Energy & climate review

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Energy- & climate review regarding Sekura Cabins A/S

The energy and climate review report has been prepared in accordance with DS/EN 16247.

Energy- & climate review covers:	Sekura Cabins A/S Metervej 5 DK-8940 Randers SV Danmark CVR-nr.: 10957281

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1 Introduction

By agreement, Nordic Green Solutions A/S has conducted a study of Sekura Cabins A/S.

The study is based on visits to the company's factory in Randers, as well as interviews, measurements and production registrations at the processing plants.

Sekura Cabins A/S is free to use the analyses and savings proposals that the economic energy and CO_2 review in the report suggests.

The prerequisite for the allocated savings and payback periods to be used is that the operating hours and forms stated by the company are not significantly changed.

It should also be noted that the adviser is liable according to the rules in the General Conditions for Advice, 1992 (GBR 92).

2 Resume

The energy and climate review of Sekura Cabins A/S has been carried out to meet the legal obligation that applies to Danish companies with an annual energy consumption between 10 and 85 TJ. Nordic Green Solutions A/S has conducted the survey in collaboration with key personnel at Sekura Cabins A/S in the period May 2025 to December 2025. The energy review includes a systematic review of the company, where energy consumption is mapped and analyzed in order to identify cost-effective energy savings. The climate review focuses on mapping the company's CO_2 emissions and investigating the potential for reducing these.

This report outlines 8 proposals that the company can implement to reduce its energy consumption and/or CO_2 emissions. Together, they provide an energy saving of approx. 709.118 kWh/year, corresponding to 26% of Sekura Cabins A/S' total energy consumption, a reduction in CO_2 emissions of approx. 57.29 tons/year, corresponding to 19% of the company's total CO_2 emissions, and a financial saving of approx. DKK 494.874/year. It is expected that the proposals will require an investment of DKK 3.455.220. For one of the proposals, it is possible to apply for a financial subsidy from the Danish Energy Agency's business pool, which is included in the investment costs.

The energy consumption and CO_2 emissions at Sekura Cabins A/S can be seen in the tables below, and are divided into District heating, gas and electricity consumption.

Energy type	Consumption		Energy expenditure	
	[kWh/year]	[%]	[kr./year]	[%]
Electricity	1.307.952	48,1%	1.245.300	52,5%
Gas (proces)	871.035	32,0%	592.304	25,0%
Transport	14.453	0,5%	151.701	6,4%
District heating (space heating)	235.150	8,6%	170.701	7,2%
District heating (process)	292.200	10,7%	212.115	8,9%
Sum	2.720.790	100,0%	2.372.120	100,0%

Table 2.1: Overview of energy consumption and energy expenditure by type of energy.

Source of emissions	Emissions		Emissions expenditure	
	[ton CO_2/year]	[%]	[kr./year]	[%]
Electricity	105,94	35%	1.245.300	52%
Transport	3,85	1%	151.701	6%
Natural gas	179,43	60%	592.304	25%
District heating (space heating)	1,69	1%	170.701	7%
District heating (process)	2,10	1%	212.115	9%
Welding gases	6,21	2%	Not specified	Not specified
Refrigerant	0,78	0%	Not specified	Not specified
Sum	300,02	100%	2.372.120	100%

Table 2.2: CO_2 emissions per emission source.

The table below shows a list of the proposals for energy and CO_2 savings that have been identified in connection with the energy and climate review. Please note that some proposals may have overlapping savings, and therefore not all savings proposals can be implemented without further adoption.

Project name	Energy savings [kWh/year]	Savings [kr./year]	Net investment [kr.]	CO_2-reduction [ton/year]	Simpel PBP [year]	CO_2 Reduction Cost [kr./ton]
1. Ventilation system	69.538	66.207	-	2,23	-	-
2. EMS-system	130.795	124.530	150.000	4,19	1,2	35.838
3. Welding machines	40.855	38.898	2.374.969	1,31	61,1	1.816.604
4. Lighting	11.177	10.641	50.000	0,36	4,7	139.800
5. Excess heat painter	174.207	127.171	380.251	1,25	3,0	398.632
6. Surplus heat compressor	32.044	23.392	250.000	0,23	10,7	1.083.581
7. Powder brine ring temperature	217.759	118.461	-	45,08	-	-
8. PV	32.743	35.792	250.000	2,65	7,0	94.261
Sum/Avg.	709.118	545.092	3.455.220	57,29	6,3	446.090

Table 2.3: Summary of energy and CO_2 saving proposals.

3 Approval

Before the energy and climate review report is submitted to the Danish Energy Agency, it must be signed by the company and the energy review consultant, which documents that the report has been presented and reviewed. Sekura Cabins A/S hereby guarantees the following reporting and that it has carried out mandatory energy and climate review.

Company
Sekura Cabins A/S

Management representative
Tommy Grønkjær Jensen

Title
Quality Manager

Date

Consultancy
Nordic Green Solutions A/S

Quality Manager
Jesper Hansen

Title
Advisor – Energy Consultancy

Date
05-12-2025

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4 Background

Article 11 of the EU Energy Efficiency Directive obliges companies with a higher energy consumption in the member states to map their energy consumption when conducting energy reviews or implementing energy management, in order to ensure the achievement of the EU's goal of a 55% reduction in greenhouse gases emitted compared to 1990.

In Danish Act no. 736 of 20/06/2025, the Minister for Climate, Energy and Utilities is given a mandate to lay down detailed rules on which companies are covered by the requirements to introduce an energy management system or to carry out energy reviews and climate reviews. The Minister may also lay down rules on the content, scope, reporting, and use of qualified experts.
In accordance with BEK no. 1138 of 18/09/2025, the criteria for which companies are covered by the requirements for energy and climate reviews have been revised. The focus is now on both companies' energy consumption and CO_2 emissions, instead of just on energy consumption.

Companies with an annual energy consumption between 10 and 85 TJ are subject to requirements to carry out energy reviews (if they do not have energy management). This applies to the entire business, including any subsidiaries in which the parent company has an ownership interest of more than 50%. This approach ensures that the entire group structure is taken into account when assessing energy consumption and CO_2 emissions.

After the energy and climate review has been carried out, the companies must report the results to the relevant authority for approval. It is worth noting that while the implementation and reporting of inspections is mandatory, there is no legal requirement to implement the identified savings proposals.

4.1 Generel information

Sekura Cabins A/S (CVR no.: 10957281) is headquartered in Randers and is part of Foreman Capital, which took over the company in 2017. Sekura Cabins is one of Europe's leading manufacturers of cabs for industrial and agricultural vehicles, with a focus on safety, comfort and durability. For decades, the company has developed solutions in close collaboration with OEM customers, which has resulted in long-term partnerships and a strong position in the market.

According to Sekura Cabins A/S' annual accounts for 2024, taken from virk.dk, Sekura Cabins A/S had 162 full-time positions in 2024, a total annual turnover of DKK 49.104.179 (EUR 6,57 million) and a balance sheet of DKK 107.784.000 (EUR 14,42 million). When analysing the company's energy consumption and CO_2 emissions, see section 5 and section 6, the average annual energy consumption is determined to be 9,79 TJ and the average annual CO_2 emissions to be 300,2 tonnes in 2024. In the two previous years, 2023 and 2022, the total energy consumption was 13,08 TJ and 12,73 TJ, respectively. This gives an average energy consumption over three years of 11,85 TJ per year, which obliges Sekura Cabins A/S to carry out energy and climate reviews, according to BEK no. 1138 of 18/09/2025. Documentation for the energy and climate review must be submitted to the Danish Energy Agency no later than 19-12-2025.

Energy type [MWh/year]	2024	2023	2022
Electricity	1.308	1.616	1.739
Gas	871	1.180	1.046
District heating	514	838	752
Diesel/Gasoline	14	-	-
Total	2.707	3.634	3.537
Total [TJ]	9,75	13,08	12,73

Table 4.1: Total energy consumption in 2024, 2023 and 2022 by energy type.

4.2 Energy review consultant and participant in the energy and climate review

The review was carried out under the project management of Casper Thielsen, with the following organization:

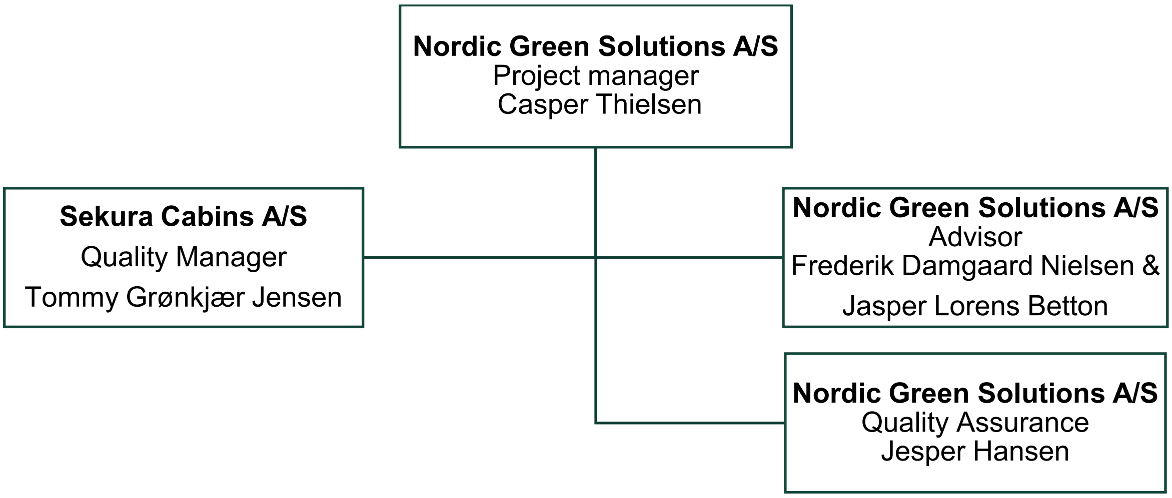


Figure 4.1: Overview of the parties involved in the energy and climate review.

In general, there have been a number of different people who have contributed with data, dialogues and help regarding vision. Those responsible for each department at Sekura Cabins A/S and at Nordic Green Solutions A/S are mentioned in Figure 4.1.

4.3 Development and interests

In recent years, Sekura Cabins has invested purposefully in reducing energy consumption and climate footprint. The factory in Randers, opened in 2021, is built with modern technologies and has had PV's installed on the roof, which contribute to self-production of electricity and reduce dependence on external energy sources. In addition, district heating is used for both heating and coating processes, which has significantly reduced energy consumption.

The ESG report from March 2025 documents clear results: CO_2 emissions per cabin have been reduced by 23%, electricity consumption per cabin has decreased by 20%, and the amount of waste has been cut by 25% to less than 4,5 kg per cabin. These figures show that the energy projects have had a direct effect on both the climate and resource consumption.

The expansion with a new factory in Brașov, Romania, in 2025 also supports the green strategy. By producing metal parts that were previously purchased itself, Sekura has gained better control over material consumption and can optimize production with a focus on energy efficiency and sustainability.

