosphere being balanced by the removal of a corresponding amount of GHGs from the atmosphere.

The interim targets are derived from our long-term targets and consider all GHG emissions to align with the global goal of achieving net zero emissions and limiting temperature rise. The roadmap includes operational plans and financial estimates to ensure accountability and transparency across the organization.



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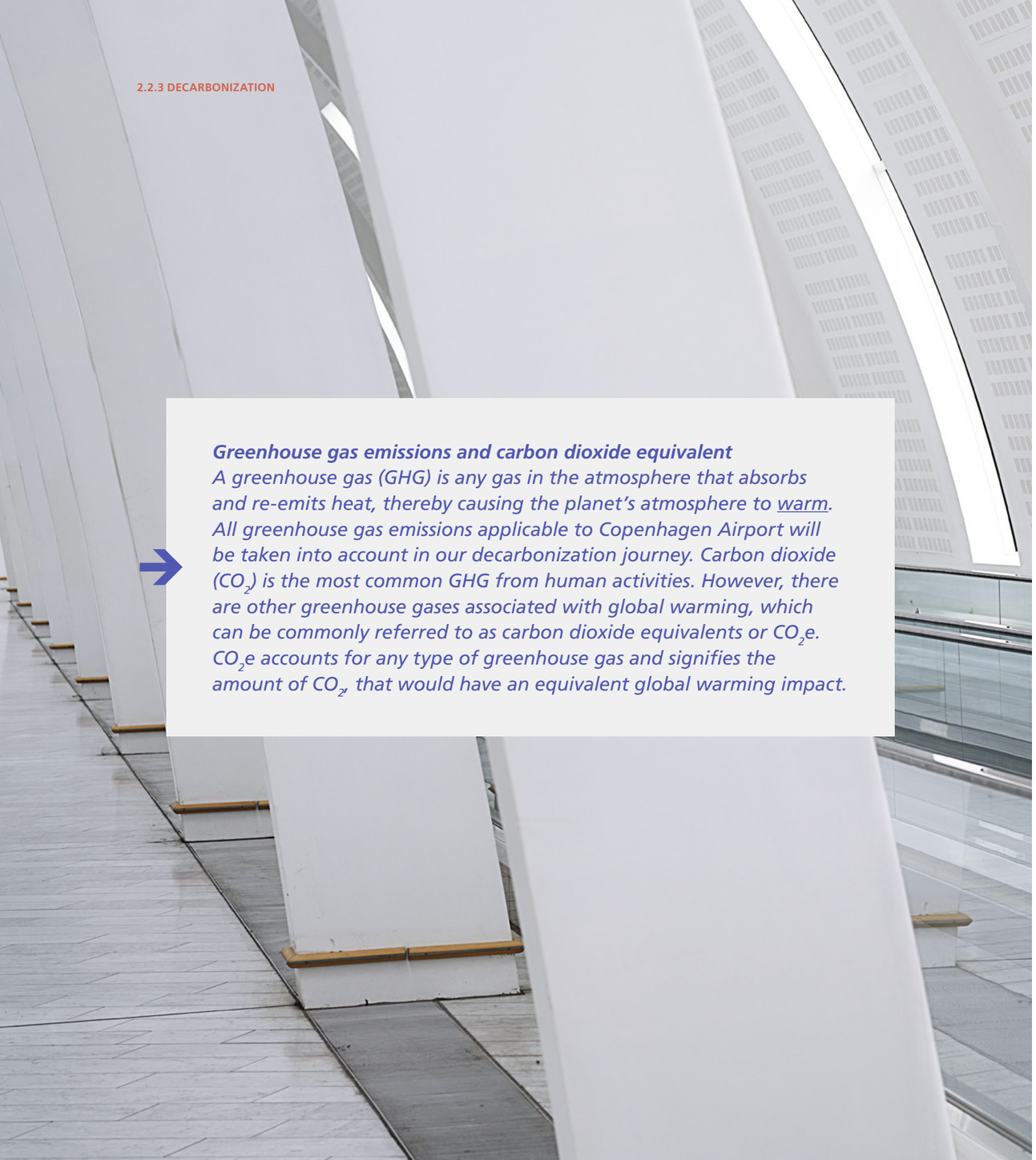

Greenhouse gas emissions and carbon dioxide equivalent
A greenhouse gas (GHG) is any gas in the atmosphere that absorbs and re-emits heat, thereby causing the planet's atmosphere to warm. All greenhouse gas emissions applicable to Copenhagen Airport will be taken into account in our decarbonization journey. Carbon dioxide (CO_2) is the most common GHG from human activities. However, there are other greenhouse gases associated with global warming, which can be commonly referred to as carbon dioxide equivalents or CO_2e. CO_2e accounts for any type of greenhouse gas and signifies the amount of CO_2, that would have an equivalent global warming impact.

Our approach for the strategic work with decarbonization has been developed by following the GHG Protocol Corporate Standard theory. To calculate the GHG emissions, five principles for calculating a GHG inventory, also referred to as a carbon footprint, have been applied:

- **Relevance refers to the selection of an appropriate inventory boundary, which represents Copenhagen Airport's substance and economic reality from a business perspective.**
- **Completeness ensures that all relevant emissions sources within the chosen inventory boundary are accounted for.**
- **Consistency in the calculation method for the emissions is essential for comparing GHG emissions over time.**
- **Transparency relates to the degree to which the information on the processes, procedures, assumptions, and limitations of the GHG inventory are disclosed.**
- **Accuracy of the represented data is crucial. The data shall be as close to the actual emissions value as possible.**

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Defining scope 1, 2 and 3

Scope 1 refers to ‘Direct GHG emissions’, which occur due to sources owned or controlled by us, such as emissions from combustion in owned boilers and vehicles.

Scope 2 called ‘Indirect GHG emissions’ accounts for emissions from the generation of purchased electricity and district heating.

Lastly, scope 3, known as ‘Other indirect GHG emissions’, focuses on all remaining indirect GHG emissions. Scope 3 emissions result from all activities at our airports but occur from sources not controlled by the airport e.g., the combustion of jet fuel from aviation.

