

## CO2 footprint report in 2024



### **The relevance of CO2 footprint accounting on a global scale and its benefits for organizations**

CO2 footprint accounting is the process by which the amount of carbon dioxide (CO2) and other greenhouse gases (GHG) emitted by an organisation or activity into the atmosphere is calculated. In view of the global challenges of climate change, CO2 footprint accounting has become an essential tool for both national and international efforts to reduce climate change and achieve long-term environmental goals.

### **The global challenge of climate change**

Climate change is one of the greatest threats to humanity and nature of our time. Global climate changes, such as temperature rises, sea level rises, extreme weather phenomena, directly affect human living conditions and ecosystems. In order to prevent these negative changes, many countries and organizations have committed themselves to reducing their GHG emissions and contributing to the world's goal of keeping the global average temperature below 1.5°C above pre-industrial levels. This is also enshrined in the Paris Climate Agreement, in which the parties agreed to achieve the net zero emission target and ensure global climate stability.

### **The importance of CO2 footprint accounting for organizations**

Co2 footprint accounting helps organizations determine how much greenhouse gas they emit through their activities and what sources contribute to these emissions. This allows organizations to:

1. **Identify sources and priorities for emissions** – Understand which areas of activity or processes generate the greatest amount of CO2 emissions, and this helps to make informed decisions about where measures should be taken to reduce emissions.
2. **Implement effective emission reduction measures** – The data collected can lead to the development of strategies and action plans to reduce the CO2 footprint, e.g. by optimising energy use, switching to renewable energy sources, improving transport logistics and production processes.
3. **Comply with legal requirements** – Modern legal systems are increasingly focusing on environmental obligations. CO2 footprint accounting helps organizations comply with these requirements and avoid possible legal sanctions.
4. **Improve reputation and competitiveness** – Companies that are active in reducing their carbon footprint often have a better reputation among consumers and partners. This can help you gain a competitive advantage and attract responsible investors.
5. **Reducing costs and increasing efficiency** – CO2 reduction is often associated with increasing energy efficiency and saving resources. This not only contributes to environmental protection, but also reduces costs for enterprises.

6. **Carry out assessment and evaluation of progress** – Consistent monitoring and assessment of the CO<sub>2</sub> footprint allows organisations to measure their progress and achieve their targets for reducing emissions. It also allows you to account for obligations with interested parties and partners.

### Achieving climate targets

The global climate target of keeping the temperature below 1.5°C above pre-industrial levels can only be achieved by consistently reducing greenhouse gas emissions. Countries and organisations need to work together to contribute to this goal, and the accounting of the CO<sub>2</sub> footprint is an important tool for achieving this goal. It helps to identify where and how emissions can be reduced, ensuring that the impact of climate change is minimised.

Co<sub>2</sub> footprint accounting is not only an environmental tool, but also a strategic tool for organizations seeking to effectively contribute to the fight against climate change. Correctly and consistently carried out accounting of the CO<sub>2</sub> footprint helps organizations not only to reduce their emissions, but also to achieve sustainable growth, increase efficiency, improve reputation and contribute to the achievement of global climate goals.



### Principles for calculating the CO<sub>2</sub> footprint

The accounting of the CO<sub>2</sub> footprint is an important step for organisations and national authorities to understand their environmental impact and reduce greenhouse gas (GHG) emissions. This makes it possible to assess how much carbon dioxide (CO<sub>2</sub>) and other greenhouse gases are emitted from various activities and to take action to reduce this footprint.

### Methods for accounting for the CO<sub>2</sub> footprint

The accounting of the CO<sub>2</sub> footprint can be carried out in several ways, but the most commonly used method is to determine the total amount of CO<sub>2</sub> emitted by various activities of the organization. These include the following sources:

1. **Energy consumption** – Includes both the direct use of energy (e.g. heating fuel, electricity consumption) and indirect energy use (e.g. energy used in the production of suppliers).
2. **Transport** – This includes both the company's vehicles and the transportation of goods and employees. Emissions here depend on the type of transport (cars, ships, airplanes) and distances.
3. **Food production** – Agriculture and food production are a significant source of greenhouse gases, including emissions from agricultural activities, fertiliser use, animal husbandry and food processing processes.
4. **Waste management** – This includes emissions related to waste disposal, recycling and landfills, as these activities often emit methane (CH<sub>4</sub>) and other greenhouse gases.
5. **Other processes** – This may include production or service delivery processes that use chemicals, industrial processes, construction, etc.

