Kaptan Demir Çelik

CLIMATE ACTION AND TCFD REPORT 2024
(Task Force on Climate-related Financial Disclosures)

Date: 11.08.2025

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1. EXECUTİVE SUMMARY

ABOUT THE REPORT

Overview

This report has been prepared in line with the TCFD 2017 Recommendations and the 2021 Guidance on Metrics, Targets & Transition Plans. Scenario analyses are based on the IPCC AR6, IEA NZE 2050, and NGFS scenario sets.

The report presents Kaptan Demir Çelik's approach to managing climate-related risks and opportunities, while also emphasizing its commitment to sustainable growth and environmental responsibility. With our long-standing expertise and robust infrastructure in the iron and steel industry, we aim to play an active role in climate action. We are implementing a comprehensive strategy to minimize the adverse impacts of climate change and to reduce our environmental footprint. Under the headings Governance, Strategy, Risk Management, and Metrics & Targets, the report details how risks and opportunities are identified, evaluated, and managed, as well as the projects and performance indicators carried out within this framework. In line with our carbon emission reduction targets, we have taken concrete steps and planned investments in energy efficiency, renewable energy, and low-carbon technologies to support these efforts. The report also outlines the implementation process of these strategies and the roadmap to be followed in the upcoming period.

This first TCFD report aims to establish a strong foundation for advancing our sustainability and environmental responsibility objectives by transparently sharing the company's climate-related strategies and performance.

2. MESSAGES FROM MANAGEMENT

BOARD OF DİRECTOR MESSAGE

As one of Türkiye's well-established iron and steel producers, Kaptan Demir Çelik continues to grow with our strong production capacity and core values. We are proud to share with our valued stakeholders our first TCFD report, which marks a milestone for our organization.

The rapid growth of the global economic system has also brought along significant environmental impacts. Within the framework of the European Green Deal, we continue our efforts with great care to achieve the cleanest iron and steel production possible while keeping carbon emissions at the lowest level. In order to play a leading role in sustainability, we encourage our team leaders (managers) to adopt a global perspective and support them in developing innovative approaches.

Our first Climate Action Report highlights our commitment to building a business model that respects both nature and people, as well as our goal of contributing to the United Nations Sustainable Development Goals. We continue to consistently enhance our efforts in the fields of Environmental, Social, and Governance (ESG). On behalf of the Board of Directors of Kaptan Demir Çelik, we extend our gratitude to all our stakeholders who accompany and support us in our investments.

3. INTRODUCTION – ABOUT KAPTAN DEMİR ÇELİK

Our journey, which began in 1964 with a rolling mill in Karabük, has today expanded into a wide range of sectors including iron and steel, port operations, transportation, energy, mining, recycling, and shipbuilding. As the first and only steel plant in the Thrace region, we continue to maintain our leadership in the industry.

Our production facilities, located in Marmaraereğlisi, Tekirdağ, operate in compliance with international quality standards while fulfilling our environmental responsibilities. The proximity of our facilities to the main highway and Martaş Port increases our logistical efficiency and supports our operational effectiveness. Since 2002, our steel plant has had an annual billet production capacity of 1.400.000 tons; and since 2003, it has also produced gaseous oxygen, liquid oxygen, and liquid argon.

Kaptan Demir Çelik has made significant investments to diversify its product range and manufacture high value-added products. As of 2023, our Wire Rod Mill (WRM) and SBQ Mill (Special Bar Quality Mill) facilities, commissioned alongside the new wire rod rolling mill, have a combined annual production capacity of 550.000 tons. These facilities enable the production of high value-added carbon and special steel products, offering sizes ranging from 2.5 mm to 26 mm, thereby strengthening our competitiveness in global markets.

Climate-related risks and opportunities directly influence our business strategies. The steps we have taken in energy efficiency, emission reduction, and sustainable resource management aim to reduce our environmental impacts and ensure long-term sustainability.

This report explains how Kaptan Demir Çelik manages climate-related risks and opportunities and outlines our strategic approaches in this area. By detailing the effects of climate-related risks and opportunities on our business strategies and financial performance, it emphasizes our commitment to fulfilling our environmental responsibilities. Our goal is to provide transparent information to our stakeholders and to share our climate-related strategies openly.

4. IMPORTANCE OF TCFD REPORTING

The climate crisis is intensifying through a cycle consisting of three main stages. **The intensive consumption of fossil fuels leads to carbon emissions, which in turn create a greenhouse gas effect in the atmosphere and increase global warming potential.** As a result, this cycle triggers climate change and climate crises, leading to severe consequences felt worldwide. The industrial and steel sectors, due to their contribution to global warming, are at the center of the sustainability-oriented transformation.

The adoption of the TCFD framework not only helps us communicate our efforts to manage climate-related risks but also ensures transparency and accountability toward our stakeholders.

SCOPE AND BOUNDARIES OF THE REPORT

This report covers all products (Continuous Casting Billets, Plain Round Bars, Rebars, Wire Rod Coils, and Plain Coils) and activities carried out at Kaptan Demir Çelik Industry and Trade Inc.'s Marmaraereğlisi facilities, focusing on data from the 2021–2024 period.

5. GOVERNANCE

BOARD OF DIRECTORS AND SENIOR MANAGEMENT'S APPROACH TO PHYSICAL RISKS

Our Board of Directors plays an active role regarding climate-related risks and opportunities. At Kaptan Demir Çelik, we take into account the physical risks that climate change may pose in terms of business continuity and operational performance. These risks are evaluated as part of the corporate risk management processes at the Board and senior management levels, and relevant developments are periodically reviewed. Physical risks, particularly water scarcity, energy supply security, and extreme weather events, are addressed based on scenario analyses. These assessments are reviewed at least once a year during meetings conducted within the existing strategic planning framework.

The Sustainability Team, in collaboration with representatives from Integrated Management Systems (IMS & QMS), Environmental, and Energy units, is responsible for monitoring and reporting developments related to physical risks. Findings gathered by the committee are presented to the Board of Directors in cases that require decision-making.

The Board of Directors' approach to physical risks is based on the following general principles:

Climate Scenarios and Risk Assessments: Facility-based assessments are prepared using 2°C and 4°C scenarios, analyzing the potential impacts of temperature increases, flood risk, water scarcity, and similar factors.

Decision-Making Processes: Projects developed within this scope, such as those focusing on energy and water efficiency and infrastructure resilience, are submitted for senior management approval after preliminary evaluation and integrated into investment planning.

Monitoring and Reporting: Activities related to physical risk management are reviewed semi-annually, whenever possible, based on established indicators, and the corresponding reports are prepared.

Medium-Term Planning: As of 2024, some preventive measures have been implemented, and it is targeted to complete physical risk analyses across all facilities by the end of 2025.

In the scenario analyses, climate projections published by global scientific authorities and recognized internationally were used as the basis. RCP 2.6 was selected as a low-emission scenario aiming to limit global temperature rise to 1.5–2°C; RCP 4.5 represents a scenario with medium-level policy and market conditions; and RCP 8.5 reflects a high-emission scenario with limited policy intervention. The purpose of selecting these scenarios is to comparatively assess the potential impacts of different warming pathways and critical variables for the steel sector, such as carbon pricing, energy transition, and raw material availability.

This approach is continuously reviewed based on current conditions and aligned with the company's sustainability strategies. The Sustainability and Investments Directorate reports directly to the Board of Directors.

