Ignite Procurement

Ignite Procurement GHG Emission Report - 2022

www.igniteprocurement.com

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Introduction

Introduction to Ignite Procurement

Ignite Procurement (or simply Ignite) is a Norwegian SaaS company with more than 50 employees located across two offices, one in Oslo, Norway and the other in Warsaw, Poland. Ignite provides a web-based application for the consolidation and analysis of data, applied for work with strategic procurement. In the last couple of years, Ignite has expanded its functionality to include carbon accounting, contract management, and an assessment module that can be used internally and externally towards your suppliers. As we aim to ***empower companies around the world to make smarter and more responsible procurement decisions***, Ignite sees the potential to contribute with carbon accounting based on procurement data as a small step in the direction of the 1.5-degree target.

More information can be found on our website: igniteprocurement.com

About the document

This document mainly focuses on our 2022 greenhouse gas emissions, but calculations have been conducted back to the initiation of Ignite Procurement as a company, to see the development of our emissions so far. 2022 will be used as a baseline year for all scopes and categories going forward, but we acknowledge the potential need to update our methods over time in accordance with the development of standards. We are therefore prepared to either update our calculations back in time with new methodologies and/or change our baseline year when necessary for certain emission categories.

We have used our own methodology to calculate upstream scope 3 emissions related to procurement, similar to what we do for many of our customers. Additionally, Ignite has been used to combine activity data with emission factors for all of our other emissions, including scope 2, employee commute, and downstream scope 3.

All figures are exported directly from the Ignite platform, while tables are presented with numbers copied from one-to-one tables in Ignite. Note that all figures and tables when used in Ignite are fully flexible, making it possible to filter, drill down and in several other ways examine both the numbers and calculations down to the most specific details.

The main motivation for this exercise is to understand our own emissions so that we can start initiatives to reduce them. Additionally, this broadens our understanding of how we can help others do the same. We also want to do some kind of compensation or abatement for the emissions we currently have, acknowledging that this is a complex topic and that we currently do this as a (minor) positive contribution rather than to state anything about carbon neutrality or the like.

License

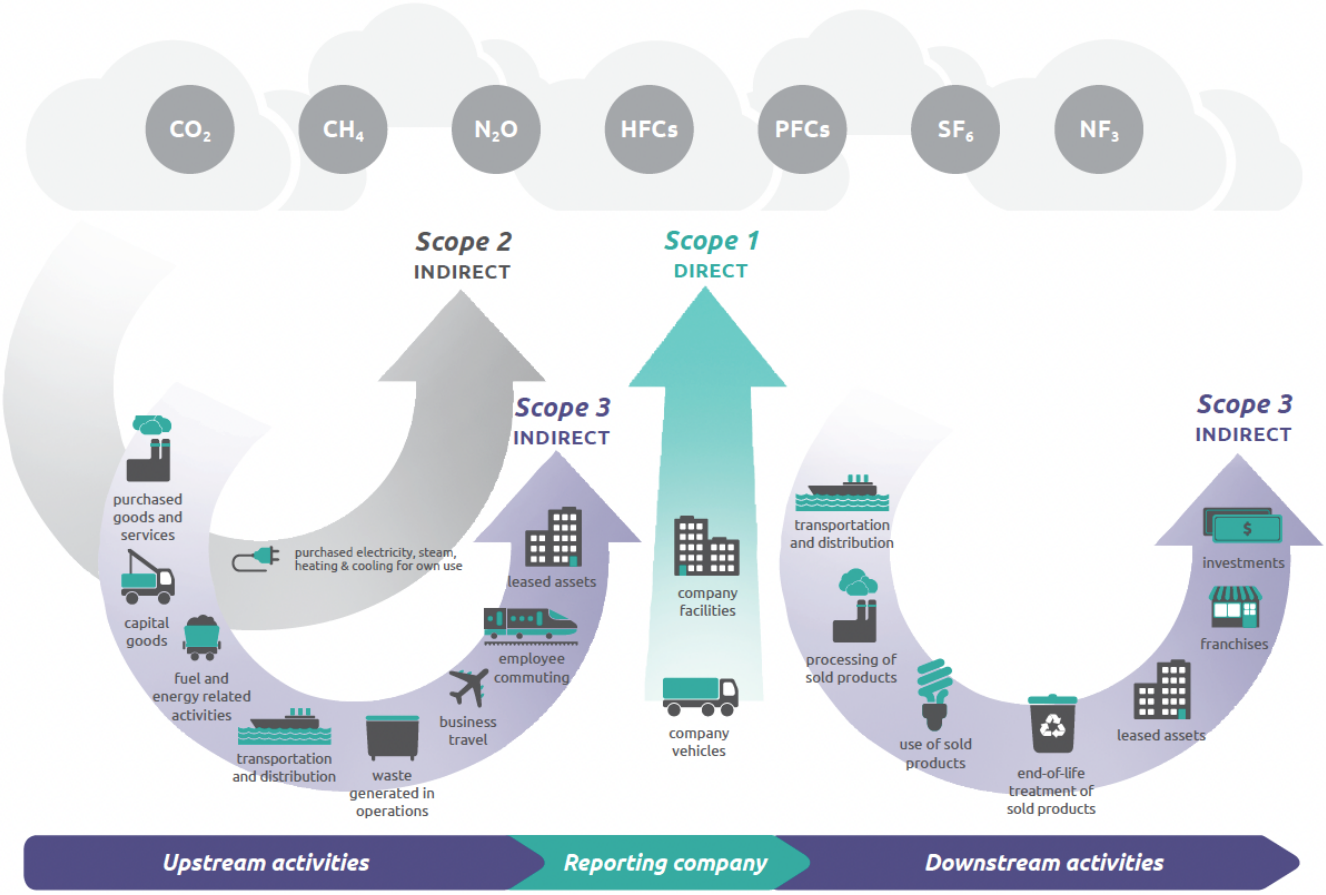

Figure 1: The different scopes and categories of a company's anthropogenic sources of emissions. Reused without explicit consent from the Corporate Value Chain (Scope 3) Accounting and Reporting Standard • e-reader version, Figure [1.1].

Carbon accounting basics

To be able to measure reductions in emissions, and even set reduction targets for that matter, you need to calculate the emissions you are responsible for, either as a person, corporation or nation. In this setting, it is the calculation of emissions that corporations are responsible for that is in focus, and the gold standard for this is the Greenhouse Gas Protocol (GHGP) Corporate Standard. It was expanded in 2011 with the Corporate Value Chain (Scope 3) Standard, which includes detailed descriptions and examples for calculations in all the categories of indirect emissions not directly controlled by a corporation. Emissions are by the GHGP defined within three scopes: 1, 2 and 3. Scope 1 includes the direct emissions from a company's operations, for instance, company-owned internal combustion vehicles. Scope 2 is defined as the indirect emissions from a company's use of electricity, heating and cooling. All other emissions that a company is indirectly responsible for are placed within the 15 different categories of scope 3, as seen in Figure 1.

Some more general introduction and methodology can be found in our public Github repository with methodology and emission factors.

VALIDATION STATEMENT

Statement no:	Valid from:	Valid to:
PRJN-514288	May 4, 2023	Current methodology revision

Ignite Procurement AS

Validation of carbon accounting methodology

DNV Business Assurance Norway AS (DNV) was commissioned by Ignite Procurement AS (Ignite) to provide third-party validation of the carbon accounting methodology (the "Methodology") applied in Ignite Procurement's Carbon Analytics Tool (the "Tool"). We do not accept or assume any responsibility or liability on our part to any party who may have access to this letter or related documents.

Ignite applies its own Methodology, as described in "Ignite_Procurement_Public_GitHub_Methodology", to the Tool to calculate Scope 3 emissions for their clients for selected categories, according to the Greenhouse Gas Protocol (the "Criteria"). The assessment included a review of the Tool's calculation Methodology, underlying assumptions and process descriptions.

Standard and level of assurance

We have performed a limited assurance engagement in accordance with ISO 14064-3:2019 - "Greenhouse gases Part 3: Specification with guidance for the verification and validation of greenhouse gas statements" for this validation of Ignite's carbon accounting methodology.

DNV applies its own management standards and compliance policies for quality control, in accordance with ISO/IEC 17021:2015 - Conformity Assessment Requirements for bodies providing audit and certification of management systems, and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

The procedures performed in a limited assurance engagement vary in nature and timing from and are less detailed than those undertaken during a reasonable assurance engagement, so the level of assurance obtained is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. We planned and performed our work to obtain the evidence we considered sufficient to provide a basis for our opinion, so that the risk of this conclusion being in error is reduced, but not reduced completely.

We have not performed any work, and do not express any conclusion, on any other information that may be published outside of the reviewed Methodology.

Our conclusion

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that Ignite's Methodology in the mentioned scope is not fairly stated according to the Criteria.

This conclusion relates only to the Methodology and is to be read in the context of this Assurance Report, in particular the inherent limitations explained below.

Basis of our conclusion

The validation was conducted between 15th March 2023 and 25th April 2023, during which Ignite shared its Methodology and related documents (all dated 15th March 2023):

- "Ignite_Procurement_Public_GitHub_Methodology"
- "Ignite_Procurement_Public_GitHub_General_Information"
- "Ignite_Procurement_Public_GitHub_Exiobase"

Important assumptions:

- The assessment was limited to the Tool's Methodology and did not include an assessment of the data-driven algorithms and models in the Tool.

DNV has performed the validation with the following approach:

- Review of calculation methodology
- Review of selected document evidence/source references being the basis for the methodology
- Review of sample case where the methodology was applied
- Interviews with key personnel through calls (MS Teams)
- Close out of reported observations and clarifications

Inherent limitations

Our assurance relies on the premise that the data and information provided by Ignite to us as part of our review procedures have been provided in good faith. Because of the selective nature (sampling) and other inherent limitations of both procedures and systems of internal control, the unavoidable risk remains that errors or irregularities may not have been detected. The selection of different but acceptable measurement techniques may result in materially different measurements.

DNV expressly disclaims any liability or co-responsibility for any decision a person or an entity may make based on this Independent Assurance Report.

Our competence, independence and quality control

DNV established policies and procedures are designed to ensure that DNV, its personnel and – where applicable – others that are subject to independence requirements (including personnel of other entities of DNV) maintain independence where required by relevant ethical requirements. This engagement work was carried out by an independent team of sustainability assurance professionals, whose members have not been involved in the development of the Methodology or Criteria.

Responsibilities of the Management of Ignite and DNV

The Management of Ignite have sole responsibility for:

- Preparing and presenting the Methodology; and
- Designing, implementing and maintaining effective internal controls over the information, resulting in the preparation of the Methodology that is free from material misstatements.

Our responsibility is to plan and perform our work to provide limited assurance about whether the Methodology applied to Ignite's Tool has been developed in accordance with the Criteria and to report to Ignite in the form of an independent limited assurance conclusion, based on the work performed and the evidence obtained. We have not been responsible for the development of the Methodology.

