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# CLIMATE REPORT 2023

## ALS Northern Europe

Greenhouse Gas Emissions Inventory Report

June 2023

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# 1. Executive summary

Scope:

- Base year: Fiscal year (FY) 2020.
- Reporting period: April 1st 2022 – March 31st 2023 (FY 2023).
- Organisational consolidation approach: Operational control.
- Operational boundaries: Scopes 1 and 2 emissions, and selected scope 3 emissions.

Key results:

- Several recalculations have been made due to previous errors as well as new sources of data, changes in calculations etc. Section 3.3.
- The total scopes 1 and 2 emissions decreased by 42.9% from FY 2020 to FY 2023 primarily due to lower emissions from electricity at our Danish site, which started purchasing renewable energy in 2021. Section 4.1.
- Total quantified scope 3 emissions increased by 25.8% from FY 2020 to FY 2023 with emissions from employee commuting being the main contributor. Section 4.2.
- Total quantified emissions decreased by 6.1% from FY 2020 to FY 2023. Section 4.5.
- Big reduction projects for FY 2024 are the change of heating source at the Humlebæk site in Denmark from combustion of natural gas to district heating and the change to certified green district heating in Luleå, Sweden. Read about more reduction projects in section 5.1.
- Through carbon offsetting ALS NE has reached its goal of climate neutrality with respect to our calculated scope 1 and 2 emissions. We have taken further action to make our external transportations climate neutral, as well as investing in additional offsets for remaining scope 3 emissions. Section 6.

Emissions reporting:

- Emissions reporting to our clients will commence during FY 2024. Market based emissions will be reported for scope 1 and 2, based upon total expenditure. Emissions will be reported both before and after carbon offsetting. Section 7.

# 2. Introduction

In December 2019, the European Commission introduced an ambitious proposal to make the bloc climate-neutral by 2050. ALS Life Sciences Northern Europe (ALS NE) has gone beyond that and has developed a challenging climate vision with the long-term strategic target of achieving climate neutrality by 2035. Our strategy towards this target will be a combination of real emissions reductions and carbon offsets or credits to cancel out the emissions that we cannot eliminate or reduce further due to temporal or technological limitations.

In 2021, we started to collect data with the purpose of calculating our emissions of greenhouse gasses. Since then, we have presented our first Climate Report (last year) and continued our work to improve the quality of the reported data and to increase the scope of the data. This year's report provides an overview of ALS NE's greenhouse gas (GHG) emissions in the last four fiscal years as well as significant changes/recalculations since last year's report. The data inventory underlying the report is based on the international standard, A Corporate Accounting and Reporting Standard, developed by the Greenhouse Gas Initiative (GHG Protocol). We have used the guidance of this standard throughout our work to ensure that our emissions are both accurate and representative.

While our main goal in compiling a GHG emissions inventory (GHG inventory) is to quantify our GHG emissions, it will also be a valuable tool in understanding our climate impact as a business and be able to identify opportunities to initiate and track reduction projects.

## 2.1 ALS Life Sciences Northern Europe

The map in Figure 1. shows the location of the eight sites included in this report. Samples are regularly shipped between the environmental sites in Danderyd, Luleå, Humlebæk and Oslo. The Sarpsborg lab in Norway is under the process of being closed down and is expected to be closed by 2025. There are no longer any operations at the site.

## 2.2 Targets and milestones

ALS NE's long-term target is Nordic climate neutrality by 2035 i.e. no net emissions of greenhouse gasses from our life sciences operations in Scandinavia.


*Figure 1. ALS (LS) NE sites in Scandinavia. Abbreviations: LU = Luleå, ON = Oslo, SRP = Sarpsborg, SLL = Sollentuna, TA = Danderyd, HKI = Helsinki, HMB = Humlebæk, LKN = Landskrona.*

# 3. Calculation methodology

Calculations and analyses are carried out according to the latest edition of the international standard "*The Greenhouse Gas Protocol – A Corporate Accounting and Reporting Standard*" (2004), developed by the Greenhouse Gas Protocol Initiative. The Greenhouse Gas Protocol (from here on referred to as the GHG Protocol) is, along with the ISO standard 14064, the most widely used and recognized international standard for identifying, calculating, and reporting GHG emissions.

Using the guidance described in the GHG Protocol, ALS NE has compiled a GHG emissions inventory, which allows us to calculate the emissions from our operations using emission activity data from both internal and external sources (cf. section 3.6) multiplied by appropriate GHG emissions factors (cf. section 3.7). This section describes the methodology used to carry out the calculations including our decisions on the scope of the inventory regarding geography, time period, and emission sources. We also address the uncertainty associated with our calculation methodology before presenting the main results from our GHG inventory in Chapter 4.

## 3.1 Reporting period

The focus of this report is the fiscal year 2023 (FY 2023) corresponding to the 12-month period from the 1st of April 2022 to the 31st of March 2023. However, it also covers the calculated GHG emissions in fiscal years 2022, 2021 and 2020 (our base year, cf. section 3.2).

Unless otherwise stated, years in this report always refer to ALS NE's fiscal years.

## 3.2 Base year

As required by the GHG Protocol, ALS NE has selected an inventory base year, which allows us to track our GHG emissions over time using the base year emissions as our benchmark level. We have chosen our fiscal year of 2020 (April 1st, 2019, to March 31st, 2020) as the base year for our inventory, which coincides with the base year selected by our parent company, ALS Limited, based in Australia.

The base (fiscal) year of 2020 was selected for multiple reasons:

- While activity data for both scope 1 and 2 emission sources (cf. section 3.6) is readily available for multiple years before 2020, this is not the case for many of the emission sources found in scope 3 (cf. section 3.6.3). Because it is ALS NE's ambition to include emissions from all three scopes, it will be an advantage to work with a recent base year, as it increases the probability of successfully obtaining scope 3 activity data from the suppliers in our value chain.
- Our fiscal year of 2020 ended immediately after the onset of the global COVID-19 pandemic in the winter of 2019/2020. Therefore, while the emissions of 2021 and 2022 are influenced to some degree by the pandemic and its impact on the business, the base year will constitute a 'normal' year to which the coming years can be compared directly to.
- The pharmaceutical laboratories in Sollentuna and Landskrona were acquired by ALS NE in calendar years 2017 and 2018, respectively. By choosing a base year following these acquisitions, we avoid the difficulties associated with locating data from before these laboratories were incorporated into ALS NE.

- The choice ensures that our base year is the same as the one selected by another European business unit, ALS Life Sciences Western Europe, which we expect to be one of our closest collaboration partners in calculating emissions from our value chain (scope 3 emissions).

In relation to our long-term strategy goal of becoming climate neutral by 2035 (cf. section 2.2), FY 2020 also constitutes our target base year as defined by the GHG Protocol.

### 3.2.1 Recalculation policy

Last year's report contained the first published set of emissions data for ALS NE, and while great efforts were made to ensure the numbers were both accurate and precise, we expect to continuously revise and update emission values in future reports going back to the base year. These updates will partly be due to our ongoing work to obtain more representative activity data, more up-to-date emission factors and to expand the data collection within our reported scopes. But also, partly because of changed business conditions and structures expected to affect our GHG inventory. This is something that will have a big impact on next year's report due to two acquisitions within our business that are not yet included in our GHG inventory.

In accordance with the GHG Protocol, we intend to assess our inventory every year and evaluate the need to recalculate emissions from previously reported years including the base year. Recalculation of emissions for already reported years will generally be carried out in the following cases:

- Structural changes such as acquisitions or divestments.
- Addition of scope 3 categories and expansion of categories already included in the inventory.
- Changes in calculation methodology for included emissions sources.
- Improvements in data accuracy for activity data already included in the inventory.
- Significant changes to emission factors used to calculate emissions in previous years. Such changes will result in increased representability (scientific, geographical, or temporal) for the emission sources in question.

To avoid the need for frequent recalculations, ALS NE has decided to only recalculate our GHG inventory following substantial changes in the above-mentioned factors that result in significantly different emission values. A significance threshold of 5% has been defined for changes in emissions from individual or accumulated smaller changes to the conditions underlying the inventory. This is done to ensure stability and simplify the process of managing inventory data.

By following the recalculation policy stated above we will be able to maintain a high level of consistency and comparability in our GHG emissions inventory. ALS NE intends to keep a detailed log of all major changes to the inventory (activity data, calculation methods, and emission factors), which will allow us to adhere to our calculation policy and ensure adequate documentation as required by the GHG Protocol.

## 3.3 Recalculations and changes since last year

- Last year we had mistakenly included emissions from one of our Swedish mineral labs in our GHG inventory. These were emissions from fuel consumption in company vehicles. The change in our inventory when this was discovered resulted in a total decrease in emissions of 29.32 t $CO_2$e over the time period FY 2020–FY 2022 in our scope 1 emissions – mobile combustion.
- During FY 2023 we changed our calculation method for dividing emissions from electricity and petrol/diesel/HVO 100 related to the Swedish/Norwegian vehicle fleet. The emissions from this

source remain the same overall, but the allocation between the Swedish site Danderyd and the Norwegian site Oslo differs.

- Effort has been made to collect more data directly from our subcontractors for transportation, rather than through estimations and calculations. This has resulted in more reliable data coming directly from our subcontracted transportation companies, which in this case resulted in a decrease of our emissions in scope 3 – upstream transportation and distribution.
- More site-specific information has resulted in a change for estimated average weight for one of our larger transportation subcontractors where a tkm value is used to estimate emissions. This has resulted in an increase in emissions in scope 3 – upstream transportation and distribution.
- After further investigation regarding upstream transportation and distribution we have found and added emissions data for new subcontractors. This has resulted in an increase of emissions in scope 3 – upstream transportation and distribution.
- During FY 2023 we added seven new suppliers of plastic products to our inventory. So far, no data from previous years (FY 2020-FY 2022) has been collected so no recalculations have been made back to base year. This will give the illusion of a big increase of emissions in scope 3 – purchased goods and services.
- In last year's inventory the emission factor for district heating in Luleå was set as zero. After replacing that with actual emission factors for the years in question there was an increase of emissions in scope 2 – heating cooling and steam.
- Due to inconclusive data and time-consuming process to access full data, we decided to remove scope 3 category – business travel, from our inventory. This category will be added once again when more resources are available.
- When presenting location-based emissions from scope 2 – electricity, in last year's report, we used the wrong emission factor. Recalculations resulted in a major decrease in emissions in scope 2 – electricity (location-based).
- In last year's inventory the emission factors used to calculate emissions from purchased plastic products did not include the moulding process. After addition of moulding process to the emission factors there was an increase of emissions in scope 3 – purchased goods and services.

## 3.4 Organisational boundaries

ALS NE has defined the organisational boundaries of the inventory with reference to the methodology described in the GHG Protocol. We apply the operational control approach when consolidating our GHG inventory and thus account for all GHG emissions from sources over which we have full operational control. The following laboratory and office sites are included in ALS NE's GHG inventory:

*Table 1. Nordic sites included in the GHG inventory for ALS NE.*

| Site | Abbreviation | Country | Business | Type |
|---|---|---|---|---|
| Danderyd | TA | Sweden | Environmental | Laboratory |
| Luleå | LU | Sweden | Environmental | Laboratory |
| Sollentuna | SLL | Sweden | Pharmaceutical | Laboratory |
| Landskrona | LKN | Sweden | Pharmaceutical | Laboratory |
| Oslo | ON | Norway | Environmental | Office/Laboratory |
| Sarpsborg* | SRP | Norway | Environmental | Laboratory |
| Humlebæk | HMB | Denmark | Environmental | Laboratory |
| Helsinki | HKI | Finland | Environmental | Office |

*The process of closing the Sarpsborg site was initiated in 2021 and is expected to be finished in 2025.

