

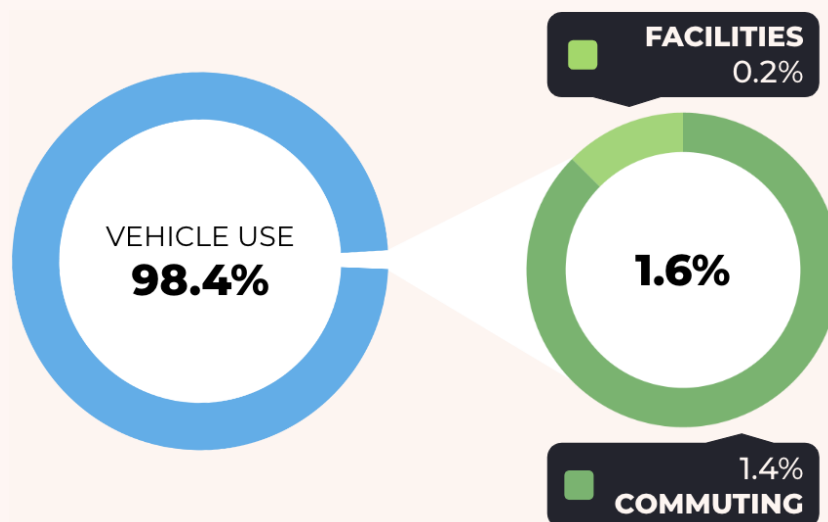
# Climate Report 2022

AHRÉNS ÅKERI AB



## EXECUTIVE SUMMARY

This report covers the carbon footprint of Ahréns Åkeri AB for 2022. During this period, greenhouse gas emissions from the company's reported operations amounted to **4367.2** tonnes CO<sub>2</sub>e. This corresponds to about 1.1% reduction from 2021 levels.



PERIOD COVERED:: 2022  
DATE PUBLISHED: April 4 2023  
CLIMATE PARTNER: GoClimate  
CONTACT PERSON: Don Callias  
EMAIL: don@goclimate.com

# Content

<b>1. Introduction</b>	<b>3</b>
<b>2. Purpose</b>	<b>4</b>
<b>3. Carbon footprint</b>	<b>5</b>
3.1 OVERVIEW	6
3.2 PERFORMANCE	8
3.3 VEHICLE USE	11
3.4 COMMUTING	14
3.5 FACILITIES	17
<b>4. Climate strategy</b>	<b>19</b>
4.1 TARGETS	20
4.2 ACTION PLAN	22
4.3 RECOMMENDATIONS	24
<b>5. Climate projects</b>	<b>27</b>
<b>6. Calculations</b>	<b>28</b>
6.1 PRINCIPLES	29
6.2 CONSOLIDATION	30
6.3 SCOPES	31
6.4 METHOD	33
6.5 METRICS	38
6.6 REFERENCES	39
<b>7. Disclosure</b>	<b>40</b>
7.1 GREENHOUSE GAS PROTOCOL	41
7.2 GLOBAL REPORTING INITIATIVE	43

# 1. Introduction

Future-proofing the business requires knowing where to start. With a heating planet & increasing demands, companies need to double down on climate action. Measuring the carbon footprint is the first step in doing so.

**AHRÉNS ÅKERI AB** is a Swedish transport and logistics company delivering goods on roads all across Europe. Its business offer includes the full distribution chain from storage to freight.

Being part of the carbon-intensive transport sector, the company has both a huge responsibility - and a great opportunity - to contribute to the international climate goals set out by the Paris Agreement. That is, keeping global warming below 1.5 degrees.

This report tells the story about how Ahréns Åkeri AB impacted the climate during 2022, and what can be done to lower the emissions.

## 2. Purpose

A climate report is intended to summarize the carbon footprint of the company. It maps out where emissions come from, analyzes how they have changed over the years, and identifies strategic actions to take.

**AHRÉNS ÅKERI AB** has calculated emissions of greenhouse gases (GHGs) since 2006. Starting with this report, the company is teaming up with GoClimate to take the next step on its climate journey. This includes setting carbon reduction targets.

The aim of this report is twofold:

- 1** To track and trace the climate impact of all reported operations of Ahréns Åkeri AB during 2022.
- 2** To serve as a basis for external reporting and facilitate smart decision-making on how to lower emissions.

## 3. Carbon footprint

Understanding how company activities are impacting the climate is key to identifying hotspots and prioritized areas. This chapter deals with the operations of Ahréns Åkeri AB and its associated GHG emissions for 2022.

**ALL CALCULATIONS** in this report are carried out following the Greenhouse Gas Protocol. This is the most widely used standard for companies reporting their carbon footprint.

Emissions are here quantified as tonnes of **CO<sub>2</sub>e** (carbon dioxide equivalents). This unit merges different greenhouse gases while taking into account their specific global warming effects.

In the following pages, the climate impact of Ahréns Åkeri AB is outlined both on an overarching level and in detail.

## 3.1 OVERVIEW

Ahréns Åkeri AB has reported emissions associated with the following three business activities:

<b>Vehicle use</b>	Production and combustion of fuels used in the truck fleet.
<b>Commuting</b>	Daily employee trips back and forth to work.
<b>Facilities</b>	Purchased electricity used in the company's warehouse.

Total emissions from these sources are distributed as:

**4367.2**  
tCO<sub>2</sub>e

VEHICLE USE  
**98.4%**

COMMUTING  
**1.4%**

FACILITIES  
**0.2%**

Based on the distribution of emissions, Ahréns Åkeri AB has a clear path forward.

Vehicle use obviously makes up the majority of GHGs attributed to the company. Efforts to decrease the climate impact should therefore be **focusing on the fuel** used in company vehicles.

However, it is still important to report and take responsibility for the emissions associated with Commuting and Facilities..

There are also other potentially applicable categories. Future calculations should therefore seek to **incorporate more emission-causing activities** relevant to Ahréns Åkeri AB.

