

A photograph of a wind farm at sunset. The sun is low on the horizon, creating a bright orange glow. Several wind turbines are visible, with one in the foreground being particularly prominent. The sky is filled with large, dark clouds. The overall scene is a mix of green, orange, and blue tones.

EMISSIONS INTENSITY TARGETS

FOR GRUPO MÉXICO'S
OPERATIONS

CLIMATE CHANGE



Grupo México

In recent years, we have calculated emission intensity for the Mining Division (tons CO₂e per ton of Cu) using an operational approach. This approach includes all emissions generated by our mining operations (Scope 1), as well as emissions from electricity consumption (Scope 2) sourced from third parties outside of Grupo México, along with those supplied by the “La Caridad” combined-cycle power plant, which is operated by our Infrastructure Division. These emissions are calculated per ton of copper produced (contained in concentrates and cathode-grade ESDS). This methodology allows us to monitor the historical performance of our products’ emission intensity in alignment with the data published in our financial reports.

Below are the emission intensity calculations for 2018, which we consider our baseline year, as well as for the past three years:

	2018	2022	2023	2024
Total (tons CO ₂ e) including electricity consumed from the “La Caridad” combined-cycle power plant	4,836,872	4,478,731	4,151,378	4,246,290
Total mineral production (tons of ore)*	1,134,533	1,213,214	1,141,989	1,267,592
Total production (tons of Cu)	1,002,061	1,009,002	1,029,854	1,086,051
Copper share	88.32%	83.17%	90.18%	85.68%
Total (tons CO ₂ e) – Cu share only	4,272,102	3,724,961	3,736,240	3,638,150
Intensity (tonCO ₂ e/ ton Cu)	4.26	3.69	3.63	3.35**
Intensity (tonCO ₂ e/ ton mineral)	4.26	3.69	3.63	3.35
Change vs previous year				-7.66%
Change vs 2018				-21.43%

* Includes mine production of copper concentrates, cathode-grade ESDS, and concentrates of zinc, gold, silver, lead, molybdenum, and cadmium. Excludes copper, zinc, gold, and silver refining, as well as sulfuric acid production at refineries.

** The reduction target under this approach is 20% relative to 2018 by 2027, and 50% relative to 2018 by 2035.

In 2023, we aimed to refine our emission intensity analysis and targets to encompass Grupo México’s main processes—mining, smelting and refining, and power generation. Given that copper is our primary product, we based our calculations on copper equivalent production. In 2025, we will review the usefulness of reporting these intensities under the copper equivalent approach.

Processes considered:



Mining

Includes Scope 1 operational emissions and emissions from the purchase of electricity from third parties outside Grupo México, calculated per ton of copper equivalent produced at the mines.



Smelting and refining

Includes Scope 1 operational emissions and emissions from the purchase of electricity from third parties outside Grupo México, calculated per ton of copper equivalent produced during the smelting and refining processes.



Power generation

Includes Scope 1 operational emissions from the La Caridad combined-cycle power plant, calculated per MWh produced.

In the next page there is an overview of our operational emissions and copper-equivalent intensities starting from 2022.

Note: Under this approach, emissions from the “La Caridad” combined-cycle power plant are assigned to the Infrastructure Division as Scope 1 emissions. This division now has an intensity target based on energy generation (tons CO₂e/MWh), which is its main economic activity. For the Transportation Division, we have established an absolute emissions reduction target for 2030.