Overall, Sekura works systematically with energy optimization, waste reduction and climate-friendly investments, and both the Danish and Romanian factories are central to the company's long-term strategy for green transition. However, there is still considerable potential for further improvements, as identified by the Energy Review.

4.4 Energy & Climate review Methods

For the energy and climate review at Sekura Cabins A/S, the European standard for energy reviews DS/EN 16247 parts 1–4 have been used:

- Energy review – Part 1: General
- Energy review – Part 2: Buildings
- Energy review – Part 3: Processes
- Energy review – Part 4: Transport

The approach in the energy and climate review is broadly as follows:

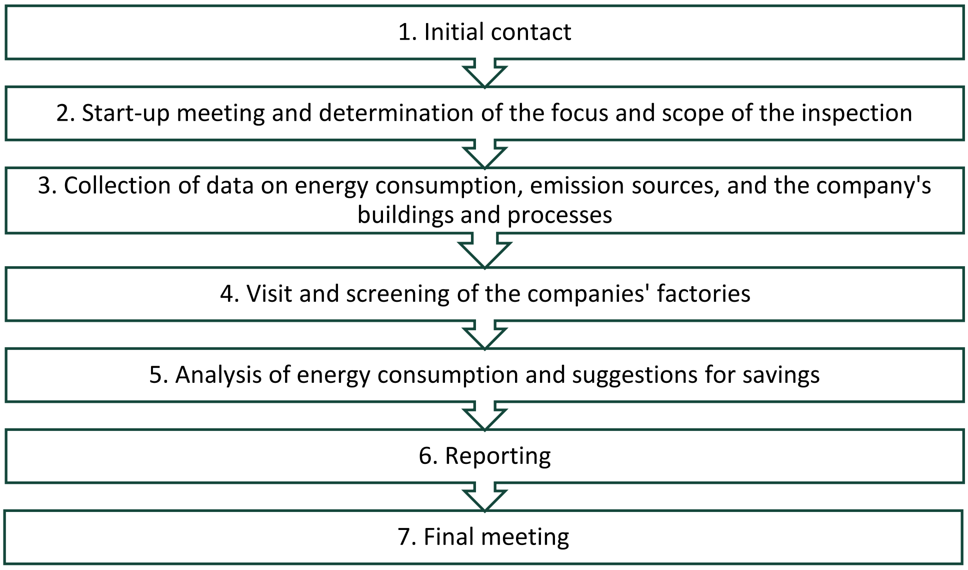


Figure 4.2: Workflow for the energy and climate review.

For the sake of detail, not all energy-consuming equipment is included in the review.
Criteria for the selection of covered equipment have been:

- A significant energy consumption or equipment that is present in a large proportion, and thus overall constitutes a significant energy consumption.
- Significant energy-consuming equipment includes equipment that is assessed to have an energy consumption that is considerable in relation to the total energy consumption.

Based on these criteria, not included energy-consuming equipment will have a minimal energy consumption and therefore have a minimal impact on the overall energy consumption.

For the determination of energy consumption and its distribution, the following methods are used:

- Previous reports and measurements, which are also verified and updated.
- Data sheets and rating plates on energy-consuming equipment.
- Interviews with Sekura Cabins A/S' employees in cases where energy consumption and operating times had to be estimated..
- Annual energy consumption from energy companies.

4.5 Description of factories and processes

4.5.1 Randers Factory

The factory in Randers, located at Metervej 5, DK-8940, comprises a total of approx. 15.500 m² on the ground floor, of which 825 m² is used for administration.

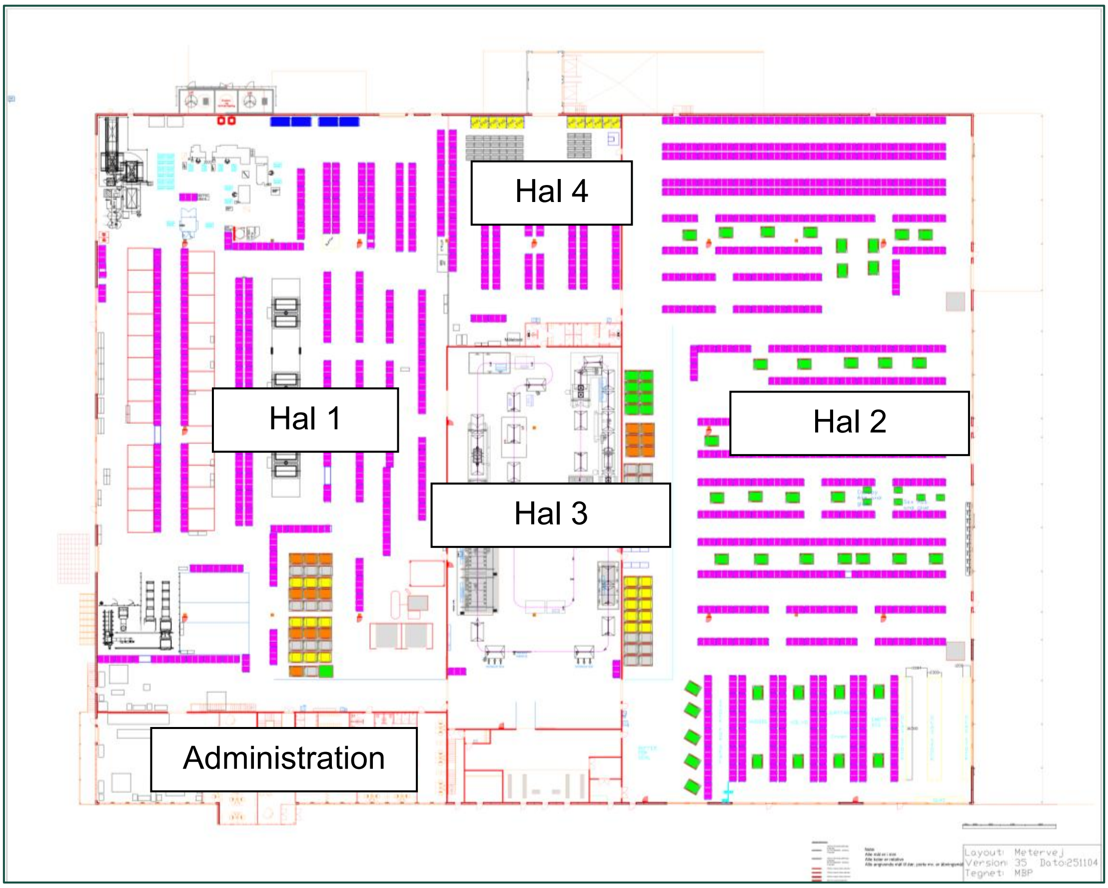


Figure 4.3 Overview of the factory, in Randers

Production processes at the location in Randers
At the location in Randers, the following is carried out:

Building	Processes
Hal 1	Welding
Hal 2	Assembly
Hal 3	Powder coating
Hal 4	Warehouse
Administration	Office

Table 4.2: Overview of the processes in Randers.

4.5.2 Production Processes

At the factory in Randers, production starts with welding of the metal parts for the basic structure of the cabin. Subsequently, the cabins undergo a wash and powder coating in the painting department. The final phase is assembly, where electronics, windows and other components are assembled. For this purpose, the company has the following production equipment:

- Welding robots and traditional welding
- Grinding and processing equipment
- Equipment for washing and powder coating
- Assembly lines for installing electronics,
- glass and other components

Figure 4.4: Powder Coating Line

Figure 4.5: Exterior overview of the factory

Figure 4.6: Welding robot

5 Energy review

Information and data shown in this section are generally prepared in Appendix 3 – Energy and CO2 inventory.

5.1 Description/Prerequisites

During visits, the company's energy consumption has been reviewed with Sekura Cabins A/S' maintenance staff and operations managers. Significant energy-consuming equipment etc. has been identified and calculated. After this report, it should be possible for Sekura Cabins A/S to look at the table in section 2 and assess future energy projects that will create value and reduce energy consumption.

The following key figures and energy prices have been used in the energy review.

The following lower calorific values are used in the energy review:

Diesel	9,87	kWh/liter
Gasoline	9,17	kWh/liter
Natural gas	11,00	kWh/Nm³

In the energy review, the following energy prices have been used, which are based on 2024 prices:

[kr./kWh]	Randers
Electricity	0,95
Gasoline	1,27
Natural gas (process)	0,68
District heating	0,73
Diesel	1,05

Table 5.1: Overview of energy prices at Sekura Cabins A/S.

In order to assess the cost-effectiveness of energy saving proposals, this report uses the following indicators:

- Simple payback period
- Life Cycle Cost Analysis

Simple repayment period indicates in number of years how quickly an investment is recouped, without taking into account any loans or changed ongoing costs. The simple payback period is calculated by:

- PBP = Investment / Annual Savings

The life-cycle cost analysis indicates the total savings of the proposal over its expected lifetime. Inflation, discount rate and maintenance costs are taken into account. The life cycle cost analysis is calculated over the lifetime of the specific energy saving proposal.

The dimensions, scope and thoroughness of the energy review have been agreed so that the energy review complies with the legal requirements of the mandatory energy review. It is the aim of the Energy review to provide a detailed description of Sekura Cabins A/S' energy consumption, as well as to provide specific proposals for streamlining energy consumption.

The scope of the energy review is Sekura Cabins A/S' buildings and production equipment at the locations mentioned in section 4.

The thoroughness of the energy review includes a detailed review of the agreed buildings and processes, where they are inspected by the project manager, and measurements are made where relevant, so that concrete proposals for energy improvements can be prepared. The energy review is typically based, unless otherwise agreed, on a number of analyses and estimates. In some cases, measurements are made, possibly also logging e.g. of operating hours, usage patterns, temperatures, etc.

5.2 Data collection

In collaboration with the company, the project manager has collected historical data on energy consumption and conditions that affect energy consumption, such as production volumes and operating times, in order to analyse energy consumption and establish key figures for energy consumption.

The data used to analyse the energy consumption at Sekura Cabins A/S is a mixture of specific measurements, hourly readings, registered operating data and estimates.

Thus, the following data has been used in the energy review:

Measured data:

- Energy consumption from settlement meters on electricity, gas and district heating for the year 2024.
- Energy consumption at hourly level from electricity settlement meters for the year 2024.
- Energy consumption from secondary meters on electricity in 2024.

Recorded data:

- Energy consumption on the ventilation systems and lighting for 2024
- Statements of the number of working hours on welding machines for the year 2024.
- Number of welding machines, new and old models

Estimated data:

- Operating hours on production equipment where there is no hour meter are determined in cooperation with the company.
- Power uptake on production equipment based on rating plate effects and assessed load level is estimated by the energy review consultant during the screening of the factory.

Other data used for the energy review:

- Degree days data calculated by DMI.
- Calorific values and other standard assumptions from the Danish Energy Agency.

5.3 Calculation of energy consumption

Sekura Cabins A/S's total energy consumption is distributed as shown in Figure 5.1. Total annual energy consumption in 2024 amounted to 2.720 MWh. Electricity is the most widely used type of energy, accounting for 48,1% of total consumption. The process consumption of natural gas accounts for 32,0%, while district heating (space and process) accounts for 19,3%.

