MIDOR

Oil Refinery GHG Inventory Report - Year 2024

Report Prepared By group 5

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PREFACE

This Greenhouse Gas (GHG) Inventory Report provides a comprehensive account of the emissions attributable to operations in MIDOR Oil Refinery during 2024. Prepared in accordance with the GHG Protocol Corporate Standard, ISO 14064-1:2018, ISO 14069:2013.

This document carefully quantifies our direct emissions from core refining processes, utilities, and fugitive sources, as well as our indirect emissions from purchased energy.

The establishment of this thorough inventory is a foundational step in our climate strategy, serving as a critical baseline to track performance, ensure regulatory compliance, and demonstrate our steady commitment to corporate transparency and environmental care to all stakeholders.

Building upon this baseline, the findings within this report are instrumental in shaping our strategic path forward. The data enables us to pinpoint emission hotspots, assess the effectiveness of previous reduction initiatives, and make informed, data-driven decisions for future investments.

This includes prioritizing energy efficiency upgrades, exploring the integration of low-carbon technologies, and advancing our flaring management and methane leak detection programs.

This report is more than a compliance document; it is a catalyst for action, underscoring our dedication to continuous improvement and our proactive role in the global energy transition towards a sustainable, low-carbon future.

Acknowledgements

Special Thanks to Our Instructors

We express our profound gratitude and sincere appreciation to all the lecturers, engineers, and the dedicated team whose invaluable efforts and expertise made the comprehensive course on Greenhouse Gas (GHG) management a resounding success.
Our special thanks are extended to the following individuals for their insightful presentations and knowledge sharing:

- **Eng. Nagy Abdul-Dayem** - for the session on "Climate Change and Carbon Footprint in the Petroleum Sector".
- **Eng. Ekram Saeed** - for the detailed coverage of ISO 14064-1 and ISO/TR 14069:2013.
- **Eng. Reham Beder** - for the session on ISO 14067:2018.
- **Eng. Mohamed Abdel Moneim** - for the sessions on ISO 14040/14044:2006 and "Uncertainty Estimation in Carbon Footprint Reports".
- **Eng. Fatma Ali** - for the session on ISO 14064-2:2018.
- **Dr. Ayman El-Refai** - for the enlightening session on "Carbon Markets & Credits."
- **Eng. Noha Attia** - for the session on the "GHG Protocol Methodology" and the practical training on preparing carbon footprint reports in the cement sector.
- **Eng. Islam Amin** - for the sessions on ISO 14064-3:2019 and the "Guidelines for Using the IPCC in Carbon Footprint Calculation."
- **Eng. Adel Taha** - for the session on the "Carbon Border Adjustment Mechanism (CBAM)."

We are also deeply thankful to the entire organizing team for the seamless coordination of both the in-person sessions in Alexandria and the online segments. Your collective commitment to advancing knowledge in carbon footprint accounting, international standards, and climate change mechanisms has been truly inspiring and immensely beneficial.

CONTENTS

Abbreviation / Term	Definition / Description
API	American Petroleum Institute
AR6	IPCC Sixth Assessment Report (2021)
CH_4	Methane
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
DEFRA	UK Dept for Environment, Food & Rural Affairs
EEAA	Egyptian Environmental Affairs Agency's
EF	Emission Factor
EPA	U.S. Environmental Protection Agency
ERM	Environmental Resources Management
GHG	Greenhouse Gas
GJ	Gigajoule
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
IPIECA	International Petroleum Industry Environmental Conserv
ISO	International Organization for Standardization
ISO 14064-1	GHG inventory standard
ISO 14069	GHG guidance standard
LDAR	Leak Detection and Repair
LPG	Liquefied Petroleum Gas
LULUCF	Land Use, Land Use Change and Forestry
MIDOR	Middle East Oil Refinery
MWh	Megawatt-hour
N_2O	Nitrous Oxide
NG	Natural Gas
OGI	Optical Gas Imaging
OGP	International Association of Oil & Gas Producers
WBCSD	World Business Council for Sustainable Development
WRI	World Resources Institute

Abbreviation / Term	Definition / Description
Scope 1	Direct GHG emissions
Scope 2	Indirect emissions from purchased energy
Scope 3	Other indirect value chain emissions
tCO_2e	Metric tons CO2 equivalent
ULSD	Ultra-Low Sulfur Diesel

EXCUTIVE SUMMARY

This report provides the Scope 1, Scope 2 and the main part of Scope 3 greenhouse gas (GHG) emissions inventory under operational control for MIDOR oil refinery located in Alexandria, EGYPT for the reporting period between January 1, 2024 - December 31, 2024.

This report is prepared in line with the requirements outlined in:

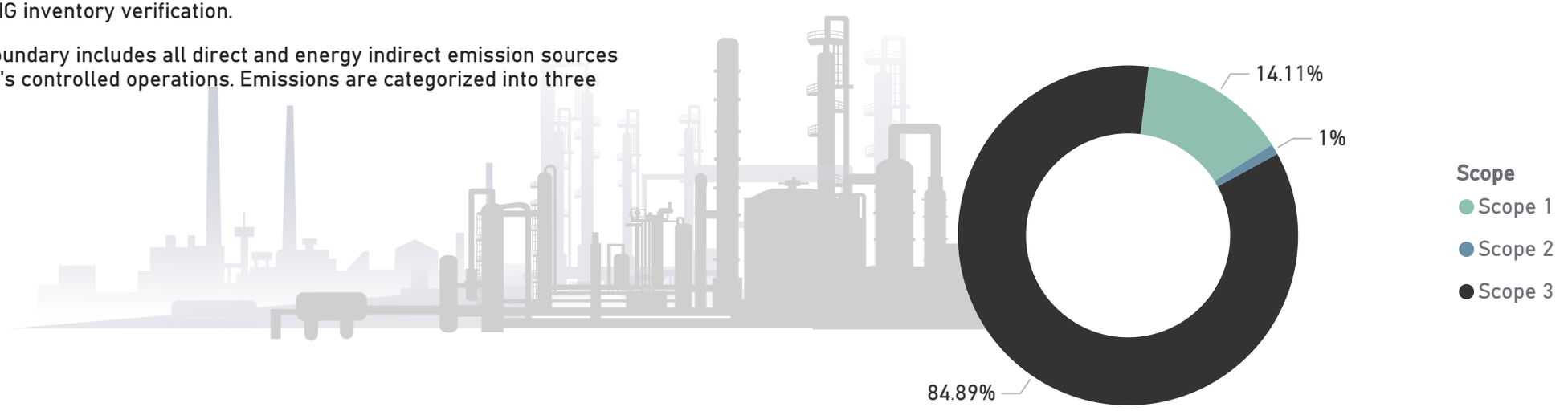
- Part 9.3 of the ISO 14064-1:2018 Specification with Guidance at the Organisation Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals.
- Part 8.3 of ISO 14069:2013 Greenhouse gases - Quantification and reporting of greenhouse gas emissions for organizations - Guidance for the application of ISO 14064-1.

