Greenhouse gas emissions Inventory

Nexa Resources

2024

Nexa Resources

Company Name: Nexa Resources

CNPJ: 42.416651/0016-93

Economic sector: Extractive industries

Sub-sector: Extraction of non-ferrous metallic minerals

Adress (administrative office): Engenheiro Luiz Carlos Berrini, 105 – 6º andar – São Paulo – Cidade Monções – SP - 04571-900

Responsible for publishing the inventory: Júlia Morelli Faria (julia.faria@nexaresources.com)

1. INSTITUTIONAL INFORMATION

We are one of the five largest zinc producers in the world and, in addition to metallic zinc and by-products, we produce silver, gold, copper, and lead concentrate. We have almost 70 years of experience in developing and operating mining and metallurgy assets in Latin America.

The base metals that make up our portfolio are essential for supplying sectors such as construction, transportation, energy, agriculture, healthcare, and consumer goods. Zinc is at the core of our operations, and its applications generate essential products for the energy transition, the development of a low-carbon economy, and people's daily lives. Copper, in turn, is fundamental for infrastructure and the development of clean technologies, such as batteries for renewable energy and electrical systems.

Nexa Resources S.A. was established in 2017, following the integration of the Brazilian operations of Votorantim Metais and the Peruvian operations of Milpo, and is part of the portfolio of companies invested by Votorantim S.A., our main shareholder, holding 64.68% of the total capital.

We have shares traded on the New York Stock Exchange (NYSE) since 2017, and Nexa Peru shares are traded on the Lima Stock Exchange (BVL). Our headquarters are located in the city of Luxembourg (Luxembourg), and we have administrative offices in São Paulo (Brazil) and Lima (Peru). We are more than 17,000 professionals, including employees and contractors.

Our operation includes 5 polymetallic mines, with 3 in Peru – Cerro Lindo, El Porvenir, and Atacocha – and 2 in Brazil – Vazante and Aripuanã. In 2024, we processed 12 million tons of ore in our units.

We also operate 3 zinc smelters – Cajamarquilla in Peru, one of the seven largest in the world and the largest in the Americas, and Três Marias and Juiz de Fora in Brazil, which produce metallic zinc, zinc oxide, and by-products. We have an integrated chain, and more than half of the zinc concentrate that supplies our metallurgy units comes from our mining assets.

Thus, we account for 4% of the world's zinc production and are the only producer of metallic zinc in Latin America, excluding Mexico. We also have brownfield and greenfield mineral exploration projects in Peru, Brazil, and Namibia.

In 2024, we produced 560,163 tons of metallic zinc and 34,569 tons of metallurgy by-products.

2. INVENTORY DATA AND LIMITS

Responsible for drawing up the inventory: Júlia Morelli Faria

E-mail address of person responsible: julia.faria@nexaresources.com

Year of inventory: 2024

The inventory has been verified by a third party: Yes

Verifying body: Bureau Veritas

Responsável pela verificação: Adriano Angelotti

E-mail of the person responsible for verification:
adriano.angelotti2.ext@bureauveritas.com