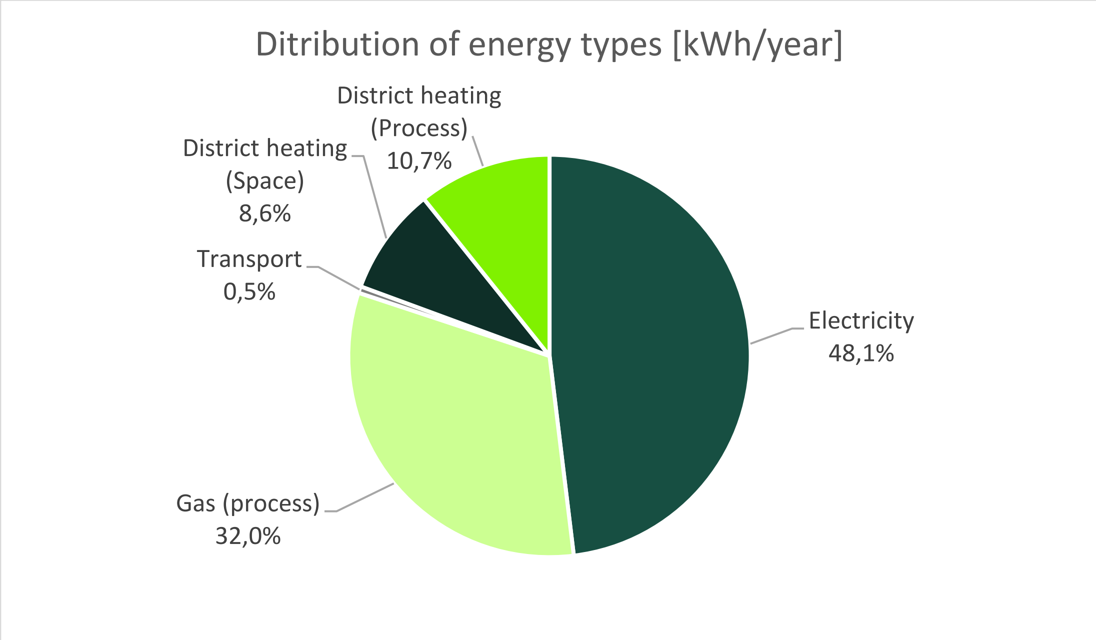


Figure 5.1: Distribution of energy consumption by type of energy.

The overall overview of energy consumption and energy costs by energy type is shown in the table below.
space heating

Energy type	Energy consumption		Energy expenditure	
	[kWh/year]	[%]	[kr./year]	[%]
Electricity	1.307.952	48,1%	1.245.300	52,5%
Gas (process)	871.035	32,0%	592.304	25,0%
Transport	14.453	0,5%	151.701	6,4%
District heating (space heating)	235.150	8,6%	170.701	7,2%
District heating (pro-cess)	292.200	10,7%	212.115	8,9%
Sum	2.720.790	100,0%	2.372.120	100,0%

Table 5.2: Overview of energy consumption and energy expenditure by type of energy.

5.4 Calculation of electricity consumption

The total electricity consumption at Sekura Cabins A/S amounts to approx. 1.307 MWh. The statement was made in the period from January 2024 to December 2024.

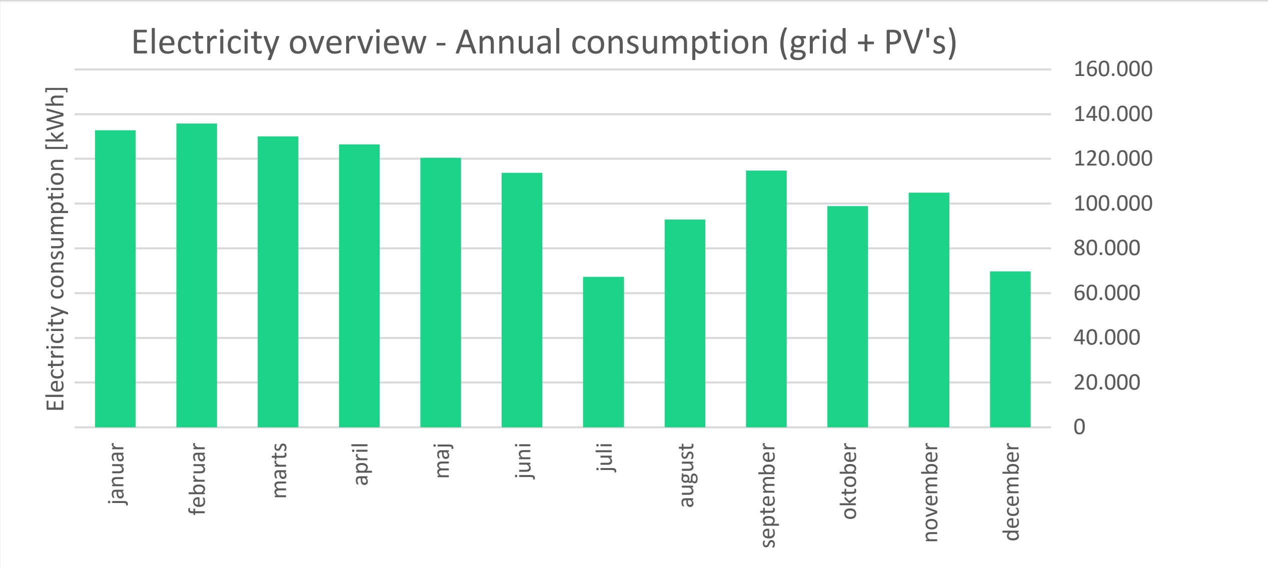


Figure 5.2: Monthly electricity consumption 2024

The average monthly consumption is 108.996 kWh. Electricity consumption in the production units is relatively stable throughout the year, with fluctuations in the summer months and in December due to holidays and public holidays.

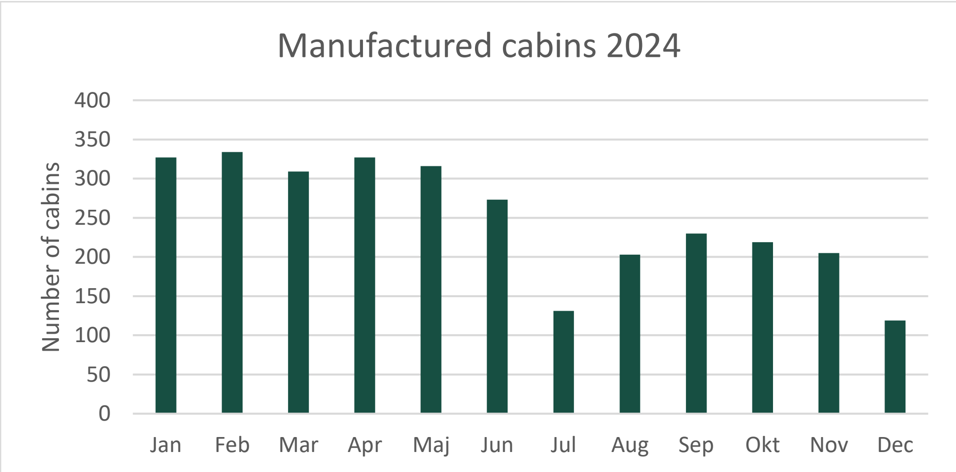


Figure 5.3: Monthly Cabins Produced 2024

The production of cabins varies throughout the year, and this variation is reflected in energy consumption (electricity and heat). When the output per month changes, it affects the variable energy consumption in production in particular. It is positive that the correlation between production and energy consumption can be clearly seen, as it shows that the majority of energy consumption is variable and follows the level of activity. Thus, the fixed base load is relatively low, which is an advantage in terms of energy efficiency.

5.5 Calculation of district heating and gas consumption

The total heat consumption at Sekura Cabins A/S amounts to 1,398 MWh. The figures below show the monthly consumption of district heating and natural gas. The statement covers the period from January 2024 to December 2024. District heating is used for both process and space heating, while natural gas is used in the painting machine. The monthly values for district heating for space heating are degree days adjusted with the national average calculated by DMI.