SCOPE 1	SCOPE 2	SCOPE 3
2.81M	199.90K	16.93M
Total Calculated Emissions (tCO2e)	Sum of Calculated Emissions (tCO2e)	Sum of Calculated Emissions (tCO2e)

The purpose of this GHG Report is to demonstrate conformity with ISO 14064-1:2018 and to facilitate GHG inventory verification.

The operational boundary includes all direct and energy indirect emission sources within the refinery's controlled operations. Emissions are categorized into three scopes

Total Emissions (tCO2e) by Scope



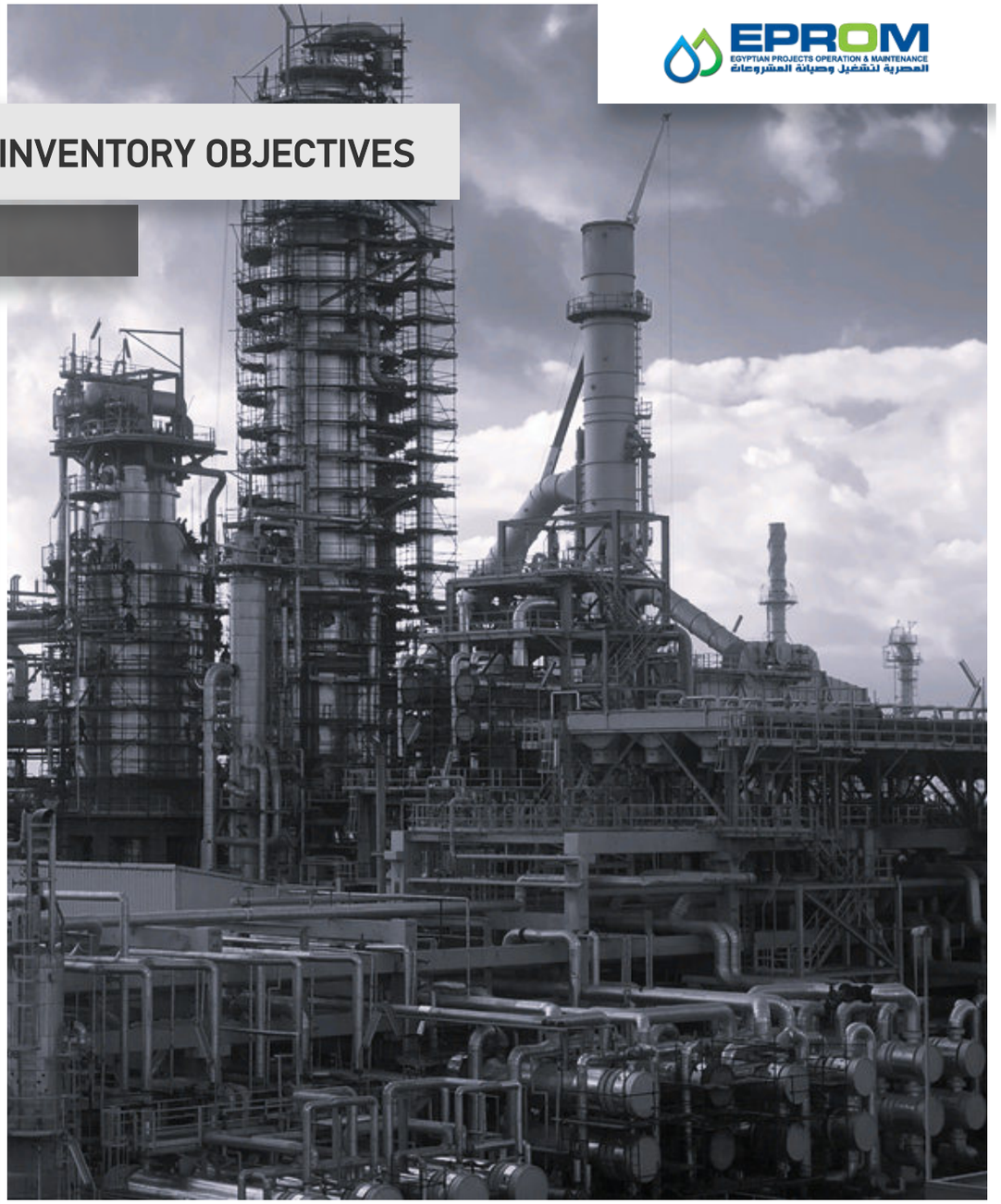
CHAPTER 1

GENERAL DESCRIPTION OF THE ORGANIZATION GOALS AND INVENTORY OBJECTIVE

CHAPTER 1

GENERAL DESCRIPTION OF THE ORGANIZATION GOALS AND INVENTORY OBJECTIVES

1.1 DESCRIPTION OF THE REPORTING ORGANISATION



Middle East Oil Refinery "MIDOR"

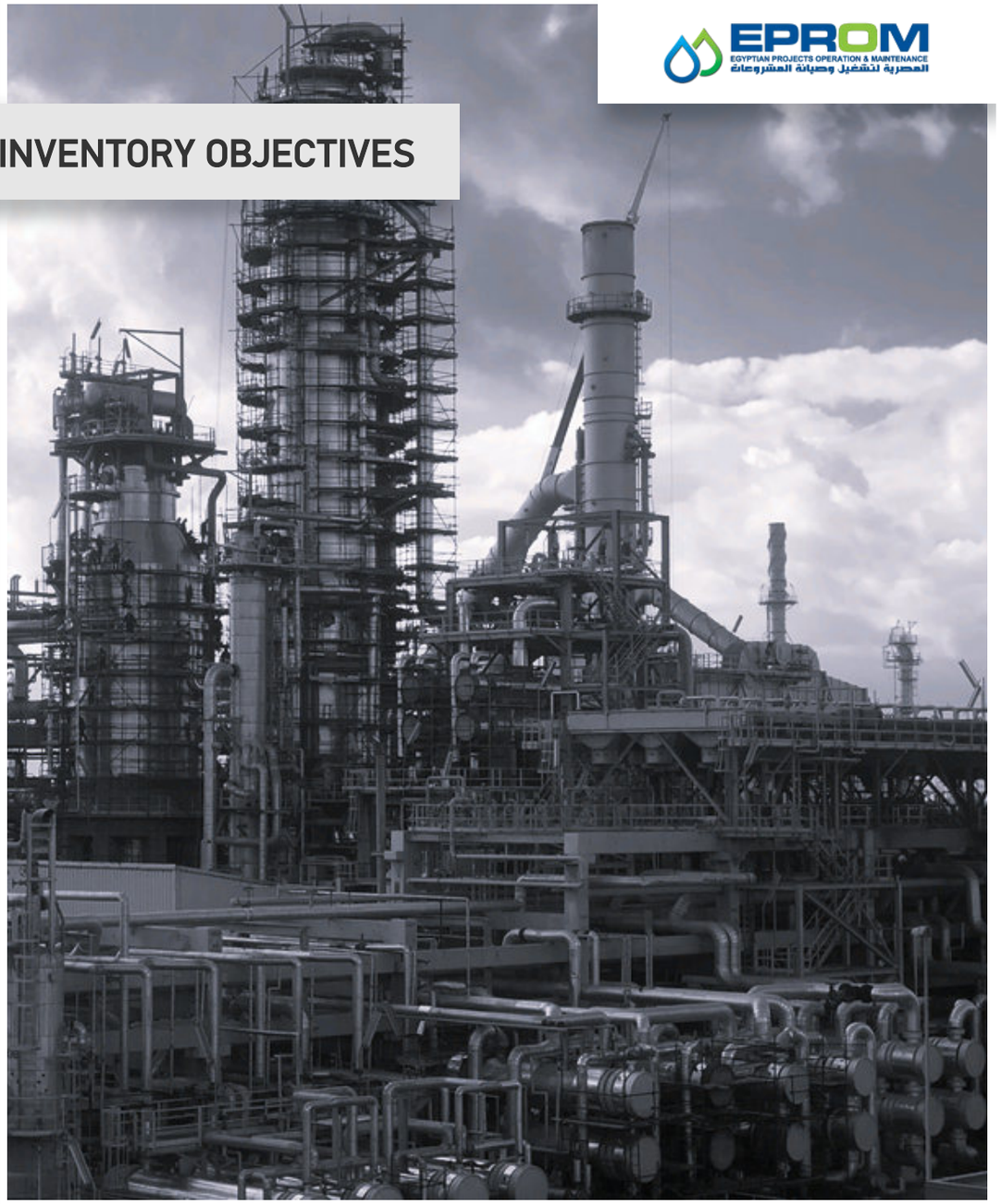
The Middle East Oil Refinery (MIDOR) is a key facility located in the Amreya Free Zone in Alexandria, Egypt. Its operations extend beyond the main plant to include a key export infrastructure managed through the Dekheila Port (also known as the MIDTAP Pier) and headquarters are situated in New Cairo, Egypt.