## International standards and methodologies

The accounting of the CO2 footprint on a global scale is based on international standards and methodologies that ensure consistency and reliability in the assessment of GHG emissions. These standards set out common principles and methodologies for the assessment and accounting of emissions.

**The GHG Protocol**, the Global Greenhouse Gas (GHG) Protocol, is also the main international standard for the assessment and accounting of emissions. The GHG Protocol includes the Greenhouse Gas Protocol Initiative, developed by global organizations as the World Resources Institute and the World Business Council for Sustainable Development. This protocol distinguishes three types of emissions:

- **Scope 1:** Emissions arising from the organization's direct activities, such as the use of fuel.
- **Scope 2:** Emissions arising from the energy purchased (e.g. electricity).
- **Scope 3 (indirect emissions related to supply and supply chains):** Emissions related to the supply chain, transportation of goods, travel of employees, etc.

**IPCC Methodologies** – The International Commission on Climate Change (IPCC) also provides methodologies and guidelines for accounting for greenhouse gas emissions that can be used at both national and organizational level.

## Benefits and benefits

CO2 footprint accounting has a number of advantages for both organizations and the global environment:

- **Identification of emission sources:** Accounting allows organizations to identify the largest sources of emissions and make appropriate decisions to reduce these emissions.
- **Legal obligations:** Given the increasing international and national requirements of climate change, CO2 footprint accounting allows organizations to comply with the law and comply with international standards.
- **Improving reputation:** Organizations that effectively reduce their carbon footprint are often seen as responsible and sustainable, which can increase their competitiveness.
- **Achieving sustainability goals:** CO2 footprint accounting helps organizations achieve their sustainability goals by reducing environmental impacts and contributing to global climate goals.

CO2 footprint accounting is an important tool to help organisations and national authorities better understand their environmental impact and take action to reduce greenhouse gas emissions. International standards such as ISO 14064 and ghg protocol ensure that accounting is carried out consistently and in accordance with best practices. Properly performed accounting of the CO2 footprint not only contributes to the reduction of climate change, but also helps organizations improve their efficiency, reputation and legal compliance.



## CO2 emissions from refrigeration equipment

R-407C is a mixture of hydrofluorocarbons (HFC), widely used as a refrigerant in various industries and refrigeration systems. This is one of the alternatives to the previously widely used R-22, which was known for its negative effect on the ozone layer. Although the R-407C does not cause direct damage to the ozone layer, it can still affect climate change due to its heat potential, but is considered lower than some other refrigerants.

### Features of R-407C

**Lower Global Heat Potential (GWP):** The R-407C GWP is lower than the R-22, which means it contributes less to climate change than some other refrigerants. This makes the R-407C an attractive choice to reduce the influence of industry on greenhouse gases.

**Efficiency and energy savings:** The R-407C has better refrigeration efficiency than some older refrigerants, thus helping to reduce energy consumption while reducing CO2 emissions. This is an important advantage, since reduced energy consumption contributes not only to lower costs, but also to environmental protection.

**Wide use:** The R-407C is used in many refrigeration units and systems, including commercial refrigerators, air conditioners, and industrial refrigeration systems. Due to its properties, it is suitable for use both in existing systems and in new devices that require less impact on the climate.

**Environmental protection and regulation:** The R-407C meets the environmental requirements of the European Union and other regions of the world to reduce greenhouse gas emissions. However, it still has its own GWP, so even more effective and less effective alternatives may be sought in the future.

### Environmental advantages

Although the R-407C is not completely environmentally friendly, it has significant advantages over its predecessors, such as the R-22.

#### The most important of them are:

**Less impact on climate change:** The lower GWP R-407C generates lower greenhouse gas emissions throughout the life cycle of the refrigeration system.

**Improved energy efficiency:** More efficient refrigeration reduces energy demand, which in turn reduces carbon dioxide emissions, as many countries still use fossil fuels to produce energy.

## Future trends

Although the R-407C is currently one of the most used alternatives to the R-22, in the long run it can be replaced by even more sustainable refrigerants. This may be related to further reductions in GWP to meet the increasingly stringent

climate change control requirements, including those imposed by the Paris Agreement and the environmental laws of other countries. Some of the currently popular alternative refrigerants, such as the R-32, have an even lower GWP and a lower impact on the climate.

The R-407C is an important refrigerant that helps reduce the effects of climate change compared to older refrigerants such as the R-22. Its use contributes to lower energy consumption and CO<sub>2</sub> emissions, but it is still necessary to monitor its environmental impact and the possible future transition to even more sustainable alternatives.