Scope 1
Direct emissions from operations

Scope 2
Indirect emissions from purchased energy

Scope 3
All other emissions associated with a company’s activities

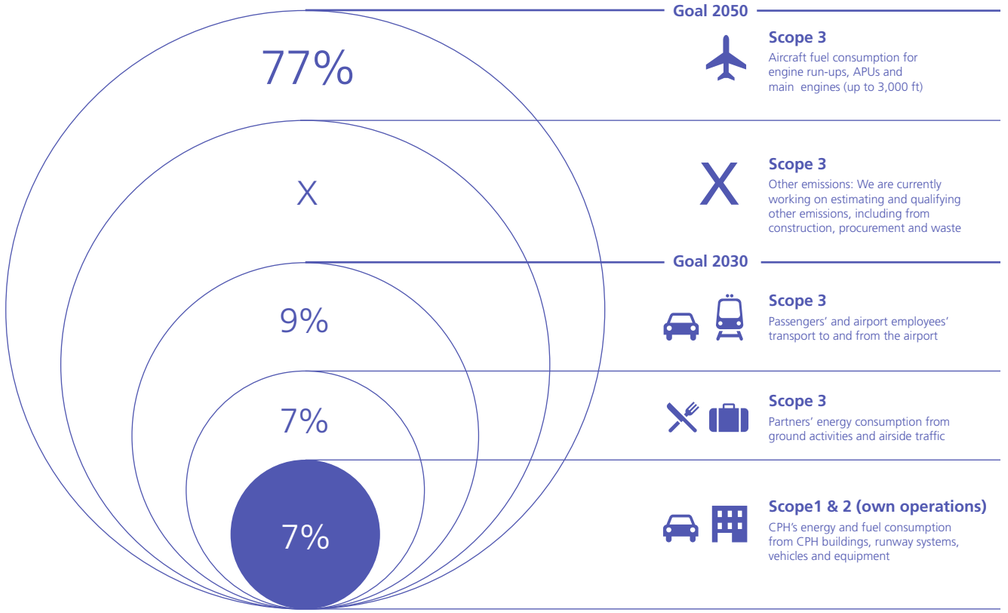
Our carbon footprint

Copenhagen Airport's carbon footprint is based on the principles of the GHG Protocol. The protocol enables a fair and accurate representation of the carbon footprint, which reflects its business boundaries and the associated GHG emissions.

Calculating our carbon footprint is very complex, as emissions stem from many different sources, which will be described in this plan. Monitoring and reporting on the carbon footprint requires a comprehensive overview and knowledge of various activities and their subsequent emissions. Our function as a landlord for various stakeholders, such as cargo companies, retail shops in the shopping center, operational handlers, associated businesses and so on, and because of this differentiated value chain, the dataset is complex.

Gathering the various data has been a continuous process, and at the end of 2023 Ramboll conducted a report on our emissions focusing on scope 3.

The calculations are mainly based on a spend-based method (taking the financial value of a purchased good or service and multiplying with an emission factor). However, such spend-based emissions can be imprecise because they are not based on activity-based data but rather a sum of the financial data, which is why the actual consumption can vary greatly in relation to the calculated consumption. This preliminary report, which provides a more general overview of our spend-based emissions, will serve as a starting point for a more extensive data management of the emissions and their sources. In 2024, we began a collaboration with a Danish carbon accounting platform EIVEE, to better grasp the scope 3 emission sources and thereby be better equipped to mitigate the overall CO_2e footprint and create a basis for reaching our net zero goals for 2050.



3 Towards Net zero 2050

Defining the path for our net zero goals

Our overall goal to become net zero by 2050 will, in practice, require substantial mitigation of scope 1, 2 and 3 emissions. However, as the goals are set years in advance, the mitigation efforts may potentially not be sufficient to reach net zero, necessitating investigation into additional pathways to ensure that all emissions are taken into account. A renowned solution for this is called ***climate compensation***, which refers to an economic contribution to initiatives that capture GHGs at a level equal to the emissions created (in achieving net zero a maximum of 10 % the emissions can be compensated).

There will likely be areas where eliminating emissions will not be possible, and in those cases, we will have to invest in climate compensation initiatives to become net zero. However, the mission is to mitigate a minimum of 90 % of CO_2e emissions in scope 1 and 2 by 2030 and compensate through initiatives for the remaining maximum 10 %. Climate compensation and how we currently support the solution will be elaborated upon, as well as our conscious focus on investing in new and improved technologies.

Net zero 2030 in scope 1 and 2

As a path towards our 2050 net zero goal, the target of achieving net zero airports and ground transport by 2030 has been set. These mitigation efforts encompass all emissions from both ours and tenants' energy and fuel consumption, airside ground transport, as well as all surface access traffic.

Scope 1

- Vehicles and equipment
- Natural gas and the shift to district heating

Vehicles and equipment

Copenhagen Airport owns over 650 vehicles and equipment that operate in and around our airports. All of them are essential for the overall operation, transporting passengers, handling waste, maintaining runways, and many other functions. Our car fleet is very diverse and complex and varies from small cars to big vehicles such as garbage trucks, snow removal vehicles, and fire trucks. Despite the complexity of the fleet, we are determined to work ambitiously to replace vehicles with other solutions, especially with a focus on electric alternatives. Towards 2030, the aim is therefore to continuously replace conventionally driven vehicles with electric ones and ensure that the necessary charging infrastructure is in place to handle the increasing demand.

In 2024 and 2025 we will invest in 4 electric landside buses, which will serve as the primary means of transportation of passengers between the terminals, car rental, and parking areas. The fuel consumption from the remaining diesel buses, which currently operate the landside transport, constitutes around 20 % of the annual fuel consumption, making them evident candidates for replacement with alternatives. The introduction of the 4 electric buses marks the first step, with the remaining 21 buses to be replaced within 2027.

Another part of the fleet to convert is the small vehicles, which are used for inspections, to guide airplanes to and from gates, as well as for various tasks performed by craftsmen, employees, and so on. Individually, the vehicles do not contribute a significant amount of CO_2e. However, as a collective mass, they account for substantial fuel consumption annually. All of these vehicles will be replaced before 2030, with over 80 % replaced by 2027.
However, we also have a large variety of complex, large vehicles, for which a more sustainable solution may not be available at present. Such vehicles include fire trucks, tractors, and trucks in many different variants, configurations, and sizes. Therefore, it is a challenge to plan how to replace these. In the coming years, we will monitor the development of new large vehicles to accommodate the 2030 goals of a net zero fleet. Whether the solution will involve electric, hydrogen alternatives, or less CO_2e-intensive fuels such as HVO (a type of biodiesel derived from hydrotreated vegetable oil), is yet to be determined.