For a GHG inventory, the organizational boundaries would not encompass these interconnected facilities. In 2024, MIDOR demonstrated significant operational activity, refining more than 46 million barrels of crude oil. Its production portfolio is diverse, including high-octane gasoline, diesel, jet fuel, LPG, and other petroleum products, all of which are relevant for assessing the carbon footprint of its value chain.

MIDOR has integrated environmental stewardship into its corporate strategy, which provides a strong foundation for GHG accounting. The refinery operates an environmentally friendly system and has taken concrete steps to reduce its carbon footprint by connecting all smokestacks to the Egyptian Environmental Affairs Agency's (EEAA) continuous emissions monitoring and measurement system. This provides a reliable data source for direct emissions measurement. Furthermore, MIDOR has an established Management System (MMS) and holds ISO 9001:2015 certification for its quality management system, demonstrating a culture of standardized processes and continual improvement. The company's strategic partnership with Environmental Resources Management (ERM) to monitor and enhance its ecological footprint, coupled with the broader industry context of experts in Egypt's oil and gas sector undergoing verifier training for ISO 14064-1, indicates a growing organizational capacity for rigorous carbon footprint verification and reporting.

CHAPTER 1

GENERAL DESCRIPTION OF THE ORGANIZATION GOALS AND INVENTORY OBJECTIVES



1.2 REPORTING PERIOD COVERED

The report covers the following reporting period: January 1, 2024 - December 31,2024.

1.3 THE HISTORICAL BASE YEAR SELECTED AND THE BASE-YEAR GHG INVENTORY

- 2024 is selected to be the historical base year.
- The base-year GHG Inventory is [19,996,265 tCO_2e].

1.4 GHG INVENTORY VERIFICATION STATUS

This GHG inventory is a self-declared, unverified assertion. All emissions data have been compiled and calculated internally in accordance with ISO 14064-1 requirements

Plans to engage an accredited third-party for external verification of future inventories are under consideration to enhance the robustness and stakeholder confidence in the reported figures.

CHAPTER 2

ORGANIZATIONAL BOUNDARIES

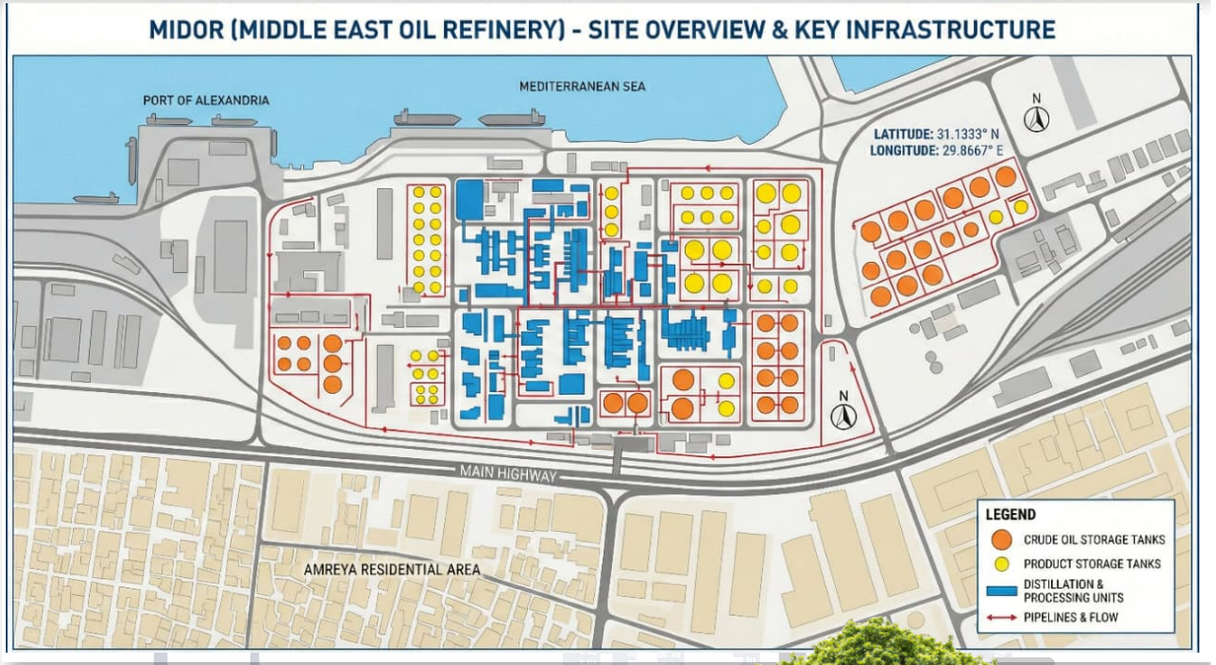
CHAPTER 2

Organizational Boundaries

Consolidation Boundary: Operational Control, | **Reporting Boundaries**: Scope 1, Scope 2, Scope 3

