# Inventory of greenhouse gas emissions

ING Bank Śląski S.A. Group
2021

# INFORMATION REQUIRED

| Have any establishments, operations and/or sources been excluded from the list? If so, they should be indicated. |
|---|
| Not really. |
| Reporting period to which the list relates |
| from 01.01.2021 to 31.12.2021 |

ORGANISATIONAL BOUNDARIES

| What method of consolidation has been chosen. | | |
|---|---|---|
| Share in capital ☐ | Financial control ☐ | Operational control √ |

OPERATIONAL LIMITS

| Are Scope 3 emissions included in the list? |
|---|
| yes √ |
| no ☐ |
| If yes, what types of activities are included in Scope 3? |
| For Scope 3 GHG emissions, the business travel of company employees (rail, air and taxi), water consumption and treatment, paper use and waste were analysed. |

INFORMATION ON ISSUES

The table below refers to emissions independent of any GHG transactions i.e. sale, purchase, transfer or deposit of allowances.

| EMISSIONS | **TOTAL ($tCO_2e$)** | $CO_2$ (t) | $CH_4$ (t) | $N_2O$ (t) | HFCs (t) | PFCs (t) | $SF_6$ (t) |
|---|---|---|---|---|---|---|---|
| SCOPE 1 | 3283.05 | 3207.01 | 0.00013 | 0.00002 | 0.045 | 0 | 0 |
| SCOPE 2 | 4806.39 | 4806.39 | 0 | 0 | 0 | 0 | 0 |
| SCOPE 3 | 153.93 | 153.37 | 0.003 | 0.001 | 0 | 0 | 0 |

| Direct CO2 emissions from biogenic combustion (tCO2) |
|---|
| 0 t CO2 |

BASE YEAR

| Year chosen as the base year |
|---|
| 2019 |
| Explanation of the company's policy for recalculating base year emissions |
| N/A |
| Context of any significant emission changes that trigger recalculations of base year emissions |
| N/A |
| Base year emissions |

| EMISSIONS | **TOTAL ($tCO_2e$)** | $CO_2$ (t) | $CH_4$ (t) | $N_2O$ (t) | HFCs (t) | PFCs (t) | $SF_6$ (t) |
|---|---|---|---|---|---|---|---|
| Scope 1 | 5271.27 | 4638.55 | 0.0002 | 0.00004 | 0.247 | 0 | 0 |
| Scope 2 | 6025.03 | 6025.03 | 0 | 0 | 0 | 0 | 0 |
| Scope 3 | 746.72 | 689.32 | 0.07 | 0.21 | 0 | 0 | 0 |

# INFORMATION REQUIRED

METHODOLOGIES AND EMISSION FACTORS

| Methodologies used to calculate or measure emissions other than those under the GHG Protocol |
|---|

The calculation of greenhouse gas emissions, which include carbon dioxide ($CO_2$), methane (CH4) and nitrous oxide (N2O), is based on the global standard Greenhouse Gas Protocol methodology developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD).
The calculations of greenhouse gas emissions were based on the consumption of individual energy carriers used by the ING Capital Group, i.e. liquid fuels by the car fleet (petrol, diesel), electricity, district heating, natural gas, fuel oil and coal consumed for the operation of the buildings. In addition, emissions associated with refrigerant loss from refrigeration equipment were analysed. For Scope 3 GHG emissions, the business travel of the company's employees (rail, air travel, taxi), water and paper consumption and waste were analysed. Greenhouse gas emissions were converted to carbon dioxide equivalent according to the GWP value. Global Warming Potential), which measures the potential of individual gases in terms of carbon dioxide equivalent, according to the Intergovernmental Panel on Climate Change (IPCC) report, "Climate Change 2013: IPCC Fifth Assessment Report (AR5).", where the GWP for methane is 28 and for nitrous oxide is 265. Emissions of carbon dioxide, methane and nitrous oxide have been converted into carbon dioxide equivalent emissions according to the formula:

$$W_{eCO_2} = W_{CO_2} + W_{CH_4} \cdot GWP_{CH_4} + W_{N_2O} \cdot GWP_{N_2O}$$

where:
$W_{eCO_2}$- carbon dioxide equivalent emission factor,
$W_{CO_2}$- carbon dioxide emission factor,
$W_{CH_4}$- methane emission factor,
$GWP_{CH_4}$- GWP (Global Warming Potential) of methane,
$W_{N_2O}$- nitrous oxide emission factor,
$GWP_{N_2O}$- GWP (Global Warming Potential) of nitrous oxide.

