# CO2 Baseline report 2023

**Dec**
2024

ESG vision, data, methods, and reduction goals

**Icotera**

# Welcome to the Icotera CO2 Baseline report 2023



### ESG vision and strategy

Why sustainability is important to Icotera and why disclosing our 2023 CO2 baseline is a part of our ESG vision and strategy



### The methods behind

How the CO2 baseline is conducted and what methods and software we use to deliver valid data



### CO2 baseline 2023

What the CO2 baseline shows about our emissions in scope 1,2 and 3



### Reduction strategy

What reductions goals we have set, commiting to SBTi, and how we plan to reduce towards 2030

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# Minimizing climate impact across our operations

I'm proud to present the Icotera CO2 baseline for 2023 measuring our direct and indirect climate impacts in scope 1,2 and 3.

As a company, we are responsible for minimizing the negative impact from our operations, including the CO2 footprint related to providing European homes with high-end fiber and CPE solutions, delivering better connected living.

The CO2 data gives us new insights in our own operations. It's also the foundation for setting absolute reductions goals through the Science Based Target initiative (SBTi), which is important to Icotera and our customers.

Non-financial reporting is mandatory for Icotera by 2026, due to CSRD. But as a CFO I find it important to lead ahead of the green transition by disclosing our data, methods and goals. In 2024 we hired an ESG manager, taking a big step up to be a data-driven, innovative partner in our customer's green transition.
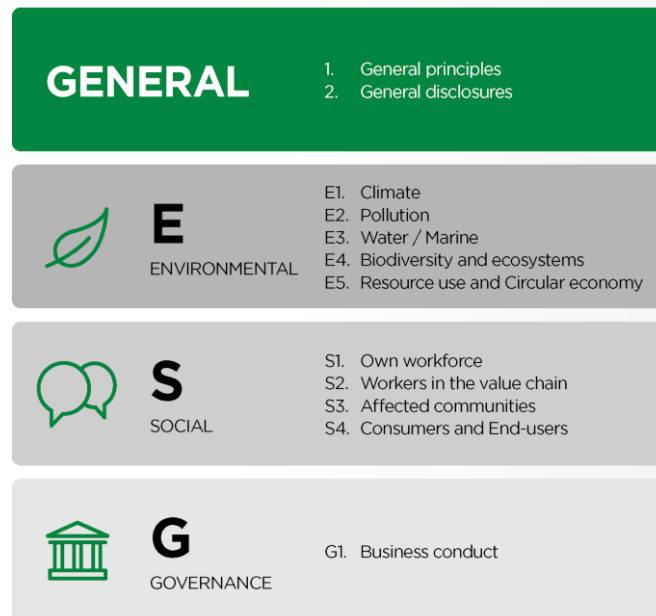
*Anders Stahl Eriksen, CFO*
*ase@icotera.com*

# Empower our customer's green transition

Sustainability is important to Icotera for the following reasons.

- We acknowledge our responsibility in designing long-lasting products with respect for people and the planet

- Sustainable choices are an additional parameter of customization that we offer to customers to differentiate themselves

- We understand our customers' need for valid ESG product data for their reporting

- Reducing the footprint of our products is an integral part of lowering the total cost of ownership.

We deliver data aligned with the Corporate Social Responsibility Directive (CSRD) and the EU Sustainability Reporting Standard (ESRS) to support our customers on their green transition.

**GENERAL**
1. General principles
2. General disclosures

**E** ENVIRONMENTAL
- E1. Climate
- E2. Pollution
- E3. Water / Marine
- E4. Biodiversity and ecosystems
- E5. Resource use and Circular economy

**S** SOCIAL
- S1. Own workforce
- S2. Workers in the value chain
- S3. Affected communities
- S4. Consumers and End-users

**G** GOVERNANCE
- G1. Business conduct

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# Empower our customer's green transition

## ESG vision

We empower ISPs and network operators
to differentiate with green offerings
and reduce their overall footprint,
via long-lasting products that maximize performance
and minimize environmental impact

## ESG strategy

| | |
|---|---|
| Minimizing the life cycle impact of products | Ensuring responsibility across the supply chain |
| Reducing the climate impact of operations | Respecting and developing talent |

# The methods behind the CO2 baseline

Reducing the climate impact of operations is a goal in our ESG strategy. Carbon accounting enables us to understand where our emissions come from and where to reduce.

**CO2e** is the metric measure used to compare the emissions from various greenhouse gases based on their global-warming potential (GWP).

