telecomegypt®

CLIMATE REPORT 2023/2024

TABLE OF CONTENTS

Securing Egypt's digital backbone requires a climate-resilient strategy, one that integrates governance, manages risk, and delivers measurable action for a sustainable future.

ABBREVIATONS & ACRONYMS

TCFD	Task Force on Climate-related Financial Disclosures
IPCC	Intergovernmental Panel on Climate Change
NGFS	Network for Greening the Financial System
FRA	Financial Regulatory Authority
NDC	Nationally Determined Contributions
NCCS	National Climate Change Strategy
SSPs	Socioeconomic Pathways
CAPEX	Capital Expenditure
OPEX	Operating Expenditure
ICT	Information & Communication Technology Solutions
GWP	Global Warming Potential
AAUs	Advanced Antenna Units
PPAs	Power Purchase Agreements
ESG	Environmental, Social, and Governance
SLL	Sustainability-Linked Loan
SLB	Sustainability-Linked Bond
RAN	Radio Access Network
HVAC	Heating, Ventilation, and Air Conditioning
CPA	Construction Plant-hire Association
UCaaS	Unified Communications as a Service
VCaaS	Video Conferencing as a Service
CDP	Disclosure Insight Action (Previously named: Carbon Disclosure Project)
MSCI	Morgan Stanley Capital International
S&P	previously Standard & Poor's and informally known as S&P
DC	Direct Current
WACC	Weighted Average Cost of Capital
ROI	Return on Investment
LED	Light-Emitting Diode
AI	Artificial Intelligence
SSDs	Solid-State Drives
SME	Small and Medium-sized Enterprise
NaaS	Network-as-a-Service
IELAS	In-building Equipment Locations/Areas
IoT	Internet of things

DEFINITIONS & TERMINOLOGY

Climate & Scenario Terms

SSPs (Socioeconomic Pathways)	A set of scenarios developed by the climate science community that describe alternative trajectories for global society, economy, and greenhouse gas emissions. This assessment uses SSP1-1.9, SSP2-4.5, and SSP3-7.0.
SSP1-1.9 (Orderly Transition)	A climate scenario where strong, early global policy leads to a timely transition to net-zero, limiting warming to ~1.5°C.
SSP2-4.5 (Disorderly Transition)	A climate scenario where delayed global action results in moderate warming (~2°C) and abrupt, disruptive policy changes later this century.
SSP3-7.0 (Hot House World)	A high-emissions climate scenario with weak global climate policy, leading to severe warming (3–4°C+).

Financial & Market Terms

SLL (Sustainability-Linked Loan)	A loan where the financial terms (e.g., interest rate) are linked to the borrower's achievement of pre-defined sustainability/ESG performance targets.
SLB (Sustainability-Linked Bond)	A bond instrument where the financial characteristics vary based on whether the issuer achieves predefined sustainability/ESG objectives.
PPA (Power Purchase Agreement)	A long-term contract to purchase electricity directly from a renewable energy generator (e.g., a solar farm).

Risk & Resilience Terms

Physical Risk	Financial losses and operational disruptions stemming directly from climate-related events.
Transition Risk	Financial and reputational risks associated with the shift to a low-carbon economy.
Chronic Risk	Physical climate risks that result from longer-term shifts in climate patterns (e.g., rising mean temperatures, prolonged water scarcity, sea-level rise).
Acute Risk	Physical climate risks that result from event-driven, increasing severity of extreme weather events (e.g., flash floods, severe storms, intense sandstorms).

ABOUT THE REPORT

This climate report marks a pivotal step in Telecom Egypt's strategic journey. We are formally embedding sustainability into our corporate DNA to build long-term value for all stakeholders. Central to this transformation is a firm commitment to climate action.

As Egypt's principal telecommunications operator and the enabler of critical international infrastructure, we are committed to leading with transparency. This document consolidates our Climate Risk Assessment (CRA), Carbon Footprint (CFP), and Task Force on Climate-related Financial Disclosures (TCFD) reporting into a single, comprehensive view.

Our objective is to offer clear insight into our climate strategy, track measurable progress against our goals, and detail the specific decarbonization initiatives that are driving our transformation forward. The report includes a climate scenario analysis, highlighting the material physical and transition risks, as well as the opportunities, for our extensive network of data centers, subsea cables, mobile towers, and other infrastructure.

This report is aligned with leading international standards and methodologies to ensure robust, transparent, and actionable disclosures. In line with the Task Force on Climate-related Financial Disclosures (TCFD), our reporting is structured around its four core pillars: Governance, Strategy, Risk Management, and Metrics & Targets. Our carbon emissions inventory is calculated using the operational control approach, adhering to the GHG Protocol Corporate Accounting and Reporting Standard and ISO 14064-1:2018. Furthermore, our climate scenario analysis utilizes pathways (SSP1-1.9, SSP2-4.5, and SSP3-7.0) based on the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report, ensuring our evaluation of plausible futures is grounded in the latest climate science. Our disclosures also fulfill the requirements of key local and international frameworks, including Egypt's Financial Regulatory Authority (FRA) Decree No. 108 of 2021 and the National Climate Change Strategy (NCCS) 2050.

INTRODUCTION

Message From the CEO

Reporting Boundary and Period

01

MESSAGE FROM THE CEO

At Telecom Egypt, our mission is to connect Egypt, securely, reliably, and responsibly. As we navigate an era defined by both digital transformation and climate urgency, I am proud to present our first Integrated Climate Report. This document is more than a disclosure; it is a reflection of our commitment to embed sustainability into the core of our operations, strategy, and governance.

During this reporting period, climate action became fully integrated with and inseparable from our core business priorities. We have made tangible strides: we reduced our direct Scope 1 emissions by 11.2% through proactive measures such as curbing fugitive emissions and optimizing fuel use. Our fiber monitoring system alone helped cut average fuel consumption for site visits by nearly half, from 14,150 liters to 7,700 liters, showcasing how innovation drives both environmental and operational efficiency.

Yet, the data also reveals our challenges. Our overall carbon footprint grew by 3.8%, largely due to increased energy consumption across our expanding network. This underscores a critical reality: our business growth must be matched by accelerated decarbonization. That is why our approach is organized around three pillars: Energy Efficiency & Network Modernization, Circular Economy & Resource Optimization, and Operational Excellence & Ecosystem Protection. Initiatives such as upgrading to Solid-State Drives, deploying energy-efficient Energy Efficiency & Network Modernization, and reusing decommissioned equipment are already delivering measurable results, including 311,193 kWh in energy savings in 2023 from equipment dismantling and reuse.

Rigorous risk awareness guides us as we assess both physical threats, like extreme heat and sea-level rise, and transition risks such as carbon pricing and energy volatility. This foresight shapes every investment we make.

This report embodies our pledge to lead with transparency and resilience. I extend my gratitude to our employees, partners, and stakeholders for their commitment to this journey. Together, we are not only safeguarding Egypt's critical digital infrastructure but also contributing to a sustainable and prosperous future for all.

Tamer El Mahdi
Managing Director & CEO

REPORTING BOUNDARY AND PERIOD

Organizational Boundary

The report encompasses all operations under our operational control across Egypt, including:

Exchange buildings	1,700
Cable Landing Stations	10
Mobile Networks (Towers)	>4,000
Administrative buildings, Main Warehouses, Stores, and MSAN Cabins	MSAN Cabins: >34,000
	Stores: 1,500
	Telecom Egypt Headquarters: 7
	Administrative buildings: +30
	Main Warehouses: 6

We maintain an organization-wide emissions boundary to ensure our carbon footprint includes all material sources. This captures essential emissions beyond our physical sites, such as mobile combustion from our fleet, fugitive emissions from refrigerants, the market-based impact of purchased energy, and select Scope 3 value chain activities.

Reporting Period and Base year

The reporting period is from the **1st of January 2023** to the **31st of December 2024**.

In line with our commitment to data integrity and evolving best practices in climate reporting, we have changed the base year to 2023 for all scopes (1, 2, and 3). This update, which replaces the previous 2022 base year from our 2021-2022 assessment, establishes a more precise benchmark for evaluating our progress and aligns with evolving climate reporting standards. This adjustment was necessary for two primary reasons:

1

Methodological Improvements & Significant Corrections

For Scope 1 and 2

Enhancements in the accuracy of our activity data and emission factors resulted in a material impact on the base year inventory.

According to the GHG Protocol, such significant improvements warrant a base year revision to maintain consistency and reliability.

2

Boundary Expansion for a more Comprehensive Inventory

For Scope 3

Our Scope 3 baseline has been significantly expanded to include several new categories that were not previously accounted for, providing a more complete picture of our value chain emissions

GOVERNANCE

Leadership Oversight

Management Accountabilities

02

This section outlines Telecom Egypt's governance framework, detailing the structures and responsibilities at the Board and executive management levels for overseeing climate-related risks and opportunities. It demonstrates how ultimate accountability resides with the Board of Directors, while stewardship is delegated to dedicated committees and sustainability teams, ensuring that climate considerations are systematically elevated from operational compliance to strategic imperative. This governance model is critical for steering the company's transition and building long-term resilience for Egypt's critical digital infrastructure.

LEADERSHIP OVERSIGHT

Ultimate responsibility for climate-related risks and opportunities resides with the Board of Directors. The Board ensures these matters are formally integrated into corporate governance, strategic planning, and organizational performance monitoring. This oversight is critical as the company transitions toward a fully embedded sustainability strategy. Day-to-day stewardship of climate and sustainability issues is delegated to the Sustainability & Climate Change Steering Committee. This specialized committee is responsible for reviewing the organization's Sustainability Model Standards, sustainability performance ranking, the impact of ESG performance on operations and finance, and relevant KPIs. The Board reinforces this focus through a dedicated governance framework:

- **Specialized Committee:** Climate and sustainability issues are primarily managed at the committee level through the Sustainability & Climate Changes Steering Committee. Climate risk is reviewed within this committee, alongside the organization's sustainability performance rank, the impacts of TE's ESG performance on operations and finance, and relevant sustainability KPIs.
- **Supporting Board Committees:** The Board of Directors also oversees various committees, such as the Corporate Social Responsibility (CSR) Committee and the Legal & Governance Committee, which support the broader governance framework.
- **Governance Mandate:** The Board issues an operating charter detailing the duties, responsibilities, and operating principles of board members and their committees, confirming the company's commitment to a comprehensive governance framework that ensures transparency and accountability.
- **Executive Integration:** Oversight is supported by the Executive Management and the Sustainability Team, which is embedded within the Corporate Quality, Business Excellence, & Sustainability Division, under the Strategic & Business Process Sectors.

MANAGEMENT ACCOUNTABILITIES

1. Strategic Integration and Scenario Mandate

The Steering Committee guides strategy and decision-making based on climate data, addressing prior disclosure deficiencies by mandating scenario-based risk quantification:

- **Guiding Strategy and Strategic Phases:** The Steering Committee oversees the organization's strategic progression from a compliance focus where sustainability is "Embedded in Corporate Strategy". The Steering Committee guides management's dedication to Advance corporate sustainability agenda.
- **Formal Assessment Milestone:** The Steering Committee mandates and reviews the formal climate risk evaluation process. This assessment directly addresses a prior gap, establishing a formal process to evaluate climate-related risks and opportunities across short- and long-term scenarios. The scenarios used for this assessment (e.g., SSP1-1.9, SSP2-4.5, SSP3-7.0) stress-test key assets like exchanges and network infrastructure, data centers and subsea cables against extreme chronic physical risks (like Rising Mean Temperatures and Sea-Level Rise) and transition risks (like Energy Price Volatility).
- **Guiding Strategy by Climate Scenarios:** The Steering Committee monitors the strategy's resilience against the spectrum of risks defined in the Climate Risk Assessment (CRA).

- **Decarbonization Targets (Transition Resilience):** Under structured oversight, the organization will establish long-term targets, a process that is currently in development and will be formally validated. Once finalized, this quantified target is intended to serve as a primary KPI for mitigating transition risks, such as exposure to carbon taxes and evolving emissions regulations.
- **Infrastructure Adaptation (Physical Resilience):** The Steering Committee reviews climate risks, monitors progress on mitigation efforts, and oversees the action plans designed to future-proof infrastructure against physical threats. Oversight covers investments in Operational Resilience & Risk Oversight, including key initiatives like securing the most critical buildings against fire-risk (CPA). The CRA documents these physical risks, such as the threat of Extreme Weather Events (Acute). The Board's guidance on major capital expenditures addresses the necessity to Invest in energy-efficient infrastructure and Implement renewable energy sources, which helps mitigate the chronic physical risk of Rising Mean Temperatures that accelerate equipment aging.

2. Financial and Compliance Oversight

Climate performance is linked directly to financial integrity and external compliance through dedicated oversight:

- **Guiding Strategy and Strategic Phases:** Oversight is designed to ensure that strong ESG performance is achieved to access capital, mitigating the transition risk of Failure to Meet Investor Climate Demands. This is evidenced by the commitment to monitor ESG Performance Evaluations and the subsequent access to sustainability-linked loans (SLLs) and bonds (SLBs).
- **Transparency and Controls:** Transparency is ensured by the commitment to Release Sustainability & TCFD reports annually. Furthermore, we plan to integrate established processes for identifying, assessing, and managing climate risks into our organization's control environment.

3. Dedicated Organizational Structure and Executive Reporting

Management's role in assessing and managing climate-related issues is assigned to the Sustainability Unit, which is embedded within the Corporate Quality, Business Excellence, & Sustainability Division under the Strategy Sector.

Key mechanisms for informing management include:

- **Executive Oversight:** The Sustainability Team operates under the Strategy Sector.
- **Formal Committee Meetings:** Management is informed through the Sustainability & Climate Changes Steering Committee Meeting, which includes "Sustainability Model Standards," "Sustainability initiatives within TE's strategic plan," the "Impacts of TE's ESG Performance," and "Sustainability KPIs" on its agenda.
- **Reporting Requirements:** Management is informed by following up on and fulfilling disclosures for regulatory bodies and global frameworks.

4. Formal Risk Assessment and Quantification Processes

Management relies on rigorous assessment processes that quantify and categorize climate risks (both physical and transition risks) across different time horizons:

- **Scenario Planning:** The organization is committed to performing the TE Sustainability & Climate Changes Strategy, Materiality & Risk Assessment. This process requires the organization to Assess risks and opportunities related to climate risks over short and long term scenarios.
- **Emissions Calculations:** Management is informed of transition risk metrics through Carbon Emissions Calculations for the company's operations (including purchased electricity, fuel consumption, water consumption, and waste). These calculations are performed based on international standards such as the GHG Protocol and the Intergovernmental Panel on Climate Change (IPCC).
- **Materiality Assessment:** Management relies on the double materiality assessment (introduced in 2024) to prioritize risks. This process informs management about issues that are either significant in terms of outward environmental/social impacts (Impact Materiality) or that affect enterprise value and financial performance (Financial Materiality) over the short, medium, or long term.