## 3.5 Operational boundaries

The operational boundaries of the GHG inventory were set using the methodology described in the GHG Protocol. The inventory is divided into three main scopes of direct and indirect emissions:

- Scope 1 – Direct GHG Emissions: Emissions that occur from sources controlled by ALS NE, e.g. emissions from combustion boilers, furnaces, vehicles, and refrigeration equipment.
- Scope 2 – Electricity Indirect GHG Emissions: Emissions from the generation of acquired and consumed electricity, heat, and cooling (collectively referred to as "electricity").
- Scope 3 – Other Indirect GHG Emissions: Emissions that are the consequence of activities carried out by ALS NE, but occurs at sources not controlled by the company, e.g. production of purchased goods and services, outsourced transportation, and employee commuting.

The GHG Protocol mandates the inclusion of all relevant and significant scopes 1 and 2 emissions, while emissions in scope 3 are optional according to the protocol. However, it has been the expectation from the very beginning of our work with GHG emissions that the scope 3 emissions from our value chain will constitute the majority of ALS NE's total emissions. For this reason, we have set out to include scope 3 emissions in the GHG inventory presented in this report, though we acknowledge that a complete overview and quantification of the scope will be a prolonged and demanding process. We strive to report our scope 3 emissions according to the *"Corporate Value Chain (Scope 3) Standard"* in the future, as our work is progressing.

ALS NE currently includes scopes 1 and 2 emissions as well as selected scope 3 emissions in our GHG inventory. We have identified relevant scope 3 categories based on their perceived importance relative to the scopes 1 and 2 emissions (cf. section 3.7.3). Such importance could refer to the expected size of the emissions, the emissions considered to be most important to clients and stakeholders, or the emission categories with the greatest reduction potential. At the moment, ALS NE's GHG inventory includes the following three scope 3 categories:

- Purchased goods and services
- Upstream transportation and distribution
- Employee commuting

However, none of the categories mentioned above is fully accounted for due to lack of reliable data. This applies, in particular, to the category "purchased goods and services". The collection of data and emissions sources is an ongoing work, and we hope to be able to report a more accurate result of emissions in these categories in our next climate report. Emissions from scope 3 are mainly reported for the Environmental sites. The only scope 3 emissions category reported for the Food & Pharma sites, Landskrona and Sollentuna, is employee commuting. Moving forward we will strive to include emissions from the Food & Pharma sites in all categories reported for the Environmental sites. We also expect to include additional categories in the coming years, where we will be focusing on the upstream categories as defined in the GHG Protocol. This is because the main product delivered by ALS NE is laboratory analysis services that do not produce physical products with corresponding downstream emissions. Most of the downstream scope 3 categories are therefore not relevant to our business.

### 3.5.1 Location-based and market-based scope 2 emissions

To comply with the GHG Protocol Scope 2 Guidance, ALS NE has chosen to calculate and report scope 2 emissions using both the *location-based* method and the *market-based* method. This makes sense to us, as most of our sites purposefully have chosen to purchase certified renewable energy rather than obtaining electricity from the Nordic mix available in the Nordic market. For this reason, our emissions calculated using the market-based method will be significantly lower (and more representative) than the emissions calculated from the location-based method.

When calculating emissions using the location-based method, national or Nordic grid-average emission factors for electricity, heating etc. are used. On the other hand, when calculating emissions using the market-based method, supplier-specific emission factors for the contractually obligated energy products are used instead. Scope 2 and total emissions are generally reported using both methods in this report, except when reviewing emission data specific to countries, scopes, or categories. In these cases, only emissions calculated using the market-based method is included.

## 3.6 Inventory management

ALS NE's GHG inventory is compiled using Microsoft Excel, as no external software has so far been found suitable for our business' needs. The inventory allows for simple data entry of activity data for a range of different emission sources, which is then registered to individual sites in specific months of the year. All intermediate activity data calculations and estimations are carried out in separate files stored alongside the inventory itself. Energy and density conversions of activity data are made based on publicly available or supplier-provided conversion factors.

The GHG inventory is managed by the Nordic Environmental and GHG Coordinator, who is the main person responsible for collecting activity data and identifying and updating emission factors. The inventory is also accessed by environmental specialists located at each site who support the GHG work with their local site knowledge and supplier contacts.

While the input data to the inventory might be in different units (kWh, litre, kg, tkm etc.), the unit of the final calculated emissions is tonnes of carbon dioxide equivalents (t $CO_2e$). $CO_2$-equivalents are used to capture the climate change potential of different greenhouse gasses. These greenhouse gasses contribute to global warming according to their global warming potential (GWP) as reported by the IPCC.[1] According to the GHG Protocol, companies should include and be able to report emissions of all six greenhouse gasses listed in the Kyoto Protocol: carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride ($SF_6$). It is our goal in ALS NE to be able to report emissions by the individual gasses, but at the moment we exclusively report emissions as t $CO_2e$. This is due to a lack of available information on the breakdown by gas for most of the emission factors currently used to calculate emissions.

For the leaked refrigerant emissions reported as part of scope 1 (cf. section 3.6.1), $CO_2e$-values are calculated directly using the latest published GWP-values in IPCC's Fifth Assessment Report (AR5) from 2014. The GWP-values are for a 100-year time horizon.

ALS NE is planning to have the GHG inventory internally audited by employees involved in quality control and then reviewed by management. The audit will include not only the compiled data itself, but also assess the information management process and evaluate the tools used to update the inventory.

## 3.7 Activity data

The activity data registered in our GHG inventory mainly consist of information obtained from supplier invoices and reports, internal statistics, and various HR and accounting systems. Complete sets of primary data dating back to the base year have been collected whenever possible, preferably specific to the individual site and month. Registering the data on a monthly basis allows us to easily aggregate it into reporting periods based on our fiscal years.

The collected activity data included in this report generally covers all the scopes and categories defined by the organisational boundaries (cf. section 3.4) for the last four fiscal years (FY 2020 – 2023). One major exception is FY 2020 data for mobile combustion and external logistics services (upstream transportation

[1] $CO_2e$ is the universal unit of measurement for GHG emissions. It is calculated using the global warming potential (GWP) of greenhouse gasses defined in units of carbon dioxide. $CO_2$-equivalents allow for the evaluation of different greenhouse gasses using a common unit.

and distribution) for the Norwegian sites Oslo and Sarpsborg. This data would mainly be collected from invoices, however, due to technical difficulties in accessing a now discontinued invoicing system, only emissions from a single supplier in this category have been calculated. Other minor deviations from complete data sets are mentioned when relevant in the results section.

ALS NE has chosen to geographically register data on site level to better be able to locate significant emission sources and identify emission reduction projects specific to the individual sites. However, data is not always available for each site, but rather for multiple sites or whole countries. In these cases, activity data is allocated to sites based on distribution keys, which are usually calculated using a purchase cost index value. As an example, selected external logistics companies in Sweden provide services to both the Danderyd and Luleå sites, but do not specify on their invoices how the services have been divided between the two sites. The accounting department, however, holds information on how the invoiced supplier expenses have been allocated to Danderyd and Luleå, respectively. Thus, an index value can be calculated and used as a distribution key to allocate this supplier's activity data (and related GHG emissions) between the sites.

For certain emissions sources, primarily in scope 3, data has been either incomplete or unsuitable for direct input into the GHG inventory. In these cases, conservative assumptions and modelling have been necessary to estimate the activity data and its associated emissions. The methods used for estimating such activity data are described in detail in internal GHG documents.

To provide a clear picture of the activity data currently included in ALS NE's GHG inventory, the emission sources included in each of the three scopes are described in the next subsections.

### 3.7.1 Scope 1 emissions

The following (direct) scope 1 emissions are included in the inventory:

Natural gas: The laboratory site in Humlebæk, Denmark, uses natural gas to heat its buildings during the year. As the gas is burned on-site, its related emissions are categorized as direct scope 1 emissions. Total annual consumption data is provided by the gas supplier at the beginning of each calendar year. The gas consumption is then distributed to individual months using nationally published heating degree days[2].

Fuel: Fuel data for vehicles at the Danderyd, Humlebæk, and Oslo sites are collected using the monthly invoices received from major fuel suppliers as well as the receipts provided by employees with company cars and credit cards. Data consists of volumes of petrol, diesel, and biodiesel (HVO 100) respectively.

Refrigerants: There is a risk of direct emissions of refrigerants with high GWP-values at the three laboratory sites in Danderyd, Oslo and Humlebæk. Regular service reports from the Swedish site are used to monitor potential leaks or spills of refrigerants, however, none has been identified yet. For the Danish site in Humlebæk, leaks are quantified from refilled amounts of refrigerants listed on invoices for service visits related to leaking A/C equipment. At the Oslo site the landlord is responsible for service of refrigeration equipment, and information about potential leaks is received via landlord contact. No leaks have been identified so far.

[2] Heating (or cooling) degree days are used to quantify the demand for energy necessary to heat (or cool) a building. Using monthly values of degree days allows us to take temperature variations into account when we allocate our gas consumption to individual months.

Excluded emission sources and the uncertainty of the activity data in this scope are addressed in later sections.

### 3.7.2 Scope 2 emissions

The following (indirect) scope 2 emissions are included in the inventory:

Electricity: In the reporting period, all eight of the Nordic sites have purchased electricity from external suppliers in their local area. Depending on the circumstances for the individual site, monthly electricity consumption data is obtained from supplier-issued invoices, invoices from the building landlord, or from communication with the supplier themselves. For the sites in Oslo and Sollentuna, no direct measurement of the electricity consumption is made – instead the landlord allocates a share of the total consumption for the building to ALS NE based on its floor area occupancy.

In addition to the electricity consumption in the buildings of the respective sites, ALS NE has been purchasing electricity from external suppliers to charge electric vehicles (EVs) since the spring of 2021. Thus, from the fiscal year of 2022 the electricity charged by EVs has been recorded as well using a combination of invoice statements and estimations based on purchase cost.

District heating: Five of the Nordic sites (Danderyd, Luleå, Sollentuna, Oslo, and Helsinki) use district heating or another type of heating to warm their laboratory and/or office facilities. However, only the Luleå site has actual meters for measuring the heat consumption at the site, which is stated on the monthly invoices received from their energy supplier. The Danderyd site receives calculated annual consumption data from its landlord based on its floor area share of the building, but no heat consumption data is available for the three remaining sites. Therefore, to be able to calculate the emissions from the energy generation needed to heat these sites, we have used the known consumption values from the Luleå and Danderyd sites to create a floor area index value (kWh/$m^2$). This value has then been used to estimate the purchased energy needed to heat the Sollentuna, Oslo, and Helsinki sites from their respective floor areas.

Excluded emission sources and the uncertainty of the activity data in this scope are addressed in later sections.

### 3.7.3 Scope 3 emissions

The following scope 3 emission categories are currently included in the inventory:

1. Purchased goods and services: As a major provider of laboratory services, ALS NE purchases large quantities of a variety of goods from many different suppliers. Many of these goods fall into one of the following categories: Sample containers, laboratory disposables, chemicals, and gasses.