We follow the Green House Gas Protocol (**GHG)** to measure emissions in scope 1,2 and 3 capturing all our business activities in the value chain:

- **Scope 1 emissions:** Cover the direct emissions from our own facilities and vehicles

- **Scope 2 emissions:** Cover the indirect emissions from the purchased electricity, heating and cooling use in our buildings

- **Scope 3 emissions:** Cover all indirect emissions from all our activities upstream and downstream of our value chain
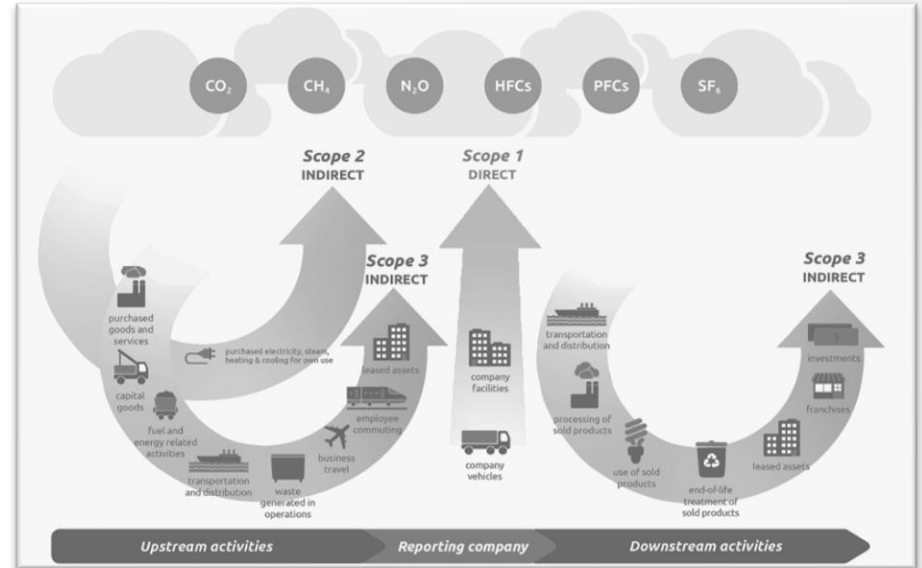


The distinction between emissions in scope 1,2 and 3 according to the GHG Protocol

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# The methods behind the CO2 baseline

- We use the **Novata Carbon Navigator** software to streamline and track CO2 data, calculate emissions and report in scope 1,2 and 3

- **The 2023 baseline data quality** is 3,2 on the PCAF scale, according to Novata

- **PCAF** (The Partnership for Carbon Accounting Financials) score is ranking data for emissions calculating from 1 to 5:
  1  = most reliable
  5 = low-quality data

**novata**

# CO2 baseline 2023

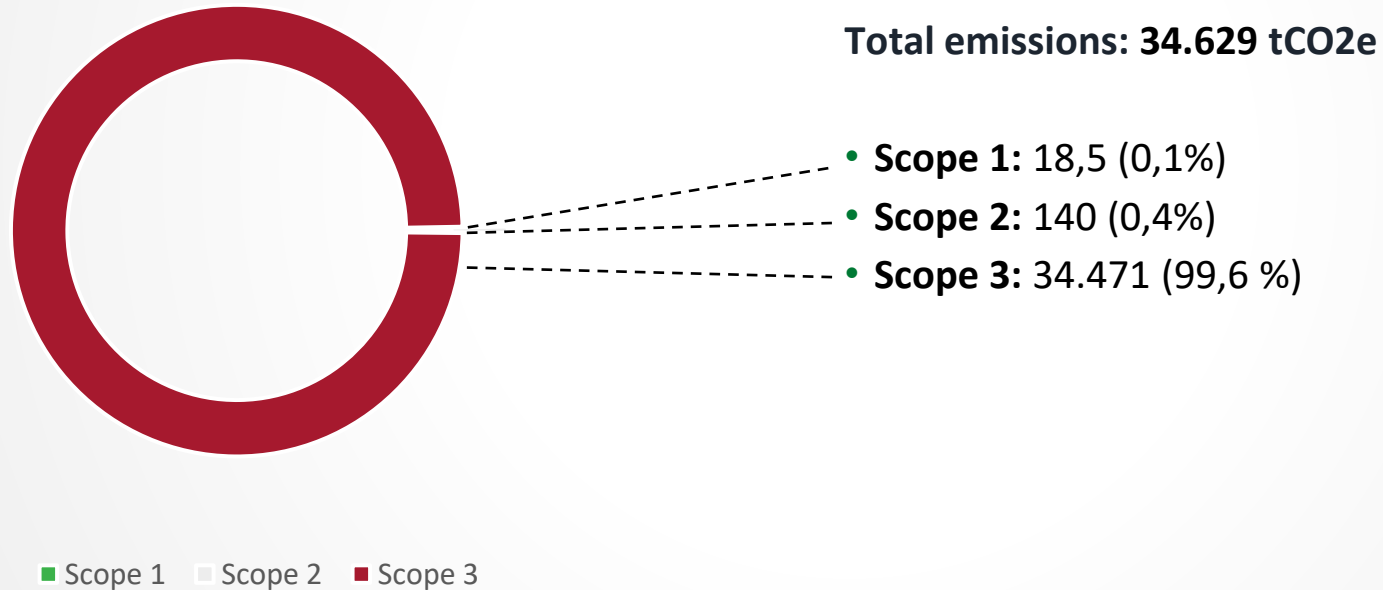| Scope | Categories | tCO2e | % |
|-------|-----------|-------|---|
| 1.1 | Direct combustion of fossil fuels | 18,5 | 0,1 |
| 2 | Energy consumption - Location based | 140 | 0,4 |
| 3.1 | Purchased goods and services | 5.840 | 16,8 |
| 3.3 | Fuel and energy related activities | 39 | 0,1 |
| 3.6 | Business travel | 32 | 0,1 |
| 3.7 | Employee commuting | 108 | 0,3 |
| 3.9 | Downstream transportation and distribution | 422 | 1,2 |
| 3.11 | Use of sold products | 28.030 | 81 |
|  | **Total** | **34.629** | **100** |