Place and date: Høvik, May 4, 2023
DNV Business Assurance Norway AS

Catharina Torp
Sustainability consultant

Tone Rice
Quality Assurance

Summary & aggregated results

Ignite has been a company in rapid growth for the last 5 years, resulting in an overall upwards trend in emissions. As a small startup, neither the knowledge nor the capacity was available to conduct a proper carbon accounting of our operations. Now that we have reached a stage of scaling up, and have our own carbon accounting module, the time is ripe for doing more.

All emissions are presented in metric tonnes of CO_2-equivalents, abbreviated tCO_2e. The used emission factors have been selected to give the most accurate results practicable, aiming for factors that include as many greenhouse gases as possible, and with the greenhouse warming potentials of 100 years from the most recent assessment report from the Intergovernmental Panel on Climate Change (IPCC). Note that the emission factors related to electricity consumption only include CO_2, introducing a small uncertainty (likely underestimating with some percent) for those calculations. For the Exiobase database, used for the spend-based calculations, the emission factors take into account carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) with GWP100 values from AR5 (the fifth IPCC assessment report, AR6 being the most recent). Furthermore, the current Exiobase emission factors exclude land use, land use change and forestry (LULUCF). Optimally, all emission factors used should have included emissions from all seven greenhouse gases, the LULUCF sources, and used AR6 GWP100 values.

Total 2022 emissions broken down by scope and category

The final numbers for Ignite's 2022 GHG emissions are seen below, including information on which sources of data were used to calculate the different emissions.

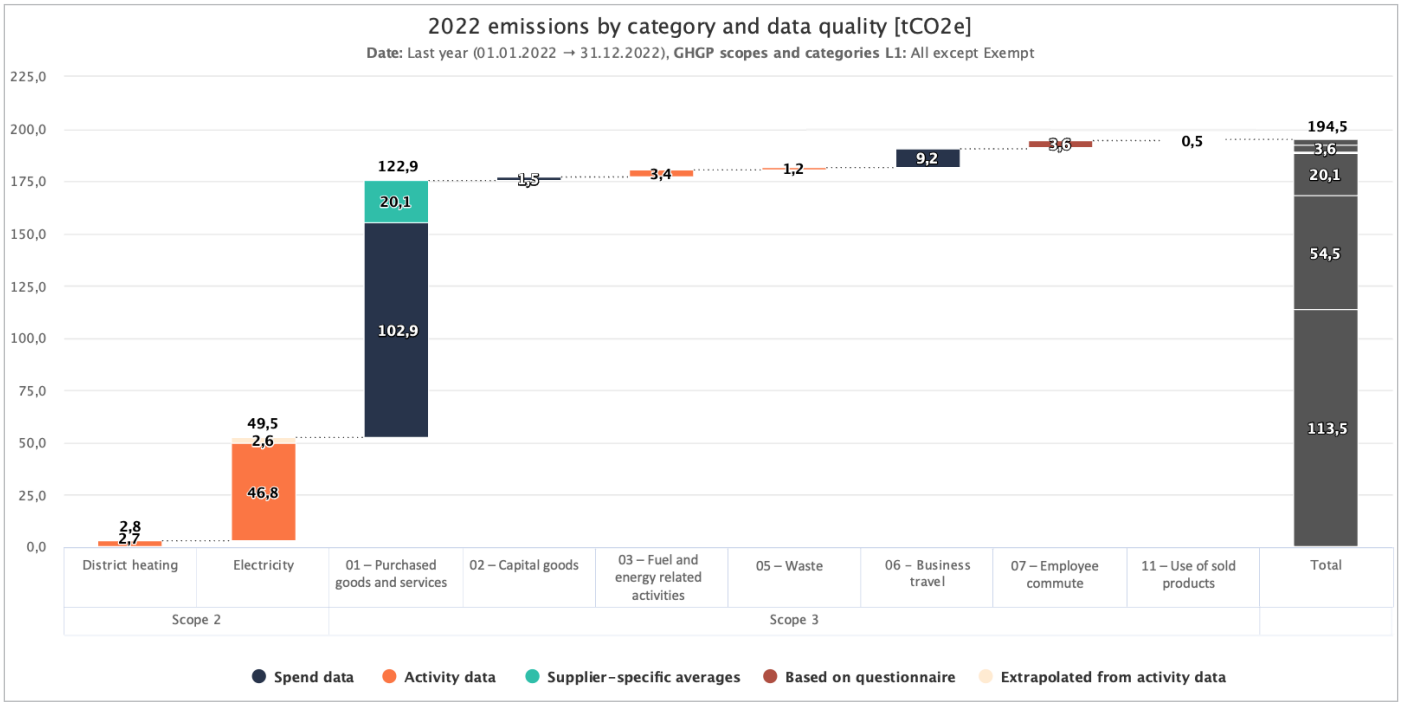

Figure 2: Ignite's total emissions for our 2022 operations, divided by scopes and categories, with additional information on the data used for each part of the resulting emissions. Totals for each block can be seen above it, for instance the number 194.5 tonnes of CO_2-equivalents to the right, which is the total emissions for 2022.

Emission development over time

With Ignite's aforementioned growth our emissions have increased significantly, with an especially noticeable increase from 2020 to 2021. This increase is the result of a major increase in the number of employees and switching offices to our current Epicenter office. Numbers are presented both in a tabular format in Table 1, as well as visually in Figures 3 and 4.

GHGP scope and category	2017	2018	2019	2020	2021	2022
Scope 1	0	0	0	0	0	0
Scope 2 - district heating	0	0.1	0.1	0.3	3	2.8
Scope 2 - electricity (location-based)	0	0.1	0.1	0.1	0.8	2.9
Scope 2 - electricity (market-based)	0.7	1.7	1.7	4.9	30.1	49.5
Scope 3 C1 - Purchased goods and services	1.5	18.1	17.7	37.3	72	122.9
Scope 3 C2 - Capital goods	1.9	5.9	1.5	5.4	3.3	1.5
Scope 3 C3 - Fuel- and energy-related activities	0.1	0.1	0.1	0.4	2.2	3.4
Scope 3 C5 - Waste generated in operations	0	0	0.1	0.1	1.2	1.2
Scope 3 C6 - Business travel	0.7	2.3	4.6	1.4	0.9	9.2
Scope 3 C7 - Employee commuting	0.2	0.3	0.6	0.6	1.9	3.6
Scope 3 C11 - Use of sold products	0	0	0	0	0.2	0.5
Sum (market-based scope 2)	5.2	28.6	26.4	50.6	114.9	194.5

Table 1: Ignite's emissions by year and emission category. Presented in tonnes of CO_2-equivalents.

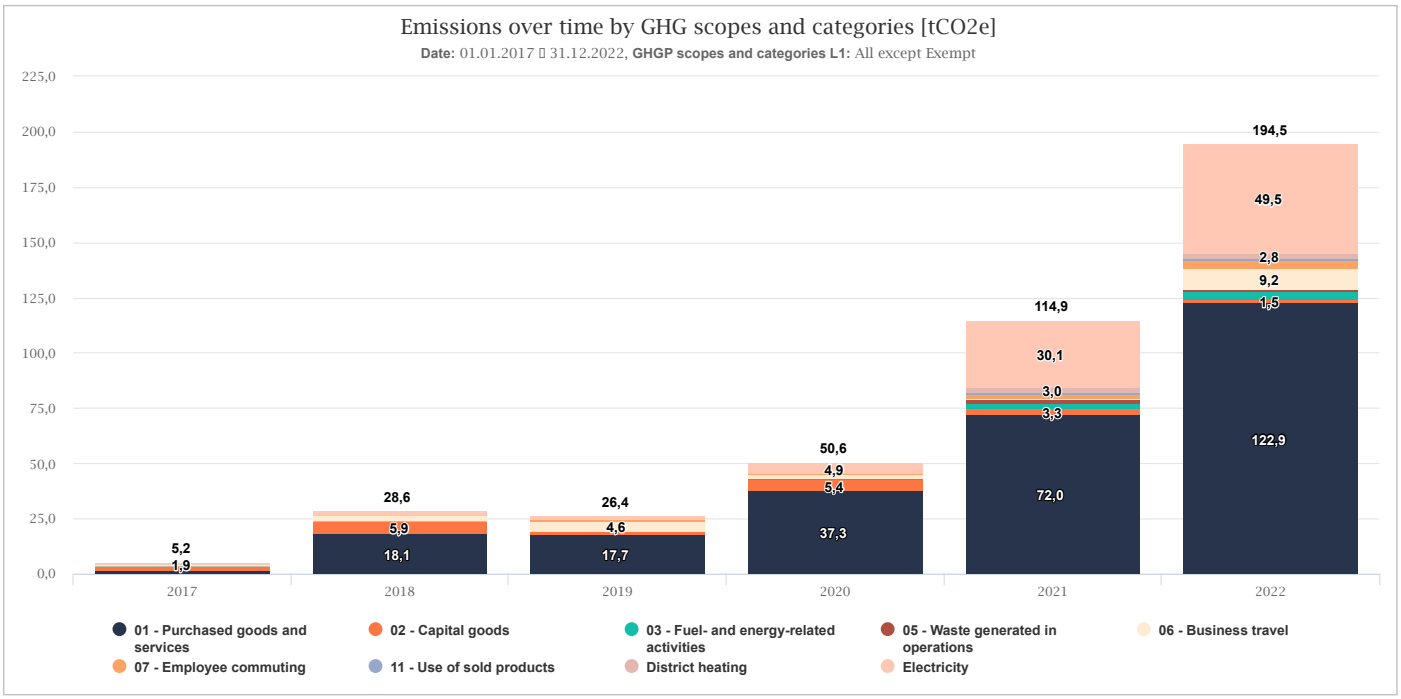

Figure 3: Same values as in Table 1 (excl. location-based electricity), presented visually by year and stacked by category. Totals are presented on top.