OUR BOARD OF DIRECTORS

Kaptan Demir Çelik, we carry out all our operations with our management team of industry experts. Our Board of Directors consists of one (1) Chairman, one (1) Vice Chairman, and five (5) members. The Board of Directors is as follows:

AHMET NUR ÇEBİ – **Chairman of the Board of Directors**, TAYFUN ÇEBİ – **Vice Chairman of the Board of Directors**, ARZU EFE – **Board Member**, ATA ÖZDEMİRLER – **Board Member**, MUSTAFA KÜÇÜKGÖK – **Board Member**, ŞÜKRÜ KOZİK – **Board Member**

Our Board of Directors is responsible for setting the company's sustainability targets, making strategic decisions, and establishing corporate policies. Within the framework of TCFD reporting, climate change risks and opportunities, carbon emission reduction strategies, and sustainability objectives are among the main topics regularly addressed by our Board of Directors.

DUTIES AND RESPONSIBILITIES OF THE BOARD OF DIRECTORS

Chairman of the Board: Leads the development and implementation of sustainability strategies and oversees the assessment of climate-related risks and opportunities.

Vice Chairman of the Board: Supports the Chairman in monitoring sustainability targets and implementing strategic plans, and raises key sustainability issues during Board of Directors meetings.

Board Members: Oversee performance in environmental, social, and governance (ESG) areas and assess the effectiveness of sustainability strategies.

Our Board of Directors approves the necessary budgets and resources each year to achieve sustainability targets. Additionally, major investments and strategic decisions related to climate change are approved by the Board. All decisions and minutes of Board meetings are thoroughly documented and regularly monitored.

Our company is committed to developing strategies to adapt to the global transition toward a low-carbon economy by prioritizing sustainability and climate change-related issues. Our Board of Directors evaluates climate-related risks and opportunities and determines decisions and action plans on these matters. In this process, we will continue to inform all our stakeholders and take the necessary steps to achieve our sustainability objectives.

6. STRATEGY

POLICY

Steel producers are no longer merely manufacturing companies; they have become key actors in global climate targets and sustainable development visions. Developments such as the European Union Green Deal, the Carbon Border Adjustment Mechanism (CBAM), Türkiye's ratification of the Paris Agreement, and the 2053 Net Zero Emission target compel businesses to reduce their carbon footprint and to make investments focused on green transformation.

We act with this awareness and base our sustainable production strategies on a future scenario focused on emission reduction and energy efficiency. Within the scope of our Net Zero Emission Roadmap, our priority is to invest in process and energy efficiency improvements while transitioning to renewable energy sources. In this context, our solar power plant projects with a total capacity of 72.6 MWp are ongoing in the provinces of Van, Adana, Mersin, and Uşak. These investments are being carried out simultaneously, and we anticipate that they will contribute both to energy independence and to achieving carbon reduction targets.

In the long term, we have also initiated feasibility studies on carbon capture, storage/utilization (CCS/CCU) and green hydrogen technologies. However, since the integration of these technologies into the sector will take time, we are initially moving forward with the most feasible and measurable projects.

One of the first field applications of this strategy is the waste heat recovery system project, which aims to convert the waste heat from the annealing furnace into energy. Currently at the feasibility stage, this project plan has been comprehensively evaluated with detailed engineering calculations, energy savings and carbon reduction potential, financial return analyses, as well as all available incentive and credit mechanisms.

Climate Regulations and Targets: Comply with international regulations such as the Paris Agreement and the European Green Deal. In line with the goal of limiting global warming to 1.5°C, reduce emissions by 15% by 2030, 50% by 2040, and achieve near-zero emissions by 2053.

It is advocated and actively supported that Türkiye establish an Emissions Trading System (ETS) aligned with the European Union, ensure carbon prices are close to EU levels, and direct carbon payments as financing for sustainable transformation projects.

CLIMATE-RELATED RISKS AND OPPORTUNITIES

Physical Risk Assessment: Evaluate the physical impacts of climate change and understand the potential effects of these risks in the short, medium, and long term.

Transition Risk Assessment: Analyze the impacts of regulations such as the carbon border tax and develop strategies to comply with these regulations.

Climate-Related Opportunities: The necessity to transition to sustainable production processes and manufacture using low-carbon technologies. Opportunities arising from customer demand for "Green Steel" and alignment with ESG principles.

KAPTAN DEMİR ÇELİK'S MITIGATION AND IMPLEMENTATION STRATEGY

Sustainable Production: Implement clean production technologies and processes to reduce the carbon footprint. Offer customers low-carbon and environmentally friendly products.

Raise awareness among all stakeholders on carbon reduction and sustainability. Support stakeholders in implementing their policies on these matters.

Leverage incentive programs for Green Transformation and Digital Transformation, as well as renewable energy investments, utilizing national and international financing sources. As part of the sustainability transition, participate in the Green Deal Compliance Project Responsible Program supported by the Republic of Türkiye Ministry of Trade.

RESILIENCE OF KAPTAN DEMİR ÇELİK'S STRATEGY

Strategic Planning: Effective implementation of strategies for managing climate change risks and evaluating opportunities. Continuous monitoring of climate-related risks and opportunities, with regular updates to strategies.

Develop emergency plans and risk mitigation strategies to be prepared for the adverse impacts of climate change.

Regularly assess the performance of climate-related risks and opportunities and take the necessary actions to achieve strategic objectives.

7. RISK MANAGEMENT

OUR RISK MANAGEMENT

Risk management is a core principle at Kaptan Demir Çelik and plays a critical role across all our operations. Effectively managing risks requires a continuous effort to enhance the sustainability and success of our organization. In this context, we adopt a risk management framework aligned with international standards, encompassing a comprehensive structure from risk identification and assessment to control and monitoring.

OUR RISK MANAGEMENT PRINCIPLES

Risk management should be conducted as an integrated process across the organization. Continuous improvement and development are at the core of risk management. Risk management supports decision-making processes and creates value.

RISK MANAGEMENT FRAMEWORK

While determining risk management strategies considering the corporate context, we continuously analyze our internal and external environment. Our risk management process includes the identification, assessment, control, and monitoring of risks. The risk management structure is designed to align with the organizational framework.

OUR RISK MANAGEMENT PROCESS

Risk Identification: Potential risks and opportunities are identified in detail.

Risk Assessment: The likelihood and impact of risks are analyzed and prioritized.

Risk Treatment: Strategies are developed to accept, mitigate, share, or eliminate risks.

Risk Monitoring and Review: The effectiveness of the risk management process is regularly reviewed, and updates are made.

Risk Management Communication: Information related to risk management is effectively shared with all stakeholders.

IMPLEMENTATION AND AUDIT

In our company, a team responsible for risk assessments has been established. This team regularly reviews the Risk/Opportunity Assessment Form and makes necessary updates. Any changes in the system, such as the addition of new equipment or materials, or amendments to legal regulations, trigger a reassessment of the form.

The table below summarizes the main types of financial risks our company faces, along with the management strategies and control mechanisms applied to these risks.

Table 1. Types of Financial Risks and Management Strategies

Risk Type	Management Strategy
Liquidity Risk	To manage liquidity risk, we conduct scenario analyses and stress tests while closely monitoring our Cash Flow Statement. Based on the results of these tests, we adopt a proactive approach. Alternative action plans are prepared in advance to address potential cash flow issues. Additionally, we minimize risks by maintaining short-term assets and securing appropriate financing sources to meet liquidity needs.
Financing Risk	To manage financing risks, we ensure a diversified funding structure. In addition to equity, we integrate alternative financing methods to enhance opportunities for obtaining funds under relatively favorable conditions. These methods may include various bank loans, trade finance, and other financial instruments within or outside the group.
Exchange Rate Risk	The prices in our sector are largely based on the US dollar. We closely monitor exchange rate risk on a daily basis through contracts and take care to balance its effects on the balance sheet. This requires maintaining equilibrium between foreign currency-denominated assets and liabilities. Additionally, when necessary, we use derivative instruments to minimize potential negative impacts. By monitoring fluctuations in the market values of these derivatives, we aim to reduce their adverse effects on the financial statements.
Interest Rate Risk	Interest rate risk enables us to estimate potential long-term financial costs and perform overall cost analyses accordingly. However, in recent years, especially after the Covid-19 pandemic, global high inflation, regional tensions, and trade wars have led to fluctuations in interest rates both internationally and in Turkey, making it increasingly difficult to manage Interest Rate Risk. To minimize interest costs at current levels, we occasionally utilize derivative instruments.
Credit Risk	To manage credit risk, we implement comprehensive Receivables Risk Management. In addition to the Trade Credit Insurance we have used for many years, we have recently started using the DBS system. Based on market intelligence and data obtained from other sources, a systematic management framework such as an Internal Rating Mechanism is in place. To support these efforts, we procure external financial reports whenever possible and conduct our own intelligence activities. We may request instruments that provide security against receivable risk, such as Bank Guarantees from customers or Bank Checks to set payment dates. Measures and actions related to credit risk management are monitored and approved by the Credit Risk Committees of the Group companies.