Verification Status: Limited Assurance

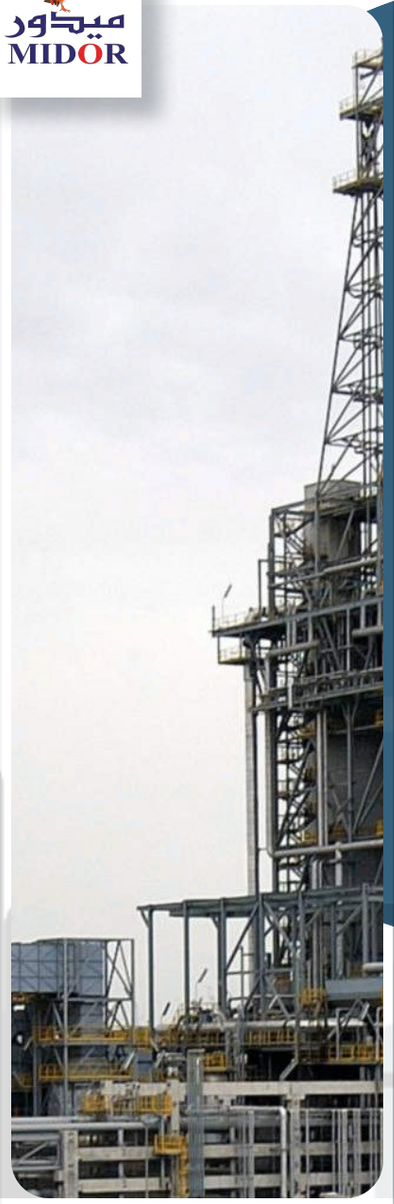
- This GHG inventory establishes its organizational boundaries using the operational control approach, as defined by ISO 14064-1. Under this approach, the organization includes all operations where it has the full authority to introduce and implement its operating and environmental policies.
- Consequently, this report consolidates 100% of the GHG emissions from the main refining plant located in the Amreya Free Zone, Alexandria, as this is the facility over which the company has complete operational control.
- Emissions from the associated port terminal and the Cairo head office are excluded from this inventory. The port facility, while critical for logistics, is subject to shared operational protocols and control systems with external entities, placing it outside the defined operational control boundary. The head office is excluded as it represents administrative functions with minimal direct emissions, and its energy consumption is typically reported under a separate utility or landlord's GHG inventory.
- The aggregation method applied consolidates all direct and energy indirect emission sources from the controlled plant into a single, comprehensive dataset, ensuring a focused and accurate representation of the refinery's core operational carbon footprint.



No.	Entity	Included
1	MIDOR Plant	Yes
2	MIDOR Port	No
3	MIDOR Headquarters	No

CHAPTER 3

REPORTING BOUNDARIES



Scope 1

Scope 1 (Direct GHG Emissions and Removals)

No.	GHG Emission Category	Emission Quantified	Notes
1	Stationary Combustion Emissions	Yes	
2	Mobile Combustion Emissions	Yes	
3	Process Emissions	Yes	
4	Fugitive Emissions	Yes	
5	LULUCF Emissions	No	Not Relevant

Scope 2

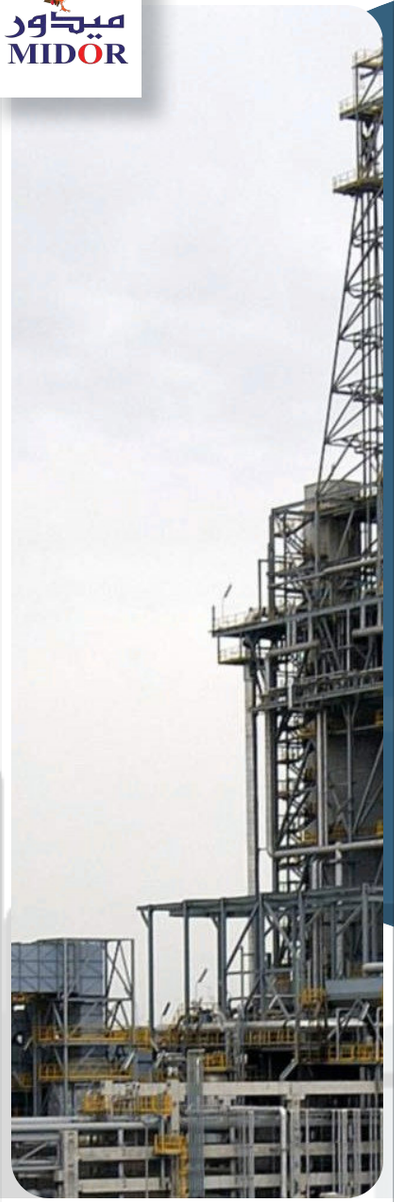
Scope 2 (Energy GHG Indirect Emissions)

No.	GHG Emission Category	Emission Quantified	Notes
6	Imported Electricity Consumed	Yes	
7	Other Imported Energy Consumed	No	Not Relevant

Scope 3

Scope 3 (Other Indirect GHG Emissions)

No.	GHG Emission Category	Emission Quantified	Notes
8	Other Energy-Related Activities	No	Note 1
9	Purchased Products	No	Note 2
10	Capital Equipment	No	Note 3
11	Waste Generated	No	Note 4
12	Upstream Transport & Distribution	No	Note 5
13	Business Travel	No	Note 6
14	Upstream Leased Assets	No	Not Relevant
15	Investments	No	Not Relevant
16	Client & Visitor Transport	No	Note 6
17	Downstream Transport & Distribution	No	Note 5
18	Use Stage of the Product	Yes	
19	End of Life of the Product	No	Not Relevant
20	Downstream franchises	No	Not Relevant
21	Downstream Leased Assets	No	Not Relevant
22	Employee Commuting	Yes	



Reasons for categories not quantified or partially quantified
Note (01) Unavailable data regarding the origin of the fuels consumed for the generation of purchased electricity.
Note (02) The quantification of each good and service purchased is in practice very difficult.
Note (03) Unavailable data from Licensors and Vendors.
Note (04) Unavailable data regarding the carbon content of each type of waste and the method of treatment and/or disposal used in landfills.
Note (05) Unavailable data regarding the numbers of vehicles coming from the suppliers and total distance allocated to the plant, type of each vehicle, type of fuels burnt, load rate and empty return rate.
Note (06) Unavailable data regarding the distance travelled for each type of vehicles Note (train, aircraft, etc.) and vehicle size and type of technology.

CHAPTER 4

QUANTIFIED GHG INVENTORY EMISSIONS

CHAPTER 4

4.1 DIRECT AND ENERGY INDIRECT GHG EMISSIONS AND UNCERTAINITY RESULTS

Direct GHG Emissions (Scope 1)

No	GHG Emissions Category	CO2 (tCO2e)	CH4 (tCO2e)	N2O (tCO2e)	Fluorinated Gases (tCO2e)	Total Emissions (tCO2e)	Result Uncertainty %
1	Stationary	2608831	1300	1232	-	2611362	1.80%
2	Mobile	690	1	10	-	701	21.90%
3	Process	200520	-	-	-	200520	21.50%
4	Fugitive	3276	-	-	282	3558	15.10%
	Scope 1 Total	2813318	1301	1241	282	2816141	2.30%

Energy GHG Indirect Emissions (Scope 2)

No	GHG Emissions Category	CO2 (tCO2e)	CH4 (tCO2e)	N2O (tCO2e)	Fluorinated Gases (tCO2e)	Total Emissions (tCO2e)	Result Uncertainty %
5	Imported Electricity	199898	-	-	-	199898	7.10%
	Scope 2 Total	199898	-	-	-	199898	7.10%