Remaining sections of Chapter 3 explore the total emissions in further detail.



## 3.2 PERFORMANCE

Keeping track of how the carbon footprint changes over time is integral to making informed decisions. Knowing the past trend means awareness of where things are headed. This section compares emissions across the years.

Ahréns Åkeri AB has decreased its total climate impact by 270 tonnes CO<sub>2</sub>e between 2019 and 2022 (-4.4%). Compared to 2021, the reduction is close to 1.1%, or 46.9 tonnes CO<sub>2</sub>e.

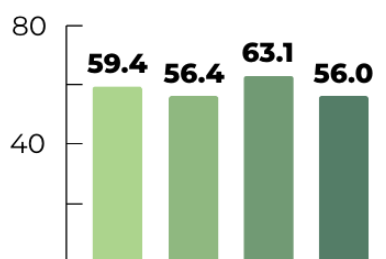
### EMISSIONS PER YEAR tonnes CO<sub>2</sub>e



Lowering the climate impact in absolute terms is undoubtedly the most important indicator. But following up annual performance in relation to relevant intensities can be more insightful.

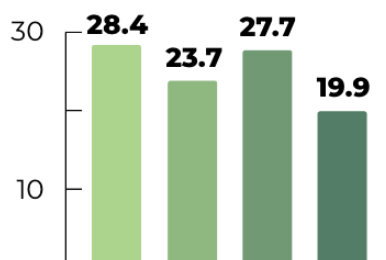
Emissions per employee, per MSEK revenue and per 1000 liters of fuel lends a more nuanced picture. It connects the carbon footprint to the organic growth of the company. As such, it becomes more relatable to the operations of Ahréns Åkeri AB.

2019 - 2022



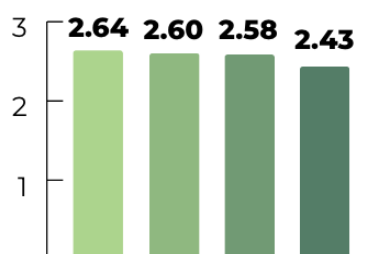
**PER EMPLOYEE**  
tonnes CO<sub>2</sub>e

**-5.7%**



**PER MSEK**  
tonnes CO<sub>2</sub>e

**-31.2%**



**PER 1000 LITERS**  
tonnes CO<sub>2</sub>e

**-7.7%**

The reported figures for each year are distributed as follows:

<b>YEAR</b>	<b>EMPLOYEES</b>	<b>MSEK</b>	<b>1K LITERS</b>
2019	77	160.8	1709.3
2020	72	171.0	1539.7
2021	70	159,5	1676.7
2022	78	219.6	1765.1

A few main conclusions can be drawn from Section 3.3 on climate performance indicators:

#### **Reductions all over**

All three GHG intensities decreased between 2019 and 2022. This is also in line with the drop in total emissions.

#### **Stable liters**

Tonnes CO<sub>2</sub>e per 1000 liters of fuel is the only figure seemingly unaffected by year-on-year variations. This highlights its potential as a new intensity to start tracking.

#### **Growing business**

More revenue seems to indicate less climate impact. With a higher value for MSEK, the absolute emissions are lower. This trend suggests that the carbon footprint isn't entirely correlated with the income of the company.

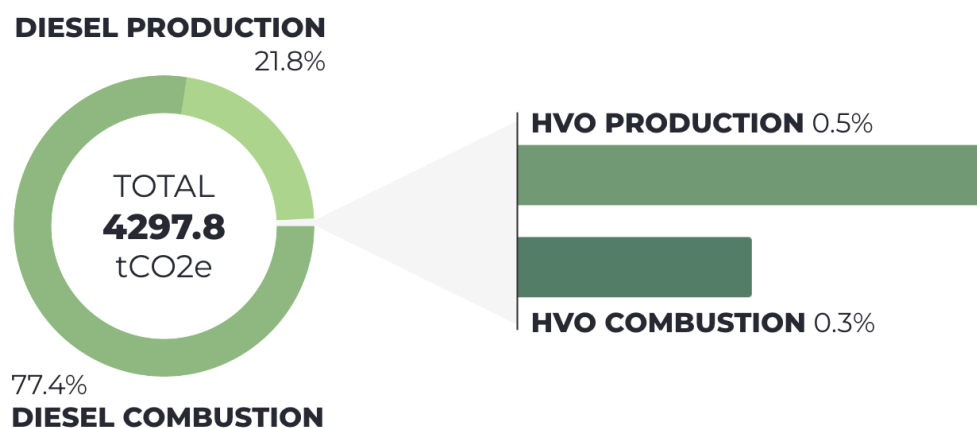
### 3.3 VEHICLE USE

Fuel used in company vehicles covers **98.4%** (4297.8 tonnes CO<sub>2</sub>e) of the total carbon footprint of Ahréns Åkeri AB. Most reduction efforts should target this category.

Vehicle use emissions during 2022 are all related to fuel. This means GHGs emitted both indirectly during upstream production and directly when combusted in engines.

Two types of fuel were reported: Diesel and HVO (biofuel). They make up 96.4% and 3.6% of 2022 liter consumption, respectively.

