Inventory of emissions of greenhouse gases

[PKO Bank Polski Spółka Akcyjna]
[2022]

REQUIRED INFORMATION

Have any establishments, operations and/or sources been excluded from the inventory? If any, please indicate.
No.
The reporting period for the inventory
From 01/01/2022 to 31/12/2022[1]

ORGANISATIONAL BOUNDARIES

Specify the consolidation method (indicate every mode of consolidation, for which the organisation reports emissions). If the organisation reports on the basis of more than one consolidation method, please fill out and attach an additional inventory according to each consolidation method.		
Share in capital ☐	Financial control ☐	Operating control ✓

OPERATIONAL BOUNDARIES

Are Scope 3 emissions included in the inventory?
Yes ✓ No ☐
If they are, which types of activity were included in Scope 3?
Emissions in Scope 3 include: • Cat. 3. WTT (Wheel to tank) emissions - emissions generated in the course of production of fuels and fuels for generation of electricity and emissions related to production of electricity lost in transmission and distribution. The basis for calculations is data on fuel consumed and electricity and heat purchased (reported in Scopes 1 and 2). In the reporting period, they were included for the first time. • Cat. 6. domestic business trips (airplane, train, urban public transport, passenger cars, motorcycle). Emissions from trips using company cars are included in Scope 1 fuel consumption to avoid doubling emission values. Emissions from category 6 have been included for the third time - for the first time including other Capital Group companies, • Cat. 7. emissions due to employees of PKO BP and Capital Group companies (for the first time) commuting to work. Data concerning the means of transport and the distance covered was determined on the basis of questionnaires filled out by the bank employees and employees of other companies. Category 7 emissions are included in the carbon footprint analysis for the second time, and for Capital Group companies - for the first time, • Cat. 13 utility consumption in spaces rented to third parties. These were included for the first time in the reporting period.

EMISSION INFORMATION

The table below refers to the year 2022 - emissions independent of any GHG transactions, that is, sale, purchase, transfer or depositing of allowances.

EMISSIONS	**TOTAL**	CO_2	CH_4	N_2O	HFCs	PFCs	SF_6
	($MgCO_2e$)	(Mg)	(Mg)	(Mg)	(Mg)	(Mg)	(Mg)
Scope 1	14,715.83	13,483.16	32.96	53.71	1,146.01	0.00	0.00
Scope 2[2]	80,416.48	80,416.48	0.00	0.00	0.00	0.00	0.00
Scope 2[3]	33,784.02	33,784.02	0.00	0.00	0.00	0.00	0.00
Scope 3	18,277.17	18,201.50	12.49	63.18	0.00	0.00	0.00

[1] With the exceptions described in the report, applicable to the reporting period for emissions related to consumption of electricity, heat and natural gas.
[2] Calculated in accordance with the location-based method.
[3] Calculated in accordance with the market-based method.

REQUIRED INFORMATION

Direct CO_2 emissions from biogenic combustion ($MgCO_2$)
0 $MgCO_2$

BASE YEAR

Base year
2019[4] for Scope 1 and 2. PKO Bank Polski S.A. Capital Group prepares reports of Scope 3 emissions: • for the first time for WTT emissions[5] and emissions related to spaces rented by PKO BP S.A.; • for the second time for emissions related to PKO BP S.A. employees commuting to work, and for the first time including the remaining companies of the Capital Group • for the third time for emissions related to business trips of PKO BP S.A. employees, and for the first time including the remaining companies of the Capital Group;

Clarification of the base year recalculation policy established by the company
Year 2019 was the first year, for which the calculation was conducted and a greenhouse gas emission inventory was developed by the PKO Bank Polski S.A. Capital Group. The emission inventory for year 2019 was assumed to be the base year, taking into account the results after the recalculation. The company activity profile generates no untypical greenhouse gas emission fluctuations in individual years; therefore, one year is sufficiently representative and it is not necessary to determine the average annual emission level for several years. Due to the necessity to verify the need for potential recalculations of base year emissions and lack of a documented corporate policy in this regard, general criteria have been applied as specified in The Greenhouse Gas Protocol Corporate Accounting and Reporting Standard Revised Edition (hereinafter: the GHG Protocol)[6]. For each of the criteria, the authors of this report have proposed a mode of assessment, which specifies the cases, in which recalculation of greenhouse gas emissions for the base year should take place. **The criteria indicating the necessity for recalculation of greenhouse gas emission for the base year:** **Criterion 1.** Structural changes, which exert substantial impact on emissions in the base year. Description of the criterion: A structural change is related to transfer of the right of ownership or possibility of exerting control over activity generating emissions. Unlike a single structural change, the accumulated effect of a number of smaller changes may exert substantial impact on emissions in the base year. Structural changes should be understood as: mergers, takeovers, disposals and outsourcing and insourcing of activities causing emissions. Recalculation of base year emissions is not caused by broadening of the scope of services and opening or closing of operating units owned or controlled by the company (the so-called organic growth). Base year emissions will not be recalculated also if the company purchases a facility established after the base year defined by the company. **Criterion 2.** Changes in the methodology used to calculate or measure emissions or improvement of data accuracy. Description of the criterion: Substantial changes in methodology and quality of data are taken into account. Any changes in indicators and actual emission changes (related e.g. to a change in the type of fuel used) do not make it necessary to recalculate the base year. **Criterion 3.** Detection of errors in base year calculations. Description of the criterion: The errors detected must be substantial, or their accumulation must lead to substantial inaccuracies requiring an adjustment.

[4] Due to the fact that in 2022 it was considered necessary to recalculate the value of greenhouse gas emissions of the PKO Bank Polski S.A. Capital Group for the base year, all comparisons used in this report pertain to the indicators, fuel consumption and emissions for the base year after the base year recalculation.
[5] WTT (Well To Tank) - emissions generated in the course of production of fuels and fuels for generation of electricity and emissions related to production of electricity lost in transmission and distribution.
[6] https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf

REQUIRED INFORMATION

Authors of the report for the year 2022 recommended and conducted a recalculation of greenhouse gas emissions for the base year of the PKO Bank Polski S.A. Capital Group. The details of the recalculation has been presented in the subsequent clause of the report, entitled: "The context of all substantial emission changes, which make it necessary to recalculate the base year emissions."

The context of all substantial emission changes, which make it necessary to recalculate the base year emissions

Authors of the report for 2022 decided it would be necessary to recalculate emissions of greenhouse gases for the base year of the PKO Bank Polski S.A. Capital Group based on Criterion 2. GHG Protocol[7] recommends a recalculation, if at least one of the Criteria listed above are identified, mainly for the base year.

In the opinion of authors of these calculations, leaving the base year without a recalculation would limit the possibility of a reliable comparison of the GHG emission results calculated for the year 2022 with the base year. In line with the standard applied, recalculation for the intermediate years (2020 and 2021) is optional; therefore, the recalculation was only conducted for the base year.

Changes in the methodology:

In the emission calculations for the year 2022, it was decided that DEFRA[8] database indicators would be applied for scope 1 and 3 (for categories 3, 6, and 7) due to validity of the data based on annual updates of these indicators and the possibility of dividing GHG emissions into the remaining greenhouse gases as recommended by the GHG Protocol. On the other hand, selection of the KOBIZE[9] database to calculate emissions from purchased electricity for scope 2 and scope 3 - category 13, applicable to rented spaces, is motivated by the principle of selection of the most appropriate indicator, referring to the reality of the country, in which it is used, that is, the energy mix. In addition, the KOBIZE[10] indicator for electricity emissions has been recalculated taking into account the balance sheet losses and differences. On the other hand, the emission indicator for heat is based on a publication of the Energy Regulatory Office - Heat Energy in Numbers[11].

In 2022, the available information was used on the volume of electricity purchased from specific suppliers, which was taken into account in emissions calculated using the market-based (M-B) method in the Capital Group Companies.

Summing up:

Recalculation of the base year (2019) emission includes changes for:

- Scope 1: application of the DEFRA[12] database of emission indicators
- Scope 2: the recalculation includes application of the KOBIZE[13] indicator, taking into account the balance sheet losses and differences (details can be found in the section entitled: "Emission methodologies and factors").

The context of recalculations conducted in the previous years has been published in reports for the years 2021[14] and 2020[15].

[7] Same as in footnote 6.
[8] https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2022.
[9] BENCHMARKS FOR CO2, SO2, NOx, CO and particulate matter FOR ELECTRICITY on the basis of information contained in the National database of emissions of greenhouse gases and other substances for 2021.
[10] As in footnote 8
[11] https://www.ure.gov.pl/pl/cieplo/energetyka-cieplna-w-l/10763,2021.html
[12] Same as in footnote 7
[13] Same as in footnote 8
[14] https://www.pkobp.pl/media_files/04924fcd-2a60-4e0f-84ee-891075705659.pdf
[15] https://www.pkobp.pl/media_files/d3b259ae-b5b6-4155-9244-d0d2eed3fe49.pdf

REQUIRED INFORMATION

YEAR 2019 (base year)

EMISSIONS	**TOTAL (MgCO2e)**	CO_2 (Mg)	CH_4 (Mg)	N_2O (Mg)	HFCs (Mg)	PFCs (Mg)	SF_6 (Mg)
2019– before recalculation							
Scope 1	16,399.50	15,466.81	0.56	0.02	0.00	0.00	0.00
Scope 2 (L-B)	97,111.69	97,111.69	0.00	0.00	0.00	0.00	0.00
Scope 2 (M-B)	97,111.69	97,111.69	0.00	0.00	0.00	0.00	0.00
Scope 3	-	-	-	-	-	-	-
2019– after recalculation							
Scope 1	15,781.34	14,777.69	35.82	55.06	912.46	0.00	0.00
Scope 2 (L-B)	92,785.39	92,785.39	0.00	0.00	0.00	0.00	0.00
Scope 2 (M-B)	92,785.39	92,785.39	0.00	0.00	0.00	0.00	0.00
Scope 3	-	-	-	-	-	-	-

In the base year:

- Emission levels reported in Scope 1 decreased. The 4% change is due to application of the DEFRA[16] database.
- Emission levels reported in Scope 2 decreased. The 6% change is due to application of the KOBIZE[17] database.

ROK 2022

EMISSIONS	**TOTAL (MgCO2e)**	CO_2 (Mg)	CH_4 (Mg)	N_2O (Mg)	HFCs (Mg)	PFCs (Mg)	SF_6 (Mg)
Scope 1	14,715.83	13,483.16	32.96	53.71	1,146.01	0.00	0.00
Scope 2 (L-B)	80,416.48	80,416.48	0.00	0.00	0.00	0.00	0.00
Scope 2 (M-B)	33,784.02	33,784.02	0.00	0.00	0.00	0.00	0.00
Scope 3	18,277.17	18,201.50	12.49	63.18	0.00	0.00	0.00

Results for the year 2022 in relation to the base year (2019) after the recalculation:
Emission levels reported in Scope 1 and 2 were altered. The changes are due to:

- a decrease in fuel consumption (gasoline, natural gas, fuel oil and hard coal),
- purchase decisions of the Bank, which in 2022 purchased the RES Guarantees of Origin in the quantity of 69 000 MWh, for which the emission indicator is 0 kg CO_2 (calculations using the market-based method)
- the electricity emission indicator applied, used in the location-based method calculations. The indicator applied excludes emissions related to transmission losses. Moreover, year to year, the national emission index is being reduced due to the increasing share of RES in the national energy mix.
- the decrease in consumption of electricity (-5%) and heat (-11%) purchased

The scope 1 emissions decreased by 6.75%, and Scope 2 emissions calculated using two methods: L-B by 13.33% and M-B by 63.59%.

[16] Same as in footnote 7
[17] Same as in footnote 8

REQUIRED INFORMATION

EMISSION METHODOLOGIES AND FACTORS

Methods used for calculation or measurement of emissions other than specified in the GHG protocol (provide a reference or link to any calculation tool used, not included in the GHG protocol)

- **Basic information on the greenhouse gas emission calculation methodology and the indicators used**

Greenhouse gas emissions for Scope 1, 2 and 3 were calculated using the GHG Protocol methodology
The following benchmarks were used to calculate GHG emissions in Scope 2.