Other Indirect GHG Emissions (Scope 3)

No	GHG Emissions Category	CO2 (tCO2e)	CH4 (tCO2e)	N2O (tCO2e)	Fluorinated Gases (tCO2e)	Total Emissions (tCO2e)	Result Uncertainty %
18	Use Stage of the Product	16878521	18655	35049	-	16932225	16.80%
22	Employee Commuting	48000	-	-	-	48000	30.40%
	Scope 3 Total	16926521	18655	35049	-	16980225	16.80%

TOTAL EMISSIONS

CO2 (tCO2e)
19939737

CH4 (tCO2e)
19956

N2O (tCO2e)
36290

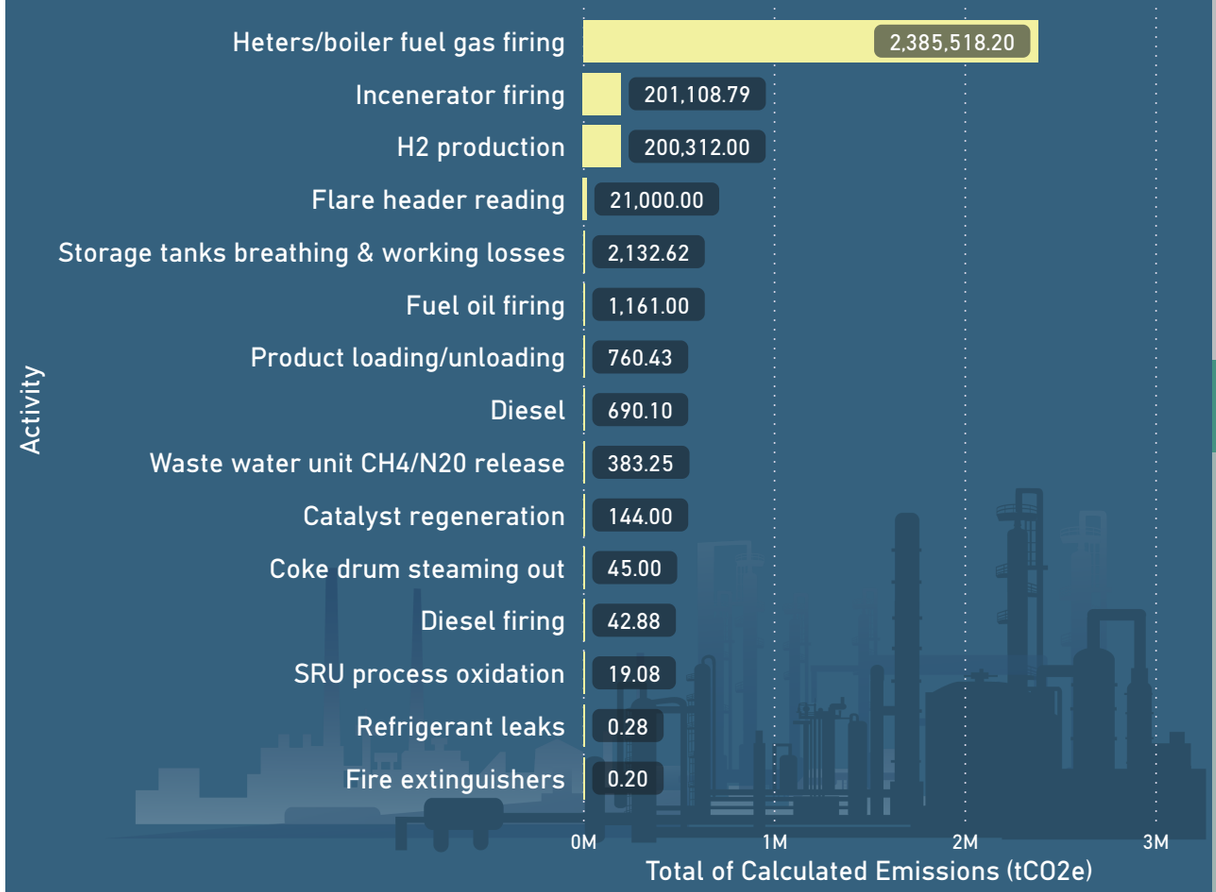
Fluorinated Gases (tCO2e)
282

Total Emissions (tCO2e)
19996265

Result Uncertainty %
14.30%

Scope 1

Total of Calculated Emissions (tCO2e) by Activity



Top Refinery Units - Stationary Combustion

Description	Emissions (tCO2e)
Diesel - Fire vehicle	162,854.60
Diesel - maintinance vehicles	165,870.42
Diesel - shuttle/Bus movements	168,886.25
U_01 heater fuel firing	171,902.07
U_17 heater fuel firing	174,917.89
U02/03 heter firing	177,933.72
U_04 heater firing	180,949.54
U_07 heter firing	183,965.36
U_08 heater firing	186,981.19
U_09 heater firing	189,997.01

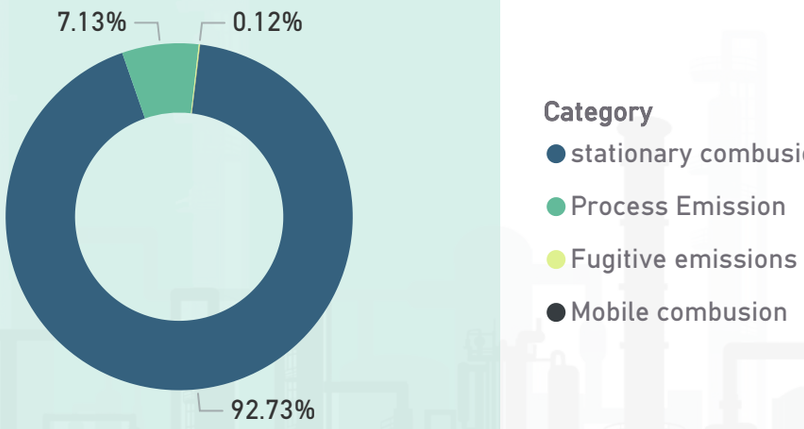
Total Calculated Emissions (tCO2e)

2.81M

Key Insights

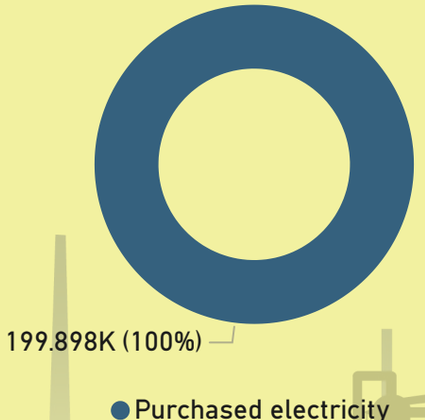
Stationary combustion dominates Scope 1 (92.7%), primarily from heaters and boilers firing fuel gas Process emissions (7.1%) mainly from hydrogen production units (U_09, U_21) and catalyst regeneration