It was our expectation, going into scope 3, that plastic and glass products used for sampling and analysis purposes would be some of the major emission sources in this category. In our first year of collecting data, we started with our main supplier of sample containers and laboratory disposables. This year we focused on including more plastic items from other big suppliers in this product category. However, we haven't been able to collect the appropriate data from some of our bigger suppliers of laboratory disposables, so we expect there to be a significant amount of plastics still not included in our dataset. For the suppliers we have included we have used their product-specific information to calculate total purchased amounts (kg) of glass and plastics. Due to lack of product-specific data for previous years for the added suppliers we have done no calculations back to base year. This means that in FY2023 it appears our plastic consumption have increased greatly, which isn't necessarily true. This is something we will adjust in next year's report. Our hope moving forward is to include purchased amount of glass and plastics from all our biggest suppliers where the appropriate product-specific data is available and then create a cost index value of $CO_2e$/SEK to estimate emissions for the remaining purchases. Plastics included are high-density polyethylene (HDPE), low-density polyethylene (LDPE), polyethylene terephthalate (PET), polypropylene (PP), polystyrene (PS) and synthetic rubber (SR).

In addition to glass and plastic, ALS NE has also collected data on gas purchases for analytical use at three of the Environmental sites, Danderyd, Luleå, and Humlebæk. These are the three sites with the biggest production and thus the biggest consumption. Argon gas is used at all three sites for metal analysis, but carbon dioxide, helium, hydrogen, nitrogen, and oxygen gas are also regularly purchased. Purchased quantities have been collected from the supplier invoices.

In next year's report ALS NE will aim to include consumption and emissions of our most frequently used acids and solvents.

4. Upstream transportation and distribution: ALS NE has an extensive logistics network covering all of Scandinavia. In addition to our own company vehicles used for sample collection and sample container delivery (mainly in Humlebæk, Oslo and Danderyd), we also employ a wide range of external logistic companies in Northern Europe to provide these services to our clients. Additionally, we use multiple different transportation companies such as DHL and Jetpak to ship samples internally between our many laboratories all over the world.

Collection of activity data for this category is specific to the individual supplier and the information currently available to us from invoices, internal statistics, and annual carbon footprint reports. Some suppliers offer data on the GHG emissions from their services calculated using the EN 16258 standard on GHG emissions of transport services. In the last four fiscal years, approximately 85% of our annual emission data in the transportation and distribution category was received directly from the supplier. The remaining 15% of the annual emissions were calculated based on assumed or modelled activity data such as distance, weight, and purchase cost.

7. Employee commuting: In December 2022 a survey was conducted at all ALS NE sites to capture emissions related to employees traveling to and from work. The survey represents an employee's commuting habits in the last 12 months. The response rate throughout the Nordic sites was approximately 65% which means that the remaining 35% of our employees are assumed to have the same commuting habits as the respondents to the survey. To calculate emissions back to base year we have gathered emission factors for all years and locations, adjusted the number of full-time equivalent employees for each year and added emissions to FY2020 based on the increased number of days people work from home since the COVID-19 outbreak. Several sites are located in remote areas or in the outskirts of the city, which makes travel by car quite common. This has proven to be a big emitter of $CO_2e$ and has made the category employee commuting a big contender for emissions reduction projects, such as benefit bicycles for the staff.

## 3.8 Emission factors

One of the most important features of ALS NE's GHG inventory is its ability to assign supplier-specific emission factors for individual fiscal years to each emission source. This feature allows us to always use the most recent and accurate emission factors and to avoid the use of outdated emission factors.

The emission factors used for our GHG calculations originate from a variety of sources including national agencies, scientific studies, the GHG Protocol, product and service suppliers, and the ecoinvent life cycle inventory database (version 3.9.1). The Ecoinvent database contains data sets of more than 18,000 activities and allows users to calculate specific emission factors using their preferred impact assessment method. ALS NE uses the unit-regionalized variation of the database with the cut-off system model and the impact assessment method IPCC 2013 GWP 100a.

When choosing which emission factor to use for a given emission source, we have evaluated the potential factors based on accuracy and relevance, and then chosen the emission factor most likely to minimize the uncertainty of the calculation. Occasionally it has been necessary to convert original emission factors into other units before multiplying them with their corresponding activity data. In these cases, the conversions are carried out directly in the GHG inventory's emission factor database.

It is ALS NE's intention to continuously review and update emission factors while registering all significant changes to the factors for inventory recalculation purposes (cf. section 3.2.1).

## 3.9 Exclusions

Sections 3.7.1 – 3.7.3 of this report describe the emission sources included in the current inventory, and while most of our main emission sources in scopes 1 and 2 are accounted for, some additional smaller emission sources have also been identified and then deliberately excluded from the inventory.

For scope 1 and 2 we have excluded emissions from:

- Smaller rented sample drop-off locations, parking lots, and storage spaces.
- Fuel consumption in lawn mowers and other small equipment used to maintain sites.
- Gasses emitted to the atmosphere during analysis carried out in the laboratory.
- Newly acquired laboratories AHA-lab in Helsinki and Odense DB lab in Denmark.

The above emissions are expected to be insignificant compared to the quantified emissions, and/or will be difficult to measure or estimate. However, as our work with GHG data collection improves, we expect to be able to either include all of the above emission sources in our inventory, or to be able to quantify the emissions sufficiently to exclude them on a stated significance level, e.g. <1% of our total emissions.

Due to the large extent of scope 3, we are not yet including emissions from all fifteen scope 3 categories in our inventory. It is however our intent to continuously work to add emission sources from additional (relevant) categories to obtain a complete picture of our value chain emissions. The following scope 3 emission sources have so far been deliberately excluded, even though they belong in the categories described in section 3.7.3:

- All emissions from the Landskrona and Sollentuna pharmaceutical sites, except for emissions from employee commuting.
- Newly acquired laboratories AHA-lab in Helsinki and Odense DB lab in Denmark.
- Emissions from specialized plastic material used in membranes such as silicone, foam, and PTFE.
- The emissions from production of gas mixtures occasionally used in the laboratories.
- External logistic services used to transport other internal goods than samples and sample containers, e.g. equipment, office supplies, and documents.

The main reason for the exclusions above has been that it was not technically possible or highly resource demanding to quantify these emissions at the present time. However, we are continuously working on improving this area and aim to include most, if not all, of the identified scope 3 emissions in the inventory in the long run. The first step will be to include reporting of the scope 3 emissions described in section 3.7.3 for pharmaceutical sites Landskrona and Sollentuna and at least scope 1 and 2 emissions from the new acquisitions AHA-lab and Odense DB lab.

## 3.10 Uncertainty

Many different types of uncertainties are associated with the compiling of a GHG inventory – from the uncertainty of the obtained activity data itself (both measured, calculated, and estimated) to the uncertainty of the emission factors used to calculate the GHG emissions. The significant uncertainty associated with GHG inventories is mainly due to the complicated nature of GHG accounting, which combines the fields of financial reporting, data management, and climate science. It is generally accepted that while the individual uncertainty of activity data, emissions factors, etc. should always be minimized, the general uncertainty of the inventory can never be completely eliminated.

When collecting activity data for the various emissions sources, we have used the following approximate scale to evaluate the uncertainty associated with the data:

- Low uncertainty: Measured consumption data or emissions data delivered directly by reliable suppliers with sufficiently documented sources and methodology. Emissions data is preferably in kg $CO_2$ or kg $CO_2$e per unit or time period. Examples include electricity consumption and reported emissions from subcontracted transportation companies.
- Medium uncertainty: Data estimated using supplier-provided calculation tools, or activity data calculated on a combination of directly supplier-provided values (e.g. distance) and self-estimated values such as average shipment weights. It also includes activity or emissions data estimated from purchase cost using index values calculated from other suppliers. Data can be in various different units, examples include transport distances from invoices and amounts of consumed plastics from a given supplier.
- High uncertainty: Activity data for input into the GHG inventory is directly or indirectly estimated from other types of activity data using generally estimated values. Data can be in any unit. Examples include district heating data estimated from floor areas, values of tonne kilometres calculated from both estimated distances and weights, and emissions estimated from purchase cost using calculated index values from other countries.

The activity data for most of the emission sources included in scopes 1 and 2 has been evaluated as having low uncertainty. Medium and high uncertainties are generally seen for activity data in scope 3, especially for some of our minor external logistics service providers for which very little information is available.

The uncertainty related to our applied emission factors is not evaluated individually. Instead, it is included in the considerations when selecting the factors themselves for the inventory. We aim to use the most representative emission factors regarding geography, time, and circumstances. For this reason, we have chosen to use supplier-provided (and quality assured) emission factors, when possible, as we expect our suppliers to be the best-informed on the production or generation of their products. If suppliers are not able to provide us with applicable emission factors, we will prefer local over national values, current over outdated values, and product-specific over generic values. We use the Ecoinvent database (cf. section 3.8) to obtain emission factors for the times when a default or approximate value is acceptable due to a lack of better options.

# 4. Results

This section presents and discusses the development in emissions in all three scopes from the base year (FY 2020) to the current reporting period (FY 2022). Due to the large difference in completeness of the collected data for scope 3 compared to scopes 1 and 2, this scope is addressed separately in section 4.2.

In addition to the change in individual emission categories discussed in sections 4.1 to 4.3, section 4.4 looks at the collective emissions for each of the four countries included in ALS NE. Local differences at the sites have greatly affected the size of their emissions as well as their potential to reduce them since FY 2020. This point is further illustrated in section 4.5.1, which presents normalized metrics (ratio indicators) for each country by relating the total scopes 1 and 2 emissions to site-specific net revenue (SEK).

## 4.1 Scopes 1 and 2 emissions

Table 2. contains the total emissions in scopes 1 and 2 for all eight Nordic sites in the recently completed fiscal year of 2023 and in the three previous fiscal years including the base year. As stated in section 3.5.1, scope 2 and total emissions are reported using both the market- and the location-based calculation methods.

*Table 2. Scopes 1 and 2 emissions by category for all Nordic sites, FY 2020 – FY 2023. Emissions are in t CO2e.*

| | FY 2023 | FY 2022 | FY 2021 | FY 2020 |
|---|---|---|---|---|
| Scope 1 emissions | 375.0 | 380.0 | 422.3 | 358.5 |
| Stationary combustion | 102.5 | 96.3 | 95.7 | 87.1 |
| Mobile combustion | 266.3 | 281.9 | 325.1 | 270.8 |
| Fugitive emissions | 6.3 | 1.9 | 1.6 | 0.7 |
| Scope 2 emissions (*market-based*) | 46.2 | 53.2 | 328.4 | 378.5 |
| Electricity | 6.0 | 15.6 | 304.3 | 353.8 |
| Heating, cooling, and steam | 40.2 | 37.6 | 24.1 | 24.8 |
| Scope 2 emissions (*location-based*) | 332.2 | 332.9 | 315.5 | 309.9 |
| Electricity | 251.0 | 245.8 | 236.2 | 233.1 |
| Heating, cooling, and steam | 81.2 | 87.1 | 79.4 | 76.7 |
| Total emissions (*market-based*) | 421.2 | 433.2 | 750.7 | 737.1 |
| Total emissions (*location-based*) | 707.2 | 712.9 | 737.8 | 668.4 |

When looking isolated at the total emissions, a clear downward trend can be seen for the market-based emissions, while the location-based emissions had a big increase in FY 2021 and then a slow decline, but still remain higher than the base year emissions. Results for the individual categories are discussed in detail in the next two subsections.