In emissions this corresponds to:

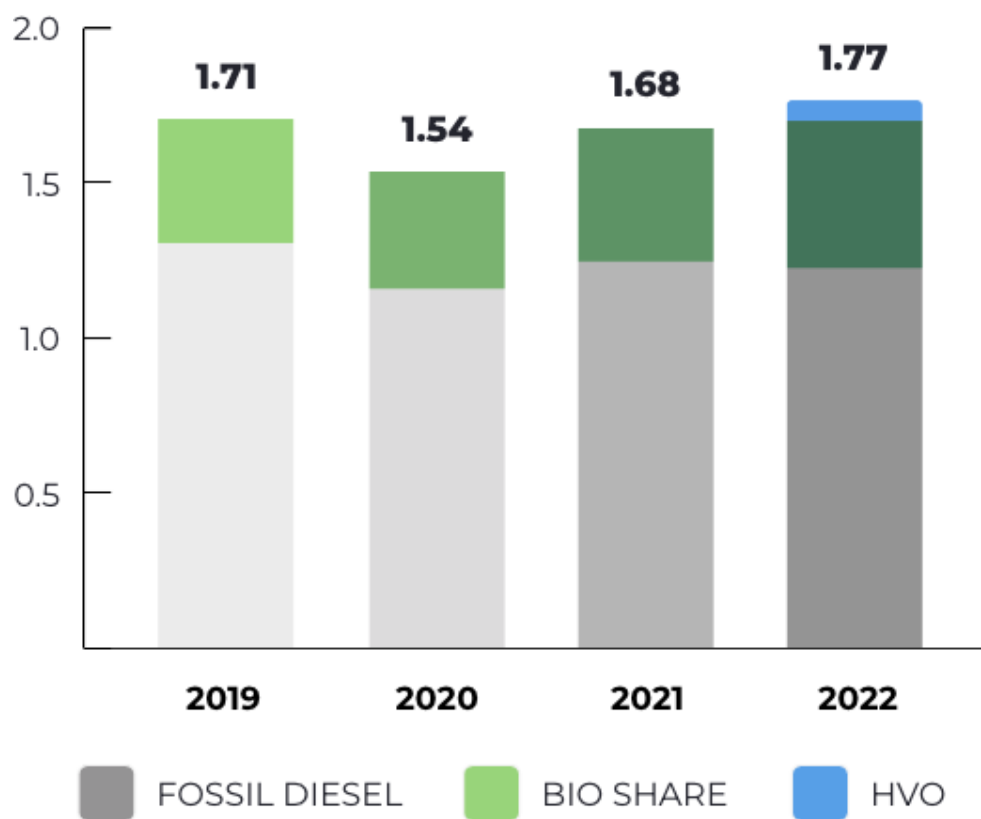


As can be seen, diesel covers the bulk of emissions categorized within Vehicle use.

It should be noted that an increasingly higher share of biofuel is blended into the diesel. This is a result of Swedish regulations.

Therefore it is also fruitful to look into the relative distribution of fuel and biofuel. As illustrated, 2022 marks the first year where purchased HVO is visible on the chart (3.6% of total).

### FUEL DISTRIBUTION MILLION LITERS



Given what has been presented in Section 3.3 the following conclusions can be drawn for Vehicle use emissions:

**Switching to biofuel**

It is positive that 2022 saw an upsurge in HVO compared to previous years.. If all fuel had been HVO, emissions would cut down to about 969.2 tonnes CO<sub>2</sub>e. This equals a 77.5% drop. While these consumption levels may not be feasible at this point, it clearly shows that higher shares of biofuel is part of the solution for Ahréns Åkeri AB.

**Alternatives to combustion**

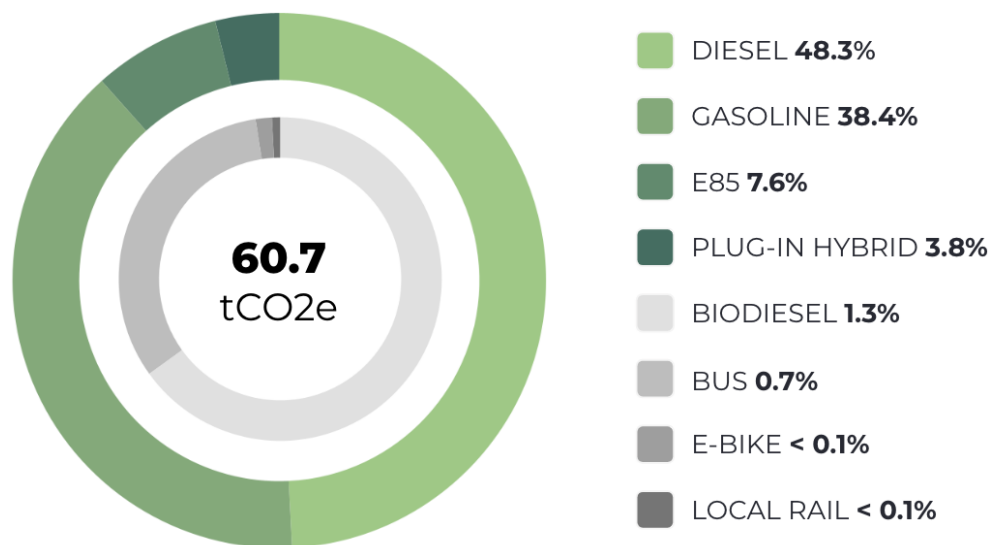
More fuel means more emissions, no matter if it's biofuel or not. A viable option is to introduce BEVs (battery electric vehicles). If charged with renewable electricity, this would reduce emissions to a miniscule amount. As such, BEVs can play a significant role in lowering the climate impact. Gradual electrification of the truck fleet should therefore be a long term goal for the company.

## 3.4 COMMUTING

Daily employee trips between work and home results in 60.7 tonnes CO<sub>2</sub>e. This is equal to about **1.4%** of total GHG emissions associated with Ahréns Åkeri AB.

Employees are part of the value chain for Ahréns Åkeri AB. They need to reach the company's facilities to keep operations going. That's why emissions stemming from their commuting are included in the GHG inventory.

Emissions from this category are distributed as:



It can also be useful to regard emissions together with the associated activity data:

<b>MODE</b>	<b>RESPONDENTS</b>	<b>PKM</b>
DIESEL	38.8%	131,542
GASOLINE	29.7%	85,681
E85	4.9%	38,139
PLUG-IN HYBRID	5.4%	13,632
BIODIESEL	2.5%	13,369
BUS	5.4%	11,764
E-BIKE	6.0%	471
LOCAL RAIL	7.4%	12,703
<b>TOTAL</b>	<b>100%</b>	<b>307,315</b>

Cars are obviously the most common mode of transport for Ahréns Åkeri AB employees. Fossil-fueled ones dominate with over 75% of traveled passenger kilometers (pkm) and over 90% of emissions.

