C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

Turkish Aerospace (TUSAŞ – Türk Havacılık ve Uzay Sanayii A.Ş in Turkish and herein after called as Turkish Aerospace-TA) is Türkiye's technology center for the development, modernization, manufacture, system integration and life-cycle support of the aviation and space industry systems.

Turkish Aerospace is an explorer company challenging the unknown to shape the future.

Being among the top hundred global players in aviation and space industry, Turkish Aerospace is organized under six strategic business centers depending on the projects, including:

Structural Group

Aircraft Group

Helicopter Group

Unmanned Aerial Vehicle (UAV) Systems Group

Space Systems Group,

National Combat Aircraft (NCA) Group

In addition, integrated logistics support is provided for all products designed/manufactured by Turkish Aerospace.

With approximately 30 billion TRY turnover in 2022, Turkish Aerospace continued to be at the top 100 aviation and space companies in the world. Located in Ankara, the production plant covers an area of 4 million square meters with an industrial facility of 710,140 square meters under its roof. The company has a modern aircraft facility furnished with high technology machinery and equipment that provide extensive manufacturing capabilities ranging from parts manufacturing to aircraft assembly, flight tests and delivery. Four new buildings-Turkish Fighter Engineering Building, the Composite Production Building, the Space Systems Engineering Center and Factory-Level Component Maintenance Repair Center that their construction works were started in 2021, and inaugurated in 2022.

As of 2022, Turkish Aerospace employs over 13,570 workers, of whom 5,826 are research and development staff, working in military and other research projects.

Turkish Aerospace collaborates with many prominent brands, organizations, and establishments from Boeing to Airbus, TRMOTOR to numerous universities.

The pandemic which was heavily influential for two last years, blocked activity in almost all fields around the world such as production, sales, services and aviation.

The company continued its production for global brands and its modernization programs, made number of deliveries, prepared aerial vehicles for their first flight.

In the reporting year there was an increase in the national inventory as aerial vehicles, the development of many projects in the facilities as an aerospace base, certificate and awards. Turkish Aerospace was granted the "Success Partner" award by Spirit, one of the world's prominent aerostructure manufacturers. "Supplier of The Year Award" in the Alliance Category was received from Boeing, for the quality of its products and its delivery performance. Turkish Aerospace took second place in the R&D 250, Companies with the Highest R&D Expenses in Türkiye. As Turkish Aerospace, in 2022 the company made a total of 133 patent applications, 65 of which are national and 38 are international, the remaining 30 are utility model applications. Turkish Aerospace is the **"First Quarter of the Year Türkiye Champion" in International Patent Applications.**

We are currently the first company among industrial establishments in Türkiye to receive the Basic Level Zero Waste Certificate issued by the Ministry of Environment, Urbanization and Climate Change. Waste Management and Green Flag League Projects, won the "Golden Award" in the Waste Management category at the Green World Awards, where 500 projects competed and the world's best environmental practices were selected. Turkish Aerospace was awarded with the title of "Green World Ambassador" in the international arena. The company is the Green Champion of the "Green Apple Awards" in Water Efficiency in Aviation Industry Category.

The company reached ninth place in the research "Most Favorite Companies" in 2021& 2022. It ranked third in the "Best Employer Brand Management" in Engineering and Production Industries" category and continues to be among the "Best Employer Brands" in Europe. For its internal communication efforts and employer brand, Turkish Aerospace won the silver award at the Corporate Engagement Awards. The company is the first Turkish brand to receive such an award.

Turkish Aerospace has ISO 14001:2015 Certificate since 2018 and received the ISO 50001:2018 EMS Certificate in 2019. In 2022, ISO 14046 :2016 in site works have been completed and the certification was realized in July 2023. The company, which started the process of gathering greenhouse gas emissions data in 2021, finalized the third-party verification and was awarded with ISO 14064:2018 with zero non-compliance in May, 2022. We were among the winners of the 2022 Sustainable Business Awards, which was held for the ninth time in 2022. Within the scope of the Sustainability Projects carried out by our company, "Process and Product Development with Thermoplastic Material" project was awarded the first prize in the Sustainable Innovation (Process) category.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data and indicate whether you will be providing emissions data for past reporting years.