### 4.1.1 Scope 1 emissions

The emissions from stationary combustion (natural gas) have continued to increase in FY 2023, though not as much as from FY 2020 to FY 2021. Due to a lack of available data, the emissions from January to March 2022 (corresponding to approximately 44 t $CO_2e$) have been estimated from the gas consumption in the same period the year before (cf. Figure 8.). Thus, the emissions for stationary combustion in FY 2023 will need to be recalculated in the next reporting period, when actual data has been received from the supplier. We expect to see a decrease in the consumption in these months after the completion of a reduction project at the Humlebæk site to reduce the gas consumption by installing smart thermostats to regulate the inside temperature. This fiscal year another project will commence to change the heating source from natural gas to district heating. We expect this to have a significant impact on our scope 1 emissions going forward. By 2030 the district heating in the area will be 100% $CO_2$ neutral according to the supplier.

While the emissions from mobile combustion increased significantly from FY 2020 to FY 2021, they are now below base year level in FY 2023. The reason for the large increase in this category in FY 2021 is to be found in the purchase of petrol and diesel at the Danderyd site, which increased from 2,792 litres to 24,671 litres due to increased use of company vehicles for transportation purposes. This was at a time when our external logistic service providers were heavily affected by the COVID-19 pandemic. When electric vehicles were introduced into the Swedish and Norwegian vehicle fleet in FY 2022, fuel consumption fell to 9,351 litres with approximately 40% of the purchased diesel being HVO 100 biodiesel with lower emissions per litre than regular diesel. Together, the EVs and biodiesel reduced emissions from FY 2021 to FY 2022. The decrease of emissions in this category continues in FY2023 as a result of even lower consumption of fuel in the Swedish and Norwegian vehicle fleet, which dropped to 7,003 litres, in combination with the introduction of biodiesel in the Danish fleet. Also introduced in the Danish vehicle fleet was their first electric vehicle, which was purchased in June 2022. This has been the first step of the electrification of the Danish fleet and during the coming years today's fleet will gradually be replaced with electric vehicles. During this time the use of biodiesel will continue to increase in the remaining diesel cars.

The fugitive emissions from leaks of refrigerants constitute less than 0.7% of the total scope 1 emissions in all four years, however, their relative importance is high, as the actual amounts of emitted refrigerants to the atmosphere are disproportionately low (2.1 kg in FY 2023 resulting in 6.3 t $CO_2e$). This discrepancy is due to the high GWPs of the refrigerants in the atmosphere (cf. section 3.6). The risk of emitting large amounts of $CO_2e$ from this category is therefore high, and effort should be made to eliminate all such leaks going forward. The increase in fugitive emissions from the base year is not seen as a general trend, but rather as the result of leaks of more potent refrigerants in later years.

### 4.1.2 Scope 2 emissions

The market-based indirect scope 2 emissions from purchased electricity have been significantly reduced (-98%) since our base year. As can be seen from the overall increase in ALS NE's electricity consumption since the base year (cf. Figure 10.), the reduction in emissions is not due to less energy being used. Rather, it is the result of the Nordic policy of procuring certified renewable (green) electricity at as many sites at possible. The large drop in market-based emissions from electricity from FY 2021 to FY 2022 is almost exclusively the achievement of the Humlebæk site. The Danish site started buying certified renewable electricity in January 2021 and thereby reduced its emissions by more than 250 t $CO_2e$. Currently, all sites except Sarpsborg and Helsinki are actively buying green energy from their suppliers with the main electricity source being Norwegian hydropower. In FY 2023 ALS Limited, our parent company, decided to purchase green certificates, covering 90% of ALS global consumption. The consumption in Helsinki and Sarpsborg has been covered by these certificates, leaving only emissions from charging of EVs in the scope 2, market based, category.

An increase can be seen for the market-based indirect scope 2 emissions from purchased heating, cooling, and steam. The increase mainly occurs between FY 2021 and FY 2022 and is due to an expansion of the Luleå site combined with an increased use of fossil fuel in the district heating mix in Luleå during the years 2021-2022. For three of the five sites buying heat externally (cf. section 3.7.2) we lack real activity data. The calculations carried out to estimate the heating consumption on these sites are based on a combination of static floor area values and data from other sites, which may not be sufficiently representative to accurately estimate the actual consumption. This makes it impossible to track changes in data over time for these sites. However, it is our overall expectation that the uncertainty of the calculated values has been reduced as far possible, and that the limited laboratory activities at these three sites would lead to a quite stable heating consumption.

ALS NE has chosen to report scope 2 emissions calculated both using the market-based and location-based methods (cf. Section 3.5.1), while focusing on the market-based approach in our inventory assessment and further emission reduction projects. The location-based scope 2 emissions have increased since the base year. As the emission factors used to calculate the location-based values for electricity are unchanged in the period (because no newer values have been published yet), it must be the result of an increase in consumption of either electricity or heating consumption. From FY 2020 to FY 2021, the heat consumption at the Luleå and Danderyd sites increased by 10% and 29%, respectively. Because the data from these two sites are used to estimate heat usage at three other sites (as described in Section 3.7.2), the total increase in consumption becomes even larger. However, since most sites either have a very low consumption of heating or very low emissions connected to the consumption this does not really affect the end-result. To achieve a big reduction in this category we are investigating the option to change our agreement with Luleå Energy to their climate neutral option.

## 4.2 Scope 3 emissions

Even though ALS NE is still working on collecting activity data for the many sources of indirect emissions in scope 3, we have so far managed to calculate emissions for selected sources in the scope 3 categories purchased goods and services, (upstream) transportation and distribution, and employee commuting. When collecting information in scope 3, we have initially focused on the emission sources expected to contribute most significantly to our total emissions.

Table 3. shows the scope 3 emissions that we have been able to quantify so far. Data on scope 3 emissions has only been collected for all three categories for the environmental sites (cf. Table 1.) due to data availability. The only scope 3 category reported for all eight sites is employee commuting.

*Table 3. Scope 3 emissions by category for all Nordic sites, FY 2020 – FY 2023. Emissions are in t CO2e.*

| | FY 2023 | FY 2022 | FY 2021 | FY 2020 |
|---|---|---|---|---|
| Upstream activities | | | | |
| 1. Purchased goods and services* | 217.2 | 189.5 | 184.2 | 146.3 |
| Glassware | 91.5 | 96.6 | 96.7 | 76.2 |
| Plastics (HDPE, LDPE, PET, PP, PS, SR)** | 89.1 | 45.2 | 40.5 | 32.6 |
| Gasses (Ar, $CO_2$, He, $H_2$, $N_2$, $O_2$) | 36.3 | 47.5 | 46.7 | 37.5 |
| 4. Transportation and distribution* | 289.1 | 290.0 | 272.5 | 265.3 |
| External logistics services | 289.1 | 290.0 | 272.5 | 265.3 |
| 7. Employee commuting | 562.7 | 525.6 | 468.2 | 437.7 |
| Walking/biking | 0 | 0 | 0 | 0 |
| Rail traffic | 15.2 | 18.9 | 11.5 | 9.9 |
| Bus | 21.9 | 27.9 | 22.1 | 17.1 |
| Car (petrol) | 319.5 | 291.5 | 265.1 | 239.4 |
| Car (diesel) | 197.7 | 181.1 | 164.3 | 151.8 |
| Car (EV) | 8.4 | 6.2 | 5.3 | 4.3 |
| Added emissions base year*** | - | - | - | 15.2 |
| Total emissions | 1068.7 | 1004.8 | 924.6 | 849.5 |

*Data is only included for environmental sites, **Data from additional suppliers added in FY2023 has not been calculated back to base year, ***Due to an increase in the number of days employees work from home since the pandemic a calculated emission is added to the base year based on the difference in the number of days working from home between then and now.

In addition to expanding the category of purchased goods and services, we plan to include reporting of all listed scope 3 categories for the pharmaceutical sites by the next reporting year. The next three subsections discuss the development in emissions for each of the three scope 3 categories included in Table 4.2.

### 4.2.1 Purchased goods and services

The total emissions in this category increased by 50,6% from the base year to FY 2023. If we look at the emissions sources individually, we can see a big increase in emissions from glass and plastic consumption since our base year. Continuous method development allows us to use smaller sample volumes and thus smaller sample containers. Method development also allows us to decrease our use of pipettes and tubes at the lab and we always strive to use the smallest options possible. However, since our business is growing and we analyse more and more samples each year, it's hard to decrease our absolute emissions only by decreasing consumption. We are therefore investigating sample containers with recycled contents. This is a time-consuming process, since a lot of testing needs to be done to make sure that our results will not be affected by the recycled materials. Before implementing more reduction projects in this category, we expect absolute emissions to continuously increase as our business grows. The big increase in emissions from plastic seen between FY 2022 and FY 2023 is due to the addition of data from seven suppliers of plastic goods in FY 2023. Data has not been collected and calculated back to base year but instead emissions are just added in FY 2023.

Of the purchased gasses in Danderyd, Luleå, and Humlebæk, the argon gas used for various metal analyses is without doubt the largest contributor of GHG emissions, because of the large volumes purchased. A big drop in emissions can be seen between FY 2022 and FY 2023 in Table 3, and this is mainly due to a change in Luleå. Since October 2022 they have changed to Linde's Green Argon option, which is a completely climate neutral option. The change of supplier in Danderyd during the fall of 2021 has also resulted in a significant decrease in argon consumption even though the number of samples analysed have increased during the time period. Consumption has dropped from approximately 14 200 litres to 12 800 litres between FY 2022 and FY 2023. This is believed to be a result of a previous automatic signal to Linde, going out when the gas containers were nearly empty, that could have resulted in a change of container too soon. Now there is no automatic signal going out to the new supplier, Strandmöllen, but rather the staff themselves ordering a new gas delivery when one container is empty.

### 4.2.2 Transportation and distribution

Emissions from transportation of samples and sample containers provided by external logistics services have increased by approximately 20 t $CO_2$e since the base year with an overall increase of 9%. However, we estimate that 20-30 t $CO_2$e is missing for the Oslo site in the base year due to missing invoice data (cf. Section 3.6).

Aside from the missing Norwegian data for the base year, this scope 3 emissions category is almost completely quantified. Future work will therefore focus on improving data accuracy by obtaining additional information from suppliers for whom we currently estimate emissions rather than receive actual numbers.