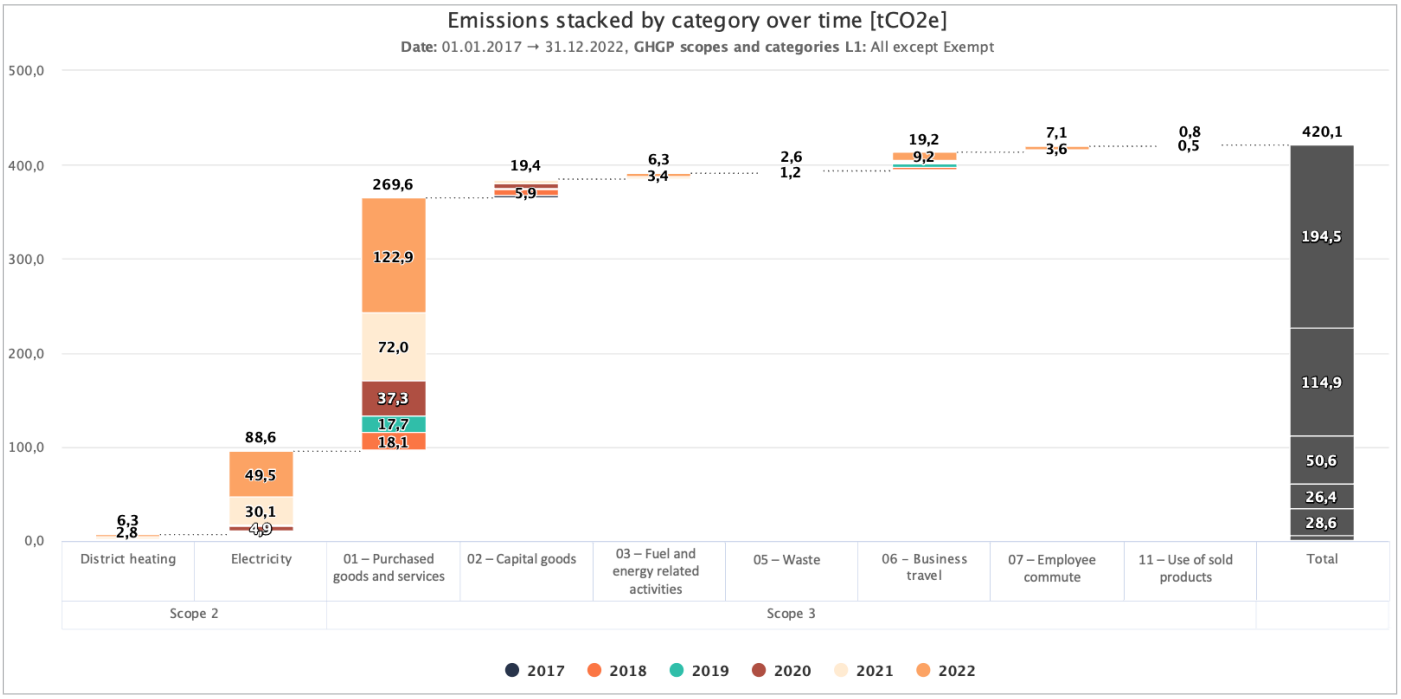

Figure 4: The same numbers as in Table 1 (excl. location-based electricity), presented in a stacked waterfall format with switched axes as compared to Figure 3. This also shows the total emissions for Ignite from the founding to the end of 2022, about 420 tonnes of CO_2-equivalents.

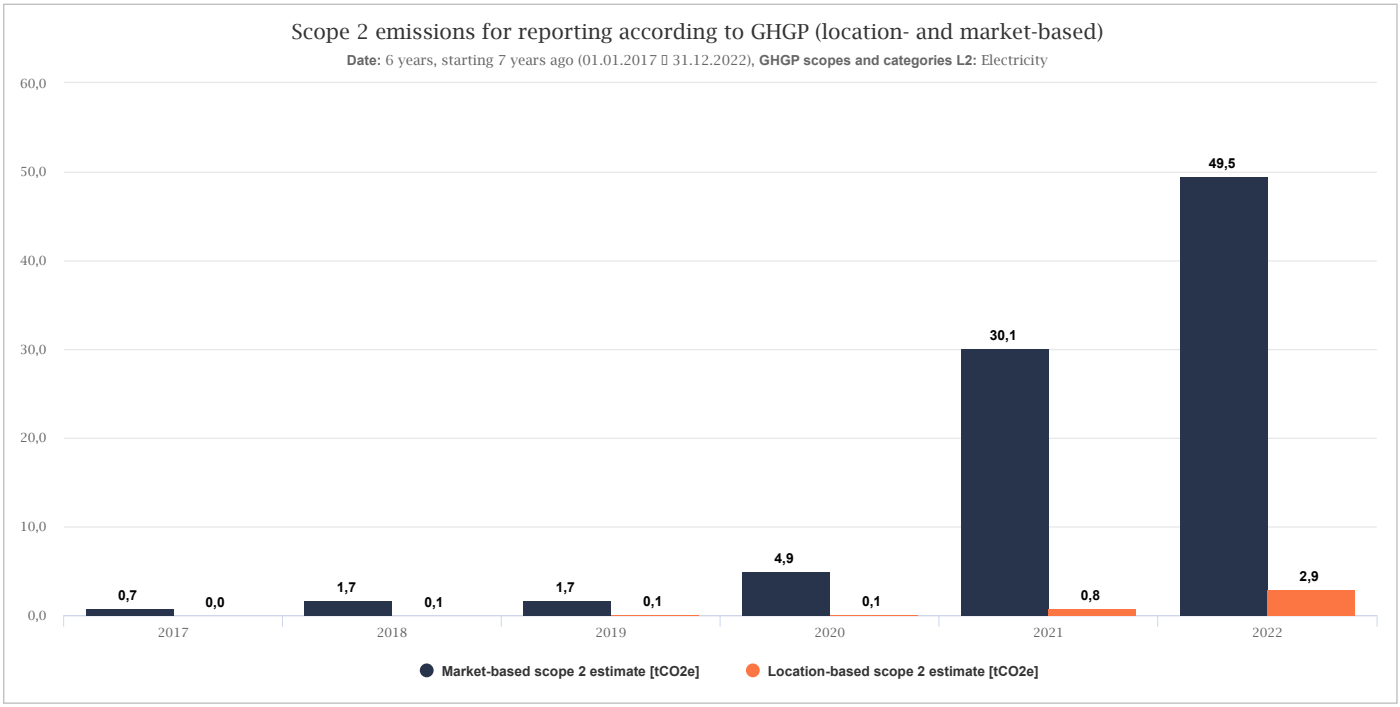

Figure 5: market- and location-based scope 2 calculations regarding electricity consumption. For district heating, only location-based calculations have been conducted.

Note that the location-based electricity calculation has only been presented in Figure 5 as to follow the GHGP we should report on both kinds of electricity calculation methods, but only the market-based is included in the total numbers as our offices are *"located in areas where grid customers can be provided with product or supplier-specific data in the form of certificates"* (GHGP Scope 2 Guidance, page 45). It is also the market-based numbers that have been used for the transmission and distribution losses as part of scope 3 category 3, and market-based emission factors when accounting for electricity consumption in home office use and use of sold products.

It is important to acknowledge that we are *"using a combination of calculation methods"* as described in the Greenhouse Gas Protocol (Technical Guidance for Calculating Scope 3 Emissions, page 13) to cover the full extent of our emissions while still being practicable. In that regard, it is relevant to be aware of the distribution and development of what sources of data have been used for the calculated emissions. In our case, quite a bit has been extrapolated back in time to account for emissions where it is no longer practicable to get accurate activity data. Also, we see that most of our emissions are calculated using spend as the source of origin, introducing significant uncertainties to the results. We will continually work towards lowering the spend portion of our total calculation while increasing the use of activity data and the use of emissions calculated by our suppliers for the specific goods and services we buy.

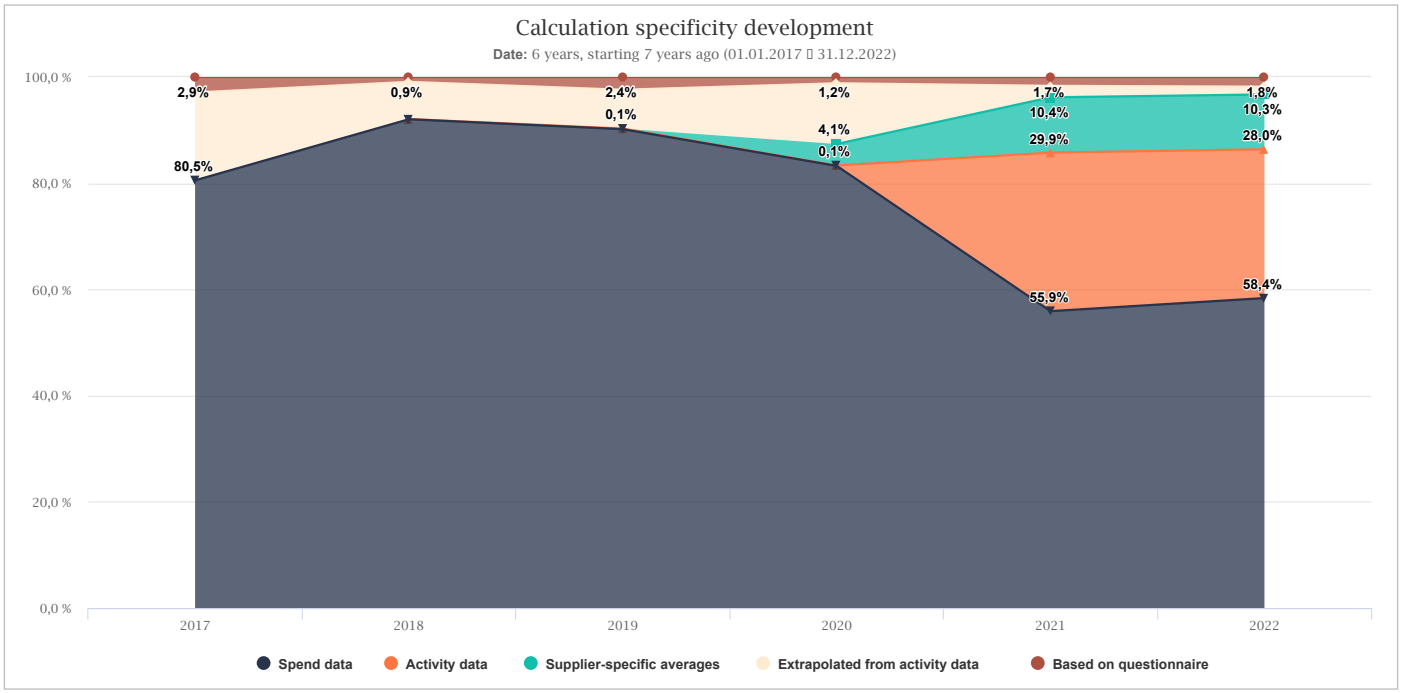

Figure 6: The development and distribution of how our total emissions calculated year-by-year are covered by different data. Supplier-specific averages entail the use of accurate supplier-specific numbers from cloud services hosted with Google for certain months of 2022 extrapolated back in time for the same service. From 2023, actual numbers will be used instead, but a similar methodology might be relevant for other suppliers.

As the Greenhouse Gas Protocol also defines what can be viewed as primary and secondary data for each of the different scopes and categories, another relevant view is the portion of our emissions that are calculated using this definition. Figure 7 illustrates this trend, and we will work towards increasing the proportion of primary data used for future calculations.