Reporting year

Start date
January 1 2022

End date
December 31 2022

Indicate if you are providing emissions data for past reporting years
No

Select the number of past reporting years you will be providing Scope 1 emissions data for
<Not Applicable>

Select the number of past reporting years you will be providing Scope 2 emissions data for
<Not Applicable>

Select the number of past reporting years you will be providing Scope 3 emissions data for
<Not Applicable>

C0.3

(C0.3) Select the countries/areas in which you operate.
Turkey

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.
USD

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.
Operational control

C-TO0.7/C-TS0.7

(C-TO0.7/C-TS0.7) For which transport modes will you be providing data?
Aviation

C0.8

(C0.8) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
No	<Not Applicable>

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?
Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual or committee	Responsibilities for climate-related issues
Chief Executive Officer (CEO)	The CEO who is a member of the Board has delegated the Vice President of Strategy & Affiliates Management on Sustainability topics including climate related issues. The Sustainability Committee carries out all climate-related studies under the chairmanship of the vice president informing the CEO who supports the board members' decision making processes. The members of the Board who have oversight on the review and assessment of sustainability topics, including climate-related issues are responsible from the ESG performance of the Company. The board considers climate-related issues when reviewing and guiding the business strategy. There are Corporate Governance Committee, Early Detection and Management of Risk Committee (EDMR), the Board of Directors Audit Committee, where climate-related risks & opportunities are reported to the Board To support the Executive Committee (EC) for environmental and climate-related issues, the Sustainability Committee (SC) was established in 2021. Some members of the Executive Committee and other senior managers responsible from environmental topics are permanent members of the SC that meet quarterly to review the progress and take decisions on all matters including climate related environmental topics. For 2023, it is planned to establish seven subcommittees within the SC, to meet more frequently and to better monitor specific issues. The focus areas of the subcommittees are planned to be Environment, Energy, Human Resources, Technology and Innovation, Finance, Supply Chain and Governance. In 2021, it was decided to start the CDP program covering decarbonisation strategy with the assessment of climate related risks and opportunities in the context of TCFD recommendations. Sustainability Committee has decided to integrate the sustainability goals into Turkish Aerospace's Strategic Plan. This decision indicates that sustainability goals covering climate related topics are strategically significant and will be followed with specified action plans to reach the goals including value chain. In 2022, it was decided to complete the transition action plan (road -map) for the next year. The ESG topics have been sharing quarterly with the CEO.

C1.1b

(C1.1b) Provide further details on the board's oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Scope of board-level oversight	Please explain
Scheduled – all meetings	Reviewing and guiding annual budgets Overseeing major capital expenditures Overseeing acquisitions, mergers, and divestitures Reviewing innovation/R&D priorities Overseeing and guiding employee incentives Reviewing and guiding strategy Overseeing and guiding the development of a transition plan Monitoring the implementation of a transition plan Overseeing and guiding scenario analysis Overseeing the setting of corporate targets Monitoring progress towards corporate targets Overseeing and guiding public policy engagement Overseeing value chain engagement Reviewing and guiding the risk management process	<Not Applicable>	The board considers climate-related issues when reviewing and guiding the whole business strategy, plans, risk management policies, budget plans as well as setting organizational performance objectives, monitoring implementation and performance, and overseeing major capital expenditures, acquisitions and divestitures, as scheduled. The Vice President of Strategy & Affiliates Management, leads the Sustainability Committee, briefs the Executive Committee (EC) about climate related implementation and performance. The CEO supports the Board of Directors to oversee corporate strategy and the risk management policy by considering government relations and corporate sustainability program with global climate related issues. Turkish Aerospace 's commitment to support the SDG 13 & SDG6 on climate actions is always in the concern of the Board. Focus on new process competencies with "Smart is the New Green Approach" has continued in the reporting year that the following decisions were carried out by the Board for addressing climate-related risks and opportunities: 1-The Board made the decision to monitor and review the phases of the transition action plan, by over-sighting all climate related topics. Turkish Aerospace's 2022-2030 Strategic Plan was updated with the addition of climate related targets and was approved by the Board of Directors on 31.10.2022. 2-After the establishment of SC; achieving net zero GHG emissions across value chain by 2050 has been accelerated. The Sustainability and climate related metrics which have been determined previous year, started to be monitored by Sustainability Monitoring Platform. All the results were reported and controlled by the Board. The first Sustainability Report was published in May 2022. 3-Carrying out internal communication activities and organizing sustainability campaigns in order to increase the awareness of sustainability of all employees of our company have been decided. 4-Identification of improvement points for CDP reporting, sharing with relevant departments and monitoring the implementation of these activities have been decided. 5- In 2022, it was decided to start the process of ISO 14046 Certification by using 2022 data. Water Footprint Environmental Management Certification was achieved with success in July, 2023.

