MÅLBAR

SUPPLIER

Onboarding of supplier

for BRAND

SUPPLIER

Total yearly production emissions

2.000.000 kg CO2-e

± 200.000 kg CO2-e based on uncertainty of data

BRAND

Yearly product emissions from SUPPLIER

400.000 kg CO2-e

± 40.000 kg CO2-e based on uncertainty of data

reference year: 202X

DATE

Onboarded by
XX at MÅLBAR

Climate screening of the suppliers production facilities.

This LCA-screening is based on PEF

DISCLAIMER

Standard for calculation

This climate screening report is calculated according to EUs rules for Product Environmental Footprint (PEF). When data was not available from the supplier, conservative estimates has been applied. The climate screening of the supplier's production facilities also include recommendations for reducing the climate impact of the manufacturing processes. MÅLBAR only report on Climate Impact.

The data sources behind these calculations are: EcoInvent 3.8, 3.9 and EF 3.0, 3.1, PEF data as well as PEF-compliant LCA data. (read more here: www.maalbar.dk/transparency/)

To reflect the uncertainty in the data the presented values are given as rounded integers in the report and the production emissions come with an uncertainty range based on data accuracy.

Method of data application

This report is generated by MÅLBAR and primary data is based on a self assessment by the specific supplier. (Read more here: www.maalbar.dk/onboarding.pdf)

Communication of results

The results in this report are not intended for communication towards the private consumer but only for Professional customers.

Validity of report

The results of this report are valid for 3 years from the onboarding date with a required revisit of the data every year.

Software version

v. 2.9612

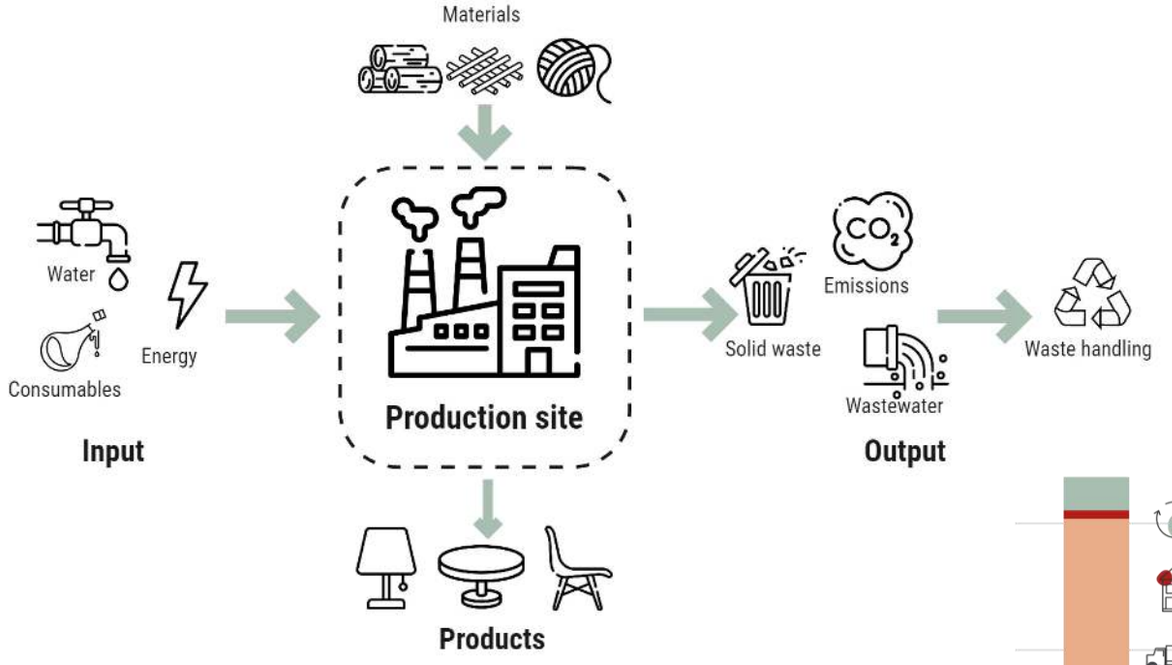
How to interpret the results

This information gives a unique insight into the production site, which can be used as a basis for CO2-e reducing strategies. Being onboarded in our systems also gives a competitive advantage when attracting new customers.