## Executive summary

As a company delivering better connected living to homes across Europe, Icotera's 34.629 tCO2e footprint in 2023 is not as much related to scope 1 and 2 emissions, rather to scope 3 emissions.

The 2023 baseline shows that 97,8 percent of Icotera's emissions of 34.629 tCO2e are related to our core business, especially the purchased goods and services we sent to the market, and the power consumption in the full product life time at our end-user's homes.

Our company commits to reduce absolute scope 1 and scope 2 GHG emissions 42% by 2030 from a 2023 base year.

We also commit to reduce our scope 3 emissions, especially focusing on emissions from production and use of Icotera products.

# Our GHG emissions in CO2 in scope 1,2, and 3

**Total emissions: 34.629 tCO2e**

- **Scope 1:** 18,5 (0,1%)
- **Scope 2:** 140 (0,4%)
- **Scope 3:** 34.471 (99,6 %)

■ Scope 1  ☐ Scope 2  ■ Scope 3

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# Scope 1: 18,5 tCO2e

Our scope 1 emissions are close to 0.

Why? Icotera is not owning own product facilities or vehicles.

In scope we have a tiny 18,5 tCO2e post, automatically calculated by the Novata Carbon Navigator from indirect combustion of fossil fuels used for the electricity and heating supplied in scope 2.

Scope 1 will by that follow future reductions in scope 2.

# Scope 2: Location based vs market based

We report both location based and market based scope 2 emissions for transparency. This allows stakeholders to understand the broader regional context of our operations while still recognizing potential for renewable energy investments.

## The location based method

- The average emissions intensity of the grid in the geographical area where electricity consumption occurs. This method uses average emissions factors for the regional or national electricity grid to estimate the emissions. It does not consider specific energy procurement choices made by the company (like buying renewable energy or energy contracts).

- Data Source: Emissions factors from regional or national grid averages.

- Focus: The electricity mix that is generally available in a location (e.g., what everyone in that area has access to).

## The market based method

- The market-based method reflects the emissions associated with the specific choices a company makes about its electricity supply. This method accounts for emissions based on contracts for electricity procurement, such as renewable energy certificates (RECs), power purchase agreements (PPAs), or green tariffs that support renewable sources.

- Data Source: Emissions factors from specific suppliers, contracts, or instruments.

- When committing to Scope 2 emissions reductions through Science Based Targets (SBTi), we can also report on the market based emissions reductions to reflect any specific efforts done to source cleaner or renewable energy.

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# Scope 2: 140 tCO2e, location based

Icotera operates from four locations plus a few remote working stations. Our location based scope 2 emission is 140 tCO2e, our market based emission is 165 tCO2e.

Location based emissions from the consumption of purchased electricity, steam, heat and cooling:

- HQ Denmark: 1,4 tCO2e

- Torún office: 9,4 tCO2e

- Warehouse: 64,4 tCO2e

- Szczecin office: 64,6 tCO2e

The higher emissions from our Polish locations come from a higher kWh used and a higher carbon intensity per kWh in electricity and heating, compared to Denmark.

As we have the operational control over all facilities (except Szczecin Office heating), we can and will set scope 2 reduction goals.



S2 Emissions from power and heating, tCO2e

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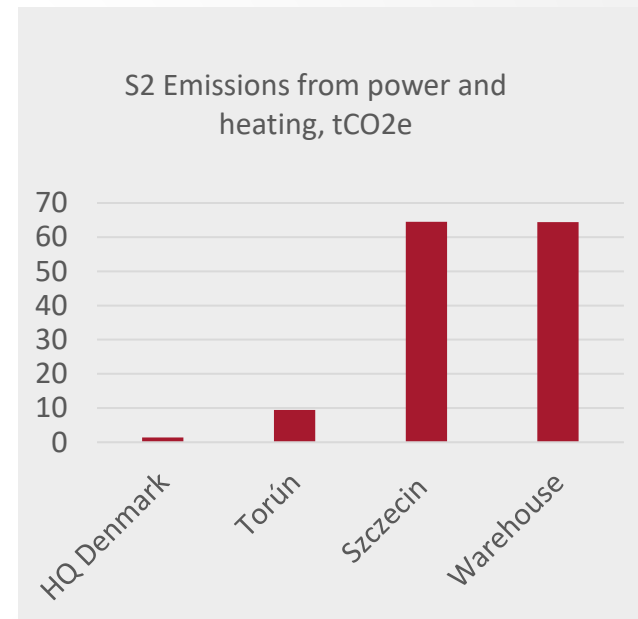
# Scope 3: 34.471 tCO2e