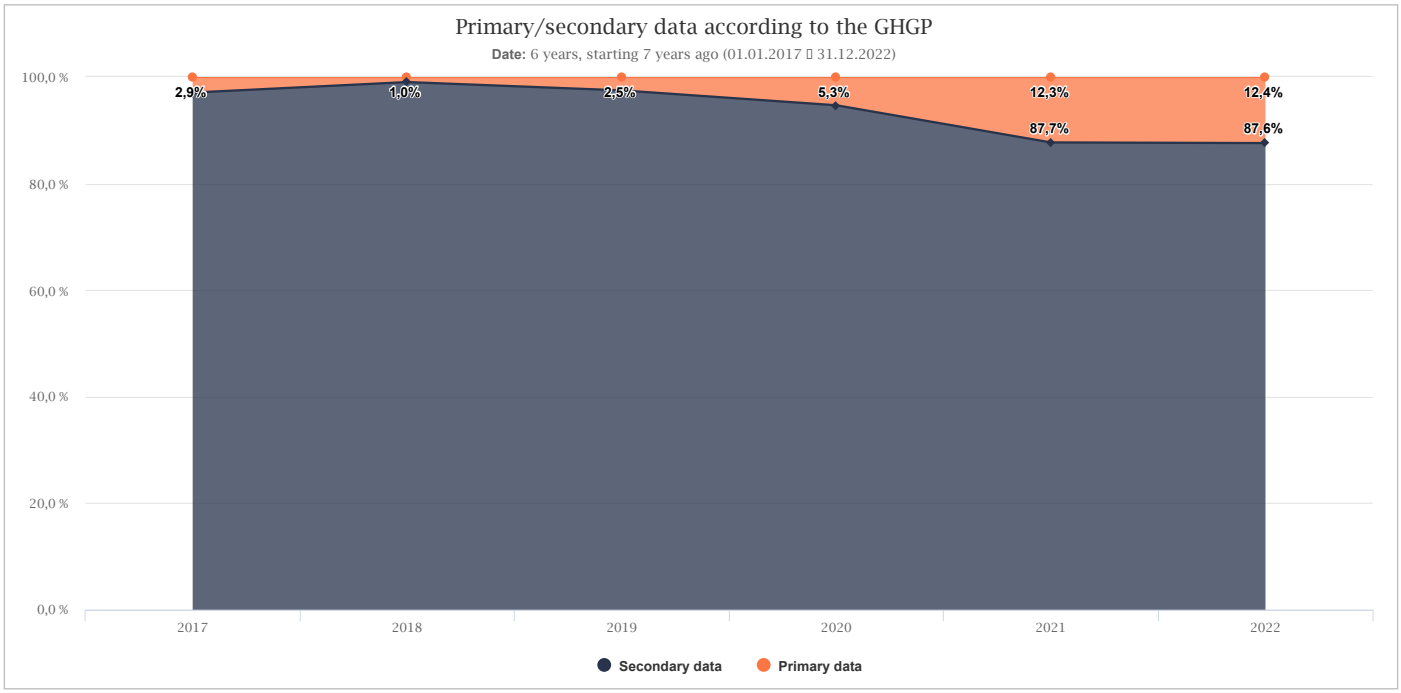

Figure 7: Portion of secondary and primary data in our emissions to date, according to the GHGP. See Table [7.4] in the Corporate Value Chain (Scope 3) Accounting and Reporting Standard • e-reader version for their examples of primary and secondary data for each of the scope 3 categories.

Emission intensity

For a company in growth like Ignite, it is often of interest to also show the emission as an intensity of another metric such as sales revenue or the number of employees. We have done this for the aforementioned metrics, in addition to the number of customer user sessions each year. Since we didn't have a product to sell in 2017 and primarily sold services at that time, we have excluded 2017 data from the emission intensity calculations.

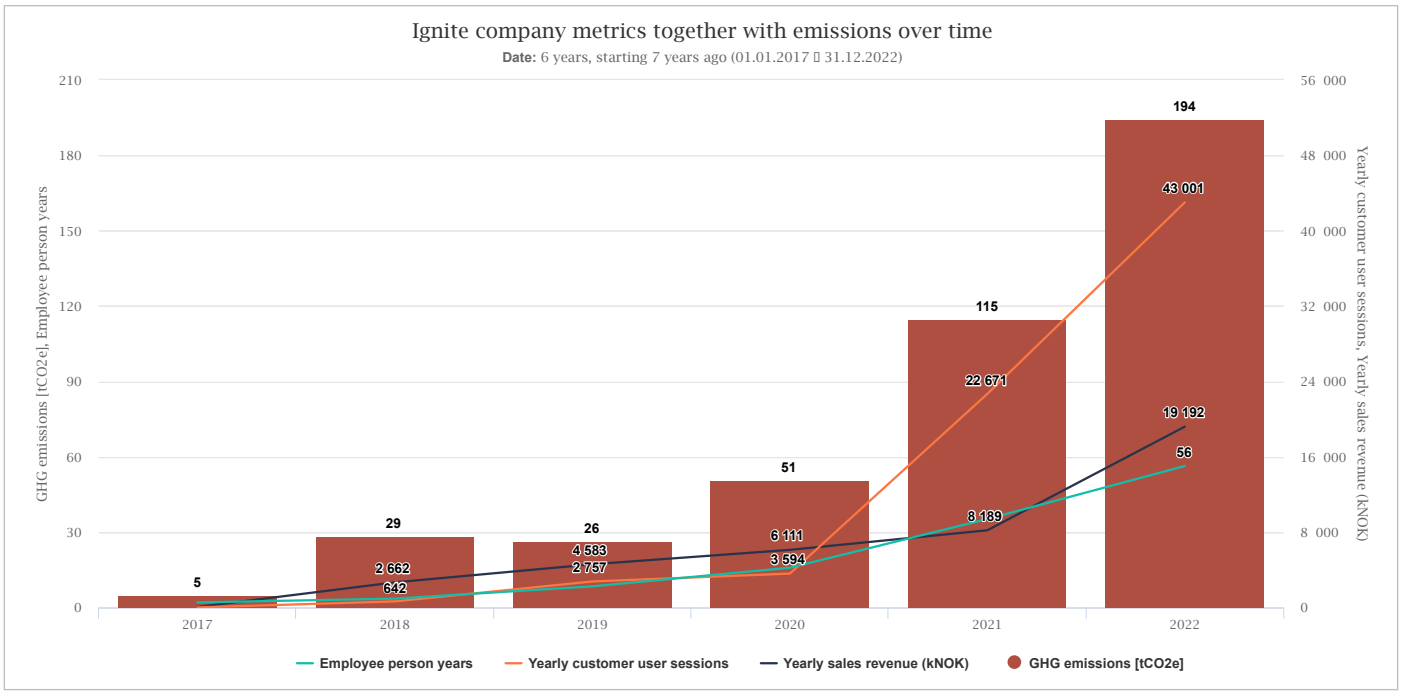

Figure 8: Ignite emissions together with three company metrics: employee person-years (including part-time employees, aggregated to years of work. Estimated for 2017-2020), sales revenue (in thousands NOK, without taxes), and customer user sessions (where internal users have been excluded).

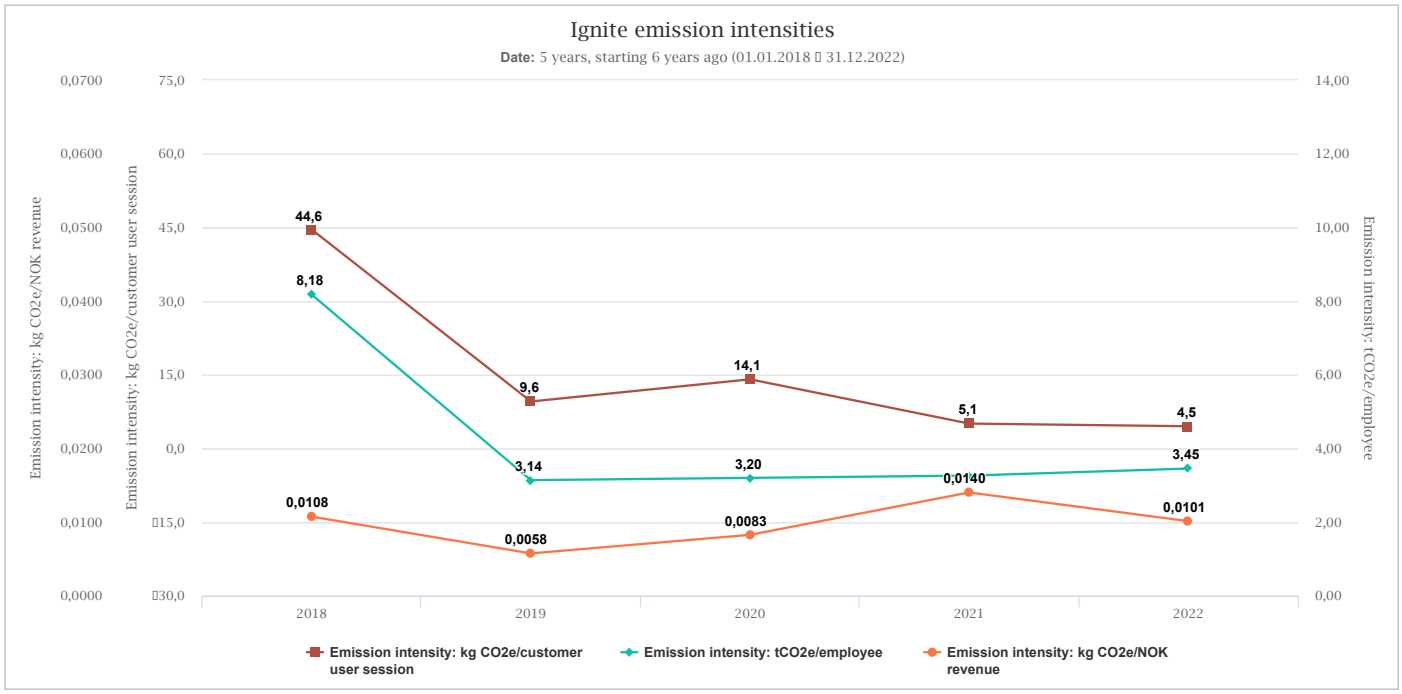

Figure 9: Emission intensities as a result of dividing yearly total emissions with each of the different company metrics to see change over time. Even though our total emissions are rising, the intensities as mostly going down.

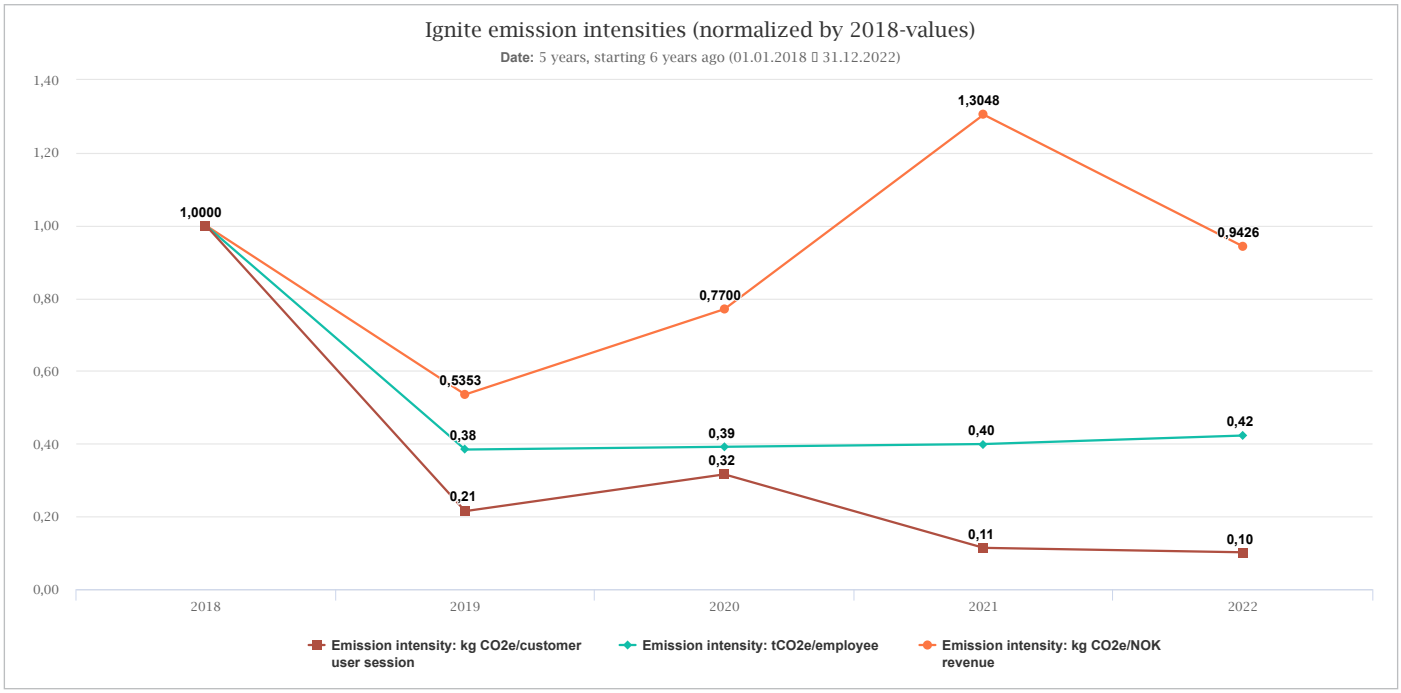

Figure 10: To be able to better compare the different intensities, numbers from Figure 9 are here normalised to the 2018 values.