Total of Calculated Emissions (tCO2e) by Category



Scope 2

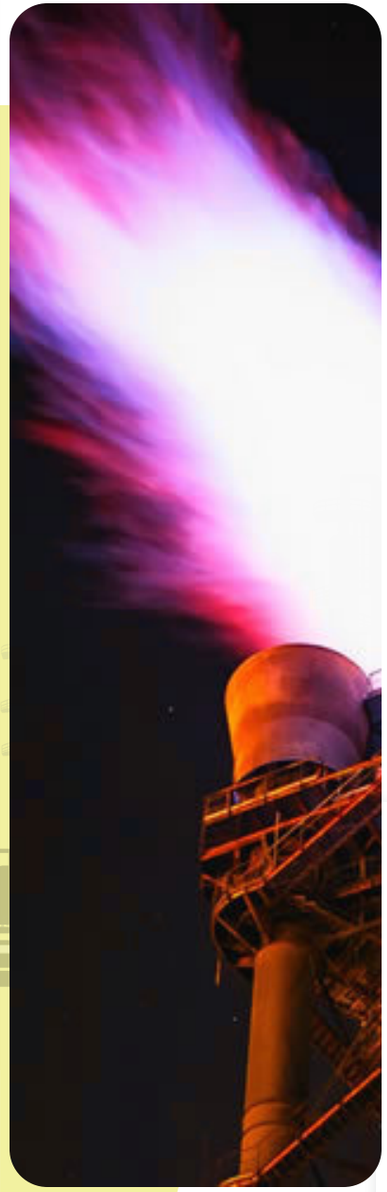
Total of Calculated Emissions (tCO2e) by Activity



Total Calculated Emissions (tCO2e)

199.90K

MIDOR consumes approximately 447 GWh annually of purchased electricity, primarily sourced from MIDELEC with National Grid serving as backup. The electricity intensity is 153 MWh per kiloton of crude processed, a key metric for tracking energy efficiency improvements.



Scope 3

Total Calculated Emissions (tCO2e)

16.93M

Category Completeness: Only Scope 3 Categories 7 (Employee Commuting) and 11 (Use of Sold Products) are quantified in this inventory. Other categories (1-6, 8-10, 12-15) are excluded due to data availability constraints. This exclusion approach follows GHG Protocol guidance requiring disclosure and justification of exclusions.

Category 11 emissions represent the combustion of refined products sold by MIDOR and consumed by end users. This is inherent to the refining business model and represents the largest share of our total inventory. Diesel and gasoline together account for 65% of product-use emissions.

Category 11: Product-Level Emissions

Description	Emissions (tCO2e)
Combustion of sold diesel/gasoil	7,571,640.10
Combustion of sold gasoline	4,734,405.90
Combustion of sold jet fuel/kerosene	2,047,311.00
Combustion of sold petroleum coke	1,139,427.30
Combustion of sold fuel oil	727,671.58
Combustion of sold LPG	658,065.00

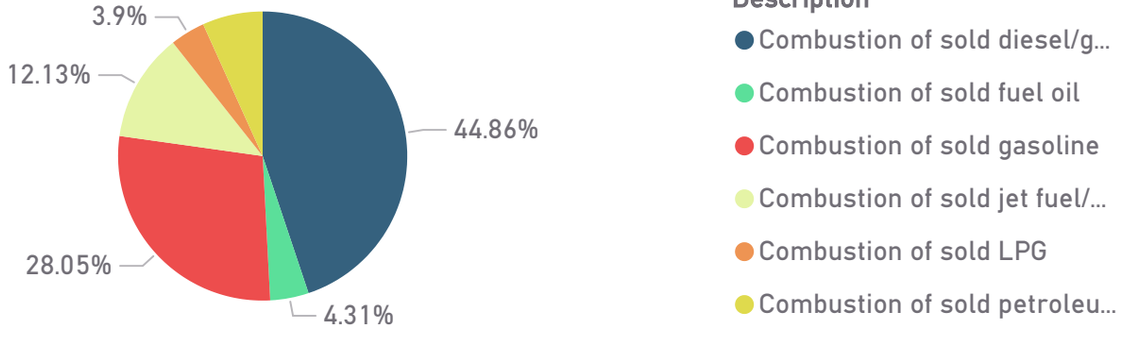
Use of Sold Products

16.88M

Employee comutee

48.00K

Category 11: Product-Level Emissions



Scope 1

Stationary Combustion

No	Emission source	Quantification methodology	Activity Data Unit	Emission Factor Source
1	Boilers	Calculation	GJ	Site Specific Emission Factor based on Lab Analysis
1	Fuel Oil Firing	Calculation	GJ	Site Specific Emission Factor based on Lab Analysis
1	Heaters	Calculation	GJ	Site Specific Emission Factor based on Lab Analysis
1	Incinerators	Calculation	GJ	Site Specific Emission Factor based on Lab Analysis
1	Flare	Calculation	Nm3	Site Specific Emission Factor based on Lab Analysis
1	Diesel Fire Pumps	Calculation	Litre	DEFRA 2024

Mobile Combustion

No	Emission source	Quantification methodology	Activity Data Unit	Emission Factor Source
2	Fire Vehicles	Calculation	Litre	DEFRA 2024
2	Forklifts	Calculation	Litre	DEFRA 2024
2	Maintenance Vehicles	Calculation	Litre	DEFRA 2024
2	Shuttle Bus movements	Calculation	Litre	DEFRA 2024

Process

No	Emission source	Quantification methodology	Activity Data Unit	Emission Factor Source
3	SRU Oxidation	Calculation	Ton Sulfur	Site Specific Emission Factor based on Mass Balance
3	Coke Drum Steaming Out	Calculation	Ton Coke	Site Specific Emission Factor based on Mass Balance
3	Hydrogen Production Unit	Calculation	Nm3 H2	Site Specific Emission Factor based on Mass Balance
3	Catalyst Regeneration	Calculation	kg Catalyst	Site Specific Emission Factor based on Mass Balance
3	Waste Water Treatment	Calculation	m3	IPCC 2006

Scope 1

Fugitive

No	Emission source	Quantification methodology	Activity Data Unit	Emission Factor Source
4	Fire Extinguishers	Calculation	kg CO2	DEFRA 2024
4	R-134a Leaks	Calculation	kg Refrigerant	DEFRA 2024
4	R-404a Leaks	Calculation	kg Refrigerant	DEFRA 2024
4	R-407a Leaks	Calculation	kg Refrigerant	DEFRA 2024
4	R-410a Leaks	Calculation	kg Refrigerant	DEFRA 2024
4	Product Loading / Unloading	Calculation	m3 Loaded	DEFRA 2024
4	Crude Oil Tanks	Calculation	m3 Throughput	Site Specific Emission Factor based on EPA AP-42
4	Diesel Tanks	Calculation	m3 Throughput	Site Specific Emission Factor based on EPA AP-42
4	Kerosene Tanks	Calculation	m3 Throughput	Site Specific Emission Factor based on EPA AP-42
4	LPG Tanks	Calculation	m3 Throughput	Site Specific Emission Factor based on EPA AP-42
4	Naphtha Tanks	Calculation	m3 Throughput	Site Specific Emission Factor based on EPA AP-42