In comparison, biofuel alternatives emit 5.4% of emissions. This despite holding nearly 16.8% of the remaining pkm. Likewise, public transport is associated with about 8% of the total distance, but less than 0.1% of the measured GHGs.

This makes the case for encouraging alternatives to fossil fuel cars.



Considering the climate impact reported for Section 3.4, the following conclusions are relevant for Commuting:

### **Facilitating climate-friendlier options**

Ahréns Åkeri AB can't directly influence the commuting patterns of its employees. However, the company can explore how to make it easier for co-workers to opt for transport that is better for the climate.

### **Decreasing fossil fuel**

Since diesel and gasoline is the most popular choice (and responsible for the majority of emissions) it is relevant to target these to the extent possible. This means not only stimulating alternatives, but also efforts that can help lowering the total distance fossil cars have to drive. For example, by aiding carpooling or similar initiatives.

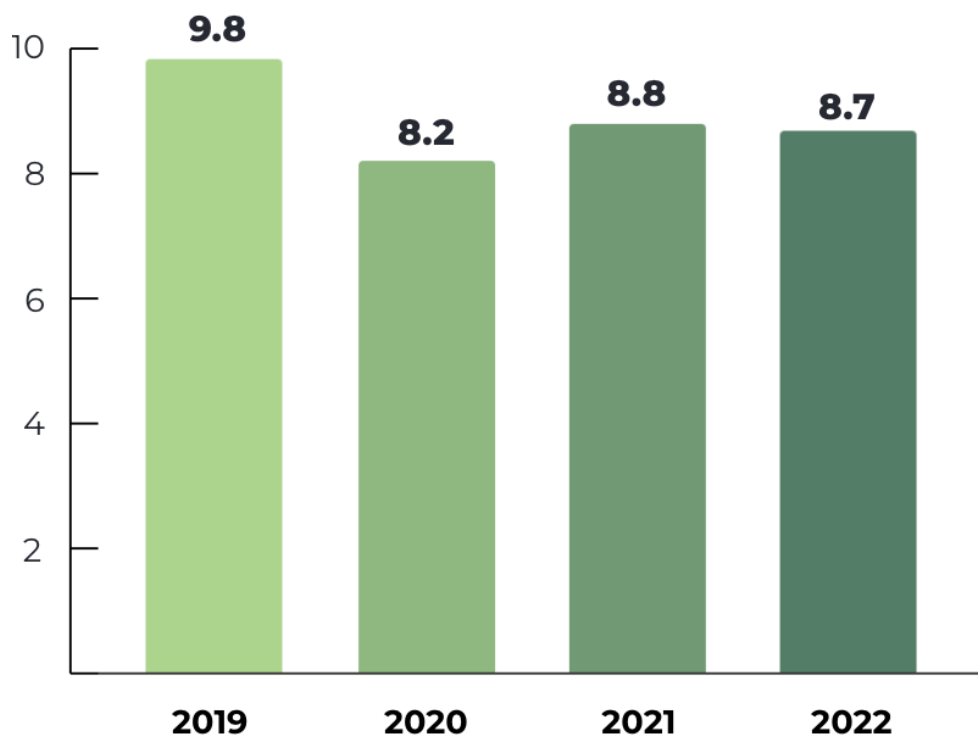


## 3.5 FACILITIES

Emissions from purchased electricity amount to 8.7 tonnes CO<sub>2</sub>e. This is barely **0.2%** of the total carbon footprint of Ahréns Åkeri AB during 2022.

Several different activities can generate climate impact associated with the company facilities. Ahréns Åkeri AB currently reports emissions related to electricity. These have developed as below:

### ELECTRICITY GENERATION TONNES CO<sub>2</sub>e



Since Ahréns Åkeri AB purchases 100% renewable electricity, the associated carbon footprint is exceedingly low. Emissions arise because fuels are needed to activate and operate the energy technologies. Because some energy is lost during transmission over the grid, this is also accounted for. Without green electricity, emissions from Facilities would increase to over 315 tonnes CO<sub>2</sub>e.

Besides climate impact it is crucial to follow up on energy consumption. As can be seen below, electricity usage has decreased since 2019 but remained almost unchanged since 2021.

YEAR	MWh	DIFFERENCE
2019	686.4	
2020	633.9	-7.65%
2021	663.8	+4.71%
2022	663.6	-0.03%

It will be important to track electricity consumption in the following years to make sure emissions do not increase.

#### **Increasing electricity with BEVs**

One factor that would lead to a higher impact is if BEVs are introduced to the truck fleet. While emissions related to company facilities are small in comparison to other included categories, efforts should be taken to keep it low over time even when conditions are changing. This also includes measures to increase overall energy efficiency.

## 4. Climate strategy

Having outlined the carbon footprint it is now time to do something about it. Ahréns Åkeri AB is launching reduction targets along with a strategic action plan.

**STARTING IN 2023** Ahréns Åkeri AB is taking a giant leap forward on its climate journey.

A near-term target has been set for 2030. As the first climate objective of the company, this paves the way for making smart decisions on how to continuously reduce emissions.

In order to reach this goal, an overarching management plan has also been established. Therein lies the key directions and efforts the company is taking to tackle climate change.

Remaining parts of the chapter describe this new decarbonization strategy of Ahréns Åkeri AB. Along with that, recommendations for further action are introduced.

## 4.1 TARGETS

Ahréns Åkeri AB is committed to reducing all direct emissions from purchased fuel and indirectly from energy by 42% until 2030 based on the 2022 carbon footprint.