For electricity:

- in Poland:

The location-based method		
	The index	Additional information
PKO Bank Polski S.A.	666 $kgCO_2/MWh$	The benchmark on the basis of information provided by the NCEBM[18].
subsidiaries	666 $kgCO_2/MWh$	The benchmark on the basis of information provided by the NCEBM[19].
The market-based method		
	The index	Additional information
	0 $kgCO_2/MWh$	The benchmark for electricity generated by RES installations.
E.ON	582.7 $kgCO_2/MWh$	The benchmark on the basis of seller's information[20]
Energa	528.9 $kgCO_2/MWh$	The benchmark on the basis of seller's information[21]
Green Light	646.8 $kgCO_2/MWh$	The benchmark on the basis of seller's information[22]
Enea	696.5 $kgCO_2/MWh$	The benchmark on the basis of seller's information[23]
ESV4 Sp. z o. o.	419.3 $kgCO_2/MWh$	The benchmark on the basis of seller's information[24]
Unknown supplier	666 $kgCO_2/MWh$	The benchmark on the basis of information provided by the NCEBM[25].

- in Ukraine: 218 kg CO_2/MWh[26],
- in Germany: 402 kg CO_2/MWh[27],
- in the Czech Republic: 442 kg CO_2/MWh[28],
- in Slovakia: 113 kg CO_2/MWh[29],

[18] Same as in footnote 9.
[19] Same as in footnote 9.
[20] https://eon.pl/mojeon/-/media/MojEON/EON_Struktura-paliw-2021.ashx
[21] https://www.energa.pl/biznes/struktura-paliw/struktura-paliw-2021.html
[22] https://green-lights.pl/wp-content/uploads/2021-Struktura-Paliw-GLD.pdf
[23] https://www.enea.pl/grupaenea/obowiazki/struktura/29.03.2022/struktura-paliw_2021_enea-sa.pdf?t=1674083190
[24] http://wislosan.esv.pl/fileadmin/user_upload/strefa-lienta/informacje_obligatoryjne/Struktura_paliw_2021pub.pdf
[25] Same as in footnote 9.
[26] https://ourworldindata.org/grapher/co2-per-unit-energy?time=2017..latest&country=~UKR
[27] https://www.eea.europa.eu/data-and-maps/daviz/co2-emission-intensity-12/#tab-chart_3
[28] https://www.eea.europa.eu/data-and-maps/daviz/co2-emission-intensity-12/#tab-chart_3
[29] https://www.eea.europa.eu/data-and-maps/daviz/co2-emission-intensity-12/#tab-chart_3

REQUIRED INFORMATION

In 2022, the KOBIZE[30] indicator was recalculated as follows:

The emission indicator for electricity produced in Poland for the year 2021, published in December 2022 **(used in calculations for the year 2022)**

Quantity in MWh:

- the quantity of electricity produced by combustion systems:	153,202,431
- the quantity of electricity produced from water:	2,830,000
- the quantity of electricity produced from wind and other RES:	18,983,000
- balance sheet losses and differences:	10,289,000
The balanced quantity of electricity at end users amounted to	164,726,431
CO_2 emission:	116,561,424,864 kg CO_2

WE = 116 561 424 864 ÷ (153 202 431 + 2 830 000 + 18 983 000) **= 666,007 kg CO_2/MWh**

The emission indicator for electricity produced in Poland for the year 2018, published in December 2019 **(used in calculations for the year 2019)**

Quantity in MWh:

- the quantity of electricity produced by combustion systems:	151423 321
- the quantity of electricity produced from water:	2,197,000
- the quantity of electricity produced from wind and other RES:	11,958,000
- balance sheet losses and differences:	8,894,000
CO_2 emission:	119,899,867,231 kg CO_2

WE = 119 899 867 231 ÷ (151 423 321 + 2 197 000 + 11 958 000) **= 724.13 kg CO_2/MWh**

For heat energy:

- 367.3 kg CO_2/MWh [31].

- **Information on source data and estimates**

The source data used to determine greenhouse gas emissions in the Capital Group of Bank PKO BP S.A. are breakdowns of consumption of energy media and refrigerants prepared by the Bank representatives independently for consumption by the Bank and its Subsidiaries:

For Bank PKO BP, these are:

- A breakdown of invoices for the purchase of energy/ energy media or consumption determined on the basis of metering devices for the period 4Q2021 - 3Q2022
- A breakdown of the quantity of fuel oil purchased in 2022
- A breakdown of the quantity of refrigerants purchased in 2022
- A breakdown of the quantity of fuel for vehicles purchased in 2022
- A breakdown of the quantity of fuel used by power generators in 2022
- Data on domestic and foreign business trip and commuting to work in 2022

For the Subsidiaries:

- Questionnaires filled out by individual companies for the period 4Q 2021 and 1Q – 3Q 2022 concerning the consumption of individual energy media, or in the case of lack of information on the type of media, the quantity of which needs to be estimated.
- A breakdown of the quantity of refrigerants purchased in 2022.
- Data on domestic and foreign business trip and commuting to work in 2022

The data on consumption of individual energy media was assigned to the real estate property database provided, including information on the total area of the real estate property (in the subsequent months of the balance sheet period), the space rented, function of the property, etc. All facilities were divided into five categories:

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31 https://www.ure.gov.pl/pl/cieplo/energetyka-cieplna-w-l/10763,2021.html

1. 100% ATM/ drop box.
2. Office/ Branch/ Division.
3. Other (e.g., warehouse, etc.).
4. In the course of adaptation/ acceptance of the property.
5. Land.

Later on, for groups 1-3, final energy consumption indicators were determined, which were used to estimate energy consumption in facilities, for which the consumption data was not available. The following sub chapters describe in detail the assumptions made with regard to individual energy media. The full information on the methodology adopted and the calculation assumptions can be found in Appendix 1 to this report.

- **Electricity (included in Scope 2)[32]**

Electricity consumption shown in the breakdowns is treated as final energy consumption. The balance sheet period for the entire analysis is the period of 01.01.2022 – 31.12.2022; however, the available consumption data encompassed the period as close as possible to 01.10.2021 – 30.09.2022. Due to the fact that not all of the consumption data encompass the period of 365 days, it was taken into account in the calculations by estimating consumption in the balance sheet period proportionally to the number of days for the breakdown submitted. The electricity consumption data shown in invoice breakdowns based on the "central agreement" was aggregated on the basis of balance sheet periods from 01.10.2021 until 30.09.2022. For the real estate properties, for which the consumption data was not known, the following indicators were established:

- 100% ATM/ drop box:
  - The electricity consumption benchmark: 6.37 kWh/day
- Office/ Branch/ Division:
  - The electricity consumption benchmark: 0.19 kWh/m2/day (69.3 kWh/m2/year)
- Other (e.g., warehouse, etc.):
  - The electricity consumption benchmark: 0.10 kWh/m2/day (38.4 kWh/m2/year)

- **Heat - district heating (Scope 2) and natural gas (Scope 1)**

Natural gas consumption was analysed on the basis of breakdowns prepared by the Ordering Party for settlement periods (mainly meter readouts) as close as possible to the period of 01.10.2021 – 30.09.2022. The quantities specified in m^3 were recalculated to determine the final energy consumption according to calorific value (CV) specified in the KOBIZE [33] breakdown separately for high-methane and nitrogen-rich gas. Consumption of energy generated from district heat was reported on the basis of quantities recorded in the settlement invoices. Customarily, district heat consumption is shown in GJ; however, for the purpose of the final report, it was converted to kWh. The values shown in the invoices were used by the authors as the final energy consumption. Due to the fact that not all of the settlements encompass the period of 365 days, it was taken into account in the calculations by estimating consumption in the balance sheet period proportionally to the number of days for the breakdown submitted.
For the real estate properties, for which the consumption data was not known, the following indicators were established:

- 100% ATM/ drop box
  - No consumption was assumed, same as in the previous years
- Office/ Branch/ Division
  - The heat consumption benchmark: 0.32 kWh/m2/day (116.4 kWh/m2/year)
- Other (e.g., warehouse, etc.):

[32] All comparisons between year 2021 and year 2020 refer to the year 2020 after the recalculation
[33] KOBIZE report *„Wartości opałowe (WO) i wskaźniki emisji CO2 (WE) w roku 2019 do raportowania w ramach Systemu Handlu Uprawnieniami do Emisji za rok 2022*"
https://www.kobize.pl/uploads/materialy/materialy_do_pobrania/monitorowanie_raportowanie_weryfikacja_emisji_w_eu_ets/WO_i_WE_do_monitorowania-ETS-2023.pdf

- The heat consumption benchmark: 0.31 kWh/m2/day (114.4 kWh/m2/year)

- **Fuels used in vehicles (included in Scope 1)**

The data on the quantity of fuel in vehicles and power generators has been aggregated in the same unit, in which it was reported, that is, in litres. The data was analysed for categories: diesel oil (ON), gasoline (Pb) and liquid gas (LPG). The data was aggregated separately for countries (Poland, Ukraine, Slovakia, the Czech Republic, Germany) and divided into vehicles and power generators. To compare the quantities calculated in this analysis with historic reports, consumption values in volume units were converted to kWh in line with the following indicators:

- Diesel oil: 9.94 kWh/l [34]
- LPG: 6.96 kWh/l [35]
- Gasoline: 9.20 kWh/l [36]

The purchased fuel volumes were converted to energy consumption using the calorific values obtained from the KOBiZE report[37].

- **Other fuels - for heating purposes (included in Scope 1)**

Fuel oil consumption was analysed on the basis of volumes in litres, converting into final energy consumption according to Calorific Value (CV) stated in the breakdown of KOBIZE [38] assuming the average admissible density on the basis of [39]. Consumption of energy contained in fuels was calculated in line with calorific values stated in the KOBIZE report[40]

- **Refrigerants (included in Scope 1)**

The refrigerant consumption quantities include refrigerants replenished or replaced due to technical reasons, as these are the only tasks generating emission of greenhouse gases. Refrigerants used in compressor devices (coolers, heat pumps, etc.) were not included in the report in line with the GHGP assumptions. The following substances were analysed:

- R410A,
- R407C,
- R32

According to country: Poland, Ukraine, Slovakia, the Czech Republic, Germany. Greenhouse gas emissions were calculated using the *GHG Protocol* methodology and IPCC benchmarks[41].

- **Business trips (included in Scope 3)**

The data on domestic and foreign business trips was aggregated separately for Bank PKO BP and the Subsidiaries, and separately for individual means of transportation. The distance was calculated on the basis of the shortest routes for above-ground transportation and distances between cities for airplane

[34] CV based on[1], density based on as the average of min and max: https://www.orlen.pl/content/dam/internet/orlen/pl/pl/dla-biznesu/produkty/paliwa/olej-napedowy/Olej_napedowy_handlowy.pdf

[35] Indicator based on:https://www.e-petrol.pl/wiedza-i-porady/lpg/nosnik-energii

[36] CV based on[1], density based on as the average of min and max: https://www.orlen.pl/pl/dla-biznesu/produkty/paliwa/benzyna/benzyna-bezolowiowa-95

[37] KOBIZE, Wartości opałowe (WO) i wskaźniki emisji CO2 (WE) w roku 2019 do raportowania w ramach Systemu Handlu Uprawnieniami do Emisji za rok 2022, December 2022.

[38] KOBIZE report *„Wartości opałowe (WO) i wskaźniki emisji CO2 (WE) w roku 2019 do raportowania w ramach Systemu Handlu Uprawnieniami do Emisji za rok 2022"*

[39] https://ekoterm.pl/aktualnosci/czym-jest-olej-opalowy/

[40] Same as in footnote 31.

[41] IPCC Fifth Assessment Report (AR5)

transportation. The carbon footprint was calculated in line with the GHG Protocol methodology on the basis of the estimated distances and transportation means using the DEFRA database emission benchmarks.