C1.1d

(C1.1d) Does your organization have at least one board member with competence on climate-related issues?

	Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues	Primary reason for no board-level competence on climate-related issues	Explain why your organization does not have at least one board member with competence on climate-related issues and any plans to address board-level competence in the future
Row 1	Yes	Having competence in different fields, is a sought-after feature as it supports decision-making processes. It is reasonable to have competence in material topics, such as energy and innovation in design, that has a great importance for aerospace business. Whole members are competent in different fields. Turkish Aerospace is equipped with the latest infrastructure, technology and know-how with the workers who are the explorers challenging the unknown to shape the future. The organization has one board member with competence on climate-related issues, the board member can fulfill any plans to address board-level competence in the future. As an electrical engineer he was actively involved in waste disposal by energy-saving methods, turning buildings and industrial facilities in ecologic and energy efficient green buildings, as well as the establishment of the infrastructure of charging station and other water management related topics Competency Management Competencies related to roles and competency details have been determined so that the knowledge level and competencies of the workers can be monitored throughout their careers within the framework of their expertise and developed by supporting them with related training. In the reporting year, evaluation of the competence development of the managers was executed and organization of coaching activities for the managers, based on new development topics were determined by HR department.	<Not Applicable>	<Not Applicable>

C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Position or committee
Chief Executive Officer (CEO)

Climate-related responsibilities of this position
Managing annual budgets for climate mitigation activities
Managing major capital and/or operational expenditures related to low-carbon products or services (including R&D)
Managing climate-related acquisitions, mergers, and divestitures
Developing a climate transition plan
Integrating climate-related issues into the strategy
Monitoring progress against climate-related corporate targets
Managing public policy engagement that may impact the climate

Coverage of responsibilities
<Not Applicable>

Reporting line
Reports to the board directly

Frequency of reporting to the board on climate-related issues via this reporting line
More frequently than quarterly

Please explain
The CEO who is a member of the Board has delegated the Vice President of Strategy & Affiliates Management (S&AMVP) on sustainability issues, including climate related topics. The Sustainability Committee (SC) carries out all climate-related (carbon, water, biodiversity) studies under the chairmanship of the vice president informing the CEO who supports the board members' decision-making processes on related subjects. Strategic and climate related program management responsibility is assigned to committees for the purpose to undertake communication based integrated management of risks & opportunities in the context of ESG.