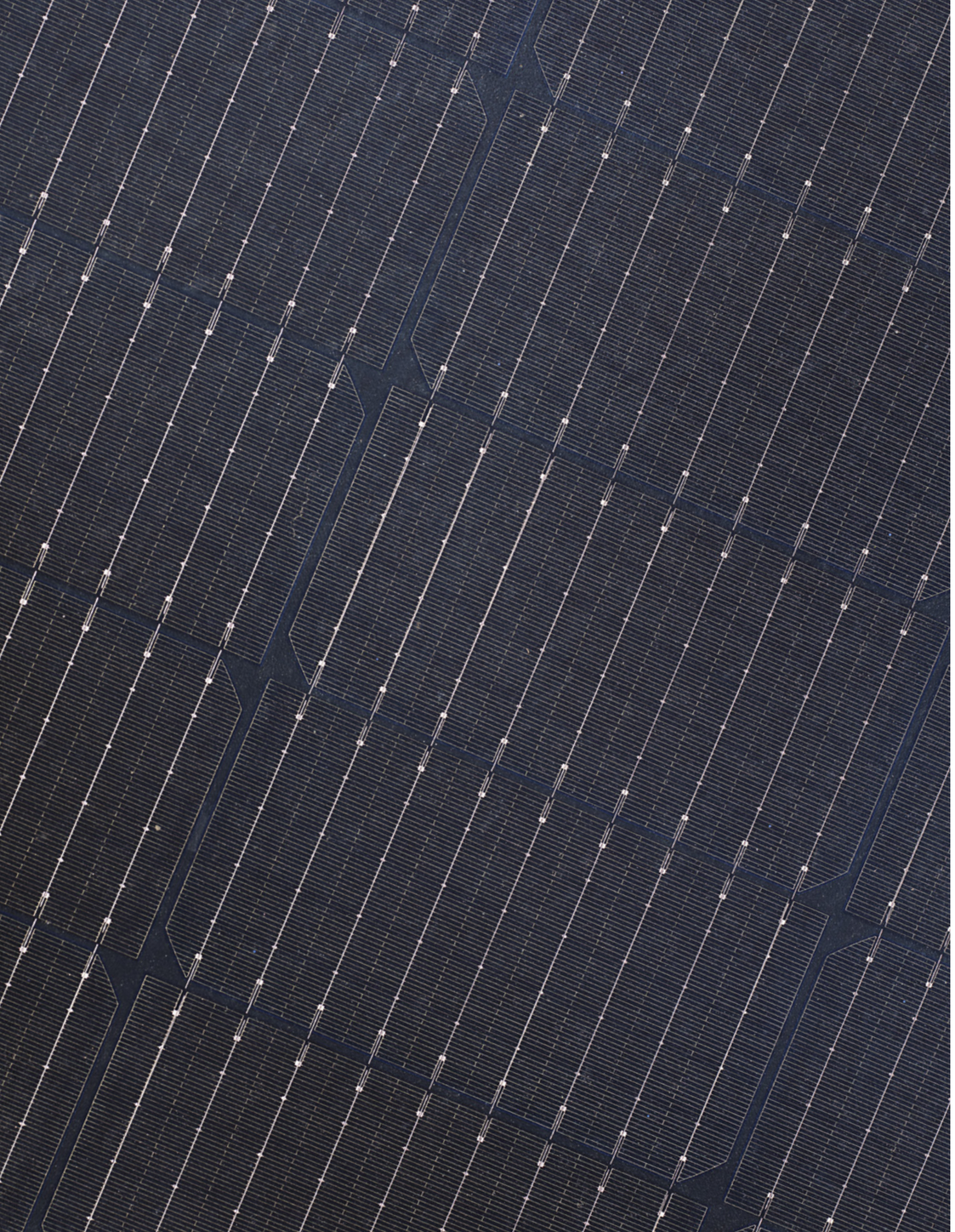
Natural gas and the shift to district heating

Copenhagen Airport is partly heated by district heating and natural gas. Apart from our goals, the district heating supplier and the Danish government has a goal of the district heating to become CO_2-neutral by 2025. Therefore, assuming the aforementioned goal is fulfilled, we will benefit by being considered to have a CO_2-neutral heat supply (as defined by the supplier) from the district heating once all natural gas boilers have been phased out. Natural gas is a significant source of CO_2e emissions and must therefore be addressed by 2030.

In collaboration with Dragør municipality and Tårnby Forsyning, we are currently investigating the possibility to replace the largest gas boiler with a public district heating system in the western area of Copenhagen Airport with the end goal being 2026 at the latest. This initiative will reduce our natural gas consumption by approximately 55 % and will also benefit the surrounding community outside the airport by supplying them with district heating.

The southern area of Copenhagen Airport will also need to be converted to district heating, some of these areas will be more complicated to convert than others, as many of the older buildings and hangars are heated by natural gas boilers. These boilers must either be converted and connected to a shared district heating system or replaced with individual heating systems utilizing heat pumps. The plan for these areas will be determined within the coming years.

When natural gas is phased out in the western and southern areas, only natural gas used for cooking will remain, which accounts for approximately 1 % of the total consumption in Copenhagen Airport today. Despite constituting a minor part of the total natural gas consumption, this too must be completely phased out. A plan for such a transition is still to be developed, potentially involving additional requirements placed in the contracts entered into with tenants in the terminal area, thus completely restricting the use of natural gas.



Scope 2

- Energy optimization
- Net zero electricity supply through renewable energy

Energy Optimization

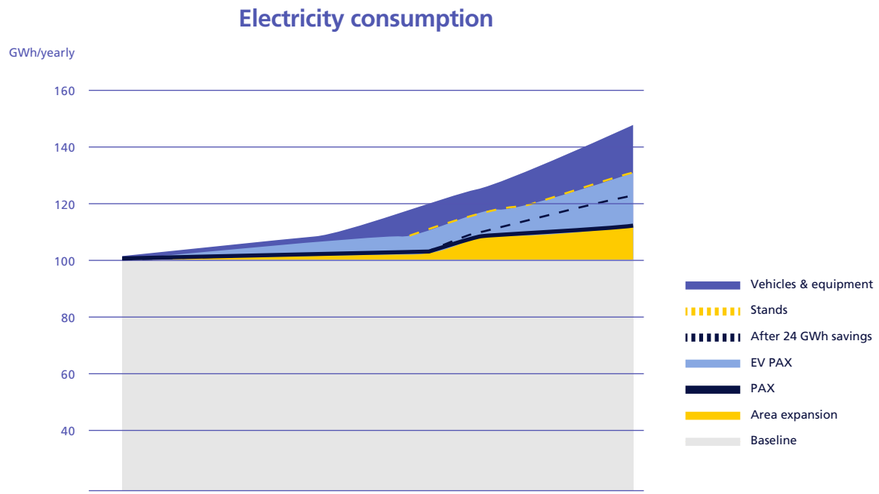
Copenhagen Airport, along with tenants and partners, currently has an electricity consumption of approximately 100 GWh.

By 2030, a significant increase in consumption is anticipated due to the extensive electrification efforts underway, with major additions coming from the transition to electric vehicles within the car fleet, the expansion of charging infrastructure for partners, passengers, and taxis, as well as the construction of new buildings to accommodate the expected passenger growth. All these factors are projected to increase the total electricity consumption in scope 1 and 2 by nearly 50 % by 2030 if left unaddressed, with further increases expected from 2030 to 2050, potentially through the introduction of electric aircraft, which will be further developed upon later

Therefore, we actively work to reduce our energy consumption, and the reduction is an important part of achieving net zero. It will allow for the full optimization of operations and minimize significant expansions of the grid. In 2022, we have set an ambitious goal to save 24 GWh of electricity by the end of 2030. This goal will be achieved through the replacement and optimization of the current assets, such as lighting systems, ventilation systems, and distribution infrastructure, to ensure that consumption does not escalate.

In 2023, we achieved a total electricity saving of just over 3 GWh, mainly through lighting projects where over 5000 luminaires were replaced with associated lighting controls. In 2024, we will finalize the plan for the next 7 years, during which the remaining 21 GWh savings will be realized.

Electricity consumption is expected to rise significantly beyond 2030. Consequently, our efforts will not cease in 2030, ensuring energy-efficient operations through a multitude of optimization projects, will continue.