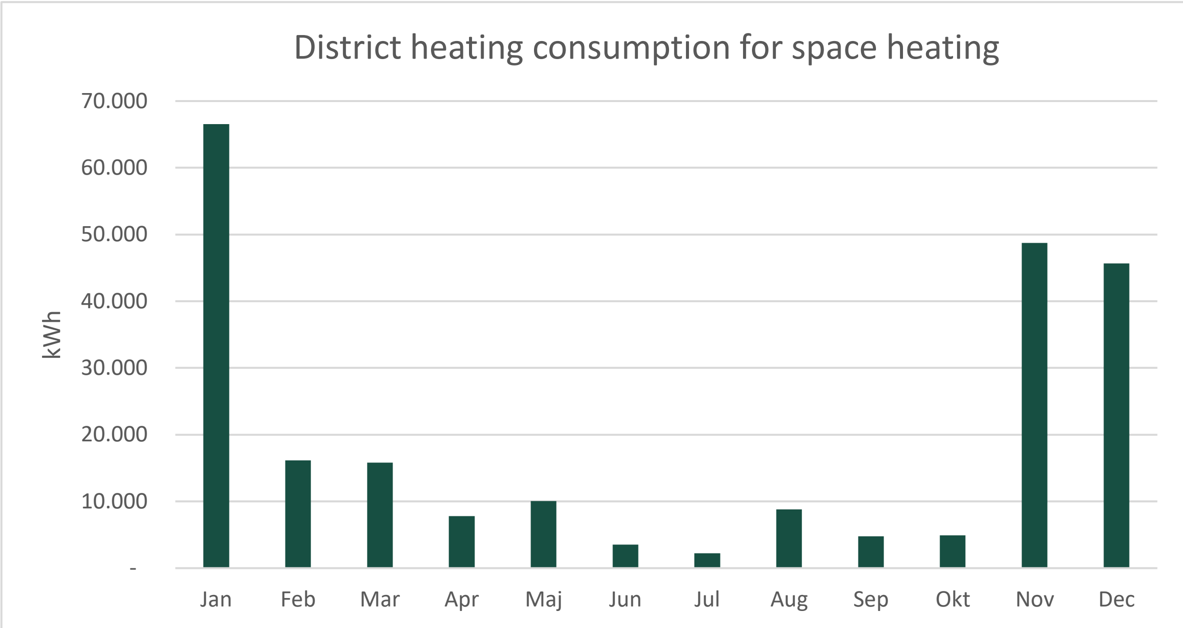


Figure 5.4: Monthly district heating consumption for space heating 2024

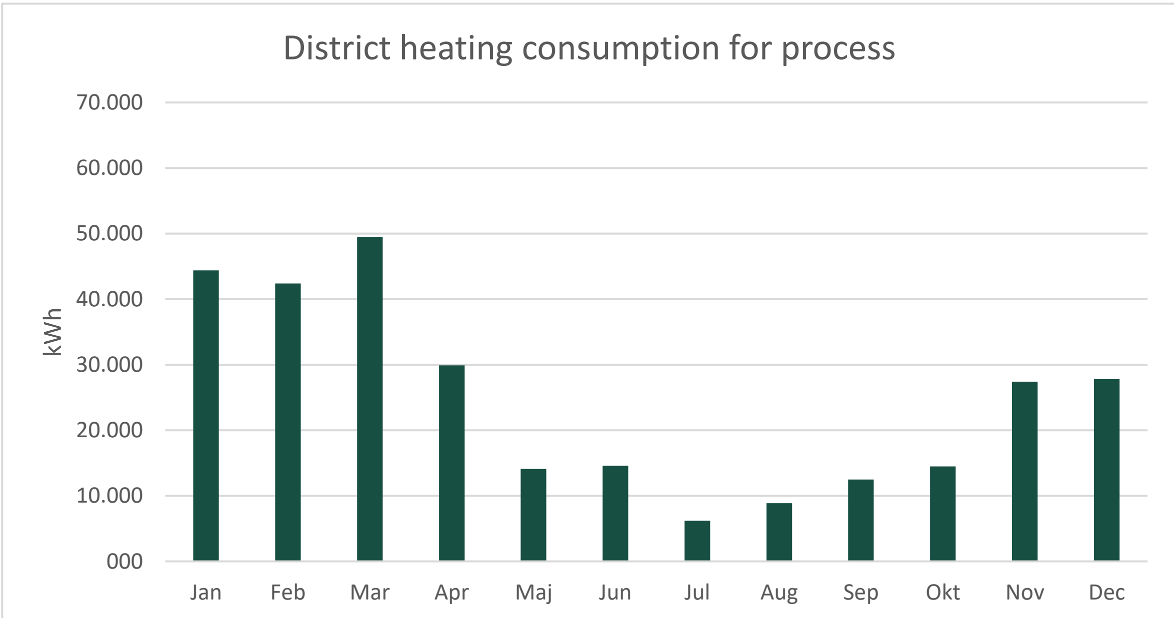


Figure 5.5: Monthly district heating consumption for process 2024

District heating consumption for space heating shows a clear U-shaped distribution over the year, with high consumption in the winter months (e.g. 66 MWh in January) and low consumption in the summer period (e.g. 2 MWh in July). The consumption of district heating for the process, on the other hand, follows the production of cabins per month, as the energy is used in the powder coating plant. This correlation makes it clear that process consumption is directly dependent on the level of activity in production.

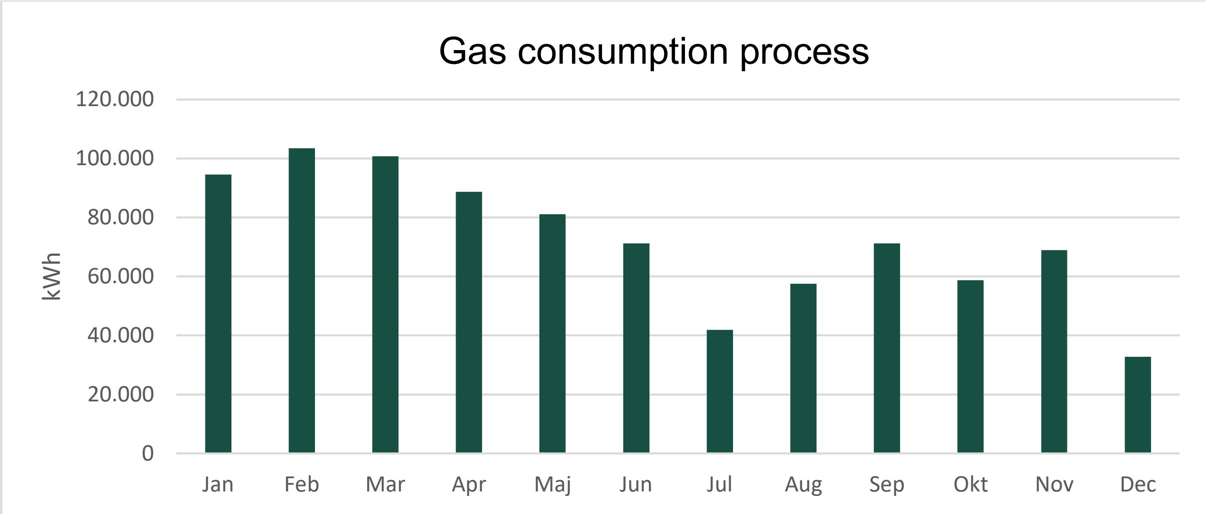


Figure 5.6: Natural gas consumption per month

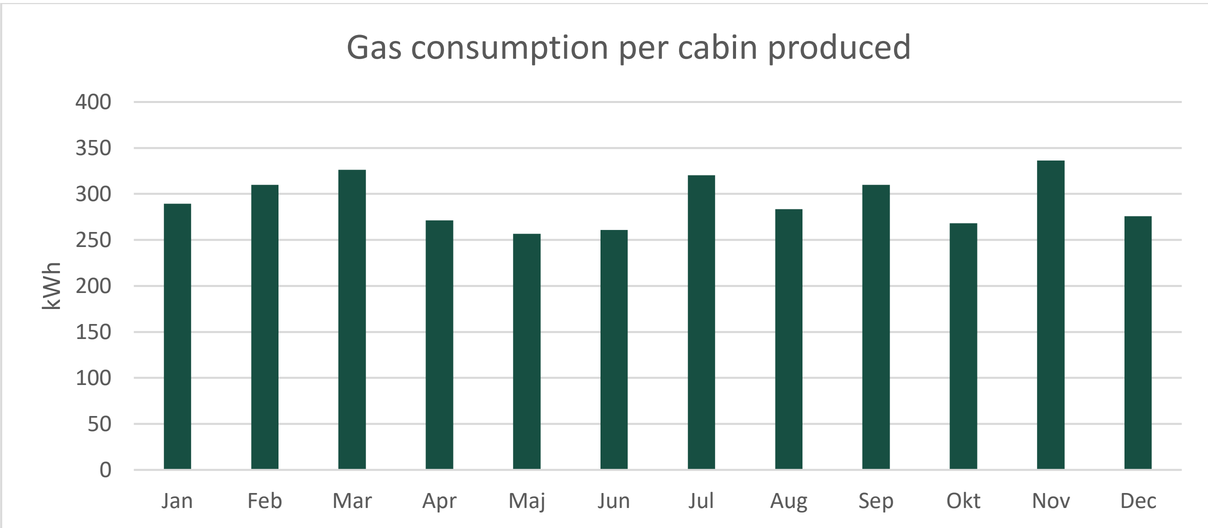


Figure 5.7: Natural gas consumption per cabin per month

Figure 5.6 shows that the monthly gas consumption follows the development in the monthly number of cabins produced, cf. Figure 5.3. This correlation is further clarified in Figure 5.7, which shows the gas consumption per cabin produced. Overall, gas consumption per cabin is relatively stable, with minor variations. The direct cause of these has not been possible to identify during the inspection. However, it is relevant to ensure that the furnace does not run unnecessarily, as well as to optimize the curing process so that cabins can be cured in appropriate batches. This will reduce the number of furnace start-ups and shutdowns, potentially reducing gas consumption.

5.6 Mapping of electricity consumption

The purpose of the survey is to highlight how the electricity consumption at Sekura Cabins A/S is distributed by end consumers and purposes. The mapping has been prepared in Appendix 4 – Mapping.

In general, the mapping of electricity consumption is based on data from consumption secondary meters where possible. Where data from consumption secondary meters are not available or do not have the desired level of detail, counting of equipment/apparatus is used with associated determination of load level and consumption hours based on measurements and/or in collaboration with operating personnel.

5.6.1 Randers Factory

The energy consumption is distributed as shown in the table below, where electricity-consuming equipment is divided into categories.

Category	Consumption [kWh/year]	Share [%]
Welding	292.559	22%
Painter	73.500	6%
Lighting	137.380	11%
Ventilation	322.835	25%
Compressor	88.200	7%
Stacker	79.968	6%
Office Workplaces	13.781	1%
Canteen	55.860	4%
Electric Motors	110.250	8%
Assembly Workplaces	29.400	2%
Other	104.218	8%
Sum	1.307.952	100%

Table 5.3: Mapping of electricity consumption

The mapping of electricity consumption shows a distribution of consumption, which can be seen in the figure below. It is clear that most electricity is used for welding and ventilation. In addition, electricity is also used for compressed air and paint booths, as well as various electric motors and stackers. The 'other' category includes equipment with lower power consumption that has not been identified.

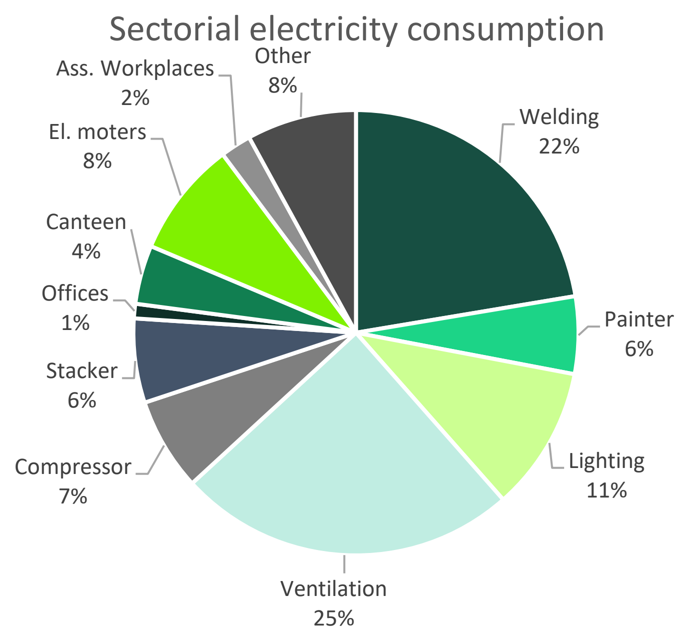


Figure 5.8: Mapping of electricity consumption

5.7 Load profiles for electricity consumption

Load profiles for electricity consumption are analysed to examine the consumption distribution over time and identify idle losses at Sekura Cabins A/S. Information and data presented in this section are prepared in Appendix 5 – Electricity Load Profile.

Based on the load profile, a theoretical idle loss is calculated to elucidate the distribution of the total electricity consumption. The idle loss is generally calculated as the average power in the hour with the lowest consumption of the year, unless this is assessed as misleading due to meter errors or the like. Whether the entire calculated idle loss is an actual loss, or whether it is some processes that are necessary, must be analysed separately afterwards. An idle loss can occur in many different ways, and it can make up a significant part of energy consumption. Here are some of the typical sources:

- **Electric Motors & Machines**
  - **Motors that run without load** – Motors that are on but do not drive any process are still using energy.
  - **Pumps and fans idling** – If they are not demand-controlled, they can run unnecessarily.
  - **Production equipment** – Many machines use power for standby functions even when they are not producing anything.

- **Lighting**
  - Lights that remain on in production halls, warehouse areas or offices with no activity.
  - Old lighting systems (such as halogen or mercury lamps) often have high idle consumption compared to LEDs.