- **Commuting to work (included in Scope 3)**

Data on the distances covered while commuting to work, provided in the breakdown, was analysed separately for Bank PKO BP and for Subsidiaries. The data was developed on the basis of questionnaires filled out by employees, aggregating the results for separate means of transportation. The carbon footprint was calculated in line with the GHG Protocol methodology on the basis of the estimated distances and transportation means using the DEFRA database emission benchmarks.

- **Calculation of greenhouse gas emissions by subsidiaries of PKO Bank Polski S.A.**

The rules of reporting and estimation of data on consumption of energy were the same for the PKO Bank Polski S.A. Capital Group, that is, for PKO Bank Polski S.A. and for all subsidiaries.

Greenhouse gas emission calculations (Appendix 2) and data estimation (Appendix 1) for the Capital Group of PKO Bank Polski S.A. was prepared by experts of NAPE - the National Agency for Conservation of Energy. Authors: M. Sc. Engineer Marek Amrozy and Engineer Tomasz Kułakowski, Ph. D., in cooperation with Bureau Veritas sp. z o.o.

REQUIRED INFORMATION

ORGANISATIONAL BOUNDARIES

If the dominant company of the reporting entity reports no emissions, attach an organisational chart, which clearly specifies the relationship between the reporting subsidiary and other subsidiaries.
Not applicable.

EMISSION INFORMATION

Emission according to source (in $MgCO_2e$)	
Scope 1: Direct emissions from operations held/ controlled	
a. Direct emissions from a stationary combustion source[42]	4,825.01
b. Direct emissions from a mobile combustion source[43]	8,744.81
c. Direct emissions from processing sources	0.00
d. Direct emissions from fugitive sources[44]	1,146.01
e. Direct emissions from agricultural sources	0.00
Scope 2: Indirect emissions from use of purchased electricity, process steam, heating energy and refrigeration	
a. Indirect emissions from electricity purchased/ acquired	8 324,30 [45]
b. Indirect emissions from process steam purchased/ acquired	0.00
c. Indirect emissions from heat energy purchased/ acquired	25,459.72
d. Indirect emissions from refrigeration purchased/ acquired	0.00

Emissions according to establishment (recommended for individual establishments with stationary exhaust emission above 10.000 $mtCO_2e$)	
Establishment	Emissions in Scope 1
Not applicable.	None of the individual locations generates emissions exceeding 10 thousand $MtCO_2e$

Emission according to country (in $MgCO_2e$)	
Country	Emission (specify the scopes included)
The location-based method	
Poland (Scope 1+2+3)	108,811.02
the Czech Republic (Scope 1+2+3)	35.35
Slovakia (Scope 1+2+3)	14.88
Germany (Scope 1+2+3)	23.28
Ukraine (Scope 1+2)	4,524.94
The market-based method	
Poland (Scope 1+2+3)	62 178. 55
the Czech Republic (Scope 1+2+3)	35.35
Slovakia (Scope 1+2+3)	14.88
Germany (Scope 1+2+3)	23.28
Ukraine (Scope 1+2)	4,524.94

Emissions related to internal production of electricity, heat or process steam, sold or transferred to another organisation

[42] The total of emissions from the sub-categories 'Heating' and 'Generators' (source file: *Appendix 2. The carbon footprint of PKO BP 2022)*

[43] The total of emissions from the sub-category 'Company Vehicles' (source file: *Appendix 2. The carbon footprint of PKO BP 2022)*

[44] The total of emissions from use of refrigerants (source file: *Appendix 2. The carbon footprint of PKO BP 2022)*

[45] Same as in footnote 3.

REQUIRED INFORMATION

0 $MgCO_{2\,e}$

Emissions related to internal production of electricity, heat or process steam, purchased to be resold to intermediate recipients

0 $MgCO_{2\,e}$

Greenhouse gas emissions not included in the Kyoto Protocol (e.g., CFCs, NOx,)

Not applicable.

Information on causes of emission changes, which did not make it necessary to recalculate emissions in the base year (e.g., changes in processes, improved effectiveness, closing of establishments).

Changes in emission in the year 2022 related to change in area due to opening or closing of branches do not result in the necessity to recalculate the greenhouse gas emissions for the base year. In accordance with Criterion 1 specified in the base year emission recalculation policy and the guidelines (the criteria and guidelines specified on the basis of the *GHG Protocol*), the occurrence of changes of this type is treated as normal development of the organisation and does not result in the necessity to recalculate the base year emissions.

Data on emission of greenhouse gases for all years between the base year and the reporting year (taking into account the details or reasons for recalculations, if any)

Year 2019 was the first year, for which the greenhouse gas emission inventory was developed by the PKO Bank Polski S.A. Capital Group. In 2021, a recalculation of the base year was conducted as described in reports for the previous years in the chapter entitled: "The context of all significant emission changes".

The table below provides information on greenhouse gas emissions for all years between the base year and the reporting year.

Market-based					
Year	Scope 1, $MgCO_2e$	Scope 2, $MgCO_2e$	Scope 1+2, $MgCO_2e$	Scope 3, $MgCO_2e$	Scope 1+2+3, $MgCO_2e$
2019 (base year) - after recalculation in 2022	15,781.34	92,785.29	108,566.63	-	108,566.63
2020 - after recalculation	13,501.01	57,437.63	70,938.64	288.67	71,227.31
2021	13,388.10	37,303.78	50,691.87	3,536.31	54,228.19
2022	14,715.83	33,784.02	48,499.85	18,277.17	66,777.02

Emission calculated annually indicates a tendency of decrease, which is mainly caused by improvement of energy efficiency of PKO BP. Emission reduction in 2022 in relation to 2019 amounted (in total) to -38.49%, that is, - 41 789.61 tCO_2e.

REQUIRED INFORMATION

Location-based					
Year	Scope 1, $MgCO_2e$	Scope 2, $MgCO_2e$	Scope 1+2, $MgCO_2e$	Scope 3, $MgCO_2e$	Scope 1+2+3, $MgCO_2e$
2019 (base year) - after recalculation in 2022	15,781.34	92,785.29	108,566.63	-	108,566.63
2020– after recalculation	13,501.01	89,689.63	103,190.64	288.67	103,479.31
2021	13,388.10	85,395.98	98,784.07	3,536.31	102,320.39
2022	14,715.83	80,416.48	95,132.32	18,277.17	113,409.48

Scope 1:
for all reporting periods (year 2019, 2020, 2021, 2022), the following were reported in scope 1:

- emissions from fugitive refrigeration agents,
- emissions from fuels used in buildings,
- emissions from fuels used in vehicles (use of company cars).

Scope 2:
for all reporting periods (year 2019, 2020, 2021, 2022), the following were reported in scope 2:

- emissions from electricity consumption,
- emissions from district heat consumption.

Scope 3:

- in 2019 (base year), this scope was not reported,
- in the year 2020, emissions due to domestic and foreign business trips were reported for the first time in Scope 3,
- in the year 2021, apart form business trips, the report included emissions due to employees of bank PKO BP commuting to work (questionnaires filled out by employees of the bank's locations in Poland),
- in the year 2022, apart from scopes 1, 2 and categories recognised previously in scope 3, the emission calculations were broadened to include WTT emissions and rental of usable space. In addition, the analysis of business trips and employees commuting to work included the subsidiaries.

The table below presents the annual emission changes

REQUIRED INFORMATION

Market-based					
Year	Scope 1, $MgCO_2e$	Scope 2, $MgCO_2e$	Scope 1+2, $MgCO_2e$	Scope 3, $MgCO_2e$	Scope 1+2+3, $MgCO_2e$
Change in the year 2020 in relation to the year 2019	-2,271.86	-35,521.60	-37,793.47	288.67	-37,504.80
Change in the year 2021 in relation to the year 2020	-112.91	-20,133.85	-20,246.77	3,247.64	-16,999.12
Change in the year 2021 in relation to base year (2019)	-2,338.68	-55,028.22	-57,366.90	3,536.31	-53,830.59
Change in the year 2022 in relation to base year (2019)	-1,065.51	-59,001.27	-60,066.78	18,277.17	-41,789.61

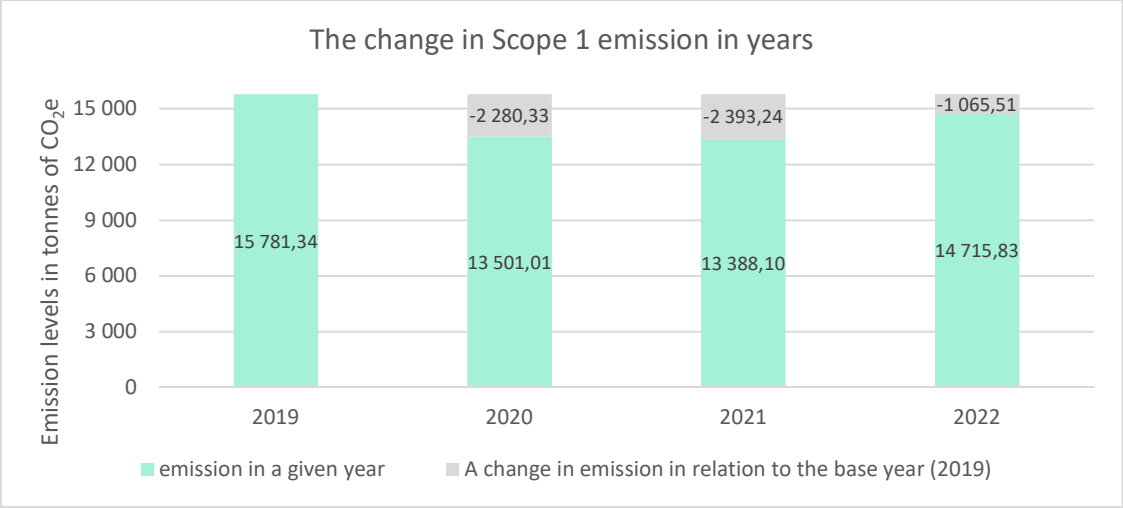
Location-based					
Year	Scope 1, $MgCO_2e$	Scope 2, $MgCO_2e$	Scope 1+2, $MgCO_2e$	Scope 3, $MgCO_2e$	Scope 1+2+3, $MgCO_2e$
Change in the year 2020 in relation to the year 2019	-2,280.33	-3,095.66	-5,375.99	288.67	-5,252.80
Change in the year 2021 in relation to the year 2020	-112.91	-4,293.65	-4,406.57	3,247.64	-1,158.92
Change in the year 2021 in relation to base year (2019)	-2,338.68	-6,936.02	-9,274.70	3,536.31	-5,738.39
Change in the year 2022 in relation to base year (2019)	-1,065.51	-12,368.80	- 13 434.31	18,277.17	4,842.85[46]

[46] The year-to-year emission difference is growing due to inclusion of 3 new categories in the GHG analysis

REQUIRED INFORMATION

Presented below are carbon footprint emissions (market-based) of the PKO BP S.A. Capital Group.