5. Monitoring Performance and External Scrutiny:

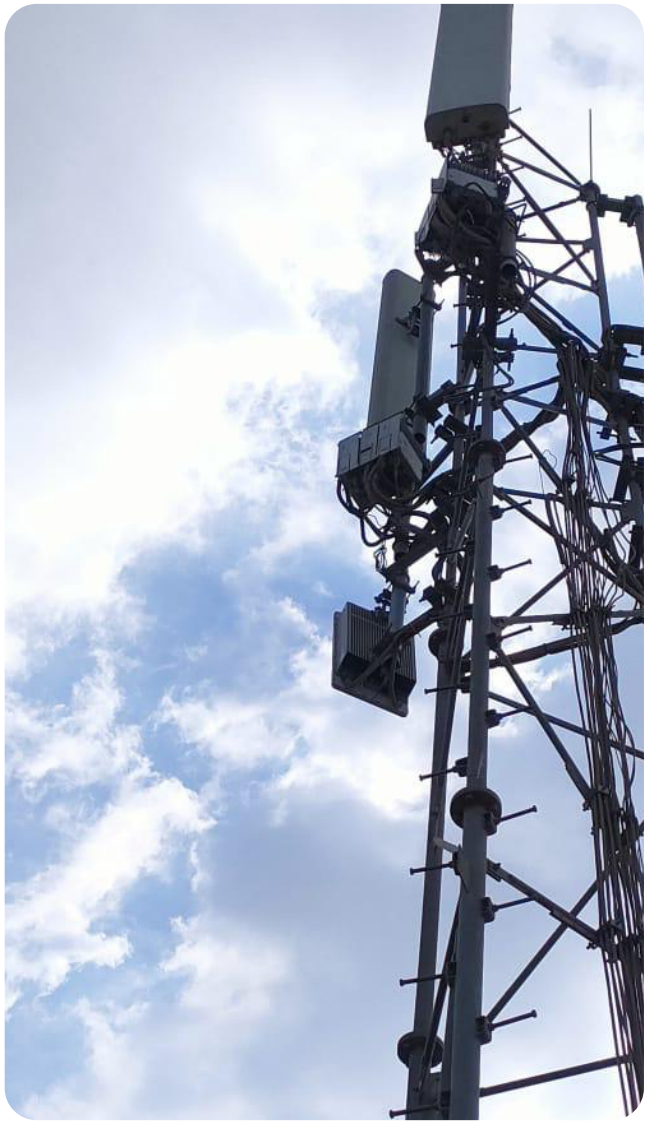
Management is continually updated on climate risks and opportunities through external evaluation and accountability mechanisms:

- **ESG Performance Evaluations:** The Sustainability Unit conducts ESG Performance Evaluations to monitor sustainability performance in response to inquiries from investors, regulatory bodies such as Egypt's Financial Regulatory Authority (FRA), and ESG scoring agencies.
- **Transparency and TCFD Reporting:** Management is informed of climate risk exposure when preparing regular Sustainability & TCFD reports annually. The disclosure process itself helps management understand risks by aligning the disclosures with the four core TCFD thematic areas (Governance, Strategy, Risk Management, and Metrics & Targets).
- **Identifying Deficiencies:** Past assessments highlighted that our performance was deficient due to the absence of sustainability and climate-related risks integrated with short- and long-term scenarios, as well as unreliable reporting. This directly contributed to a very low ESG score of 19/100 by S&P Global. Addressing these specific deficiencies encourage management to formalize climate risk processes and stay informed.

6. Collaboration and Awareness:

Management ensures climate risks are understood across relevant sectors:

- **Internal Communication:** The Sustainability Unit is responsible for Stakeholder Engagement to "Effectively communicate the strategic direction related to sustainability to all Affairs and ensure continuous follow-up" on execution.
- **Targeted Awareness Sessions:** Management conducts Awareness Sessions for employees covering topics like Energy efficiency & Energy reduction strategies, Circular Economy, and Net Zero Emissions. In 2026, these sessions will be conducted for different sectors.
- **External Partnerships:** Management also stays informed by participating in global movements to drive climate action, such as the GSMA Climate Action Task Force, which focuses on topics including infrastructure adaptation and energy efficiency.
- **Management Specific Accountabilities (KPIs):** Management delegates and monitors climate-related targets through KPIs, with the following accountabilities currently under consideration as part of our evolving strategy:
  - **Technical Affairs** is being considered for accountability in reducing electricity and diesel use and increasing renewable energy sourcing.
  - **Procurement & Warehouse Sectors** are being considered for accountability in integrating ESG considerations into vendor selection and advancing e-waste management efforts.



STRATEGY

Time Horizons

Scenario Analysis

Climate-Related Risks and Opportunities

Methodology for Determining Materiality Scores

03

This section elucidates how Telecom Egypt integrates climate considerations into its core strategic planning processes. It details the use of scenario analysis, based on IPCC pathways like SSP1-1.9, SSP2-4.5, and SSP3-7.0, to stress-test the business model against a spectrum of physical and transition risks over short, medium, and long-term horizons. Furthermore, it articulates the company's strategic response, identifying not only material risks to its extensive network of data centers, subsea cables, mobile towers, and other infrastructure but also the significant opportunities, driven by market demand, that arise from leading the transition to a low-carbon, digitally enabled future in alignment with Egypt's NCCS 2050.

TIME HORIZONS

For Telecom Egypt, as for the telecommunications sector globally, climate risk assessments are structured around three standard time horizons:

- **Short-term (present to ~2030),**
- **Medium-term (~2030–2040/2050),**
- **and Long-term (~2040/2050–2100).**

These horizons are not specific to Egypt but are the widely adopted global framework recommended by the TCFD and used across the telecom industry worldwide.

The short-term horizon aligns with regulatory reporting cycles, near-term capital planning, and physical risks that are already material today (e.g., heatwaves and sandstorms affecting network reliability).

The medium-term horizon captures the typical economic life of most telecom assets (5G/6G cycles, data centers, fiber routes) and the period when the majority of transition risks (carbon pricing, renewable-energy mandates, diesel phase-out) and intensifying physical risks (water scarcity, coastal flooding) are expected to peak.

The long-term horizon addresses the full lifetime of long-lived infrastructure, Egypt's 2050 net-zero pathway under the National Climate Change Strategy, and end-of-century chronic physical risks such as sea-level rise in the Nile Delta that could affect, cable landing stations, and network infrastructure.

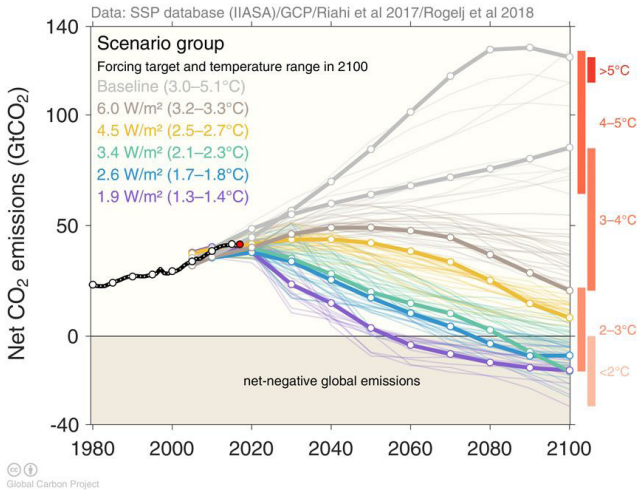
This consistent three-bucket approach therefore allows Telecom Egypt to maintain comparability with global peers while fully incorporating Egypt-specific climate vulnerabilities.

Category	Short term	Medium term	Long term
Time Horizon	0-5 years	5-20 years	20 + years
Rationale for selection	Aligns with annual reporting under Egypt's Financial Regulatory Authority (FRA) Decree No. 108 (2021) mandating TCFD-like disclosures, capex for 5G rollouts, cable landing stations and network infrastructure, and immediate physical risks like intensified sandstorms disrupting tower operations or heatwaves straining cooling in Cairo/ Alexandria data centers, exchange buildings and cable landing stations. Matches Egypt's near-term NDC targets for renewable energy integration to mitigate grid vulnerabilities.	Corresponds to asset lifecycles (e.g., 5G-to-6G upgrades, 10–15-year data center refreshes), and NCCS 2050 adaptation priorities like flood-resilient cable landing stationsin the Suez Canal area. Captures peak transition risks from carbon taxes/phasing out diesel generators (common in rural sites) and medium-term physical threats like Nile water scarcity impacting the data centers headquarters that rely on water-cooled systems.	Covers full asset lifetimes (e.g., permanent rights-of-way for fiber, coastal towers, data centers, exchange buildings and cable landing stations) and end-century physical risks under NCCS scenarios, such as chronic sea-level rise submerging 10–20% of Delta infrastructure or soil shifts in Sinai. Essential for aligning with Egypt›s 2050 net-zero pathway and global commitments, where chronic heat could double outage risks for unhardened equipment.

SCENARIO ANALYSIS

Telecom Egypt's climate risk assessment is built around the three scenarios presented in the table, which follow the standard practice of the global telecommunications sector and fully comply with TCFD recommendations. These scenarios, SSP1-1.9, SSP2-4.5, and SSP3-7.0, have been deliberately chosen to cover the full spectrum of plausible futures, from an ambitious orderly transition to a high-emissions "hot house" world.

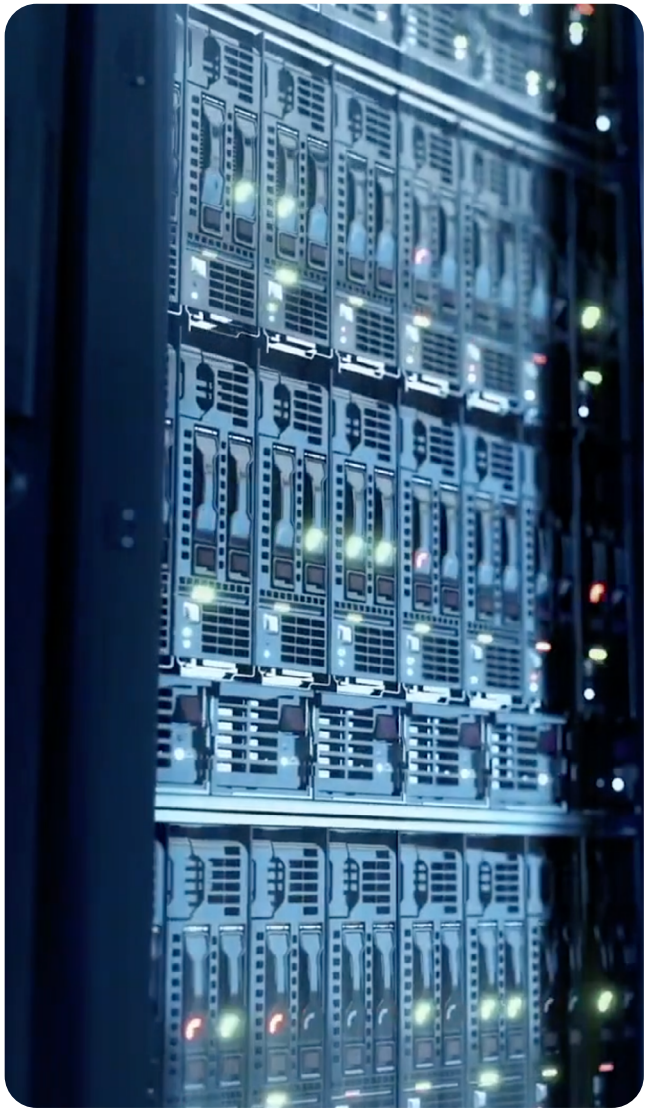
The selection rationale emphasizes covering optimistic mitigation (early action), moderate disruption (delayed efforts), and worst-case adaptation challenges (policy failure), allowing Telecom Egypt to stress-test its infrastructure, such as Nile Delta-based fiber networks, data centers, and subsea cables, against varying intensities of heatwaves, sea-level rise, water scarcity, and policy shifts like carbon taxes or renewable mandates.



These three scenarios enable Telecom Egypt to:

- Quantify the highest transition risks under an orderly but ambitious 1.5 °C pathway (SSP1-1.9),
- Capture the combined peak of disorderly transition and moderate physical risks that many analysts consider the most probable outcome (SSP2-4.5),
- Stress-test the resilience of long-lived assets against the most severe chronic and acute physical climate hazards that could materialize in a failure-of-policy world (SSP3-7.0).

By applying these globally recognized scenarios across the short-term (present–2030), medium-term (2030–2040/2050), and long-term (2050–2100) horizons established earlier, Telecom Egypt ensures full comparability with international peers while rigorously addressing Egypt-specific vulnerabilities such as Nile Delta sea-level rise, water scarcity, extreme heat, and sandstorms.



Climate Scenario	SSP1-1.9 Orderly Transition – Early Policy Action	SSP2-4.5 Disorderly Transition – Business-as-usual	SSP3-7.0 Hot House World – Late Policy Action
Summary	The world achieves a timely net-zero transition by 2050 through early policy action. Global warming stabilizes at ~1.5°C, with limited physical impacts.	Transition is delayed; abrupt policy changes occur after 2030. Moderate warming of ~2°C by mid-century with gradually intensifying physical risks.	Net-zero targets are abandoned. Severe physical impacts with temperatures reaching ~2°C by 2050 and ~3.6°C by 2100.
Impact on Telecom Egypt	**Transition Risks: High** **Physical Risks: Limited** Tests risks of rapid decarbonization including renewable mandates, carbon pricing, and green investment requirements.	**Transition Risks: Highest** **Physical Risks: Moderate** Captures combined stress of volatile energy prices, sudden regulatory shocks, and intensifying physical hazards.	**Transition Risks: Limited** **Physical Risks: Highest** Tests material physical risks to coastal infrastructure, cable landing stations, and heat-sensitive equipment.
Rationale for selection	Selected as the orderly **“best-case”** scenario allowing us to assess highest transition pressure while keeping physical risks manageable.	Selected as the most likely **“middle-of-the-road”** outcome if current trends and nationally determined contributions (NDCs) continue without significant acceleration, serving as our core stress-test scenario.	Selected as a **“plausible worst-case”**, to ensure we capture the full scope of material physical risks under high warming, critical for Egypt›s coastal and Delta infrastructure.