Net zero electricity supply through renewable energy

Although the primary goal is to minimize energy consumption, it is inevitable that we will need to use significant amounts of energy both now and in the future. By 2030, the expected electricity consumption for both partners and Copenhagen Airport is around 125 GWh after implementing the aforementioned energy-saving measures (24 GWh). Therefore, it is crucial that the electricity consumed at Copenhagen Airport comes from ***renewable energy*** sources to ensure that the current energy-related CO_2e emissions are eliminated.
We have already set a goal to achieve a net zero electricity supply by 2030. The plan for this goal is currently being developed.

Copenhagen Airport has installed approximately 5 MWp of solar capacity on our own premises, covering just under 5 % of the current consumption. We are exploring options to expand our own production on our own premises while also acknowledging the need for investments outside of the properties, potentially through a ***Power Purchase Agreement (PPA)***. Investments outside our properties also make it possible for us to utilize other renewable energy sources, such as wind energy, which is not an option on our own premises due to various reasons, including uncertainties regarding flight safety. Since Copenhagen Airport operates 24/7 year-round, we have a constant demand for electricity. A combination of solar- and wind energy, therefore, fits well with the consumption patterns, and by finding the right balance, production can be maximized when needed most.
Therefore, we are actively exploring the best strategies to achieve the 2030 goal, ensuring a net zero electricity supply while contributing to the additionality of renewable energy sources in Denmark's electricity grid.

Climate compensation

→ Klimate

Klimate

Since 2019, we have compensated for scope 1 and 2 emissions, as well as part of scope 3 accounting for our own business travels, as a step towards eliminating those emissions by 2030. Climate compensation, at its essence, means compensating for own emissions by financially supporting a project, which either avoids a CO_2e emission or actively removes CO_2e from the atmosphere. This support is converted to credits per ton CO_2e, which can then be taken ownership for in the climate accounting. The most essential term here is additionality, which refers to the fact that without third-party funding through the purchase of credits, the given project would not have occurred.

Credits can roughly be divided into two types: avoidance and removal. Avoiding emissions refers, in its simplicity, to supporting projects that ensure the avoidance of CO_2e emissions, which otherwise would have occurred. Removal credits, as the name indicates, remove CO_2e directly from the atmosphere through various methodologies. The simplest is a tree, which through photosynthesis converts CO_2e into oxygen.

We have chosen to move away from avoidance credits and instead invest solely in removal credits. The Danish company, Klimate, will provide the credits, which will cover the financial year of 2024. The credits will be based on two agroforestry projects in respectively, Nepal and India. Agroforestry involves the planting and management of trees in synergy with other crops, in this case, mango, guava, lemon and apple trees will be and have been planted. This method is known to have both positive co-benefits for the surrounding wildlife and ecosystem, as well as socio-economic benefits for the local community.

The actual removal occurs as the trees absorb carbon dioxide from the atmosphere through photosynthesis, and secondly, the trees' roots help to store carbon in the soil.

When choosing to remove CO_2e solely with a nature-based methodology, as opposed to engineered solutions as for example direct air capture, it is crucial to acknowledge the aspect of permanence, which refers to the temporal aspect of CO_2e storage – how permanent the storage is in actuality. The average storage time of such methods is around 30-60 years, for our chosen projects the permanence is estimated at 60 years. Therefore, we aim to increase the share of more permanent methodologies over time, as removal of CO_2e is a necessary part of reaching the set net zero goals and ensuring the stability of the future climate.

Net zero 2050 of total value chain

Beyond the mitigation of our scope 1 and 2 emissions, we must tackle the mitigation of our majority of emission stemming from our scope 3 activities. These efforts have been divided into the transition of aviation primarily through the development and use of alternative propellants, as well as the transition of the airport including aspects such as construction and procurement. All of which will be elaborated upon in this section.

Scope 3

- Transition of aviation
- Transition of the airport

Transition of aviation

For aviation to transition to a less CO_2e heavy industry, it is evident that new technologies must be developed and implemented.

An airport is a key stakeholder in the aviation industry, and the responsibility of airports is especially focused on the services provided and the surrounding infrastructure. In Copenhagen Airport, some of the most crucial elements of the overall shift of aviation is to stay informed, collaborate with stakeholders, and adapt accordingly to the forthcoming transition in the industry. It is important that airports adapt within their own boundaries as well as use their network of the surrounding communities such as handlers, airlines, fuel- and energy suppliers, and so forth. We are dedicated to researching and developing together with the rest of the industry. This also entails following guidelines from ICAO, the EU, and other public bodies. We actively work with and encourage an efficient international regulation of the aviation sector, among things through frameworks supporting the transition. At present, there are three pathways, which we believe to be the main solutions for a transition towards a less CO_2e heavy aviation industry: sustainable aviation fuels (SAF), hydrogen and electric aircraft, all of which will be elaborated upon below.

Sustainable Aviation Fuel

Sustainable Aviation Fuel (SAF) is the commonly used term for jet fuel, as defined by the EU, which, from a sustainability point of view, differs from conventional jet fuel. SAF thus covers a large number of different fuels with different feedstocks and production methods, all of which can be used in aircraft engines. Overall, SAF can be divided into two categories: non-drop-in and drop-in.
Non-drop-in refers to a SAF not compatible with current airplane types. However, the standard for a future non-drop-in SAF is still being developed, and it is unknown whether it will become a reality in the future.

Today, when SAF is mixed with Conventional Aviation Fuel (CAF), it happens in accordance with applicable ASTM standards of which SAF has two relevant standards. ASTM D7566 serves as a specification for jet fuel consisting of synthetic hydrocarbons (including neat SAF, meaning not blended with CAF) and ASTM D1655, which is the standard specification for Aviation Turbine Fuels (Jet A-1), in use since the 1950s. For a fuel to be considered a “drop-in” jet fuel, it must comply with the ASTM standard for Jet A-1 (D1655). ASTM D1655 entails detailed requirements for composition, volatility, fluidity, combustion, corrosion, thermal stability, contaminants, and additives. Currently, 10 to 50 % blending of neat SAF in CAF is allowed, provided that all requirements in the ASTM D1655 standard specification are met. This ensures the fuel is 100 % compatible with all existing engines approved to use Jet A-1 fuel, as well as with existing infrastructure for transport, storage and refueling of Jet A-1. It is expected that this ASTM standard will be updated within the coming years to allow the use of 100 % neat SAF as a Jet A-1 drop-in fuel.

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An example of this can be found in the EU, with the adoption of ReFuelEU Aviation, the EU has set ambitious targets for the share of (neat) SAF in jet fuel at airports located in the EU.