Scope 1

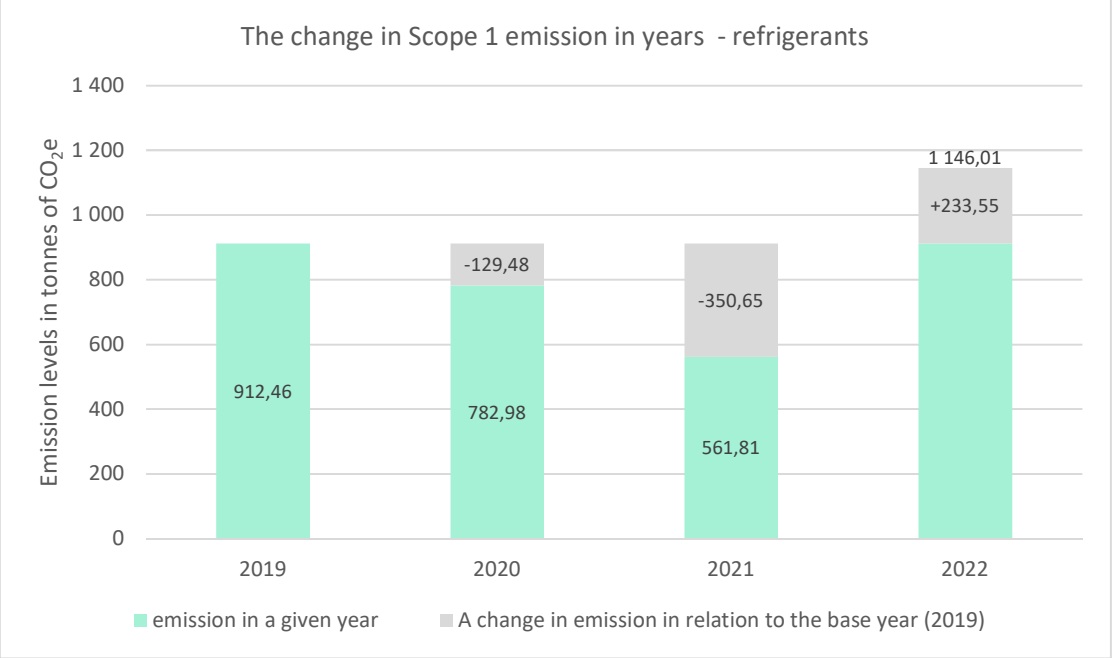


For scope 1:

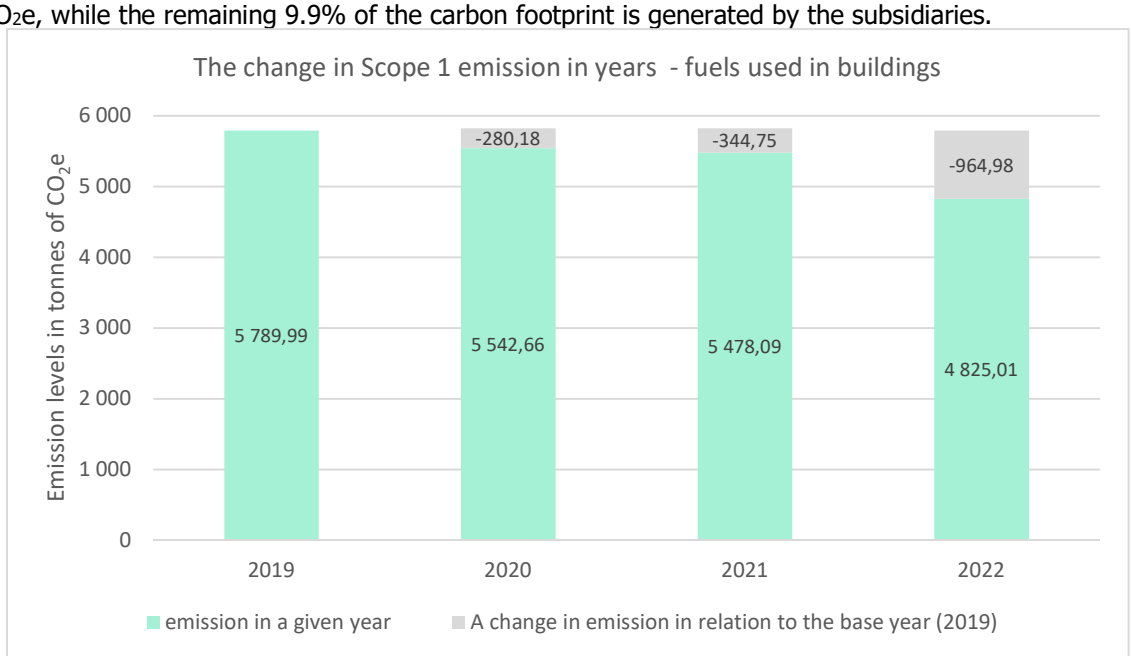
- the emission decrease in 2022 in relation to 2019 was -6.75%, mainly due to reduction in the quantity of fuel used by 6 463 MWh.
- In 2022, emission from fuels used in vehicles dropped by 3.68% in relation to 2019, which results in emission reduction by 334.09 tCO_2.
- for fuels used in buildings, emission in 2022 was reduced by 16.67%, that is, by 964.9 tCO_2.
- emissions from refrigerant losses increased by 25.6% (233.55 tonnes of CO_2),

Presented below are charts for individual emission types reported in Scope 1.

REQUIRED INFORMATION



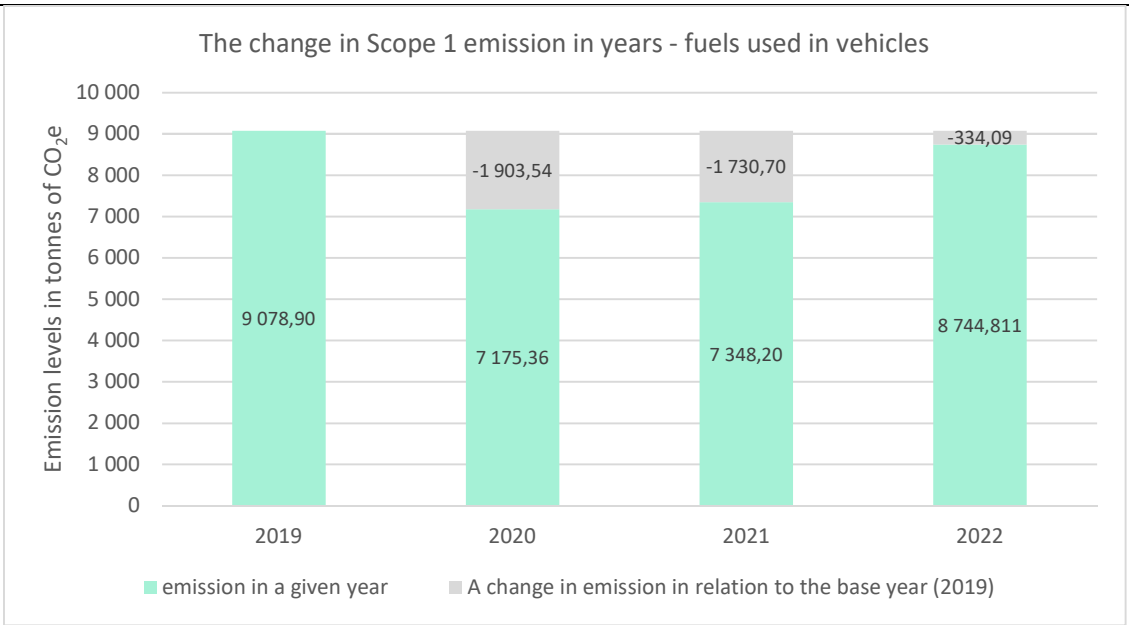
In 2022, emission from refrigerants increased by 25.6%. It is due to increased losses and the resulting greater quantity of refrigerants replenished. In this category, PKO BP emits 90.1%, that is, 1 042.88 tCO_2e, while the remaining 9.9% of the carbon footprint is generated by the subsidiaries.



The emission reduction in 2022 compared to the base year is 16.67%. The carbon footprint reduction is a result of reduced consumption of fuels in buildings in relation to the base year by 3,942 MWh (- 14,5%), which reduced emissions by 964.98 tCO_2e.

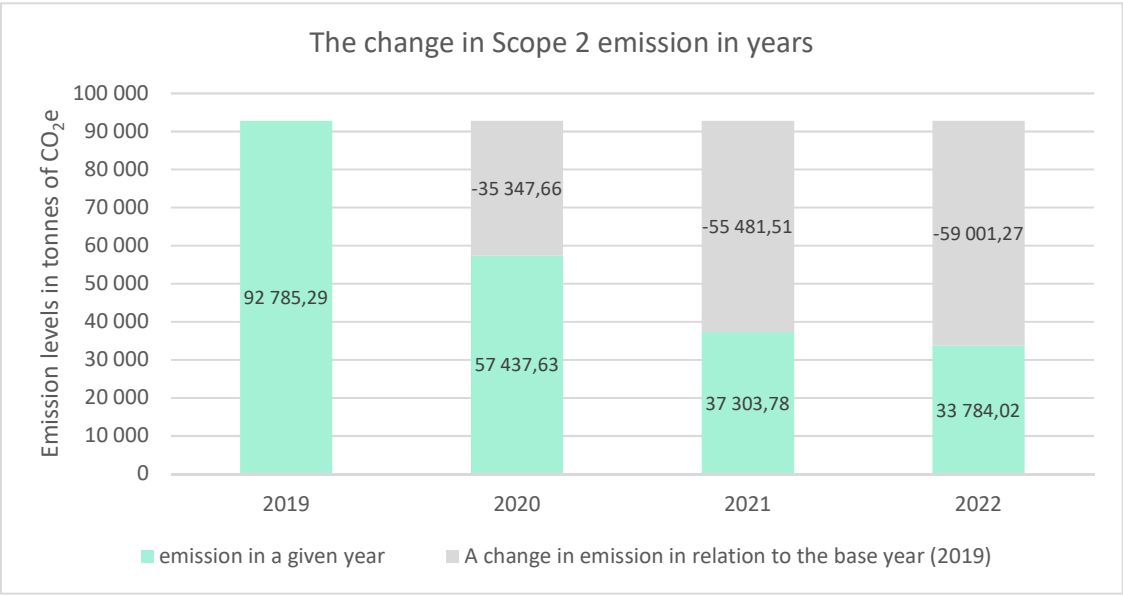
The reductions were mainly achieved by PKO BP, amounting to -18.7%, which encompassed the reduced consumption of hard coal (-53.7%), fuel oil (-46.9%), natural gas (-13.8%) and diesel oil (-12.5%). In subsidiaries, fuel consumption increased in relation to 2019 by 19.6%.

REQUIRED INFORMATION



In the case of company vehicles, PKO BP generates 71.72% of emissions, that is, 7,077.44 tCO_2e, while the subsidiaries are responsible for the remaining 2,001.45 tCO_2e. Overall carbon footprint reduction of 334.09 tCO_2e in relation to the base year is due to fuel consumption reduction by 6.5% (2 521 MWh). Analysing the result for this year's emission and comparing it with the results for the intermediate years, an increase was detected due to the increased use of company cars after the withdrawal of the COVID-19 restrictions.