Mark	Quantity	Kill	Total CO <sub>2</sub> , t
R407C	0,001	†	0,68



## CO<sub>2</sub> emissions from mobile sources

The use of mobile sources of pollution, such as vehicles and machinery, is one of the main reasons for air pollution and increasing greenhouse gas (GHG) emissions worldwide. This is a serious environmental challenge, as the transport sector is responsible for a large proportion of the CO<sub>2</sub> emissions that contribute to climate change and global warming.

### Examples of mobile sources of pollution:

Cars and trucks are one of the main mobile sources of pollution, especially in cities where vehicles emit HIGH levels of CO<sub>2</sub> and other pollutants such as nitrogen oxides (NO<sub>x</sub>) and particles. Cars with internal combustion engines account for the bulk of these emissions.

Trains – Although some trains use electricity, many of them are still powered by internal combustion engines that emit CO<sub>2</sub> and other pollutants. The transit services sector and rail freight transport can also make a significant contribution to greenhouse gas emissions.

Ships – The shipping industry, especially the transportation of goods in international oceans, is a major source of pollution. The internal combustion engines of ships emit CO<sub>2</sub>, sulfur dioxide (SO<sub>2</sub>) and other harmful substances that not only pollute the air, but also water bodies.

Airplanes – The aviation industry is also a significant source of CO<sub>2</sub>, especially commercial flights that emit greenhouse gases into the atmosphere using large amounts of fuel. Airplanes also emit other pollutants, such as nitrogen oxides, which contribute to the destruction of the ozone layer and climate change.

### The impact of mobile sources of pollution on climate change:

1. **CO<sub>2</sub> emissions and the greenhouse effect:** CO<sub>2</sub> is a key component of greenhouse gases. It absorbs heat in the atmosphere and leads to a rise in temperature, which leads to climate change. Emissions from mobile sources of pollution directly contribute to this process.

2. **Nitrogen oxides (NOx) and the ozone layer:** Nitrogen oxides, which are also emitted from internal combustion engines, can react with other substances in the atmosphere and form ozone, which is harmful to both human health and the environment. Ozone also contributes to the greenhouse effect.
3. **Particles and air quality:** Vehicles, especially older models, emit particles (PM2.5 and PM10) that are harmful to the respiratory system and can cause various health problems. Particles also contribute to air pollution, having a prolonged effect.
4. **Global warming:** Emissions from mobile sources contribute to global warming. Increasing concentrations of CO2 in the atmosphere are driving up the average global temperature, causing extreme weather events, glacier melting and sea level rise.

## Solutions and opportunities to reduce the impact of mobile sources of pollution

1. **Promoting electric and hybrid vehicles:** Electric cars and hybrid cars use less fuel, emit less CO2 and other pollutants, so the transition to these technologies can significantly reduce pollution.
2. **Green energy and alternative fuels:** The shift from internal combustion engines to electric motors and the use of renewable energy sources (e.g. solar and wind energy) can further reduce the environmental impact of the transport industry. Alternative fuels such as biodiesel or hydrogen can also be a source of lower pollution.
3. **The development of public transport:** The public transport system, especially when powered by electricity, can help reduce the number of car journeys and contribute to reducing pollution in cities. The promotion of public transport and joint transport can reduce CO2 emissions and improve air quality.
4. **Tightening pollution norms and regulations:** In different countries, governments are implementing increasingly stringent standards on how cars and other vehicles must meet emission limits.

The use of mobile sources of pollution, such as cars, ships, airplanes and trains, is a major challenge in the fight against climate change. This is one of the main causes of greenhouse gas emissions, such as CO2. However, there are many ways to reduce this pollution, including the introduction of new technologies, the use of alternative fuels, the promotion of public transport and stricter legislation. In order to reduce greenhouse gas emissions and combat climate change, it is necessary to actively seek and apply these sustainable measures.

Type	Quantity	Measure	Total CO2,t
Petrol	18,22	†	39,91
Diesel	17,83	†	44,75

## CO2 emissions from electricity generation

Electricity generation is an important source of greenhouse gas (GHG), including CO2 emissions. It depends on the energy sources used, each of which has a different impact on the environment. The most important factor contributing to CO2 emissions is the choice between fossil and renewable energy sources.