Position or committee
Other committee, please specify (Early Detection and Management of Risk Committee (EDMR),)

Climate-related responsibilities of this position
Managing climate-related acquisitions, mergers, and divestitures
Providing climate-related employee incentives
Developing a climate transition plan
Implementing a climate transition plan
Integrating climate-related issues into the strategy
Conducting climate-related scenario analysis
Setting climate-related corporate targets
Managing value chain engagement on climate-related issues

Coverage of responsibilities
<Not Applicable>

Reporting line
Risk - CRO reporting line

Frequency of reporting to the board on climate-related issues via this reporting line
More frequently than quarterly

Please explain
Early Detection and Management of Risk Committee (EDMR), carries out studies for the early detection of risks that will endanger the existence, development and continuity of the company, implement the necessary measures regarding the identified risks, and manage the risks. It is comprised of two Board members. It is chaired by an independent Board member.
The purpose of the Early Detection and Management of Risk Committee is early detection and management of threats that may endanger or opportunities that positively affect the existence, development and continuation of the Turkish Aerospace. This responsibility includes assessing and managing climate-related risks and opportunities.
The subheadings of the climate-related issues are as follows:

• Managing low-carbon products or services
• Managing climate-related acquisitions, mergers, and divestitures
• Providing climate-related employee incentives
• Developing and implementing climate transition plan
• Integrating climate-related issues into the strategy
• Conducting climate-related scenario analysis
• Setting and monitoring climate-related corporate targets
• Managing value chain engagement on climate-related issues
It oversees the performance of the enterprise risk management system. Expertise support to the early detection of risk committee is provided by the Enterprise Development Manager under the Vice President of Strategy & Affiliates Management (S&AMVP), and the meetings are attended in case of need. All strategic projects are examined separately, all risks that may occur are identified and presented to the board of directors.
To achieve company vision and mission, a road-map was shaped around the following three main axes. These axes are product development to become a global player, income for sustainability including climate related business continuity, achievement of a subscribed business volume and satisfaction of the stakeholder expectations by corporate governance. Employee engagement and competencies lead to business excellence and productivity growth.

Position or committee
President

Climate-related responsibilities of this position
Managing climate-related risks and opportunities
Other, please specify (Over-sighting the functioning and effectiveness of the risk management system processes)

Coverage of responsibilities
<Not Applicable>

Reporting line
Risk - CRO reporting line

Frequency of reporting to the board on climate-related issues via this reporting line
More frequently than quarterly

Please explain
Internal Audit and Evaluation Board Presidency; It is the unit responsible for internal audit and evaluation activities in the company organization. It ensures the follow-up of enterprise risk management system aligned with Turkish Aerospace ’s strategy & policy. It oversights the functioning and effectiveness of the risk management system processes. It reports directly to Audit Committee and Board.

Position or committee
Sustainability committee

Climate-related responsibilities of this position
Providing climate-related employee incentives
Implementing a climate transition plan
Integrating climate-related issues into the strategy
Setting climate-related corporate targets
Monitoring progress against climate-related corporate targets
Managing public policy engagement that may impact the climate
Managing value chain engagement on climate-related issues

Coverage of responsibilities
<Not Applicable>

Reporting line
Corporate Sustainability/CSR reporting line

Frequency of reporting to the board on climate-related issues via this reporting line
More frequently than quarterly

Please explain
In line with company vision, The SC focuses on responsible consumption and production (SDG:12) by developing and implementing ESG strategies. Reducing the impacts of identified risks and seizing identified opportunities matters for the performance evaluation. In 2022, the ESG Report and climate related disclosure were reviewed by the full Board of Directors. Vice President of Strategy & Affiliates Management(S&AMVP) is the delegated manager who drives and adapts climate decisions of the company. He is responsible for the development and execution of sustainability strategy, including internal advisory process, stakeholder engagement and disclosure. This responsibility includes producing and publishing Turkish Aerospace ’s annual Sustainability Report covering climate related data.
The Sustainability Committee meets quarterly and acts as a support and advisory body to oversee the implementation of sustainability strategy and discuss topics including climate change risks, opportunities and disclosure.
The activities are executed by the mixed work-groups of experts from different departments working on material projects. The work-groups are self-managed teams in which a diversity of expertise and experience is sought. They provide all guidance on their own expertise about sustainability and climate management issues by reporting to Vice President. Work-groups titles are: Corporate Governance (Risk, Process, Strategy), Environment and Energy (covering Energy Management Systems, CDP with related metrics) Supply Management/ Value Chain, Sustainable Products, R&D, Innovation, Financial Management, Customer Satisfaction and Communication, Digitization (knowledge management). Each group carries out the processes of management and follow-up of the targets, deals with the design of programs and projects for implementation.