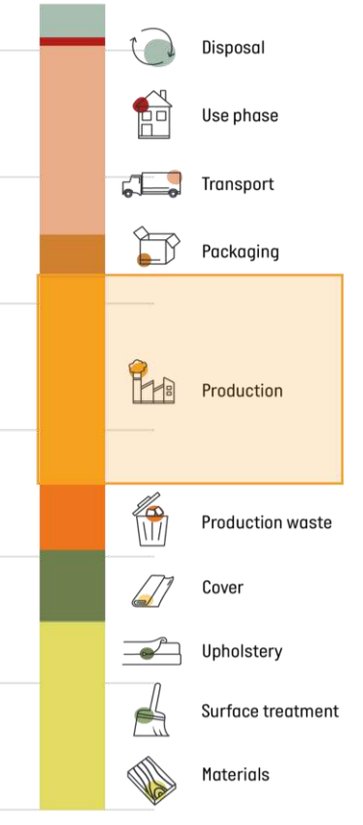
An onboarding maps all the climate impacts from the production based on:

- Electricity, heat and water consumed
- Waste generated/handled (both municipal and production)

Covering all the flows from input, processes and output as seen in the below mentioned figure.



On the figure to the right the emissions from a product life cycle is seen divided into sections. As an onboarding of a supplier only direct influences the results from the production impact (see orange part in figure), this is the values that will be focused on in the report and will be referred to as “production”.



Note: *The size of the colors in the figure are not specific to any product or component presented in these results*

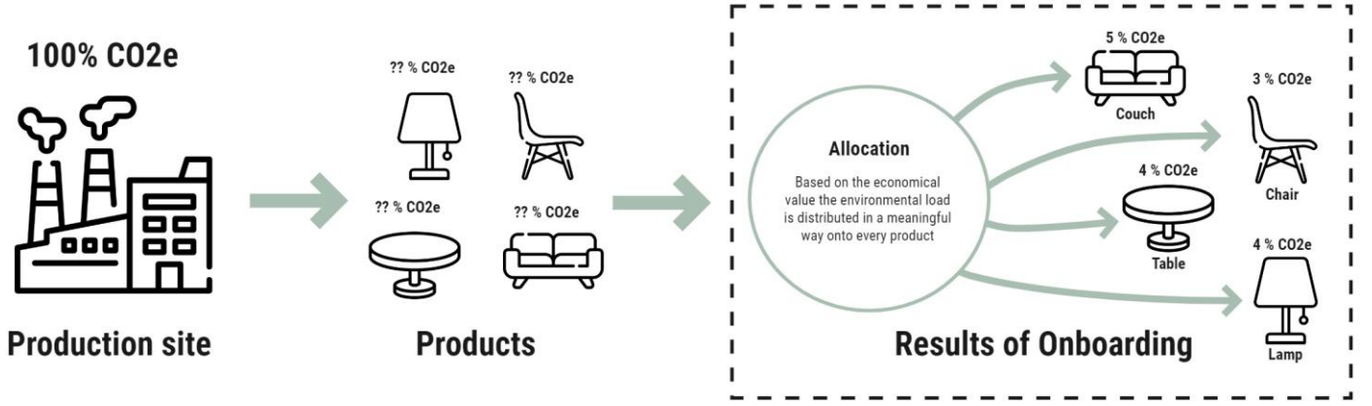
About SUPPLIER

SUPPLIER is located in DENMARK and works with wood, including processes such as gluing, CNC production, drilling, grinding and varnishing. As **SUPPLIER** does not outsource any processes everything in production regarding wood is assumed as a part of the onboarding result. Production waste from **SUPPLIER** is burned for heating.

The treatment of wood at **SUPPLIER** accounts for a total of 2.000.000 kg CO2-e emissions annually. BRAND accounts for around 20% of the production emissions at SUPPLIER relative to 400.000 kg CO2-e. This allocation is based on economical figures within 202X.

Allocation of emissions

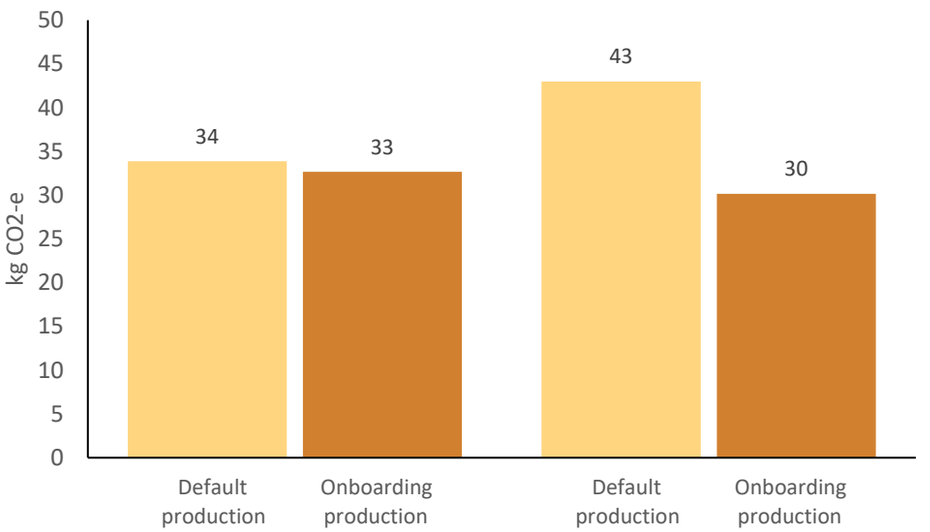
The calculated emissions based on production data from **SUPPLIER** is then allocated using economical figures as seen on the figure below. Hence, the specific production emissions are combined with each unique product leaving the factory.