COMPLIANCE WITH STANDARDS

Our risk analyses are conducted separately within the scope of management systems such as Quality, Occupational Health & Safety, Environment, Energy, Social Responsibility, and Supply Chain. Risks are identified and monitored in accordance with ISO 9001, ISO 14001, ISO 45001, ISO 50001, and other relevant standards. Internal audits are carried out based on a risk-based approach, with specific audit plans applied for each department.

SUSTAINABILITY AND SOCIAL RESPONSIBILITY

Environmental risks are assessed within the scope of ISO 14001, social risks through SA8000 risk analyses, and governance risks within the framework of management systems. We prefer to work with suppliers who respect human rights and sustainability. This approach is supported by the BES6001 certification and supply chain risk analysis.

SUPPLIER RISK ANALYSIS

In our supply chain, we manage social risks, particularly forced labor and child labor, within the ISO 26000 Social Responsibility Risk Assessment process. Additionally, we monitor our suppliers' compliance with applicable laws and cooperate with countries that adhere to ILO standards.

TECHNOLOGY AND CLIMATE RISKS

Technology-related risks are managed through the ISO 27001 Information Security Management System. Climate change–related risks are regularly assessed, and as a data provider for Worldsteel Climate Change, we calculate our emissions and set improvement targets. In addition, we strive to take an active role in international platforms.

INTEGRATION OF CLIMATE-RELATED RISKS

Climate-related risks have been integrated into our existing risk management systems. This ensures that they are considered in decision-making processes. We invest in energy efficiency technologies and implement measures to reduce carbon emissions to manage physical and transition risks. The table below outlines the key risks and opportunities, their potential costs, and the actions and precautions we have taken in this regard.

CLIMATE-RELATED RISKS

Table 2 – Potential Financial Impacts of Physical and Transition-Related Climate Risks

Risk Type	Possible Impact Mechanism	Potential Financial Impact (Estimated)	Note / Critical Point from Management Perspective
Water Scarcity (Physical Risk)	Reduction or restrictions in water supply. Production stoppages, quality issues, process inefficiencies	In case of production stoppages, monthly losses at the million USD level. Cost of alternative water supply investments (seawater desalination, rainwater harvesting, dry cooling)	Production continuity risk. Without water-related investments, sudden stoppages and disruptions in export deliveries may occur, jeopardizing production continuity
Extreme Weather Events (Physical Risk)	Floods, storms, extreme heat → facility damage, interruptions in energy infrastructure	Loss scenario of 2–5% of annual production; equivalent to a double-digit million USD impact	Insurance costs increase, and long-term maintenance expenses rise
EU Carbon Regulations (CBAM) (Transition Risk)	Additional cost based on carbon pricing for exports to the EU. The CBAM cost will be applied at a gradual rate of 2.5% in the first year and will increase annually, reaching 100% by 2030	Costs that initially appear relatively low (~hundreds of thousands of €) can rise to millions of € within a few years, significantly reducing profitability. Current carbon price (75 €/tCO_2) × export-related emissions	The initially low rate is misleading; pricing strategies, carbon reduction investments, and product portfolio planning should already be implemented. Export profitability is significantly reduced, and market competitiveness weakens
Scrap Price Increase (Transition Risk)	Due to global demand and energy costs, scrap prices increase by 15–30%. Protectionist policies of countries create difficulties in scrap supply	Additional raw material cost	Margin compression and mandatory adjustments in inventory and supply strategies
Energy Cost Increase (Transition Risk)	10–20% increase in electricity and natural gas prices	High additional USD costs at high production volumes	Directly impacts competitiveness; shortens the payback period for energy efficiency investments

PHYSICAL RISK TYPES AND EXPOSED IMPACTS

Kaptan Demir Çelik has classified climate-related acute and chronic physical risks according to the regions in which it operates. This classification is summarized below:

Acute Risks: Extreme heatwaves (production stoppages and inadequate cooling systems), sudden flash floods (risk of water inundation in raw material storage and production areas), earthquakes (operational disruption due to seismic activity in the Marmara region)

Chronic Risks: Persistently rising average temperatures (increased cooling water demand, decreased energy efficiency), prolonged droughts (disruptions in water supply, strain on process cooling systems)

ASSESSMENT OF PHYSICAL RISKS ACCORDING TO SCENARIOS

Within the scope of managing physical climate risks, Kaptan Demir Çelik has conducted a detailed analysis of the potential climate impacts it may face under low-carbon and carbon-intensive scenarios, taking into account the RCP 4.5 (medium scenario) and RCP 8.5 (high emission scenario) climate projections published by the IPCC.

Table 3 – Macro Impact Comparison by Scenarios

(Source: IPCC AR6 projections, industry reports, and internal company assessments)

Parameter	RCP 2.6 (Low Emission)	RCP 4.5 (Medium Emission)	RCP 8.5 (High Emission)
Global Temperature Increase (2100)	**+1,5 – 2°C**	**+2,4 – 2,6°C**	**+4°C and above**
Policies and Regulations	Very strict carbon policies, high carbon pricing, mandatory compliance with the EU Green Deal	Medium-level regulations, partial compliance, continued use of some fossil fuels	Insufficient regulations, high fossil fuel usage
Carbon Price (€/tCO_2)	High	Medium	Low
Energy Transition	High share of renewable energy, rapid phase-out of coal	Medium share of renewable energy, continued use of fossil fuels	Fossil fuels dominate, limited increase in renewables
Physical Risk Level	Low–Medium	Medium	High
Transition Risk Level	High	Medium	Low
Impact on the Steel Sector	Low-carbon production mandatory, high CBAM costs, accelerated technology investments required	More flexible transition, moderate CBAM costs, competitive pressure	Low carbon cost, physical risks (water stress, temperature, floods) increase operational disruptions
Scrap and Raw Material Demand	Very high, prices increase	Moderate increase	Fluctuating demand, decline in some markets
Adaptation Strategy Priority	Energy efficiency, renewable energy, CCUS, green hydrogen, low-carbon technologies	Energy efficiency, renewable energy investments, supply chain diversification	Physical risk adaptation, climate resilience investments

The table below presents the potential impacts of acute and chronic climate risks—such as extreme precipitation, temperature increase, and sea-level rise—under low-carbon and carbon-intensive scenarios, the projected outcomes by 2030, and the management strategies developed to address these risks.