A market-based approach was adopted to calculate Scope 2 emissions.

**ESTIMATES USED FOR THE CALCULATIONS**

Electricity consumption was known for 315 branches and other locations of the Bank as indicated by the meter, based on electricity billing invoices. In facilities for which the consumption was not known (11), the average electricity consumption per area was assumed In facilities for which the consumption was not known (11), the electricity consumption rate per area was used to calculate the energy consumption, which was multiplied by the area of the ward. To determine the average electricity consumption rate per area, the actual consumption rates for buildings with a similar function were used, additionally taking into account the use of an electric hot water system and a similar type of lighting. Electricity consumption was not known for small areas occupied in shopping centres with small service points (63). The energy consumption of the stands was determined on the basis of the electrical appliances used.

Network heat consumption was known for 14 facilities occupied by the company. For these facilities, the average district heating consumption rate per unit area in the company was determined for the office and other buildings, which are 97.23 kWh/m$^2$ and 99.62 kWh/m$^2$ respectively. These indicators were used to estimate the consumption of district heating in the remaining facilities (192), where the heating source is a thermal centre and where the consumption was not known. For the spaces occupied by small service points, zero network heat consumption was assumed, as these spaces are located in common spaces and would be heated in the facilities regardless of whether there is a stall there.

Natural gas consumption was known for 29 facilities occupied by the company. The estimate of natural gas consumption was split between the two heating sources used in the facilities – a gas boiler and a room gas furnace.
For facilities using a gas boiler, an average natural gas consumption rate per unit area in the company was

# INFORMATION REQUIRED

determined, which was 127.72 kWh/m$^2$ in 2021. This indicator was used to estimate natural gas consumption in the remaining facilities where the heating source is a gas boiler and where consumption was unknown.
For facilities using room gas cookers, the average natural gas consumption rate per unit area in the company was similarly determined, which was 176.05 kWh/m$^2$ in 2021. This indicator was used to estimate natural gas consumption in a facility where the heating source is a room gas cooker, where consumption was unknown.

Fuel oil consumption was known for 2 facilities occupied by the company. An average heating oil consumption rate per unit area in the company was determined for these facilities, which was 38.96 kWh/m$^2$ in 2021. To estimate the consumption of fuel oil in the remaining 3 facilities, where the heating source is an oil boiler, an indicator equal to 89.43 kWh/m$^2$ was used.

A coal boiler as a heating source was used in 2021 in one branch of the company. As coal consumption was not known, it was estimated analogously to previous energy carriers. An average heating energy consumption rate per unit area for all sources was determined, which was 101.17 kWh/m$^2$ in 2021.

In the event of loss of mains power, generators were installed at some of the sites, for which the amount of electricity generated was known. For the three generators, only the operating time was known, without the amount of energy generated. In this case, the amount of energy produced was calculated using the average power load of the gensets for which the energy produced was known and the operating time of the gensets. To calculate the amount of fuel used to generate a given amount of electricity, the technical characteristics of the individual generators were used. The average fuel consumption (l/h) was read from the technical specifications, and the amount of oil used in the genset was obtained by multiplying this value by the percentage of the genset load and the operating time.

The amount of energy consumed by motor vehicles was calculated on the basis of the reported fuel consumption statement of the vehicles used in the Group.

HEAT

For two buildings, the measured heat consumption did not include December 2021. Due to the fact that the missing data refer to the same month both in the building at Puławska Street in Warsaw and Roździeńska Street in Katowice, the calculation methodology along with the presentation of the figures at the various stages of the accounts is presented on the example of the building at Roździeńska Street in Katowice. For the building in Warsaw, calculations were performed analogously.