Now that we have an emission intensity for Ignite with regard to our sales revenue (without taxes), we can calculate spend-based emission factors specific to us for each year. It is important then to remove all downstream scope 3 emissions to avoid double counting, as the emission factor should be cradle-to-gate for our customers. Our specific emission factors are very close to the ones from Exiobase for the product category *computer and related services* in Norway.

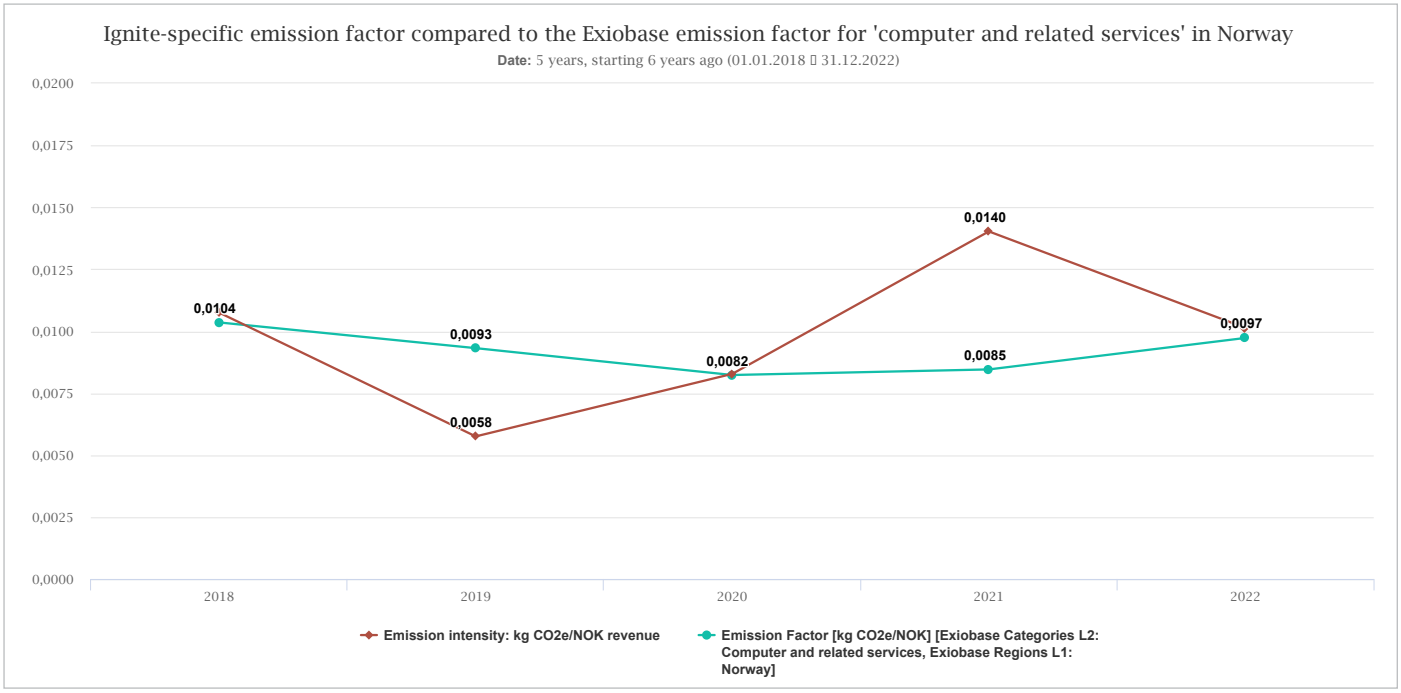

Figure 11: A comparison between the yearly Ignite-specific emission factors and the corresponding emission factors from Exiobase.

Ours naturally move a bit more up and down, but with the average very close to Exiobase. For 2018, 2020 and 2022, our and the Exiobase emission factors are within 4% of each other. As Exiobase is based on industry averages, it seems like we so far are reasonably close to the industry average for computer services in Norway, and if the spend-based approach using Exiobase had been used on emissions as a result of using our product for one of our customers, the result would be very close to the actual emissions. A natural next step for us would be to work towards being below the corresponding Exiobase emission factor going forward. Note that comparing top-down and bottom-up approaches like this doesn't necessarily always make sense and that care should be taken in using Exiobase like this.

For reference, Figure 12 shows the Exiobase emission factor values for Norway in 2022 with all 200 emission categories on the y-axis. Both the Ignite emission factor and the Exiobase one for *computer and related services* in Norway are close to the bottom of this distribution, with the difference between the two being almost invisible if scaling the y-axis of Figure 11 to the full span of 0 - 2.22 kg CO_2e/NOK.

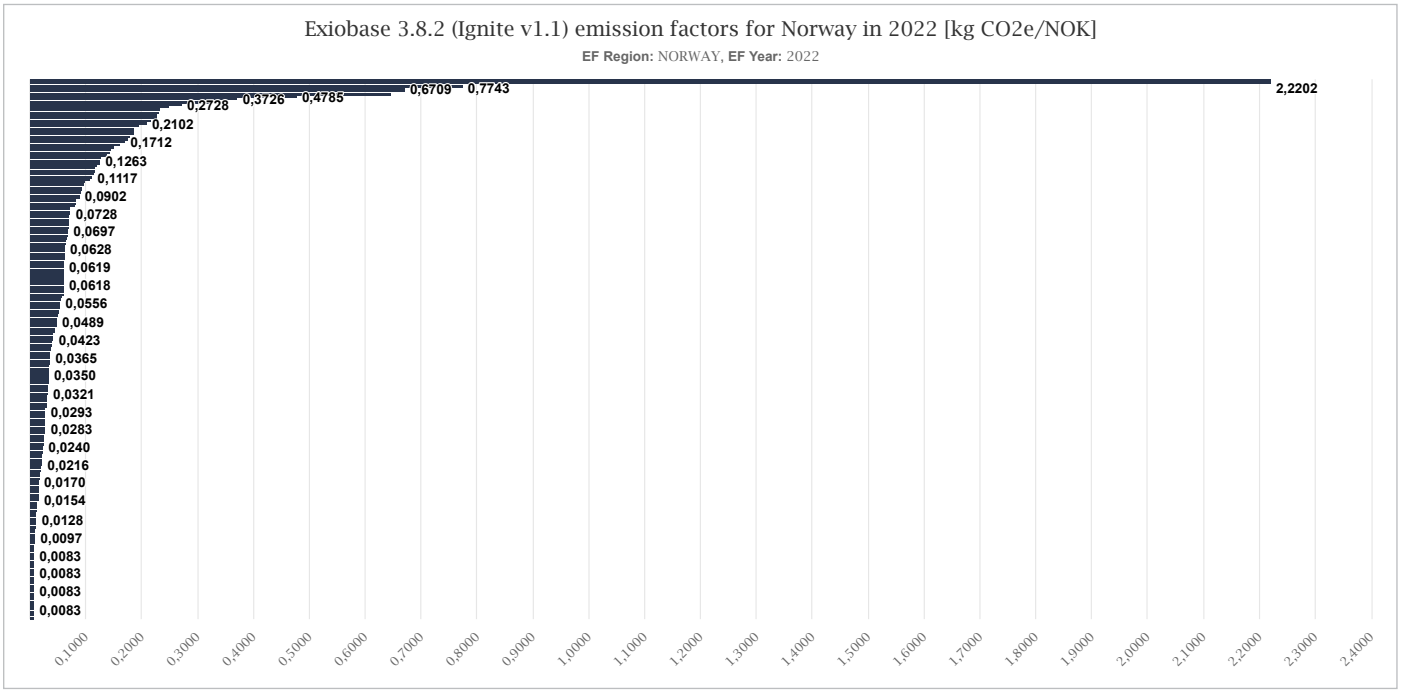

Figure 12: Values for the 200 Exiobase emission factors for Norway in 2022.

Emission calculations

This section goes through the actual calculations for our emissions within each of the scopes and categories as defined by the Greenhouse Gas Protocol (GHGP).

SCOPE 1

As Ignite has no company-owned internal combustion vehicles or any kind of manufacturing processes, we have no scope 1 emissions for 2022 or our previous years of operation.

SCOPE 2

For Ignite, scope 2 entails electricity usage at our three offices, as well as district heating in our two Norwegian offices. The Poland office in Warsaw we started using throughout 2022, while we have had several offices in Oslo since the start of Ignite, as well as a couple of different offices in Trondheim since 2020.

Our main office in Oslo is where most employees are situated, and we get somewhat accurate consumption numbers from Epicenter, the company running the office facilities. For the offices in Warsaw and Trondheim, we haven't been able to get actual consumption numbers for 2022, so those emissions have been estimated based on the office sizes.

Regarding emission factors related to our scope 2, we needed ones for the electricity consumption from Poland and Norway, as well as factors for district heating in Oslo and Trondheim. The GHGP has defined two ways of calculating electricity emissions, location- and market-based, depending on whether to calculate the emissions for the average power generation in the actual area where electricity is consumed or take into account the purchase of renewable energy certificates. It is therefore necessary to have both kinds of emission factors for both regions. The most trusted source for electricity emission factors in Norway is the Norwegian Energy Regulatory Authority, which releases yearly emission factors for location- and market-based emissions. The location-based emission factors can be found here (only in Norwegian unfortunately, and only going back to 2019). The corresponding market-based factors are found here.

For the 2022 emissions for the Poland office, the Association of Issuing Bodies was selected as the source. Emission factors for the select regions and years of emissions were thus as presented in Table 2.