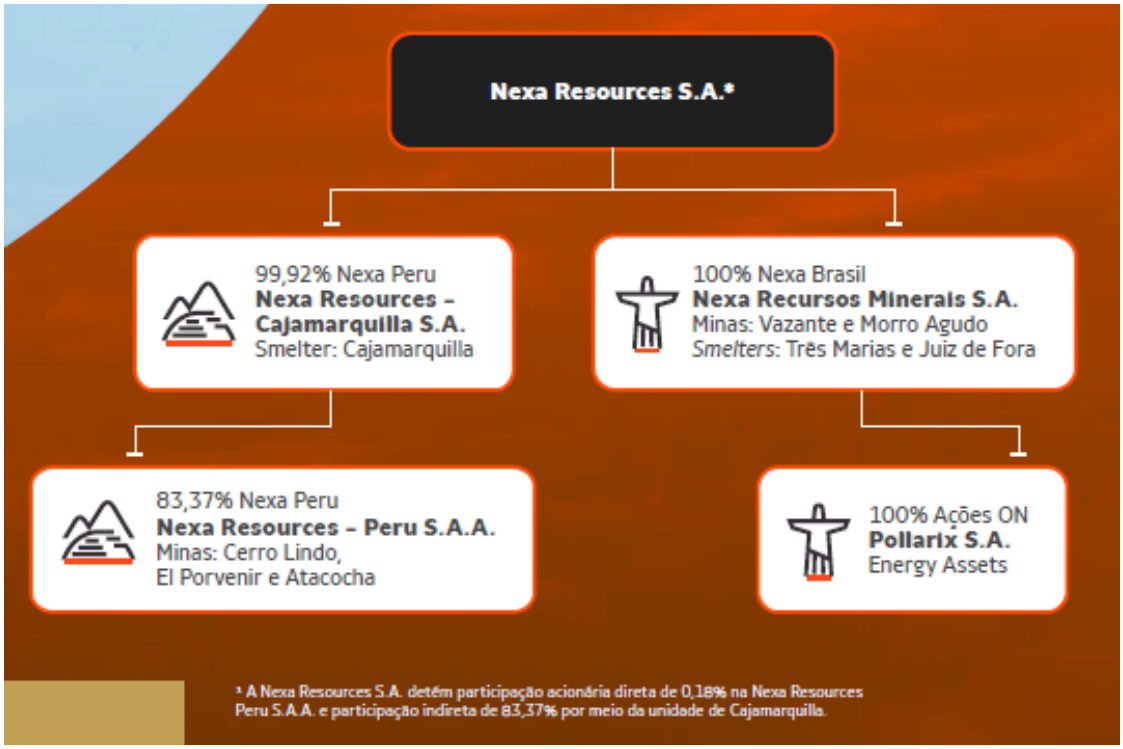
Type of inventory: Complete

2.1. Organizational Limits

Below is a list of the organization's units and controlled companies included in this inventory. In the second quarter of 2024, Nexa signed a definitive agreement for the sale of the Morro Agudo Complex, which encompasses the Morro Agudo and Ambrósia mines, located in the State of Minas Gerais. A polymetallic underground mine, it began operations in 1988. Casa Verde Holding Ltd. acquired the asset with the objective of converting it into a limestone production complex. The acquisition includes all assets, surface and mining rights, equipment,

and related inventories. However, this unit is still included in this report, accounting for the months it operated under Nexa's responsibility.

The disaggregated reporting of emissions is mandatory for units with Scope 1 emissions equal to or greater than 10.000,00 tCO_2e per year. Reporting emissions from other units, as well as from controlled companies, is optional. Disaggregated emissions by operational unit can be found in Section 2.7 – Emissions by Operational Units.



Caption:

M Parent Company C Subsidiary U Unit

[Parent company has operational control? | % of shareholding related to the Parent Company]

M Nexa Resources

U	Aripuanã – Mining - Brazil	[Yes	l	100%]
U	Vazante – Mining - Brazil	[Yes	l	100%]
U	Morro Agudo – Mining - Brazil	[Yes	l	100%]
U	Três Marias – Metallurgy – Brazil	[Yes	l	100%]
U	Juiz de Fora – Metallurgy – Brazil	[Yes	l	100%]
U	Cajamarquilla – Metallurgy - Peru	[Yes	l	99,92%]
U	Cerro Lindo – Mining - Peru	[Yes	l	83,37%]
U	El Porvenir – Mining - Peru	[Yes	l	83,37%]
U	Atacocha - Mining - Peru	[Yes	l	83,37%]

The Operational Control approach was used to consolidate the inventory.