| | No. | Scope 3 categories | tCO2e |
|---|---|---|---|
| Upstream | 3.1 | Purchased goods and services | 5.840 |
| | 3.3 | Fuel and energy related activities | 39 |
| | 3.6 | Business travel | 32 |
| | 3.7 | Employee commuting | 108 |
| Downstream | 3.9 | Downstream transportation and distribution | 422 |
| | 3.11 | Use of sold products | 28.030 |
| | | **Total** | **34.471** |

99,6 percent of Icotera's emissions are within scope 3, the indirect emissions from all our activities upstream and downstream of our value chain.

The GHG Protocol has subcategories within Scope 3 emissions.

- Upstream emissions relate to every activity in our value chain to produce our products

- Downstream emissions relate to every activity in our value chain to consume and dispose our products.

The biggest upstream and downstream posts in our baseline are related to Icotera's core business as a developer and manufacturer of Fiber-to-the-Home (FTTH) CPE solutions; FTTH Gateways, Managed Ethernet Routers and Access Points.

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# Scope 3.1 Purchased goods and services: 5.840 tCO2e

In 2023 the indirect emissions from purchased goods and services was 5.840 tCO2e.

This category is broad and covers upstream emissions from the production of purchased goods and services, including extraction of raw materials, manufacturing, and transportation up to Tier 1 (direct) suppliers.

**Let's explain the method behind:**

- GHG 3.1, Spend-based method

- Supplier invoice data (economic value) split into the two categories

- Average-data CO2e estimated by Novata Carbon Navigator using secondary data from EXIOBASE 3.

As a manufacturing company, we subdivide between two categories to learn more about our impact:

- **Production related** goods and services purchased covers the emissions from products that we put to the market (e.g., raw materials, components, parts, assembly, and packaging)

- **Office related** goods and services purchased covers the emissions from things and services we buy to run the business (e.g., office furniture, office supplies, electronic equipment, and business services).

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# Scope 3.1 Purchased goods and services: 5.840 tCO2e

96 percent of the emissions from scope 3.1 refer to **production related** purchased goods and services.

In other words, our core business of designing and bringing Icotera high-quality products to the market. This impact is generated upstream in our supply chain and represents the sum of the cradle to gate footprint of our products.

Only 4 percent of the goods and services purchased refer to our **office related** activities (e.g. office furniture, office supplies, electronic equipment, and business services).

This points to the huge potential in supply chain collaboration on product design and optimization to reduce the CO2 cradle to gate footprint of future products.

Purchased goods and services
tCO2e

4%

96%

■ Office related

■ Production related
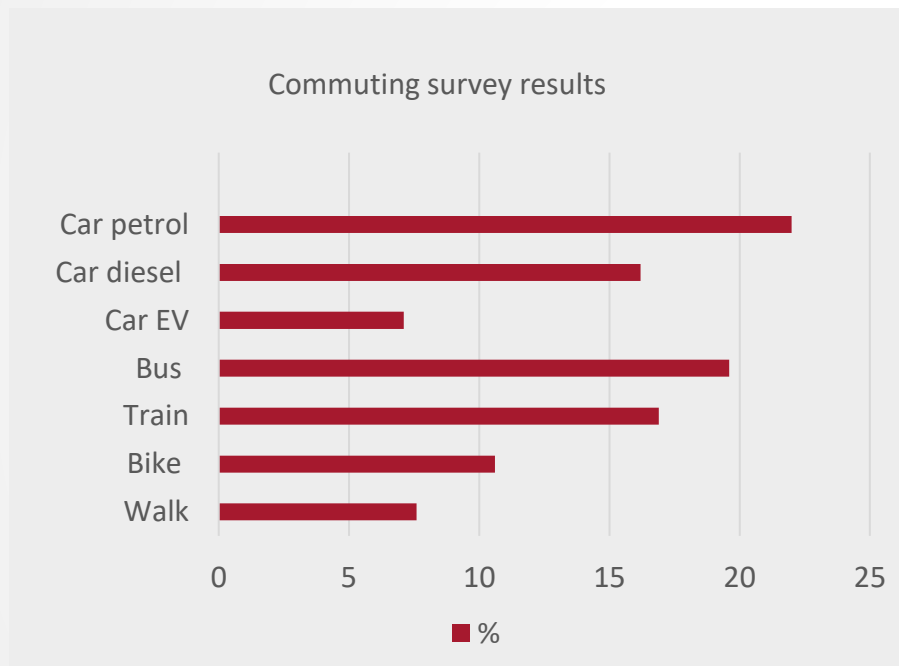
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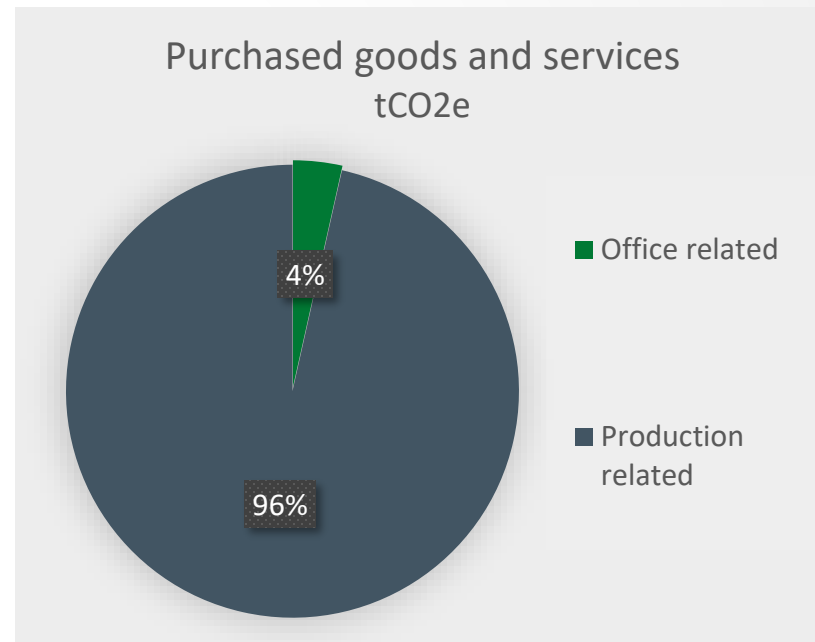
# Scope 3 Business travel: 32 tCO2e