# INFORMATION REQUIRED

The starting point for the calculation is the measured heat consumption data for 2021:

**Table 1. Measured energy consumption in 2021.**

| Monthly | Dalkia | GJ |
|---|---|---|
| January | 12040.97 | 173.10 |
| February | 10348.88 | 139.40 |
| March | 9977.33 | 132.00 |
| April | 8476.06 | 102.10 |
| May | 6613.26 | 65.00 |
| June | 4564.69 | 24.20 |
| July | 4289.86 | 16.20 |
| August | 4970.79 | 23.70 |
| September | 6105.36 | 41.50 |
| October | 8712.33 | 82.40 |
| November | 11823.59 | 123.20 |
| December | No data available | No data available |

Determination of the average monthly outdoor air temperature in the following months of 2021. Data obtained from IMGW website https://www.imgw.pl/

Determination of the number of days of the heating season for a given location (Katowice) in accordance with Table 1 of the Regulation on the detailed scope and forms of energy audits and parts of renovation audits, audit card templates, and the algorithm for assessing the profitability of the thermomodernization project (Journal of Laws 2009 No. 43, item 346, as amended):

**Table 2. Heating day Ld(m) values for month m**

Tabela 1 Wartości Ld(m) dni ogrzewania dla miesiąca m.

| | | Miesiąc | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. |
| Lp. | Miejscowość | I | II | III | IV | V | VI | VII | VIII | IX | X | XI | XII |
| 1. | Aleksandrowice | 31 | 28 | 31 | 30 | 5 | 0 | 0 | 0 | 5 | 31 | 30 | 31 |
| 2. | Białystok | 31 | 28 | 31 | 30 | 10 | 0 | 0 | 0 | 10 | 31 | 30 | 31 |
| 3. | Bydgoszcz | 31 | 28 | 31 | 30 | 10 | 0 | 0 | 0 | 5 | 31 | 30 | 31 |
| 4. | Chojnice | 31 | 28 | 31 | 30 | 10 | 0 | 0 | 0 | 5 | 31 | 30 | 31 |
| 5. | Częstochowa | 31 | 28 | 31 | 30 | 5 | 0 | 0 | 0 | 5 | 31 | 30 | 31 |
| 6. | Elbląg | 31 | 28 | 31 | 30 | 10 | 0 | 0 | 0 | 5 | 31 | 30 | 31 |
| 7. | Gdańsk | 31 | 28 | 31 | 30 | 20 | 0 | 0 | 0 | 10 | 31 | 30 | 31 |
| 8. | Gorzów Wlkp. | 31 | 28 | 31 | 30 | 10 | 0 | 0 | 0 | 5 | 31 | 30 | 31 |
| 9. | Hel | 31 | 28 | 31 | 30 | 20 | 0 | 0 | 0 | 10 | 31 | 30 | 31 |
| 10. | Jelenia Góra | 31 | 28 | 31 | 30 | 5 | 0 | 0 | 0 | 5 | 31 | 30 | 31 |
| 11. | Kalisz | 31 | 28 | 31 | 30 | 10 | 0 | 0 | 0 | 5 | 31 | 30 | 31 |
| 12. | Kasprowy Wierch | 31 | 28 | 31 | 30 | 20 | 0 | 0 | 0 | 20 | 31 | 30 | 31 |
| 13. | Katowice | 31 | 28 | 31 | 30 | 5 | 0 | 0 | 0 | 5 | 31 | 30 | 31 |

# INFORMATION REQUIRED

Calculation of the number of degree days for consecutive months, according to the formula:

$$Sd = [t_{w0} - t_e) \cdot Ld_{(m)}\ [dzień \cdot K/miesiąc]$$

where:

$t_{w0}$ – design indoor air temperature, assumed 20°C

$t_e$ – the average outside air temperature in a given month,

$Ld_{(m)}$ – number of heating days in month m adopted in accordance with the regulation on the detailed scope and form of the energy audit (Journal of Laws 2009 No. 43 item 346 as amended).