## **Fossil fuels and high CO2 emissions**

The production of electricity using fossil fuels such as coal, gas and oil is one of the main sources that contribute to CO2 emissions. These resources are mainly associated with high greenhouse gas emissions due to the process of their combustion:

**Coal:** Generating electricity from coal is one of the most polluting because coal has the highest carbon emissions per unit of energy. Also, carbon combustion releases a large amount of particulate matter, nitrogen oxides (NOx) and sulfur dioxide (SO2), which have a negative impact on both health and the environment.

**Oil:** Oil combustion also causes high CO2 emissions and has many environmental problems, including air pollution and water contamination. Oil is also a limited resource, and its use in the production of electricity is inefficient.

**Natural gas:** Although natural gas produces lower CO2 emissions than coal and oil, it still contributes to the greenhouse effect. However, gas is a more flexible means of generating energy, so its use is still widespread, but is also reduced by the transition to cleaner sources.

## **Use of renewable resources and reduced CO2 emissions**

The use of renewable sources in the production of electricity, such as wind, sun, biomass and hydropower, allows to significantly reduce CO2 emissions:

**Wind power:** Wind turbines produce energy without direct CO2 emissions, making them one of the most environmentally friendly and sustainable technologies for energy production. Wind energy has become one of the main sources for the transition to low-carbon energy production.

**Solar energy:** Solar energy also does not cause direct CO2 emissions. Solar power plants use sunlight to generate electricity, and this is one of the fastest growing sources around the world. Solar energy is especially effective in regions with a lot of sunlight.

**Biomass:** Biomass, such as wood, plants or organic waste, can be used to generate electricity. Although the combustion of biomass causes a certain amount of CO2 emissions, it can be considered CO2-neutral, since plants absorb CO2 from the atmosphere during their period of growth. Thus, when biomass is burned, the amount of CO2 emitted is balanced with what the plants have absorbed.

**Water energy:** Hydroelectric power plants use the energy of running water to generate electricity. Nor do they cause direct CO2 emissions, but may have other environmental challenges, such as ecosystem disruption and fish migration barriers.

## **Nuclear energy and its impact on CO2 emissions**

Nuclear energy is another source that does not cause direct CO2 emissions. Nuclear power plants use nuclear reactions to generate electricity, and this process does not require combustion, so CO2 is not released into the atmosphere.

However, although nuclear energy does not cause CO2 emissions, it has other environmental and safety problems, such as:

**Radioactive waste:** Nuclear energy creates radioactive waste that needs to be safely stored for thousands of years.

**Nuclear safety challenges:** The operation of nuclear reactors has the potential to cause catastrophes, as was the case with Chernobyl and Fukushima.

**High infrastructure and maintenance costs:** Nuclear power plants require significant investments and constant maintenance.

Electricity generation, depending on the source, can have very different effects on CO<sub>2</sub> emissions and climate change. The use of **fossil resources**, such as coal, oil and natural gas, generates significant CO<sub>2</sub> emissions, which contributes to the greenhouse effect and global warming. **Renewable resources** such as wind, sun, biomass and water energy contribute to lower emissions and are more sustainable. **Nuclear energy**, although it does not cause CO<sub>2</sub> emissions, poses other environmental and safety problems. In order to combat climate change, it is necessary to switch to cleaner energy sources and reduce the use of fossil fuels.

Type	Quantity	Matt	Total CO <sub>2</sub> , t
Electricity	1163,18	MWh	697,91
Green electricity	94,2	MWh	1,7



## CO<sub>2</sub> emissions from gas energy production

Natural gas is a hydrocarbon gas extracted from the subsoil, which is often used as a source of energy, as well as a raw material in industry (e.g. in the production of fertilisers, plastics, petroleum products). Although natural gas is considered to be a "cleaner" fuel compared to coal and oil, its extraction, processing and transportation still generate CO<sub>2</sub> emissions, since these processes often require energy from other sources, including fossil fuels.

### The process of extracting natural gas and its impact on CO<sub>2</sub> emissions

The extraction of natural gas includes several stages: drilling, extraction, transportation and processing. Each of these stages can contribute to CO<sub>2</sub> emissions.

**Drilling and extraction:** The process of drilling natural gas often requires equipment that works with internal combustion engines or other energy sources that can emit CO<sub>2</sub>.

Modern technologies, like hydraulic fracking, can also lead to additional emissions, since this method often requires a large amount of energy and the use of chemicals that can lead to both direct and indirect CO<sub>2</sub> emissions.

**Gas transportation:** After extraction, natural gas often has to be transported over long distances. The transport of gas pipelines, tankers or gas carriers requires energy, which is often obtained from other fossil sources (e.g. oil, gas, coal), so it can also lead to CO<sub>2</sub> emissions.