2.2. Operational limits reported in the inventory

Scope 1

- Stationary combustion
- Mobile combustion
- Fugitive emissions
- Industrial processes
- Agricultural activities
- Land use change
- Solid waste
- Effluents

Scope 2

- Electricity Purchase - Location Approach
- Thermal Power Purchase
- Electricity procurement - Purchasing choice approach

Scope 3

- 1. Goods and services purchased
- 4. Transportation and distribution (upstream)
- 5. Waste generated in operations
- 9. Transportation and distribution (downstream)
- 10. Processing of products sold
- 11. Use of goods and services sold

3. EMISSIONS

3.1. Summary of total emissions

Emissions in metric tons, by type of GHG					Emissions in metric tons of CO2 equivalent (tCO2e)			
GHG (t)	Scope 1	Scope 2 (approach by "location")	Scope 2 (approach by "market base")	Scope 3	Scope 1	Scope 2 (approach by "location")	Scope 2 (approach by "market base")	Scope 3
CO_2	218.046,26	449.185,98	10.012,66	770.143,51	218.046,26	449.185,98	10.012,66	770.143,51
CH_4	113,63	30,38	30,38	23,93	3.181,53	850,75	850,75	669,98
N_2O	6,17	4,05	4,05	3,14	1.635,05	1.073,52	1.073,52	831,04
HFCs	2,43			-	4.101,58			-
PFCs	-			-	-			-
SF_6	-			-	-			-
NF_3	-			-	-			-
Total					226.964,42	451.110,25	11.936,93	771.644,53

3.2. Scope 1 emissions broken down by category ($tCO2_{eq}$)

Scope 1	Emissions 2024	Biogenic emissions
Stationary combustion	98.848,00	2.676,21
Mobile combustion	90.922,36	6.694,98
Fugitive emissions	4.105,83	0,00
Industrial processes	30.079,30	0,00
Agricultural activities	13,81	0,00
Land use change	262,45	0,00
Solid waste	180,88	0,00
Effluents	2.551,79	0,00
Total	**226.964,42**	**9.371,19**

3.3. Scope 2 emissions (tCO2 eq)

Scope 2	Emissions 2024	Biogenic emissions
Electricity (location approach)	449.185,98	0,0
Losses (location approach)	0,0	0,0
Electricity (approach market base)	10.012,66	0,0
Losses (approach market base)	0,0	0,0
Thermal Energy Purchasing	1.924,27	113.264,13

3.4. Scope 3 emissions broken down by category (tCO2 eq)

Scope 3	Emissions 2023	Biogenic emissions
1. Purchased goods and services	252.070,36	0,00
2. Capital goods	0,00	0,00
3. Activities related to fuel and energy not included in Scopes 1 and 2	0,00	0,00
4. Transportation and distribution (upstream)	39.394,12	3.679,79
5. Waste generated in operations	645,18	4,25
6. Business trips	0,00	0,00
7. Employee commuting (home to work)	296,60	35,41
8. Leased assets (organization as lessee)	0,00	0,00
9. Transportation and distribution (downstream)	23.510,97	1.529,49
10. Processing of products sold	427.111,65	0,00
11. Use of goods and services sold	28.615,63	0,00
12. End-of-life treatment of products sold	0,00	0,00
13. Leased assets (the organization as lessor)	0,00	0,00
14. Franchises	0,00	0,00
15. Investments	0,00	0,00
Total	**771.644,52**	**5.248,94**

3.5. Emissions per unit

The data below covers all mining and smelter units of Nexa Resources, located in Brazil and Peru.

Emissions in metric tons of CO_2 equivalent (tCO_2e)				
	Scope 1	**Scope 2 Location**	**Scope 2 Market base**	**Scope 3**
CAJAMARQUILLA	15.448,29	297.059,88	9.625,32	490.230,50
TRÊS MARIAS	32.953,13	28.169,59	0,00	150.669,32
JUIZ DE FORA	82.301,43	15.005,08	287,87	67.168,32
ARIPUANÃ	14.302,60	4.050,02	98,24	17.907,27
VAZANTE	17.851,57	11.230,06	0,00	52,32
MORRO AGUDO	3.822,00	753,48	1,22	28.694,67
CERRO LINDO	26.736,89	59.911,16	0,00	10.417,64
ATACOCHA	9.135,69	6.183,25	0,00	1.605,17
EL POVENIR	19.756,81	26.823,47	0,00	4.899,34
CORPORATIVO BR	674,15	0,00	0,00	0,00
CORPORATIVO PERU	3.981,86	0,00	0,00	0,00
	226.964,42	**449.185,98**	**10.012,66**	**771.644,53**

3.6. Emissions outside Brazil

The data reported below consolidates emissions from operations in Peru.