Scope 2

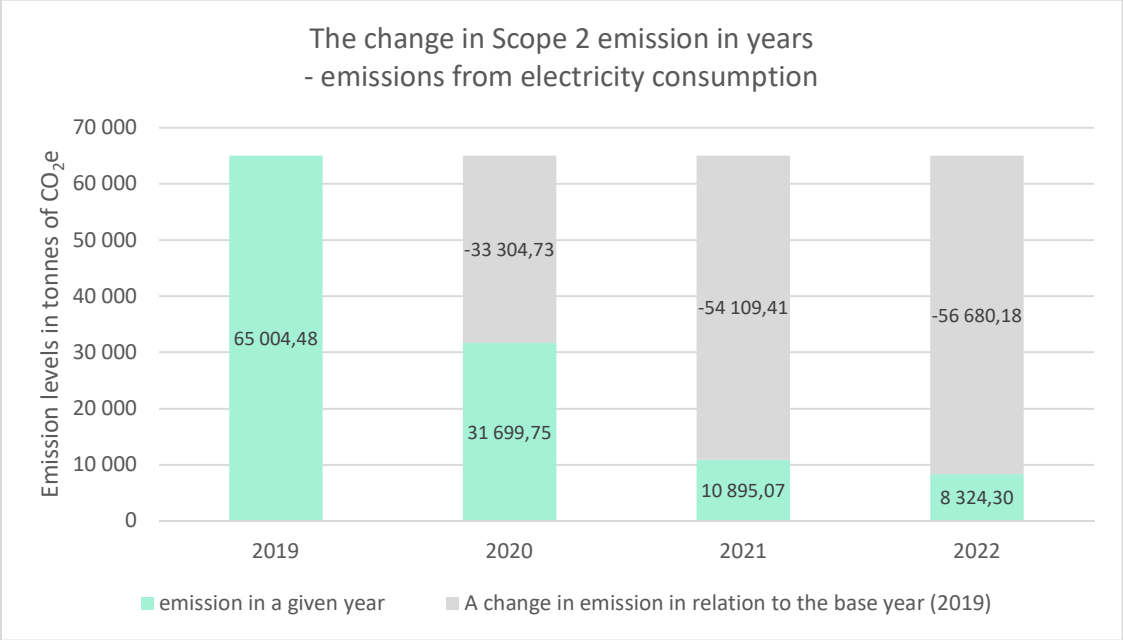


In comparison with the base year (2019), Scope 2 emissions decreased in 2022 by 63.59%:

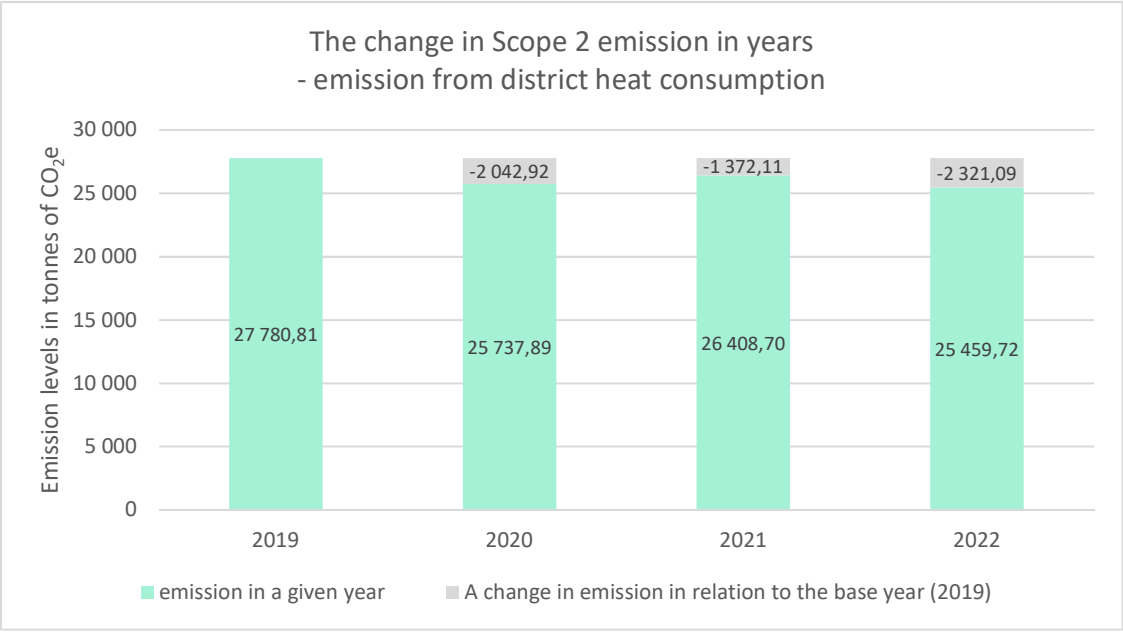
- emissions from electricity consumption decreased by 87.19% (56,680.18 tonnes of CO_2 equivalent),

- emissions from district heat consumption decreased by 8,36% (2,321.09 tonnes of CO_2 equivalent),

Presented below are charts for individual emission types reported in Scope 2.



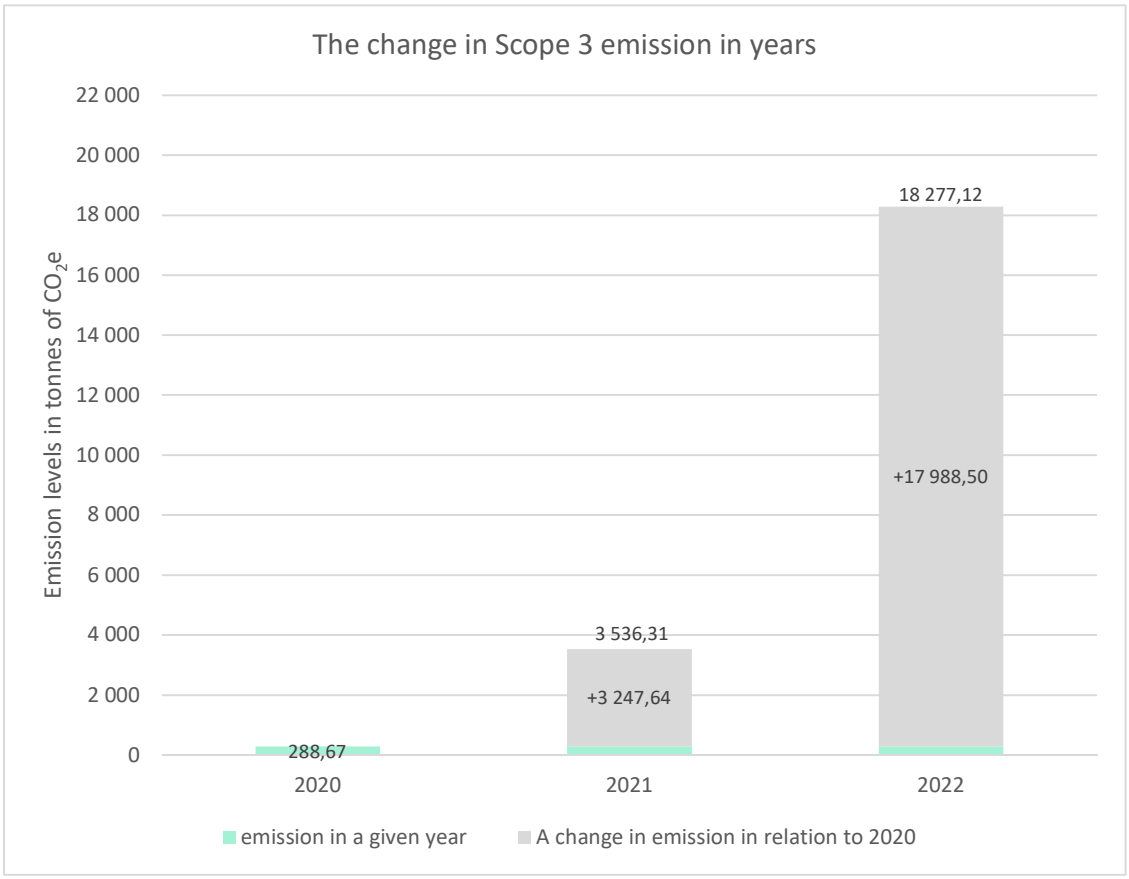
Overall reduction in emission of greenhouse gases from purchased electricity in 2022 amounted to -87.19%, leading to the carbon footprint reduction of 56 680.18 tCO_2e.
In terms of electricity consumption, the Capital Group subsidiaries generated 4 989.62 tCO2e, amounting to 59.9% of the carbon footprint. On the other hand, PKO BP is responsible for the remaining 40.1% of the emission, amounting to 3 334.68 tCO_2e. Annual reductions in emission of the Bank PKO S.A. Capital Group are possible thanks to increased energy effectiveness and the purchase decisions of the Bank, which purchases the Guarantees of Origin of Energy from RES.



REQUIRED INFORMATION

In 2022, the reduced emission of greenhouse gases from district heat consumed by 8.36% (2 321.1 tCO_2e) was due to the (external) weather conditions, which can be described as warmer in comparison with the base year (a decrease in the number of degree days by the average of 4.3% on the national scale0. Comparing the quantity of heat purchased with the base year, heat consumption was reduced by 10.8% (8 399 MWh). PKO BP generated 90.1% of the carbon footprint emitted due to purchase of district heat (22 939.44 tCO_2e), and the remaining 2 520.27 tCO_2e (9,9%) of the carbon footprint is caused by the bank's subsidiaries

Scope 3



Bank PKO S.A. has successively broadened the Scope 3 emissions reported. The annual increase in scope 3 emissions is therefore caused by broadening of the catalogue and fuller reporting of indirect emissions, related to operating activity of the bank and not to increase in emission levels in the areas analysed.

Scope 3:

- in 2019 (base year), scope three was not reported,
- in the year 2020, emissions due to domestic and foreign business trips were reported for the first time in Scope 3,
- in 2021, Scope 3 was broadened to include emissions resulting from employees commuting to work.
- in 2022, Scope 3 was broadened by emissions related to energy and fuels not included in Scopes 1 and 2 (WTT emissions) and emissions due to use of rented space; in addition, the analysis of business trips and employees commuting to work included the subsidiaries.

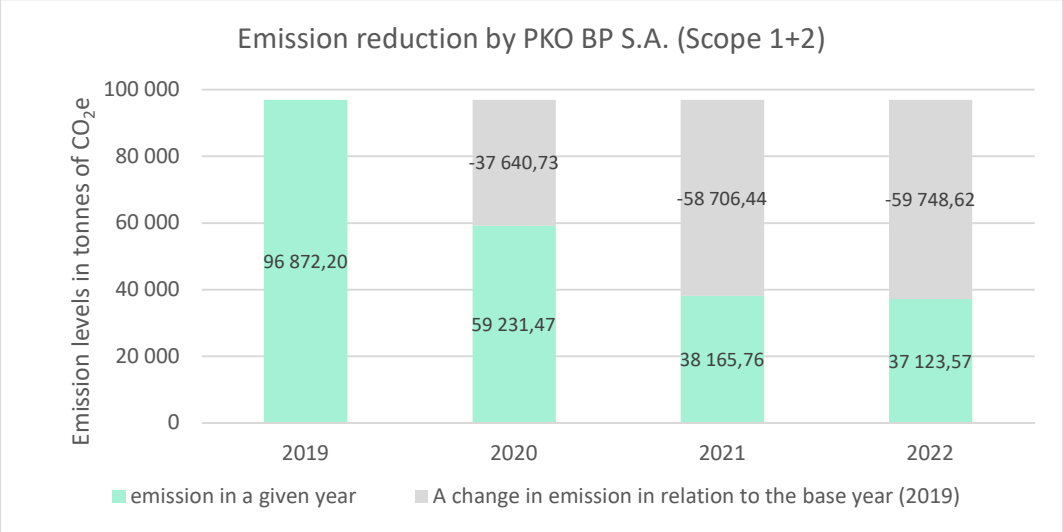
A summary of the strategy or the emission reduction programmes

REQUIRED INFORMATION

In September 2020, PKO Bank Polski S.A. for the first time obtained electrical energy generated by a cogeneration unit supplied with natural gas (a low-emission source). A guarantee of origin of electricity from high-efficiency cogeneration is a document confirming to the end recipient that the volume of electricity specified in the document, fed into the distribution or transmission network, was produced by high-efficiency cogeneration.

In 2021, Year PKO Bank Polski S.A. purchased electricity from water sources generated in a renewable energy source installation. The purchase of a guarantee of origin proves purchase of energy from renewable sources, influencing reduction of CO_2 emission to the environment.

In the year 2021, PKO Bank Polski adopted the ESG indicators, including them in the scope of non-financial objectives of the Bank's Capital Group for the following years. One of the objectives defined is to limit emissions of greenhouse gases by Bank PKO BP S.A. to 40 thousand CO_2e in 2025, that is, by 60% in comparison with emissions generated in the base year (2019).[47]



In 2022, PKO Bank Polski S.A. achieved the carbon footprint reduction of 61.68%, reducing emission by 59 748.62 tCO_2e in relation to the base year.

Analysis of GHG emissions in the Bank Polski Capital Group for the year 2022 in comparison with the base year indicates the following reduction levels:

- 55.33% - the carbon footprint was reduced by 60 066.78 tCO_2e (comparing scope 1+2);

38.49% - the carbon footprint was reduced by 41 789.61 t CO_2e (total emission for compared years).

ADDITIONAL INFORMATION

The source data presented in the above report has been obtained from the following appendices:
Appendix 1. *Analysis of energy consumption in the PKO Bank Polski S.A. Capital Group conducted for the purpose of reporting of emission for the year 2022 in line with the GHG Protocol recommendations*
Appendix 2. *The carbon footprint of CG PKO BP 2022 DEFRA*

Information concerning any contractual provisions concerning risks and commitments related to greenhouse gas emissions.