CLIMATE-RELATED RISKS AND OPPORTUNITIES

Cable Landing Stations | Exchange Buildings | Data Centers | Network Infrastructure | Administrative Buildings | Mobile Towers

				Most affected TE Assets
1	**Physical Risk:** Chronic	Rising Mean Temperatures	Network equipment could overheat, leading to higher OPEX (cooling) and CAPEX (equipment upgrades, resilience), especially in Egypt's hot climate where temperatures may exceed 45°C, straining data centers in Cairo and Alexandria.	
2	**Physical Risk:** Chronic	Land Subsidence (Heat/Drought)	Higher capital costs for remediation and reinforcement of underground infrastructure, particularly fiber optic cables in the subsiding Nile Delta region affected by groundwater extraction and climate-induced drought.	
3	**Physical Risk:** Chronic	Sea-Level Rise	This would affect coastal assets, leading to increased CAPEX for protection/relocation and potential asset devaluation, with projections of 12-m rise by 2100 threatening cable landing stations located on the red sea and Mediterranean shores.	
4	**Physical Risk:** Chronic	Water Scarcity	Potential for increased operational costs and capital expenditure for administrative facilities, due to constrained water availability for chilled-water cooling systems. Projected reductions in Nile River water availability (estimated 10-30% by 2050) could limit the supply for district chilled-water systems. This specifically impacts the administrative buildings in Smart Village, which are connected to a central chilled-water plant for cooling. Operational continuity for infrastructure is not at risk from this vector.	
5	**Physical Risk:** Acute	Extreme Weather Events (e.g., Floods, Storms).	Elevated OPEX & CAPEX for repairs, network redundancy, and business continuity measures, including flash floods in urban areas like Cairo that could disrupt power supply to telecom towers, and cable landing stations located on the red sea and Mediterranean shores.	
6	**Physical Risk:** Acute	Sandstorms and Dust Events	Temporary network outages and equipment damage from sand infiltration, increasing maintenance OPEX in desert-adjacent regions, with climate change potentially intensifying frequency and severity in Egypt.	

Cable Landing Stations | Exchange Buildings | Data Centers | Network Infrastructure | Administrative Buildings | Mobile Towers

				Most affected TE Assets
7	**Transition Risk:** Policy/Legal	Carbon Taxes & Emissions Regulations	Increased operating costs are anticipated due to evolving compliance and carbon pricing regulations, including Egypt's National Climate Change Strategy 2050. A future expansion of the EU's Carbon Border Adjustment Mechanism (CBAM) to include international cables would also directly impact TE's infrastructure, such as cable landing stations. Proactive decarbonization mitigates this regulatory risk and ensures TE's competitiveness in global networks.	*
8	**Transition Risk:** Policy/Legal	Bans on High-GWP Refrigerants	Significant capital expenditure (CAPEX) to retrofit or replace systems in data centers and network equipment, with operational risks from non-compliance under international agreements.	
9	**Transition Risk:** Market	Energy Price Volatility & Supply Security	Increased and unpredictable operating expenses (OPEX) amid Egypt's fossil fuel dependence and global shifts to renewables, potentially exacerbated by geopolitical tensions affecting energy imports.	
10	**Transition Risk:** Reputation	ESG Performance Scrutiny from Customers/Investors/ Regulators	Potential revenue loss from reputational damage and shifting market preferences, as seen in growing investor demands for TCFD-aligned reporting and carbon footprint reductions in Telecom Egypt's sustainability disclosures.	*
11	**Transition Risk:** Reputation	Failure to Meet Investor Climate Demands	Restricted capital access, higher financing costs, reputational damage, and unplanned corrective investments, particularly as global ESG ratings evaluate Telecom Egypt's environmental performance.	*
12	**Transition Risk:** Market	Supply Chain Disruptions for Critical Materials	Increased costs and delays in procuring telecom equipment (e.g., rare earth metals for devices) due to global climate policies restricting mining or transport, impacting Telecom Egypt's network expansion and maintenance.	
13	**Transition Risk:** Technology	Shift to Low-Carbon Technologies	Required investments in energy-efficient infrastructure, such as upgrading to AI-optimized networks or renewable-powered base stations, to align with Egypt's NCCS 2050 and avoid obsolescence risks.	

* Risks affect business performance and stakeholder trust, rather than directly impacting physical assets.


Cable Landing Stations


Exchange Buildings


Data Centers


Network Infrastructure


Administrative Buildings


Mobile Towers

14	**Opportunity:** Market	Demand for Substitution Services (E.G., Remote Collaboration)	New revenue streams from increased data and conferencing service usage as a substitute for business travel, leveraging Telecom Egypt's digital infrastructure to support low-carbon alternatives amid global emission reduction efforts.
15	**Opportunity:** Reputation	Strong ESG Performance & Investor Valuation	Improved market valuation and potential for share price appreciation through demonstrated commitment to sustainability, as highlighted in Telecom Egypt's 2023-2024 Sustainability Report and Carbon Footprint mapping.
16	**Opportunity:** Resource Efficiency	Access to Sustainable Finance	Improved access to capital and favorable financing terms (e.g., sustainability-linked loans), due to strong sustainable performance and alignment with international standards, enabling funding for green data hubs.
17	**Opportunity:** Energy Sources	Adoption of Energy-Efficient Technologies and Renewable Energy.	Significant reduction in long-term operating costs (OPEX) by deploying solar power and implementing energy-efficient technology upgrades across our base stations, exchanges, and cable landing stations, a strategy validated by Telecom Egypt's regional data hub projects.
18	**Opportunity:** Products & Services	Markets for Efficient/ Sustainable Services	Expanded revenue opportunities through innovative offerings and enhanced brand appeal, such as ICT solutions for climate monitoring and smart cities in Egypt, supporting national adaptation under NCCS 2050.

PHYSICAL RISKS

Physical risks refer to the direct financial and operational impacts on assets, supply chains, and operations resulting from acute climate-related events and long-term chronic shifts in climate patterns.

The company's extensive, geographically dispersed infrastructure is acutely vulnerable to climate-driven physical threats, with the most severe impacts concentrated in the **"Hot House World" scenario (SSP3-7.0)**. Chronic risks pose systemic, long-term challenges. **Rising Mean Temperatures** (rated Very High in SSP3-7.0 long-term) threaten core operations by increasing cooling demands for exchange buildings and cable landing stations and accelerating equipment aging, a risk the company is mitigating through initiatives like cable landing station PUE optimization, which achieved an average 1.5% reduction in power consumption. **Sea-Level Rise** presents an existential threat to critical coastal assets, with projections of 1-2 meters by 2100 endangering cable landing stations in the Mediterranean & Red Sea, potentially requiring massive relocation CAPEX. **Land Subsidence** in the climate-vulnerable Nile Delta, driven by drought and groundwater extraction, threatens the integrity of buried fiber optic cables, rated a Very High chronic risk. Acute physical risks are increasingly disruptive. **Extreme Weather Events** like floods and storms (rated Very High in SSP3-7.0) can cause widespread network outages and damage, while **Sandstorms & Dust Events** are intensifying in frequency and severity, increasing maintenance OPEX and degrading equipment in desert regions. These combined hazards directly threaten national service continuity, with the CRA stress-testing confirming that unmitigated, they could lead to catastrophic asset failure and chronic service disruptions.

Climate Factor	Climate Scenario	Short-term (present to ~2030)	Medium-term (~2030–2040/2050)	Long-term (~2040/2050–2100)
Rising Mean Temperatures (Chronic)	SSP1-1.9	●	●	●
	SSP2-4.5	●	●	●
	SSP3-7.0	●	●	●
Land Subsidence (Chronic)	SSP1-1.9	●	●	●
	SSP2-4.5	●	●	●
	SSP3-7.0	●	●	●
Sea-Level Rise (Chronic)	SSP1-1.9	●	●	●
	SSP2-4.5	●	●	●
	SSP3-7.0	●	●	●
Water Scarcity (Chronic)	SSP1-1.9	●	●	●
	SSP2-4.5	●	●	●
	SSP3-7.0	●	●	●
Extreme Weather Events (Acute)	SSP1-1.9	●	●	●
	SSP2-4.5	●	●	●
	SSP3-7.0	●	●	●
Sandstorms & Dust Events (Acute)	SSP1-1.9	●	●	●
	SSP2-4.5	●	●	●
	SSP3-7.0	●	●	●

Very High	Catastrophic, systemic impact. Widespread asset failure or loss, chronic service outages, and existential threats to critical infrastructure from extreme or irreversible climate events, necessitating massive, urgent capital investment.
High	Severe, frequent impact. Major operational disruptions, significant asset damage, and substantial increases in both OPEX (e.g., cooling, repairs) and CAPEX (e.g., hardening, relocation) that threaten network reliability.
Average	Recurrent impact with operational and financial consequences. Noticeable increases in repair OPEX, accelerated asset wear, and occasional service disruptions requiring planned resilience investments
Low	Minimal direct impact. Potential for slight increases in maintenance or cooling costs, but no threat to service continuity or asset integrity. Impacts are infrequent and localized.
Very low	No expected damage or disruption from climate hazards. Assets are in locations with negligible exposure to chronic changes or extreme weather events.

#	Risk factor	Materiality by Climate Scenario		Time Horizon & Evolving Impact	Impact on Financial Planning
Chronic Risks					
1	**Rising Mean Temperatures**	SSP1-1.9 SSP2-4.5 SSP3-7.0	Higher cooling costs across exchanges, data centers, and cable landing stations. Thermal throttling during heatwaves >45°C. Accelerated equipment aging.	**Short-term:** Higher cooling OPEX. **Medium-term:** Accelerated equipment aging; grid instability. **Long-term:** +3–3.6°C warming may require site relocation or liquid cooling.	Results in higher OPEX for running cooling systems. Requires recurring CAPEX for equipment upgrades and system resilience.
2	**Land Subsidence (Heat/Drought)**	SSP1-1.9 SSP2-4.5 SSP3-7.0	Fiber routes in Nile Delta zones at risk. Reinforcement and rerouting required in high-risk regions.	**Short-term:** Monitoring of vulnerable zones. **Medium-term:** Reinforcement of ducts and manholes. **Long-term:** Major CAPEX for fiber replacement or wireless backhaul.	Higher CAPEX for reinforcement, remediation, and selective rerouting.
3	**Sea-Level Rise**	SSP1-1.9 SSP2-4.5 SSP3-7.0	Coastal assets at risk (Alexandria, Suez landing stations). Flood barriers and elevation needed. Potential relocation under high scenarios.	**Short-term:** Exposure mapping. **Medium-term:** Flood barriers and drainage upgrades. **Long-term:** 1–2m rise may require site relocation.	Increased CAPEX for flood barriers and protective works. Potential long-term asset devaluation or relocation costs.
4	**Water Scarcity (Nile Flow Decline)**	SSP1-1.9 SSP2-4.5 SSP3-7.0	3–4 data centers and ~5 HQs using water-cooled systems exposed. Nile reductions of 20–30% by 2050 make water sourcing less reliable.	**Short-term:** Higher water costs for affected sites. **Medium-term:** Sourcing becomes less reliable. **Long-term:** Elimination of water-cooling from portfolio.	Phased CAPEX to retrofit water-cooled assets. Rising OPEX for water costs. Long-term OPEX benefit from transitioning to water-independent infrastructure.

Very High | High | Average | Low | Very low

#	Risk factor	Materiality by Climate Scenario		Time Horizon & Evolving Impact	Impact on Financial Planning
Acute Risks					
5	**Extreme Weather Events (Floods, Storms, Heavy Rain)**	SSP1-1.9	Repairs needed for flood-damaged infrastructure. Recurrent storms require hardened routes and redundancy.	**Short-term:** Repair costs. **Medium-term:** Hardened routes and redundancy. **Long-term:** Escalating insurance; compromised continuity.	Elevated OPEX for repairs. Recurring CAPEX for network redundancy. Increased insurance premiums.
		SSP2-4.5			
		SSP3-7.0			
6	**Sandstorms & Dust Event**	SSP1-1.9	Sand infiltration in desert-adjacent sites. Damage to cooling intakes and radio units.	**Short-term:** Higher maintenance OPEX. **Medium-term:** CAPEX for filters and hardened housings. **Long-term:** Intensified frequency disrupts service quality.	Increased routine maintenance OPEX. CAPEX for hardened equipment housings and filters.
		SSP2-4.5			
		SSP3-7.0			

Very High | High | Average | Low | Very low

TRANSITION RISKS

Transition risks are financial, operational, and strategic challenges that arise from the process of shifting toward a lower-carbon global economy. These risks stem from changes in climate-related policies, regulations, technologies, market preferences, and reputational factors.

Telecom Egypt faces significant and multi-faceted transition risks driven by the global shift to a low-carbon economy, with the **Disorderly Transition scenario (SSP2-4.5) presenting the "Highest" level of risk**. Financially, the most pressing threats stem from policy and market volatility. **Carbon Taxes & Emissions Regulations** are a critical exposure, especially as Egypt advances its National Climate Change Strategy 2050 (NCCS). This is exacerbated by the company's continued reliance on diesel generators, with **Stationary Combustion (diesel) emissions surging 41.0% in 2024**, increasing both future compliance costs and vulnerability to carbon pricing. Concurrently, **Energy Price Volatility & Supply Security** remains a severe risk (rated Very High in SSP2-4.5) due to dependence on Egypt's fossil-fuel-based grid and volatile global markets, directly impacting OPEX as network energy consumption grows. **Technology Shift to Low-Carbon Infrastructure** also poses a major strategic risk, necessitating large-scale CAPEX to avoid obsolescence; this is underscored by the need to modernize amidst a **5.8% increase in Scope 2 (purchased electricity) emissions** in 2024. Furthermore, **ESG Scrutiny from Investors and Regulators** and the risk of **Failure to Meet Investor Climate Demands** are heightened by the company's current ESG performance trajectory, though improving from an S&P Global score of 4 to 19/100. Failure to manage these interconnected risks could lead to restricted access to capital, higher financing costs, and loss of competitive advantage.

Climate Factor	Climate Scenario	Short-term (present to ~2030)	Medium-term (~2030–2040/2050)	Long-term (~2040/2050–2100)
Carbon Taxes & Emissions Regulations	SSP1-1.9	●	●	●
	SSP2-4.5	●	●	●
	SSP3-7.0	●	●	●
Bans on High-GWP Refrigerants	SSP1-1.9	●	●	●
	SSP2-4.5	●	●	●
	SSP3-7.0	●	●	●
Energy Price Volatility & Supply Security	SSP1-1.9	●	●	●
	SSP2-4.5	●	●	●
	SSP3-7.0	●	●	●
ESG Scrutiny from Customers/ Investors/ Regulators	SSP1-1.9	●	●	●
	SSP2-4.5	●	●	●
	SSP3-7.0	●	●	●
Failure to Meet Investor Climate Demands	SSP1-1.9	●	●	●
	SSP2-4.5	●	●	●
	SSP3-7.0	●	●	●
Supply Chain Disruptions for Critical Materials	SSP1-1.9	●	●	●
	SSP2-4.5	●	●	●
	SSP3-7.0	●	●	●
Technology Shift to Low-Carbon Infrastructure	SSP1-1.9	●	●	●
	SSP2-4.5	●	●	●
	SSP3-7.0	●	●	●

Very High	Critical, disruptive impact. Existential threats to business models from rapid policy shifts, severe market repricing, loss of license to operate, or catastrophic supply chain failure. Requires immediate, transformative action.
High	Significant impact affecting profitability and strategy. Substantial costs from new regulations (e.g., carbon taxes), volatile energy prices, technological obsolescence, or reputational damage that demands strategic redirection and investment.
Average	Clear, measurable impact. Notable increases in operating costs, capital requirements for compliance, or shifts in customer/ investor preferences that require proactive management and dedicated resources.
Low	Minor, manageable impact. Potential for slight increases in compliance costs or operational complexity, but no threat to competitiveness or financial stability. Changes are predictable and can be absorbed.
Very low	No material impact from low-carbon transition policies, markets, or technologies. Regulatory environment is stable, carbon/energy costs are negligible, and stakeholder pressure is absent.