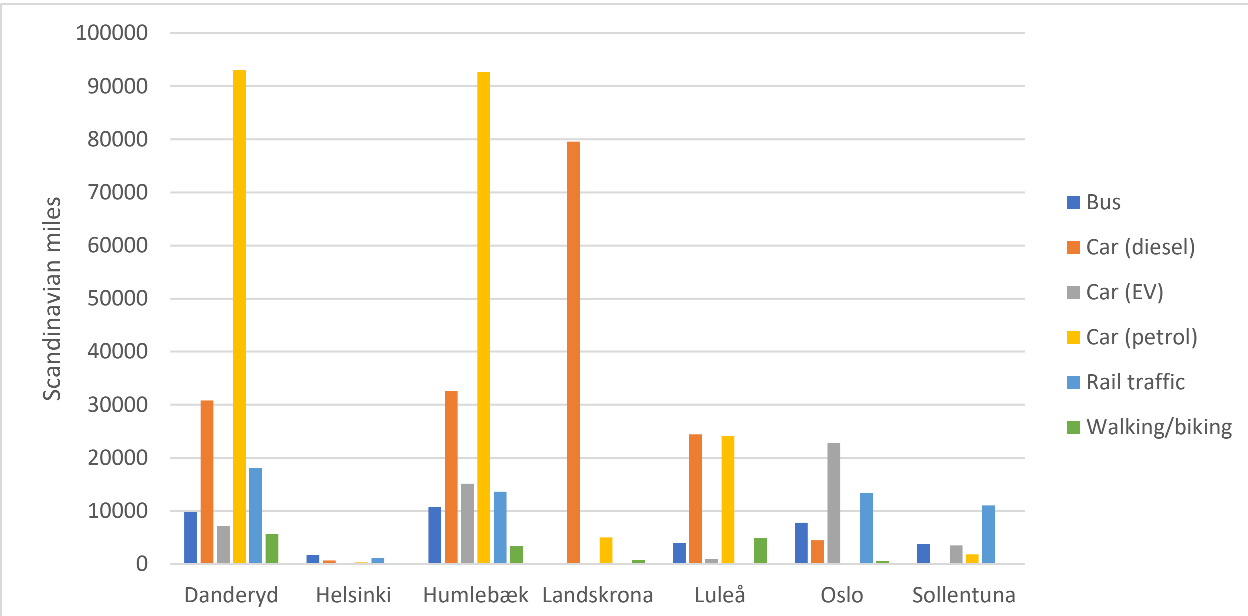
### 4.2.3 Employee commuting

All data in this category is based on data from the 2022 survey. Since only 65% of our employees responded to the survey, it means that a lot of data is estimated based on these answers. The response rates also differ a lot between the sites meaning that some estimations are less accurate than others. Since data for previous years is calculated based on the answers from the 2022 survey, it's hard to see any real changes in data other than changes of emissions factors and the number of employees over the years. To try to capture the change in the routines regarding work from home since our base year, which was before the COVID-19 pandemic, we added emissions to FY 2020 based on the difference between the number of days our employees work from home now compared to then. We haven't taken into consideration that the number of people working from home during the pandemic was a lot higher than in FY 2023, when the survey was conducted, meaning that the estimated emissions from FY 2021 and FY 2022 is believed to be somewhat too high. Going forward we plan to conduct this survey once a year and we will strive towards a 100% participance.

As can be seen in table 3. emissions in this category increase a lot between our base year and FY 2023. The increase is exclusively due to an increased number of full-time equivalent employees, which have risen with 30%, corresponding to the increase of emissions.

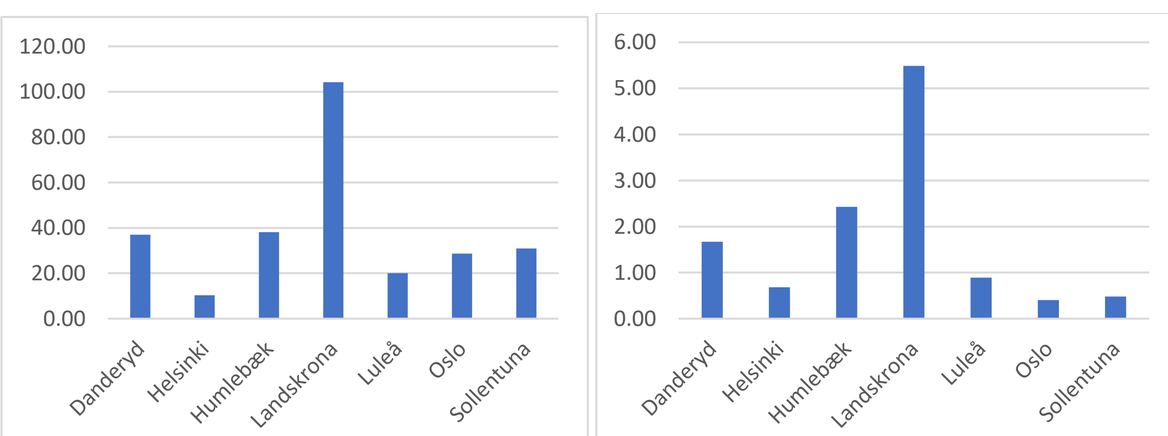
In Figure 2. we can see the difference in the most commonly used modes of transportation to and from work between our Nordic sites. Since our laboratory sites are often located in remote areas or in the outskirts of towns, we see a lot of commuting by car amongst our employees. This is something we hope to be able to change in the future by promoting car-pooling or travel by bike where possible. During the spring of 2023 we started a collaboration with GreenBenefits, a company providing benefit bicycles with multiple options including electric bicycles. We hope that this will encourage our staff to leave the car at home more frequently. To further reduce the consumption of fossil fuel amongst our staff we also install charging stations for electrical vehicles on our sites to facilitate the use of electric vehicles.

*Figure 2. Distance travelled by mode of transportation in a 12-month period for all Nordic sites. Distance is in Scandinavian miles (10km).*




The pharmaceutical site in Landskrona is one of our smaller sites but has a great distance travelled by car amongst the employees. To shed more light on the situation we compared the average emission per employee with the average distance to work, as can be seen in Figure 3. This shows that the average distance for our employees in Landskrona is a lot farther than for our other sites. This in combination with poor communication options, makes the car the most reasonable option and explains the big numbers.

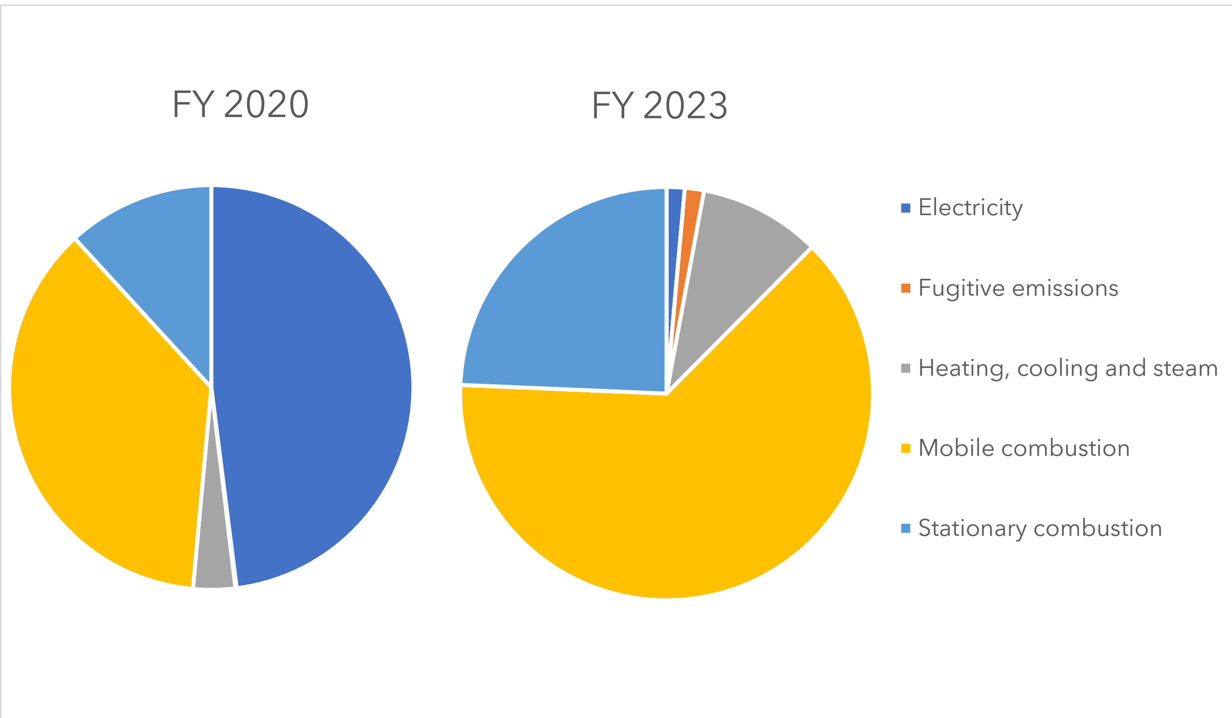
*Figure 3. To the left are average distances to work for all Nordic sites. Distance is in km.*
*To the right are emissions per employee and year for all Nordic sites. Emissions are in t CO2e.*



## 4.3 Emission categories

Figure 4. shows the composition of our total scopes 1 and 2 emissions in the fiscal years of 2020 and 2023 divided into categories. Electricity constituted 48% of our emissions in FY 2020 but has now, after completed projects, decreased to around 1%. The remaining electricity emissions originate from the external charging of EVs in Sweden and Norway. It is clear from the development illustrated in Figure 4 that the reduction potential is currently greatest in the categories of stationary and mobile combustion. Projects have already commenced to reduce emissions in these areas (cf. Section 5.1), for example the replacement of heating with natural gas by district heating in Humlebæk, and a partial transition from regular diesel to the less $CO_2$-intensive biodiesel (HVO 100) and EVs for our Danish vehicle fleet.

*Figure 4. Scopes 1 and 2 emissions, all sites FY 2020 and FY 2023*



## 4.4 Emissions per country

ALS NE currently encompasses eight different locations/sites in four different countries, and while our long-term goal of becoming climate neutral is based on our total emissions in Northern Europe, it makes sense to assess the sites individually to identify trends and track reductions. Table 4. shows our total emissions in scopes 1 and 2 by site and country for the base year and latest fiscal year of FY 2023 as well as the absolute changes in emissions for each site and country.

*Table 4. Scope 1 and 2 emissions by site, FY 2020 and FY2023. Emissions are in t CO2e.*

| | FY 2023 | FY 2020 | Change |
|---|---|---|---|
| Sweden | 52.7 | 32 | +20.7 |
| Danderyd | 15.2 | 7.8 | +7.4 |
| Luleå | 35.7 | 20.9 | +14.8 |
| Sollentuna | 1.8 | 1.9 | -0.1 |
| Landskrona | 0.0 | 1.4 | -1.4 |
| Norway | 9.4 | 32.7 | -23.3 |
| Oslo | 9.4 | -* | - |
| Sarpsborg | 0 | 32.7 | -32.7 |
| Denmark | 356.6 | 668.1 | -311.5 |
| Humlebæk | 356.6 | 668.1 | -311.5 |
| Finland | 2.5 | 4.2 | -1.7 |
| Helsinki | 2.5 | 4.2 | -1.7 |
| Total emissions (*market-based*) | 421.2 | 737.1 | -315.9 |

*Data not available, cf. section 3.7.

The sections below discuss the emissions in Table 4 for each of the four Nordic countries with ALS NE sites.

### 4.4.1 Sweden

The total emissions for the Swedish sites in FY 2023 are approximately 65% higher than in the base year due to significant increases in the emissions from the Luleå and Danderyd laboratory sites. Emissions in Sollentuna are unchanged, while a small decrease is seen in Landskrona, where the fuel purchased in the base year is no longer relevant to the business in FY 2023.

In Danderyd, the increased emissions are partly because of an increase in fuel consumption as illustrated by Figure 9. (+3.7 t $CO_2e$), and partly because of the newly added emission source that is purchased electricity for charging of electric vehicles (+3.6 t $CO_2e$). Unfortunately, not all suppliers of electricity for EV charging offer the option to purchase renewable electricity, and logistics considerations have led to the need to charge at multiple suppliers. The increased consumption of fuel is primarily petrol, which is used in rental cars replacing the EVs when they are on service or repair. At the end of FY 2023 four new Tesla model Y vehicles were purchased. These vehicles are more suitable for ALS's needs, and the need of repairs or service is expected to decrease and thus decrease the use of rental cars. When rental cars need to be used, we will strive to use diesel cars running on HVO 100.

The increased emissions in Luleå are due to the fluctuating mix of energy sources constituting the district heating mix as well as an expansion of the site, making the need for district heating increase. As mentioned previous in this report we are currently investigating the possibility to change from Luleå Energy´s basic option to their climate neutral option.