Country	Year	Location-based EF [gCO_2/kWh]	Market-based EF [gCO_2/kWh]	Source
NO	2017	17	531	NVE
NO	2018	17	520	NVE
NO	2019	17	396	NVE
NO	2020	8	402	NVE
NO	2021	11	405	NVE
NO	2022	11	405	NVE
PL	2022	777	850	AIB

Table 2: Location- and market-based emission factors for scope 2, electricity.

Note that these emission factors only account for CO_2, not the other greenhouse gases. This is unfortunate, and we can presume that the actual total emissions are slightly higher than what is reported, but it is the current best option available. For 2018, AIB presented both CO_2 emissions and greenhouse warming potential (GWP) values representing CO_2-equivalents. The average increase across all regions for direct residual mixes from only CO_2 to CO_2-equivalents was 6.2% (6.9% for Norway and 7.1% for Poland). It is therefore safe to assume that the GWP of the calculated electricity emissions should be about 6.5% higher than presented. Also note that the emission factors for 2022 are not yet ready, so the 2021 values are used for now but will be updated to 2022 values when they are available.

We also needed emission factors for district heating in Oslo and Trondheim. These are presented by the different suppliers, following the BREEAM standard. Numbers are not easily available for all cities and years, so the closest one in time is used for the specified city, as seen in Table 3.

City	Year	Location-based EF [gCO_2e/kWh]	Source
Oslo	2017-18	50	https://www.fortum.no/sites/default/files/documents/breeam_fortum_oslo_varme_10_des_2019_002_.pdf
Oslo	2019	46	https://www.fortum.no/media/5143/download
Oslo	2020-22	51	https://www.fortum.no/filer/breem-fortum-oslo-varme-sept-2021/download
Trondheim	2020	36.1	https://www.statkraftvarme.no/globalassets/0/statkraft-varme/om-fjernvarme2/klima-og-miljo/breeam-dokumentasjon/2020/breeam-nokkeltall-trondheim.pdf
Trondheim	2021-22	65.7	https://www.statkraftvarme.no/globalassets/0/statkraft-varme/om-fjernvarme2/klima-og-miljo/breeam-dokumentasjon/2021/breeam-nokkeltall-trondheim.pdf

Table 3: Emission factors for district heating.

Description	Year	Consumption [kWh]
Electricity usage 8th floor of Epicenter (Ignite offices)	2021	12 777
Ignite portion of common electricity for lights, elevators, kitchen, hot water etc	2021	58 896
Ignite portion of building district heating	2021	56 805
Electricity usage 8th floor of Epicenter (Ignite offices)	2022	16 553
Ignite portion of common electricity for lights, elevators, kitchen, hot water etc	2022	99 041
Ignite portion of building district heating	2022	52 395

Table 4: Activity data from Epicenter related to scope 2.

Table 4 presents the activity data received from Epicenter related to scope 2. Both the direct consumption on our floor and the Ignite portion of common building consumption are included. The latter takes into account our relative portion of common areas such as the canteen, entrance, corridors etc. Note that the total electricity consumption at Epicenter was significantly lower in 2021 than in 2022, most likely as a direct result of Norwegian covid-restrictions in the winter of 2021.

To calculate our scope 2 emissions for the Warsaw office, an average electricity consumption figure from a 2016 Skanska report on Polish office buildings of *160 kWh/(m²*year)* was used. For the different Trondheim offices, and our Oslo offices back in time before Epicenter, averages based on the 2021 and 2022 Epicenter values were used. This resulted in an average electricity consumption of *139.6 kWh/(m²*year)*, and district heating consumption of *79.4 kWh/(m²*year)*. Using those values, the sizes of each office, and for how long each year Ignite had each office, total consumption was calculated per region and year. The resulting total estimated consumption of electricity and the corresponding location- and market-based emissions are presented in Table 5. Table 6 shows the same information for district heating.

Region	Year	Electricity consumption [kWh]	Location-based emissions [tCO_2]	Market-based emissions [tCO_2]
NO	2017	1 688	0.03	0.90
NO	2018	4 052	0.07	2.11
NO	2019	5 064	0.09	2.01
NO	2020	14 771	0.12	5.94
NO	2021	115 110	1.27	46.62
NO	2022	118 126	1.30	47.84
PL	2022	2 112	1.64	1.80

Table 5: Total electricity emissions, including extrapolated data for earlier offices.

Region	Year	Consumption [kWh]	Emissions [tCO_2e]
Oslo, NO	2017	794	0.04
Oslo, NO	2018	1 905	0.10
Oslo, NO	2019	2 381	0.11
Oslo, NO	2020	6 349	0.32
Trondheim, NO	2020	595	0.02
Oslo, NO	2021	56 805	2.90
Trondheim, NO	2021	1 548	0.10
Oslo, NO	2022	52 395	2.67
Trondheim, NO	2022	1 190	0.08

Table 6: Calculated district heating emissions.

By combining the values of Tables 5 and 6, we get the total scope 2 emissions for Ignite each year between 2017 and 2022. These totals, both presented as total scope 2 and separated by category, are located in Table 7.

Emission category	2017	2018	2019	2020	2021	2022
Scope 2 electricity: location-based	0.03	0.07	0.09	0.12	1.27	2.94
Scope 2 electricity: market-based	0.90	2.11	2.01	5.94	46.62	49.64
Scope 2 district heating	0.04	0.10	0.11	0.35	3.00	2.75
Sum scope 2 (market-based)	0.94	2.20	2.11	6.28	49.62	52.39

Table 7: Estimated emissions in scope 2 by category and totals for each year of Ignite operations. Presented in tonnes of CO_2-equivalents.

So far, Ignite has not bought any renewable energy certificates. This is something we are working with Epicenter on trying to get for 2023 to cut our future market-based emissions.

SCOPE 3

Several of the upstream scope 3 categories can be calculated using a spend-based method, using procurement data as the source of truth. This has been done for Ignite's spend going all the way back to 2017, covering the scope 3 categories 1 (purchased goods and services), 2 (capital goods), and 6 (business travel). Other categories of scope 3 have been covered by activity-based calculations, using estimates where needed. The other categories where Ignite has emissions, but that are not covered by a spend-based approach, have been calculated using activity data and the best-fitting emission factors available (both accounting for temporal and regional closeness to the actual activity).

There are also many of the scope 3 categories that are not relevant for Ignite:

- Category 4: upstream transportation and distribution - Ignite doesn't purchase any transportation or distribution directly. There are some emissions related to the transportation of a portion of the purchased goods that are delivered physically to our office(s) that could have been placed in this category. However, those are limited, and currently invoiced together with the goods so that it is infeasible to separate them from the emissions related to the goods themselves.
- Category 8 and 13: leased assets (up- and downstream) - Not relevant for Ignite's current operations
- Category 9: downstream transportation and distribution - Ignite sells no physical goods, so no transport happens from our operations
- Category 10: processing of sold products - Same as above, no sold products are used in downstream processes
- Category 12: end-of-life treatment - As above
- Category 14: franchises - Ignite neither is a franchise nor has any franchises
- Category 15: investments - Ignite has no investments outside of its own research and development

UPSTREAM INDIRECT EMISSIONS

Categories
1: purchased goods and services
2: capital goods
6: business travel

All spend since the beginning of Ignite, including both supplier purchases and expenditures, was uploaded, cleaned, enriched and classified in the Ignite platform. Internal transactions, salaries, taxes, loans and interests were all excluded. Following our standard methodology, the first iteration of our match with Exiobase categories followed the supplier industry information (NACE codes specific to the Nordic countries + SIC where available). Further classification to increase the accuracy was done on specific suppliers, spend categorisation, text description and search words on taxi, hotel and similar expenses. Whatever transactions were not possible to classify as a result of not enough information, a lot of smaller expenses with bad descriptions were set to an Ignite-specific weighted average of the other emission factors based on the other classification with Exiobase. This was the case for 2.9% of our total spend. To classify spend to the Exiobase regions, supplier country was used, with rules on currency where the country was not available. All transactions were also matched to the different GHGP scopes and categories, specifically scope 3 categories 1, 2, and 6. With a match to an Exiobase emission category, region and year for every transaction, the corresponding emission factor on the format kg CO_2e/NOK was multiplied to get the emission estimates for all relevant transactions.

Expenses to our office rentals were filtered out for the final results, as most of that cover services related to scope 2 and scope 3 category 3 and 5. This will exclude the indirect emissions as a result of the parts of our office rentals not covering electricity, heating and waste, ie the services of the building staff. This is something we will work towards covering in a better way for future calculations.

We always try to cover emissions with as accurate calculations as possible, going from spend to activity- and supplier-specific methods. For our own purchases, there are a couple of possibilities. This time around we have focused on our main supplier, the Google Cloud Platform (GCP), covering most of our cloud services. Google provides detailed gross emission calculations of cloud applications and infrastructure as a free addition to all GCP users, explained in more detail here. In our case, we started getting these supplier-specific emissions on our actual cloud services in June of 2022. Using the specific emissions month by month, compared to the cloud service costs, we created a specific spend-based emission factor for our cloud services from Google, that was used back in time as well. Going forward we will only use the actual emissions calculated by Google. We have not yet done any activity-based calculations on our business travel or specific to any of our other suppliers, topics that we will work on going forward.

Note that all expenses related to business travel except food were included in category 6, such as travel by rail, air and taxi, hotels and car rentals.

Scope 3 category	2017	2018	2019	2020	2021	2022
1: purchased goods and services	1,5	18,1	17,7	37,3	72,0	122,9
2: capital goods	1,9	5,9	1,5	5,4	3,3	1,5
6: business travel	0,7	2,3	4,6	1,4	0,9	9,2

Table 8: Emission estimates for scope 3 categories 1, 2 and 6 by year. All in metric tonnes of CO_2-equivalents.

Category 3: fuel- and energy-related activities

Because Ignite doesn't burn any petroleum products or other hydrocarbons directly, and upstream emissions of purchased electricity are not currently known for the market-based approach (and close to zero when looking at the actual electricity produced in Norway), category 3 for Ignite only covers the transmission and distribution (T&D) losses from purchased electricity.

To find the transmission and distribution losses for the Norwegian power grid, values from SSB were grouped by year and the losses were divided by the net power usage. The raw values are found here and the resulting T&D losses were as follows, resulting in the emissions presented in Table 9 when applied to our market-based scope 2 from electricity.

	2017	2018	2019	2020	2021	2022
Norwegian T&D losses [yearly averages, SSB]	7,4%	7,1%	6,6%	7,7%	7,5%	7,3%
Scope 2 electricity: market-based [tCO_2e]	0,90	2,11	2,01	5,94	46,62	49,64
Scope 3 Category 3: T&D losses [tCO_2e]	0,07	0,15	0,13	0,46	3,47	3,62

Table 9: Calculated Norwegian T&D losses and the resulting scope 3 category 3 emissions by year.

Note that the T&D emissions from our Poland office were not handled separately in this calculation. This was both because scope 2 from Poland was a small part of the total scope 2, and the Polish T&D value was assumed to be close enough to the Norwegian to not introduce a large uncertainty to the total. Furthermore, as no numbers were found for the T&D losses for central heating, and that is only a small part of our scope 2 emissions, those emissions were not calculated.