It is clear from the GHG inventory presented in Chapter 3 where efforts should be prioritized. Emissions related to the fuel used in the company's truck fleet is associated with the overwhelming majority of emissions (98.4%). Out of this, fuel combustion (*Scope 1*) covers about 77.6%). Meanwhile, energy consumption is only a fraction of this.<sup>1</sup>

To decrease its climate impact, Ahréns Åkeri AB has set an emission reduction target for 2030 covering *Scope 1* and 2:

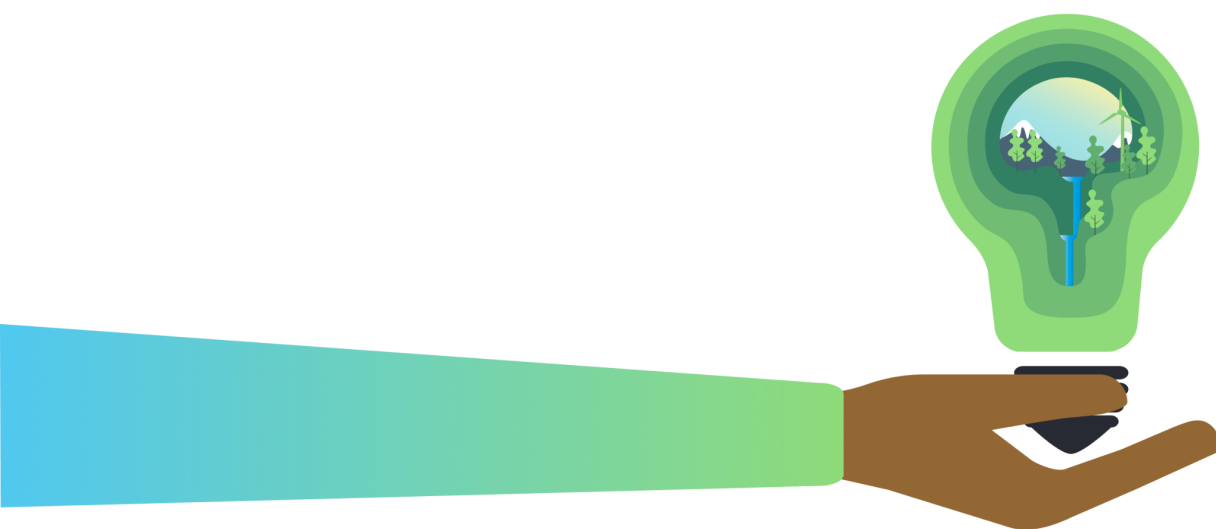


<sup>1</sup> Following the market-based approach, with zero emissions in *Scope 2*.

**THE REDUCTION TARGET** encompasses absolute emissions reported within the fuel combustion part of Vehicle use. Under the Greenhouse Gas Protocol classification, this corresponds to Scope 1 and 2. However, since no emissions are reported from renewable electricity (within the market-based approach), the emissions within Facilities are exempt.

Reaching a 42% lower carbon footprint by the end of 2030 equals an annual linear reduction rate of 5.3%. This is in line with the higher ambition of the Science Based Targets initiative (SBTi) since it follows the 1.5 degrees pathway of the Paris Agreement.

Meanwhile, Ahréns Åkeri AB is committed to calculating and including other relevant Scope 3 categories in the GHG inventory.



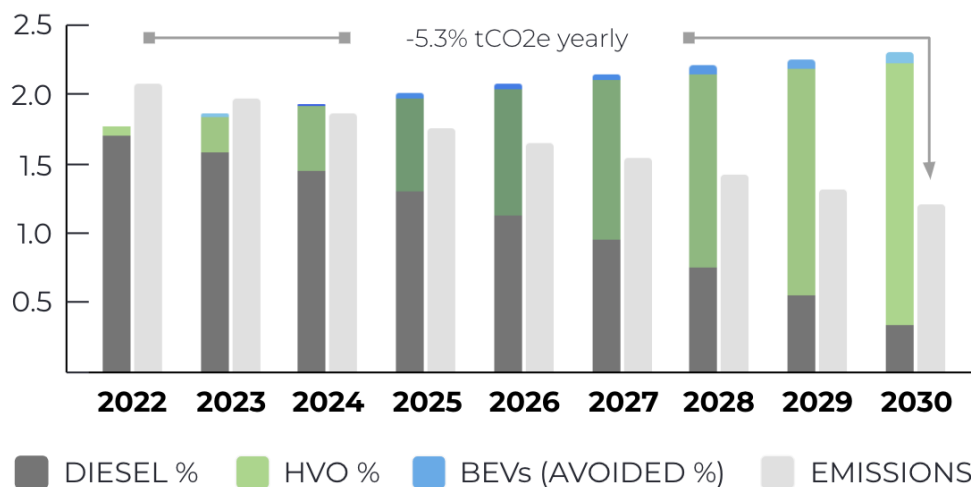
## 4.2 ACTION PLAN

Achieving the target requires effective management. It revolves around strategic shifts that enable the business to continue while continuously lowering its impact.

Decarbonization of the truck fleet is the long-term transition strategy of Ahréns Åkeri AB. At least until 2030, this mainly relies on significantly switching from diesel to HVO. With higher shares of biofuel, total emissions will drop significantly.

Meanwhile, BEVs will be gradually introduced from 2023 onwards to cover freight routes where they have capacity. This leads to avoided fuel consumption which consequently reduces emissions.

### TARGET PROGNOSIS MILLION LITERS



Illustrated on the previous page is a prognosis over the fuel distribution needed to achieve the target of 42% reduction.

### **Fuel patterns**

It is based on a trend analysis over the last few years, which indicates a 5.3% yearly average increase in fuel consumption (not the same as the 5.3% yearly decrease of emissions). It also takes into account the current reduction requirement plan in Sweden, which will be lowered to 6% in 2024 and 0% from 2027 onward. Thereby the action plan indicates how Ahréns Åkeri AB can reach its climate objectives while growing as a business, but also given societal directives. Following up liter consumption and updating the prognosis yearly will be of high importance.