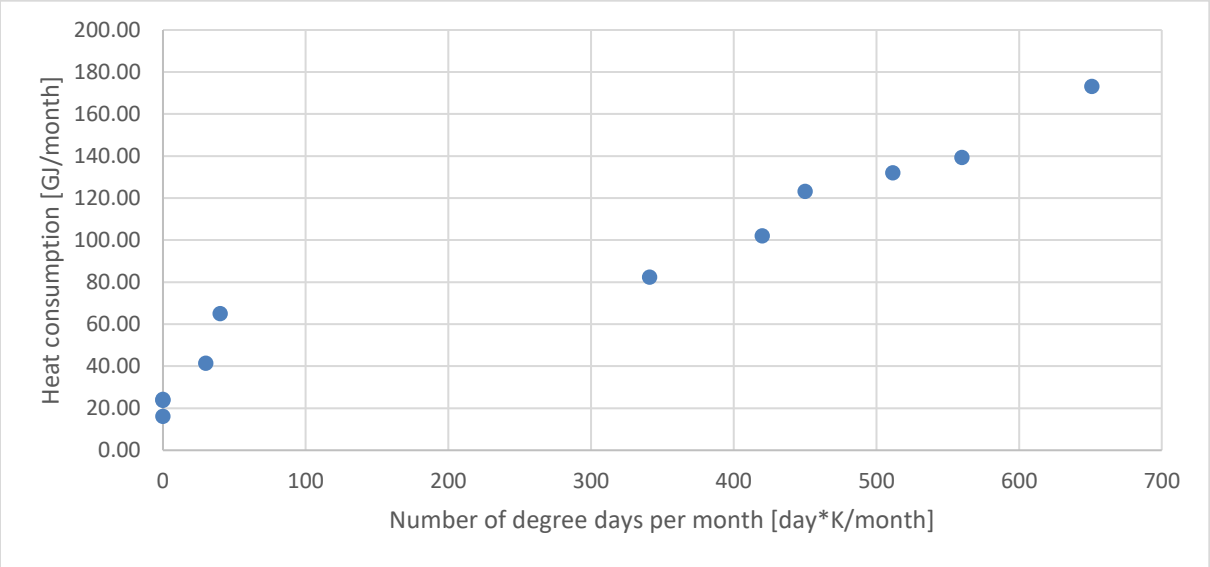
The data and calculation results are shown in the table below