Scope 2

Purchased Electricity

No	Emission source	Quantification methodology	Activity Data Unit	Emission Factor Source
6	MIDELEC Company	Calculation	MWh	Site specific from MIDELEC

Scope 3

Use Stage of the Product

No	Emission source	Quantification methodology	Activity Data Unit	Emission Factor Source
18	Sold diesel/gasoil	Calculation	Ton	DEFRA 2024
18	Sold fuel oil	Calculation	Ton	DEFRA 2024
18	Sold gasoline	Calculation	Ton	DEFRA 2024
18	Sold jet fuel/kerosene	Calculation	Ton	DEFRA 2024
18	Sold LPG	Calculation	Ton	DEFRA 2024
18	Sold petroleum coke	Calculation	Ton	DEFRA 2024

Employee Commuting

No	Emission source	Quantification methodology	Activity Data Unit	Emission Factor Source
22	Transport Fleet	Calculation	employee	DEFRA 2024

UNCERTAINTY CALCULATIONS

uncertainty values and references for each activity data type

No.	Activity Data Type	Uncertainty Value	Uncertainty Reference
1	Well Calibrated Meter	5.00%	IPCC 2006 Guidelines, Vol.2, Ch.1 – default ±5% for fossil fuel activity data
2	Supplier Invoices	5.00%	Supplier invoices treated as high-quality activity data; consistent with GHG Protocol 'High' data quality.
3	Purchased electricity from utility meter	5.00%	Assumed ±5% based on IPCC default for energy activity data; utility billing meters are high-quality meters (GHG Protocol 'High').
4	Flared gas with continuous flow and daily composition measurement	3.20%	API/IPIECA 'Addressing Uncertainty…', flare measurement example (API MPMS 14.10) gives 3.2% combined uncertainty
5	Flared/vented gas estimated by valve positions/orifice equations (no meter)	30.00%	Engineering estimate; assumed ±30% based on expert judgement. Classified as 'Fair' (low data quality) in GHG Protocol
6	Any one-off estimate (nameplate × hours, rough back-calcs)	30.00%	Engineering estimate; assumed ±30% based on expert judgement. Classified as 'Fair' (low data quality) in GHG Protocol
7	Coke burn by mass balance / air flow + composition routinely monitored	5.00%	Engineering estimate; assumed ±30% based on expert judgement. Classified as 'Fair' (low data quality) in GHG Protocol

UNCERTAINTY CALCULATIONS

Uncertainty values and references for each emission factor source

No.	Activity Data Type	Uncertainty Value	Uncertainty Reference
1	CO_2 from stationary fuel combustion using site-specific carbon content (lab)	5.00%	Based on expert judgement Classified as 'High' data quality in GHG Protocol terms.
2	DEFRA 2024 conversion factors	30.00%	Based on expert judgement For corporate inventory purposes we classify generic DEFRA factors as 'Fair–Poor' data quality (per GHG Protocol)
3	IPCC 2006 Vol.5 (Waste), Ch.6 - requires COD/BOD	30.00%	Based on expert judgement, factors treated as 'Fair–Poor' data quality (per GHG Protocol), tier 1
4	Process default / based on mass balance	30.00%	Based on expert judgement, factors treated as 'Fair–Poor' data quality (per GHG Protocol)
5	EF sheet - Refrigerants (tCO2e/kg)	30.00%	Based on expert judgement, factors treated as 'Fair–Poor' data quality (per GHG Protocol), tier 1
6	IPCC 2006 (Vol.2 Energy, default fuel carbon content)	30.00%	Based on expert judgement, factors treated as 'Fair–Poor' data quality (per GHG Protocol) , tier 1
7	Flares - CO_2 (combustion efficiency assumption)	5.00%	Based on expert judgement Classified as 'High' data quality in GHG Protocol terms.
8	Flares - CH_4	75.00%	IPCC Volume 2 Chapter 4
9	CO_2 (coke burn / flue gas mass balance)	5.00%	Based on expert judgement. Classified as 'High' data quality in GHG Protocol terms.
10	Fugitives (CH_4/CO_2) - factors	250.00%	IPCC Volume 2 Chapter 4

CHAPTER 5

DIRECT ACTIONS AND INTERNAL PERFROMANCE TRACKING

CHAPTER 5

DIRECTED ACTIONS AND INTERNAL PERFROMANCE TRACKING

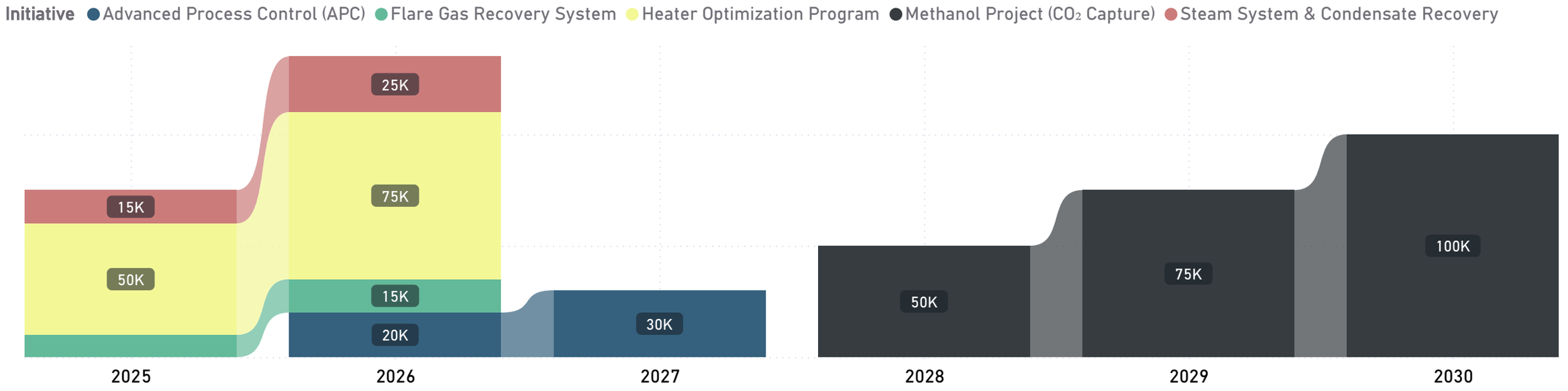
5.1 IMPLEMENTED DIRECTED ACTIONS

MIDOR has implemented the following GHG management initiatives

Initiative	Description	Status
Continuous Emissions Monitoring System (CEMS)	All smokestacks connected to EEAA monitoring network for real-time emissions tracking	Implemented
Energy Management Program	Systematic program for monitoring and optimizing energy consumption across process units	Initiated
Shuttle Scheduling Optimization	Optimized employee transport scheduling to minimize fuel consumption and mobile emissions	Implemented

Based on the 2024 baseline of 3,016,039 tCO_2e (Scope 1+2), MIDOR has identified the following reduction initiatives

5.2 MIYIGATION ROADMAP – PATHWAY TO 2030



5.3 ASSESSMENT OF PERFROMANCE AGAINST RELEVANT INTERNAL AND/OR EXTERNAL BENCHMARKS

MIDOR has implemented the following GHG management initiatives

Indicator	Formula	Calculation	2024 Value	Unit
Carbon Intensity Index	Scope 1 ÷ Crude Processed	2,816,141 ÷ 6,277	448.7	tCO_2e/kton crude
Combustion Carbon Intensity	Scope 1 Stationary ÷ Fired Duty	2,611,362 ÷ 42,522,606	0.0614	tCO_2e/GJ

The above matrices to be a reference value for future comparison with the base year and / or comparison with other Egyptian petroleum refineries

5.4 DESCRIPTION OF EFFICIENCY OR GHG EMISSION INTENCITY INDICATORS

Two key performance indicators have been established to track MIDOR's carbon efficiency and enable benchmarking against future performance and peer refineries.