#	Risk factor	Materiality by Climate Scenario		Time Horizon & Evolving Impact	Impact on Financial Planning
7	**Carbon Taxes & Emissions Regulations**	SSP1-1.9 ● SSP2-4.5 ● SSP3-7.0 ●	Exposure ranges from high to very high as Egypt advances its National Climate Change Strategy. Diesel generator usage faces rising scrutiny.	**Short-term:** Compliance costs begin as NCCS mitigation targets advance. **Medium-term:** Carbon pricing and diesel phase-out accelerate. **Long-term:** Carbon constraints embedded in OPEX across all assets.	Increased OPEX from compliance and carbon pricing. Short-term adaptation includes establishing internal carbon pricing to guide CAPEX.
8	**Bans on High-GWP Refrigerants**	SSP1-1.9 ● SSP2-4.5 ● SSP3-7.0 ●	Early phase-outs under orderly transition versus sudden, costly bans under disorderly scenarios. Cooling infrastructure in data centers and cable landing stations is particularly exposed.	**Short-term:** Inventory and risk assessment across cooling systems. **Medium-term:** Major CAPEX committed to replacing or retrofitting cooling infrastructure. **Long-term:** Low-GWP cooling becomes baseline standard.	Significant CAPEX required for replacing or retrofitting cooling infrastructure, especially in facilities exposed to >45°C heat stress.
9	**Energy Price Volatility & Supply Security**	SSP1-1.9 ● SSP2-4.5 ● SSP3-7.0 ●	Highest volatility under disorderly transition, with stabilization under renewables in orderly scenarios. Egypt›s partially fossil-based grid creates near-term exposure.	**Short-term:** Exposure to fossil-fuel price swings. **Medium-term:** Highest volatility under delayed global policy action. **Long-term:** Stabilization under renewables or persistent volatility under high-warming scenarios.	Increased and unpredictable OPEX, evidenced by a 41.0% surge in diesel generator emissions in 2024 driving up fuel costs.
10	**ESG Scrutiny from Customers, Investors and Regulators**	SSP1-1.9 ● SSP2-4.5 ● SSP3-7.0 ●	Strong decarbonization norms under orderly transition; volatile stakeholder pressures under disorderly scenarios. FRA Decree 108/2021 requires TCFD-style disclosures.	**Short-term:** Increased demand for transparent sustainability reporting. **Medium-term:** Customer and investor preferences shift toward low-carbon infrastructure. **Long-term:** Industry-wide net-zero expectations.	Potential revenue loss from reputational damage and shifting market preferences. Enhanced reputation boosts stakeholder attractiveness.

Very High | High | Average | Low | Very low

#	Risk factor	Materiality by Climate Scenario		Time Horizon & Evolving Impact	Impact on Financial Planning
11	**Failure to Meet Investor Climate Demands**	SSP1-1.9 SSP2-4.5 SSP3-7.0	Markets penalize misalignment under orderly transition; sudden pressures under disorderly scenarios.	**Short-term:** Higher cost of capital for weak ESG performers. **Medium-term:** Restricted access to sustainable finance. **Long-term:** Asset devaluation and exclusion from green capital markets.	Restricted capital access and higher financing costs. Mitigation success demonstrated through sustainability-linked loans (SLLs) and bonds (SLBs).
12	**Supply Chain Disruptions for Critical Materials**	SSP1-1.9 SSP2-4.5 SSP3-7.0	Major constraints under disorderly scenarios affecting 5G, data centers, and fiber rollout. Structural shift toward circular economy procurement.	**Short-term:** Limited disruptions but rising lead times. **Medium-term:** Major constraints affecting infrastructure delivery. **Long-term:** Structural shift toward circular-economy procurement.	Increased procurement costs and potential project delays. Value recovery from recycling helps mitigate long-term material costs.
13	**Technology Shift to Low-Carbon Infrastructure**	SSP1-1.9 SSP2-4.5 SSP3-7.0	Accelerated adoption required under orderly transition; expensive retrofits under disorderly scenarios. Efficiency upgrades and transition away from diesel become necessary.	**Short-term:** Efficiency upgrades become necessary. **Medium-term:** Mandatory transition away from diesel. **Long-term:** Full redesign of network architecture for net-zero pathway.	Significant CAPEX for energy-efficient infrastructure. Delaying action risks costly policy-forced retrofits, but successful navigation offers long-term OPEX savings through efficient cooling and solar power.

Very High | High | Average | Low | Very low

OPPORTUNITIES

Climate-related opportunities are potential positive outcomes that an organization can realize by proactively adapting to, and investing in, the transition to a climate-resilient, low-carbon economy. They represent avenues for value creation, competitive advantage, and business model innovation.

Proactively navigating the climate transition unlocks substantial strategic and financial value for Telecom Egypt, with the greatest potential realized under an **Orderly Transition (SSP1-1.9)**. The most material opportunity is **Energy Efficiency & Renewable Energy Adoption**, rated a Very High strategic priority. Initiatives like deploying **Advanced Antenna Units (AAUs)**, which are twice as energy-efficient and directly address the largest cost driver (energy OPEX) and hedge against volatility. This is already yielding results, as seen in the **7.7% YOY improvement in carbon intensity per petabyte of data consumed. Access to Sustainable Finance** is a key enabler, rated a High opportunity; successful issuance of **Sustainability-Linked Loans (SLLs) and Bonds (SLBs)** demonstrates the tangible benefit of strong ESG performance in securing favorable capital for green investments like solar-powered data hubs. Furthermore, evolving market demand creates new revenue streams. The **Demand for Substitution Services** (e.g., remote collaboration) is growing, evidenced by a **55.8% reduction in business travel emissions** in 2024. Capitalizing on **Markets for Efficient & Sustainable Services**, such as IoT solutions for smart cities and climate monitoring, allows TE to leverage its digital infrastructure to support Egypt's NCCS 2050 goals. By embedding these opportunities into its strategy, Telecom Egypt can transform climate resilience into a **long-term competitive advantage**, enhancing brand value, customer loyalty, and its role as a foundational player in a sustainable digital economy.

Climate Factor	Climate Scenario	Short-term (present to ~2030)	Medium-term (~2030–2040/2050)	Long-term (~2040/2050–2100)
Demand for Substitution Services	SSP1-1.9	●	●	●
	SSP2-4.5	●	●	●
	SSP3-7.0	●	●	●
Strong ESG Performance & Investor Valuation	SSP1-1.9	●	●	●
	SSP2-4.5	●	●	●
	SSP3-7.0	●	●	●
Access to Sustainable Finance	SSP1-1.9	●	●	●
	SSP2-4.5	●	●	●
	SSP3-7.0	●	●	●
Energy Efficiency & Renewable Energy Adoption	SSP1-1.9	●	●	●
	SSP2-4.5	●	●	●
	SSP3-7.0	●	●	●
Markets for Efficient & Sustainable Services	SSP1-1.9	●	●	●
	SSP2-4.5	●	●	●
	SSP3-7.0	●	●	●

Very High	Transformative potential. Initiatives are capable of defining future business models, creating uncontested market space, achieving deep cost advantages, or fundamentally improving the cost of capital and long-term valuation.
High	Strong potential for significant value. Initiatives enable major operational savings (e.g., large-scale renewables), open substantial new revenue streams, provide preferential access to green capital, or confer a clear market leadership position.
Average	Clear potential for value. Initiatives offer measurable cost savings (e.g., from efficiency), access to new market segments, or improved stakeholder relations, justifying dedicated investment.
Low	Limited potential. Initiatives may offer minor cost savings or modest reputational benefit but are not strategic or financially material to the core business.
Very low	Negligible potential for value creation. Initiatives offer no discernible ROI, competitive edge, or alignment with market trends.

#	Risk factor	Materiality by Climate Scenario		Time Horizon & Evolving Impact	Impact on Financial Planning
14	**Demand for Substitution Services (Remote Collaboration, Reduced Travel)**	SSP1-1.9 SSP2-4.5 SSP3-7.0	Sustained demand from hybrid work, public sector digitization, and pressure to reduce travel. Supports Egypt's low-carbon digital economy.	**Short-term:** Sustained hybrid work demand. **Medium-term:** Growth in remote healthcare, e-learning, government services. **Long-term:** Entrenched component of digital economy.	New revenue streams from increased data consumption. Supported by 55.8% reduction in passenger air travel emissions (2024).
15	**Strong ESG Performance & Investor Valuation**	SSP1-1.9 SSP2-4.5 SSP3-7.0	Early differentiation through transparency and alignment with FRA and TCFD requirements. Premium for climate-aligned infrastructure.	**Short-term:** Early mover advantage. **Medium-term:** Stronger valuation premiums. **Long-term:** Capital access contingent on climate performance.	Improved market valuation (75% of firms report higher valuations). Lower cost of capital (20% lower for high ESG ratings). Recycling recovers valuable minerals and mitigates legal/reputation costs.
16	**Access to Sustainable Finance (Green Bonds, SLLs, Climate Funds)**	SSP1-1.9 SSP2-4.5 SSP3-7.0	Strong eligibility for financing energy efficiency, solar sites, and resilient infrastructure. Cost of capital tied to decarbonization progress.	**Short-term:** Strong financing eligibility. **Medium-term:** Cost of capital tied to climate progress. **Long-term:** Sustainable finance becomes standard.	Improved capital access and favorable terms. Demonstrated through SLLs and SLBs. Critical for maintaining affordable financing during transition shocks.

Very High | High | Average | Low | Very low

#	Risk factor	Materiality by Climate Scenario		Time Horizon & Evolving Impact	Impact on Financial Planning
17	**Energy Efficiency & Renewable Energy Adoption**	SSP1-1.9 ●	OPEX savings from efficiency upgrades. Large-scale renewables stabilize energy costs amid grid volatility.	**Short-term:** Immediate OPEX savings. **Medium-term:** Large-scale renewables deployment. **Long-term:** Near-energy autonomy and competitive advantage.	Significant OPEX reductions. 15–32% reduction potential in industrial energy consumption. Quantified savings: 311,193 kWh (2023) and 89,070 kWh (2024) from equipment dismantling.
		SSP2-4.5 ●			
		SSP3-7.0 ●			
18	**Markets for Efficient & Sustainable Services (Smart Cities, IoT, Climate Monitoring)**	SSP1-1.9 ●	Growth in smart cities, climate early-warning systems, and industrial IoT. Enables Egypt's low-carbon digital economy.	**Short-term:** Differentiate via green connectivity. **Medium-term:** Growth in smart solutions and new revenue. **Long-term:** Become enabler of circular digital economy.	Expanded revenue through sustainable ICT solutions. Drives customer loyalty and enables premium pricing potential.
		SSP2-4.5 ●			
		SSP3-7.0 ●			

Very High | High | Average | Low | Very low

METHODOLOGY FOR DETERMINING MATERIALITY SCORES

The materiality scores presented in this assessment (ranging from 1/Very Low to 5/Very High) were determined through a structured, multi-criteria analysis. This process integrates quantitative climate projections with qualitative evaluations of Telecom Egypt's specific operational and financial exposure across three defined time horizons and climate scenarios.

1. Materiality Scoring Scale: Universal Definitions

The same five-point scale is applied consistently across all scenarios and time horizons to ensure comparability. The score reflects the potential magnitude of impact on TE's strategic and financial resilience, based on the integrated assessment criteria below.

Very Low	Low	Average	High	Very High
Negligible impact on financials, operations, or strategy. Requires only routine monitoring.	Minor impact, manageable with modest adjustments to existing processes. May lead to slight OPEX/CAPEX increases.	Noticeable impact with measurable effects. Requires targeted investments or procedural changes, managed within normal planning cycles.	Significant impact affecting financial performance, compliance, or competitiveness. Demands dedicated resources and proactive strategic management.	Critical impact with severe consequences for financial stability, operational resilience, or long-term viability. Demands immediate, substantial action and resource allocation.

What each score represents in terms of risk/opportunity drivers shifts dramatically depending on the scenario. The scenario (SSP1-1.9, SSP2-4.5, SSP3-7.0) determines "what is causing that impact?". Its alignment is detailed below:

1

SSP1-1.9 (Orderly Transition)

High/Very High Scores: Primarily driven by Transition Risks & Strategic Opportunities. A high score indicates significant financial impact or strategic value arising from early, predictable policy signals and aligned market shifts. This includes costs from rapid decarbonization mandates, premiums for green leadership, or high-ROI investments in efficiency and renewables. Physical climate impacts are contained, so they rarely drive high scores.

Low Scores: Apply primarily to Physical Risks, as warming is contained. It can also apply to opportunities or risks that are not accelerated by strong, early policy (e.g., certain disruptive technologies or supply chain issues that evolve slowly).

2

SSP2-4.5 (Disorderly Transition)

High/Very High Scores: Driven by the peak of combined Transition and Physical Pressures. A high score reflects the most severe financial and operational disruption where delayed, then abrupt policy action coincides with volatile energy markets and moderately intensifying physical hazards. This scenario produces the most severe combined risk scores, as companies face costly policy shocks while also dealing with growing operational disruptions from climate events.

Low Scores: Apply to factors that are isolated or delayed, missing the «perfect storm» of combined pressures. This includes risks or opportunities that are not simultaneously exposed to volatile policy shocks and intensifying physical hazards, or whose major impact materializes outside the core planning horizon.

3

SSP3-7.0 (Hot House World)

High/Very High Score: Overwhelmingly driven by Severe Physical Risks. A high score signifies a direct, material threat to asset integrity and operational continuity from extreme warming, acute weather events, and chronic shifts like sea-level rise. The financial impact stems from soaring adaptation CAPEX/OPEX, asset write-downs, and chronic service disruption. Transition risks and strategic opportunities are largely irrelevant in this future.

Low Scores: Apply to Transition Risks & Opportunities, as climate policy fails and markets are driven by crisis adaptation, not strategic decarbonization. A low score indicates that regulatory, market, and reputational pressures related to the low-carbon transition are minimal or irrelevant.

2. Scoring Scale & Assessment Criteria

Each climate factor was evaluated against five core criteria, weighted to reflect its potential impact on TE's strategic and financial resilience:

- **Financial Impact Magnitude:** Estimated effect on OPEX, CAPEX, revenue, cost of capital, and asset valuations.
- **Operational Criticality:** Threat to service continuity, network reliability, and critical national infrastructure.
- **Probability & Timing:** Likelihood of materialization within the given time horizon, based on IPCC projections and policy trajectories.
- **Adaptation Lead Time:** The window available for a planned, cost-effective response versus the risk of disruptive shocks.
- **Asset & Geographic Exposure:** Concentration of TE's vulnerable, high-value infrastructure (e.g., Nile Delta fiber, coastal landing stations, Cairo/Alexandria hubs) relative to each hazard.