Category 5: waste generated in operations

From Epicenter, we have received total waste quantity information per waste category for the whole building. These have been allocated to Ignite according to the same proportion as was done with common electricity and district heating.

Waste category	2022 amount allocated to Ignite [kg]
1100 - Bio-waste	886
1200 - Paper, cardboard	186
1300 - Glass/metal	146
1500 - Electrical waste	40
1700 - Plastic	76
9900 - Other/mixed waste	1397

Table 10: Amount of waste in kilograms per waste category allocated to Ignite for our Oslo offices.

This corresponds to a degree of sorting of 49%. However, the portion of this that comes directly from our offices is much lower as we so far haven't had bins for recycling in the office. This is something we are working to improve over time and initiatives are underway with Epicenter on this topic.

Waste from before Ignite had actual consumption numbers can be estimated in the same way as scope 2 was using averages and office sizes. The results of this are presented in Table 11.

Waste category	2017	2018	2019	2020	2021	2022*
1100 - Bio-waste	13	31	39	113	911	922
1200 - Paper, cardboard	3	6	8	24	191	194
1300 - Glass/metal	2	5	6	19	150	152
1500 - Electrical waste	1	1	2	5	41	42
1700 - Plastic	1	3	3	10	78	79
9900 - Other/mixed waste	20	49	61	178	1437	1454

Table 11: Estimated amounts of waste per category going back in time and including all Ignite offices. Numbers are presented in kilograms.

**The 2022 numbers are larger than what was presented in the above table to include estimates for our Poland and Trondheim offices.*

To calculate the indirect emissions from our generated waste, it was necessary to have emission factors for each waste category, optimally distinguished by year and region, taking into account the different regional waste processes. However, this was not easily available. There are commonly cited sets of emission factors related to waste from sources like BEIS and the EPA, but those are specific to the UK and US. The only satisfactory numbers found that seemed to have a reasonable source from Norwegian handling of waste was the 2020 Svea sustainability report. The numbers, however, were not found in the cited source, so these results should be taken with a grain of salt. Nonetheless, as reasonably similar numbers were found from the graphs presented here and here, it will have to do for now.

Waste category	Emission factor (Norway, ~2009, kg CO_2/kg)
1100 - Bio-waste	0,0755
1200 - Paper, cardboard	0,7213
1300 - Glass/metal	0,5615
1500 - Electrical waste	1,2088
1700 - Plastic	1,2830
9900 - Other/mixed waste	0,5205

Table 12: Best available emission factors for the different waste categories in Norway. For next year we will hopefully have found ones that are more representative.

Combining Tables 11 and 12 gives the total estimated emissions by waste category and year for Ignite's operations so far, presented in Table 13.

Emission category	2017	2018	2019	2020	2021	2022
1100 - Bio-waste	0,00	0,00	0,00	0,01	0,07	0,07
1200 - Paper, cardboard	0,00	0,00	0,01	0,02	0,14	0,14
1300 - Glass/metal	0,00	0,00	0,00	0,01	0,08	0,09
1500 - Electrical waste	0,00	0,00	0,00	0,01	0,05	0,05
1700 - Plastic	0,00	0,00	0,00	0,01	0,10	0,10
9900 - Other/mixed waste	0,01	0,03	0,03	0,09	0,75	0,76
Sum [tCO_2e]	0,01	0,04	0,05	0,15	1,19	1,20

Table 13: Estimated amounts of waste per category going back in time and including all Ignite offices. Numbers are presented in tonnes of CO_2-equivalents.

Category 7: employee commuting

According to the GHGP, "[c]ompanies may include emissions from teleworking (i.e., employees working remotely) in this category" (Technical Guidance for Calculating Scope 3 Emissions, page 87). As the use of home office has become a much more standard practice due to the covid19-pandemic, this has been included in our scope 3 category 7, with estimates of both employee commute and home office adjusted month-by-month by the stay-home policies in Norway during the pandemic.

To be able to calculate emissions for this category, Ignite's own internal assessment capabilities were used to ask all employees about their commute and how much they work from home on average. Questions included, but were not limited to, the following:

- How many days a week do you typically work from home?
  - A number between 0 and 5
- What is your current work amount?
  - A number between 1 and 100 (where 100 is an FTE, while 20 is one day a week)
- Distance to work
  - One-way distance in km using google maps and the most used mode of transport
- Mode of transport
  - Select from a list of options
    - By foot, bike, electric bike/e-scooter, bus, train, subway/tram, car (electric), car (hybrid), car (internal combustion), or not relevant/fully remote
- Detailed explanation
  - For people wanting to expand on their answers, for instance
    - An employee takes the bike to the train station for 1,2 km, then the train for 5km.
    - One that walks 50% of the time, and then either bike or takes their electric car the rest of the week.
    - Someone that takes the subway in the winter, but an electric kick scooter (e-scooter) in the summer

The answer rate was 96,4% of the full-time employees (53/55) and 5 of the 7 part-time employees at the time of the survey also answered. The results were assumed to give a representative image of the natural state of Ignite employees' travel habits when excluding the pandemic.

Using the number of Ignite employees each month since 2017, the work-from-home fraction each month (set to 0 before covid, adjusted for approximate covid-policies each month through the pandemic and set to the average based on the survey for the months after), and the number of kilometres travelled on average per day by the different modes of transport, it was possible to estimate distances travelled by each mode by year. This is presented in Table 14.

Mode of transport	2017	2018	2019	2020	2021	2022
By foot	550	962	2313	1177	5712	11767
Bike	474	829	1993	1014	4921	10138
Bus	405	710	1706	868	4214	8681
Car (electric)	14	24	58	29	143	294
Car (internal combustion)	350	613	1474	750	3639	7498
Electric bike/e-scooter	101	176	424	216	1046	2155
Subway/tram	1118	1957	4706	2395	11621	23942
Train	2580	4516	10859	5526	26814	55243

Table 14: Estimates distances travelled by Ignite employees grouped by mode of transport for each year, presented in kilometres.

As the Poland office opened halfway through 2022, most kilometres commuted by Ignite employees have so far been conducted in Norway. Therefore, emission factors as close to Norway as possible have been used for this calculation. Unfortunately, no complete set of up-to-date emission factors for Norwegian personal travel was found, so the emission factors are combined from multiple sources. When looking at emission factors from walking and biking, those were set to 0 by the GHGP screening tool, and for emissions related to car transport, medium-sized vehicles with only one passenger were used as that is likely the case for us. For internal combustion vehicles, the average was used between diesel and petroleum. Numbers for the fuel/electricity plus operations of the transportation provider were used for all modes of transport where possible, but it cannot be guaranteed that the emission factors are directly comparable as different assumptions most likely have been used in the different calculations. The emission factors have been selected as they are as good as practicably possible and the resulting uncertainty of them not being perfect is assumed to have a very low impact on Ignite's total emissions. The selected emission factors are presented in Table 15.

Mode of transport	Emission factor [g/person-km]	Region	Report year	Source	URL
By foot	0				
Bike	0				
Bus	81	NO	2022	SSB	https://www.ssb.no/natur-og-miljo/forurensning-og-klima/artikler/mindre-utslipp-per-transportarbeid
Car (electric)	19	Nordics	2021	CTH	https://klimatsmartsemester.se/sites/default/files/metodrapport-klimatsmart-semester-version2-1.pdf
Car (internal combustion)	198	SE	2021	CTH	https://klimatsmartsemester.se/sites/default/files/metodrapport-klimatsmart-semester-version2-1.pdf
Electric bike/e-scooter	40	Global	2020	OECD	https://www.itf-oecd.org/sites/default/files/docs/environmental-performance-new-mobility.pdf
Subway/tram	12	Oslo, NO	2018	Sporveien	https://epub.artbox.no/sporveien/ar2018/48/
Train	12	NO	2022	SSB	https://www.ssb.no/natur-og-miljo/forurensning-og-klima/artikler/mindre-utslipp-per-transportarbeid

Table 15: The transport emission factors assumed to be as close as possible to Ignite employees' commuting habits. Presented with what region and reporting year are relevant for each emission factor, as well as the source of each.

By combining Tables 14 and 15 we get the resulting indirect emissions for each of the modes of transport and years. This is presented in tonnes of CO_2-equivalents in Table 16, as well as the corresponding yearly sums for this part of scope 3 category 7.

Mode of transport	2017	2018	2019	2020	2021	2022
By foot	0	0	0	0	0	0
Bike	0	0	0	0	0	0
Bus	0,03	0,06	0,14	0,07	0,34	0,70
Car (electric)	0,00	0,00	0,00	0,00	0,00	0,01
Car (internal combustion)	0,07	0,12	0,29	0,15	0,72	1,48
Electric bike/e-scooter	0,00	0,01	0,02	0,01	0,04	0,09
Subway/tram	0,01	0,02	0,06	0,03	0,14	0,29
Train	0,03	0,05	0,13	0,07	0,32	0,66
Sum	0,15	0,26	0,63	0,32	1,57	3,23

Table 16: Calculated emissions by mode of transport and year [tCO_2e].

When it comes to the indirect emissions as a result of employees working from home, this has been estimated using an assumption of 5 kWh extra electricity used daily at home compared to not being at home (heating, lights, powering electronics etc). The same number of employees and the work-from-home fraction as used for the employee commute calculations were used together with yearly market-based emission factors for electricity in Norway to get the results as presented in table 17.

Emissions [tCO_2e]	2017	2018	2019	2020	2021	2022
Sum	0,00	0,00	0,00	0,28	0,35	0,32

Table 17: Calculated home office emissions [tCO_2e]

DOWNSTREAM INDIRECT EMISSIONS

Category 11: use of sold products

The use of Ignite's product is not assumed to be a major part of our total emissions, but still has an impact and should be calculated to know whether it is something we should consider or not.

There are significant uncertainties, and averages have been combined with actual data to give the results for this category. We know well how many customer sessions have been conducted using Ignite from different parts of the world each year (since January 2021), and the average session duration is about 15 minutes. See Table 18 for these numbers.

Region	2017	2018	2019	2020	2021	2022
Norway		642	2757	3594	15432	20117
United States					1532	9377
India					180	4573
Sweden					1315	2227
Germany					1657	1172
United Kingdom					420	552
Other regions					2135	4983

Table 18: Number of user sessions by year and regions (estimated for 2017-2020)

The major uncertainty is how much power using the Ignite web application consumes on a customer's local machine. Modern laptops usually have a power consumption of some tens of watts, while desktops are in a couple of hundreds of watts size. Also, even though Ignite is an analytics platform that usually handles large amounts of data, it is run in the browser and won't use the full power of the local machine. It is assumed that the power usage of a customer computer using Ignite is less than 100W on average, rounded up to 100W to rather over- than undershoot the estimates. This, combined with the usage from different regions, gives us the estimated electricity consumption for the use of our product by region and year as seen in Table 19. Note that the usage before 2021 was estimated based on numbers from 2021 and 2022, as well as knowledge of the customers at that time.