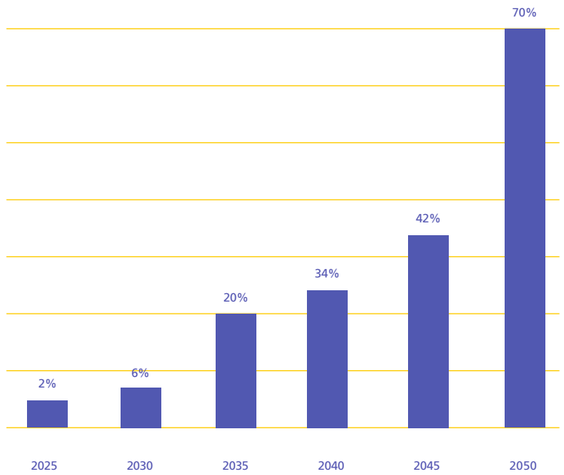
The EU establishes requirements for what constitutes SAF, including the allowable feedstock. Currently, the majority of all SAF is produced using the HEFA technology, which involves converting vegetable oils, including used cooking oils and animal fats, into fuel. This technology could also utilize fatty oils directly from agriculture, such as palm oil, in the SAF production. However, the EU prohibits the use of food sources for fuel production.

Therefore, it is crucial to differentiate between the technologies used to produce compatible fuels (drop-in) according to the ASTM standards, and when it is allowed within the EU to call a synthetically produced fuel for "SAF".

In the future, other production methods will most likely gain traction, paving the way for various types of SAF that can be blended with CAF. Currently, eight different pathways are technically approved in the ASTM D7566 standard, and efforts are underway to expand that number and increase the maximum blending percentage for existing pathways.

It is our responsibility to stay updated on these developments and ensure that we as an airport are equipped to receive, distribute, and refuel the future SAF jet fuel for aircraft at Copenhagen Airport. This is primarily achieved through participation and engagement in knowledge forums and partnerships.

The ReFuelEU aviation regulation



Hydrogen

Another potential future propellant is hydrogen (also commonly called Power-to-X), which will enable air transport without direct CO_2e emissions, but hydrogen is difficult to handle, and ***green hydrogen*** is currently a scarce resource. While other industries have been using hydrogen for decades, it will be a big challenge to secure hydrogen delivery to airports, as well as to store and fill it onto aircraft. This will require the establishment of an entirely new infrastructure along with new equipment for the handling of the propellant.

Hydrogen can be handled either as a gas under high pressure or cooled to a temperature below its boiling point, at which point it becomes a liquid. Both approaches have their advantages and disadvantages, but we expect to see both aircraft fueled with gaseous hydrogen under high pressure and aircraft fueled with liquid hydrogen in the future.

It is expected that the first hydrogen aircraft requiring gaseous hydrogen will enter commercial service between 2025 and 2030, while aircraft requiring liquid hydrogen for refueling will likely be put into use between 2035 and 2040 at the earliest. Regardless of when hydrogen aircraft are ready for operation, the transition will pose significant implementation challenges, as it depends on the development of the necessary technologies for storing, handling and refueling hydrogen on planes. In the most far-reaching forecasts, airports are expected to consume large quantities of hydrogen and enable its use for not only aircraft, but also for large vehicles, ground support equipment, emergency power systems, and so on.

We closely follow technological development and are focused on creating an overall overview of the necessary investments and projects that must be implemented to ensure that we are ready when the first flights arrive.

New aircraft and electrification

This section will focus on the area of electrification, which over the past 10 years has witnessed an increasingly rapid conversion of road transport.

Electric vehicles have major advantages compared to conventional petrol- or diesel-powered vehicles, as they are emission-free, quiet, and often cheaper to operate.

It is predicted that many of the same positive effects will apply to electric aircraft, however they will be particularly challenged by the heavy batteries. Consequently, electric aircraft will have room for a limited number of passengers and will also have a significantly shorter range compared to conventional planes. Nevertheless, the expectation is that there will be routes on which electric aircraft will be the attractive option. Especially in the Nordic region and in areas where road transport is challenged by geographical conditions, such as fjords or islands.

For several years, Copenhagen Airport has worked on the conversion to electric vehicles – where possible – and has thereby gained valuable experience with what is required for the underlying supply and infrastructure. As an airport, it will require the rebuilding of aircraft stands (the area where the plane is parked in front of its gate), as there is not currently a sufficient supply of electricity to charge electric planes. Therefore, future airside planning will include electric aircraft in the master plan, just as future expansions of the electricity supply must consider the increase of electricity consumption.

Image from SAS

*A realization among policymakers and the aviation industry has become apparent: close cooperation is a necessity for the successful transition towards more sustainable aviation. In continuation of the adoption of ReFuelEU Aviation, the need is made even clearer, as the EU and **Fit-for-55** have set a common goal for the industry to reach net-zero by 2050. The regulation from Fit-for-55 will ensure actual impact across the whole European aviation industry, which historically has been hampered by the competing pricing market among airports. It will require bringing all available technologies into play and exploiting their potential as the first new aircraft types become available on the market.*

Projects and partnerships

This section will elaborate on the projects and partnerships in which we are involved. These are crucial parts of the path towards 2050, as they allow for innovation within existing structures and set targets not only for Copenhagen Airport, but as part of a greater collaboration with other stakeholders. Furthermore, collaborations facilitate a space for reflection among fellow airports and enable the sharing of new initiatives or solutions, which is needed to accelerate the transition.

Building successful partnerships across the aviation sector is key to delivering our sustainability goals. Through strategic alliances and dedicated innovation efforts we collaborate and interact with relevant stakeholders across the value chain to solve today's complex challenges which require joint solutions and innovative thinking. Therefore, Copenhagen Airport has in 2024 established its first dedicated unit to develop and facilitate strategic partnerships and innovation. The purpose of this unit is to strengthen our role as a responsible partner and value chain actor and boost systemic and transformative change through strategic collaboration with key actors – an effort which has been deemed crucial to secure competitiveness and ability to be fit-for-future.
As an example of our commitment to working within partnerships and in projects, Copenhagen Airport is the lighthouse airport for the Horizon 2020 project ***ALIGHT***, which will be elaborated below. Additionally, via the ACI, we function as a participant and observer in the EU project AZEA (Alliance for Zero Emission Aviation), which has a major focus on hydrogen as a future propellant. In addition, we are a partner in NEA 2.0 (Nordic Network for Electric Aviation), which includes participation from all the Nordic countries. Besides the participation of Airport Managing Bodies, aircraft manufacturers, interest organizations and airlines are also involved.

To create a synchronized development, it is crucial to collaborate across borders, so that it becomes possible to create a network of electric flight routes in the Nordics, as described above.

Please find an overview of the projects and partnerships in which we participate, all in relation to sustainability and the overall transition of Copenhagen Airport, below.

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ALIGHT

As lead partner, Copenhagen Airport is part of the EU 2020 Horizon project: A Lighthouse for the Introduction of Sustainable Aviation Solutions for the Future (ALIGHT).