The total emissions from business travel was 32 tCO2e in 2023. This post is covering trips between Denmark and Poland, sales trips around Europe, and trips to our Asian manufacturers.

**Let's explain the method behind:**

- Business travel includes emissions from business related activities operated by third parties (not commuting)

- Return trips count as 2 journeys

- Primary data from our financial system

- We use the GHG 3.6 distance-based method and the Novata Carbon Navigator method defining the transportation categories and applying emission factors for the different modes and lengths.

| Mode | Title | Length assumed | tCO2e |
|---|---|---|---|
| **Flights** | Short Haul | Less than 3 hours | 15,4 |
| | Medium Haul | 3-6 hours | 2 |
| | Long Haul | More than 6 hours | 5,9 |
| **Train** | Short | Less than 2 hours | 0 |
| | Medium | 2-5 hours | 1,2 |
| | Long | More than 5 hours | 0 |
| **Car/ taxi** | Short | Less than 30 mins | 3,5 |
| | Medium | 30mins - 2 hours | 0 |
| | Long | More than 2 hours | 1,7 |
| **Hotel** | Night | One night | 2,3 |
| **Total** | | | **32** |

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# Scope 3 Employees commuting: 108 tCO2e

### Commuting survey results



The emissions from employee commuting is 108 tCO2e.

**Let's explain the method behind:**

- GHG 3.7, average data method converting commuting patterns into CO2 emissions
  - Number of fulltime employees at each facility
  - Average number of commuting days per week
  - 240 days a year
  - Number of remote workers
  - Average modes of transport of employees
  - Average commute distance

- Survey data*: Response rate: 58%

- Emissions are calculated by Novata Carbon Navigator.

* Survey done in 2024 as a proxy for 2023

# Use of sold products: 28.030 tCO2e

In 2023 the indirect emissions from Use of sold products was 28.030 tCO2e and takes up 80,9% of the total baseline. This post is covering the power consumption for all Icotera units sold in 2023 and deployed in end-users' homes in the expected lifetime.

**Let's explain the method behind:**

- Using GHG method 3.11

- Total lifetime expected use of products:
  5 years for routers and access points - 10 years for fiber termination units

- Numbers sold in reporting period are split into products and countries

- Electricity consumed per use (kWh): As we have no actual data under normal load conditions, the value of 75 % of Maximum state is used as Typical Power Consumption Factor to estimate the Active state. Product usage time in Active is set to 12 hours/day

- Emission factor for electricity (kgCO2/kWh) is based on the average grid-mix per country in 2022.