	Emissões em toneladas métricas, por tipo de GHG				**Emissões em toneladas métricas de CO_2 equivalente (tCO_2e)**			
GHG (t)	Scope 1	Scope 2 (approach by "location")	Scope 2 (approach by "market base")	Scope 3	Scope 1	Scope 2 (approach by "location")	Scope 2 (approach by "market base")	Scope 3
CO_2	72.354,39	389.977,76	9.625,32	506.415,57	72.354,39	389.977,76	9.625,32	506.415,57
CH_4	14,13	-	-	12,77	395,53	-	-	357,59
N_2O	2,59	-	-	1,43	685,82	-	-	379,48
HFCs	0,79	-	-	-	1.623,80	-	-	-

PFCs	-	-	-	-	-	-	-	-
SF_6	-	-	-	-	-	-	-	-
NF_3	-	-	-	-	-	-	-	-
Total					**75.059,54**	**389.977,76**	**9.625,32**	**507.152,64**

3.7. Other greenhouse gases not covered by the Kyoto Protocol

Unit	Category	Gas	Emissions (tCO2e)
Cajamarquilla	Fugitive emissions	HCFC-22 (R22)	47,872
Três Marias	Fugitive emissions	HCFC-22 (R22)	143,616

4. METHODS

4.1. Methods and/or Cross-Sector Tools

The inventory was prepared exclusively using the tool provided by the Brazilian GHG Protocol Program. No cross-sectoral method and/or tool was used.

4.2. Emissions Factors

Were any emission factors used other than those suggested by the Brazilian GHG Protocol Program?

Yes, for the calculations of emissions from operations located in Peru, we used the countryspecific emission factors, officially provided by the Peruvian government's Ministry of Environment, through the Annual Report on Winter Effect Gases (2014), the most recent technical literature available.

5. OTHER ELEMENTS

5.1. Information on the organization's performance in comparison with internal benchmarks (e.g. other units) or external benchmarks (e.g. organizations in the same sector).

Our direct GHG emissions (Scope 1) totaled 226.964,42 tCO_2e in 2024, representing a reduction of approximately 7% compared to the previous year. In 2024, we recorded a reduction in total emissions. In Scope 1, this decrease was due to the shutdown of a furnace in Juiz de Fora, resulting in lower coke usage. In Scope 2, the positive impact came from the integration of Aripuanã into Nexa's energy contracts and the signing of new renewable energy contracts in Peru. In Scope 3, the significant reduction was a result of the discontinuation of Morro Agudo, which had previously generated emissions of 492.000,00 tCO_2 in 2023 and was no longer part of the company's portfolio in 2024.

GHG EMISSIONS IN 2024 (tCO_2e)

	2020	2023	2024	% do total em 2024
Scope 1 – direct emissions	252.649,06	244.991,59	226.964,34	22%
Scope 2 – electricity consumption (choice of purchase)[1]	434.465,94	13.799,95	10.012,66	1%
Scope 3 – value chain	86.276,16	1.199.463,29	771.644,53	77%

[1] The Scope 2 emissions reported on this page refer to the calculation using the purchase choice approach. In the year 2024, we emitted 451.110,25 tCO2 and for the location approach.

5.2. Description of GHG emission indicators for the organization's activities. For example, tCO2e/products manufactured.

In 2024, we conducted the Life Cycle Assessment (LCA) of our main products for the first time, with support and guidance from a specialized consultancy. After completing the analysis, we went through the third-party verification stage according to the ISO 14071, 14040, and

14044 standards. The study has become an excellent source of internal benchmarking and the definition of commercial strategies.