3. Scenario-Specific Logic Application

The scores differ by scenario because each future presents distinct challenges and drivers:

- **Orderly Transition (SSP1-1.9):** Scores emphasize transition risks and opportunities. High scores (4/5) are assigned where early, predictable policy creates significant compliance costs or clear market advantages for early movers. Physical risks are generally lower (2) due to contained warming.
- **Disorderly Transition (SSP2-4.5):** Scores peak for combined transition and physical pressures. This scenario receives the highest scores (5) where delayed, then abrupt policy action coincides with volatile markets and moderate physical hazard intensification, creating a "perfect storm" for strategic and financial planning.
- **Hot House World (SSP3-7.0):** Scores are dominated by severe physical risks. Factors driven by extreme warming and acute hazards receive the highest scores (5), while transition risks are low (2) due to policy failure. Opportunities are scored lower (3), as value is driven by necessity rather than strategic advantage.

4. Time Horizon Integration

Scores evolve across time horizons to reflect the changing nature of risks and opportunities:

- **Short-Term (→2030):** Based on current regulatory trends, immediate physical hazards, and existing market signals.
- **Medium-Term (→2050):** Captures peak financial impact, aligning with asset refresh cycles, NCCS 2050 targets, and the point where climate projections diverge significantly between scenarios.
- **Long-Term (→2100):** Reflects structural shifts, full asset lifetimes, and end-century climate outcomes under each pathway.

RISK MANAGEMENT

Identification and Assessment

Risk Management Process

Integration Into the Organization's Overall Risk Management

04

Proactive and systematic risk management is crucial for identifying, assessing, and mitigating the financial and operational impacts of climate change. This section describes the processes by which Telecom Egypt embeds climate-related risks into our risk management. It covers the methodologies for the identification and assessment of both physical and transition risks, employing a double materiality lens to evaluate inward financial impact and outward environmental effect. The section also explains how these risks are managed through dedicated adaptation and mitigation plans, ensuring that climate risk oversight is operationalized across the organization's three lines of defense to protect assets, ensure service continuity, and safeguard long-term value.

IDENTIFICATION AND ASSESSMENT

Telecom Egypt's process for identifying and assessing climate-related risks has evolved from a limited approach to a formalized, structured analysis that integrates climate risks into our risk management. This commitment is evidenced by the major strategic milestone of conducting the TE Sustainability & Climate Changes Strategy, Materiality & Risk Assessment, which directly addresses the past deficiency of lacking documented scenario-based risk assessment.

1. Risk Identification and Materiality Assessment

The foundation of the assessment process is the principle of double materiality, introduced in 2024, which ensures risks and opportunities are evaluated based on both external impact and inward financial significance, aligning with international standards like GRI and IFRS (ISSB)

Assessment Dimension	Focus of Identification and Assessment	Significance Criteria
Financial Materiality	Focuses on sustainability-related risks and opportunities that may affect enterprise value, financial performance, or access to capital over the short, medium, or long term.	Significance is based on the magnitude and likelihood of financial effects. Financial risks considered include regulatory, operational, market, credit, and reputational dimensions.
Impact Materiality	Assesses the outward effects (positive or negative) of the company's activities on the environment, economy, and people (including human rights).	Significance is determined by the scale, scope, irremediability, and likelihood of actual or potential outward impacts.

Key Inputs for Risk Identification:

The identification process draws on a structured approach utilizing comprehensive external and internal sources, including:

- **International Frameworks:** Guidance from the GSMA Metrics, the GSMA Benchmarking Framework, and SASB Standards for Telecommunications, with specific emphasis on energy management and systemic risk.
- **External Benchmarking:** Peer benchmarking with regional and global operators is conducted to identify emerging trends and areas of risk exposure.
- **Regulatory Context:** Local frameworks, notably the priorities outlined under Egypt Vision 2030 and mandates from the Financial Regulatory Authority (FRA).

2. Risk Assessment, Categorization, and Time Horizons

Climate risks are assessed across the globally recognized TCFD framework, categorized into Transition and Physical risks, and quantified across three distinct time horizons relevant to Telecom Egypt's asset lifespan and national policy commitments.

Time Horizon	Duration & Rationale	Key Climate Risks Identified
Short-term	**0–5 years (Present to ~2030):** Aligns with immediate regulatory cycles and existing physical risks (e.g., intense heatwaves, sandstorms).	Exposure to Energy Price Volatility; rising Compliance Costs (e.g., scrutiny of diesel generator use); higher cooling OPEX due to Rising Mean Temperatures; Acute Weather Events.
Medium-term	**5–15 years (~2030–2040/2050):** Captures typical economic life of core telecom assets (exchanges, network infrastructure, data centers, subsea cables, etc..) and the period when transition risks are expected to peak.	Peak pressure from Carbon Pricing; Major CAPEX for retrofitting infrastructure due to Bans on High-GWP Refrigerants and Technology Shift to Low-Carbon Infrastructure. Chronic risks like Water Scarcity and Land Subsidence intensify.
Long-term	**20+ years (~2040/2050–2100):** Covers full lifetime of long-lived assets and Egypt's NCCS 2050 net-zero pathway.	Structural threats from chronic risks like Sea-Level Rise (affecting Alexandria/Suez landing stations); asset devaluation if long-term climate alignment is not met.

3. Integration with Scenario Analysis (Stress-Testing Resilience)

The resilience of the strategy is formally stress-tested against globally recognized scenarios to understand financial implications under conditions of uncertainty. The commitment to this analysis ensures that risks are managed proactively:

- **Core Scenario Set:** The assessment utilizes three IPCC/NGFS scenarios: SSP1-1.9 (Orderly Transition), SSP2-4.5 (Disorderly Transition), and SSP3-7.0 (Hot House World).
- **Identifying Highest Risk:** The assessment process explicitly determined that Transition Risks are Highest in the Disorderly Transition (SSP2-4.5) scenario, driven by volatility in energy prices and sudden, expensive regulatory shocks. Conversely, Physical Risks are Highest in the Hot House World (SSP3-7.0) scenario, particularly Extreme Weather Events.
- **Mandate for Assessment:** The identification of these scenario-specific risks is mandatory as the organization committed to Assess risks and opportunities related to climate risks over short and long term scenarios as a key step in improving external ESG ratings (e.g., S&P Global).

4. Quantification and Measurement (Metrics Integration)

Climate risks are identified and assessed quantitatively through rigorous measurement of the organization's carbon and resource footprints, providing key metrics that inform strategic prioritization:

- **GHG Emissions Calculations:** A core process is the annual Carbon Emissions Calculations covering Scope 1 (e.g., diesel combustion, fugitive emissions), Scope 2 (purchased electricity), and Scope 3 (value chain), adhering to GHG Protocol and IPCC methodologies.
- **Resource Metrics:** Monitoring includes resource use such as water consumption, which directly informs the assessment of chronic risk (Water Scarcity)
- **Intensity Metrics:** Assessment focuses on decoupling growth from impact by tracking carbon intensity metrics such as $mtCO_2e$ per million USD revenue and $mtCO_2e$ per petabyte of data consumption. These metrics are crucial inputs for strategic planning and cost-control measures.

By leveraging the double materiality process, scenario analysis, and quantitative metrics (such as a 41% surge in diesel emissions confirming high exposure to Energy Price Volatility), Telecom Egypt ensures its climate risk identification and assessment processes are embedded into corporate strategy, providing a clear map of material threats, and enabling targeted risk management responses.

RISK MANAGEMENT PROCESSES

Telecom Egypt manages climate-related risks and capitalizes on opportunities through a deeply integrated, multi-layered risk management framework that links organizational governance, strategic planning, and operational execution to quantifiable sustainability targets. The overall process is designed to address highly material threats identified in the Climate Risk Assessment (CRA), particularly those concentrated in the near-term and the Disorderly Transition scenario (SSP2-4.5).

1. Integration and Governance of Climate Risks

The management process for climate risks is formalized by embedding it into our risk management. Moving the organization into the Integrated Phase (2024), where sustainability is "Embedded in Corporate Strategy"

- **Formal Risk Assessment:** The process begins with continuous risk identification via the double materiality assessment. This process requires the organization to formally Assess risks and opportunities related to climate risks over short and long term scenarios to determine the financial implications (inward perspective) and environmental/social consequences (outward impact).
- **System Integration:** The processes for identifying, assessing, and managing climate risks are aligned with the Integrated Management System (IMS). This system incorporates several international standards, including ISO 31000 principles (risk management).
- **Accountability Structure:** Climate risk governance is overseen by the Sustainability & Climate Changes Steering Committee. Operational execution is delegated to the sustainability team, which is embedded within the Corporate Quality, Business Excellence, & Sustainability Division.
- **Three Lines of Defense:** The organization applies the internationally recognized Three Lines of Defense model to ensure effective risk management, internal controls, and independent verification.

2. Formalized Risk Management Processes (Mitigation and Adaptation)

Management processes are specifically designed to address high-materiality threats identified in the Climate Risk Assessment (CRA) across both physical and transition categories.

A. Managing Transition Risks (Policy, Market, Technology, Reputation)

The highest financial threat comes from the Disorderly Transition (SSP2-4.5) scenario, where key risks like Carbon Taxes & Emissions Regulations, Energy Price Volatility & Supply Security, and Technology Shift to Low-Carbon Infrastructure are rated Highest.

Risk Name	Management Process (Mechanism/Control)	Strategic Targets and Mechanisms
Carbon Taxes & Emissions Regulations	**Compliance & Decarbonization Roadmap:** Management commits to long-term Transition to a fully low-carbon network architecture and embedding carbon costs into financial planning.	Requires completing enterprise-wide carbon footprint mapping and formal alignment with Egypt's National Climate Change Strategy 2050 (NCCS) targets.
Energy Price Volatility & Supply Security	**Operational Optimization and Hedging:** The process focuses on mitigating OPEX volatility through efficiency mandates and securing stable energy sourcing.	The Technical Affair division is accountable for achieving 5% optimization in electricity and diesel use by 2026. Strategies include diversifying power procurement and securing long-term PPAs.
Shift to Low-Carbon Infrastructure	**Mandatory Technology Upgrades & CAPEX Allocation:** Process includes continuous efficiency upgrades to avoid high CAPEX costs associated with late, disruptive policies (Highest risk in SSP2-4.5).	Deploying energy-optimized RAN and low-carbon cooling. Specific initiatives include replacing outdated radio units with Advanced Antenna Units (AAUs) that utilize passive cooling and are twice as energy-efficient per bit transmitted
Bans on High-GWP Refrigerants	**Audit and Retrofit Planning:** Management includes processes for performing an Inventory and risk assessment across data centers and edge cooling systems.	Strategic CAPEX is committed to retrofitting or replacing systems using non-GWP alternatives, specifically investing in natural-refrigerant cooling, liquid cooling, or water-efficient cooling.
Failure to Meet Investor Climate Demands	**Financial and Disclosure Alignment:** Management processes focus on aligning performance with sustainability demands to ensure capital access and maintain reputation.	The process involves establishing sustainability KPIs to unlock opportunities for sustainable financing. Success is measured by issuing sustainability-linked instruments such as SLLs and SLBs. Reporting includes the commitment to Release Sustainability & TCFD reports annually

B. Managing Physical Risks (Chronic and Acute)

The organization manages physical risks, which are rated Highest in the Hot House World (SSP3-7.0) scenario, through adaptation and continuity planning

Physical Risk	Management Process (Mechanism/Control)	Strategic Objective & Quantified Detail
Extreme Weather Events (Floods, Storms)	**Resilience and Disaster Recovery:** Processes focus on enhancing network redundancy and physical protection guided by the business continuity plan (ISO 22301).	Mitigation includes securing 25 exchange buildings against fire-risk (CPA). The network uses diversification, deploying storm-rated towers and upgrading disaster recovery capabilities (NOC revamp).
Rising Mean Temperatures	**Cooling Optimization and Asset Design:** Management processes enforce continuous programs to control cooling OPEX and mitigate equipment aging.	This includes optimizing HVAC setpoints and implementing AI-based cooling management. Management achieved an average 1.5% reduction in power consumption through PUE Optimization at international cable landing stations.
Sea-Level Rise / Land Subsidence	**Infrastructure Hardening and Route Diversification:** Long-term planning includes adaptation measures to safeguard critical fiber and coastal assets (Mediterranean and Red Sea).	Processes include the development of a coastal asset registry and planning for the managed retreat of high-exposure infrastructure. Network resilience is strengthened by diversifying international routes, supported by initiatives such as Coral Bridge and the ICE IV consortium.

3. Formal Processes for Opportunity Realization

The organization has formalized processes to capitalize on opportunities, particularly Energy Efficiency & Renewable Energy Adoption and Access to Sustainable Finance.

- **Measuring Operational Efficiency:** Efficiency gains are managed and monitored through specific initiatives like the Network Equipment Dismantling & Reuse program, which directly quantifies resource savings (e.g., 311,193 kWh energy saved in 2023).
- **Data Collection and Reporting:** The sustainability team is responsible for structured Data Collection & Transparency, adhering to global ESG reporting standards (GRI, TCFD. Etc.). This includes Carbon Emissions Calculations for all three scopes, based on the GHG Protocol and IPCC methodologies.

INTEGRATION INTO THE ORGANIZATION'S OVERALL RISK MANAGEMENT

The integration of climate-related risks into Telecom Egypt's overall risk management is structured and formalized, moving beyond basic compliance to embed these considerations into strategic decision-making and operational controls. This is specifically achieved through the formalized risk governance structure, the application of the double materiality principle, and direct integration into core management systems.

1. Integration into Risk Governance and Management Systems

TE ensures climate-related risks are managed holistically by linking them to existing internal frameworks and external standards.

- **Systemic Integration:** Climate risk processes are formally managed under the Operational Resilience & Risk Oversight material topic. The organization aligns its risk processes with its Integrated Management System (IMS), which incorporates international risk standards, including ISO 31000 principles for risk management.
- **Formalized Risk Assessment:** A major mechanism for integration is the newly developed Climate Risk Assessment (CRA). This process supports financial resilience by identifying physical and transition risks associated with climate change and uncovering long-term sustainability-related financial risks. The CRA uses scenario analysis (SSP1-1.9, SSP2-4.5, and SSP3-7.0) to stress-test the resilience of the organization's infrastructure against varying intensities of climate hazards and policy shifts,
- **Materiality Principle Integration:** The assessment employs the double materiality principle (introduced in 2024). This ensures climate issues are prioritized based on two criteria: the magnitude and likelihood of financial effects (Financial Materiality) and the scale of the company's effects on the environment and society (Impact Materiality). This focus ensures that climate factors directly influencing enterprise value, financial performance, or access to capital are managed rigorously over the short, medium, or long term.

2. Organizational Accountability and Oversight

Accountability for climate risk is clearly assigned and monitored throughout the corporate structure, ensuring dedicated attention from management up to the Board level.