Losses of gas pipelines (due to gas leaks) also contribute to greenhouse gas emissions, since, although methane (CH<sub>4</sub>) is the main component of natural gases, it has a much higher greenhouse effect than CO<sub>2</sub>.



**Processing and cooling:** Gas treatment involves their purification, during which impurities are removed, as well as refrigeration processes so that the gas can be stored as a liquid product (liquefied natural gas - LNG). These processes can also require a large amount of energy, most often fossil fuels, which causes CO<sub>2</sub> emissions.

### **Factors determining co<sub>2</sub> emissions at the time of extraction:**

#### **1. Type and composition of gas:**

- **Extraction of different types of gas** can lead to different emissions. For example, **condensed natural gas** (natural gas with a higher carbon content) emits more CO<sub>2</sub> than "cleaner" natural gas, which has more methane and less carbon.

#### **2. Extraction technologies:**

- **Hydraulic fracking** and **deep drilling** can lead to higher emissions, since these methods often require a large amount of energy and can lead to methane leaks.
- **Traditional drilling** reduces these emissions, but still uses internal combustion engines that emit CO<sub>2</sub>.

#### **3. Ways of transportation:**

- **The transportation of gas pipelines** usually leads to lower emissions compared to **the transport of tankers** or **gas carriers**, but leaks that occur during the transportation of gas can lead to both CO<sub>2</sub> and methane emissions.

#### **4. Processing technologies:**

- **Energy sources** used for gas treatment and liquefaction have a significant impact on CO<sub>2</sub> emissions. If processing processes use fossil fuels (e.g. coal or natural gas), CO<sub>2</sub> emissions can be significantly higher.

### **Measures to reduce CO<sub>2</sub> emissions**

#### **1. Cleaner energy sources:**

- When switching to **renewable energy sources** such as solar, wind or biomass, natural gas can be used as a transitional energy, reducing CO<sub>2</sub> emissions during the use of fossil fuels.

#### **2. Effective technologies:**

- New, low-energy technologies and processes that reduce energy consumption during drilling, transportation and processing can reduce CO<sub>2</sub> emissions.

#### **3. Collection and use of methane:**

- Collection and the use of **methane (CH<sub>4</sub>)**, which is a stronger greenhouse gas, or the reduction of its leakages during the transportation and processing of natural gas, can significantly reduce emissions of all greenhouse gases.

#### **4. Carbon absorption technologies:**

- Carbon absorption and storage (CCS) technologies can be used to reduce CO<sub>2</sub> emissions from natural gas extraction and other industrial processes. They capture and store CO<sub>2</sub> so that it does not enter the atmosphere.

Although **natural gas** is often considered to be a cleaner fuel than coal and oil, its extraction and use still generate **CO2 emissions** depending on the extraction, transport and processing technologies. CO2 emissions from natural gas extraction can be reduced through more efficient technologies, the integration of renewable energy sources and the control of methane leaks. At the same time, it is very important to switch to cleaner energy sources in order to combat climate change and reduce emissions of all greenhouse gases.

Type	Quantity	Matt	Total CO2, t
Gas	400,818	MWh	68,14



## CO2 emissions from the water used to extract the water used

Water extraction is an indispensable process that is used both for drinking water and for industrial purposes. Although water in itself does not have a direct impact on the greenhouse effect, **CO2 emissions** can be caused by technologies and energy sources used to extract water. Different extraction technologies and energy sources can have very different environmental impacts, so it is important to evaluate these aspects.

## Water extraction technologies and energy sources

### 1. Stationary and mobile means of water extraction:

- **Stationary systems**, such as large pumping stations, are usually used for continuous evaporation of water from surface or underground bodies. They often work with **electric motors**, which may require a large amount of energy, depending on the depth and amount of water.
- **Mobile devices** used for smaller projects can operate with **diesel engines** that can emit CO2 and other pollutants into the environment.

### 2. Energy sources and their impact on emissions:

- **Electrical energy**: If electricity is used to extract water, the amount of emissions depends on whether this energy comes from **renewable energy sources** such as wind, sun, or from **fossil fuels** such as coal or gas. If renewable energy is used, CO2 emissions will be lower, but if energy comes from coal or oil, emissions will be more significant.
- **Diesel fuel**: If diesel engines are used to extract water, this can lead to **direct CO2 emissions**, since diesel is a fossil fuel, the combustion of which emits a large amount of greenhouse gases.
- **Solar and wind energy**: The use of **renewable energy sources** (e.g. solar or wind energy) can significantly reduce CO2 emissions, as these sources do not generate direct emissions. It also contributes to the long-term reduction of climate change by promoting sustainable water extraction.