[47] https://www.pkobp.pl/relacje-inwestorskie/esg-w-grupie-pko-banku-polskiego/emisje-gazow-cieplarnianych/

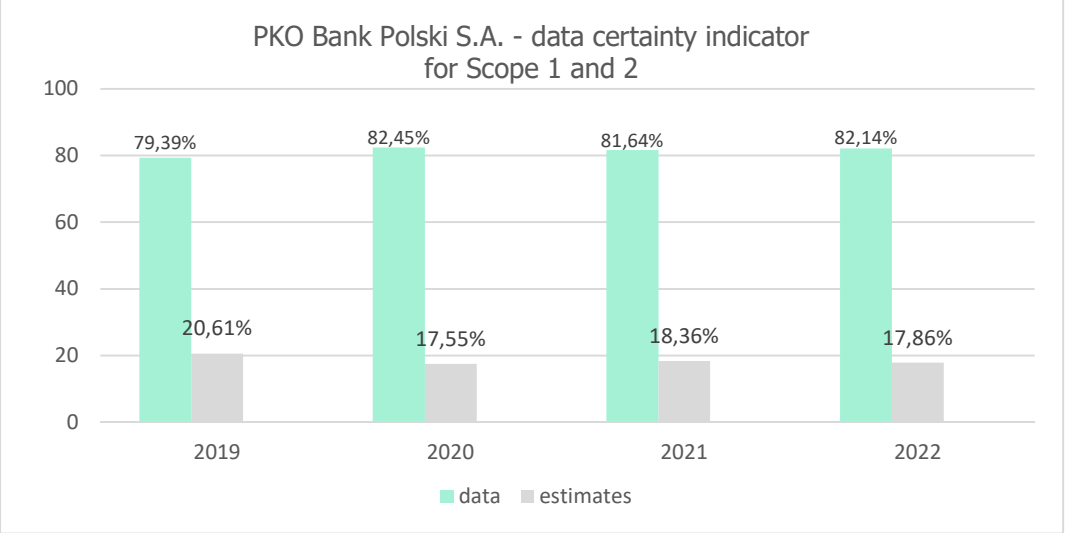
REQUIRED INFORMATION

In year 2021, neither PKO Bank Polski S.A. nor its subsidiaries were parties to agreements related to risks or obligations concerning greenhouse gas emissions.

Information concerning any contractual provisions concerning risks and commitments related to greenhouse gas emissions.
Not applicable.

Information on quality of the records (e.g. information on the causes and scale of uncertainty in emission estimates) and the outline of the existing policies aimed at improving the quality of records
The data needed for calculation of emission referring to consumption of utilities can be divided into two main groups: actual and estimated. Measurement data is based on verified billing meters or statements received from energy suppliers. On the other hand, the estimated part of energy consumption is not directly metered. This is due to the mode of settlement with suppliers or shared consumption with other entities. For example, this applies to facilities located in shopping centres. They may be settled on the basis of a flat rate (e.g. based on leased area), regardless of their actual consumption. In addition, an outlet of this kind uses the infrastructure that consumes energy and working for the needs of various entities, such as shared ventilation and air-conditioning, lighting of shared spaces. As a result of the calculation and estimation processes conducted (described in the chapter on methodology), the data certainty indicator has been achieved[48], referred to as "good" in the *GHG Protocol* standard methodology. Data certainty indicator - PKO Bank Polski S.A. In 2022, the energy data confidentiality index for PKO Bank Polski S.A. amounted to 82.14% for Scopes 1+2, and the benchmark amounted to: - 88.74% for Scope 1 data, - 80.05% for Scope 2 data. In 2019 (after recalculation), the indicator value was: • 81.28% for Scope 1+2 emissions, • 79.39% for Scope 1+2 energy. A direct comparison can be conducted for indicators related to energy, as they are based on the quantity of data reported on energy consumption. This is due to the fact that PKO Bank Polski S.A. does not conduct direct measurements of greenhouse gas emissions, and the entire emission inventory is based directly on determination of consumption of individual types of energy. The chart below presents a change in the data certainty indicator for energy consumption by Bank Polski PKO S.A. over the years.

[48] As a percentage share of data obtained from sources in overall data used for calculation purposes, including data obtained from sources and estimated.



The data certainty indicator for energy consumption increased from 79.39% in 2019 to 82.14% in 2022, that is, by 2.75%. This is due to the increasing intensity of data collection by units of PKO Bank Polski S.A.

Over the years, the data certainty indicator has maintained a similar high level.

Data certainty indicator - the Capital Group

In 2022, the energy data confidentiality index for the PKO Bank Polski S.A. Capital Group amounted to 83.67% for Scopes 1+2, and the benchmark amounted to:

- 90.34% for Scope 1 data,
- 81.16% for Scope 2 data.

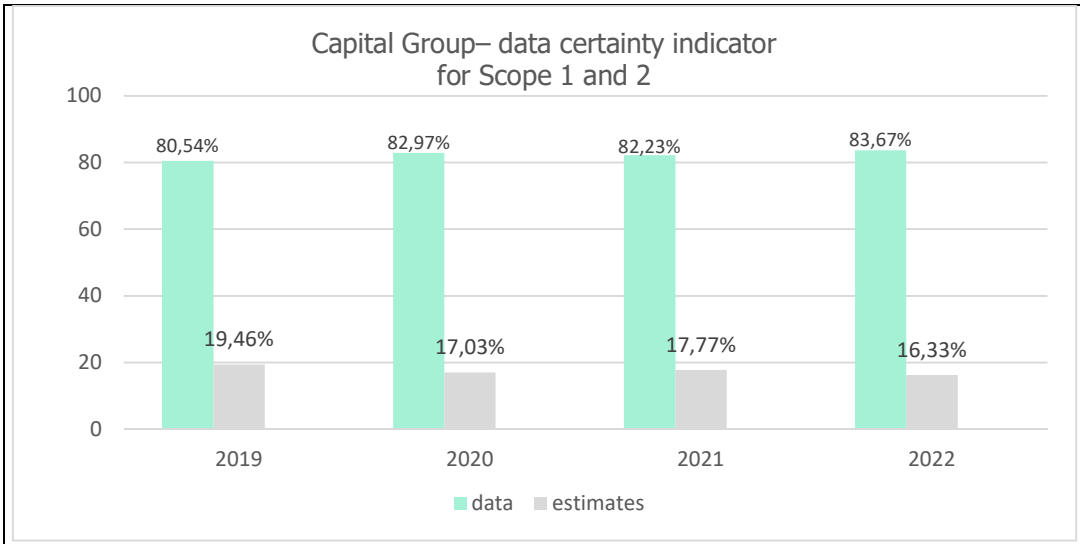
In 2019 (after recalculation), the indicator value was:

- 82.35% for Scope 1+2 emissions,
- 80.54% for Scope 1+2 energy.

A direct comparison can be conducted for indicators related to energy, as they are based on the quantity of data reported on energy consumption. This is due to the fact that the Capital Group of PKO Bank Polski S.A. does not conduct direct measurements of greenhouse gas emissions, and the entire emission inventory is based directly on determination of consumption of individual types of energy.

The chart below presents a change in the data certainty indicator for energy consumption by the Capital Group over the years.

REQUIRED INFORMATION



The data certainty indicator for energy consumption increased from 80.54% in 2019 to 83.67% in 2022, that is, by 3.02%. This is due to increased intensity of data collection by units of the Capital Group.

Over the years, the data certainty indicator has maintained a similar high level.

REQUIRED INFORMATION

ANNEX TO THE REPORT ON EMISSIONS OF GREENHOUSE GASES for the PKO BP S.A. Capital Group FOR YEAR 2022

List of tables

NON-COMPULSORY INFORMATION

Table 1.1.
Greenhouse gas emissions in 2022 according to organisation - the market-based method [in tCO_2e]

Emissions	**TOTAL (tCO_2e)**	CO_2 (t)	CH_4 (t)	N_2O (t)	HFCs (t)	PFCs (t)	SF6 (t)
PKO BP							
Scope 1	10,849.45	9,749.47	25.28	31.82	1,042.88	0.00	0.00
Scope 2	26,274.12	26,274.12	0.00	0.00	0.00	0.00	0.00
Total Scope 1 and 2	37,123.57	9,749.47	25.28	31.82	1,042.88	0.00	0.00
Scope 3	14,840.95	14,765.48	63.00	12.46	0.00	0.00	0.00
Total Scope 1, 2 and 3	51,964.52	50,789.08	37.74	94.82	1,042.88	0.00	0.00
SGK							
Scope 1	3,866.38	3,733.69	7.68	21.89	103 13	0.00	0.00
Scope 2	7,509.89	7,509.89	0.00	0.00	0.00	0.00	0.00
Total Scope 1 and 2	11,376.28	3,733.69	7.68	21.89	103 13	0.00	0.00
Scope 3	3,436.22	3,436.02	0.03	0.17	0.00	0.00	0.00
Total Scope 1, 2 and 3	14,812.50	14,679.60	7.71	22.06	103.13	0.00	0.00
Total CG							
Scope 1	14,715.83	13,483.16	32.96	53.71	1,146.01	0.00	0.00
Scope 2	33,784.02	33,784.02	0.00	0.00	0.00	0.00	0.00
Total Scope 1 and 2	48,499.85	13,483.16	32.96	53.71	1,146.01	0.00	0.00
Scope 3	18,277.17	9,282.59	12.49	63.18	0.00	0.00	0.00
Total Scope 1, 2 and 3	66,777.02	65,468.67	45.45	116.88	1,146.01	0.00	0.00

NON-COMPULSORY INFORMATION

Table 1.2.
Greenhouse gas emissions according to organisation - difference in emission in year 2022 compared to base year (2019) after recalculation, the market-based method [in tCO_2e]

Emissions	**TOTAL (tCO2e)**	CO_2 (t)	CH_4 (t)	N_2O (t)	HFCs (t)	PFCs (t)	SF6 (t)
PKO BP							
Scope 1	-2,293.96	-3,393.94	-6.61	-6.34	130.42	0.00	0.00
Scope 2	-57,454.66	-57,454.66	0.00	0.00	0.00	0.00	0.00
Total Scope 1 and 2	-59,748.62	-59,748.62	-6.61	-6.34	130.42	0.00	0.00
Scope 3	-	-	-	-	-	-	-
Total Scope 1, 2 and 3	-	-	-	-	-	-	-
SGK							
Scope 1	1,228.45	1,116.63	3.75	4.99	0.00	0.00	0.00
Scope 2	-1,546.61	-1,546.61	0.00	0.00	0.00	0.00	0.00
Total Scope 1 and 2	-318.16	-318.16	3.75	4.99	0.00	0.00	0.00
Scope 3	-	-	-	-	-	-	-
Total Scope 1, 2 and 3	-	-	-	-	-	-	-
Total CG							
Scope 1	-1,065.51	-1,294.53	-2.86	-1.35	0.00	0.00	0.00
Scope 2	-59 001.27	-59 001.27	0.00	0.00	0.00	0.00	0.00
Total Scope 1 and 2	-60,066.78	-60,066.78	-2.86	-1.35	130.42	0.00	0.00
Scope 3	-	-	-	-	-	-	-
Total Scope 1, 2 and 3	-	-	-	-	-	-	-

Table 2.1.
Fuel consumption: absolute values in 2022 [in kWh]