Note: *The distribution and allocations in the figure are not specific to any product or component presented in these results*

Effect of onboarding for BRAND

Below comparison is based on screenings performed by BRAND on products produced by SUPPLIER and illustrate the effects of the onboarding by replacing average data with primary data. Overall the production accounts for roughly 1/3 of the total CO2-e emissions related to the products. After onboarding the emissions drops. The drop is highly determined by the amount of treated wood used in a product.

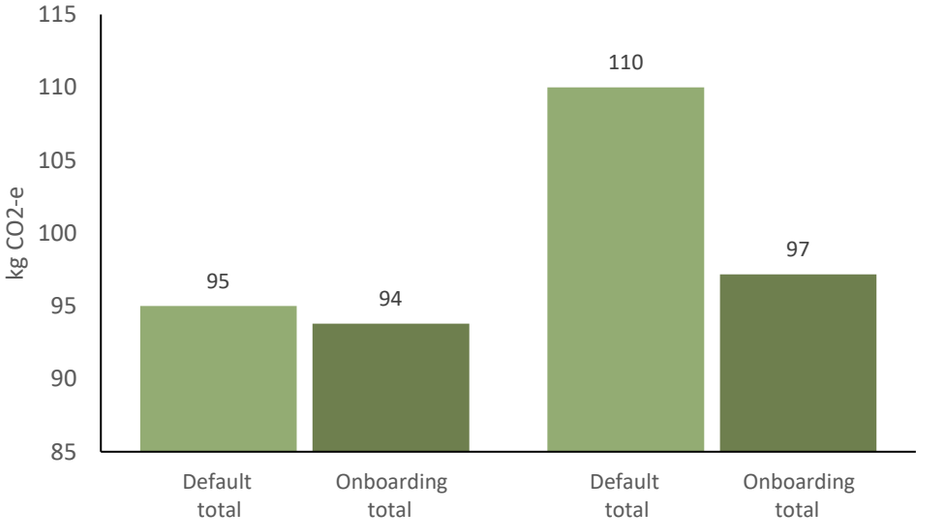


Production benefit

- PRODUCT A	5%
- PRODUCT B	32%
Average	**18%***

Across this sample of products, you see an average benefit of 17% versus default average data, only considering production emissions.

Yellow representing conservative average data used in the MÅLBAR tool as default data. Orange representing the onboarding values.



Total product benefit

- PRODUCT A	2%
- PRODUCT B	13%
Average	**7%****

Across this sample of products, you see an average benefit of 6% versus default average data, considering all life cycle stages of the products.

Light green representing conservative average data used in the MÅLBAR tool as default data. Dark green representing the onboarding values.

* ± 2% uncertainty associated with the data
** ± 1% uncertainty associated with the data

Scenarios

These findings are presented in absolute values but will give an overview of the results and how our recommendations would influence SUPPLIER's production site. The recommendations only concern factors regarding the actual production such as energy and water consumption, waste generation and consumables. They do not account for or include material procurement.

Results: Electricity consumption was the main contributor to the total production emissions. Other emission contributors are the on-site fuel for transportation. The recommendations are built upon these findings focusing on mitigating the electricity consumption.

Two different scenarios are modelled:

> The recommended scenario covers 10 % of the energy from renewables and the remaining 90 % bought from the power grid. The renewables account for 10 % generated from solar power. This scenario reflects the scenario of on-site generated electricity.

> The alternative scenario covers 100% of the energy from renewables bought from the power grid by green certificates. The renewables account for 100% generated by hydropower.

The scenarios are generated using average data, being as specific as available data allows. This is true for geographical-, technology- and temporal scopes.

Results for recommendations

The data acquired have been relying on self-assessment from SUPPLIER and has been rated according to the PEF standard regarding Data Quality Rating (DQR).