## CO2 emissions depend on the following factors:

### 1. Water extraction method:

- **Drilling for underground water sources** or **pumping** from deep sources requires higher energy costs, since pumps have to overcome higher pressure, which can lead to a higher amount of CO<sub>2</sub>.
- **Pumping surface water bodies** usually requires less energy, but can still cause emissions depending on the energy sources used.

## 2. Suction power and frequency:

- If the extraction of water occurs intensively and often, this increases the total amount of energy consumption, which will lead to **higher CO<sub>2</sub> emissions**. Less intense and seasonal water extractions can lead to lower emissions.

## 3. Technology efficiency:

- The use of more efficient and less energy-intensive **pumping technologies** (e.g. modern motors or more efficient pumps) can reduce CO<sub>2</sub> emissions by means lower energy consumption.

## Measures to reduce CO<sub>2</sub> emissions

### 1. Use of renewable energy sources:

- By switching to **solar** or **wind energy**, CO<sub>2</sub> emissions from the water extraction process can be significantly reduced.

This is especially important in areas where there can be a lot of potential for solar or wind energy, and where there is no high need for energy.

Type	Quantity	Mat	Total CO <sub>2</sub> , t
Water	1714	m <sup>3</sup>	0,5

### 2. More efficient pumping devices:

- By investing in **more efficient pumping technologies**, it is possible to reduce energy consumption, and at the same time CO<sub>2</sub> emissions. This includes the use of energy-saving pumps and motors, as well as better optimization of water supply and extraction.



### 3. The transition to more sustainable energy sources:

- **The transition from diesel to power plants**, especially with the use of green energy, can significantly reduce CO<sub>2</sub> emissions from water extraction plants.

### 4. Water saving and optimization:

- If the extraction of water is reduced through more efficient use and **spent water**, it is possible to reduce the total extraction, as well as the associated emissions.

Water extraction can have a significant impact on CO<sub>2</sub> emissions, but emissions can be reduced through efficient technology, clean energy and good water management. The use of renewable energy sources, such as solar and wind energy, can significantly reduce CO<sub>2</sub> emissions and contribute to reducing climate change.

Improving water extraction and energy efficiency is an important step towards the sustainable management of water sources.

## CO2 in waste management

Waste and its management have an important impact on the environment, as many waste management methods emit **CO2** and other greenhouse gases that contribute to **climate change**. CO2 emissions depend on the type of waste, the way it is handled and the technologies used. Thus, waste management efficiency and sustainable methods can significantly reduce CO2 emissions.

### Waste management techniques and their impact on CO2 emissions

#### 1. Recycling:

- **Recycling** reduces the energy needed to produce new products, which can lead to **lower CO2 emissions**. For example, recycling paper, metals, plastics and glass avoids the extraction of new raw materials, which require a large amount of energy and create higher emissions.
- **Advantages:** Reduces the amount of waste in landfills, saves natural resources, reduces greenhouse gas emissions.
- **Disadvantages:** Some types of waste can be difficult to recycle, and certain recycling processes can still emit CO2 (e.g. recycling metals often requires high temperatures, which can lead to emissions).

#### 2. Composting:

- **Composting** is used for the processing of organic waste, such as food and plant materials. This process is naturally formed by the activity of microorganisms and often does not lead to high CO2 emissions, but it can release methane (CH<sub>4</sub>), which is a powerful greenhouse gas.
- **Advantages:** Promotes soil improvement, reduces waste and reduces CO2 emissions by not creating a high energy demand.
- **Disadvantages:** If the composting process is not properly managed (e.g. insufficient oxygen supply), methane may be released, which contributes to climate change.

#### 3. Burning:

- **Waste incineration** is the process by which waste is incinerated at high temperatures, usually for the purpose of energy production. It can be used for the production of both heat and electricity.
- **Advantages:** Incineration reduces the amount of waste, which reduces the load on landfills. In addition, certain wastes can be used for energy production, which can help reduce the use of other sources (e.g. fossil fuels).
- **Disadvantages:** Incineration of waste releases CO2 and other pollutant gases that can be harmful to the environment and human health, so it is necessary to use high-quality filtration systems. CO2 emissions depend on the composition of the waste and the efficiency of combustion.