### **Promoting alternatives**

Increasing the share of HVO and BEVs each year will require encouraging clients to go for these options. Thereby it needs to become a more pronounced part of the business offer of Ahréns Åkeri AB. At the same time, the demand for lower-carbon transports is expected to increase. Since the Swedish government has recently decided to decrease the amount of biofuel mixed into the standard diesel, there is considerable need to step up efforts. It is estimated that the proportion of HVO needs to reach at least 85%, with 15% for standard diesel.

### **Fighting the power**

While BEVs will understandably lead to an overall increase in electricity consumption. To counter this, Ahréns Åkeri AB plans to install solar panels on the facilities during 2023. These are expected to generate more than enough electricity to cover additional usage (and ensuing emissions) from BEVs. It will be essential to follow up the forecast in upcoming years to make sure the progression towards the targets is on track. Fuel distribution and avoided liters from BEVs should reflect reality.



## 4.3 RECOMMENDATIONS

Alongside the current climate strategy and action plan, it is important to strive for continuous improvements. This section highlights advice on meaningful efforts to take.

In general, the following points would aid calculations and make reporting more relevant:

### **Including more categories**

It is important to be as complete as possible when doing any kind of inventory, not least one related to climate impact. While the activities currently included likely reflect the majority of emissions from Ahréns Åkeri AB, other ones are likely applicable.

### **Climate performance indicators**

Monitoring climate action needs to make sense. Ideally it would be anchored in numbers that are used in everyday work. Of course it should also pertain to the reduction target. Following up on a regular basis is likewise essential, not just once per year. Emissions per 1000 liters is a potential indicator. But there may be others that are even more relevant to Ahréns Åkeri AB.

Ahréns Åkeri AB is taking a good direction in terms of mitigating emissions related to Vehicle use. Planned initiatives are in line with the actions identified in Category 3 of this report.

#### **Being up to speed on BEV development**

It will be important to keep track of how the efficiency of electric trucks is maturing. At the moment BEVs may mostly be suitable for shorter routes. However, with ongoing improvements there may be potential for wider regional freight as well.

For Commuting, the following efforts may be important for lowering the use of fossil fuel cars and facilitating alternatives:

#### **Charging poles**

To promote electric vehicles, the possibility of adding charging poles to the company parking lot should be explored. This was also brought up in the employee survey sent out to gather commuting data. These parking slots could also be reserved for BEVs and closer to the building.

#### **Communication with co-workers**

It is always good to gather insights that are relevant to the specific context of the company. Asking for help directly from the team can therefore be a smart initiative. Collect thoughts and ideas on how to facilitate climate friendlier commuting patterns through employee surveys or similar.

#### **Encouraging carpooling**

Suggesting co-workers should buy a new car is not feasible for many reasons, but to set up an internal channel to facilitate carpooling can be an effective way to help reduce emissions per person. People riding together equals less climate impact.

Finally, for Facilities, a few points can be made:

### **Harnessing more power from the sun**

It is clear that installing solar panels is the way to go and a great step forward for Ahréns Åkeri AB. It should however be reiterated that if more BEVs are purchased, it would be reasonable to (if possible) simultaneously add more panels to account for the extra energy consumption.

### **Charting energy consumption**

Another possibility is to explore how company facilities can be made more energy efficient than they already are. Tracking the overall MWh use over the year is of course relevant to this. Mapping the energy hotspots in the company facilities and identifying potential improvements

### **Measuring electricity for BEVs**

Once BEVs are introduced to the truck fleet it would be relevant to keep track of their share of electricity usage. That is, if it is possible to separately monitor energy that goes to BEVs as opposed to what is used for the building itself.

## 5. Climate projects

Reducing emissions should always be the main focus. However, companies can also take responsibility for historical emissions - which can not be undone. One effective way of doing this is to finance climate projects.

**CLIMATE PROJECTS** contribute by reducing emissions outside the company's value chain. Supporting high quality projects that are third-party verified can therefore make a difference.

Currently, Ahréns Åkeri AB doesn't finance any projects. While it may not be feasible to cover 100% of the carbon footprint, it is suggested the company help finance at least a portion of the total.



## 6. Calculations

Understanding and managing the climate impact is obviously the most important part. But being transparent about how calculations were made (and in what ways they can improve) is essential to credible reporting.

**THE GREENHOUSE GAS PROTOCOL** is the world-leading standard for companies disclosing their GHG emissions. It establishes a framework for how to consistently measure and categorize the carbon footprint of companies.

This chapter delves into how the guidelines have been applied to measure the carbon footprint of Ahréns Åkeri AB.

## 6.1 PRINCIPLES

The Greenhouse Gas Protocol puts forward five core principles that have guided the work behind this report. Together they safeguard credible, factual and objective climate impact measurements.

### **Relevance**

To allow for smart decision-making, included emission sources have to mirror relevant parts of the company's operations. This is ensured by in-depth communication with the responsible staff. These are the ones with the best insight into company activities.

### **Completeness**

All applicable emission sources must be accounted for, and any exclusions need to be justified. To aid in this, continuous dialogue and standardized forms are used to identify relevant activities.

### **Consistency**

Following up the calculations over time requires systematically applied and carefully documented methods. This report details all the work behind it to facilitate continuity and comparability.

### **Transparency**

Credible reporting warrants clear descriptions of how the calculations have been carried out. This report explicitly lists any assumptions or limitations, and provides appropriate references.

### **Accuracy**

To fulfill its function as a basis for decision-making, calculations must be precise enough to be credible. This means consciously avoiding under- or overestimations and using the latest available data. Thereby uncertainty is minimized to the extent possible.

## 6.2 CONSOLIDATION

In line with the Greenhouse Gas Protocol, companies need to define system boundaries. These are needed to determine what should be included in the GHG inventory.

Setting an **organizational boundary** is about establishing the company's extent of responsibility for emissions. In other words, it draws a line for where the carbon footprint of Ahréns Åkeri AB ends, and where others begin.

Different so-called 'consolidation approaches' can be used. Put simply, the choice depends on whether the company owns shares in another organization or not. Considering that Ahréns Åkeri AB is a wholly owned company with no subsidiaries of its own, the latter (an 'operational control approach') was deemed applicable.