### 4.4.2 Norway

Due to a lack of activity data for the Oslo site in FY 2020, it has not been possible to calculate base year emissions for this specific site. However, as the site has not had any scope 2 emissions from electricity and heating since its latest relocation in 2017, the only potential emission source is fuel. The consumption of fuel in the base year is not expected to be significantly different from in the following fiscal year, which corresponded to 2.5 t $CO_2$e. The increase in emissions for the Oslo site in FY 2023 is due to their share of fuel used in rental cars replacing the electric vehicles on repair. In FY 2023 emissions from fuel increased to 7.2 t $CO_2$e. The remaining increase of 2.2 t $CO_2$e is from charging of EVs from suppliers who do not provide green energy. The change in emissions from the Oslo site from the base year to FY 2023 is assumed to be around 7 t $CO_2$e.

The Sarpsborg site has seen a decrease in emissions primarily from a lower electricity consumption (cf. Figure 10.), as there is no activity at the site. The Sarpsborg site does not purchase renewable energy with any guarantees of origin. However, the consumption at the site is covered by certificates purchased by our parent company ALS Limited in FY 2023, making emissions from the site drop to zero.

### 4.4.3 Denmark

While the Danish site in Humlebæk is still the main contributor of scopes 1 and 2 emissions in FY23, it has managed to almost halve its emissions compared to the base year (a decrease of 46.6%). This decrease is mainly the result of the site switching to renewable electricity in January 2021, but lowered emissions from fuel consumption have also contributed to the overall reduction with 14 t $CO_2$e. The biggest reduction in fuel consumption can be seen between FY 2022 and FY 2023 following a reduction project to partly transition to HVO 100 biodiesel in the Danish vehicle fleet as well as the purchase of the first electric vehicle. This project will continue in FY 2024 along with the continuous introduction of electric vehicles in the fleet.

In addition to the reduced emissions from fuel and electricity, the Humlebæk site has also seen a small increase in emissions from leaking refrigerants (4.4 t $CO_2$e) and increased natural gas consumption (cf. Figure 8.), though it should be mentioned that the latter value is partly estimated and will be adjusted by the next fiscal year.

### 4.4.4 Finland

The emissions for the office site in Helsinki, Finland, have decreased by 1.7 t $CO_2$e (33.3%) since the base year. The change includes an estimated increase in heating consumption with 0.6 t $CO_2$e based on the consumption from the Danderyd and Luleå sites as well as a decrease in emissions from electricity consumption following the purchase of green certificates by ALS Limited, covering the consumption at the site. Generally, the fluctuations in scope 2 consumption for the site are quite small, as the office site is less affected by changes in production volume than the larger laboratory sites in the other countries.

## 4.5 Total emissions

Figure 5. combines the results of the previous sections to illustrate the total emissions of all sites from FY 2020 to FY 2023 broken down by scope. It should be noted that the included scope 3 emissions are still far from fully accounted for and are expected to increase, as more emission sources are identified and quantified.

ALS NE's total emissions increased by 5.6% from FY 2020 to FY 2021, and then fell to 90.7% of the base year level in FY 2022. In FY 2023 there was a slight increase of emissions compared to FY 2022, but still below base year level. Also note that scope 3 emissions from the category "*purchased goods and services*" was added to FY 2023 for seven new suppliers without recalculations back to base year. Besides a small increase in FY 2021, the total scope 1 emissions have not changed significantly compared to the scope 2 emissions, which decreased drastically in the same period. Scope 3 emissions have increased steadily since the base year and are now by far the largest of the three scopes. This is in accordance with our expectations going into the GHG area, and in the future this difference between the scopes will only increase, as more emission sources in scope 3 are identified and quantified. However, the potential for reducing emissions in scope 3 is also large, which will be evident in the coming years with our focus on involving our employees in our work to reduce emissions as described in chapter 5.

*Figure 5. Total quantified emissions, all sites, FY 2020 - FY 2023*

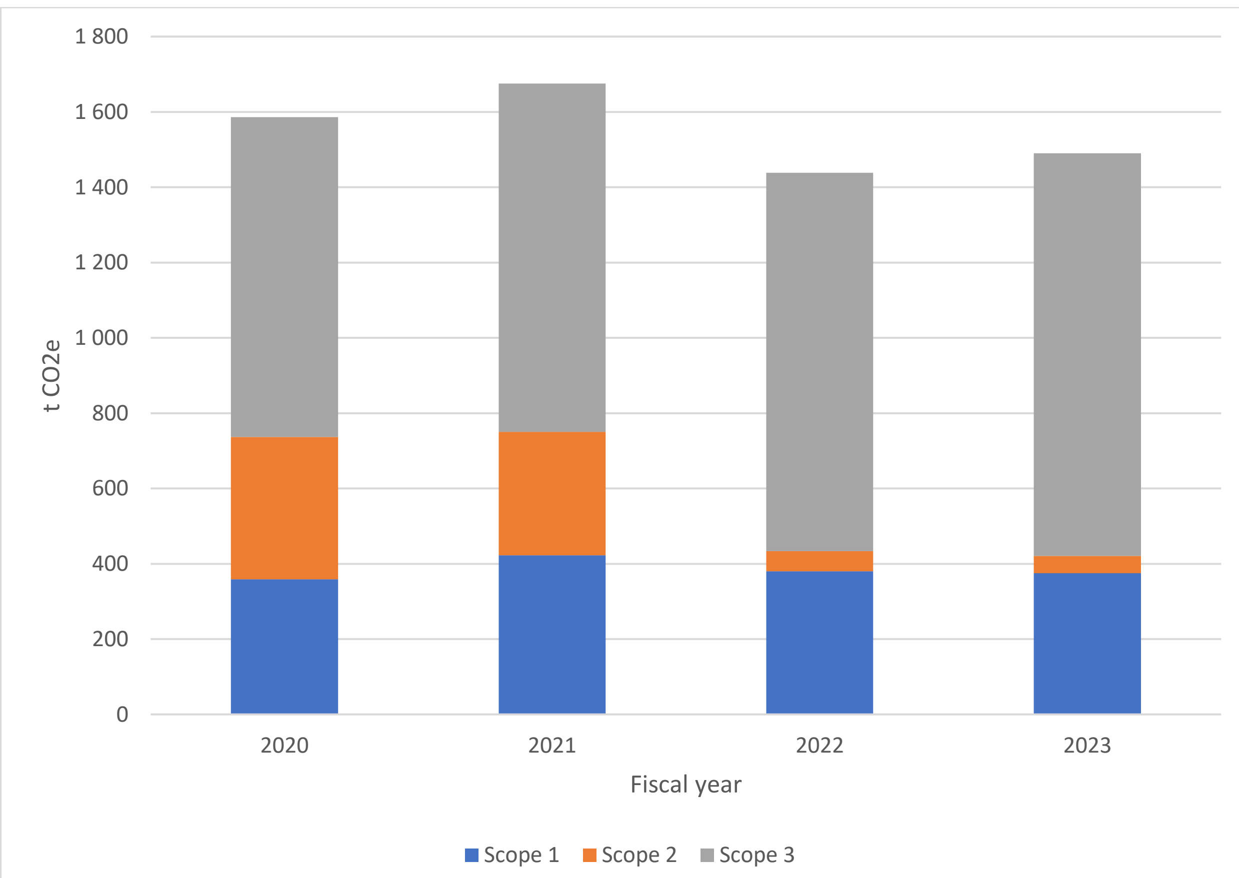
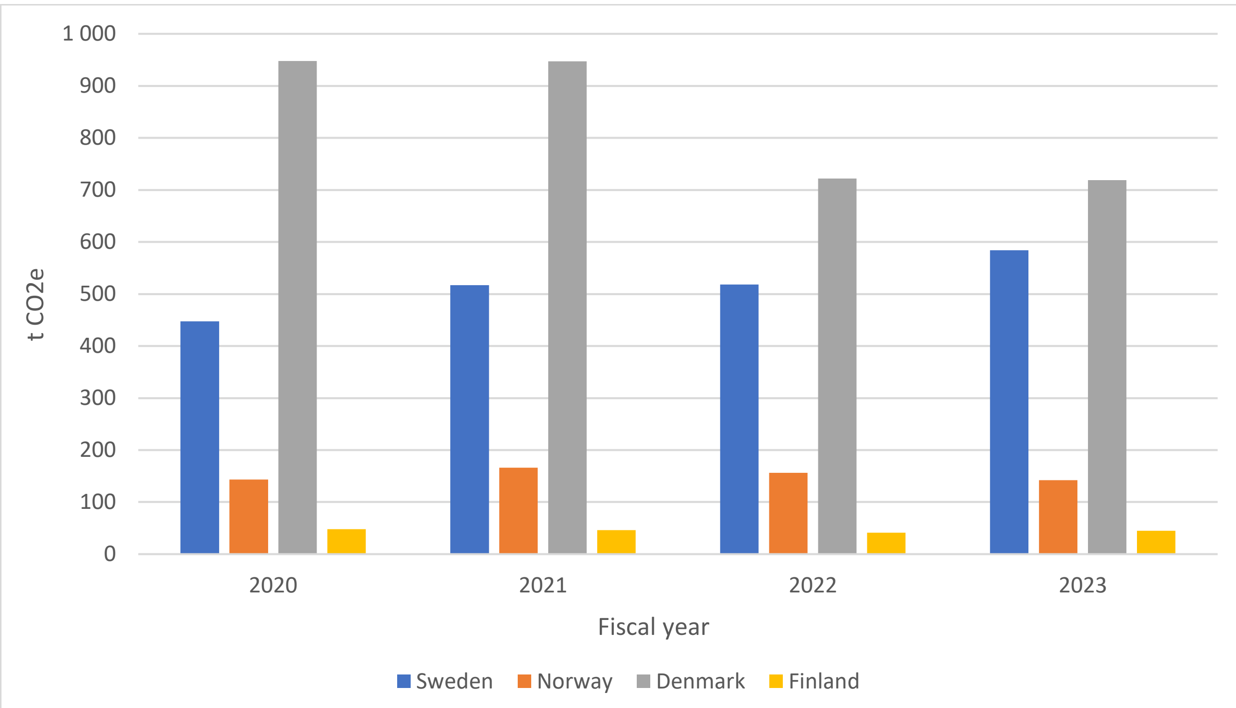


Figure 6. shows the total emissions from Figure 5. divided into the four countries represented in ALS NE. Once again, this figure clearly shows that Denmark is the main contributor of emissions in the Nordic Region with the large drop from FY 2021 to FY 2022 being the scope 2 reduction seen in Figure 5. as well. Second to Denmark in emissions are the collected Swedish sites, which mainly consist of emissions from the Danderyd laboratory. What Figure 6 does not show is the substantial reduction of scope 1 emissions from FY 2021 to FY 2022, when Danderyd started using electric vehicles as part of their operations. These savings are masked by the increase in scope 3 emissions from upstream transportation and distribution and employee commuting (cf. section 4.2.2 and 4.2.3). A minor decrease in emissions is seen for Norway, which is mainly due to a decrease of electricity consumption in Sarpsborg and furthermore the purchase of green certificates in FY 2023. The Helsinki site in Finland is a small office site. Therefore, there is no big consumption of electricity, gas, or sample containers. The emissions from the site are mainly from upstream transportation and distribution, when samples are sent for analysis to other laboratory sites.