Table 4. Scenario-Based Climate Risk Analysis and Management Strategies

Risk Type	Risk Description	Low-Carbon Economy Scenario	Carbon-Intensive Scenario	Impact: Carbon-Intensive Scenario 2030	Management Strategy
Extreme Precipitation	Extreme precipitation measured by 100-year daily total water equivalent	The frequency of extreme precipitation is projected to decrease on average by 3% to 6% in Turkey over the 2016–2099 period, based on annual total precipitation anomalies	For extreme precipitation, the annual total precipitation anomaly in Turkey is projected to change on average between +3% and -12% over the 2016–2099 period	By 2030, this may lead to operational delays, supply chain disruptions, and production capacity issues in the region	We are developing Business Continuity plans to address potential flood risks. In these emergency plans, necessary actions are determined with reference to the continuity of management and control processes
Carbon Pricing	Non-compliance with the EU Emissions Trading System (ETS)	Carbon prices will be reduced in alignment with national and international regulations	Carbon prices may be high, and border taxes may be applied	By 2030, high carbon prices may increase costs and reduce international competitiveness	We support activities aimed at aligning the national ETS system with the EU. We advocate for making carbon payments at the source and for national carbon prices to be at EU levels
Chronic Heat Stress	Extreme heat is measured by the number of days with average temperatures exceeding 35°C per year	Projections for Turkey indicate that chronic heat stress and future temperature increases will have significant impacts. According to estimates for the 2016–2099 period, Turkey's annual average temperatures are expected to rise by 1.5–2.6 °C	As an extreme heat event, Turkey's annual average temperatures are projected to increase on average between 2.5 and 3.7 °C over the 2016–2099 period	Under a carbon-intensive scenario, the potential impacts of extreme heat are expected to affect facilities in southern Turkey and other regions the most by 2030. This may lead to increased cooling demand, higher energy consumption, rising operational costs, equipment wear, and production interruptions	Implement cooling measures to maximize operational efficiency and optimize water management on high-temperature days. Conduct regular equipment maintenance and climate control monitoring during hot months. The Health and Safety unit carries out necessary actions to prevent production interruptions during extreme heat events. Employees are educated to raise awareness of heat stress hazards. Procedures and instructions are applied to ensure personnel safety during extreme heat conditions. Contingency measures are in place for loss of air conditioning equipment due to power outages

Chronic Extreme Cold	Extreme cold is measured by the number of days with average temperatures below 0°C per year	The annual average number of days and the intensity of extreme cold events are projected to decrease over time	The frequency and intensity of extreme cold events are expected to decrease further	Extreme cold primarily affects northern regions of Turkey. While the number of extreme cold days is expected to decrease in the long term, extremely low temperatures can lead to frozen pipes and high energy consumption, resulting in higher operational costs and production delays at the facility	Regular maintenance activities are carried out during extreme cold events to prevent production interruptions. During winter months, scrap inventory in the region is increased to mitigate risks of supply chain disruptions and raw material shortages. Necessary procedures and instructions are implemented to ensure personnel safety. Contingency measures are in place in case air conditioning equipment becomes inoperative due to power outages
Chronic Sea-Level Rise	Sea-level rise was identified as a chronic physical risk in our 2022 qualitative assessment	Sea-level rise is projected to increase by 0.32–0.63 m during the 2081–2100 period	Sea-level rise is projected to increase by 0.45–0.82 m during the 2081–2100 period	It has been determined that our facilities are not significantly exposed to the risk of sea-level rise compared to other physical hazards	We will continue to actively monitor sea-level rise and the potential risks it may pose to our facilities and supply chain
Energy Cost Increase	Increases in energy prices may raise production costs	Energy prices are expected to stabilize with the increased use of renewable energy	Energy prices are expected to remain high, accompanied by an increase in fossil fuel use	By 2030, there may be significant increases in energy costs, which could raise production costs and, consequently, product prices	Enhancing energy efficiency and investing in renewable energy sources. In addition, using smart energy management systems to monitor and optimize energy consumption
Reduction of Water Resources	The reduction of water resources may lead to water scarcity in production processes	The conservation of water resources and the expansion of water recycling projects are expected	A reduction in water resources and increasing difficulty in accessing water are expected	Water scarcity may lead to disruptions in production processes and increased costs	Establish recycling systems to optimize water management and ensure water savings. In addition, collaborate with local water management plans to ensure the sustainable use of water resources
Challenges in Raw Material Supply	Challenges in raw material supply may lead to disruptions in the supply chain	An increase in renewable and sustainable raw material sources is expected	Challenges in raw material supply and price increases are expected.	By 2030, challenges in raw material supply may negatively impact production processes and costs	Diversify raw material sources and collaborate with sustainable suppliers. In addition, increase the use of recycled materials

Regulatory Changes	Changes in environmental and energy-related regulations may increase compliance costs	Regulations are expected to be tightened to enhance environmental protection and energy efficiency	Regulations are expected to be tightened, leading to increased compliance costs	Regulatory changes may increase compliance and operational costs	Comply with environmental and energy efficiency regulations

PRODUCTION AND REVENUE-BASED PHYSICAL RISK SCENARIO ANALYSIS

Based on the IPCC climate projections under the 4.5 (medium emission) and 8.5 (high emission) scenarios, significant increases in the frequency of extreme weather events that Kaptan Demir Çelik's production facilities may face in the future are projected. Accordingly, scenario-based estimates of production and revenue losses have been made, taking into account production stoppages due to climate conditions. The table below summarizes the potential production interruptions and their financial impacts for the years 2030 and 2050 resulting from assumed extreme weather events. Calculations are based on losses arising from the inability to produce during downtime. Under these scenarios, the impact of physical risks on production and revenue is projected as follows.

Table 5. Scenario-Based Impacts of Physical Risks on Production and Revenue

Scenario	Year	Extreme Weather Days	Production Loss (tons)	Revenue Loss (USD)
RCP-4.5	2030	6 day	18.000	10.020.600
RCP-8.5	2050	14 day	42.000	23.715.400

FINANCIAL LOSSES RELATED TO PRODUCTION DOWNTIME

The financial loss amounts have been calculated based on the total annual sales tonnage and the year-end USD exchange rate of the Central Bank of the Republic of Turkey (CBRT). The impact of weekly, biweekly, and monthly production stoppages on annual sales revenue has been analyzed. The table below includes calculations based on historical revenues and the projected revenue for 2025, highlighting the potential revenue losses from possible production interruptions. This study has been prepared to assess the potential impacts of climate-related operational stoppages on the company's financials.

Table 6. Financial Losses Due to Production Downtime

Year	1 Week Downtime (USD)	2 Week Downtime (USD)	1 Month Downtime (USD)
2021	10.239.074	20.478.147	44.369.319
2022	13.197.153	26.394.306	57.187.662
2023	8.217.582	16.435.165	35.609.524
2024	10.747.103	21.494.205	46.570.778
2025	10.048.077 *(estimated)*	20.096.154 *(estimated)*	43.541.667 *(estimated)*

ASSET BASED IMPACT ASSESSMENT

The scenario analyses are supported not only at the production and revenue level but also with preliminary assessments of the resilience of certain critical assets within the facilities against climate-related impacts. An inventory exists for Kaptan Demir Çelik's key assets, including transformer stations, rolling mill systems, water pump stations, automation control panels, and energy infrastructure. The majority of this equipment is insured through our insurance unit, and asset values have been determined.

Technical observations indicate that extreme temperatures and high humidity associated with climate change could increase the risk of malfunctions, particularly in automation systems and transformer equipment. To mitigate these risks, protective systems and maintenance strategies are being reviewed. In addition, within the framework of the IPCC RCP 4.5 and 8.5 scenarios, the potential impacts on the service continuity of these assets are being analyzed, and preparatory measures such as backup systems are being considered.