This means that the company can take full ownership of all emissions that they can directly influence and reduce.

## 6.3 SCOPES

Within the Greenhouse Gas Protocol, emissions are divided into three different scopes. These demarcate what is the company's direct and indirect climate impact. This section summarizes included emission-causing activities.

Chapter 3 categorized the carbon footprint of Ahréns Åkeri AB based on its actual activities. But for external reporting it is important to use the classification of the Greenhouse Gas Protocol:

### **Scope 1**

Direct emissions from mobile or stationary assets used by the company are reported in Scope 1. For Ahréns Åkeri AB, it revolves around emissions from fuel combustion in the truck fleet.

### **Scope 2**

Energy purchased by the company indirectly causes emissions while being generated, which is disclosed in Scope 2. Ahréns Åkeri AB reports emissions from purchased electricity.

### **Scope 3**

All other types of indirect emissions arising throughout the company's value chain are attributed to Scope 3. Up to 15 different categories can be reported here. Ahréns Åkeri AB currently include category 3 (upstream fuel-and energy-related activities) and 7 (employee commuting). See next page for an overview of categories.



The following table presents all Scope 3 categories and a screening of their relevance to the activities of Ahréns Åkeri AB:

<b>CATEGORY</b>	<b>SCREENING</b>
PURCHASED GOODS & SERVICES	Not included, probably applicable.
CAPITAL GOODS	Not included, probably applicable.
FUEL- & ENERGY PRODUCTION	Included.
UPSTREAM FREIGHT	Not included, may be applicable.
WASTE TREATMENT	Not included, probably applicable..
BUSINESS TRAVEL	Not included, may be applicable..
COMMUTING	Included.
UPSTREAM LEASED ASSETS	Not included, may be applicable..
DOWNSTREAM FREIGHT	Not applicable.
PROCESSING OF SOLD PRODUCTS	Not applicable.
USE OF SOLD PRODUCTS	Not applicable.
DISPOSAL OF SOLD PRODUCTS	Not applicable.
DOWNSTREAM LEASED ASSETS	Not applicable.
FRANCHISES	Not applicable.
INVESTMENTS	Not included, likely not applicable.

## 6.4 METHOD

Upholding the principles of the Greenhouse Gas Protocol, this section outlines the course of action for calculating the carbon footprint of Ahréns Åkeri AB.

In what follows, emissions within Scope 1, Scope 2 and included categories within Scope 3 are described in detail.

Each emissions source contains information on (1) the approaches used to calculate the emissions based on the underlying activity data and emission factors; (2) any updates, assumptions, or suggestions for improvements.

**SCOPE 1** covers the emissions from fuel combustion, while the fuel production-related impact is reported in Scope 3.

#### **Activity data**

Emissions were calculated using the fuel-based method. Ahréns Åkeri AB gathered activity data from its supplier for liters of fuel purchased throughout 2022.

#### **Emission factors**

Two fuels were reported: diesel and HVO. The supplier registers the specific proportions of fuel components used in each. This made it possible to take a 'hybrid approach'. Supplier-specific emissions were estimated for each fuel type by applying secondary data sources on emission factors for all components.

#### **Updates**

Taking the 'hybrid approach' is an improvement from previous years, where national average proportions of fuel was used instead. To allow for comparability over time, a recalculation of fuel-related emissions was made for 2019-2021 carbon footprints (results presented in Chapter 3) where data was available.

#### **Transparency**

A hybrid approach reduces uncertainty compared to average emissions, but may still under- or over-estimate emissions. Primary data from the supplier might reduce uncertainty further.

#### **Improvements**

Currently, the fuel supplier does provide an emission factor per liter for each type of fuel. However, this covers full well-to-wheel (WTW) emissions. In other words, it is not divided into Scope 1 and 3 and therefore not useful for this report. Asking the supplier to provide a breakdown with transparency about the calculations and sources behind it could improve the calculations.

**SCOPE 2** deals with emissions caused during energy generation. Other energy-related upstream activities are disclosed in Scope 3.

**Activity data**

Emissions are reported using the market-based approach unless otherwise stated. It covers electricity purchased to power and heat the facilities of Ahréns Åkeri AB. Ahréns Åkeri AB gathered activity data on electricity consumption (kWh).

**Emission factors**

Since the company purchases 100% renewable electricity, zero emissions are included in Scope 2. Energy attribute certificates were provided by the supplier in the form of Guarantees of Origin. The specific energy generation technologies reported are distributed as: 25% wind, 18% solar, and 57% hydropower.

**Updates**

No reported updates for Scope 2.

**Transparency**

No assumptions or exclusions were reported for Scope 2.

**Improvements**

See Category 3.3.

**CATEGORY 3.3** covers fuel- and energy-related activities not reported in Scope 1 or 2.

#### **Activity data**

Collecting information on fuel and energy usage corresponds to the methods reported above for Scope 1 and 2, respectively.

#### **Emission factors**

Fuel production (also known as Activity A) follows the procedure outlined for Scope 1. It thus takes a hybrid approach, using supplier-specific proportions filled in with secondary data. Electricity production (Activity B) takes supplier-specific distribution of energy technologies and applies well-to-tank (WTT) emission factors derived from secondary data. It also takes into account transmission and distribution losses (Activity C).

#### **Updates**

For fuel production, see description of updates in Scope 1. For energy production an improvement has been made. Previous years have used a national average life-cycle emission factor for renewable electricity. For 2022 a hybrid approach has been taken instead to more closely reflect the specific energy technologies used by the supplier of Ahréns Åkeri AB.

#### **Transparency**

No assumptions or exclusions were reported for Category 3.3.

#### **Improvements**

See Scope 1 for fuel-related improvements. For energy-related activities, retrieving a supplier-specific emission factor may better reflect the actual emissions.