	PKO BP			SGK			CG		
	data	estimates	total	data	estimates	total	data	estimates	total
Fuels used in buildings									
high-methane natural gas	12,228,858.13	4,576,670.86	16,805,528.99	768,379.49	16,467.32	784,846.81	12,997,237.62	4,593,138.18	17,590,375.80
nitrogen-rich natural gas	841,208.85	0.00	841,208.85	1,984,324.67	833,745.74	2,818,070.41	2,825,533.52	833,745.74	3,659,279.26
heating oil	1,579,336.78	209,633.32	1,788,970.09	7,720.89	0.00	7,720.89	1,587,057.67	209,633.32	1,796,690.99
diesel oil	71,276.80	0.00	71,276.80	51,309.75	0.00	51,309.75	122,586.55	0.00	122,586.55
LPG	0.00	0.00	0.00	9,264.35	0.00	9,264.35	9,264.35	0.00	9,264.35
brown coal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hard coal	0.00	96,242.01	96,242.01	0.00	0.00	0.00	0.00	96,242.01	96,242.01
Total fuel used in buildings	14,720,680.55	4,882,546.19	19,603,226.74	2,820,999.14	850,213.06	3,671,212.20	17,541,679.69	5,732,759.25	23,274,438.94
Fuels used in vehicles									
diesel oil	1,736,941.83	0.00	1,736,941.83	4,125,117.55	0.00	4,125,117.55	5,862,059.38	0.00	5,862,059.38
LPG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
gasoline	22,036,866.49	0.00	22,036,866.49	8,179,634.97	0.00	8,179,634.97	30,216,501.46	0.00	30,216,501.46
Total fuel used in vehicles	23,773,808.32	0.00	23,773,808.32	12,304,752.52	0.00	12,304,752.52	36,078,560.84	0.00	36,078,560.84
Total fuels corresponding with Scope 1 emissions	38,494,488.88	4,882,546.19	43,377,035.07	4,125,117.55	0.00	4,125,117.55	42,619,606.43	4,882,546.19	47,502,152.62
Energy purchased									
electricity	68,550,260.56	5,480,495.87	74,030,756.43	13,117,007.10	534,749.14	13,651,756.24	81,667,267.66	6,015,245.01	87,682,512.67
heat energy	41,302,900.5	211 49985.72	62,452,886.22	5,042,846.81	1,818,616.71	6,861,463.52	46,345,747.31	22,968,602.43	69,314,349.74
Total energy purchased, corresponding with Scope 2 emissions	109,853,161.1	26,630,481.59	136,483,642.6	18,159,853.91	2,353,365.85	20,513,219.76	128013 015.01	28,983,847.44	156996 862.45
Total energy corresponding with Scope 1 and 2 emissions	148347 649.94	31,513,027.78	179860 677.71	33,285,605.57	3,203,578.91	36,489,184.48	170,632,621.44	33,866,393.63	204,499,015.07

Table 2.2.
Fuel consumption: absolute values - 2022 compared to 2019 [in kWh]

	PKO BP			SGK			CG		
	2022	2019	difference	2022	2019	difference	2022	2019	**difference**
Fuels used in buildings									
high-methane natural gas	16,805,528.99	20,465,060.09	-3,659,531.10	784,846.81	2,939,802.29	-2,154,955.48	17,590,375.80	23,404,862.38	-5,814,486.58
nitrogen-rich natural gas	841,208.85	0.00	841,208.85	2,818,070.41	0.00	2,818,070.41	3,659,279.26	0.0	3,659,279.26
heating oil	1,788,970.09	3,367,591.00	-1,578,620.91	7,720.89	132,432.55	-124,711.66	1,796,690.99	3,500,023.55	-1,703,332.56
diesel oil	71,276.80	81,469.00	-10,192.20	51,309.75	16,759.20	34,550.55	122,586.55	98,228.20	24,358.35
LPG	0.00	0.00	0.00	9,264.35	5,718.04	3,546.31	9,264.35	5,718.04	3,546.31
brown coal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hard coal	96,242.01	207,666.67	-111,424.66	0.00	0.00	0.00	96,242.01	207,666.67	-111,424.66
Total fuel used in buildings	19,603,226.74	24,121,786.76	-4,518,560.02	3,671,212.20	3,094,712.08	576,500.12	23,274,438.94	27,216,498.84	-3,942,059.90
Fuels used in vehicles									
diesel oil	1,736,941.83	1,211,092.62	525,849.21	4,125,117.55	4,093,034.42	32,083.13	5,862,059.38	5,304,127.04	557,932.34
LPG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
gasoline	22,036,866.49	27,485,590.87	-5,448,724.38	8,179,634.97	5,810,136.11	2,369,498.86	30,216,501.46	33,295,726.98	-3,079,225.52
Total fuel used in vehicles	23,773,808.32	28,696,683.49	-4,922,875.17	12,304,752.52	9,903,170.53	2,401,581.99	36,078,560.84	38,599,854.02	-2,521,293.18
Total fuels corresponding with Scope 1 emissions	43,377,035.07	52,818,470.25	-9,441,435.18	4,125,117.55	12,997,882.61	-8,872,765.06	47,502,152.62	65,816,352.86	-18,314,200.24
Energy purchased									
electricity	74,030,756.43	81,675,347.78	-7,644,591.35	13,117,007.10	11,034,126.46	2,082,880.64	87,682,512.67	92,709,474.24	-5,026,961.57
heat energy	62452886.22	68,774,176.29	-6,321,290.07	5,042,846.81	8,938,718.85	-3,895,872.04	69,314,349.74	77,712,895.14	-8,398,545.40
Total energy purchased, corresponding with Scope 2 emissions	136483 642.6	150,449,524.07	-13,965,881.47	18,159,853.91	19,972,845.31	-1,812,991.40	156,996,862.45	170,422,369.38	-13,425,506.93
Total energy corresponding with Scope 1 and 2 emissions	179,860,677.71	203,267,994.32	-23,407,316.61	36,489,184.48	32,970,727.92	3,518,456.56	204,499,015.07	236,238,722.23	-31,739,707.16

Table 3.1.
Fuel consumption in 2019: data and estimate percentages [in %]

	PKO BP		SGK		CG	
	data	estimates	data	estimates	data	estimates
Fuels used in buildings						
natural gas	67.67%	32.33%	70.01%	29.99%	67.97%	32.03%
heating oil	100.00%	0.00%	100.00%	0.00%	100.00%	0.00%
diesel oil	100.00%	0.00%	100.00%	0.00%	100.00%	0.00%
LPG	0.00%	0.00%	100.00%	0.00%	100.00%	0.00%
brown coal	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
hard coal	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%
Total fuel used in buildings	72.57%	27.43%	71.51%	28.49%	72.45%	27.55%
Fuels used in vehicles						
diesel oil	100.00%	0.00%	100.00%	0.00%	100.00%	0.00%
LPG	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
gasoline	100.00%	0.00%	100.00%	0.00%	100.00%	0.00%
Total fuel used in vehicles	100.00%	0.00%	100.00%	0.00%	100.00%	0.00%
Total fuels corresponding with Scope 1 emissions	87.47%	12.53%	93.22%	6.78%	88.61%	11.39%
Energy purchased						
electricity	85.80%	14.20%	97.59%	2.41%	87.20%	12.80%
heat energy	65.57%	34.43%	67.19%	32.81%	65.75%	34.25%
Total energy purchased, corresponding with Scope 2 emissions	76.55%	23.45%	83.99%	16.01%	77.42%	22.58%
Total energy corresponding with Scope 1 and 2 emissions	79.39%	20.61%	87.62%	12.38%	80.54%	19.46%

Table 3.2.
Fuel consumption in 2022: data and estimate percentages [in %]

	PKO BP		SGK		CG	
	data	estimates	data	estimates	data	estimates
Fuels used in buildings						
high-methane natural gas	72.77%	27.23%	97.90%	2.10%	73.89%	26.11%
nitrogen-rich natural gas	100.00%	0.00%	70.41%	29.59%	77.22%	22.78%
heating oil	88.28%	11.72%	100.00%	0.00%	88.33%	11.67%
diesel oil	100.00%	0.00%	100.00%	0.00%	100.00%	0.00%
LPG	0.00%	0.00%	100.00%	0.00%	100.00%	0.00%
brown coal	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
hard coal	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%
Total fuel used in buildings	75.09%	24.91%	76.84%	23.16%	75.37%	24.63%
Fuels used in vehicles						
diesel oil	100.00%	0.00%	100.00%	0.00%	100.00%	0.00%
LPG	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
gasoline	100.00%	0.00%	100.00%	0.00%	100.00%	0.00%
Total fuel used in vehicles	100.00%	0.00%	100.00%	0.00%	100.00%	0.00%
Total fuels corresponding with Scope 1 emissions	88.74%	11.26%	94.68%	5.32%	90.34%	9.66%
Energy purchased						
electricity	92.60%	7.40%	96.08%	3.92%	93.14%	6.86%
heat energy	66.13%	33.87%	73.50%	26.50%	66.86%	33.14%
Total energy purchased, corresponding with Scope 2 emissions	80.49%	19.51%	88.53%	11.47%	81.54%	18.46%
Total energy corresponding with Scope 1 and 2 emissions	82.48%	17.52%	91.22%	8.78%	83.95%	16.05%

Table 4.1.
Base year emissions: a comparison of the base year (2019) before and after the recalculation [in tCO_2e]

	PKO BP			SGK			CG		
	2019	2019 after recalculation	difference	2019	2019 after recalculation	difference	2019	2019 after recalculation	difference
Refrigeration	912.46	912.46	0.00	0.00	0.00	0.00	912.46	912.46	0.00
Emission from fuels used in buildings									
high-methane natural gas	4,145.06	4,180.60	35.54	595.44	600.54	5.1	4,740.50	4,781.15	40.65
nitrogen-rich natural gas			0.00			0			0.00
heating oil	943.59	876.35	-67.24	37.11	34.46	-2.65	980.70	910.81	-69.89
diesel oil	21.86	21.20	-0.66	4.50	0.16	-4.34	26.36	21.36	-5.00
LPG	0.00	0.00	0.00	1.30	1.32	0.02	1.30	1.32	0.02
brown coal	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00
hard coal	73.99	75.36	1.37	0.00	0.00	0	73.99	75.36	1.37
Total emission from fuels used in buildings	5,184.50	5,153.51	-30.99	638.34	636.48	-1.87	5,822.84	5,789.99	-32.85
Emission from fuels used in vehicles									
diesel oil	352.37	315.16	-37.21	1,155.54	1,013.00	-142.54	1,507.92	1,328.16	-179.76
LPG	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00
gasoline	6,278.80	6,762.28	483.48	1,877.48	988.45	-889.03	8,156.27	8,156.28	0.01
Total emission from fuels used in vehicles	6,631.17	7,077.44	446.27	3,033.02	2,001.45	-1,031.57	9,664.19	9,078.90	-585.29
Total emissions in Scope 1	12,728.13	12,230.95	415.28	3,671.36	2,637.93	-1,033.44	16,399.50	14,868.90	-618.13
Emissions from purchased energy									
electricity	62,481.64	59,143.39	-3,338.25	6,948.96	5,861.09	-1,087.87	69,430.60	65,004.48	-4,426.12
heat energy	24,585.39	24,585.39	0.00	3,095.70	3,195.41	99.71	27,681.09	27,780.81	99.72
Total emissions in Scope 2	87,067.03	83,728.78	-3,338.25	10,044.66	9,056.50	-9 88.16	97,111.69	92,785.29	-4,326.40
Total emissions in Scope 1 and 2	99,795.17	95,959.73	-2,922.97	13,716.02	12,726.00	-2,021.6	113,511.19	114,496.84	-4,944.53
Emissions from employee business trips									
Domestic and foreign business trips	-	-	-	-	-	-	-	-	-
Employees commuting to work	-	-	-	-	-	-	-	-	-
Total emissions in Scope 3[49]	-	-	-	-	-	-	-	-	-
Total emissions in Scope 1, 2 and 3	-	-	-	-	-	-	-	-	-

[49] Scope 3 was not reported in 2019.