- **Compressors & Compressed Air Systems**
  - Compressed air systems often leak air, which means that the compressor works even when there is no real consumption.
  - Compressors that run at no load but still draw power.

- **Electrical panels**
  - Electrical panels and supply systems often have internal losses.

- **IT and control systems**
  - Servers, computers, and PLC controllers can consume power even when production is at a standstill.
  - Monitors, printers and other office equipment can have unnecessary standby consumption.

In the following sections, the load profile for electricity consumption has been analysed and the idle losses have been calculated.

5.7.1 Randers Factory

Sekura Cabins A/S has 1 main electricity meter and 3 bi-electricity meters that register the electricity consumption at the factory. The load profile is made based on hourly values for the total measured electricity consumption on the main meter.

The figure below shows an analysis of the electricity hour consumption measured in the period from 01-01-2024 - 31-12-2024. April shows a representative picture of the typical electricity load at Sekura Cabins A/S, because the month does not include holidays and the production is 327 cabins, which corresponds to a medium to medium-high production level compared to the rest of the year.

As shown in Figure 5.9, the daily activities start around 4 a.m., after which the electricity consumption increases to a clear peak around 9 a.m. Then the curve flattens out until about 4 p.m., which is consistent with a drift based on one to two shifts. In 2024, there is a difference between the minimum (402 kWh/day) average (3.582 kWh/day) and maximum electricity consumption (8.047 kWh/day). Over the whole year, the minimum and maximum loads are 15,9 kW and 503,6 kW, respectively. The average load is approx. 148,9 kW.

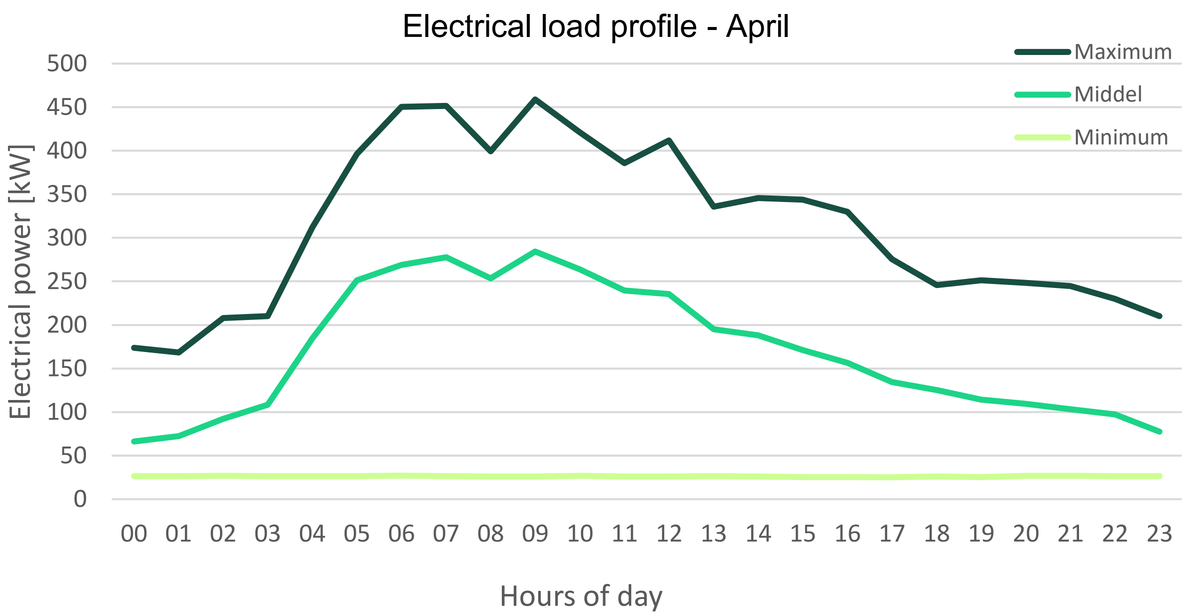


Figure 5.9: Electricity load profile for April 2024

Analysis of the electricity load profile shows that the minimum electricity consumption is around 15,9 kW. This is considered the location idle loss. The idle loss at Sekura Cabins A/S is distributed among both production-related and non-production-related consumers. The most significant contributions are estimated to come from ventilation systems, compressed air compressors, as well as lighting and IT equipment. In the table below, the cost of the idle loss and the percentage it represents of the annual electricity consumption is calculated.

Annually	Effect (Avg.) [kW]	Electricity consumption [kWh/year]	Share of electricity consumption [%]	Annual costs [kr./year]
Electricity consumption	149,31	1.307.952	100%	1.245.300
Standby losses	15,9	139.666	10,7%	132.682

Table 5.4: Overview of the minimum electricity consumption

5.8 Key figures

The advantage of preparing key figures based on energy consumption and CO_2 emissions is that they provide a comprehensive and clear overview of a company's climate footprint and energy efficiency. These KPIs make it possible to compare the company's performance over time or with other companies in the same industry, which can help identify areas where energy consumption can be optimized and CO_2 emissions reduced. They also serve as a tool to detect potential risks, such as high energy waste or dependence on fossil fuels, and opportunities for improvement, such as implementing energy-efficient technologies or switching to renewable energy sources.

The purpose of key figures for energy consumption and CO_2 emissions is to analyze the company's climate footprint and resource efficiency by evaluating key areas such as energy sources, production processes, transport and supply chains. These KPIs help measure how efficiently the company uses energy in relation to output, and allow for clear and measurable targets for both energy reduction and greenhouse gas emissions. At the same time, they support the company's strategic efforts towards the green transition, compliance with legislation and meeting the demands of customers, investors and other stakeholders. Overall, key figures for energy consumption and CO_2 emissions make complex data more manageable and strengthen the company's efforts in sustainability, energy efficiency and communication.

In the following, some energy key figures have been established for Sekura Cabins A/S. Key figures have been made on electricity consumption, natural gas consumption and space heating, respectively.

At Sekura Cabins A/S, it makes the most sense to use the number of cabins produced as key figures in energy and climate reviews. The booths represent the finished production, while tonnage and machine hours can be misleading as steel and processes vary. By focusing on the number of cabins, we get a more accurate picture of energy consumption and climate impact per unit.

	Randers
Electricity consumption [kWh]	1.307.951
Cabin [k]	2.993
Key number [kWh/k]	437,00

Table 5.5: Key figures for electricity consumption.

Electricity consumption is primarily dependent on the total amount of cabins produced. The key figure for electricity consumption is therefore calculated according to the number of cabins produced in 2024.

	Randers
Electricity consumption [kWh]	871.035
Cabin [k]	2.993
Key number [kWh/k]	291,02

Table 5.6: Key figures for natural gas consumption.

The natural gas consumption for the process is primarily dependent on the total amount of cabins produced. The key figure for natural gas consumption is therefore calculated according to the number of cabins produced in 2024.

	Randers
Heat consumption [kWh]	235.149
Heated area [m^2]	ca. 15.500
Key number [kWh/m^2]	15,17

Table 5.7: Key figures for space heating.

The energy consumption for space heating is primarily dependent on the outdoor temperature and the total heated m^2. The key figure is therefore calculated according to heated area. Heat consumption is measured as the degree-days adjusted district heating consumption, which means that the consumption is adjusted for temperature fluctuations, so that it can be compared across years with different climates.

The key figures for space heating show a significant deviation from the typical level, which is typically around 90–110 kWh/m². At Sekura Cabins A/S, the key figure is only 15,17 kWh/m², which is very low. A major reason is that several production processes emit considerable heat to the halls – for example, the powder coating, which alone uses approx. 871.000 kWh/year of natural gas and 292.200 kWh/year of district heating. This heat contribution reduces the need for traditional space heating, especially in the paint hall. In the other halls, the temperature is generally low, and the factory was built in 2021 with modern standards. Radiant heating has been installed in most halls, which is an effective solution for large rooms.

6 Climate review

Information and data shown in this section are generally prepared in Appendix 3 – Energy and CO2 inventory.

6.1 Description/Prerequisites

The climate review includes, according to the executive order, emissions of the following greenhouse gases:

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur hexafluoride (SF_6)

In this report, all emissions are converted to carbon dioxide equivalents (CO2e). The indication of "CO_2" in this report should generally be understood as the total carbon dioxide equivalent amount of the greenhouse gases included.

During the inspection of Sekura Cabins A/S, the company's CO_2 emissions were reviewed and mapped together with maintenance managers and operators. Significant energy-consuming equipment and other emitting processes have been identified and calculated. According to this report, it should be possible for Sekura Cabins A/S to assess future CO_2-saving projects based on the table in section 2, just like in the energy review in section 5.

The climate review uses the following key figures and emission factors:

Electricity	0,081 $kgCO_2/kWh$
Natural gas	0,206 $kgCO_2/Nm^3$
Diesel	0,267 $kgCO_2/kWh$
Refrigerant	1300 $kgCO_2/kg$
District heating	0,0072 $kgCO_2/kWh$

The emission factor for electricity is based on Energinet's report "Environmental declarations annual average 2024". The emission factor above therefore highlights the local emission factor for DK1 in 2024.

The emission factor for district heating is also based on local declarations from Verdo district heating.

In order to assess the effectiveness of climate action, this report uses the following indicators:

- CO_2 Reduction Cost
- Life Cycle Cost Analysis

CO_2 reduction cost indicates how much it costs to reduce the emission of a tonne of CO_2. This is calculated by:

*CO_2 Reduction Cost = Investment / (Annual CO_2 Savings * Lifetime)*

Why we want as low a CO_2 reduction cost as possible. The unit for CO_2 reduction cost is typically DKK/tonne of CO_2.

The Life Cycle Cost Analysis indicates the total savings and costs of the proposal over its expected lifetime, taking into account inflation, discount rate and maintenance costs. The life cycle cost analysis is calculated over the lifetime of the specific CO2 savings proposal.

The goals, scope and thoroughness of the climate review have been agreed so that the climate review complies with the requirements of the mandatory climate review.
It is the goal of the Climate Review to provide a detailed description of Sekura Cabins A/S' CO_2 emissions, as well as to indicate specific proposals for reductions of CO_2 emissions.

The scope of the climate review is Sekura Cabins A/S's sources of emissions in buildings and emissions in connection with the company's operations.

The thoroughness of the climate review includes a detailed review of the agreed building and the agreed processes, where production is inspected, as well as measurements and calculations are made. Concrete proposals for CO_2 reductions are being prepared. The climate view is typically based, unless otherwise agreed, on a number of analyses and estimates. In some cases, measurements are made, possibly also logging e.g. of operating hours, usage patterns, etc.

6.2 Data collection

The data collection for the climate review follows the procedure in section 5.2.

6.3 Calculation of CO_2 emissions

Sekura Cabins A/S' total CO_2 emissions are distributed as shown in Figure 6.1. The company's total CO_2 emissions for 2024 are 300,02 tons. At Sekura Cabins A/S, natural gas is the largest emitter, accounting for approximately 60% of total CO_2 emissions. Emissions related to electricity (administration and process) account for about 35%, while fuel consumption (diesel) accounts for less than 1%. District heating for space heating accounts for only 1% of emissions.