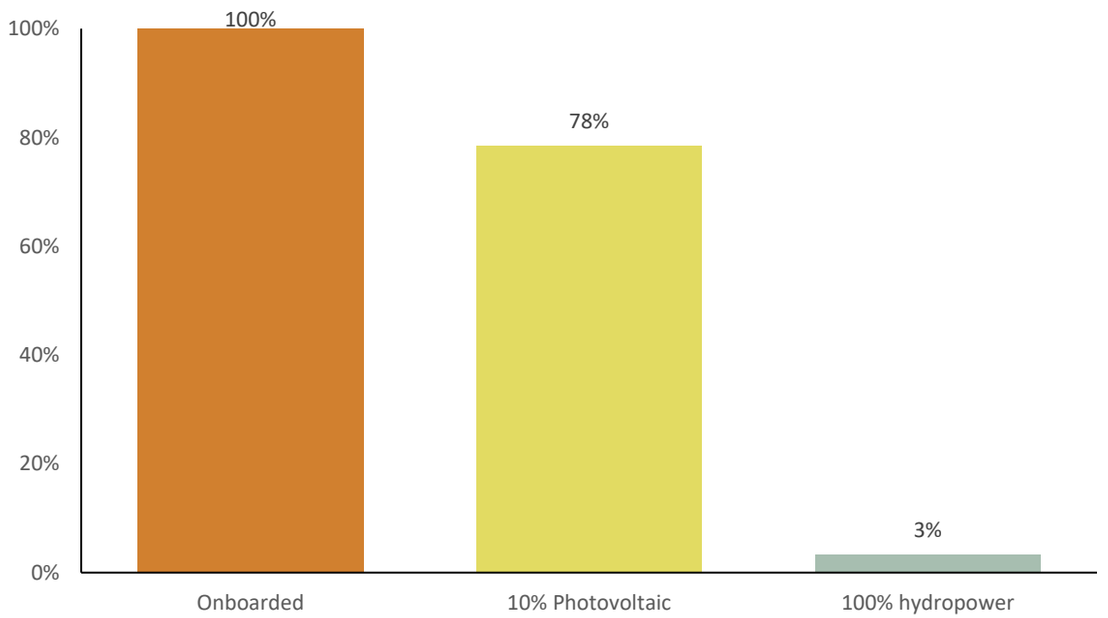
The results are divided into three categories: the onboarded (orange), the recommendation for implementation on site (yellow) and the recommendation by green certificates (green). In the recommendation on site, a scenario has been modeled to show the impact of using 10% solar power for the production site.

Supplier Recommendations

Scenarios	Photovoltaic implementation	Green Certificates
Effect on onboarding	22%*	97%*
Green certificates	NO	YES
Renewable power generation	Yes, estimate of 10% Solar, Wood heating	Yes, Wood heating
Available reduction via recommendations	**400.000** kg CO2-e**	**1.800.000** kg CO2-e**

Note: In the tables, the results of the onboarding are presented as well as the effect on the implementation of recommendations.

Onboarding vs recommendations



In the figure the effect of implementing the recommendations are shown, only affecting the production emissions.

* ± 2 and 18% uncertainty associated with the data respectively
** ± 71.000 and 650.000 kg CO2--e uncertainty from data respectively

Recommendations

What does it require from the company to implement the two scenarios

Photovoltaic panels are recommended, as such installation can affect the climate impact for the production.
Switch 10% of SUPPLIER energy to locally installed solar panels = 400t CO2-e reduction.
Equivalent to 400.000 kWh/Year (~800 m^2, if 400W/m^2/day)

Green certificates or Renewable Energy Certificates are recommended
Green certificate ensures an electricity supply generated by a renewable energy source.
The certificate represents the environmental value of renewable energy production.
As the production is located in DENMARK mainly generating renewable energy from hydropower, the certification is based on electricity supply from hydropower.

By changing energy source, the performance of the production site improves significantly. This can be translated onto every product that SUPPLIER produces.

Information: As electricity consumption accounts for the biggest impact overall (86 %), this is where actions should be taken. Based on efficiencies in DENMARK, the hydropower is more efficient. Achieving this can be done by buying green energy with valid documentation (PEF compliant) or self-produced on site. This will result in an overall reduction of 97 % in kg CO2--e emissions at an annual basis. As these scenarios are hypothetical this come with a high amount of uncertainty and shall be further investigated before pursued.

DATA QUALIFICATION

A semi-quantitative assessment of the data quality criteria of the datasets: technological-, geographical-, time related-representativeness, and precision considering the quality of the dataset.

The Data Quality Rating (DQR) is 1.1 for the primary process data consistent with a **Excellent quality*.**

This screening has been based on user-input data from the supplier, along with average data in conformity with PEF. Where no user-input have been applied, conservative assumptions have been created.

Assumptions may include:

- Energy consumption for processes
- Electricity and heat sources
- Additional material process information
- The amount of production waste and handling

It is possible to apply supplier specific data on a process or consumption in terms of production type, material transportation and production waste handling by including outsourced specific data on the process (requires further onboarding). This is referred to as primary process data and can cover a certain percentage of the total production-stage and part of the material-stage.

* From PEF regulations data quality is obliged to be of excellent quality to be sufficient for LCA-screening.

MÅLBAR

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