**CATEGORY 3.7** deals with emissions from employee commuting.

#### **Activity data**

Emissions were calculated using the distance-based method. A digital survey was distributed among Ahréns Åkeri AB employees. It covered questions regarding daily commuting habits. A total of 48 respondents (out of 78 reported employees) answered. From the answers the amount of passenger kilometers (pkm) per mode of transport was derived. To account for non-respondents, an extrapolation was carried out.

#### **Emission factors**

Total extrapolated distances per vehicle and fuel type were multiplied with corresponding emission factors. These were based on the national average for each fuel type.

#### **Updates**

No reported updates for Scope 3, category 7.

#### **Transparency**

Extrapolating adds the assumption that non-respondents follow the same commuting patterns as the respondents. This maintains uncertainty, but is likely closer to the truth than the alternative of not extrapolating. It can also be noted that plug-in hybrids are assumed to use gasoline for non-electric drive.

#### **Improvements**

Increasing the number of respondents would reduce the margin of error from extrapolating.

## 6.5 METRICS

Climate impact is measured using the unit of carbon dioxide equivalents (CO<sub>2</sub>e). Different greenhouse gases (GHGs) are combined in one single metric based on their global warming potential (GWP).

The Intergovernmental Panel on Climate Change (IPCC) puts forward new GWPs with each Assessment Report (AR).

For the calculations behind this report, the majority of emissions are based on AR5 (2014), while a few follow the more conservative AR4 (2007).

The table below summarizes the GWP according to three most common GHGs (and the only ones relevant for this report)::

<b>GHG</b>	<b>AR5</b>	<b>AR4</b>
Carbon dioxide (CO <sub>2</sub> )	1	1
Methane (CO <sub>4</sub> )	28	25
Nitrous oxide (N <sub>2</sub> O)	265	298

## 6.6 REFERENCES

For transparency, emission factors used in calculations were gathered from the following sources:

<b>CATEGORY</b>	<b>SOURCE</b>
VEHICLE USE	Energimyndigheten 2021, Naturvårdsverket 2021, BEIS 2022
COMMUTING	Energimyndigheten 2021, Naturvårdsverket 2021
FACILITIES	AIB 2022, IPCC 2014, Vattenfall 2021



## 7. Disclosure

For external reporting purposes, this final chapter presents the division of emissions according to included standards.

**AHRÉNS ÅKERI AB** currently discloses its climate-related impact according to the standards: (1) the Greenhouse Gas Protocol; and (2) the Global Reporting Initiative (GRI).

These are individually tabulated in subsequent sections.

## 7.1 GREENHOUSE GAS PROTOCOL

Chapter 3 of the report outlined the carbon footprint of Ahréns Åkeri AB using the activity-based classification of GoClimate. These categories correspond to Scope 1, Scope 2 and parts of Scope 3.

For 2022 the distribution can be summarized as:

SOURCE	TCO2e	SHARE
SCOPE 1	3334.8	76.36%
SCOPE 2	0	0%
SCOPE 3	1032.4	23.64%
<b>TOTAL</b>	<b>4367.2</b>	<b>100%</b>

Emissions in Scope 2 are reported here as zero because Ahréns Åkeri AB purchases renewable electricity. This is in line with the 'market-based method' of the Greenhouse Gas Protocol.

Total emissions under the 'location-based method' should also be reported. For 2022, this corresponds to **4390.5** tonnes CO2e. This reflects emissions of the average grid mix in Sweden.

The table on the next page breaks down emissions per scope. Due to rounding, absolute and percentage emissions may not add up exactly.

Scope 1	tCO <sub>2</sub> e	Share
<b>Mobile combustion</b>	<b>3334.8</b>	<b>76.36%</b>
Diesel	3323.2	76.09%
HVO	11.6	0.27%
<b>Scope 2</b>	<b>tCO<sub>2</sub>e</b>	<b>Share</b>
<b>Electricity</b>	<b>0</b>	<b>0.0%</b>
Renewable electricity	0	0.0%
<b>Scope 3</b>	<b>tCO<sub>2</sub>e</b>	<b>Share</b>
<b>3. Fuel- and energy-related</b>	<b>971.7</b>	<b>22.25%</b>
Diesel	939.6	21.51%
HVO	23.4	0.54%
Renewable electricity	8.7	0.20%
<b>7. Employee commuting</b>	<b>60.7</b>	<b>1.39%</b>
Diesel	29.3	0.67%
Gasoline	23.3	0.53%
E85	4.6	0.11%
Plug-in hybrid	2.3	0.05%
Biodiesel	0.8	<0.01%
Bus	0.4	<0.01%
E-bike	0.02	<0.01%
Local rail	0.01	<0.01%
<b>Total</b>	<b>4367.2</b>	<b>100%</b>
Biogenic emissions	936.1	

## 7.2 GLOBAL REPORTING INITIATIVE

The table below shows emission-related items according to the sustainability guidelines of the Global Reporting Initiative (GRI).

GRI 302-1	Amount	Unit
<b>Direct energy consumption</b>	<b>61,569.1</b>	<b>GJ</b>
a. Diesel	59,398.6	GJ
b. HVO	2,170.4	GJ
<b>Indirect energy consumption</b>	<b>2,388.8</b>	<b>GJ</b>
c. Renewable electricity	2,388.8	GJ

GRI 305	Amount	Unit
<b>Direct GHG emissions</b>	<b>3334.8</b>	<b>tCO2e</b>
GRI 305-1 (Scope 1)	3334.8	tCO2e
<b>Energy indirect GHG emissions</b>	<b>0.0</b>	<b>tCO2e</b>
GRI 305-2 (Scope 2)	0.0	tCO2e
<b>Other indirect GHG emissions</b>	<b>1032.4</b>	<b>tCO2e</b>
GRI 305-3 (Scope 3)	1032.4	tCO2e
<b>GHG emissions Intensity</b>	<b>56.0</b>	<b>tCO2e</b>
GRI 305-4 (Emissions per employee)	56.0	tCO2e