CLIMATE RELATED OPPORTUNITIES

Table 7. Climate-Related Opportunities

Opportunity Category	Description	Expected Impact
Green Steel and Low-Carbon Technologies	Kaptan Demir Çelik is accelerating the integration of low-carbon technologies into steel production processes. Emissions will be reduced through technologies such as **Electric Arc Furnaces**	Reduction in energy costs, decrease in carbon footprint, increase in customer demand
Renewable Energy Investments	Our company aims to reduce carbon emissions by investing in renewable energy sources. **Solar energy projects** are at the forefront of these investments	Reduction in long-term energy costs, achievement of sustainability targets, increase in the share of renewable energy use
Energy Efficiency Projects	Projects aimed at increasing energy efficiency in production processes will significantly reduce energy consumption. **Efficient electric motors** and **optimized production lines** are targeted for use	Reduction in energy costs per unit of production, decrease in carbon emissions, more efficient production processes
Low-Carbon Product Development	**Low-carbon steel products** are being developed for the construction and automotive sectors, and these products are in high demand for sustainable projects	New markets and customer acquisition, competitive advantage, becoming a preferred supplier in sustainable building and vehicle projects
New Market Opportunities	Access to new market opportunities will be achieved by offering **low-carbon products** and **energy efficiency solutions**	New revenue streams, strong market positioning in carbon management, increased demand across different sectors
Carbon Credits and Certifications	By participating in **carbon markets,** additional revenue can be generated through the purchase and sale of carbon credits for renewable energy and emission reduction projects	Additional revenue source, reduction in carbon footprint, contribution to the company's sustainability strategy
R&D and Technology Development	Investment is being made in research and development activities to develop **new emission-reducing technologies** and improve existing processes	Increased innovation capacity, greener production processes, transition to carbon-neutral production
Increase in Customer Interest	By developing sustainability-focused products and services, **customer loyalty** and **market share** will be increased	Expansion of the customer base, contribution to sustainability goals, brand recognition for environmental awareness
Creating a Green Steel Brand	By creating a brand such as **Kaptan Green Steel**, the marketing strategy for low-carbon steel products will respond to customer demands	Competitive advantage, acquisition of new customers, becoming a preferred supplier in green building and infrastructure projects
Water Efficiency and Climate Adaptation	The aim is to adapt to climate change and optimize water use by implementing water efficiency projects in production processes.	Reduction in production costs, increased resilience to climate risks, and conservation of water resources
Support for Electric Vehicle Production	It is planned to develop lightweight and durable steel products used in electric vehicles for the automotive sector	New product diversity, supply to electric vehicle manufacturers, opportunity to enter a growing market

LONG-TERM STRATEGIES

Table 8. Long-Term Strategies

RISK TYPE	RISK DEFINITION	LOW-CARBON ECONOMY SCENARIO	CARBON-INTENSIVE SCENARIO	IMPACT: CARBON-INTENSIVE SCENARIO 2050	MANAGEMENT STRATEGY
Climate Change Management	Long-term impacts of climate change	Transition to low-carbon technologies and adaptation strategies will be implemented	In the long term, the impacts of climate change may become more pronounced and require infrastructure investments	By 2050, infrastructure changes, innovative technologies, and costly adaptation strategies may be required	We are developing strategic plans considering the long-term impacts of climate change. Long-term adaptation strategies for climate change are being developed, and necessary infrastructure investments are being planned

8. METRICS AND TARGETS

CLIMATE-RELATED METRICS

CO2 Emissions: Monitoring and reporting of Scope 1 and Scope 2 emissions.

Energy Consumption: Monitoring energy use and energy efficiency initiatives.

Water Usage: Monitoring water consumption and water-saving initiatives.

Waste Management: Reducing waste volumes and increasing recycling rates.

EMISSION PERFORMANCE

We aim to reduce our Scope 1 and Scope 2 greenhouse gas emissions by 15% by 2030 and by 50% by 2040. Accordingly, we calculate our carbon footprint in compliance with the ISO 14064 standard and the GHG Protocol, and regularly monitor our performance.

In emission calculations, the "Calculation-Based Approach" and the "Standard Method" are used; activity data are multiplied by emission factors to determine greenhouse gas emission amounts. Over the past three years, these calculations have been conducted using various software tools, with the basic formula applied as follows:

Greenhouse Gas Emissions (tons CO_2e) = Activity Data × Emission Factor × Global Warming Potential (GWP)

Using this method;

Scope 1: Direct emissions (e.g., fuel use),

Scope 2: Indirect emissions from energy consumption,

Scope 3: Other indirect emissions, such as those from the supply chain and transportation, are calculated and reported on an annual basis.

The table below presents the total greenhouse gas emissions measured between 2022 and 2024, along with the annual distributions for each scope:

Table 9. Our Greenhouse Gas Emissions by Year (ISO 14064, GHG)

Scope	2022 (ton)	2022 (%)	2023 (ton)	2023 (%)	2024 (ton)	2024 (%)
Scope 1 (Direct Emissions)	115.904	14%	118.778	9%	148.563	10%
Scope 2 (Emissions from Energy Consumption)	240.407	32%	201.772	16%	235.799	16%
Scope 3 (Other Indirect Emissions)	365.311	54%	950.959	75%	1.122.580	74%
Total Emissions	**721.622**	**100%**	**1.271.509**	**100%**	**1.506.935**	**100%**

9. FUTURE OUTLOOK AND ROADMAP

KAPTAN DEMİR ÇELİK AND STEEL INDUSTRY STRATEGIES

Kaptan Demir Çelik adopts an approach that guides the decarbonization process in the steel sector in line with its sustainability goals. We aim to achieve carbon neutrality by 2053. Kaptan Demir Çelik targets a 15% reduction in carbon emissions by 2030, a 50% reduction by 2040, and near-zero emissions by 2053. This process necessitates simultaneous and holistic efforts across multiple interconnected policy areas. The roadmap supporting the company's transformation has been meticulously prepared based on an extensive literature review. Informed by various scientific sources and sectoral analyses, practical and effective policy steps have been defined. These steps are designed to draw on global steel sector decarbonization efforts and serve as a guide for Kaptan Demir Çelik's own decarbonization roadmap.

- Raising awareness of energy efficiency among all Kaptan employees: increasing their commitment to energy efficiency and ensuring this culture becomes a standard practice.
- Enhancing strategic planning and energy efficiency awareness at all organizational levels: ensuring all employees are engaged with this strategy.
- Identifying and monitoring all energy sources consumed within the plant.
- Selecting the most suitable resources for efficiency purposes.
- Ensuring purchased products are of high energy efficiency class: avoiding the use of low-efficiency equipment.
- Preferring renewable energy (green energy) alternatives from purchased sources.
- Replacing all inefficient lighting products in the plant with high-efficiency LEDs.
- Using appropriate automation devices (photo cells, motion sensors, timers, etc.) where suitable to prevent unnecessary lighting.
- Designing indoor spaces to maximize daylight utilization.
- Identifying and eliminating all energy losses (electricity, compressed air, heat lines, etc.) to prevent unnecessary energy consumption.
- Operating compressed air systems at optimal pressure levels.
- Maintaining HVAC systems at appropriate comfort levels.
- Using heat recovery devices (burners, economizers, etc.) to reduce energy costs.
- Selecting energy-consuming equipment (motors, burners, pumps, etc.) with optimal capacity.
- Transitioning to high-efficiency fans.
- Reducing energy consumption through the use of clean scrap.

Utilization of Waste Gases and Heat:

- Developing technologies and applications for the recovery of waste gases and heat.
- Production of hot water for heating purposes.
- Steam generation.
- Electricity generation: using ORC units or steam turbines.
- Transition to more efficient motor technologies.
- Preheating of scrap.

Primary Input Optimization

Strategic Management of Scrap Resources: Monitoring global scrap trade to track attempts to ban scrap exports in markets from which Turkey imports scrap, and diversifying scrap import sources.

Improvement of Scrap Sorting and Preparation Processes: Developing and implementing methods for scrap sorting and preparation.