Position or committee
Other, please specify (Environment Working Group)

Climate-related responsibilities of this position
Setting climate-related corporate targets
Assessing climate-related risks and opportunities
Managing climate-related risks and opportunities

Coverage of responsibilities
<Not Applicable>

Reporting line
Operations - COO reporting line

Frequency of reporting to the board on climate-related issues via this reporting line
More frequently than quarterly

Please explain
The previous reporting year; Environmental Management Department's name was changed as Environmental Management and Climate Change Unit (EM&CCU) which reports to Maintenance and Operation Manager. The Unit's main duty is to be the contact point on the basis of directorates, on environmental management system, and environmental risks with their improvement and follow-up. EM&CCU ensures to drive the calculation of carbon & water footprint value of the company, annually in compliance with ISO 14064 &14046 Standards. This unit works in close contact with Energy Working Group whose main duty is to ensure energy efficiency improvement, triggering emission mitigation efforts for entire company.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	An effective performance management process is monitored by setting individual targets in order to maintain the performance progress of the employees by increasing their contribution to the business. In the reporting year, an interim review processes was fulfilled quarterly. In accordance with the corporate and strategic goals, employees were evaluated with the participation of their first and second managers, based on success criteria that were revised in the sustainability strategy. It is confirmed that climate related targets are embedded into executive remuneration system. The climate related targets are included in the senior management incentives. In 2021&22, evaluation of the competence development of the managers was executed and organization of coaching activities for the managers, based on the development topics were determined.

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Entitled to incentive
Chief Executive Officer (CEO)

Type of incentive
Monetary reward

Incentive(s)
Bonus - % of salary
Salary increase

Performance indicator(s)
Board approval of climate transition plan
Shareholder approval of climate transition plan
Achievement of climate transition plan KPI
Achievement of a climate-related target
Implementation of an emissions reduction initiative

Incentive plan(s) this incentive is linked to
Both Short-Term and Long-Term Incentive Plan

Further details of incentive(s)
Executive-level is incentivized to achieve measurable climate-related outcomes linked to the organization's climate commitments and/or transition plan. This will form the CEO's and other Executive Committee member's remuneration percentage. The % salary bonus will become clear with the transition plan approval in 2023.

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan
Energy efficiency projects, emissions and waste reduction objectives which will provide input to the transition plan are under development. The annual CO2 reduction objective will form the CEO's and other Executive Committee members ' remuneration percentage.
The 2023 Revision of Turkish Aerospace 2022 - 2030 Strategic Plan was approved at the Board of Directors meeting held on 31.10.2022. Currently, the sub-objective of our Strategic Plan, which is under the aim of "Aim 5. Increasing Stakeholder Satisfaction and Supporting Sustainable Development for Future Generations", is as follows;
"Aim 5.2 Sustainable Development Focused on Environment and Energy Efficiency
To continue to grow and exist together with our country between 2022 and 2030, with carbon footprint reducing activities that are respectful to people, sensitive to the environment and energy efficiency." the targets:
Target 5.2.1 Carbon Emissions
Reducing our direct (Category 1) and indirect (Category 2) emissions by 55% by 2030 compared to 2021
Target 5.2.2 Energy Measurement
Increasing the energy measurement coverage from 79% in 2020 to 83% in 2022 and 90% by 2023
Target 5.2.3 Energy Performance
Improving energy performance by 10% by 2030 with continuous improvements
Target 5.2.4 Renewable Energy
By 2030, reduce process-related emissions by implementing energy efficiency measures and increase renewable energy use to 55% by 2030 by purchasing more electricity from renewable sources
Target 5.2.5 Energy Efficiency Projects Until 2030, realize 6 efficiency-enhancing projects supported by the Ministry of Energy and Natural Resources.
Target 5.2.6 Waste Management
To reduce the total amount of waste produced per capita by 20% in 2030 compared to 2021