**Table 3. Number of heating degree days in the following months of 2021.**

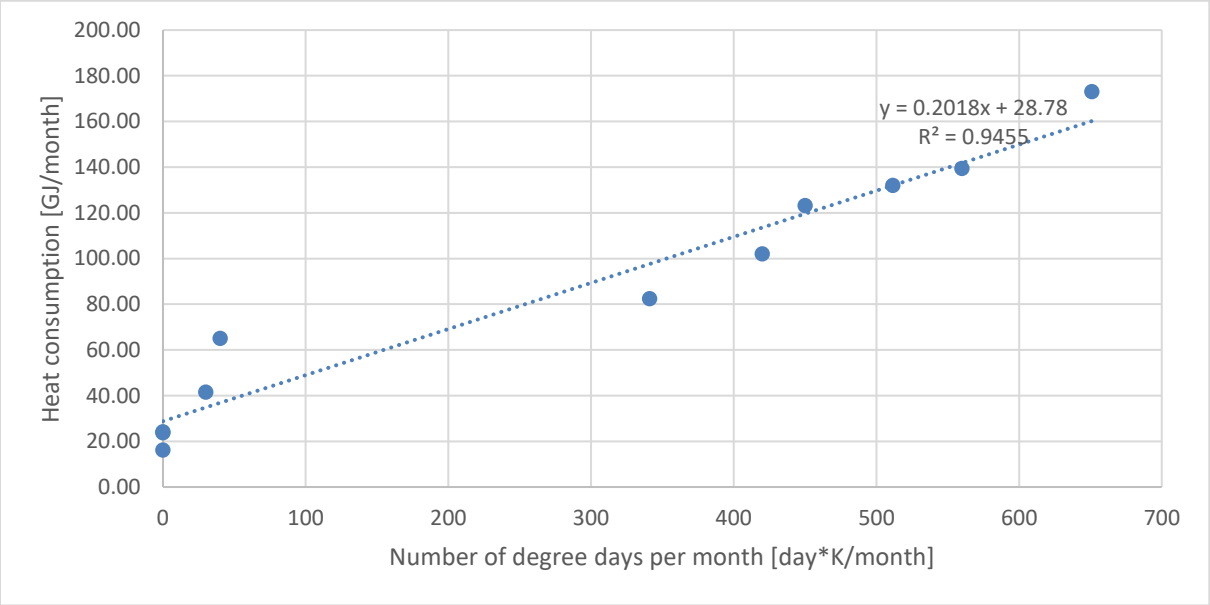
| Monthly | $t_e$ [°C] | $Ld_{(m)}$ [days] | Sd [day-K/month] |
|---|---|---|---|
| January | -1.00 | 31.00 | 651 |
| February | 0.00 | 28.00 | 560 |
| March | 3.50 | 31.00 | 511.5 |
| April | 6.00 | 30.00 | 420 |
| May | 12.00 | 5.00 | 40 |
| June | 19.50 | 0.00 | 0 |
| July | 19.00 | 0.00 | 0 |
| August | 17.00 | 0.00 | 0 |
| September | 14.00 | 5.00 | 30 |
| October | 9.00 | 31.00 | 341 |
| November | 5.00 | 30.00 | 450 |
| December | -1.00 | 31.00 | 651 |

Drawing up the energy signature of the building – the relationship between the number of degree days in a given month and the heat consumption. The signature based on the data in Tables 1 and 3 is presented in the graph below:

# INFORMATION REQUIRED




Calculating a linear regression equation using MS Excel:




Using the regression equation to calculate the heat demand in December, where:

y – estimator of heat demand in a given month [GJ/month]
x – number of degree-days in the given month (December 2021 Sd=651 days-K/month)

$$Q_k = 0{,}2018 \cdot Sd_{grudzień} + 28{,}780 = 0{,}2018 \cdot 651 + 28{,}780 = 160{,}15\ [GJ/miesiąc]$$

# INFORMATION REQUIRED

Calculation of estimated annual energy consumption as the sum of measured and calculated data:

**Table 4. Estimated heat consumption in 2021.**

| Monthly | GJ | Data |
|---|---|---|
| January | 173.10 | measured |
| February | 139.40 | measured |
| March | 132.00 | measured |
| April | 102.10 | measured |
| May | 65.00 | measured |
| June | 24.20 | measured |
| July | 16.20 | measured |
| August | 23.70 | measured |
| September | 41.50 | measured |
| October | 82.40 | measured |
| November | 123.20 | measured |
| December | 160.15 | calculated |
| Total | **1082.95** | calculated |

Determination of accounts error

The estimation error of energy consumption in December is the fit of the model to the data, expressed by the coefficient of determination R2. For the data in hand R2=0.9455 (value determined in excel)

Calculation of the confidence factor as the quotient of measured data to the total heat consumption value:

$$W = \frac{\sum_{styczeń}^{listopad} Q_{pom}}{Q_{k2021}} \cdot 100\% = \frac{922{,}80}{1082{,}95} \cdot 100\% = 85{,}21\%$$

# Optional information

ORGANISATIONAL BOUNDARIES

| List of all legal entities or establishments in which the reporting organisation has an ownership interest or exercises financial or operational control | Share in the capital of the legal entity (%) | Does the reporting organisation have financial control (Yes/No) | Does the reporting organisation have operational control (Yes/No) |
|---|---|---|---|
| ING Bank Śląski S.A. | 100% (group parent company) | Yes | Yes |
| ING Lease (Polska) Sp. z o.o.* | 100.00% | Yes | Yes |
| ING Bank Hipoteczny S.A. | 100.00% | Yes | Yes |
| Nowe Usługi S.A. | 100.00% | Yes | Yes |
| ING Commercial Finance Polska S.A.* | 100.00% | Yes | Yes |
| ING Usługi dla Biznesu S.A. | 100.00% | Yes | Yes |