#### 4. Landfills:

- **Landfilling** is one of the traditional methods of waste management, where waste gradually decomposes and releases **methane (CH<sub>4</sub>)**, a powerful greenhouse gas. While CO<sub>2</sub> can also be emitted, methane is much more dangerous because of its impact on the climate.
- **Advantages:** This is a simple and cheap method, but it does not help to solve long-term environmental problems.
- **Disadvantages:** Methane from landfills, if not properly collected and managed, can cause a significant greenhouse effect. In addition, landfills occupy large land and can cause other problems with environmental contamination (e.g. underground water contamination).



### **Impact of waste management on the CO<sub>2</sub> footprint**

- **Waste reduction:** Reducing waste through recycling, composting and more efficient waste management can significantly reduce CO<sub>2</sub> emissions. This is particularly important in the context of increasing global waste volumes and the challenges of climate change.
- **Renewable energy sources:** CO<sub>2</sub> emissions can be reduced by incineration of waste, especially if the energy is generated using **renewable energy sources**. This includes the production of waste energy, where energy is used in the form of solar, wind or biomass energy.
- **Efficient waste sorting:** Sorting and good waste management help reduce that waste that ends up in landfills and causes methane emissions. Proper management and sorting of waste can prevent excess waste from going to landfills and reduce its impact on the climate.

Waste management has a direct impact on CO<sub>2</sub> emissions and climate change. The use of sustainable waste management strategies such as recycling, composting and waste energy production can not only reduce CO<sub>2</sub> emissions, but also contribute to the development of a circular economy. It is important that waste management processes are managed efficiently to prevent the release of methane and other greenhouse gases. Thus, the reduction of waste and its efficient management is an essential factor in the fight against climate change.

**UAB Plieno Fortas on 2024 y. CO<sub>2</sub> has a footprint of 877.43 tons.**

### **CO<sub>2</sub> Footprint Reduction UAB "Plieno Fortas"**

The CO<sub>2</sub> footprint is an important indicator of how much **greenhouse gas (GHG)** a company emits into the environment through its activities. In order to contribute to climate change mitigation and achieve sustainability goals, Fort is committed to reducing its **CO<sub>2</sub> footprint**. The company's goal is to achieve **CO<sub>2</sub> neutrality** or even a **negative CO<sub>2</sub> footprint** that ensures that the company's activities are environmentally friendly and meet international sustainability standards.

#### **Actions to reduce the CO<sub>2</sub> footprint**

##### **1. Improving energy efficiency:**

**UAB Plieno Fortas** aims to optimize energy use in its production processes by introducing **technologies that increase energy efficiency** and leveraging renewable energy sources such as **solar**

**energy.** In addition, the aim is to reduce energy losses and make more efficient use of available resources.

2. **Waste reduction and recycling:**The company applies **the principles of the circular economy** to reduce the amount of waste and ensure its **effective recycling**. Reducing waste and sorting it helps not only to reduce greenhouse gas emissions, but also contributes to the overall sustainability goals of the company.
3. **Reducing transport emissions:** The use of vehicles also has a significant impact on **CO2 emissions**. **UAB Plieno Fortas** is implementing measures to increase the operational efficiency of transport, for example, through the use of **electric cars** and other **green** transport solutions.
4. **Sustainable supply chain solutions:** **UAB Plieno Fortas** works with suppliers and partners to implement sustainable supply chain solutions that include the selection of raw materials, logistics optimization, and reducing the environmental impact of the supply chain.
5. **Company employee engagement: reducing the CO2 footprint** is an ongoing process that requires the involvement and awareness of the company's employees. Therefore, **UAB Plieno Fortas** constantly educates and motivates its employees to implement sustainable practices in the workplace, such as energy saving and waste sorting.
6. **Introduction of technological innovations:** **UAB Plieno Fortas** constantly invests in **innovative technologies** that not only help to improve the efficiency of production processes, but also contribute to the **reduction of CO2 emissions**. This includes both the modernization of production lines and the introduction of new technologies with a lower environmental impact.