Investment in DRI/HBI Technologies: Conducting R&D, feasibility studies, and prototype development for DRI/HBI technologies powered by low-carbon energy sources, along with providing incentives and financing.

Use of Alternative Raw Materials: Developing methods for the use of alternative raw materials in scrap steel production.

Technologies Directly Reducing Carbon Output: EAF Technologies: Implementation of dedusting technologies for EAF steel production and casting, including scrap preheating, charging, melting, tapping, ladle furnace, and secondary metallurgy.

Use of H_2 in DRI Production: Utilization of H_2 in varying proportions with natural gas in DRI production.

Use of H_2: Utilization of H_2 in burners and heating processes.

Continuous Casting and Semi-Finished Product Processing: Research, development, and prototyping of best practice examples and technologies for continuous casting and semi-finished product processing.

Carbon Capture, Utilization, and Storage (CCUS) Technologies

CCU Technologies: Conversion of captured carbon gases into fuels (CCU).

CO_2 Capture: Natural gas–based CO_2 capture for DRI.

Digital Monitoring Systems: Establishment of digital monitoring systems integrated with energy management systems to enhance energy efficiency and maintenance practices.

Increased Maintenance Requirements: Enhancing maintenance requirements at the steel production facility to improve process reliability and increase energy efficiency.

Facility Reinforcement and Renewal: Planning and timely implementation of facility reinforcement, upgrades, or decommissioning activities in line with low-emission technologies.

Fuel Switching (Green Energy)

Renewable Energy Planning: Developing a resource plan to increase the use of renewable energy as a substitute for fossil fuels. Evaluation of Small Modular Reactors (SMRs) usage.

Renewable Energy Production Infrastructure: Establishment of renewable energy production infrastructure and activation of incentive mechanisms.

Green Hydrogen Supply Planning: Identifying technologies to make green hydrogen commercially viable and cost-effective for the steel industry, and developing medium- to long-term supply plans.

Inclusive Employment and Skills

New Skills and Competencies: Identifying the new skills and competency requirements that will emerge in the workforce due to the green transition process, and coordinating efforts to train and develop the workforce accordingly.

Equal Opportunity and Women's Employment: Ensuring equal opportunities in the sector and increasing the employment of women and groups requiring special policies.

Green Transition Financing

Use of Private Equity: Mobilizing private equity for the deployment of low-emission technologies.

Collaborations and Participation in International Programs: Participating in international programs (COP, Worldsteel, ResponsibleSteel, Eurofer, etc.) to monitor best practice examples and evaluate opportunities to improve processes at existing facilities.

Circular Economy: Developing methods and practices for by-product and waste management. Minimization of waste and utilization of by-products. Reuse of refractory waste as secondary raw material and evaluation of slag in various applications (cement, concrete, aerated concrete bricks, elevator counterweights, etc.)

ANNEX-1 OUR CURRENT PROJECTS

	Goals	Objective	Plan	Responsible	Completion Target	Completed	Project Stage
1	**Steelmaking Plant EAF Electrical Power Control System Modernization**	Reducing electricity consumption ensuring energy efficiency	It will be examined through meetings with companies. References of the leading companies will be followed up	Technical Executive Board	Electricity consumption will be reduced by 1,5% and energy efficiency will be ensured	- References of the Q-ONE power electronics, produced and implemented by Danieli, are being monitored. - Meetings will also be held with Primetals.	At the initial stage
2	**KG – Steelmaking Plant PO Electrode Regulation System Modernization**	To ensure energy efficiency and solve the spare parts supply issue of the existing system	Cost-benefit report and market research	Steel Mill Operations Directorate	A reduction in energy consumption and the spare parts supply problem of the existing system will be resolved	- Implementation costs are being evaluated	Planning
3	**Use of Hydrogen in Iron and Steel Production**	Increase in production and energy efficiency	Project Code: KG_KDÇ_PR_AGM_24017 – Gradually commissioned to reduce fossil fuel consumption and lower emissions	Technical Executive Board	Gradually commissioned to reduce fossil fuel consumption and lower emissions, depending on the usage amount	- Implementation costs are being assessed	Initiation
4	**KG – Waste Heat to Power Generation**	To assess the waste heat potential in the plant	It is planned to generate electricity from the waste heat occurring at the EAF dust collection primary line, the rolling mill annealing furnace flue line, and the CCM hot billet surfaces.	Technical Executive Board – Sustainability and Investment Directorate	>3.000.000 kWh/year savings	- Feasibility studies are ongoing	Project Selection
5	**Energy Monitoring System**	The consumption of all energy sources in the plant will be measured, recorded, analyzed, and reported	Cost-benefit report and market research. It will be examined through meetings with companies, and references of the leading companies will be monitored	Technical Executive Board – Sustainability and Investment Directorate	To ensure energy efficiency through real-time measurement, monitoring, and analysis of energy data	Implementation costs are being evaluated	Initiation

	Goals	Objective	Plan	Responsible	Completion Target	Completed	Project Stage
6	**KG – FFB Implementation at Billet Rolling Mill**	To achieve thinner and more efficient billet production	Production of 8, 10, 12 mm using block mill	Rolling Mill Directorate	Increase in production capacity and energy efficiency	- Machine and equipment proposals received	Project Selection
7	**KG – Addition of Magnetic Stirrer at Steelmaking Plant SDM**	To ensure high-quality billets at the CCM	Project Code: KG_KDÇ_PR_ISY_24021	Steel Mill Operations Directorate	Increase in billet quality	- Installation and handling systems are being planned	Implementation
8	**OGM – Driver System Revision at Steelmaking Plant SDM**	To ensure energy efficiency by modernizing the drive systems	Procurement and commissioning of new drives	Steel Mill Operations Directorate	Reduction in energy consumption and maintenance costs	- Revision and implementation costs are being evaluated	Project Selection
9	**OGM – SVC System Modernization at Steelmaking Plant**	Renewal of the SVC system and ensuring safety	Modernization of the old SVC system and renewal of the control structure	Steel Mill Operations Directorate	Energy efficiency and safety will be ensured	- Project is at the planning stage	Planning
10	**OGM – Transformer Gas Analysis Device Procurement**	Early fault detection and reduction of maintenance costs	Installation of real-time gas analysis devices on large power transformers	Energy Management	Shorter downtime and reduced maintenance costs	- Device procurement and installation phase	Planning
11	**OGM – Use of High-Efficiency Electric Motors**	To increase motor efficiency and achieve energy savings	Replacement of continuously operating motors, such as pump motors, with high-efficiency motors	Maintenance and Energy Management	Energy consumption reduction	- Feasibility studies and proposal evaluations are ongoing	Planning
12	**Steelmaking Plant PO Transformer Spare Procurement**	To increase transformer reliability	Procurement and maintenance of a spare transformer	Steel Mill Operations Directorate	Reduction in maintenance downtime	- Proposals received, under evaluation	Planning

	Goals	Objective	Plan	Responsible	Completion Target	Completed	Project Stage
13	**Steel Mill EAF Magnetic Stirrer**	Increase in production and energy efficiency	Project Code: KG_KDÇ_PR_ISY_24009	Sustainability and Investment Directorate	≥3% reduction in electric energy (kWh/t) and ≥3% reduction in energized time (min); ≥2.5% increase in production	- Proposals received, under evaluation	Initiation
14	**Vacuum Degassing System (VD)**	To ensure high-quality steel production	Project Code: KG_KDÇ_PR_ISY_24014	Technical Executive Board	Production of high value-added products, profitability	-Proposals received, under evaluation	Initiation
15	**Çebi Storage Solar Power Plant**	Use of renewable energy	Project Code: KG_ÇDP_PR_ISY_24018	Sustainability and Investment Directorate	Reducing natural resource consumption	- Feasibility studies and proposal evaluations are ongoing	Initiation
16	**Misinli Rolling Mill Platform and Handling of Packaging**	Working in 3 shifts to increase production capacity utilization, energy efficiency, and process efficiency	Project Code: KG_KDÇ_PR_ISY_24024	Technical Executive Board	Increase in production capacity and energy efficiency, reduction of fossil fuel consumption and emissions from transportation	-Proposals received, evaluation completed -Installation and handling systems are being planned. Project is at the planning stage	Implementation