- **Oversight Functions:** The sustainability team (embedded within the Corporate Quality, Business Excellence, & Sustainability Department) is the operational owner of sustainability aspects. The Sustainability & Climate Changes Steering Committee provides high-level oversight of this agenda.
- **Three Lines of Defense:** Climate risks are integrated into the internationally recognized Three Lines of Defense model:
  - **First Line (Operational Management):** Business units (such as the Technical Affair sector) are responsible for implementing internal controls and day-to-day risk management, including achieving energy efficiency targets.
  - **Second Line (Risk Management & Compliance):** Oversight functions provide guidance and monitor adherence to regulatory standards. This level includes monitoring the development of Sustainability KPIs to ensure strategic alignment and compliance.
  - **Third Line (Internal Audit):** The Internal Audit Sector provides independent assurance to the Audit Committee and Board, evaluating the effectiveness of governance, risk management, and internal controls to strengthen organizational resilience.

3. Integration into Strategic and Financial Processes

Climate risk findings directly inform resource allocation, capital expenditure, and the selection of business partners.

- **Capital Allocation and CAPEX:** Climate risk analysis dictates investment needs to mitigate material transition risks, such as the Technology Shift to Low-Carbon Infrastructure. This requires major investment in energy-efficient infrastructure (e.g., retrofitting cooling systems due to Bans on High-GWP Refrigerants,) and physical resilience measures (e.g., network hardening against Extreme Weather Events).
- **Financial Planning and Opportunities:** Climate-related opportunities, such as Access to Sustainable Finance (rated High), are integrated into financial planning. The established process requires defining sustainability KPIs to qualify for preferential financing instruments like sustainability-linked loans (SLLs) and bonds (SLBs). This mitigates the risk of Failure to Meet Investor Climate Demands (rated Highest in the Disorderly Transition scenario).
- **Supply Chain Risk Management:** Management processes integrate climate and ethical risk into procurement, a critical area given the large Scope 3 footprint. This is formalized by integrating ESG considerations in vendor selection and evaluation processes, and requiring suppliers to meet labor, safety, and environmental standards to enhance Supply Chain Resilience.

METRICS AND TARGETS

05

Measurable progress is integral in credible climate action. This section presents the key performance indicators (KPIs) and targets that Telecom Egypt uses to track its environmental footprint, manage performance, and drive its decarbonization agenda. It provides a transparent account of the company's emissions profile across Scopes 1, 2, and 3, energy consumption patterns, and associated carbon intensity metrics. Furthermore, it outlines the specific, time-bound targets set to reduce emissions, enhance energy efficiency, increase renewable energy adoption, and advance circular economy principles. These metrics and targets are directly linked to the strategic risks and opportunities previously identified, ensuring that performance tracking is aligned with the company's overarching climate resilience goals.

EMISSIONS PROFILE

SCOPE 1 – DIRECT EMISSIONS ($mtCO_2e$)		2023 (BY)	2024	2023 %	2024 %
Stationary Combustion	Fuel burning: Diesel	11,230	15,831	7%	6%
Mobile Combustion	Fuel burning: Diesel	5,504	5,808		
	Fuel burning: Petrol	2,044	2,316		
	Fuel burning: CNG	66	151		
Fugitive Emissions	Refrigerant and other gases leakage	30,311	19,522		
Total Scope 1 ($mtCO_2e$)		**49,155**	**43,628**		

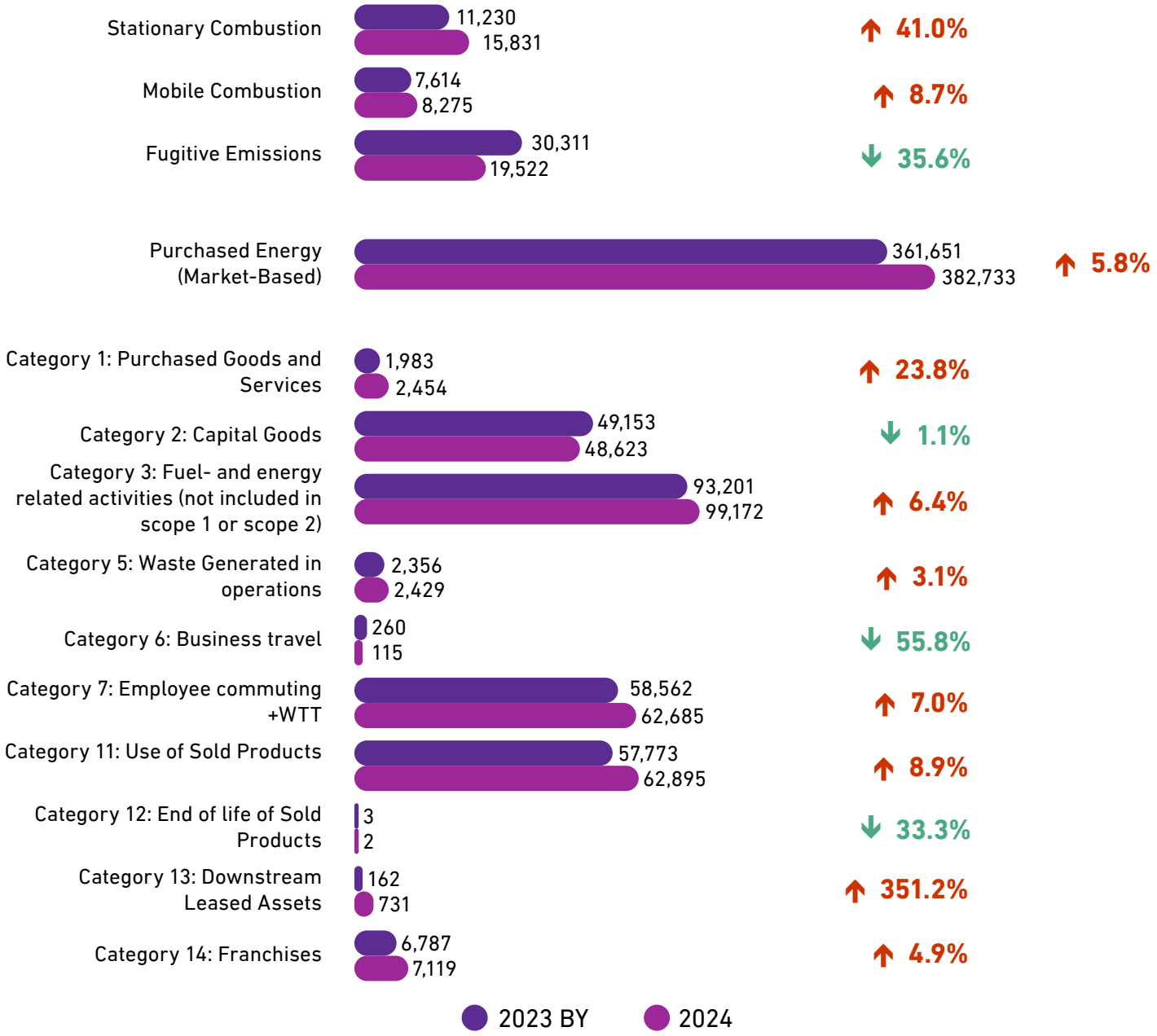
SCOPE 2 – INDIRECT EMISSIONS ($mtCO_2e$)		2023 (BY)	2024	2023 %	2024 %
Purchased Energy	Purchased Electricity (location-based)	365,867	385,281	53%	54%
	Purchased Electricity (market-based)	360,647	381,554		
	Chilled Water	1,005	1,179		
Total Scope 2 ($mtCO_2e$)	Location-based	366,871	386,461		
	Market-based	361,651	382,733		
Total Scope 1 & 2 Emissions ($mtCO_2e$)	Location-based	416,026	430,089		
	Market-based	410,807	426,361		
Scope 1 & 2 Carbon intensity (market-based)	$mtCO_2e$/ petabyte data consumption	22.69	20.94		
	$mtCO_2e$/ Million EGP revenue	7.25	5.20		
	$mtCO_2e$/ Million USD revenue	222.04	235.84		

SCOPE 3 – INDIRECT EMISSIONS ($mtCO_2e$)		2023 (BY)	2024	2023 %	2024 %
Category 1: Purchased Goods and Services	Water Use	1,395	1,470	39%	40%
	Other Purchased Goods	587	984		
Category 2: Capital Goods	Capital Goods	49,153	48,623		
Category 3: Fuel & Energy Related Activities (not included in Scope 1 or scope 2)	Transmission & Distribution Losses	25,681	27,052		
	Purchased Energy WTT	63,051	66,417		
	Fuel burning WTT	4,470	5,702		
Category 5: Waste Generated in Operations	Wastewater treatment	2,293	2,416		
	Solid waste disposal	64	13		
Category 6: Business Travel	Air Travel (including WTT)	224	84		
	Hotel Stays	36	31		
Category 7: Employee Commuting	Employee commuting (including WTT)	58,562	62,685		

SCOPE 3 – INDIRECT EMISSIONS ($mtCO_2e$)		2023 (BY)	2024	2023 %	2024 %
Category 11: Use of Sold Products	Use of Sold Products	57,773	62,895	39%	40%
Category 12: End-of-life treatment of Sold Products	End-of-life treatment of Sold Products	3	2		
Category 13: Downstream Leased Assets	Downstream Leased Assets	162	731		
Category 14: Franchises	Franchises	6,787	7,119		
Total Scope 3 ($mtCO_2e$)		**270,240**	**286,224**		

Total Scope 1, 2 & 3 Emissions ($mtCO_2e$)	**681,047**	**712,585**	

EMISSIONS PER ACTIVITY, 2023-2024 ($mtCO_2e$)

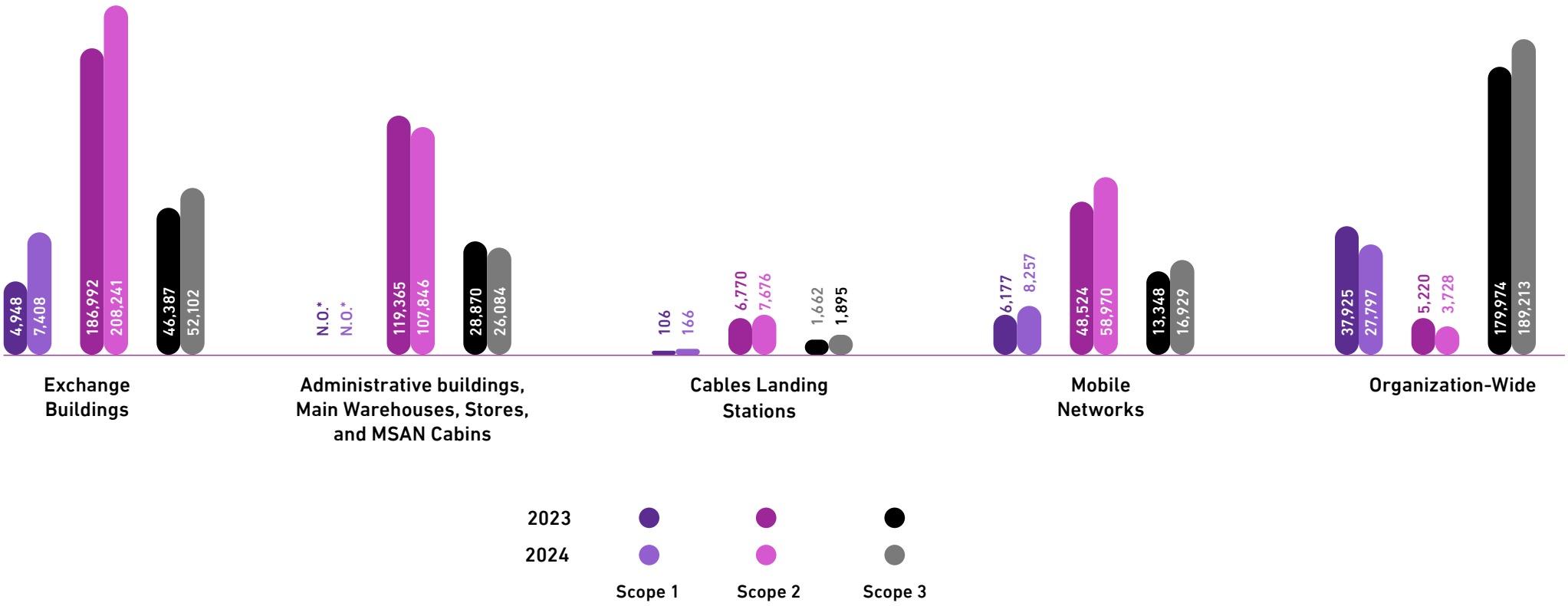


Our detailed analysis of emissions by activity reveals critical insights for our decarbonization strategy, highlighting both our most substantial sources and our most dynamic changes. In terms of absolute emissions, Purchased Energy (Market-Based) remains our single largest emissions source at **382,733 $mtCO_2e$**, despite a moderate **5.8%** year-over-year increase. This is followed by Category 3: Fuel- and Energy-Related Activities at **99,172 $mtCO_2e$ (+6.4%)**.

Conversely, the distinction for the lowest absolute emissions belongs to Category 12: End-of-Life Treatment of Sold Products at just **2 $mtCO_2e$**. When examining the rate of change, the highest percentage increases are led by Category 13: Downstream Leased Assets, which grew **351%** to **731 $mtCO_2e$**, Stationary Combustion, which rose **41%** to **15,831 $mtCO_2e$**, and Category 1: Purchased Goods and Services, up **23.8%** to **2,454 $mtCO_2e$**. Other increases were seen in Category 11: Use of Sold Products (**+8.9%** to **62,895 $mtCO_2e$**), Mobile Combustion (**+8.7%** to **8,275 $mtCO_2e$**), Category 7: Employee Commuting (**+7.0%** to **62,685 $mtCO_2e$**), Category 14: Franchises (**+4.9%** to **7,119 $mtCO_2e$**), and Category 5: Waste (**+3.1%** to **2,429 $mtCO_2e$**). On the positive side, the most significant percentage decrease was a **55.8%** reduction in Category 6: Business Travel (to **115 $mtCO_2e$**), followed by Fugitive Emissions (**-36%** to **19,522 $mtCO_2e$**) and Category 2: Capital Goods (**-1.1**% to **48,623 $mtCO_2e$**).

This complete picture underscores that while managing our largest emissions sources is essential, addressing the growth in several specific categories is equally critical to effectively curbing our overall carbon footprint.

EMISSIONS PER BOUNDARY AND SCOPE, 2023-2024 ($mtCO_2e$)

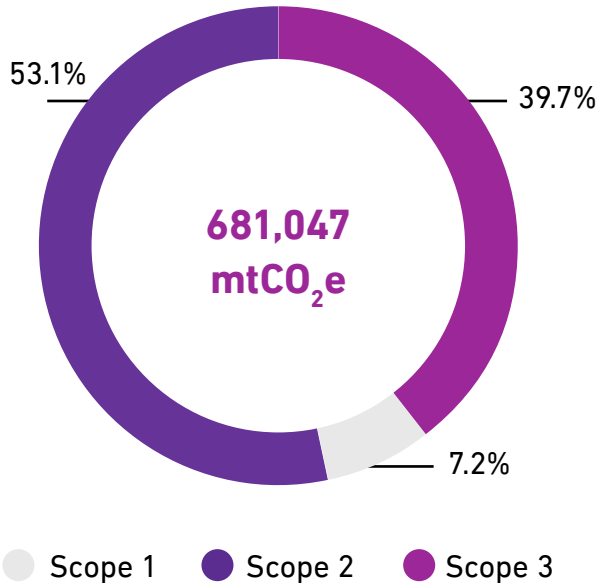


The data reveals significant shifts in the sources of our emissions across different categories. For Scope 1 emissions, the most significant increase was a **57%** rise from the Cables Landing Stations, followed by a **50%** increase from Exchange Buildings and a **34%** increase from Mobile Networks; this was partially offset by a **27%** decrease in Organization-wide emissions.