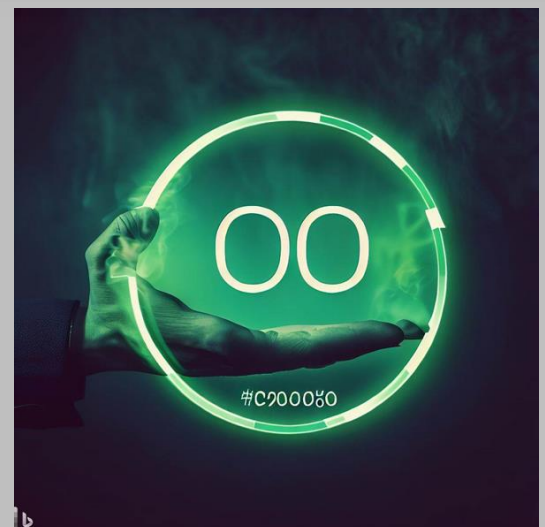
### Sustainability and CO2 footprint reduction targets

- **CO2 neutrality:** The company aims to become **CO2 neutral** in the coming years, ensuring that all its operations and production processes are balanced with

Type	Quantity	Matt	Total CO2, t
Non-recyclable waste	28,0952	†	13,12
Recyclable waste	503,9895	†	10,73

### environmental goals.

- **Long-term sustainability goals:** The company's long-term goals include not only **reducing the CO2 footprint**, but also contributing to global sustainability initiatives, ensuring that **UAB Plieno Fortas** becomes an example for other companies in its sector.
- **Obligations according to international standards:** The **UAB Plieno Fortas** complies with international **sustainability standards**, such as **ISO 14001** (Environmental Management System), to ensure the compliance of its activities with environmental and energy efficiency requirements.



## The company's steps towards reducing the CO2 footprint

UAB Plieno Fortas believes that a responsible approach to **reducing the CO2 footprint** not only contributes to **the reduction of climate change**, but can also open up new business opportunities, ensuring a competitive advantage in the market. Effective emission reduction strategies not only improve the company's reputation, but also contribute to the implementation of global sustainability goals, allowing **UAB Plieno Fortas** to become a responsible and environmentally friendly business.

### Actions taken by UAB Plieno Fortas to reduce its CO2 footprint.

#### CO2 Footprint Accounting and Reduction UAB "Plieno Fortas"

**1. Calculation of the CO2 footprint** The first step towards achieving the CO2 reduction targets is **to calculate the current CO2 footprint**. It involves an assessment of all greenhouse gas emissions generated by the company's activities. Such accounting is facilitated by various accounting systems and methodologies, or other international instruments. After calculating the CO2 footprint, the company can:

- Find out how much CO2 is emitted from key activities such as energy consumption, transport, production, waste management, etc.
- Determine which processes are the biggest polluters and where changes are necessary.
- To compile a detailed profile of the company's CO2 footprint, which will become the main line for subsequent monitoring of results

**2. Setting CO2 Reduction Targets** Once the current CO2 footprint is known, the company shall set clear and achievable **CO2 reduction targets**.

- **Justify:** To identify goals that correspond to the capabilities and resources of the company, as well as taking into account the external requirements of the environment and legislation.
- **Measurement indicators:** Each target must be measured, e.g. reducing CO2 emissions by 10% over 5 years, achieving CO2 neutrality over a period of time, or achieving green energy uses.
- **Time frames:** Set precise timeframes for achieving targets, such as reducing CO2 emissions by 2% per annum.

**3. Development and implementation of a STRATEGY for reducing the CO2 footprint** After setting the targets, the company must develop a **strategy to reduce the CO2 footprint**, which includes a specific action plan.

- **Optimising energy consumption:** using more efficient technologies, switching to renewable energy sources and reducing energy losses.
- **Waste reduction:** Improving recycling processes, reducing waste and reducing emissions through this area.
- **Improving transport efficiency:** Changing the fleet to electric cars or other environmentally friendly solutions.
- **Supply chain optimisation:** Working with suppliers and partners to ensure that their operations are sustainable and reduce CO2 emissions.

**4. Monitoring and evaluation of the results of the reduction of the CO2 footprint** In order to make sure that the CO2 reduction targets are achieved, it is necessary **to continuously monitor and evaluate** the results achieved. These include:

- **Regular measurement of the CO2 footprint:** Periodically check how much of the CO2 footprint has been reduced and whether the targets have been met.
- **Reporting:** Ensure that clear reports are provided to both internal and external stakeholders about the goals achieved.
- **Correction and improvement measures:** If the results do not meet the goals, review the strategy and, if necessary, take additional actions to achieve the desired results.

By calculating its CO2 footprint and setting targets, the company not only contributes to reducing climate change, but also opens the way to a more sustainable business. **By implementing these actions, UAB Pleno Fortas** will be able to better control its environmental activities and ensure effective reduction of CO2 emissions, thus contributing to the solution of global climate change.