Region	2017	2018	2019	2020	2021	2022
Norway		16	69	90	386	503
United States					38	234
India					5	114
Sweden					33	56
Germany					41	29
United Kingdom					11	14
Other regions					53	125

*Table 19: kWh by year and regions (# sessions * 15 min * 100W / (60 min * 1000))*

Even though the impact presumably is small, it is always better to use more specific emission factors when available as long as the added effort is not substantial. We have therefore used regional and yearly emission factors for the electricity consumption, presented in Table 20.

Region	2017	2018	2019	2020	2021	2022
Norway		520	396	402	405	405
United States					389	389
India					941	941
Sweden					23	77
Germany					589	618
United Kingdom					316	351
Other regions					523	523

Table 20: Emission factors (market-based where available) [g CO_2e/kWh]

The result of multiplying the consumptions in Table 19 with the corresponding emission factors of Table 20 is emissions for our scope 3 category 11 as presented in Table 21.

Region	2017	2018	2019	2020	2021	2022
Norway		0,01	0,03	0,04	0,16	0,20
United States					0,01	0,09
India					0,00	0,11
Sweden					0,00	0,00
Germany					0,02	0,02
United Kingdom					0,00	0,00
Other regions					0,03	0,07
Sum	0,00	0,01	0,03	0,04	0,23	0,49

Table 21: Estimated emissions for the use of our product by region and year, with yearly sums [tCO_2e].

Compensating for some of our emissions

This is a complex topic. Our motivation for this should not be to say we are carbon neutral or anything close to a net-zero path, for that we are currently not. It should rather be to contribute a bit of our assets to what we believe is an extremely important cause. Even though we are a relatively small company, with our main potential being the possibility of indirectly reducing quite a bit of GHG emissions through increased visibility of scope 3 emissions for our customers, we still need to address our own emissions. The first step should always be to reduce our own emissions, then offset what is left. We want to follow the guidelines of the Science Based Targets initiative (SBTi) as closely as possible, even though we have not signed up for the SBTi yet.

There are several dimensions to consider when compensating for your emissions. What price to set on carbon and what type of offsets you buy are two of the most important ones. Using the 2022 average prices for projects on the UN Carbon Offset Platform, the Gold Standard platform and the yearly average EU ETS prices, costs in NOK that correspond to our yearly total emissions can be calculated, shown in Figure 13. One per cent of our total yearly sales revenue has also been added to the graph as a line of reference.

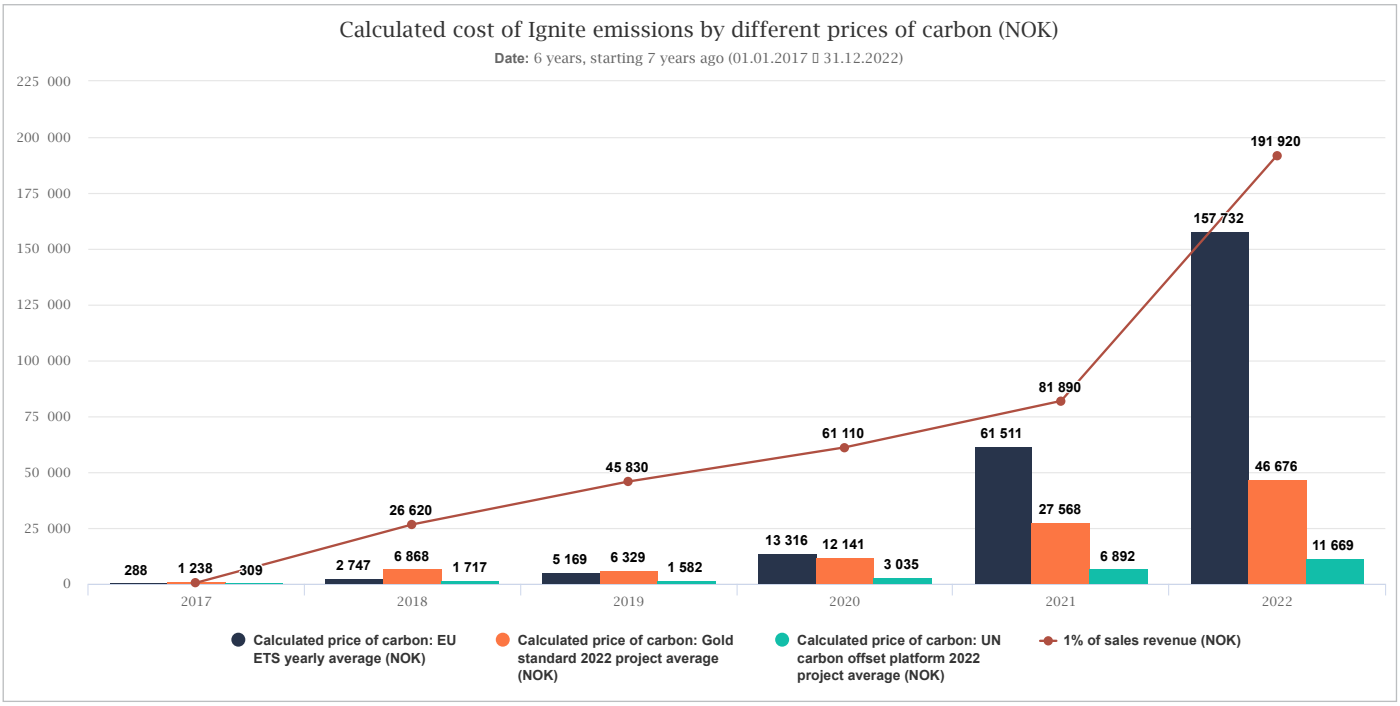

Figure 13: Different prices of carbon applied to our calculated yearly emissions. One per cent of our sales revenue per year has also been added as a reference line.

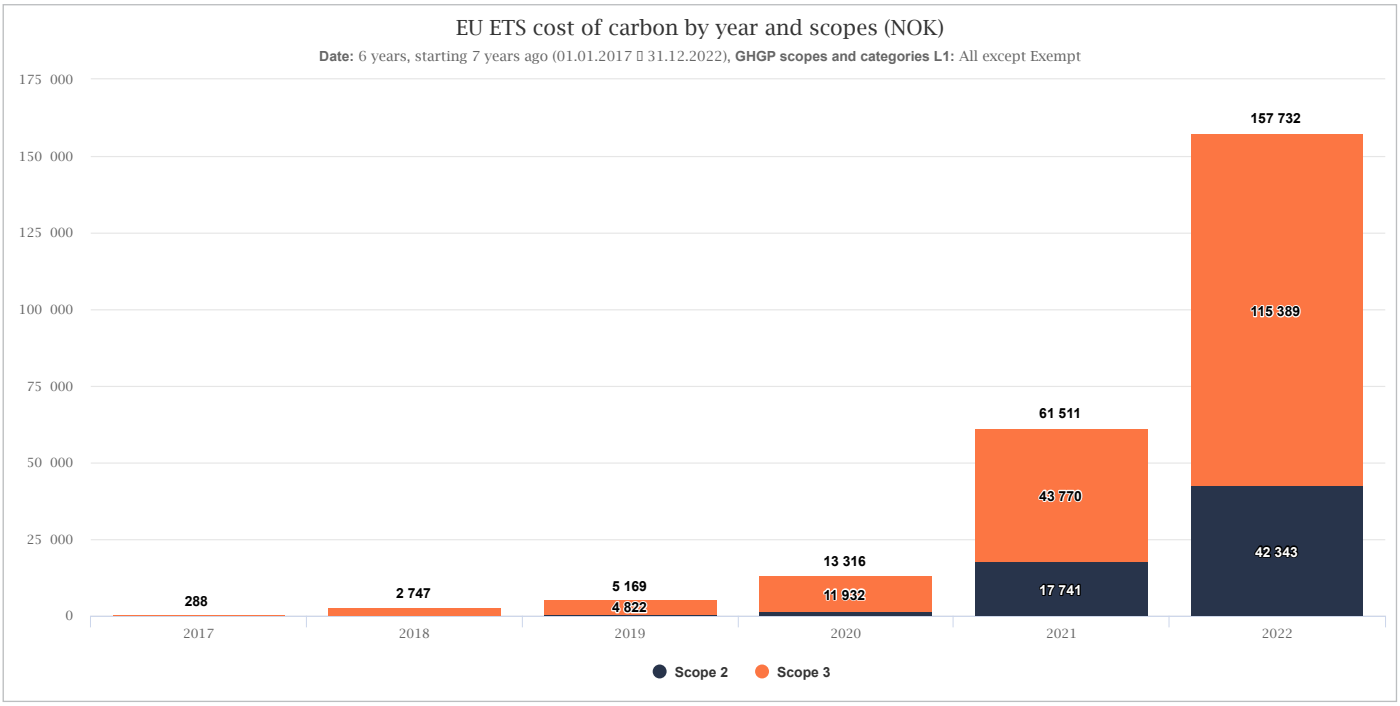

Figure 14: Our cost of carbon according to the yearly average EU ETS prices, split by GHGP scopes. Numbers in NOK and totals on top of the bars.

The reason why we have looked at the average for different offsetting platforms is that they have several different kinds of projects, ranging from forest protection via cookstoves to renewable energy projects, all with very different prices per metric tonne of CO_2-equivalents. According to the 2020 Oxford Offsetting Principles, it is essential to prioritise actual removal of carbon from the atmosphere, combined with long-term storage. This is also in line with what kind of climate investments the Science Based Targets initiative (SBTi) considers a valid part of a net-zero journey (in addition to emission reduction of course).

For our 2022 emissions, the conclusion was to spend 50 000 NOK on high-quality climate investments with actual reduction and long-term storage. The amount was set based on the 2022 price of carbon for our total emissions when using the average Gold Standard project price, and it also covers our scopes 1 and 2 when considering the EU ETS price. 50 000 NOK furthermore covers all our emissions to date times two if we were to select one of the averaged priced projects in the UN carbon offset platform. To avoid paying for the services of a provider of projects, which can be around 15% of the price for offsets, we looked for a project we could support directly. After looking into different alternatives, the obvious choice was then Climeworks, selected by both Microsoft and Stripe, and verified by DNV on both their methodology and the actual removal and storage. It is important to note that 50 000 NOK to Climeworks corresponds to 5 tCO_2e, roughly 10% of our scope 2 emissions and 2,5% of our total emissions for 2022. The reason for this is the much higher cost of actually removing and storing carbon from the atmosphere as compared to other offsetting solutions. Nonetheless, we see this as a needed path for humanity if we are ever to reach our goals in line with the Paris climate accords, and would therefore rather put the money towards this kind of technology. 50 000 NOK is about 0,26% of Ignite's 2022 sales revenue and therefore less than the aspirational 1% set forth by the One Percent For The Planet organisation, but still more than what could be expected without any external pressure to do this.

Carbon Dioxide Removal 2023

Confirmation for «Ignite Procurement»

You have ordered the removal of **5'000kg** of carbon dioxide from the air for subsequent underground mineralization and storage.

Thank you for helping us reverse climate change.

Christoph Gebald
Founder & CEO

Jan Wurzbacher
Founder & CEO

Dominique Kronenberg
Chief of Staff

Customer ID: 16CbLWTZ2IMBKJF8
Confirmation issued as of 20.03.2023

www.climeworks.com

* This confirmation is based on the general terms and conditions for Climeworks CDR.