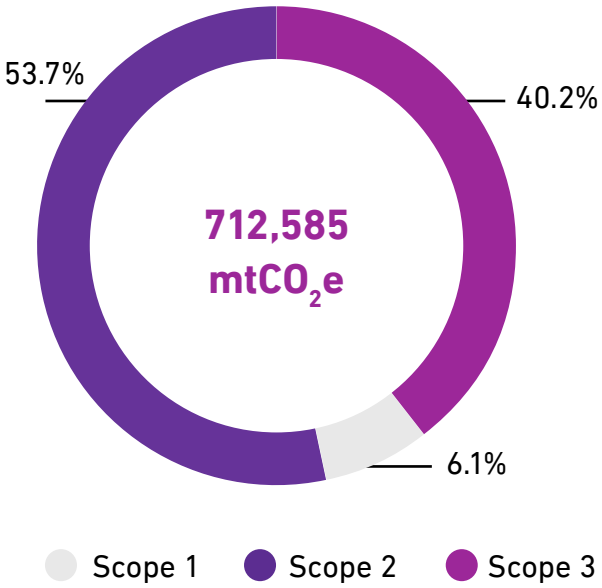
In Scope 2 , the largest increase was a **22%** rise from Mobile Networks, followed by the Cables Landing Stations (**13%**) and Exchange Buildings (**11%**); conversely, Administrative buildings, Main Warehouses, Stores, and MSAN Cabins saw a **10%** decrease.

For Scope 3 emissions, increases were recorded across all boundaries, led by a **27%** rise from Mobile Networks, a **14%** increase from the Cables Landing Stations, a **12%** increase from Exchange Buildings, and a **5%** increase in Organization-wide emissions. This ranked view clearly shows the most significant percentage increases occurred in Scope 1 and Scope 3 for operational areas like Cables Landing Stations and Mobile Networks, while the most notable decrease was in Organization-wide Scope 1 emissions.

EMISSIONS PER SCOPE, 2023



EMISSIONS PER SCOPE, 2024



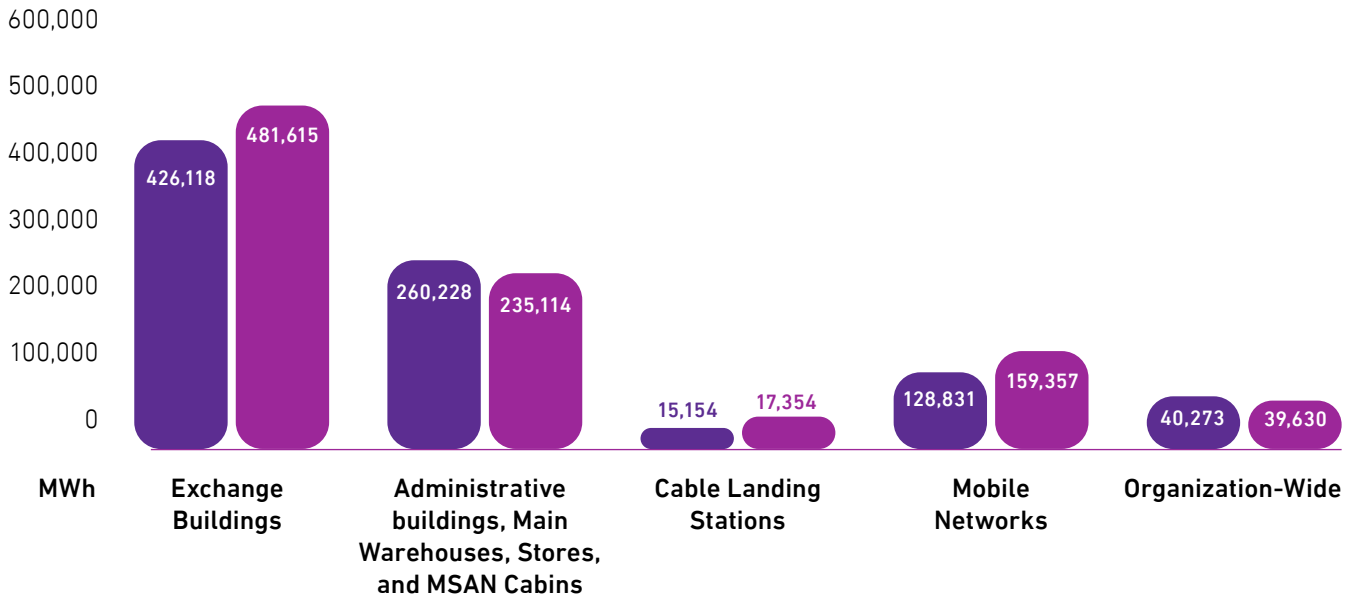
The company's total carbon emissions rose from **681,047 to 712,585 mtCO$_2$e**, a net increase of **31,538 mtCO$_2$e** year-over-year. This overall growth occurred despite a significant **11.2%** reduction in Scope 1 emissions, which fell by **5,527 mtCO$_2$e**. Scope 2 emissions grew by **15,554 mtCO$_2$e** due to higher electricity consumption, while Scope 3 emissions from the value chain expanded by **15,983 mtCO$_2$e**.

CONSUMPTION/ENERGY PROFILE

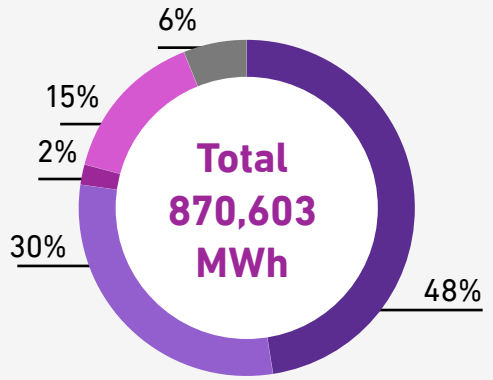
The comparative analysis of our energy consumption data from 2023 to 2024 reveals an overall increase of **62,467 MWh**, moving from **870,603 MWh** to **933,070 MWh**, which represents a **7.2%** year-on-year rise. This upward trend was primarily driven by two significant sources: a substantial **23.7%** increase in consumption from Mobile Networks, adding **30,526 MWh**, and a **13.0%** rise from our largest category, Exchange Buildings, which contributed an additional **55,497 MWh**.

A notable, though smaller, percentage increase of **14.5%** was also observed in the Cables Landing Stations, equating to a rise of **2,200 MWh**. However, this overall growth was partially offset by a significant **9.7%** reduction in consumption from Administrative buildings, Main Warehouses, Stores, and MSAN Cabins which decreased by **25,114 MWh**, while Organization-wide emissions remained relatively stable with a slight reduction of **643 MWh**.

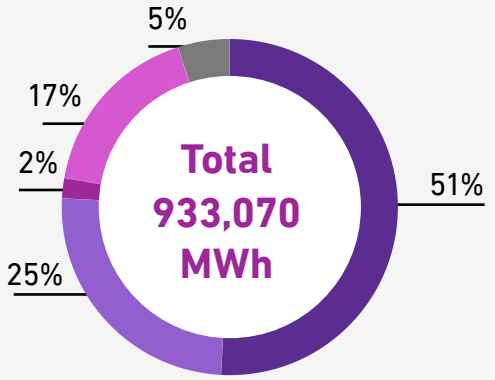
TOTAL ENERGY CONSUMPTION PER FACILTY, 2023-2024



TOTAL ENERGY CONSUMPTION PER FACILITY, 2023



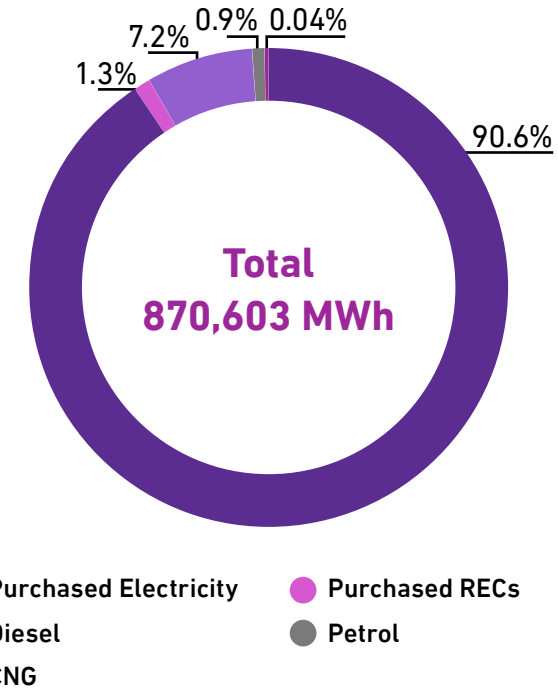
TOTAL ENERGY CONSUMPTION PER FACILITY, 2024



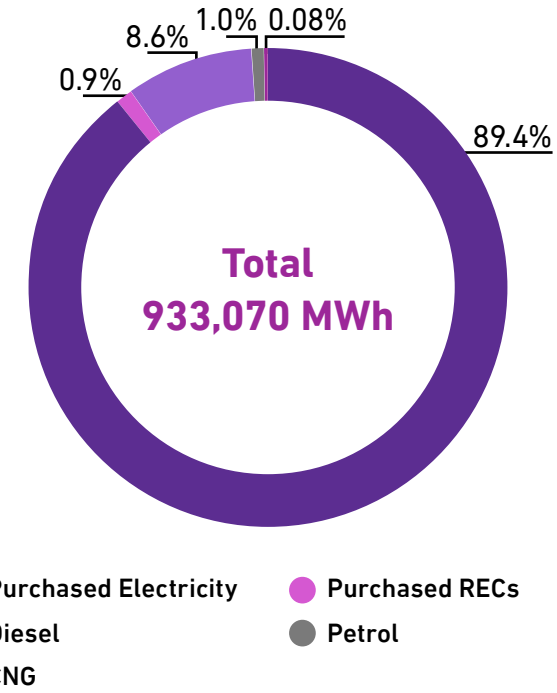
- Exchange Buildings
- Mobile Networks
- Cables Landing Stations
- Organization-wide
- Administrative buildings, Main Warehouses, Stores, and MSAN Cabins

Purchased electricity continued to dominate the energy mix, with usage increasing from **788,434 MWh** to **834,394 MWh**. A significant shift is observed in the use of Diesel, which saw a marked increase from **7.2%** (**62,429 MWh**) to **8.6%** (**80,708 MWh**) of the mix, representing an absolute consumption growth of **18,279 MWh**. Conversely, the share of Purchased RECs declined from **1.3%** (**11,380 MWh**) to **0.9%** (**8,127 MWh**). Minor sources also saw increases: Petrol consumption rose from **0.9%** (**8,034 MWh**) to **1.0%** (**9,096 MWh**), and CNG use, while still minimal, more than doubled from **327 MWh** to **746 MWh**. This evolving mix, marked by a **29%** increase in diesel consumption and a decline in RECs, indicates a growing reliance on fossil fuels to meet the rising energy demand, which aligns with the increase in emissions noted in the previous analysis.

TOTAL ENERGY CONSUMPTION PER SOURCE, 2023



TOTAL ENERGY CONSUMPTION PER SOURCE, 2024



PERFORMANCE TRACKING

Absolute emissions

Telecom Egypt continues to pursue its objectives for reducing its greenhouse gas footprint; however, in 2024, the company experienced a **3.8%** increase in its combined Scope 1 and 2 absolute emissions compared to the 2023 base year. This overall rise occurred despite a significant **11.2%** reduction in Scope 1 direct emissions, underscoring a primary challenge in the growing energy footprint from purchased electricity, which saw Scope 2 emissions increase by **5.8%**. Furthermore, emissions from the broader value chain (Scope 3) also grew by **5.9%**, highlighting the ongoing challenge of aligning business growth with decarbonization goals across the entire operational and supply chain landscape.

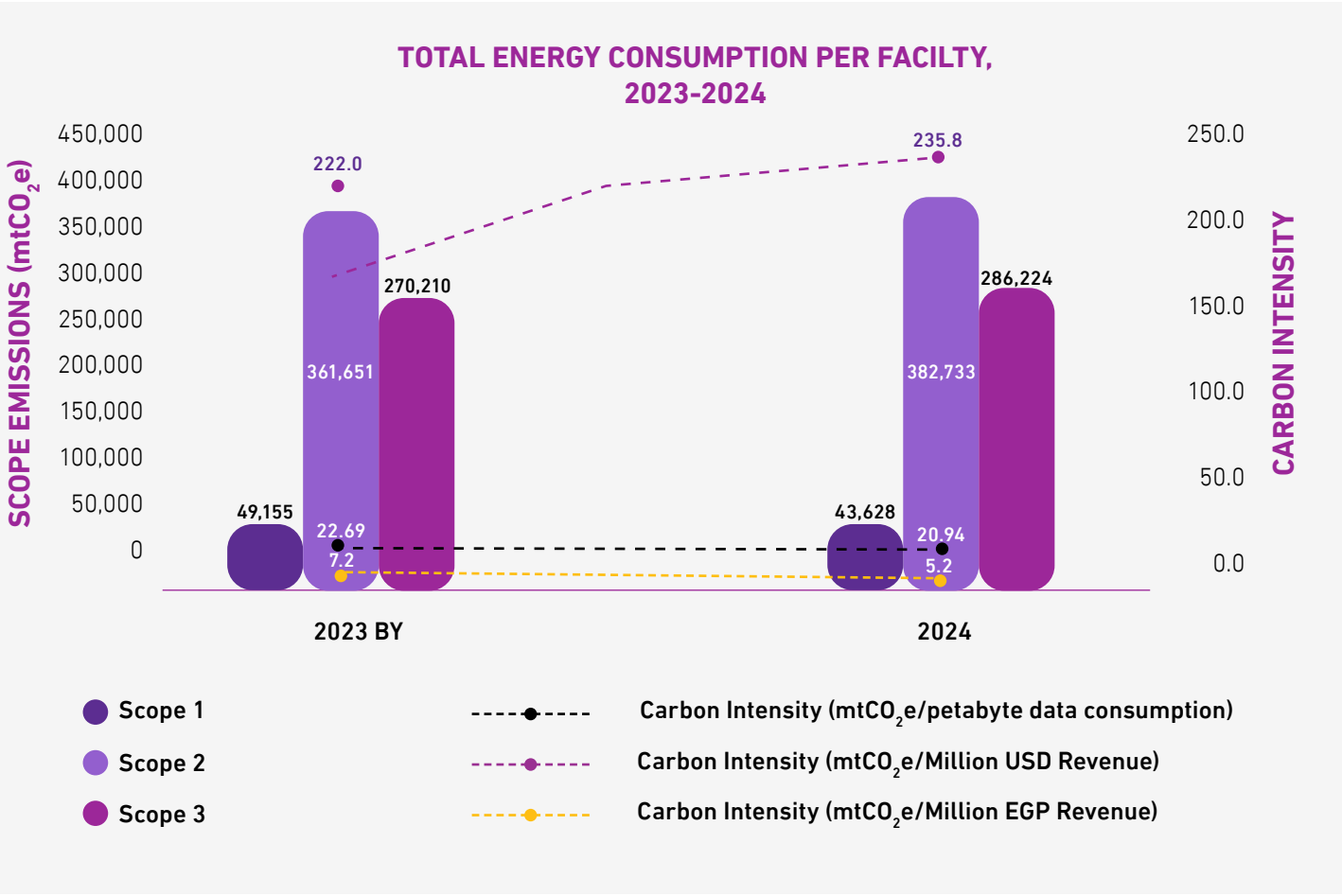
	Base year 2023	Reporting year 2024	Comparison	
Scope 1 emissions ($mtCO_2e$)	49,155	43,628	↓	11.2%
Scope 2 emissions ($mtCO_2e$)	361,651	382,733	↑	5.8%
Scope 1 + 2 emissions ($mtCO_2e$)	410,807	426,361	↑	3.8%
Scope 3 emissions ($mtCO_2e$)	270,240	286,224	↑	5.9%

Carbon intensity

To accurately assess our progress in decoupling economic growth from environmental impact, we track two key carbon intensity metrics. The first, **mtCO$_2$e per million USD of revenue**, links our carbon footprint directly to our financial performance, providing a transparent view of our economic-environmental efficiency. The second, **mtCO$_2$e per petabyte of data consumption**, measures the technical efficiency of our core operations, offering a clear measure of our success in decarbonizing the services we deliver.