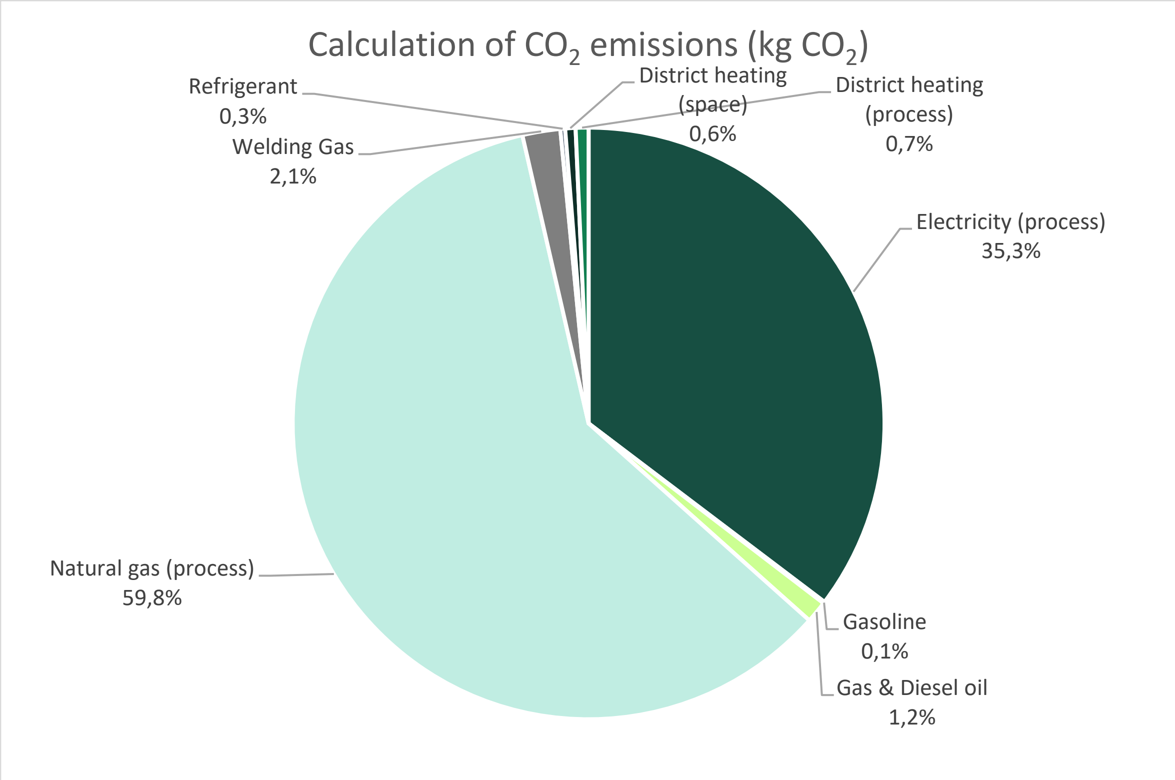


Figure 6.1: CO_2 emissions by emission source.

The overall overview of CO_2 emissions and costs by emission source is shown in the table below.

Source of emissions	Emission		Source of emissions cost	
	[ton CO_2/year]	[%]	[kr./year]	[%]
Electricity	105,94	35,3%	1.245.300	52%
Transport	3,85	1,3%	151.701	6%
Natural gas	179,43	59,8%	592.304	25%
District heating (space heating)	1,69	0,6%	170.701	7%
District heating (process)	2,10	0,7%	212.115	9%
Welding gases	6,21	2,1%	Not specified	Not specified
Refrigerant	0,78	0,3%	Not specified	Not specified
Sum	300,02	100%	2.372.120	100%

Table 6.1: Overview of emission sources and expenses.

6.4 Key figures

As in section 5.8, key figures are used to analyse the company's efficiency and CO_2 emissions. Thus, the emission efficiency can be monitored independently of production variations, volumes and other possible conditions that may have an impact on CO_2 emissions.

In the following section, CO_2 key figures are presented for Sekura Cabins A/S. A large number of reservations from section 5.8 are repeated. In this section, the key figures are measured on the basis of the total CO_2 emissions, mapped in section 6.3, as the breakdown of the individual emission sources can give a misleading picture from year to year if, for example, there is a change in the company's heat source.
CO_2 emissions related to production are often dependent on production volumes. The key figure has therefore been chosen as the number of cabins produced.

	2024
Emissions [tons CO_2]	300,02
Production quantity [number of cabins]	2.993
Keynumber [kg CO_2/ cabin]	100,24

Table 6.2: Key figures for production volume

Since CO_2 emissions are related to several emission sources, it may also make sense to look at the amount of emissions per m^2. Here it can be seen in Table 6.3 that 0,11 kg of CO_2 is emitted per heated m^2. This level is low, which is primarily due to the low CO_2 emissions from the district heating supplied by Randers District Heating.

	2024
Emissions [tons CO_2]	1,69
Heated area [m^2]	ca. 15.500
Key number [kg CO_2/m^2]	0,11

Table 6.3: Key figures for heated area

7 Energy and CO_2 saving proposals

For the purposes of this section, the emission factors specified in Section 6 shall be used to calculate CO_2 reductions and CO_2 reduction costs. However, emission factors are used instead to calculate support opportunities from the business pool, cf. the Danish Energy Agency's standard assumptions.
Furthermore, it is noted that the emission factors used for electricity and district heating in this report are significantly different from the emission factors used in Appendix 1 – Reporting form. In the reporting form, the Danish Energy Agency has chosen to use a CO_2 emission factor of 0 kg/kWh for both electricity and district heating. The difference in the emission factors used means that the calculated CO_2 reductions and CO_2 reduction costs are different between this report and the reporting form for all savings proposals that regulate the consumption of electricity and/or district heating.
The savings proposals presented in this section have been prepared in Appendix 6 – Energy and CO_2 savings proposals. The underlying calculations and the basis for these are set out in the appendix.

In connection with the energy and climate review, work has been done on many savings proposals, and some of them have led to concrete proposals for energy and CO_2 savings. The project proposals prepared for Sekura Cabins A/S are based on the calculation of energy consumption and CO_2 emissions as well as the mapping of these. From this, it can be seen that the most important focus areas for reducing both energy consumption and CO_2 emissions are natural gas consumption in the powder coating as well as electricity consumption for ventilation, machinery and lighting. It is therefore obvious to find cost-saving projects in these areas.

This section reviews the potential energy savings that meet the company's requirements for profitability expressed as payback period, i.e. when an investment is recouped through the energy savings. Some potential energy savings that are not considered profitable are also presented to illustrate opportunities and limitations within different areas of savings. The section also uncovers the potential for cost-effective expansion of self-production of renewable energy. Sekura Cabins A/S already has PV's installed, and the analysis includes the possibility of an expansion to further reduce the need for energy procurement. Self-production of renewable energy does not directly reduce the company's energy consumption, but reduces the need for purchased energy. Proposals for expanding in-house production are therefore included in the presented savings proposals based on the savings on energy purchases and associated CO_2 emissions.

Energy and CO_2-saving measures are typically quantified based on experience, estimates, project prices and, in some cases, also specific offers. Projects generally need to be verified, and major projects are projected before they are implemented.
A discount rate of 3,5% has been used to calculate the present value of projects.

7.1 Overview of savings proposals

The table below provides an overview of the most important results for the savings proposals presented in this report. The stated payback period is simple payback time. A more detailed life-cycle cost analysis for each savings proposal can be found in Appendix 6 – Energy and CO2 savings proposal.

Project Name	Energy saving [kWh/year]	Savings [kr./year]	Net investment [kr.]	CO_2 reduction [ton/year]	Simple PBP [year]	CO_2 Reduction Cost [kr./ton]
1. Ventilation system	69.538	66.207	-	2,23	-	-
2. EMS-system	130.795	124.530	150.000	4,19	1,2	35.838
3. Welding machines	40.855	38.898	2.374.969	1,31	61,1	1.816.604
4. Lighting	11.177	10.641	50.000	0,36	4,7	139.800
5. Excess heat painter	174.207	127.171	380.251	1,25	3,0	398.632
6. Surplus heat compressor	32.044	23.392	250.000	0,23	10,7	1.083.581
7. Powder brine ring temperature	217.759	118.461	-	45,08	-	-
8. PV	32.743	35.792	250.000	2,65	7,0	94.261
Sum/Avg.	709.118	545.092	3.455.220	57,29	6,3	446.090

Table 7.1: Summary of energy and CO_2 saving proposals.

7.2 Screening 1 – Control of ventilation system

Before the situation

The large ventilation system in the welding hall currently runs at normal speed (100%) for 79,5 hours a week and at a reduced speed (50%) only 18 hours a week on weekends. Operational data is taken from Regin Controls. At full speed, the system has a power consumption of 64,14 kW.


Stor svejsehal VE01

Oversigt | Aktuel/setpunkt | Input/Output | Tidskontrol | Manuel/Auto

Normal hastighed	Start	Stop	Start	Stop
Mandag	05.00	23.45	00.00	00.00
Tirsdag	05.00	23.45	00.00	00.00
Onsdag	05.00	23.45	00.00	00.00
Torsdag	05.00	21.30	00.00	00.00
Fredag	05.00	14.45	00.00	00.00
Lørdag	00.00	00.00	00.00	00.00
Søndag	00.00	00.00	00.00	00.00
Ferie	00.00	00.00	00.00	00.00
Reduceret hastighed	**Start**	**Stop**	**Start**	**Stop**
Mandag	00.00	00.00	00.00	00.00
Tirsdag	00.00	00.00	00.00	00.00
Onsdag	00.00	00.00	00.00	00.00
Torsdag	00.00	00.00	00.00	00.00
Fredag	00.00	00.00	00.00	00.00
Lørdag	05.00	14.00	00.00	00.00
Søndag	05.00	14.00	00.00	00.00
Ferie	00.00	00.00	00.00	00.00

After the situation

The ventilation system's control system is adapted so that it only runs at maximum speed when production requires it. Operations can be adjusted down in other periods to reflect the actual need. Conversations with employees have shown that welding times can be adjusted, further reducing the time when full speed is needed. This reduces unnecessary energy consumption and ensures a more efficient operation.

Prerequisites, assumptions and delimitations

Electricity price	From invoice	0,95	kr./kWh
Emissions electricity consumption	Taken from the Danish Energy Agency's standard assumptions	0,032	kg CO_2/kWh
Savings by correct management	Estimate	25%	Percent
Operating hours (full speed)	From Regin Controls	3.896	Hours
Operating hours (50%)	From Regin Controls	882	Hours
Effect (100%)	Sent data	64,14	kW

Calculation method

The energy consumption in the pre-situation is calculated by multiplying the power consumption of the ventilation system in the two operating levels (64,14 kW at 100% and 32,07 kW at reduced speed) by the number of annual operating hours for each level. The total annual consumption is the sum of these two calculations.