Another indicator that we had been monitoring in previous years is the emission intensity. In 2024, it was **0,38** tCO2e per ton of zinc and zinc oxide sold. This number is calculated by the sum of Scopes 1 and 2 (purchase choice) GRI 305-4, divided by the volume of metallic zinc and zinc oxide sold.

This indicator positions Nexa as one of the zinc producers with the lowest CO2 emissions in the market for this metal, if we use the metric that products with < 1t CO2/t Zn would be classified as Low Carbon Zinc. This reference was not defined by the IZA, the International Zinc Association, but is informally used by several industries. Officially, the IZA indicated an industry average of 3,8 tCO2/tZn, showing that we are aligned with our ambition to be one of the zinc producers with the lowest greenhouse gas emissions in the world.

5.3. Description of strategies and projects for managing GHG emissions.

We rely on innovation and new technologies to meet our public targets on emissions1. These are:

- Absolute reduction of Scope 1 emissions by 20% (52 thousand tons of CO2 equivalent, considering 2020 as baseline), keeping Nexa's energy matrix almost entirely composed of renewable sources.
- Achieve emissions neutrality by 2040.
- Net Zero by 2050.

We have projects in place to enable the achievement of our strategic goals on this topic, ensuring better performance regarding clean energy and the reduction of greenhouse gas (GHG) emissions in our operations and the value chain of the business.

Some of the actions currently underway in our units in Brazil and Peru:

- **Bio-oil**

The project aims to introduce a new biogenic fuel for use in the zinc oxide plant at the Três Marias unit, reducing 25.000 tons of CO2e annually, as well as optimizing operational performance and reducing costs. In 2024, the engineering works for the conversion of 12 furnaces were completed, which will result in an annual reduction of 6,44 thousand tons of CO2e starting in 2025. New suppliers of the biofuel are being developed, targeting a continuous, large-scale supply with quality. The conversion of the remaining 35 furnaces is included in the long-term investment portfolio, with completion expected by 2029.

- **Biobriquettes**

At the Juiz de Fora operation, secondary zinc is recovered through the Waelz process, a rotary kiln that uses petroleum coke as fuel. This has a significant impact on the operation's GHG emissions and is the main cost of the unit. The biobriquettes, which have been in development over the past few years, aim to partially replace the coke used as a thermal source, and their technical feasibility studies were completed in 2024. The industrial tests conducted in 2023 showed technical potential to replace 30% of the coke used. In 2024, market studies and economic analyses for the commercial scaling of the briquettes revealed challenges in production costs. In 2025, alternative routes will be explored, including a new formulation of a self-reducing briquette, to optimize coke consumption in the chemical reactions of the zinc recovery process. The development of the briquettes aims to reduce 25.000 tons of CO2e annually, combined with economic competitiveness for the diversification of the energy matrix through biogenic sources.

- **Sustainable logistics**

Due to the growing interest from customers in the emissions associated with product transportation, we have implemented emission calculations on our main logistics routes. We face a significant challenge in reducing these emissions, and our Logistics and Innovation teams have been actively working to find alternatives. Among the initiatives adopted, key actions include increasing the use of electric forklifts in operations, implementing fleets powered by compressed natural gas (CNG), using HydraGENTM technology, and expanding

the use of multimodal routes (rail + road). In addition to replacing part of the fleet with CNG-powered vehicles, we are in negotiations with shipowners to issue Eco certificates for maritime transport through the use of green fuels, reducing emissions on strategic routes.

5.4. Information on contracts with customers and suppliers that include clauses linked to the preparation of GHG inventories and/or the submission of related information.

One of the highlights of 2024, supported by our ESG Strategy, was securing a R$ 200 million financing with the National Bank for Economic and Social Development (BNDES), with a total term of 8 years and a 2-year grace period. This financing aims to support ESG practices and includes counterparts that leverage our actions on this topic. This was the first ESG-linked credit operation by BNDES in the mining sector, part of the BNDES Crédito ASG program.