The consortium consists of 17 partners who have jointly committed to addressing the challenges of creating a transition in the aviation industry. Spread across 10 different European countries, the ALIGHT partners range from European airports to technology providers and knowledge institutions. Most recently, AIRBUS joined the consortium in 2023, adding valuable perspective of the aircraft manufacturer. The composition of partners and the expertise each partner brings to the consortium is a prerequisite for creating impactful change in the aviation sector. The project is divided into two main focus areas: the supply, implementation, integration and smart use of Sustainable Aviation Fuel (SAF) and the development, integration and implementation of a Smart Energy system. An example of a topic discussed in the ALIGHT forum is SAF: Challenges such as planning the future infrastructure of airports, procurement and ensuring the sustainability of SAF, as it can be made up of many feedstocks with various potential impacts on the environment, are addressed to aid airports in the project itself, as well as other airports that will learn from the project's findings. The smart energy section of the project addresses the full chain of system mapping, energy management, and energy supply, including renewable energy and energy storage.

We have, as part of the smart energy focus, installed a Battery ***Energy Storage System (BESS)*** to gain valuable experience in, for example, the practical implementation of such a system at an airport, as well as how storage can aid in an increase in the use of renewable energy. ALIGHT will identify needed solutions, knowledge, guidelines, and best practice recommendations, as well as replication tools, to aid in the transition of airports. All of this is with Copenhagen Airport as the Lighthouse and will help deliver innovative solutions to our decarbonization goals.

Projects

ALIGHT SUSTAINABLE AVIATION

MISSION GREEN FUELS

European Commission

trace a transition towards circular economy

Green Fuels for Denmark

Partnerships

TÅRNBY KOMMUNE

DRAGØR KOMMUNE

Klima-, Energi- og Forsyningsministeriet

NISA Nordic Initiative for Sustainable Aviation

NORDIC NETWORK FOR ELECTRIC AVIATION

This project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 957824

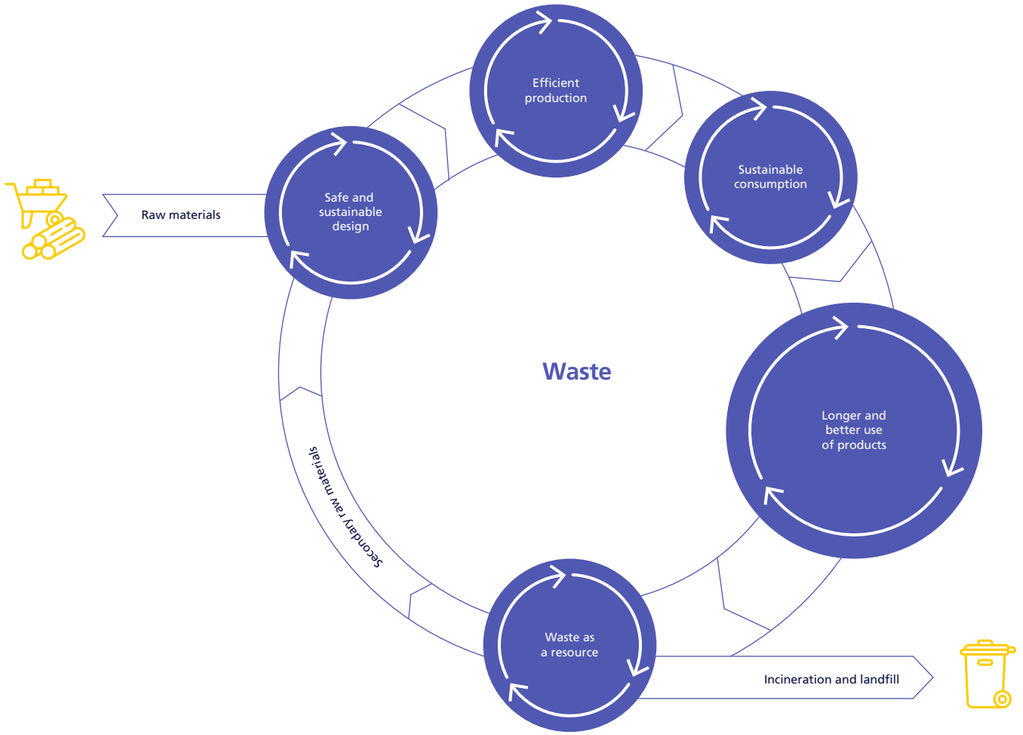
Transition of the airport

Beyond the transition of aviation, we must also transition within all aspects of operations. Therefore, this section of the report will focus on the transition from waste generation towards circularity, procurement and its consequent emissions, the means of transportation by passengers and employees to and from the airport, construction within the airport premises, and lastly, the airport as a smart energy hub.
All the sections combined will provide an overview of how Copenhagen Airport within airport operations will work towards net zero by 2050.

Waste

A part of our transition of the airport operations is the mitigation of our waste, because the processing of our waste leads to CO_2e emissions in scope 3. Therefore, it is also a part of our previously described circularity program. Our waste management system comprises our overall approach to collection, transport, treatment, and disposal of waste. Copenhagen Airport is a complex organization with a corresponding complex waste composition. In general, there are three waste streams in the airport: operational waste, infrastructural waste and aircraft waste, where we currently are responsible for the operational and infrastructural waste.

We are working on mapping the different waste streams that exist. The aim is to provide a better overview of the quantities that lie within the various fractions as well as which area of Copenhagen Airport the waste is generated in. By doing so, we will be able to optimize the way we segregate waste and thereby increase the recycling rate of 60 % in 2030. Thus, securing that as many resources as possible stay in the loop and become secondary raw material, thereby minimizing the need for virgin material.

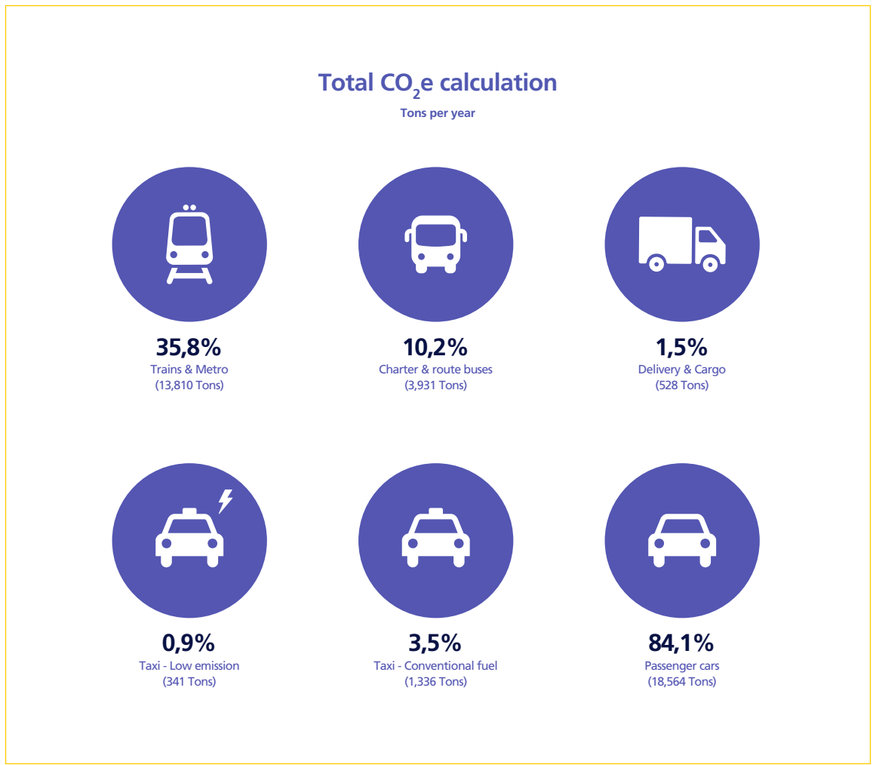


Procurement

We are currently evaluating how to work with procurement across the entire spectrum of sustainability, and expect to have a plan within 2024. The work will be based on different categories that lie within the procurement portfolio, thereby ensuring that the right requirements and criteria are set for each category.