In the post-situation, the consumption is estimated by reducing the calculated annual consumption by 25%, based on dialogue with employees about adjustment of welding times and experience figures. The difference between the before and after situation constitutes the annual energy savings. Economic and CO_2 savings are calculated by using the current electricity price and the standardised emission factor for electricity consumption.

Result

The table below shows the results from the savings proposal.

Annual energy savings	69.538	kWh/year
Annual financial savings	66.207	kr.
Energy subsidy for specific action	-	kr.
Potential energy subsidy, MAX	-	kr.
Expected investment	-	kr.
Expected net investment	-	kr.
Simple payback period	-	year
Life Cycle Cost Analysis	1.217.688	kr.
CO_2 savings	2,23	ton/year
CO_2 Reduction Cost	-	kr./ton

Table 7.2: Results regarding control of the ventilation system

7.3 Screening 2 – EMS-system

Before the situation
An electricity main meter has been installed as well as secondary meters for the production halls and administration, but it is unclear which end users the electricity is distributed to. This lack of insight into the distribution of consumption makes it difficult to identify inefficient operations and potential savings opportunities.

After the situation
After implementing an EMS system with multiple sub-meters, the company will gain detailed insight into energy consumption at the equipment and process level. The system will be able to measure the consumption of individual end users, including the washing machine and oven on the powder coating line, compressors, large welding robots and ventilation systems. This breakdown provides a clear picture of how energy is being used, making it possible to identify inefficient operations and identify new savings opportunities. An EMS will also enable continuous monitoring and adjustment of operations in real time to minimize waste and optimize energy consumption.

Prerequisites, assumptions and delimitations

Total electricity consumption	Taken from Appendix 2	1.307.952	kWh/year
Expected savings in electricity	Experience figures	10,00%	
Electricity price	Average price 2024	0,95	kr./kWh
Emissions electricity consumption	Taken from the Danish Energy Agency's standard assumptions	0,032	kg CO_2/kWh

Calculation method
The calculation of the savings of the EMS system is based on empirical figures showing that improved monitoring and optimization at the equipment level can reduce energy consumption. The consumption of electricity is taken from Appendix 2 and represents the total annual electricity consumption. It is assumed that the EMS system can reduce electricity consumption by 10%. The financial savings are then calculated by multiplying the energy savings by the electricity price, which is taken from invoices.

Result
The table below shows the results from the savings proposal.

Annual energy savings	130.795	kWh/year
Annual financial savings	124.530	kr.
Energy subsidy for specific action	-	kr.
Potential energy subsidy, MAX	-	kr.
Expected investment	150.000	kr.
Expected net investment	150.000	kr.
Simple payback period	1,20	year
Life Cycle Cost Analysis	2.140.362	kr.
CO_2 savings	4,19	ton/year
CO_2 Reduction Cost	35.838	kr./ton

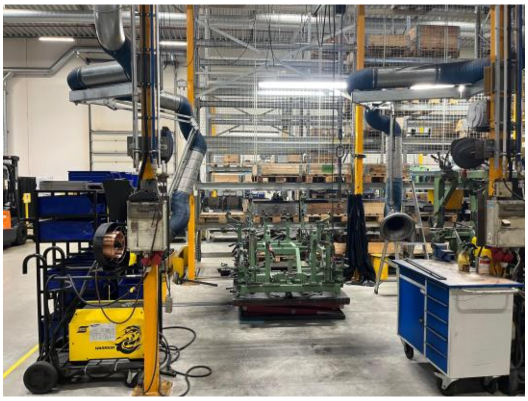
Table 7.3: Results regarding EMS system

The investment is based on an offer from a previous project carried out by DS Energy. To achieve greater accuracy, an individual quote should be obtained for the specific project.

7.4 Screening 3 – Replacement of welding machines

Before the situation

The company uses two types of welding machines: Warrior 400i (older model) and Kemppi Master M 355 (new model). At full capacity utilization, the Warrior 400i has a power consumption of 4,332 kW, while the Kemppi Master M 355 has a power consumption of 3,462 kW. Today, 47 older machines and 12 new machines have been installed.



After the situation

All older welding machines (Warrior 400i) will be replaced with the newer model Kemppi Master M 355, which has a lower power consumption at full capacity utilization (3,462 kW versus 4,332 kW). This replacement reduces the overall power requirement of the welding processes and contributes to a more energy-efficient operation.

Prerequisites, assumptions and delimitations

Number of old welding machines	Warrior 400i	47	Pcs.
Number of new welding machines	Kemppi Master M 355	12	Pcs.
Annual Operating Hours	Assumption based on conversation	1.225	Hours
Warrior consumption per device per year	kW per unit *load factor *operating time	4.332,090	kWh/year
Consumption Kemppi per unit per year	kW per unit *load factor *operating time	3.462,830	kWh/year
Emissions electricity consumption	Taken from the Danish Energy Agency's standard assumptions	0,032	kg CO_2/kWh
Electricity price	From invoice	0,95	kr./kWh
Price new welding machine	Kemppi Master M 355 online store	50.531,25	kr./pcs.

Calculation method

The consumption per machine is calculated by multiplying the machine's power consumption (kW) by the estimated number of operating hours per year (1.225 hours) and a load factor of 0,4, which takes into account that the welding machine is only active about 40% of the time while the workstation is occupied.

The before situation includes 47 old machines and 12 new ones, while the after situation assumes that all 59 machines are the new model. The difference between the two scenarios constitutes the annual energy savings. Economic and CO_2 savings are calculated by multiplying the energy savings by the electricity price and the standardized emission factor for electricity consumption, respectively.

Result

The table below shows the results from the savings proposal.

Annual energy savings	40.855	kWh/year
Annual financial savings	38.898	kr.
Energy subsidy for specific action	-	kr.
Potential energy subsidy, MAX	-	kr.
Expected investment	2.374.969	kr.
Expected net investment	2.374.969	kr.
Simple payback period	61,06	year
Life Cycle Cost Analysis	-1.926.962	kr.
CO_2 savings	1,31	ton
CO_2 Reduction Cost	1.816.604	kr./ton

Table 7.4: Results regarding replacement of welding machines

It is clear that the new machines will not pay for themselves in their lifetime (15 years) through energy savings, and with a cost of approx. DKK 1,8 million per tonne of CO_2 saved, this will be a very expensive way to reduce emissions.

The investment is based on prices for Kemppi Master M 355 found on the web.

7.5 Screening 4 – Lighting control

Before the situation
The three main production halls are equipped with lighting that is practically on most of the day. There is no division into zones or controls that adapt the light to daylight or activity. This means that the lighting is often in operation even when it is not needed, resulting in unnecessarily high energy consumption. The warehouse is not included, as it already has sensors to control the lighting.

After the situation
Through time optimisation, zoning and dynamic daylight control – supported by the existing skylights – energy consumption for lighting in the production halls can be significantly reduced. These measures ensure that the light is only on when needed and that the intensity is adjusted to the natural light level, reducing waste and improving energy efficiency.

Prerequisites, assumptions and delimitations

Lighting Assembly Hall	Taken from Appendix 3	48.969	kWh/year
Lighting Welding Hall	Taken from Appendix 3	42.336	kWh/year
Lighting Painting Department	Taken from Appendix 3	20.462	kWh/year
Emissions electricity consumption	Taken from the Danish Energy Agency's standard assumptions	0,032	kg CO_2/kWh
Electricity price	From invoice	0,95	kr./kWh

Calculation method
The calculation of the energy consumption for lighting is based on information from a conversation with an employee who stated the number of lamps, their power (36 W) and the annual operating hours. The total consumption is calculated by multiplying the number of lamps by the power and the estimated operating hours. The savings are assumed to be 10% of the current electricity consumption for lighting, based on the implementation of time optimization, zoning and dynamic daylight control. This is a conservative estimate, and the real savings may be higher.

Result
The table below shows the results from the savings proposal.

Annual energy savings	11.177	kWh/year
Annual financial savings	10.641	kr.
Energy subsidy for specific action	-	kr.
Potential energy subsidy, MAX	-	kr.
Expected investment	50.000	kr.
Expected net investment	50.000	kr.
Simple payback period	4,70	year
Life Cycle Cost Analysis	145.716	kr.
CO_2 savings	0,36	ton/year
CO_2 Reduction Cost	139.800	kr./ton

Table 7.5: Results regarding screening control of lighting

The investment is based on experience figures and a rough estimate of what materials and installation will cost. The final solution will require dialogue with an installer to assess which solution makes the most sense.

7.6 Screening 5 – Excess heat from the painting machine

Before the situation
In 2024, the painting machine on the powder coating line used approx. 871 MWh of heat from natural gas and approx. 292 MWh of heat from district heating. Surplus heat from the process is emitted to the paint hall, and a large part is lost in the flue gases from the furnace. This waste heat represents a significant untapped potential for heat recovery.

After the situation
A gas heat exchanger is installed for heat recovery of the flue gases from the furnace. The recovered heat is used to replace the district heating used in the painting machine itself (not for space heating). This is possible because the need for district heating arises when the machine is in operation – which is at the same time as natural gas is burned and flue gases are available. The initiative reduces district heating consumption and utilises waste heat efficiently.

Prerequisites, assumptions and delimitations

Total space heat consumption	Taken from Appendix 2	235.150	kWh/year
Electricity consumption of Painting Machine	Taken from Appendix 3	73.500	kWh/year
District heating consumption of Painting Machine	Taken from Appendix 2	292.200	kWh/year
Gas consumption in the Painting Department	Taken from Appendix 3	871.035	kWh/year
Randers district heating price	verdo.com	0,73	kr./kWh
Randers District Heating Greenhouse gases	from district heating declaration Verdo Varme 2024	0,01	kg/kWh
Heat exchanger	Gas Heat Exchanger for Heat Recovery of Flue Gases (Alfa La-val GHR)	20%	Efficiency

Calculation method
The district heating consumption for the painting machine is taken from Appendix 2, and the natural gas consumption is taken from Appendix 3. The savings are calculated based on the assumption that an Alfa Laval GHR gas heat exchanger can recover approximately 20–25% of the heat energy generated by natural gas combustion. By multiplying the natural gas consumption by this efficiency, the potential for heat recovery is estimated, which can be used to reduce the need for district heating in the painting machine itself.

Result
The table below shows the results from the savings proposal.

Annual energy savings	174.207	kWh/year
Annual financial savings	127.171	kr.
Energy subsidy for specific action	119.749	kr.
Potential energy subsidy, MAX	119.749	kr.
Expected investment	500.000	kr.
Forventet nettoinvestering	380.251	kr.
Simpel tilbagebetalingstid	2,99	year
Livscyklusomkostningsanalyse	1.427.156	kr.
CO_2 besparelse	1,25	ton
CO_2-reduktionsomkostning	398.632	kr./ton

Table 7.6: Results regarding screening surplus heat from the painting machine

The investment is based on experience figures and a rough estimate of what materials and installation will cost. To get a more accurate picture of equipment, installation and maintenance costs, a specialist company should be consulted to assess the most appropriate solution.