One of the counterparts is obtaining the Gold Seal in the international GHG Protocol standard, used by companies to certify the quality of their greenhouse gas (GHG) emissions inventory. After completing the participation cycle and publishing our emissions inventory for Scopes 1, 2, and 3, for the year 2023, in the Public Emissions Registry in Brazil, we received the Gold Seal in 2024, marking another important step toward achieving our long-term goals.

In another strategic move in 2024, we decided to access the Brazilian capital market, allowing us to optimize the financial structure, diversify funding sources, and improve liquidity. As part of this strategy, we issued our first ESG-linked debenture, worth R$ 650 million, with a term of 6 years. This instrument and its conditions are connected to our commitment to reduce GHG emissions.

5.5. Information on uncertainties, exclusions of data sources and other characteristics of the preparation of the inventory.

In 2024, all of our operational units in Brazil were affected, to varying degrees, by the wildfires that spread across the country during the dry season. We did account for the emissions caused by the wildfires in areas under Nexa's responsibility, but we did not present a total figure in order to maintain the comparability and efficiency measurement of our operational processes, which occurred independently of the wildfires.

Emissions from Land Use Change: Impact of Wildfires

Unit	Hectares	Emissions (tCO2e)
Juiz de Fora	187,73	25.832,32
Três Marias	18,05	2.574,33
Aripuanã	155,59	86.464,67

5.6. Description of internal actions to improve the quality of the GHG inventory. For example, systematizing data collection, hiring external verification, etc.

ESG Platform (ESG Data Management): In 2024, we made progress with the implementation of the Deep ESG platform for ESG management. We configured data collection for the Brazil inventory directly on the platform, following the GHG Protocol methodology. We trained key contacts and automated various data points, which brings greater reach and transparency to the data.

For the Peru inventory, we reviewed the methodology and adjusted the emission factors to better suit the Peruvian reality. We translated the platform to eliminate language barriers or potential sources of error and trained the key contacts.

As real data was entered into the platform, corrections and opportunities for improvement were identified and worked on together with the provider. The inventory was still carried out

using the GHG Protocol spreadsheet as a "template" for what we should expect to find in the platform.

After this revision phase, the platform will be ready to serve as the sole and official base for Nexa's inventory in 2025.

5.7. Information on the purchase of electricity from renewable sources.

In 2024, we consumed a total of 3.456.441,21 MWh of electricity (1.547.592,19 MWh in Brazil and 1.908.849,02 MWh in Peru), with 98,4% of this volume coming from renewable sources.

5.8. Information on self-production of energy from renewable sources for our own consumption.

In 2024, we will consume 38.06 GWh from Chaprin's self-production in Atacocha and 13.96 GWh in Cajamarquilla.

5.9. Information on your organization's carbon stock, in tons, as of December 31 of the inventory year.

The use of carbon credits is a strategic tool to accelerate our transition to zero-emission zinc. The regulation of the market for their commercialization is still a challenge in Brazil; however, we have already accumulated more than 100,000 tons of CO2 equivalent in credits available for sale, resulting from the shift to biomass steam generation in Três Marias.

The project was installed in 2017, developed in partnership with Combio, and had its Verra registration in 2019 (Project ID: 1804).

6. OFFSETS AND REDUCTIONS

6.1. Compensação de emissões

Does the organization have emission offset projects?

Not reported.

6.2. Emissions reductions

Does the organization have emission reduction projects?

Innovation permeates our operations and supports us in advancing the ESG strategy at all levels.

We have developed projects to enable better performance regarding clean energy, the reduction of greenhouse gas (GHG) emissions in operations and the business value chain, and to achieve strategic goals on this topic. The decarbonization roadmap covers all Nexa units and seeks economically and environmentally viable alternatives, with greater energy efficiency and lower carbon emissions.