*Indirect participation through ING Investment Holding (Polska) S.A.

| If the parent company of the reporting entity does not report the issue, attach an organisation chart that clearly identifies the relationship between the reporting subsidiary and other subsidiaries |
|---|
| N/A |

INFORMATION ON ISSUES

| Emissions by source (in t CO2e) | |
|---|---|
| Scope 1: Direct emissions from owned/controlled operations | |
| a. Direct emissions from stationary combustion | 643.83 |
| b. Direct emissions from mobile combustion | 2497.32 |
| c. Direct emissions from process sources | 65.86 |
| d. Direct emissions from fugitive sources | 76.03 |
| e. Direct emissions from agricultural sources | 0.00 |
| Scope 2: Indirect emissions from the use of purchased electricity, process steam, heat and cooling | |
| a. Indirect emissions from purchased/acquired electricity | 0.00 |
| b. Indirect emissions from purchased/acquired process steam | 0.00 |
| c. Indirect emissions from purchased/acquired thermal energy | 4,806.39 |
| d. Indirect emissions from purchased/acquired cold | 0.00 |

| Emissions by plant (recommended for individual plants with stationary exhaust emissions above 10,000 tCO2e) | |
|---|---|
| Plant | Scope 1 emissions |
| N/A | N/A |

| Emissions by country (in MgCO2e) | |
|---|---|
| Country | Emissions |
| N/A | N/A |

| Emissions related to the own generation of electricity, heat or process steam which are sold or transferred to another organisation |
|---|
| N/A |

| Emissions related to the own generation of electricity, heat or process steam which are purchased for resale to intermediate customers |
|---|
| N/A |

| Emissions from greenhouse gases not included in the Kyoto Protocol (e.g., CFCs, NOx,) |
|---|

# Optional information

| Pollutants [kg] | |
|---|---|
| Total dust | 7.59 |
| PM10 dust | 7.44 |
| PM2.5 dust | 7.19 |
| Carbon monoxide (CO) | 10,498.87 |
| Nitrogen oxides (NOx/NO2) | 2,699.36 |
| Sulphur oxides (SOx/SO2) | 679.49 |
| Benzo(a)pyrene | 0.00115 |
| Non-methane volatile organic compounds (NMVOC) | 1,074.07 |
| Ammonia (NH3) | 204.51 |
| Lead (Pb) | 0.35 |

| Information on the reasons for emissions changes that did not result in emissions recalculations in the base year (e.g. process changes, efficiency improvements, plant closures). |
|---|
| N/A |

| GHG emissions data for all years between baseline and reporting year (including details and reasons for recalculations, if any) |
|---|
| N/A |

ADDITIONAL INFORMATION

| Information on inventory quality (e.g. information on the causes and magnitude of uncertainties in emission estimates) and an outline of existing policies to improve inventory quality |
|---|
| As a result of the calculations performed and the assumptions made for the calculation of GHG emissions (market-based approach), a data confidence indicator was calculated (understood as the percentage share of data acquired from sources in the total data used for calculations, consisting of data acquired from sources and estimated data). The data confidence index was:<br>• 84.26% – for the calculation of the certainty indicator based on energy data, according to the "GHG Protocol guidance on uncertainty assessment in GHG inventories and calculating statistical parameter uncertainty" the indicator is "good". Data quality can be improved by detailed metering of the consumption of each energy carrier.<br>• 70.68% – for the calculation of the certainty factor based on emission data, according to the "GHG Protocol guidance on uncertainty assessment in GHG inventories and calculating statistical parameter uncertainty" the factor is "poor". The lower ratio is mainly due to the purchase of a large volume of green electricity. |