Part of the surplus heat that is currently emitted to the paint hall, which is significantly warmer than the other halls, could potentially be distributed more evenly in the factory for space heating. However, this would result in taxes on natural gas under current legislation, but may still be economically advantageous depending on the overall heat balance and energy prices. This possibility is not explored in detail in this report.

7.7 Screening 6 – Surplus heat from compressors

Before the situation
The factory is supplied with compressed air from two compressors, which have been replaced with newer models since 2024. The new compressors are used as the basis for this savings proposal, while the previous models were used for the energy consumption and mapping analysis. The current compressors are of the Kaiser BSD 75 T SFC screw compressor type and have a power consumption of 39 kW at full operation. The annual energy consumption can be calculated based on the operating time. Today, the surplus heat from the compressors is only used to heat the small compressor room.

After the situation
In the future, the surplus heat from the compressors will not only be used to heat the small compressor room, but will be integrated into the factory's overall heating system. By establishing a heat recovery system for the compressors, the compressed heat produced can be distributed to heat production areas and other premises. This ensures a more efficient use of the energy already generated and reduces the need for additional heating from external energy sources.

Prerequisites, assumptions and delimitations

Compressor Energy Consumption	Skruekompressor Kaiser BSD 75 T SFC	39	kW
Number		2	pcs
Load factor		0,250	
Hours per year	(conservative)	1.960	Hours
Surplus heat		37.877	kWh
Randers District Heating Greenhouse gases	from district heating declaration Verdo Varme	0,0072	kg/kWh
Randers district heating price		0,73	kr./kWh
Conversion factor of electricity to compression heat	Atlas Copco DK	90%	
Compression heat recovery	Atlas Copco DK	94%	
Overall efficiency	Atlas Copco DK	85%	

Calculation method
The district heating savings are calculated by multiplying the compressors' annual electricity consumption by the assumed heat recovery rate. This is set at 85%, which is based on a conversion factor in which 90% of the electrical energy supplied is converted into heat during compression, and 94% of this heat can be recovered by means of a heat recovery system. These values are based on data provided by Atlas Copco Denmark. The total recovery rate means that approximately 85% of the compressors' electricity consumption can be used as heat to heat the factory.

Result

The table below shows the results from the savings proposal.

Annual energy savings	32.044	kWh/year
Annual financial savings	23.392	kr.
Energy subsidy for specific action	-	kr.
Potential energy subsidy, MAX	-	kr.
Expected investment	250.000	kr.
Expected net investment	250.000	kr.
Simple payback period	10,69	year
Life Cycle Cost Analysis	249.540	kr.
CO_2 savings	0,23	ton
CO_2 Reduction Cost	1.083.581	kr./ton

Table 7.7: Results regarding screening surplus heat from compressors

The investment is based on experience figures and a rough estimate of what materials and installation will cost. To get a more accurate picture of equipment, installation and maintenance costs, a specialist company should be consulted to assess the most appropriate solution.

7.8 Screening 7 – Use of alternative powder coatings

Before the situation
In the powder coating line, a curing furnace is used to harden the powder coating on the metal workpieces. The powder coating used today requires a curing temperature of approx. 200 °C to achieve proper adhesion. The stove's heat supply is via natural gas.

After the situation
There are alternative powders with low-temperature curing that can achieve full cross-linking at temperatures around 150°C. By switching to these powder coatings, natural gas consumption can be significantly reduced as the stove's energy demand decreases. However, the implementation requires close cooperation with customers, as the choice of powder type and colour is often customer-specific and must be approved in relation to requirements for finish and durability.

Prerequisites, assumptions and delimitations

Gas consumption in the Painting Department	Taken from Appendix 3	871.035	kWh/year
Standard powder coating curing temperature	On-site conversation	200	C
Low-temperature powder coating curing temperature	On-site conversation	150	C
Temperature reduction		25%	
Natural gas price (m^3)	gasprisguiden.dk	7,48	kr./m^3
Conversion factor	Danish energy agency	11,00	kWh/m^3
Natural gas price (kWh)		0,68	kr./kWh

Calculation method
The savings are calculated based on the natural gas consumption in the powder coating line (see Appendix 3) and the expected reduction in curing temperature from approx. 200 °C to 150 °C. This corresponds to a temperature reduction of 25%. Assuming that gas consumption is linearly proportional to the required temperature, the savings are estimated by reducing current natural gas consumption by a quarter. The calculation assumes that the entire production switches to low-temperature powders.

Result
The table below shows the results from the savings proposal.

Annual energy savings	217.759	kWh/year
Annual financial savings	118.461	kr.
Energy subsidy for specific action	-	kr.
Potential energy subsidy, MAX	-	kr.
Expected investment	-	kr.
Expected net investment	-	kr.
Simple payback period	-	year
Life Cycle Cost Analysis	2.178.736	kr.
CO_2 savings	45,08	ton
CO_2 Reduction Cost	-	kr./ton

Table 7.8: Results regarding screening 7.

Any price differences between standard and low temperature powders are not included in the economic assessment.

7.9 Screening 8 – Expansion of photovoltaic systems

Before the situation
The factory already has a photovoltaic system installed on the roof, which contributes to the self-production of electricity. However, the current plant only covers a small part of the total electricity consumption.

After the situation
An additional 200 m² of PV's will be installed on the roof of the factory, where there is plenty of room for expansion. The electricity produced is primarily used for own consumption, and surplus is sold to the electricity grid. The measure reduces the factory's dependence on external energy sources and contributes to lower CO_2 emissions.

Prerequisites, assumptions and delimitations

Area with PV's	Assessment of available roof surfaces and optimal dimensioning	240,0	m2
Efficiency of photovoltaic systems (radiation to electrical panel)	Estimates for module efficiency as well as wire and inverter losses	20,0%	
Irradiation factor	Estimate of received irradiation compared to DMI measured irradiation	1	
Irradiation	DMI data for hourly irradiation in Isenvad (Central Jutland) 2024	0 - 902	W/m2
Electricity consumption	Measured electricity consumption on an hourly basis for 2024 from eloverblik.dk	0 - 483,1	kWh/h
CO_2 emissions electricity	ENS Environmental Product Declaration for DK1 2024 (125% method)	0,081	kg/kWh
Electricity price (purchase)	Average price for DK1 in 2024 incl. taxes and reimbursement	0,952	kr./kWh
Electricity price (sale)	Estimated	0,400	kr./kWh
Dimension-independent investment	Estimate based on ENS technology catalog and experience	10.000	kr.
Dimension-dependent investment	Estimate based on ENS technology catalog and experience	1.000	kr./m2
Maintenance costs	Estimate based on ESA technology catalogue	15	kr./m2/year

- The calculations behind area, efficiency and irradiation factor are shown in Appendix 6.1 – PV calculation.
- The effectiveness of the various components is based on data sheets and experience from other projects. Power degradation is not taken into account, but PV efficiency has been set slightly lower than expected to compensate.
- The price for the sale of surplus production to the electricity grid is based on a quick market analysis and experience.
- The investment prices are based on the Danish Energy Agency's technology catalogue for the production of electricity and district heating (sheet: "22 Rooftop PV comm.&industrial"), study of market prices and project experience.

Calculation method
The electricity production from the expanded PV plant is calculated on an hourly basis based on measured solar radiation in 2024 at Isenvad Midtjylland (nearby metering station), the plant's dimensioning and efficiency. For each hour, the distribution between self-consumption and sales to the electricity grid is calculated based on the factory's electricity consumption profile at the main meter in 2024.
The dimensioning of the system has been optimised with a view to the fastest payback time. If, on the other hand, the system is optimized for the greatest economic return over a 10-year period, the entire available roof surface should be utilized for PV's.

Result

The table below shows the results from the savings proposal.

Annual energy savings	32.743	kWh/year
Annual financial savings	35.792	kr.
Energy subsidy for specific action	-	kr.
Potential energy subsidy, MAX	-	kr.
Expected investment	250.000	kr.
Expected net investment	250.000	kr.
Simple payback period	6,98	year
Life Cycle Cost Analysis	412.196	kr.
CO_2 savings	2,65	ton
CO_2 Reduction Cost	94.261	kr./ton

Table 7.9: Results regarding screening expansion of PV systems

8 Conclusion

Through the energy and climate review at Sekura Cabins A/S, the company's energy consumption and CO_2 emissions have been elucidated. In addition, some proposals have been made for savings that can create a good start to the work of reducing energy consumption, as well as CO_2 emissions in the future.

There is still work to be done in implementing the projects, as tenders must be obtained from various suppliers, the projects must be coordinated in relation to the maintenance department and operations, and the projects must be followed through and evaluated afterwards.

The Energy Review has primarily focused on projects with greater savings potential, some of which also require larger investments. In addition, a few projects with less savings potential have also been assessed, as they have previously been discussed with the company.

If Sekura Cabins A/S is to be successful in the long term, it is important that the focus continues to be on energy consumption and CO_2 emissions. This can be done by:

- Top management must be dedicated to achieving a greener profile.
- Involve the employees – they know the machines and routines and must be informed and involved if they are to be receptive to changes.
- Set targets for consumption and emissions and make them visible to the entire company.
- Create an energy group with people from the various departments who continuously ensure that there is progress in the process and that the goals are tried to be achieved.
- Create an energy management system to monitor energy consumption and provide alarms if consumption exceeds defined limit values.
- Focus on energy efficiency when purchasing new machines and set measurable requirements for the supplier
- Evaluate all proposals that have been implemented – have they provided the expected savings?

Most often, the project is forgotten after it is completed, and it is expected that the savings are made. The projects often require adjustments and monitoring for a period of time after commissioning.

In both the energy and climate reviews, a mapping and analysis of consumption and emissions has been made at Sekura Cabins A/S. This is an important piece in the further work with savings, as it provides knowledge of where and how the energy is used, and this will be used to target the work in the areas where there is the most to be gained.

Companies that work seriously with energy consumption often find that they can reduce energy consumption by 20-30%, but this requires an active effort from the company.

9 Table of figures

10 Table of tables

11 Appendix

11.1 Appendix 1 – Reporting form

This appendix contains the completed reporting form to the Danish Energy Agency that must be submitted when reporting the energy and climate review.

11.2 Appendix 2 – Checklist

This appendix contains the completed checklist to the Danish Energy Agency that must be submitted when reporting the energy and climate review

11.3 Appendix 3 – Energy and CO_2 inventory

This appendix is an Excel sheet that gathers all the information from Sekura Cabins A/S regarding energy types, energy prices and CO_2 emissions. This is the starting point for both the energy review and the climate review.

11.4 Appendix 4 – Mapping

This appendix is an Excel sheet in which Sekura Cabins A/S' electricity consumption is mapped. The mapping is based on counting, review and experience with the degree of load.

11.5 Appendix 5 – Electrical load profile

This appendix is an Excel sheet containing hourly data from electricity meters at Sekura Cabins A/S as well as analysis of this when setting up electricity load profiles and consumption profiles.

11.6 Appendix 6 – Energy and CO_2 savings proposal

This appendix is an Excel sheet with a calculation basis and an overview of each savings proposal.