*Figure 6. Total quantified emissions per country, FY 2020- FY 2023*



#### 4.5.1 Ratio indicator

ALS NE has experienced general growth in its operations since the base year FY 2020, which can be seen in the increased consumption of energy (natural gas, fuel, electricity) shown by Figures 8-10, and in the increased emissions from purchase of goods and services in Table 3. To better be able to compare emissions from year to year, we have chosen to calculate a so-called ratio indicator meant to decouple emissions from production. The indicator, net revenue is related to production and expected to roughly follow the same trend at the respective sites.

Table 5. contains the calculated values of a ratio indicator for each site in the recently completed fiscal year of 2023. Only scopes 1 and 2 emissions have been used to calculate the values in the table, which means that sites without or only few quantified scope 3 emission sources have low or no emissions per metric.

*Table 5. Ratio indicator per site/country, Scopes 1 and 2, FY 2020 and FY 2023. Emissions are in kg $CO_2e$.*

| | Per 1,000 SEK (net revenue) FY 2020 | Per 1,000 SEK (net revenue) FY 2023 |
|---|---|---|
| Sweden | | |
| Danderyd | 0.06 | 0.08 |
| Luleå | 0.19 | 0.26 |
| Sollentuna | 0.07 | 0.05 |
| Landskrona | 0.13 | 0.00 |
| Norway | | |
| Oslo | 0.00* | 0.14 |
| Sarpsborg | 4.69 | 0.00 |
| Denmark | | |
| Humlebæk | 6.12 | 2.53 |
| Finland | | |
| Helsinki | 0.41 | 0.26 |
| Average | 1.46 | 0.42 |

**Emissions not fully calculated for base year*

The values in Table 5. confirm the trends and tendencies seen previously in this chapter with Humlebæk being the main emitter. Helsinki, with its very low emissions, is actually at the same level as Luleå due to their low production volume.

While the calculated ratio indicator in the table is interesting, it will not be very useful for comparisons between the individual sites and fiscal years before more scope 3 emission data has been collected in the coming years. At that time the ratios should allow us to both track our progress in reducing emissions, but also communicate to clients the amount of GHG emissions associated with their specific sample. This is one of the milestones we hope to achieve on our journey towards climate neutrality.

# 5. Reducing emissions

As an analysis company it is natural for us to want to first measure (emissions), and then to improve (reduce). However, climate change is already impacting communities around the world, and urgent action is needed to keep global warming well below 2 °C by 2050 as outlined in the Paris Agreement. For this reason, we have focused on identifying and implementing projects to reduce emissions, while simultaneously working on compiling a complete GHG inventory. This section briefly describes our approach to reducing GHG emissions with examples of completed, ongoing, and future projects. It should be noted that emission reductions have been carried out in the past as well with many of the Nordic sites purchasing certified renewable electricity prior to our inventory base year of FY 2020.

## 5.1 GHG reduction projects

ALS NE continuously encourage employees to suggest potential ways for us to reduce our emissions going forward. In FY 2023 we introduced the platform Viima to all staff, which is a platform used to collect and categorize ideas for improvements. So far we have received 106 ideas in the GHG area, both big and small, since it's now easy for staff to suggest ideas in their own area of work where improvements are possible. Out of these 106 ideas, at least 45 projects have been implemented and 15 are in progress or are selected for implementation. GHG reduction projects might consist of investments in new technology or capital goods, changes in procurement practices, or adjusted workflows at the individual sites. When a project with the potential to reduce GHG emissions has been identified, a team on each site will evaluate the idea, and with help from the Nordic Environmental & GHG Coordinator, calculate the estimated reductions. These calculations, along with the financial aspects, help the relevant site manager(s) to decide whether to carry out the project or not. As the calculated reductions will be based on current data and assumptions, it is important to re-evaluate projects and update calculations regularly as new and more accurate information becomes available. Table 6. lists examples of GHG reduction projects carried out or initiated from FY 2021 and onwards.

*Table 6. Completed and commenced reduction projects, scopes 1 and 2, FY 2021 and onwards.*

| Project | Project start | Description | Est. $CO_2$e reduction/year |
|---|---|---|---|
| Electric vehicles | FY 2022 | Acquisition of 6 EVs to collect samples and carry out sample transportation between the Nordic sites in Norway, Sweden, and Denmark. | 42 t |
| HVO 100 | FY 2023 | Partial transition to biodiesel (HVO 100) in company vehicles in our Danish vehicle fleet. | 14 t |
| Green electricity | FY 2021 | Purchase of certified renewable electricity at our Humlebæk laboratory site. | 350 t |
| Solar panels | FY 2023 | Installation of solar panels on the roof of the Landskrona site. | 0 t* |
| Green electricity | FY 2023 | Purchase of certified renewable electricity at the Helsinki office site in Finland. | 1.4 t |
| Green electricity | FY 2023 | Purchase of certified renewable electricity at the Sarpsborg site in Norway. | 7.4 t |
| Smart thermostats | FY 2023 | Installation of smart thermostats at the Humlebæk laboratory site to reduce the use of natural gas for heating. | 17 t |
| Electric vehicles | FY 2023 | Acquisition of 4 new EVs to the Swedish/Norwegian fleet, more suitable for our specific needs. | 10 t |
| HVO 100 | FY 2024 | Transition to use of biodiesel (HVO 100) in rented vehicles replacing EVs on service or repair in the Swedish/Norwegian fleet. | 5 t |
| District heating | FY 2024/2025 | Change of heating source at the Humlebæk laboratory site, from natural gas to district heating. | 81 t |
| District heating | FY 2024 | Change from Luleå Energy's basic option to their climate neutral option for district heating. | 35 t |

*As the Landskrona site is already purchasing certified renewable electricity, the energy generated by their new solar panels will not result in any reductions when calculating emissions using the market-based method.

While the primary focus of reduction projects so far has been emissions sources in scopes 1 and 2, the last fiscal year (FY 2023) has introduced multiple projects related to scope 3 – even in categories that have not yet been fully quantified in the GHG inventory. Such projects include changes to disposal practices for analysis waste, solvent volume optimizing for organic extractions, and implementation of new analyses at local ALS laboratories to reduce the need for external logistics services for transportation of samples.

The reductions associated with these scope 3 projects have generally not been very high compared to our total emissions (a few hundred kilos or tons per year). However, these projects often contribute to our general sustainability goals as well as reduce GHG emissions, and they send a strong signal to employees that their ideas and efforts are appreciated. Scope 3 projects are therefore valued in line with those in scopes 1 and 2.

Several reduction projects from all scopes have already been planned and/or initiated for the current fiscal year (FY 2024). Examples of such projects are listed in Table 7. below:

*Table 7. Completed and commenced reduction projects, all scopes, FY 2023 and onwards.*

| Project | Project start | Description | Est. $CO_2$e reduction/year |
|---|---|---|---|
| Digital signatures | FY 2023 | Elimination of paper reports for analytical results at the Sollentuna site. | 4 t |
| Plastic reduction | FY 2024 | Use of autosampler at the Danderyd site to save single use tubes and pipette tips. | 0,6 t |
| Digital payslips | FY 2023 | Transition from paper to digital payslips in Sweden | 1-2 t |
| Green argon | FY 2023 | Purchase of green argon at the Luleå site in Sweden | 14 t |
| Benefit bicycle | FY 2024 | Benefit bicycles available for staff at the Swedish sites in Danderyd and Luleå | - |

### 5.1.1 Reduction impact

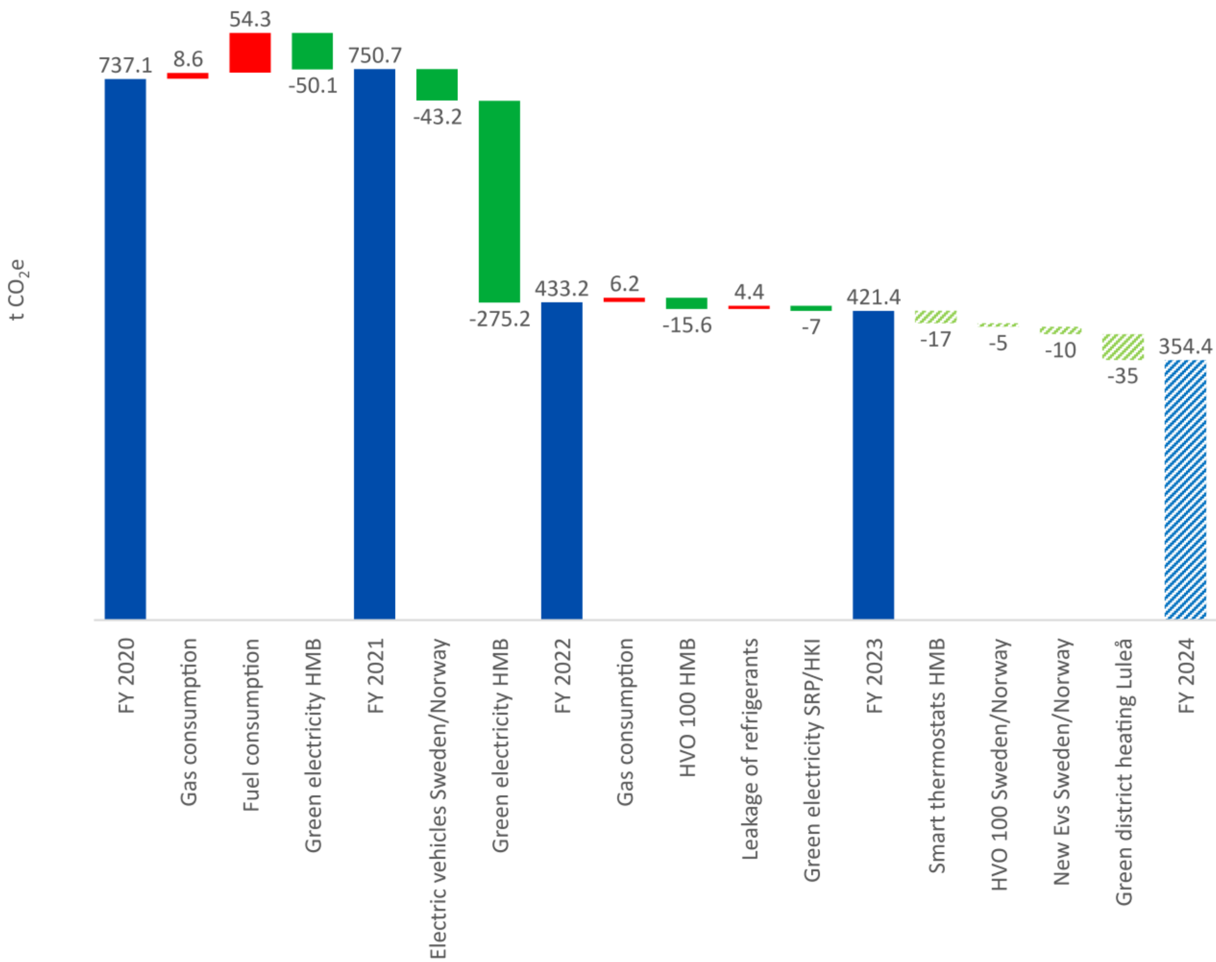
Figure 7. on the next page illustrates the impact of selected completed and ongoing reduction projects on our total scopes 1 and 2 emissions from FY 2020 to FY 2023. The blue columns represent our total reported emissions at the end of the fiscal year. Red columns represent an increase of emissions and green a decrease.

The purchase of renewable electricity at the Humlebæk (HMB) site began in January 2021 corresponding to three months of zero emissions from electricity in FY 2021. This reduction (-50.1 t $CO_2$e) almost compensated for the emissions from increased fuel consumptions in FY 2021 (+54.3 t $CO_2$e).