Entitled to incentive
Energy manager

Type of incentive
Monetary reward

Incentive(s)
Bonus - % of salary

Performance indicator(s)
Implementation of an emissions reduction initiative
Reduction in absolute emissions
Reduction in emissions intensity
Energy efficiency improvement
Increased share of low-carbon energy in total energy consumption
Increased share of renewable energy in total energy consumption
Reduction in total energy consumption

Incentive plan(s) this incentive is linked to
Both Short-Term and Long-Term Incentive Plan

Further details of incentive(s)
While energy performance is continuously improved, energy costs are reduced, stakeholders' awareness of energy efficiency is increased and long-term environmental and economic sustainability of activities are ensured.
Performance assessments and decisions, based on emission reduction targets commenced to be reported to the executive level and factor into compensation through the HR performance system.

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan
The 2023 Revision of Turkish Aerospace 2022 - 2030 Strategic Plan was approved at the Board of Directors meeting held on 31.10.2022. Currently, the sub-objective of our Strategic Plan, which is under the aim of "Aim 5. Increasing Stakeholder Satisfaction and Supporting Sustainable Development for Future Generations", is as follows;
"Aim 5.2 Sustainable Development Focused on Environment and Energy Efficiency
To continue to grow and exist together with our country between 2022 and 2030, with carbon footprint reducing activities that are respectful to people, sensitive to the environment and energy efficiency." the targets:
Target 5.2.1 Carbon Emissions
Reducing our direct (Category 1) and indirect (Category 2) emissions by 55% by 2030 compared to 2021
Target 5.2.2 Energy Measurement
Increasing the energy measurement coverage from 79% in 2020 to 83% in 2022 and 90% by 2023
Target 5.2.3 Energy Performance
Improving energy performance by 10% by 2030 with continuous improvements
Target 5.2.4 Renewable Energy
By 2030, reduce process-related emissions by implementing energy efficiency measures and increase renewable energy use to 55% by 2030 by purchasing more electricity from renewable sources
Target 5.2.5 Energy Efficiency Projects Until 2030, realize 6 efficiency-enhancing projects supported by the Ministry of Energy and Natural Resources.
Target 5.2.6 Waste Management
To reduce the total amount of waste produced per capita by 20% in 2030 compared to 2021

Entitled to incentive
Environment/Sustainability manager

Type of incentive
Monetary reward

Incentive(s)
Bonus - % of salary

Performance indicator(s)
Progress towards a climate-related target
Achievement of a climate-related target
Implementation of an emissions reduction initiative
Reduction in absolute emissions
Reduction in emissions intensity
Energy efficiency improvement
Increased share of low-carbon energy in total energy consumption
Increased engagement with suppliers on climate-related issues
Increased supplier compliance with a climate-related requirement
Implementation of employee awareness campaign or training program on climate-related issues

Incentive plan(s) this incentive is linked to
Both Short-Term and Long-Term Incentive Plan

Further details of incentive(s)
Managers who are involved in environmental management, energy reduction project with savings, and CO2 emissions management, have sustainability targets related to CO2 emissions reductions.
Energy and natural sources consumption reduction projects will constitute the emission reduction projects managed by Environment / Sustainability Manager. The KPI's are transformed into individual business targets.
Performance assessments and decisions, based on emission reduction targets commenced to be reported to the executive level and factor into compensation through the HR performance system
These objectives are reviewed every year and individual bonuses notably depend on this performance review