Decarbonization will act as one of a series of parameters that will be assessed. Therefore, it will be evaluated which parameters will count the most for each individual purchase, depending on where to secure the most significant impact.

Procuring goods with particular consideration for environmental aspects is an area for which development is required for Copenhagen Airport to reach net zero by 2050. It accounts for significant parts of the scope 3 emissions and by procuring less CO_2e-heavy goods, we reduce those emissions.



Transportation to and from the airport

Copenhagen Airport is a gathering point for an average of 70,000 passengers, employees, craftsmen, suppliers etc., every day. All these people use different means of transportation to and from the airport, and the consequent CO_2e footprint is therefore important to mitigate. Towards 2030, we are committed to reaching net zero transportation by ensuring solutions with smaller a CO_2e footprint (compared to current options) for all means of transport. In the section below, the different transportation methods and the plan for these will be introduced.

Public transport

The most utilized transportation type to and from Copenhagen Airport is public transportation with an average of around 60 % of people travelling either by train, metro, or bus. The high share of people travelling with public transport is a result of the well-connected train and metro system in Denmark. In planning Copenhagen Airport's design, it has been a focus point to ensure that the connecting train and metro stations are always located in the middle of the airport. This allows for a convenient bridge between the airport and the stations, enabling passengers, employees, and other stakeholders to easily choose public transportation solutions. In the future this will continue to be central for us - ensuring that public transport is an easy choice for passengers and employees.

Private vehicles

Road transport is by far the biggest source of CO_2e emissions and therefore also a focal point to mitigate. Throughout the last two years, we have installed over 400 charging points in parking areas, as well as for Copenhagen Airport and partners' vehicles. The charging points have a consumption of

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over 700.000 kWh yearly. The charging infrastructure is developed through a partnership between Copenhagen Airport and EWII (a Danish energy group). EWII owns and operates the charging infrastructure, and we facilitate the amount and location of the charging points. Around 1350 charging stations will be installed over the next decade, with a mix of both 11 kW AC chargers and DC chargers with a capacity of up to 360 kW. Ensuring this infrastructure is essential for reaching the net zero goal, further it allows for both employees as well as passengers to choose an alternative to a CO_2e heavy transportation type thereby providing a necessary part of the transition overall. Another important segment is the many suppliers, craftsmen, construction vehicles, and so on, who drive to and from the airport every day, most of them in diesel or gasoline vehicles. In order to reach the 2030 goal of net zero transportation, it will be necessary to develop a plan, potentially setting limitations on vehicles driving to and from the airport.

Taxis

Copenhagen Airport is the largest taxi rank in Denmark with around 6,000 taxi rides to and from the airport daily. Therefore, another important initiative is our taxi management system (TMS). The system gives diesel or petrol vehicles less priority in the queue leading to zero-emission vehicles getting up to 25-minutes head start, thus making Copenhagen Airport more attractive to zero-emission taxis. In 2023, approximately 64 % of taxis at Copenhagen Airport ran on electricity or hydrogen with zero emissions. In comparison, just over one in four taxis in Denmark ran on electricity or hydrogen in 2023. Within the next couple of years, the taxi industry in Denmark will have transitioned to only zero-emission vehicles, aligning with our ambitions.

Employee commuting

Copenhagen Airport has 2,600 employees, and 16,000 people are employed throughout the airport. These employees travel to and from the airport much more frequently than any other segment, making it very relevant to make a determined effort to ensure less CO_2e -heavy transportation.

The focus has especially been on our own employees, ensuring that less CO_2e heavy transport solutions are available and optimally conditioned. Fortunately, Denmark is a bicycle-friendly country, and especially urban areas offer conditions for cycling – the same is the case for Copenhagen Airport. However, we are committed to further promote cycling for the employees through different initiatives. For example, we have participated in a Danish bicycle campaign since 2022, where employees can join in teams and compete for the most bicycle days in May. Furthermore, Copenhagen Airport was in 2023 awarded with a silver certification as a “Bicycle-friendly workplace”, becoming the first airport in Scandinavia and one of only four worldwide. Our infrastructure with trains and metro makes it easy to bring a bicycle, and additionally there are good cycle paths to and around the site. This and many other parameters were inspected, such as parking facilities, employee changing rooms, workshops, communication about facilities, bike servicing among others. We are proud to have been awarded a silver certification and are already implementing initiatives and improving facilities, such as two new improved bike-workshops available to Copenhagen Airport employees, to achieve a gold certification in 2024. In addition to promoting bicycling, we also encourage employees to take the easy-accessible public transport and offers discounts on public transport through commuter agreements with DSB, the Danish train services.

Construction

As one of the largest builders in Denmark, it is important that we work in depth with a transition towards a less harmful construction and demolition process. Through the initiative 'Sustainable by Design', LCA (life cycle assessment)-calculations and overall sustainability screenings of new projects have been implemented to ensure that all project managers address this aspect of the construction of new buildings.

The ambition is to designate projects in our portfolio that will act as pilot projects, enabling us to gain practical knowledge on how to build more resource-efficient structures and ensure circularity in the different construction phases. It is one of our most eminent focus areas because the airport is continuously expanding, which undoubtedly has a big impact on our environment. Therefore, we must investigate how construction activities can incorporate a better material option – materials and products that are either reused or recycled – to ensure the greatest possible reduction in CO_2e emissions from our material purchases.

As previously mentioned, work must also be done to ensure an improved demolition process, starting with ensuring that the given building can no longer be renovated to meet Copenhagen Airport standards. Then, the materials must be separated, and the construction waste must be taken to the correct facility and recycled correctly. Furthermore, a closer look must be taken at the design for disassembly so that the products and materials included in the construction process can be used for as long as possible, even when they no longer provide value at Copenhagen Airport. Circularity is ever evolving, and we are committed to joining the journey.

Master planning

Master planning is crucial on the path towards a net zero airport at Copenhagen Airport. One of the key planning principles is development must take place in line with demand to ensure that we build adequately to match the needs of airlines, passengers, and other users of the airport.

When planning for a growing number of passengers, the expansion of terminals must also be taken into consideration. Here, a one-roof terminal strategy is understood as development in extension of the existing terminals, also considered under the current expansion of terminal 3. This allows for development in smaller steps and a reduced total area requirement, approximately a 20 % reduction of physical space taken up, when building in extension of an existing terminal. Generally, planning must include timely decision points to provide options for optimization and digitalization before a new construction process is initiated.