ANNEX-2 ENERGY EFFICIENCY AND EMISSION MANAGEMENT OPPORTUNITIES

	Opportunities	Objective	Plan	Responsible	Completion Target		Project Stage
1	**Compressor Replacement – Rolling Mill-1 Section**	To reduce specific energy consumption by 2029	Compressor replacement and optimization	Rolling Mill Operations Directorate	45.190,40 kWh/year energy savings	327.331,76 TL/year cost savings	Completed
2	**Steel Mill Section Leakage Elimination**	To create an opportunity to eliminate 100% of energy leaks by 2050	Leak detection and repair using an ultrasonic leak detector	Rolling Mill Operations Directorate	246.819,20 kWh/year energy savings	556.453,89 TL/year cost savings	Implementation
3	**Rolling Mill-1 Recuperator Usage**	To increase energy efficiency by assessing waste heat potential by 2030	Electricity generation and feasibility studies with the ORC system	Rolling Mill Operations Directorate	1.991.882,88 kWh/year energy savings	4.490.699,95 TL/year cost savings	Planning
4	**Rolling Mill-1 Recuperator Leakage Repair**	To increase energy efficiency by eliminating recuperator leaks by 2030	Leak repairs and fan automation	Rolling Mill Operations Directorate	442.990,08 kWh/year energy savings	998.721,14 TL/year cost savings	Implementation
5	**Combustion Adjustments – Rolling Mill Annealing Furnaces**	To reduce the O_2 content in flue gas to 3% by 2025	Flue gas optimization and burner replacement	Rolling Mill Operations Directorate	15.692.178,96 kWh/year energy savings	16.798.477,58 TL/year cost savings	Project Selection
6	**Pump Coatings**	To increase pump efficiency by 2026	Application of hydrophobic and oleophobic coatings	Maintenance and Energy Management	1.181.061,70 kWh/year energy savings	2.662.703,60 TL/year cost savings	Project Selection
7	**Fan Blade Replacement – Cooling Towers**	To increase fan efficiency by 2030	Use of more efficient fan blades	Maintenance and Energy Management	462.199 kWh/year energy savings	1.042.027 TL/year cost savings	Implementation Two old-type cooling tower fans in the water facilities were replaced with new, high-efficiency fans (29.30% savings)

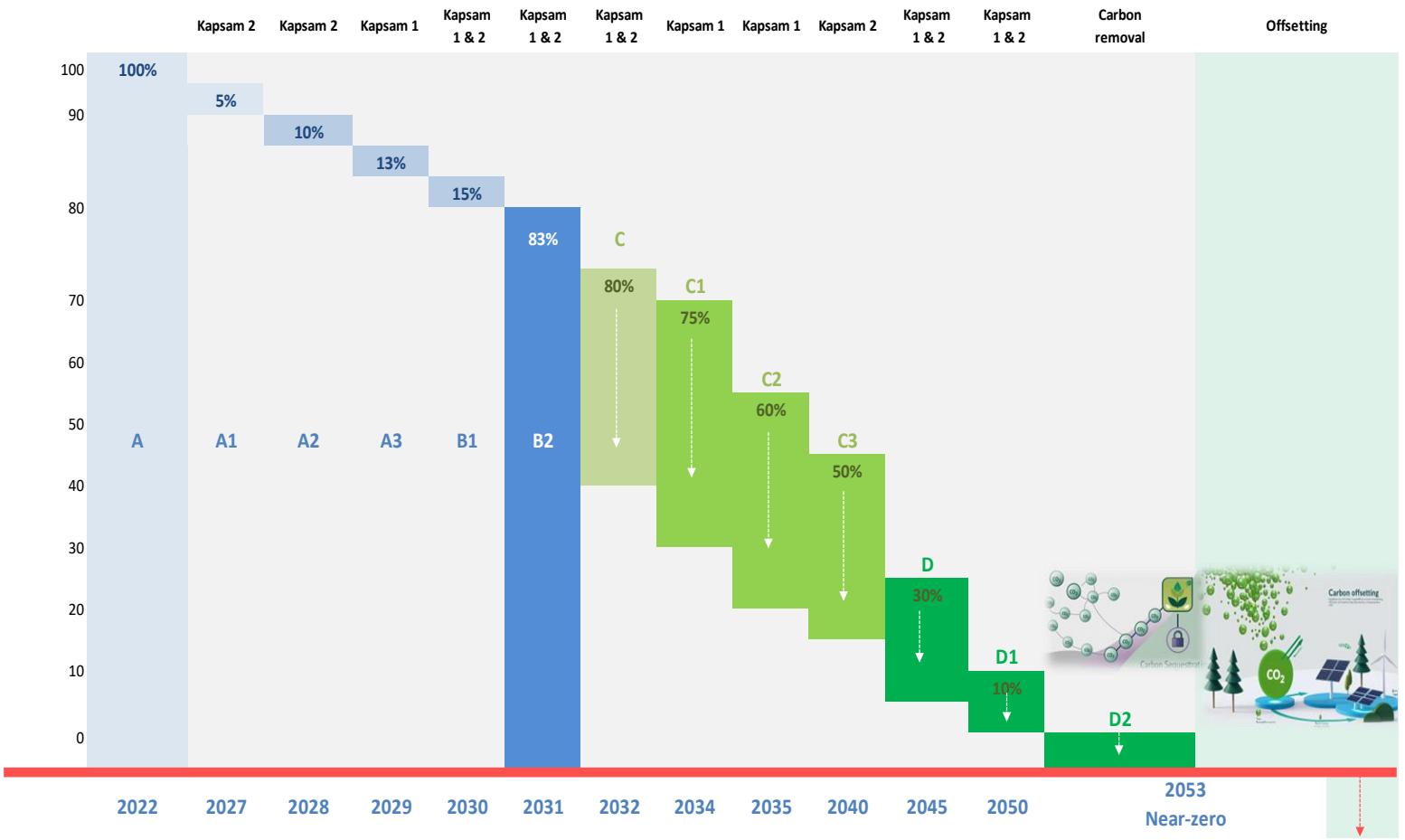
Source: Ekosmart Energy – Kaptan Demir Çelik End. ve Tic. A.Ş. Ereğli Plant_Detailed Energy Audit Report

ANNEX-3 NET-ZERO ROADMAP

The table and roadmap presented in this section are an estimated scenario prepared in light of general trends in the steel industry and potential technological developments. Kaptan Demir Çelik does not currently have finalized or approved projects aimed at these targets. This content does not constitute a binding commitment and reflects the general framework of the long-term vision.

Code	Description
A	**Short-Term Actions: Improvements requiring minimal investment and quickly implementable.**
A1	Solar Energy Investments: Initial renewable energy steps, solar energy installations.
A2	Energy Efficiency Projects: Implementation of technologies and practices that save energy.
A3	System Upgrades: Renewal and improvement of systems such as compressors, ORC, and insulation.
B	**Medium-Term Actions: Improvements requiring moderate investment for significant enhancements.**
B1	Waste Gas and Heat Recovery, Material Optimization: Recovery of waste gases and heat, and optimization of material usage.
B2	Moderate Emission Reduction through Integrated Approaches
C	**Long-Term Actions: Significant investments requiring advanced technological progress.**
C1	Green Hydrogen Preparations: Preparations for the future integration of green hydrogen.
C2	Green Hydrogen Transition: Initiation of the transition to green hydrogen in production processes.
C3	Increasing Green Hydrogen Usage: Widespread use of green hydrogen, integrated with carbon capture technologies.
D	**Final Stage Actions: Large-scale implementations to achieve Net-Zero.**
D1	CCU Technology: Implementation of carbon capture and utilization technologies.
D2	Achieve Net-Zero through Carbon Offsetting: Completely emission-free operations through carbon offsetting.