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan
The 2023 Revision of Turkish Aerospace 2022 - 2030 Strategic Plan was approved at the Board of Directors meeting held on 31.10.2022. Currently, the sub-objective of our Strategic Plan, which is under the aim of "Aim 5. Increasing Stakeholder Satisfaction and Supporting Sustainable Development for Future Generations", is as follows;
"Aim 5.2 Sustainable Development Focused on Environment and Energy Efficiency
To continue to grow and exist together with our country between 2022 and 2030, with carbon footprint reducing activities that are respectful to people, sensitive to the environment and energy efficiency." the targets:
Target 5.2.1 Carbon Emissions
Reducing our direct (Category 1) and indirect (Category 2) emissions by 55% by 2030 compared to 2021
Target 5.2.2 Energy Measurement
Increasing the energy measurement coverage from 79% in 2020 to 83% in 2022 and 90% by 2023
Target 5.2.3 Energy Performance

Improving energy performance by 10% by 2030 with continuous improvements
Target 5.2.4 Renewable Energy
By 2030, reduce process-related emissions by implementing energy efficiency measures and increase renewable energy use to 55% by 2030 by purchasing more electricity from renewable sources
Target 5.2.5 Energy Efficiency Projects Until 2030, realize 6 efficiency-enhancing projects supported by the Ministry of Energy and Natural Resources.
Target 5.2.6 Waste Management
To reduce the total amount of waste produced per capita by 20% in 2030 compared to 2021

Entitled to incentive
All employees

Type of incentive
Monetary reward

Incentive(s)
Promotion

Performance indicator(s)
Reduction in absolute emissions
Reduction in emissions intensity
Energy efficiency improvement
Reduction in total energy consumption

Incentive plan(s) this incentive is linked to
Both Short-Term and Long-Term Incentive Plan

Further details of incentive(s)
Various events are organized during the year;
With the aim of reducing waste, increasing environmental awareness, Green Flag league which is a fun and competitive is organized in World Environment Day.
Within the scope of the league, the assessment of the employees realizes 4 times a year according to certain scoring criteria.
The departments which rank at the top three in scoring, are rewarded with an Environmental Achievement Certificate. Waste Management and Green Flag League Projects won the "Golden Award" in the Waste Management category at the Green World Awards where 500 projects competed and the world's best environmental practices were selected.
Turkish Aerospace was awarded with the title of "Green World Ambassador" in the international arena.
It was the winner of the Green Apple Environmental Awards 2022 program and received the "Green Champion 2022" award.

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan
The 2023 Revision of Turkish Aerospace 2022 - 2030 Strategic Plan was approved at the Board of Directors meeting held on 31.10.2022. Currently, the sub-objective of our Strategic Plan, which is under the aim of "Aim 5. Increasing Stakeholder Satisfaction and Supporting Sustainable Development for Future Generations", is as follows;
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Target 5.2.3 Energy Performance
Improving energy performance by 10% by 2030 with continuous improvements
Target 5.2.4 Renewable Energy
By 2030, reduce process-related emissions by implementing energy efficiency measures and increase renewable energy use to 55% by 2030 by purchasing more electricity from renewable sources
Target 5.2.5 Energy Efficiency Projects Until 2030, realize 6 efficiency-enhancing projects supported by the Ministry of Energy and Natural Resources.
Target 5.2.6 Waste Management
To reduce the total amount of waste produced per capita by 20% in 2030 compared to 2021

C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?
Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

	From (years)	To (years)	Comment
Short-term	0	3	Risks that have an impact on current operations
Medium-term	3	9	Risks that could have impact on operations and business in the near term. The med-term time horizon is aligned with company's Climate Strategy for 2030.
Long-term	9	30	Risks that could have impact on future operations and business in the long- term, requiring business strategy restructuring. The long-term time horizon is aligned with company's Climate Strategy of Net-Zero target for 2050.

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

As per our Enterprise Risk Management Policy, our aim is to contribute to corporate sustainability by proactively managing all kinds of opportunities and risks that we may encounter within the scope of the activities aiming to achieve our strategic goals. We define our risks in an integrated manner with our processes and create risk management strategies that are compliant with our strategic goals.