## CO2 calculation formula = GHG 3.11

*∑ total lifetime expected use of product*
*× number sold in reporting period*
*× electricity consumed per use (kWh)*
*× emission factor for electricity (kgCO2e/kWh)*

### Carbon Intensity average grid-mix (2022)

| Country | gCO2/kWh | Source |
|---------|----------|--------|
| Austria | 80 | European Environment Agency 2022 |
| Denmark | 117 | European Environment Agency 2022 |
| Finland | 62 | European Environment Agency 2022 |
| Germany | 368 | European Environment Agency 2022 |
| Norway | 29 | Ember (2024); Energy Institute |
| Sweden | 8 | European Environment Agency 2022 |
| UK | 256 | Ember (2024); Energy Institute |

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# Use of sold products: Expected product lifetime for Icotera products

Expected product lifetime for Icotera products
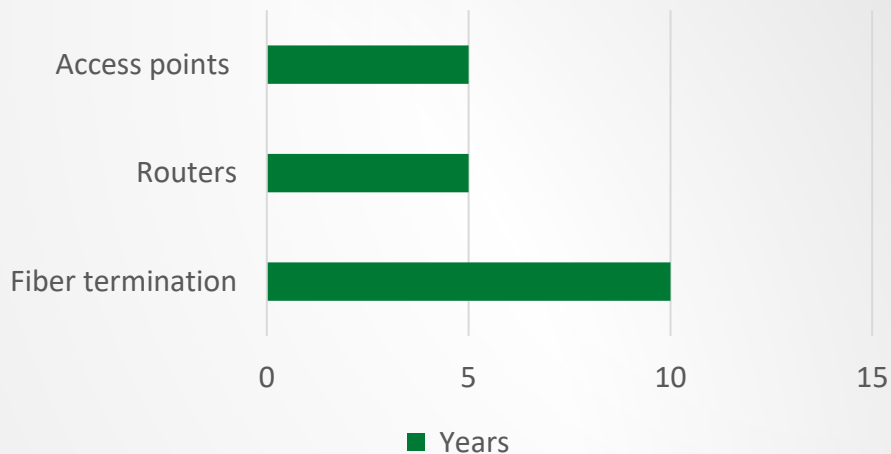


The size of scope 3.11 depends on different variables according to the GHG 3.11 method. The **estimated product lifetime** is one of them.

Icotera is proud to deliver long-lasting products, with high-quality components to our customers and their end-users, giving the best customer experience and the most responsible use of raw materials.

However, with long lifetimes come a high scope 3.11 post as we account for the end-user's power consumption for 5 years ahead for routers and access points, and 10 years for fiber termination units.

Longevity might seem "negative" in that perspective. But seen in a yearly perspective, long-lasting products is still better for the total cost of ownership and the planet.

# Use of sold products: Emission factor for electricity

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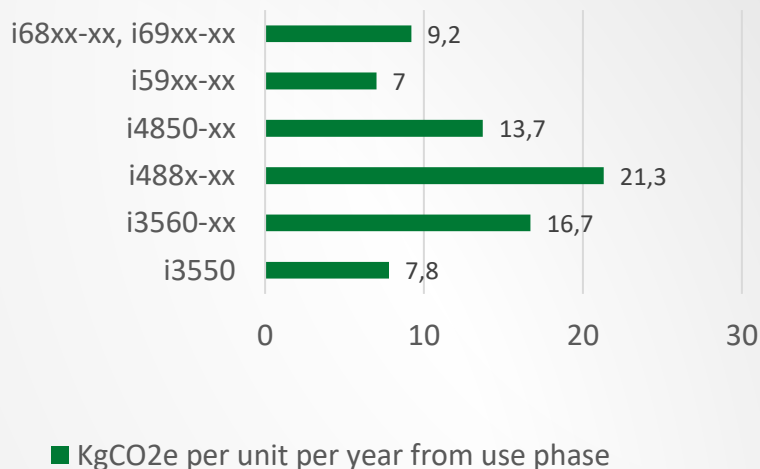## Carbon Intensity average grid-mix (2022)
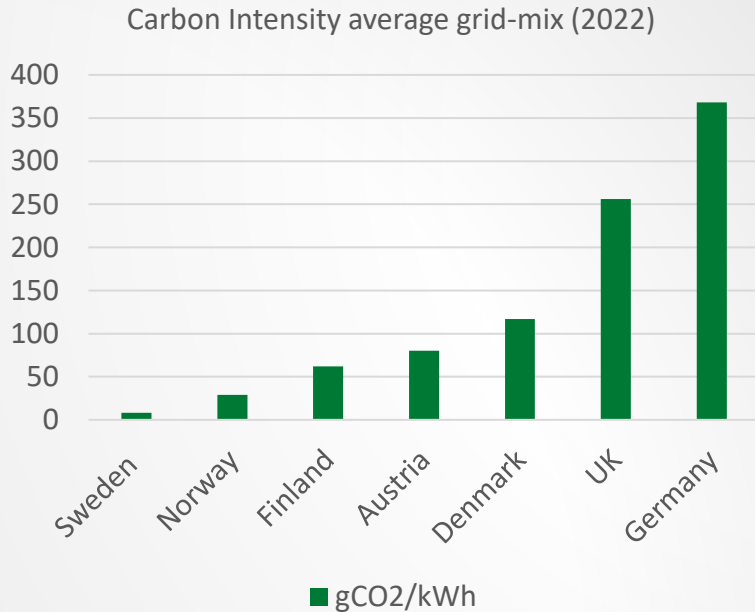


The size of scope 3.11 also depends on the **levels of green, fossil free energy** in the countries Icotera operates in.