Another major focus area is the planning of the infrastructure of current and future airside operations. The main driver for development of apron, where planes are operated and parked, is to create space for modern aircraft. Our facilities must be designed for efficient airport operation, which would include double taxiways, limiting the number of aircraft turns, and ensuring short distances and so forth.

Towards 2050, the basis for long-term planning of Copenhagen Airport includes high-level area reservation for future fuel facilities, such as planning for storm surges, energy productions, and aeronautical infrastructure etc.

Smart energy usage

A transition requires a visionary approach to airport operations, and at Copenhagen Airport, this transition is a focal point, with testing new and advanced solutions already underway in order to further investigate the potentials for us to operate as a smart energy hub.

The journey is loaded with multifaceted challenges. Additionally, the electrification of the vehicle fleet by 2030 is an enormous task that requires significant electric energy requirements, thereby challenging the existing infrastructure. The emerging technologies not only demand massive amounts of energy for charging, but also present new challenges concerning hydrogen storage, which could potentially escalate power consumption levels. An improved and expanded electricity infrastructure is therefore needed, also entailing a certain amount of flexibility.

The path towards an energy-effective airport operation will be dependent on innovation and efficiency. Therefore, different methods must be tested and tried to best understand what a transition should look like. Such work has already begun at Copenhagen Airport. In 2024, a battery energy storage system (BESS) was put into use. The battery is a pilot project in the aforementioned ALIGHT project, where it will be tested how battery technology can potentially optimize energy storage and distribution by serving different operational needs, as well as facilitate the integration of electric aircraft.

Another important technology is the adoption of smart charging and ***Vehicle to Grid (V2G)*** technologies, which in the future might serve as a part of the Copenhagen Airport's energy grid and ensure flexible energy consumption. Further, the development of microgrid systems offers a promising chance for energy self-sufficiency and optimization. Such systems are made up of several components: one or more types of electricity generating units, systems for storing energy, and management systems designed to oversee and regulate the activities of the microgrid's components, all to ensure operations are both efficient and dependable. By producing and smartly distributing electricity, we can significantly reduce energy consumption during peak times, enhancing security of supply and operational efficiency.

Over the next years, we will continue to focus on navigating the complexity of implementing new technologies with infrastructure requirements like the aforementioned BESS, smart charging, V2G, microgrids, and renewable energy as a whole. These initiatives need strategic planning and substantial investment but showcase the possibility of a new era within airport operations.

4 Closing remarks

Due to our diverse and cross-sectoral position, airports play a significant role in the decarbonization of aviation. We believe that by adopting the approach presented in this plan we will be one step closer to a better and less CO_2e-heavy airport. Simultaneously, we aim to support our stakeholders on their journey towards a better future, by involving and engaging our entire value chain such as airlines, suppliers and researchers.

We must collaborate with all of our stakeholders to find new solutions that will help us all in the challenge we face, as we cannot solve this challenge alone. Within the next couple of years several of the initiatives presented in this plan will be implemented. However, we understand the complexity of the transition, and many of the areas will require further development and maturation before implementation.

We acknowledge the challenges we are facing and will face in the transition towards something better and more sustainable. The aviation industry has and will continue to have a significant impact on our environment, and navigating this demands that we think outside the box, are innovative, and ambitious.

Beyond that, a transition will require investments from all stakeholders involved, but most importantly it will be required by Copenhagen Airport. We must be part of the solution and thus hold the ability to provide the infrastructure needed for future alternatives. It is an exciting journey that we will embark on, and one we take seriously!

Maria skotte
Chief Sustainability Officer at Copenhagen Airport

Glossary

CSRD: The Corporate Sustainability Reporting Directive (CSRD) entered into force in January 2023. This EU legislation sets forth new transparency requirements for companies within a defined scope to report on their activities' impacts, risks and opportunities within the areas of environment, social and governance. The CSRD Annex I comprises of 12 standards, where 5 of these standards relate to a company's environmental impacts, risks and opportunities: E1 Climate change, E2 Pollution, E3 Water and marine resources, E4 Biodiversity and ecosystems, and E5 Resource use and circular economy.

FIT-FOR-55: Fit for 55 refers to the EU's target of reducing net-greenhouse gas emissions with minimum 55 % by 2030. The purpose of fit-for-55 is to ensure that EU regulation is aligned with such a 2030 goal.

GREEN HYDROGEN: Green hydrogen is primarily produced by splitting water (through water electrolysis) using electricity generated from renewable energy sources. The green relates to the lack of CO_2e emissions associated with the hydrogen production nor with its usage.

GREY HYDROGEN: Grey hydrogen is produced from fossil fuels, during the process, CO_2e produced and eventually released to the atmosphere.

HEFA: Hydrotreated Esters and Fatty Acids (HEFA) refines vegetable oils, waste oils, or fats into SAF through a process that uses hydrogen (hydrogenation)

ICAO: The International Civil Aviation Organization is organized under the United Nations and works to create uniform standards for legislation surrounding aviation within the member states.

IPCC: The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change.

MITIGATION: In the context of this paper the concept refers to the efforts relating to the reduction or elimination of greenhouse gas emissions or other harmful activities impacting the environment.

NET ZERO: Net zero is defined as the greenhouse gases (GHG) emitted to the atmosphere being balanced by removal of corresponding amount of GHGs from the atmosphere.

NON CO_2 EFFECTS: Refers to the creation of contrails (frozen water vapor) that may have a local warming or cooling effect.

PFAS: PFAS is a group of chemicals that are used in a number of industries and products, including firefighting agents, Teflon products and some food packaging. PFAS substances are a concern because they are highly durable and can accumulate in the environment and the body.

PLANETARY BOUNDARIES: The planetary boundaries consist of 9 boundaries and here within illustrates what is a safe operating space for humans as well as the areas in which it is no longer considered a safe operating space, the latest version showcased that 6 out the 9 boundaries have been breached.

PPA: A power purchase agreement (PPA) is a direct contract between corporate companies and an electricity supplier, ensuring a certain amount of energy at a fixed price directly linked to a renewable energy plant.

RENEWABLE ENERGY: Renewable energy is energy stemming from natural sources which replenishes quicker than they are consumed, for example energy derived from sunlight og wind both sources constantly being replenished.

SAF: Sustainable Aviation Fuel (SAF) is the commonly used term for jet fuel, which from a sustainability point of view, differs from conventional jet fuel. SAF thus covers a large number of different fuels with different feedstocks and production methods, all of which can be used in aircraft engines.

VEHICLE TO GRID: electric vehicles that, beyond being powered by electricity, also is equipped with technology to deliver electricity back to the grid.

6 Acknowledgements

This plan illustrates the huge amount of work our sustainability department is continuously doing from shifting diesel vehicles to electric alternatives, to broadening the importance of circular economy and nature, and following the development of alternative propellants of future aviation to name a few.

Further, a big thank you to all our dedicated colleagues beyond our sustainability department, who have contributed to this plan with their knowledge and valuable insights, showcasing that this plan is a collected effort from all of Copenhagen Airports.

Copenhagen Airports