While we have achieved an **11.2%** reduction in absolute Scope 1 emissions since establishing our 2023 base year, our carbon intensity increased by **6.2%** in 2024 to **235.8 mtCO$_2$e/Million USD Revenue**. This increase indicates that our emissions are growing slightly faster than our revenue, highlighting the ongoing challenge of maintaining carbon efficiency during business expansion. This efficiency gap highlights the critical importance of our ongoing decarbonization initiatives.

On the other hand, we observe a strong and positive trend in our operational efficiency, where our carbon intensity per petabyte of data consumption improved, decreasing by **7.7% from 22.69 mtCO$_2$e/petabyte data consumption in the BY to 20.94 mtCO$_2$e/petabyte data consumption in 2024**. This demonstrates tangible success in enhancing the carbon efficiency of our core data services.



METRICS OVERVIEW

The metrics used by Telecom Egypt are explicitly selected to assess the material climate-related risks and opportunities, directly aligning them with the strategic pillars of the DRIVE Strategy and the risk management. These metrics track performance against specific threats (Transition and Physical Risks) and measure success in capitalizing on market and resource opportunities defined in the assessment.

1. Metrics Aligned with Risk Mitigation (Transition and Physical Risks

These metrics assess risks such as the financial impact of potential regulatory costs (Carbon Taxes & Emissions Regulations) and operational exposure to infrastructure threats (Rising Mean Temperatures and Extreme Weather Events).

Risk	Metric Used (Unit)	Strategic Alignment & Risk Assessment Purpose
Carbon Taxes & Emissions Regulations	Absolute Scope 1 GHG Emissions ($mtCO_2e$)	Measures direct operational control risks (e.g., diesel generators, fugitive emissions), tracking the 11.2% reduction achieved through focused management
Energy Price Volatility & Supply Security	Electricity use optimization	Operational metric directly mitigating OPEX exposure due to Egypt's partially fossil-based grid and global price swings.
	Diesel use optimization	Measures progress in reducing reliance on diesel generators, managing the risk of fuel price volatility and the surge in diesel consumption (41% increase reported in 2024)
Technology Shift to Low-Carbon Technologies (Rated Highest in SSP2-4.5)	$mtCO_2e$ per Petabyte of Data Consumption	Measures technical efficiency to avoid technology obsolescence risks. An improvement of 7.7% in 2024 shows the effectiveness of modernization (e.g., SSDs, AAUs)
Bans on High-GWP Refrigerants	Fugitive Emissions ($mtCO_2e$)	Tracks compliance risk associated with refrigerant leakage, monitored closely as part of the short-term goal to conduct a full refrigerant audit. A 35.6% reduction was achieved in 2024
Rising Mean Temperatures (Chronic Physical Risk)	Power Usage Effectiveness (PUE) Optimization	Measures the efficiency of cooling infrastructure, managing risks of overheating and higher OPEX for data centers exposed to >45°C heat stress
Extreme Weather Events (e.g., Floods, Storms) (Acute Physical Risk)	Service availability (Up time) for core nodes (IMS - IP-Core - EPC)	Measures network reliability and operational continuity against high physical risks, supporting the material topic of Systemic Risk Management and Network Resilience

2. Metrics Aligned with Opportunities (Value Creation and Finance)

These metrics demonstrate the realization of value by investing in sustainable operations, attracting financing, and expanding competitive service offerings.

Opportunity	Metric Used (Unit/Context)	Strategic Alignment & Opportunity Assessment Purpose
Adoption of Energy-Efficient Technologies and Renewable Energy (Rated Very High Opportunity)	Percentage of energy from renewable sources	Measures the long-term competitive advantage from predictable, low-cost energy and OPEX savings
	$mtCO_2e$ per Million USD Revenue	Tracks success in decoupling business growth from environmental impact. Management seeks to reverse the 6.2% increase reported in 2024, demonstrating economic-environmental efficiency
Access to Sustainable Finance (Rated High Opportunity)	Sustainability KPIs established (Qualitative/ Financial Instrument Status)	Tracks eligibility for preferential capital sources (Green Bonds, SLLs, Climate Funds). The success in engaging in SLLs and SLBs is a key outcome
Strong ESG Performance & Investor Valuation	Improvement in TE score among Global Sustainability Rating Agencies	Measures improved market valuation and reputational standing. The recent S&P ESG score improvement (from 4 to 19/100) confirms progress
Markets for Efficient & Sustainable Services (Smart Cities, IoT, Climate Monitoring)	Expansion of IoT and M2M service offering and smart cities, smart grids	Measures strategic expansion into new digital revenue streams that support low-carbon alternatives and national development goals
Demand for Substitution Services (Remote Collaboration, Reduced Travel)	Reduction in Business Travel Emissions ($mtCO_2e$)	Tracks revenue opportunities from offering digital solutions (e.g., remote conferencing) as an alternative to physical travel. Emissions decreased by 55.8% in 2024

TARGETS OVERVIEW

TE employs a specific set of climate-related targets to manage identified risks and capitalize on opportunities, aligning these goals with its strategic objective of achieving Agile & Sustainable operations. These targets cover core areas such as GHG emissions reduction, energy efficiency, resource optimization, and governance, with recent performance evaluations showing mixed success in meeting near-term goals. TE is actively defining its targets as part of the Advanced Phase of its sustainability journey, which involves defining KPIs and SBTi based on TE Sustainability Strategy. The intention is to set long term sustainability commitment with determined KPIs.

1. GHG Emissions Reduction Targets (Mitigating Transition Risks)

Telecom Egypt has not yet established interim targets for absolute GHG reductions. Setting clear commitments for Scope 1 and Scope 2 emissions would directly address critical operational risks:

- A Scope 1 reduction target would mitigate risks from Energy Price Volatility & Supply Security (related to diesel consumption) and potential Bans on High-GWP Refrigerants (addressing fugitive emissions).
- A Scope 2 reduction target would reduce exposure to Energy Price Volatility & Supply Security risks as dependence on fossil-fuel-based grid electricity grows.

2. Operational Efficiency and Resource Targets

These targets are aimed at resource conservation and cost reduction (Energy Efficiency & Renewable Energy Adoption opportunity) while adapting to chronic physical risks like Water Scarcity.

Target Area	Status/Performance Detail
Energy Optimization (Electricity)	Performance guided by ongoing initiatives like Cable landing Station PUE Optimization, which achieved an average 1.5% reduction in power consumption across targeted sites.
Energy Optimization (Diesel)	Performance supported by the Fiber Monitoring System, which reduced average fuel consumption for field visits from 14,150 liters to 7,700 liters.
Renewable Energy Integration	Performance showed a 28.6% decline in the volume of electricity consumption covered by RECs in 2024, falling from 1.4% to 1.0% of total Scope 2 emissions
Circular Economy	This target promotes the Circular Economy & Resource Optimization pillar.

3. Governance and Stakeholder Targets (Capitalizing on Opportunities)

These targets ensure the organization can realize financial opportunities such as Access to Sustainable Finance and achieve Strong ESG Performance & Investor Valuation.

Target Area	Status/Performance Detail
Corporate Sustainability Integration	Measures the extent to which sustainability is embedded in corporate strategy.
Vendor Sustainability	Mitigates the transition risk of Supply Chain Disruptions for Critical Materials and addresses ESG scrutiny. Supported by the plan to include ESG aspects in vendor selection.
Ethical Governance	Performance: 100% of reported corruption cases were resolved in 2023–2024.
Data Security and Trust	This targets the inherent risks of Cybersecurity and Data Privacy and enhances compliance (e.g., achieving ISO 27001 certification)

SCOPES AND RELATED RISKS

1. Risks Related to Scope 1 Emissions (Diesel and Fugitive Emissions)

2023 BY	2024	
49,155 $mtCO_2e$	43,628 $mtCO_2e$	11.24% ↓

Despite TE achieving an overall 11.2% reduction in total Scope 1 emissions in 2024 (falling to 43,628 $mtCO_2e$), the composition of these emissions, particularly the rise in diesel consumption for backup power exposes the company to significant policy and market-related risks:

- **Energy Price Volatility & Supply Security:** The 41% increase in stationary combustion (diesel) in 2024, exposes the company to risks associated with rising and unpredictable OPEX due to the country's dependence on fossil fuels.
- **Carbon Taxes & Emissions Regulations:** Continued reliance on diesel for backup power (as shown by the rise in stationary combustion) increases compliance costs associated with potential carbon pricing mechanisms or advancing NCCS 2050 mitigation targets.
- **Bans on High-GWP Refrigerants:** Although fugitive emissions saw a 35.6% decline in 2024, they remain a major Scope 1 component and pose a significant transition risk, requiring large CAPEX to retrofit or replace cooling systems in exchange buildings, cable landing stations and network equipment to comply with international agreements

2. Risks Related to Scope 2 Emissions (Purchased Electricity)

	2023 BY	2024	
Market-based	361,651 $mtCO_2e$	382,733 $mtCO_2e$	5.8% ↑
Location-based	366,871 $mtCO_2e$	386,461 $mtCO_2e$	5.3% ↑

Scope 2 emissions, which account for the majority of the organization's footprint (53% of total in 2023), increased by 5.8% in 2024, demonstrating that network expansion is outpacing the decarbonization of the electricity supply. This leads to:

- **Energy Price Volatility & Supply Security:** High and growing consumption of purchased energy subjects the company to unpredictable OPEX resulting from fluctuations in the price of power generated by Egypt's partially fossil-based grid.
- **Technology Shift to Low-Carbon Technologies:** The high reliance on grid electricity necessitates mandated investments in energy-efficient infrastructure and modernization (e.g., smart cooling, low-loss fiber) to avoid obsolescence risks and align with the NCCS 2050 net-zero pathway.

3. Risks Related to Scope 3 Emissions (Value Chain and Indirect Risks)

2023 BY	2024	
270,240 $mtCO_2e$	286,224 $mtCO_2e$	5.9% ↑

Scope 3 emissions, which represent a significant 40.2% share of the total footprint in 2024, grew by 5.9%, primarily driven by purchased energy-related activities and the use of sold products. This exposure leads to:

- **Supply Chain Disruptions for Critical Materials:** Emissions embedded in the value chain (Scope 3 Category 2: Capital Goods) expose TE to risks of increased costs and delays in procuring critical telecom equipment due to global climate policies restricting mining or transport.
- **ESG Performance Scrutiny from Customers/Investors & Failure to Meet Investor Climate Demands:** The overall growth in total emissions (especially Scope 2 and 3) exacerbates the risk of ESG Scrutiny from Customers/Investors. If TE fails to demonstrate alignment with global decarbonization trends, it faces the critical threat of Failure to Meet Investor Climate Demands, potentially resulting in restricted access to sustainable finance and higher financing costs.

DECARBONIZATION INITIATIVES

Telecom Egypt recognizes that environmental stewardship is integral to our long-term business strategy and our role as a critical national infrastructure provider. We are proactively embedding decarbonization into the fabric of our network evolution, implementing core initiatives that are already delivering quantifiable environmental and operational benefits. Our efforts are focused on three strategic pillars:

	Energy Efficiency & Network Modernization			Circular Economy & Resource Optimization		Operational Excellence & Ecosystem Protection
Initiative	Radio Access Network (RAN) Material Reuse	Cable Landing Station PUE Optimization	Solid-State Drive (SSD) Upgrades	Network Equipment Dismantling & Reuse	Deployment of Advanced Antenna Units (AAUs)	Fiber Monitoring System
Description	Directly reusing antennas and baseband units from decommissioned cell sites to build new sites or upgrade existing ones, minimizing electronic waste and raw material consumption.	Implementing a continuous improvement program at international cable landing stations, guided by the EU Code of Conduct. Actions include electrical load balancing, optimized airflow management, and power factor correction to reduce overall energy consumption.	Upgrading employee laptops and desktops from traditional hard disk drives (HDDs) to more reliable and energy-efficient Solid-State Drives (SSDs), which consume less than half the power.	Decommissioning obsolete transmission equipment to harvest components for reuse, thereby avoiding new material consumption, and saving the energy and physical space previously allocated to the old hardware.	Replacing old radio units with new-generation, cable-free Active Antenna Units (AAUs) that are twice as energy-efficient per bit transmitted and reduce the physical footprint. Many units also use passive cooling, eliminating air conditioning needs.	Implementing a proactive fiber monitoring system that uses predictive maintenance and real-time fault detection to dramatically reduce the need for technician dispatch for site visits.
Quantified Impact	90 sites repurposed and 150 sites upgraded using salvaged materials over the two-year period.	Achieved an average 1.5% reduction in power consumption across sites through targeted improvements.	**2023:** - Devices Upgraded: 3,420 - Energy Saved: 28,454 kWh **2024:** - Devices Upgraded: 4,920 - Energy Saved: 40,934 kWh	**2023:** - Dismantled Equipment: 688 units - Energy Saved: 311,193 kWh - Space Freed: 144.75 m^3 / 510 racks **2024:** - Dismantled Equipment: 259 units - Energy Saved: 89,070 kWh - Space Freed: 114.04 m^3 / 270 racks	~2,590 units deployed across ~700 sites in the 2023-2024 period.	**2023:** - Average fuel consumption: 14,150 liters **2024:** - Average fuel consumption: 7,700 liters

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