Our market position in Scandinavia comes with a lower carbon intensity than our position in countries like Germany and UK because of the difference in carbon intensity in the average grid-mix.

This is clearly out of our hands to influence, but we expect that the European energy policy agencies keep pushing investments in green power, reducing the countries dependency of fossils fuels, and lowering the carbon intensity in the grid-mix.

# Yearly footprint from power consumption in the use phase

Estimated product footprint in use phase (3.11)



i68xx-xx, i69xx-xx — 9,2
i59xx-xx — 7
i4850-xx — 13,7
i488x-xx — 21,3
i3560-xx — 16,7
i3550 — 7,8

0    10    20    30

■ KgCO2e per unit per year from use phase

Based on the GHG 3.11 method, and the data and assumptions presented at page 18

Let's take a look at the **yearly footprint** from power consumption in the use phase based on our Use of sold products (3.11) method from page 18.

In this case we assume the units are deployed in a Danish home with an average grid-mix of 117 $gCO_2$/kWh.

The graph displays the emissions ($kgCO_2e$) per year from the electricity use of the different product groups.

**Is that high or low?** We lack ICT sectoral standards to compare use phase emissions across producers.

What we can say, is that the power consumption of a high-performing router like the i488x-xx in a Danish home accounts for estimated 21,3 $kgCO_2$ per year.

This is 0,16 % of the total yearly emissions of around 13 $tCO_2e$ for an average Danish person, according to Concito.
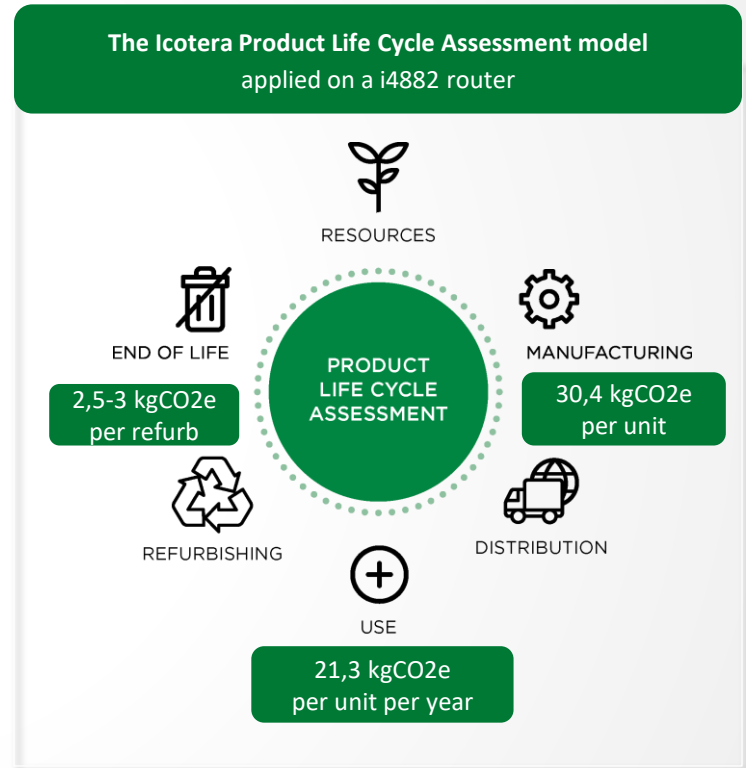
# Long-lasting products that maximize performance and minimize environmental impact

This is the Icotera product life cycle model. We use it to evaluate the environmental impacts in the full life circle. Let's take the CO2 footprint of the high-performing i4882 router as an example:

- **Cradle to gate:** The CO2 footprint of extracting the resources for all components, manufacture and pack 1 unit is around 30,4 kgCO2e*

- **Use phase:** If the unit is deployed in Denmark, the footprint from power consumption in an average end-user's home for 1 year is estimated to 21,3 kgCO2e**

- **Refurbishing:** If the ISP choose to refurbish the router at the Icotera Service Centre to prolong product lifetime, refurbishing 1 unit has a footprint of 2,5-3 kgCOe, avioding around 27 kgCO2e*** compared to manufacturing a new unit.

These data add value and transparency to Icotera's long-lasting products and can be used by our customers in decision making and ESG-reporting.

*Documented by manufacturer, ** Calculated based on Scope 3.11 method (described at page 18), 2022 grid-mix *** Calculated on more than 60.000 refurbished routers at the Icotera Service Centre

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**The Icotera Product Life Cycle Assessment model**
applied on a i4882 router

RESOURCES

END OF LIFE

2,5-3 kgCO2e
per refurb

MANUFACTURING

30,4 kgCO2e
per unit

PRODUCT LIFE CYCLE ASSESSMENT

REFURBISHING

DISTRIBUTION

USE

21,3 kgCO2e
per unit per year

Read more about the model at Icotera.com

# Icotera's reduction targets are approved by SBTi



The Science Based Targets initiative (SBTi), is a collaboration between CDP, the United Nations Global Compact, World Resources Institute (WRI) and the World Wide Fund for Nature (WWF).