Table 4.2.
Emissions in 2022: a comparison of the market-based method and the location-based method [in tCO_2e]

	PKO BP			SGK			CG		
	market-based	location-based	difference	market-based	location-based	difference	market-based	location-based	difference
Refrigeration	1,042.88	1,042.88	0.00	103.13	103.13	0.00	1,146.01	1,146.01	0.00
Emission from fuels used in buildings									
high-methane natural gas	3,399.25	3,399.25	0.00	158.75	158.75	0.00	3,558.00	3,558.00	0.00
nitrogen-rich natural gas	170.15	170.15	0.00	570.01	570.01		740.16	740.16	
heating oil	458.53	458.53	0.00	1.98	1.98	0.00	460.51	460.51	0.00
diesel oil	18.27	18.27	0.00	13.15	13.15	0.00	31.42	31.42	0.00
LPG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
brown coal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
hard coal	34.91	34.91	0.00	0.00	0.00	0.00	34.91	34.91	0.00
Total emission from fuels used in buildings	4,062.85	4,062.85	0.00	743.89	743.89	0.00	4,806.74	4,806.74	0.00
Emission from fuels used in vehicles									
diesel oil	445.20	445.20	0.00	1,057.31	1,057.31	0.00	1,502.51	1,502.51	0.00
LPG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
gasoline	5,280.25	5,280.25	0.00	1,959.92	1,959.92	0.00	7,240.17	7,240.17	0.00
Total emission from fuels used in vehicles	5,725.45	5,725.45	0.00	3,019.36	3,019.36	0.00	8,744.81	8,744.81	0.00
Total emissions in Scope 1	10,849.45	10,849.45	0.00	3,866.38	3,866.38	0.00	14,715.83	14,715.83	0.00
Emissions from purchased energy									
electricity[50]	3,334.68	49,289.13	-45,954.45	4989.62	5,667.64	-678.01	33,784.01	80,416.49	-46,632.47
heat energy	22,939.44	22,939.44	0.00	2,520.27	2,520.27	0.00	25,459.71	25,459.71	0.00
Total emissions in Scope 2	26,274.12	72,228.58	-45,954.45	7,509.89	8,187.91	-678.01	33,784.02	80,416.49	-46,632.47
Total emissions in Scope 1 and 2	37,123.57	82,078.03	-45,954.45	11,376.28	12,054.29	-678.01	50,691.87	98,784.07	-46,632.47
Cat. 3 WTT emissions	3,986.83	3,986.83	0.00	3,412.99	3,412.99	0.00	7,399.82	7,399.82	0.00
Cat. 6 Business trips	513.01	513.01	0.00	6.04	6.04	0.00	519.05	519.05	0.00
Cat. 7 Employees commuting to work	8,693.62	8,693.62	0.00	17.19	17.19	0.00	8,710.81	8,710.81	0.00
Cat. 13 Rented spaces	1,647.49	1,647.49	0.00	-	-	-	1,647.49	1,647.49	0.00
Total emissions in Scope 3[51]	14,840.95	14,840.95	0.00	3,436.22	3,436.22	-	18,277.17	18,277.17	0.00
Total emissions in Scope 1, 2 and 3	51,964.52	97,918.97	-45,954.45	14,812.50	15,490.51	-678.01	66,777.02	113,409.48	-46,632.47

[50] High reduction of greenhouse gas emission in Scope 2 results, among other things, from purchase by PKO Bank Polski S.A. of electricity generated by wind and solar sources (energy from renewable sources). The guarantees of origin were provided for 69 000 MWh, ascribed in total to PKO Bank.

Table 4.3.
Emissions in 2022 according to source: source data and estimates - the market-based method [in tCO_2e]

	PKO BP			SGK			CG		
	data	estimates	total	data	estimates	total	data	estimates	total
Refrigeration	1,042.88	0.00	1,042.88	103.13	0.00	103.13	1,146.01	0.00	1,146.01
Emission from fuels used in buildings									
high-methane natural gas	2,473.63	925.62	3,399.25	155.42	3.33	158.75	2,629.05	928.95	3,558.00
nitrogen-rich natural gas	170.15	0.00	170.15	401.34	168.67	570.01	571.49	168.67	740.16
heating oil	404.79	53.74	458.53	1.98	0.00	1.98	406.77	53.74	460.51
diesel oil	18.27	0.00	18.27	13.15	0.00	13.15	31.42	0	31.42
LPG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
brown coal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
hard coal	0.00	34.91	34.91	0.00	0.00	0.00	0.00	34.91	34.91
Total emission from fuels used in buildings	3,101.75	979.36	4,062.85	571.89	172.00	743.89	3,673.64	1151.36	4,825.00
Emission from fuels used in vehicles									
diesel oil	445.20	0.00	445.20	1,057.31	0.00	1,057.31	1,502.51	0	1,502.51
LPG	0.00	0.00	0.00	2.13	0.00	2.13	2.13	0	2.13
gasoline	5,280.25	0.00	5,280.25	1,959.92	0.00	1,959.92	7,240.17	0	7,240.17
Total emission from fuels used in vehicles	5,725.45	0.00	5,725.45	3,019.36	0.00	3,019.36	8,744.81	0	8,744.81
Total emissions in Scope 1	9,870.08	979.37	10,849.45	3,591.25	172.00	3,866.38	13,461.33	1,151.37	14,612.70
Emissions from purchased energy									
electricity[52]	0.00	3,334.68	3,334.68	4,794.03	195.59	4,989.62	4,794.03	3,530.27	8,324.30
heat energy	15,169.85	7,769.59	22,939.44	1,852.40	667.87	2,520.27	17,022.25	8,437.46	25,459.71
Total emissions in Scope 2	18,248.35	8,015.60	26,263.95	6,646.43	863.46	7,509.89	24,894.78	8,879.06	33,773.84
Total emissions in Scope 1 and 2	30,619.52	6,504.05	37,123.57	10,771.06	605.22	11,376.28	41,390.58	7109.27	48,499.85
Cat. 3 WTT emissions									
Cat. 6 Business trips									
Cat. 7 Employees commuting to work									
Cat. 13 Rented spaces									
Total emissions in Scope 3									
Total emissions in Scope 1, 2 and 3									

Table 4.4.
Comparison of emissions in 2022 with 2019 after recalculation - the market-based method [tCO_2e]

	PKO BP			SGK			CG		
	2022	2019 after recalculation	difference	2022	2019 after recalculation	difference	2022	2019 after recalculation	difference
Refrigeration	1,042.88	912.46	130.42	103.13	0.00	103.13	1,146.01	912.46	233.55
Emission from fuels used in buildings									
high-methane natural gas	3,399.25	4,180.60	-781.35	158.75	600.54	-441.79	3,558.00	4,781.15	-1,223.15
nitrogen-rich natural gas	170.15		170.15	570.01		570.01	740.16		740.16
heating oil	458.53	876.35	-417.82	1.98	34.46	-32.48	460.51	910.81	-450.30
diesel oil	18.27	21.20	-2.93	13.15	0.16	12.99	31.42	21.36	10.06
LPG	0.00	0.00	0.00	0.00	1.32	-1.32	0.00	1.32	-1.32
brown coal	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00
hard coal	34.91	75.36	-40.45	0.00	0.00	0	34.91	75.36	-40.45
Total emission from fuels used in buildings	4,062.85	5,153.51	-1,090.66	743.89	636.48	107.41	4,825.00	5,789.99	-964.99
Emission from fuels used in vehicles									
diesel oil	445.20	315.16	130.04	1,057.31	1,013.00	44.31	1,502.51	1,328.16	174.35
LPG	0.00	0.00	0.00	2.13	0.00	2.13	2.13	0.00	2.13
gasoline	5,280.25	6,762.28	-1,482.03	1,959.92	988.45	971.47	7,240.17	8,156.28	-916.11
Total emission from fuels used in vehicles	5,725.45	7,077.44	-1,351.99	3,019.36	2,001.45	1,017.91	8,744.81	9,078.90	-334.09
Total emissions in Scope 1	10,849.45	12,230.95	-1,381.50	3866.38	2,637.93	1,228.45	14,612.70	14,868.90	-256.20
Emissions from purchased energy									
electricity	3,334.68	59,143.39	-55,808.71	4989.62	5,861.09	0	8,324.30	65,004.48	-56,680.18
heat energy	22,939.44	24,585.39	-1,645.95	2,520.27	3,195.41	-871.47	25,459.71	27,780.81	-2,321.10
Total emissions in Scope 2	26,263.95	83,728.78	-57,464.83	7,509.89	9,056.50	-675.14	33,773.84	92,785.29	-59,011.45
Total emissions in Scope 1 and 2	37,123.57	95,959.73	-58,836.16	11,376.28	12,726.00	-1,546.61	48,499.85	114,496.84	-65,996.99
Cat. 3 WTT emissions	3,986.83	-	3,986.83	3,412.99	-	3,412.99	7,399.82	-	7,399.82
Cat. 6 Business trips	513.01	-	513.01	6.04	-	6.04	519.05	-	519.05
Cat. 7 Employees commuting to work	8,693.62	-	8,693.62	17.19	-	17.19	8,710.81	-	8,710.81
Cat. 13 Rented spaces	1,647.49	-	1,647.49	-	-	-	1,647.49	-	1,647.49
Total emissions in Scope 3	14,840.95	-	14,840.95	3,436.22	-	3,436.22	18,277.17	-	18,277.17
Total emissions in Scope 1, 2 and 3	51,964.52	96,872.20	-44,907.68	14,812.50	11,694.43	3,118.06	66,777.02	108,566.63	-41,789.61

NON-COMPULSORY INFORMATION

ANNEX NO. 2 TO THE REPORT ON EMISSIONS OF GREENHOUSE GASES for the PKO BP S.A. Capital Group FOR YEAR 2022

Abbreviations used in the report:

- CH_4 – methane;
- CO_2 – carbon dioxide;
- HFCs – hydrofluorocarbons;
- kg – kilogram;
- kWh – kilowatt hour (amount of power used during 1 hour by a device with a capacity of 1 kW);
- tCO2e – megagram (tonne) of carbon dioxide equivalent;
- MJ – mega joule;
- MWh – megawatt-hour (amount of power used during 1 hour by a device with a capacity of 1 MW, equal to 1000 kWh);
- N_2O – di-nitrous oxide;
- PFCs – perfluorocarbons
- SF_6 – sulphur hexafluoride

Definitions:

- carbon dioxide equivalent – amount that defines the concentration of carbon dioxide, the emission of which to the atmosphere has an identical effect as a given concentration of a comparable greenhouse gas;
- greenhouse gases – gaseous components of the atmosphere involved in the greenhouse effect;
- GHG Protocol – The Greenhouse Gas Protocol Corporate Accounting and Reporting Standard Revised Edition, guidelines pertaining to reporting the organisation's carbon footprint;
- GHG Protocol Scope 2 Guidance – guidelines concerning Scope 2 that standardise the way in which particular organisations measure emissions from the purchased or acquired electric power, heat and cold;
- location-based method – method of quantitative determination of greenhouse gas emission under Scope 2 on the basis of emission factors for specific locations, taking into account for example national borders;
- market-based method – method of quantitative determination of greenhouse gas emission under Scope 2 on the basis of emitted greenhouse gas emissions by generators, from which under a contract the applicant purchases electric power associated with guarantees of origin of power or, separately, power origin guarantees;
- recalculation of base year emission – recalculation of base year emission arising from meeting of criteria specified in the policy adopted by the organisation regarding the conversion of emission of base year or in general criteria specified in the GHG Protocol;
- base year – specific year or mean value from several years, in relation to which the organisation compares the reported emissions;
- carbon footprint of the organisation– total sum of greenhouse gases emission caused either directly or indirectly by the organisation;
- emission factor – average value of greenhouse gas emission per unit of consumed power;
- Scope 1 – this scope comprises direct emissions generated as a result of fuel combustion in stationary or mobile sources owned by an organisation or supervised by such an organisation, emissions arising from technological processes, as well as caused by the release of refrigerants;
- Scope 2 – this scope comprises indirect emissions generated as a result of consumption of electric power (purchased from other entities), heat and cold;
- Scope 3 – this scope comprises other indirect emissions generated in the entire supply chain, e.g. as a result of generation and transport of raw materials or semi-products, waste management, business trips of staff members, and also the use of products by final users. This scope is non-compulsory.