2022 Scope 1 + Scope 2 = 356.311 tons CO_2 Equivalent



Year	Emission %	Code	Description
2022	100	A	Starting Year: The starting point of emission reduction efforts.
2026-2027	95	A1	Solar Energy Investments: Initial renewable energy steps, completion of solar energy installations, and commissioning.
2027	90	A2	Energy Efficiency Projects: Implementation of technologies that save energy.
2028	87	A3	System Upgrades: Improvements of systems such as compressors, ORC, and insulation.
2029	85	B1	Waste Gas & Heat Recovery, Material Optimization: Energy recovery and optimization of material usage.
2030	83	B2	15–20% Emission Reduction: Moderate emission reduction through integrated approaches by 2030.
2032	80	C	Long-Term Actions: Major investments requiring technological advancement.
2034	75	C1	Green Hydrogen Preparations: Preparation and testing phase for hydrogen infrastructure.
2040	50	C2	Green Hydrogen Transition: Commencement of green hydrogen use in production processes.
2045	30	C3	Increasing Green Hydrogen Usage: Large-scale hydrogen use and integration with carbon capture.
2050	10	D1	Implement CCU Technology: Application of carbon capture and utilization technologies.
2053	0	D2	Net-Zero through Carbon Offsetting: Complete neutralization of emissions.

Kaptan Demir Çelik, we aim to reduce our carbon emissions in alignment with international targets and realize our long-term net-zero vision as part of our climate change mitigation efforts. In addition to our solar energy (PV) projects, we continue various improvement and efficiency initiatives to lower emissions. Although these efforts have not yet reached the scale of large transformation projects, we will gradually expand our investment plans within the framework of emerging technologies and financial opportunities. Our roadmap will be regularly reviewed and updated in light of industry trends and technological developments.

10. WATER AND WASTE MANAGEMENT

WATER MANAGEMENT AND SUSTAINABLE USE

Kaptan Demir Çelik, we consider the conservation and sustainable management of water resources an integral part of our climate change mitigation strategy. Recognizing the critical role of water in steel production, we focus on reducing water consumption in our operations, increasing water recovery, and enhancing resilience against water scarcity risks.

We adopt a comprehensive approach to the conservation and sustainable use of water resources. Our water management is conducted in detail with the aim of minimizing environmental impacts:

Water Consumption Monitoring: We monitor water consumption monthly through five wells at our facility and regularly record the amounts used.

Water Treatment Processes: In our well water treatment plant, we use sand filters, resin, and reverse osmosis stages to improve water quality. A portion of the treated water is used for cooling, while the rest is allocated for drinking and sanitary purposes.

Cooling Water Management: Heated cooling water is recirculated after being cooled, ensuring efficient water use.

Domestic Wastewater Management: Water used in our administrative building is discharged into Kamara Creek after passing through our domestic wastewater treatment plant. Additionally, we minimize raw water usage in production processes.

Water Withdrawal: Our water withdrawal activities are regularly monitored in cubic meters (m^3) according to our sources.

We aim to reduce water consumption by 10% and increase waste recycling rates by 15%. In line with these targets, we are developing water conservation and waste management strategies.

	Consumption Volumes					
Activity (m^3)	**Source**	**2024**	**2023**	**2022**	**2021**	**2020**
Water Withdrawal Volume	Groundwater	1.145.474	958.564	996.016	1.099.446	1.111.680
Water Discharge Volume	Other (Discharged to river/sea)	63.266	62.906	55.339	60.228	63.424

As indicated in our 2024 Water Footprint Inventory Report, the water footprint values calculated based on the ISO 14046 Standard are provided below. Accordingly, when examining the types and sources of water use for the year 2024:

Blue water footprint: 1.145.474 m^3/year

Green water footprint: 11.243,37 m^3/year

Grey water footprint: 20.932,44 m^3/year calculated as.

Droughts, changes in precipitation patterns, and potential interruptions in water supply due to climate change constitute potential physical risks for our operations. Therefore, our water efficiency projects will continue to be developed as a complementary component of our Net-Zero Roadmap. This approach aims to both conserve water resources and ensure the continuity of production.

11. GLOSSARY OF TERMS

TCFD (Task Force on Climate-related Financial Disclosures): A framework established to evaluate the financial impacts of climate-related risks and report them transparently.

Scope 1: Emissions originating from sources directly controlled by the company (e.g., emissions from the company's vehicle fleet).

Scope 2: Indirect emissions resulting from the company's energy consumption (e.g., electricity use).

Scope 3: Emissions resulting from the company's supply chain and other indirect activities (e.g., emissions from suppliers' operations).

Physical Risks: Direct impacts caused by climate change (e.g., extreme weather events, sea level rise).

Transition Risks: Risks related to carbon reduction policies, technological changes, and the market's transition to a low-carbon economy.

Strategic Resilience: The company's ability to enhance the resilience of its business strategies and financial plans against various climate scenarios.

Energy Intensity: The amount of energy consumed per unit of production, which is targeted for reduction through energy efficiency initiatives.

Carbon Pricing: The practice of assigning a price to carbon emissions, typically implemented through emissions trading systems or carbon taxes.

Circular Economy: An economic model in which resources are reused, recycled, and waste is minimized.

Paris Agreement: An international climate agreement aiming to limit global warming to 1,5°C.

IPCC (Intergovernmental Panel on Climate Change): An international body that assesses scientific information related to climate change.

ESG (Environmental, Social, and Governance): A set of criteria used to assess companies' environmental, social, and governance performance.

Chronic Heat Stress: Measured by the number of days per year with average temperatures above 35°C, representing health and operational risks from prolonged high temperatures.

Chronic Extreme Cold: Measured by the number of days per year with average temperatures below 0°C, representing health and operational risks from prolonged low temperatures.

Sea Level Rise: The gradual increase in sea levels due to climate change, considered a physical risk that increases flooding risk in coastal areas.

Carbon Capture, Utilization, and Storage (CCUS): Technologies that capture CO_2 from the atmosphere to reduce carbon emissions, storing it or converting it into useful products.

Energy Efficiency: Using less energy per unit of production, thereby reducing energy consumption and associated carbon emissions.

Green Hydrogen: Hydrogen produced from renewable energy sources that generates no carbon emissions.

Sustainable Production: Production processes that do not harm the environment, use resources efficiently, and provide societal benefits.

Climate Scenarios: Projections based on different assumptions used to assess the potential future impacts of climate change, typically considering various greenhouse gas emission levels and their effects on the climate.

SBTE (Science Based Targets for Emissions): Verifiable carbon reduction targets set based on scientific data to ensure companies reduce their greenhouse gas emissions in alignment with the Paris Agreement goals.

SBTi (Science Based Targets initiative): An initiative that helps companies set science-based targets to reduce their greenhouse gas emissions.

SBTN (Science Based Targets Network): Bilimsel verilere dayalı hedefler belirlemek için oluşturulmuş uluslararası bir girişim, özellikle şirketlerin sürdürülebilirlik hedeflerini belirlemelerine yardımcı olur.

ISO 14001: An international standard for environmental management systems, focusing on improving environmental performance.

ISO 50001: An international standard for energy management systems, providing guidance to improve energy performance and increase energy efficiency.

Renewable Energy: Energy obtained from renewable sources such as solar, wind, and hydroelectric, instead of fossil fuels.