The Icotera CO2 baseline 2023 is the foundation for submitting our greenhouse gas emission reduction targets to SBTi Services for validation.

**The Science Based Targets initiative (SBTi)** is a corporate climate action organization that enables companies and financial institutions worldwide to play their part in combating the climate crisis.

SBTi has assessed Icotera's targets against the SME Criteria Assessment Indicators and after careful review, the submitted targets have been approved by November 2024.

By joining the Science Based Targets initiative (SBTi), Icotera is ensuring our customers and stakeholder that our reduction strategy towards 2030 is in line with the latest science.
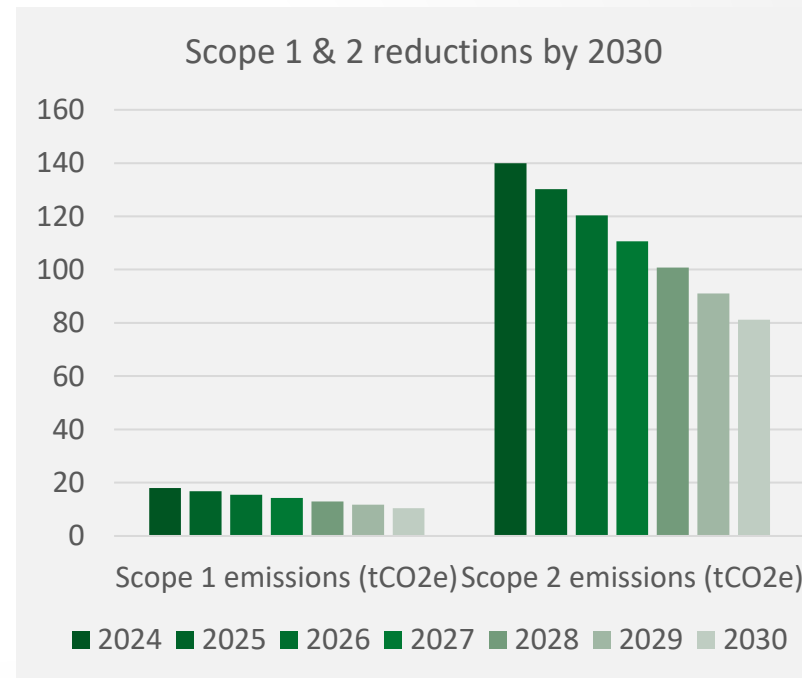
# Reduction strategy 2030, scope 1 & 2

Icotera's SBTi verified near-term target is to reduce our absolute scope 1 and scope 2 GHG emissions by 42% by 2030 from a 2023 base year.

By that, we commit to reduce our location based scope 2 from 140 tCO2e in base year 2023 to 81 tCO2e by 2030.

We will reach the goal by reducing electricity and heating consumption in our locations in Denmark and Poland to obtain a 4,2 % reduction in CO2e per year. By that, the scope 1 emissions from indirect combustion of fossil fuels used for the electricity supplied in scope 2 will follow down accordingly.

We will, if necessary, consider purchasing renewable energy certificates (RECs) to accelerate the deployment of renewable energy and reduce our market based scope 2.



Scope 1 & 2 reductions by 2030

Scope 1 emissions (tCO2e) Scope 2 emissions (tCO2e)

■ 2024 ■ 2025 ■ 2026 ■ 2027 ■ 2028 ■ 2029 ■ 2030

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# Reduction strategy 2030, scope 3

Icotera has also committed to SBTi to measure and reduce our scope 3 emissions towards 2030.

The baseline shows that 97,8 percent of our emissions of 34.629 tCO2e are related to our core business, especially the purchased goods and services we sent to the market, and the power consumption in the full product life time at our end-user's homes.

**This is how we will reduce our scope 3 emissions:**

• Reduce the cradle to gate footprint per unit of new products (scope 3.1)

• Reduce the power consumption per unit of new product (scope 3.11)

• Promote the circular economy, refurbishment of routers, and responsible end of life treatment of sold products to avoid emissions (scope 3.12) and save resources.

We will reach these goals through supply chain innovation and customer partnerships, acknowledging our mutual interest in driving down greenhouse gas emissions towards a zero-emissions economy.



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**5000+**

COMPANIES AND FINANCIAL INSTITUTIONS

SETTING
SCIENCE-BASED TARGETS

SCIENCE BASED TARGETS

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# Let's explore the ESG business opportunities together!

We are at the beginning of a strategic transformation. By being transparent on our data and methods we wish to engage customers and stakeholders in exploring ESG as a path to new business opportunities together.

ESG Manager Freja Ludvigsen is Icotera's single point of contact on issues like:

- $CO_2$ and environmental impacts of products

- Social impact and supply chain compliance

- CSRD, ESG reporting, and SBTi targets

- Refurbishment of routers and e-waste.

Don't hesitate to reach out for information, data, and methods on product and company level!

*Freja Ludvigsen, ESG Manager*
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