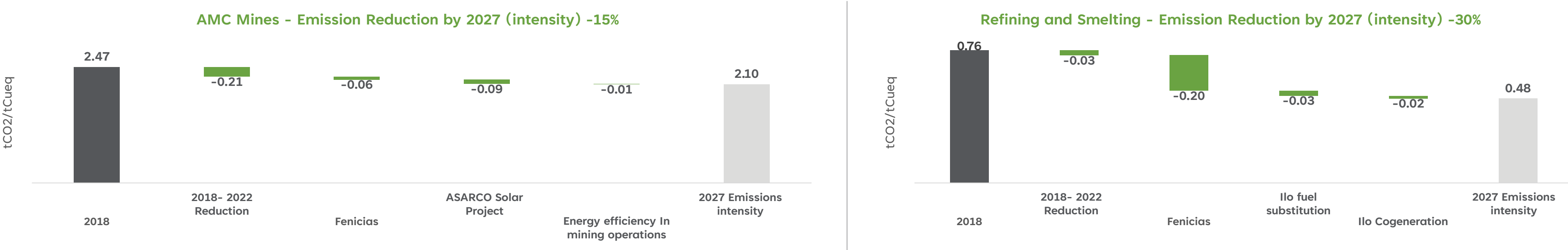
Intensity Targets for 2027

	2018	2027 BAU	2022	2023	2024	Estimated final emissions for 2027	Proposed intensity reduction target for 2027	Percentage of Grupo México's emissions covered by the target
Mining Division Emissions – Mining Operations								
ton CO ₂ eq	2,935,545	3,377,478	2,654,041	2,447,332	2,450,243	2,868,587		
Total production (tons of Cu eq)	1,187,614	1,366,404	1,219,711	1,337,446	1,359,687	1,366,404		
Intensity (tonCO ₂ eq/ ton Cu eq)	2.47	2.47	2.18	1.83	1.80	2.10	15% VS 2018	46% of BAU emissions
Mining Division Emissions – Smelting and Refining								
ton CO ₂ eq	587,290	609,738	563,330	509,970	462,172	387,278		
Total production (tons of Cu eq)	777,814	807,545	656,588	620,492	780,812	807,545		
Intensity (tonCO ₂ eq/ ton Cu eq)	0.76	0.76	0.86	0.82	0.59	0.48	30% VS 2018	8% of BAU emissions
Total emissions – Mining Division (ton CO ₂ eq)	3,522,834	3,987,217	3,217,370	2,957,302	2,912,415	3,255,865		
Infrastructure Division Emissions								
ton CO ₂ eq	1,600,000	1,600,000	1,368,201	1,303,696	1,528,568	1,368,201		
Emission intensity (tonCO ₂ eq/ MWh)	0.408	0.408	0.395	0.382	0.356	0.355	10% vs 2018 (to be achieved with the commissioning of the Fenicias wind farm)	22% of BAU emissions
Transportation Division Emissions								
ton CO ₂ eq	1,460,000	1,810,000	1,422,003	1,521,456	1,594,874	1,612,003		
Emission intensity (tonCO ₂ eq/ per ton transported)	12.6	-	11.7	11.5	11.8	11.1	4% VS 2018	24% of BAU emissions
Grupo México Total ton CO ₂ eq	6,582,834	7,397,217	6,007,575	5,782,454	6,035,857	6,236,070		

By 2027, we plan to achieve the proposed intensity targets through the projects shown in the following chart. For more information about these projects, please refer to the climate change chapter of the 2024 Sustainable Development Report.

Reduction initiatives - Transportation Division

1. AESS	<ul style="list-style-type: none">Fuel Consumption Reduction in Locomotives
2. Trip Optimizer	<ul style="list-style-type: none">Autopilot installed in 275 locomotives – Annual diesel savings of 4% → Additional installation in 30 locomotives planned for 2025 – Estimated annual diesel savings of 3.6%
3. HP / Ton	<ul style="list-style-type: none">Efficient use of horsepower to move more tons with fewer locomotives
4. LNG	<ul style="list-style-type: none">Fleet of 30 LNG locomotives – Replace 52% of diesel consumption in hybrid locomotivesHydrogen fleet – Research phase from 2023 to 2026



Intensity Targets for 2035

	2018	2035 BAU	2022	2023	2024	Estimated final emissions for 2035	Proposed intensity reduction target for 2035	Percentage of Grupo México's emissions covered by the target
Mining Division Emissions – Mining Operations								
ton CO ₂ eq	2,935,545	3,888,793	2,654,041	2,447,332	2,450,243	1,401,499		
Total production (tons of Cu eq)	1,187,614	1,366,404	1,219,711	1,337,446	1,359,687	1,366,404		
Intensity (tonCO ₂ eq/ ton Cu eq)	2.47	2.47	2.18	1.83	1.80	0.89	50% VS 2018	47% of BAU emissions
Mining Division Emissions – Smelting and Refining								
ton CO ₂ eq	587,290	683,631	563,330	509,970	462,172	446,681		
Total production (tons of Cu eq)	777,814	807,545	656,588	620,492	780,812	807,545		
Intensity (tonCO ₂ eq/ ton Cu eq)	0.76	0.76	0.86	0.82	0.59	0.49	35% VS 2018	8% of BAU emissions
Total emissions – Mining Division (ton CO ₂ eq)	3,522,834	4,572,424	3,217,370	2,957,302	2,912,415	1,848,179		
Infrastructure Division Emissions from power generation								
ton CO ₂ eq	1,600,000	1,600,000	1,368,201	1,303,696	1,528,568	1,368,201		
Emission intensity (tonCO ₂ eq/ MWh)	0.408	0.408	0.395	0.382	0.356	0.356 minus other actions identified	12% VS 2018 (achieved with full operation of Fenicias) + additional actions identified during 2025	19% of BAU emissions
Transportation Division Emissions from freight transportation								
ton CO ₂ eq	1,460,000	2,160,000	1,422,003	1,521,456		1,837,003		
Emission intensity (tonCO ₂ eq/ per ton transported)	12.6	-	11.7	11.5	11.8	10	10% VS 2018	26% of BAU emissions
Grupo México Total ton CO ₂ eq	6,582,834	8,332,424	6,007,575	5,782,454		5,051,854		

By 2035, we plan to achieve the proposed intensity targets through the projects shown in the following chart. For more information about these projects, please refer to the climate change chapter of the 2024 Sustainable Development Report.

Reduction initiatives - Transportation Division

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Intensity Targets for 2035