Carbon Intensity Index (448.7 tCO_2e/kton crude):

This indicator measures the total direct GHG emissions generated per unit of crude oil processed. It is calculated by dividing total Scope 1 emissions (2,816,141 tCO_2e) by the annual crude throughput expressed in kilotons. The crude throughput of 46 million barrels was converted to 6,277 kton using a standard conversion factor of 7.33 barrels per metric ton. This indicator captures the overall carbon efficiency of refinery operations and is influenced by factors such as refinery complexity, product slate, crude quality, and operational efficiency. Lower values indicate better carbon performance relative to production output.

Combustion Carbon Intensity (0.0614 tCO_2e/GJ or 61.4 kg CO_2e/GJ):

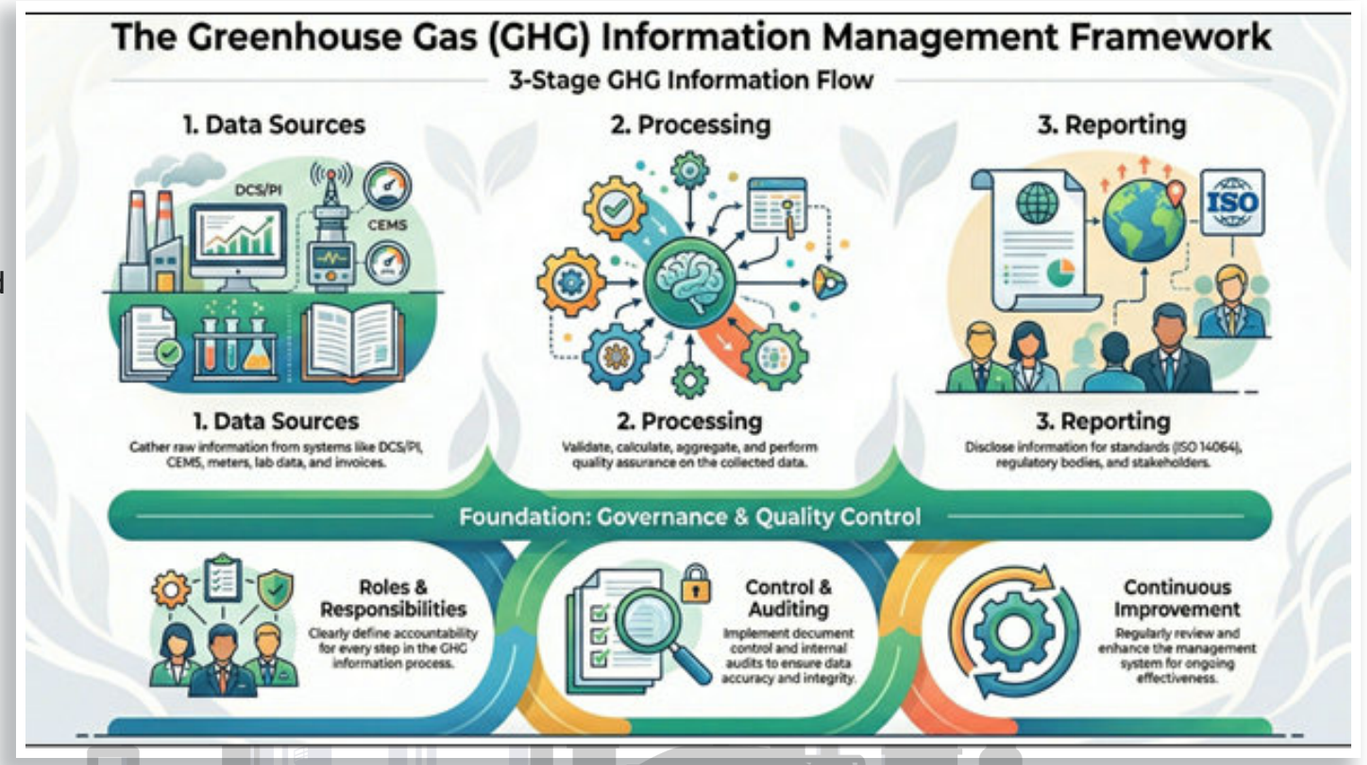
This indicator measures the carbon emissions per unit of thermal energy consumed in fired heaters and boilers. It is calculated by dividing Scope 1 stationary combustion emissions (2,611,362 tCO_2e) by the total fired duty (42,522,606 GJ). The fired duty was derived from operational fuel consumption records. This metric reflects the carbon efficiency of fuel combustion and is primarily influenced by fuel composition, combustion efficiency, and excess air levels. The value of 61.4 kg CO_2e/GJ is consistent with typical refinery fuel gas characteristics, which contain a mixture of methane, hydrogen, and heavier hydrocarbons.

Both indicators will serve as baseline references for tracking year-over-year improvement and for comparison with other Egyptian petroleum refineries operating under similar conditions.

5.5 DESCRIPTION OF GHG INFORMATION MANAGEMENT AND MONITORING PROCEDURES

MIDOR establishes and maintains GHG information management procedures by:

- Ensuring conformance with the principles of ISO 14064-1.
- Ensuring consistency with the intended use of the GHG inventory.
- Providing routine and consistent checks to ensure accuracy and completeness of the GHG inventory.
- Identifying and addressing errors and omissions.
- Documenting and archiving relevant GHG inventory records, including information management activities.



5.5 DESCRIPTION OF GHG INFORMATION MANAGEMENT AND MONITORING PROCEDURES

A MIDOR GHG information management procedure considers the following:

- Identification and reviewing of the responsibility and authority of those responsible for GHG inventory development.
- Identification, implementation and reviewing of appropriate training for members of the inventory development team.
- Identification and reviewing of the organizational boundaries.
- Identification and reviewing of GHG sources and sinks.
- Selection and reviewing of quantification methodologies, including GHG activity data and GHG emission and removal factors that are consistent with the intended use of the GHG inventory.
- Use, maintenance and calibration of measurement equipment (if applicable).
- Development and maintenance of a robust data-collection system.
- Regular accuracy checks.
- Periodic internal audits and technical reviews.
- A periodic review of opportunities to improve information management processes.
- Establishing and maintaining procedures for document retention and record keeping.

- Retaining and maintaining documentation supporting the design, development and maintenance of the GHG inventory to enable verification.
- The documentation, whether in paper, electronic or other format, shall be handled in accordance with the organization's GHG information management procedures for document retention and record keeping.

REFERENCES

No.of ref	REFERENCES
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