Multiple reduction projects were launched or continued in FY 2022, which saw a large decrease (>300 t $CO_2$e) in emissions from the previous fiscal year. Figure 7 clearly shows the continued effect from purchasing green electricity in Humlebæk (-275.2 t $CO_2$e) as well as the reductions from using electric vehicles in Sweden and Norway (-43.2 $CO_2$e).

One of the major reduction projects in FY 2023 was the partial transition from regular diesel to biodiesel (HVO 100) in our Danish vehicle fleet. The project was estimated to save the site approximately 46 t of $CO_2$e in FY 2023. However, results showed an actual decrease of only 15.6 t $CO_2$e, and further actions will be taken during FY2024. Another project that is expected to reduce our emissions significantly is the change of heating source from natural gas to district heating at the Humlebæk site. The project will be started during the fall in 2023. The estimated reduction of approximately 40 t of $CO_2$e per year might therefore not be realized until FY 2025.

*Figure 7. Actual and estimated emission reductions from future projects, scopes 1 and 2. Shaded areas are estimated values.*



# 6. Carbon offsetting

By offsetting part of our total GHG emissions using purchased Certified Emission Reductions (CERs), ALS NE is continuing to take climate action and work seriously towards our goal of climate neutrality by 2035. While we are currently working on identifying and implementing a range of difference reduction projects across the Nordic region (as described in Chapter 5), the real emission reductions of these projects will not be enough for us to reach neutrality. Because of the technological limitations to eliminate emissions completely, it will be necessary for us to compensate for our remaining emissions by obtaining CERs. Carbon offsetting has been part of our climate neutrality plan from the beginning, which is why we first purchased credits in FY 2020 and have been doing it every fiscal year since. The credits come from different projects that focus on sustainable development and real emission reductions that are converted into CER credits (or offsets). Each credit is equivalent to a single ton of $CO_2e$, which can be sold to companies or countries that want to count these credits towards their own emission reduction targets while supporting sustainable development around the world. This approach has allowed us to simultaneously work on reducing our own emissions, while at the same time supporting efforts to reduce emissions in other parts of the world.

## 6.1 Corporate offsetting

As part of a centralized GHG strategy from our parent company ALS Limited, CERs have been bought and offset, on a corporate level, on behalf of ALS NE during fiscal year 2023. Offsets have been made to cover most of our scope 1 emissions, see Table 8. The CERs are purchased through the Tasman Environmental Market (TEM), who offers offsets compliant under the Australian Government's Climate Active Carbon Neutral Standard. Investments have been made in five different projects.

The number of Carbon Offsets purchased in connection with any singular project is capped so as to not exceed more than 50% of the total number of Carbon Offsets to be purchased by the Group within the then-current financial year period.

## 6.2 ALS NE offsetting

Since FY 2020, ALS NE has been climate compensating through the United Nations' Clean Development Mechanism (CDM) program. Under the CDM program, GHG emission-reducing or -limiting projects can be carried out in developing countries with the financial support of countries, organizations, or businesses from around the world.

## 6.3 Total offsetting and remaining emissions FY 2023

ALS NE is committed to being climate neutral with respect to scope 1 and 2 emissions. In Table 8 below are presented calculated emissions, corporate CERs, ALS NE CERs as well as remaining emissions in the different scopes after offsets.

ALS NE has reached its goal of climate neutrality with respect to our calculated scope 1 and 2 emissions. We have taken further action to make our transportations climate neutral as well as investing in an additional number of offsets for remaining scope 3 emissions.

Since we are continuously improving the quality of our data and the number of categories included in our inventory, we are still continuing on our journey towards reducing our emissions and to become, and continue to be, a climate neutral option for analytical services.

*Table 8. Carbon offsetting and remaining emissions FY 2023.*

| | Total emissions (t $CO_2e$) | Corporate CERs (t $CO_2e$) | ALS NE CERs (t $CO_2e$) | Remaining emissions* (t $CO_2e$) |
|---|---|---|---|---|
| Scope 1 | 375 | 331.16 | 43.84 | 0 |
| Scope 2 | 46.20 | | 46.20 | 0 |
| Scope 3 Transports | 289.1 | | 289.1 | 0 |
| Scope 3 Rest of emissions* | 779.90 | | 20.86 | 759.04 |

**Including currently quantified scope 3 emissions as defined in Section 3.7.3*

# 7. Emissions reporting

As part of a global initiative by ALS Limited, ALS Northern Europe will commence emissions reporting to its clients during FY 2024. Market based emissions will be reported for scope 1 and 2, based upon total expenditure. Emissions will be reported both before and after carbon offsetting.

As a first step emissions reports will be available to our Swedish Environmental clients, followed by Norwegian and Finish clients. Due to the use of other LIMS-systems at our Food & Pharma sites in Sollentuna and Landskrona and the Danish Environmental site in Humlebæk emissions reporting will commence later in FY 2024 or in FY 2025.

Reports will be available for the time period April 1st 2022 – March 31st 2023 (FY 2023).
For emissions reporting please contact:
Environmental & GHG Coordinator
Agnes Söderström
08-52 77 52 68
agnes.soderstrom@alsglobal.com

## 7.1 Model for emissions reporting

Description

- Only emissions according to scope 1 and 2 are accounted for in the model.
  - Subcontracted analyses performed by none-ALS laboratories are part of scope 3.
  - Subcontracted analyses performed by ALS laboratories are considered scope 1 and 2.
  - Non-Nordic ALS laboratories are ignored, if they contribute to less than 1% of the net revenue of the ALS entity receiving the samples.
- Emissions are included from both the sample receiving ALS laboratory and the performing ALS laboratory.
- Emissions are divided equally per revenue unit.
- Average fiscal year currency converter used for non-SEK currencies.
- Samples that were logged in the legacy LIMS-system are not included in the model.

The model

$$f(x) = \sum_{L=1}^{L=n} x_L \cdot C_c \cdot \frac{E_L}{T_L}$$

Where *x* denotes the net revenue of the client, $C_c$ is currency converter to SEK, *E* is the total $CO_2$ emissions by the laboratory and *T* is the total net revenue of the laboratory. The subscript *L* denotes the laboratory in which the revenue is allocated to.

The ratio between *E* and *T* are used to determine the emission factor, *e*, for each laboratory.

$$f(x) = \sum_{L=1}^{L=n} x_L \cdot C_c \cdot e_L$$

Example:

Net revenue by client: 5 000 000 SEK

Laboratories performing analysis for client during fiscal year:

*Table 9. Example of calculation. All values are fictional and only used for this example.*

| ALS Laboratories | Revenue by laboratory [SEK] | Currency converter (SEK to SEK) | Emission factor [kg $CO_2$e/SEK] | GHG calculation [kg $CO_2$e] |
|---|---|---|---|---|
| Danderyd | 3 000 000 | 1 | $9 \cdot 10^{-5}$ | $x_{Danderyd} \cdot C_{SEK} \cdot e_{Danderyd} = 270$ |
| Luleå | 1 000 000 | 1 | $10 \cdot 10^{-5}$ | $x_{Luleå} \cdot C_{SEK} \cdot e_{luleå}$ = 100 |
| Prague | 1 000 000 | 1 | $15 \cdot 10^{-4}$ | $x_{Prague} \cdot C_{SEK} \cdot e_{Prague}$ =1500 |
| Sum | | | | 1870 |

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# 9. Appendices

This section contains data and graphs referred to in the main report.

## 9.1 Consumption data

The scopes 1 and 2 emissions presented in Section 4.1 are calculated based on the consumption of natural gas, fuel, and electricity. The activity data for these emission sources are illustrated below.

*Figure 8. Natural gas consumption, FY 2020 - FY 2023. Shaded values indicate estimated consumption for Jan-March 2023.*

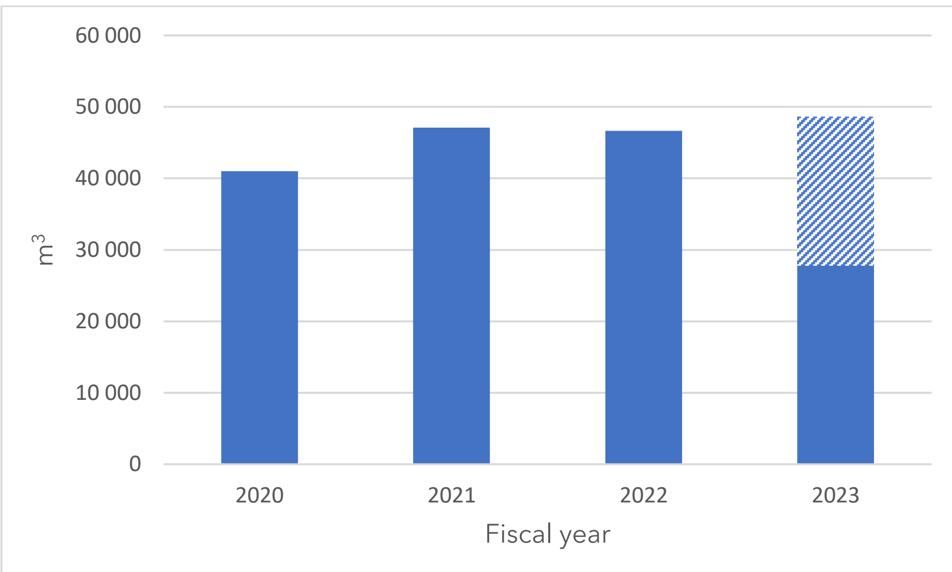


*Figure 9. Fuel consumption (petrol, diesel, HVO 100), FY 2020-FY 2023*

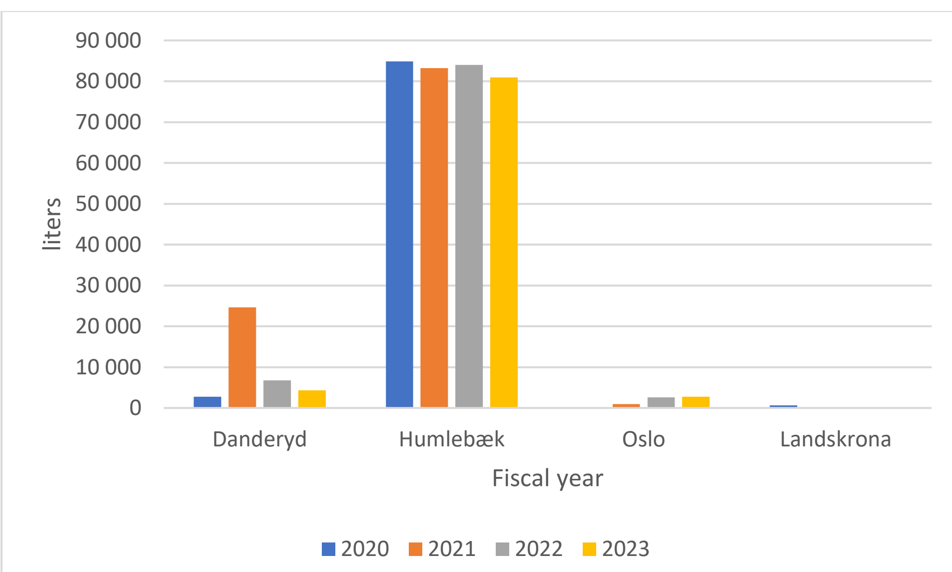

*Figure 10. Electricity consumption, FY 2020- FY 2023*