In our Enterprise Risk Management System there are 8 risk classes. Risk classes and responsible departments are:

· Enterprise Risks: *Enterprise Risk Management*

· Program Risks: *Program Management Team*

· Information Security Risks: *Security Working Group*

· Safety Risks: *Safety Management*

· Environmental Risks: *Environment and Climate Change Management*

· OHS Risks: *Occupational Health and Safety*

· Procurement Risks: *Related Procurement Dept.*

· Energy Risks: *Energy and Infrastructure Dept.*

Enterprise risks are categorized as Financial, Strategic/Compliance, Operational, Threat, Contract risks. Risks are scored by risk criticality levels. Risk criticality level is composed of risk impact value and likelihood value. In all risks, impact value and likelihood value is scored according to attached actual risk table .

According to our Enterprise Risk Management Procedure; If annual impact value is greater than %1 of the target endorsement value, the impact value is considered as very high, as substantive financial impact.

If the risk is related to more than one strategic target from the Strategic Plan and it is assumed to be solved in more than one week, the impact value is considered as very high.

In order to evaluate effectiveness of risk management activities, Risk Maturity Levels are measured by Enterprise Development Management and results are reported to the related departments. Quality of the risks, risk treatment options, risk criticality levels, risk mitigation plans, number of risks are considered while measuring the Risk Maturity Level. There are published instructions for Risk Maturity Level measurements. Measurements are progressed for different risk modules. Energy and Environmental Aspects and Effects modules are measured according to Risk Maturity Level Instructions. Risk Maturity Level measurements take place twice a year, these measurements increase awareness of the risk coordinators, risk action plan responsible and their manager.

C2.2

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Value chain stage(s) covered
Direct operations
Upstream
Downstream

Risk management process
Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment
More than once a year

Time horizon(s) covered
Short-term
Medium-term
Long-term

Description of process
In Turkish Aerospace; climate related risk management is integrated into multi- disciplinary company-wide risk management process with a clear objective to ensure achieving our strategic goals and business continuity in compliance with law and regulations.
In Turkish Aerospace ; risk management activities are managed within the framework of ISO 31000 Risk Management Standard, Internal Risk Management principles, ISO 9001 Quality Management system and AS 9100 Quality systems. There are over 8 different risk classes within the scope of enterprise risk management policy.
Enterprise , program, procurement, information security, safety , occupational health and safety, environmental and energy risks are gathered under the module belonging to the relevant class in the Turkish Aerospace Risk Management System.
The process for identifying, assessing and responding to climate-related risks and opportunities could have a substantive financial or strategic impact applies to all value chain stages.
Enterprise risks are determined as a result of strategic targets, regulations, senior management directives and presentations, process analyses, performance indicators, audit reports, process owner interviews, monitoring of global developments, and literature research. Each enterprise risk and opportunity is assessed for probability of occurrence and severity of impact (or size of benefit for opportunities), resulting in a risk criticality level. Criticality levels are "low", "medium", "high", "very high". The probability considers the likelihood for the risk to occur or the previous frequency of the risk. Severity of impact for enterprise risks (and the reverse for opportunities) is assessed through specific criteria including financial, performance / technical, calendar impact. These criteria are described in the company-wide “Enterprise Risk Management Procedure”
Including both risks and opportunities, they are reported to the system by their description and definitions. Risk-related discussions take place, risk critical levels are calculated, response method and responsible persons are determined, control plans are created, control and follow-up are started. The company-wide audit division evaluates and reports whether the activities are functioning in an effective way.

The ways to treat risks are managed in three categories: Acceptance: Accepting the existence of the risk but taking no action. Mitigation/Actualization: Taking action to prevent/actualize the risk. Transference: Transferring the responsibility to another company.
Turkish Aerospace determines significant risk as rated “very high". In Financial risks, impact value and likelihood value is scored according to tables shown in the procedure. If annual impact value is greater than %1 of the target endorsement value the impact value is considered as very high. If the risk is related to more than one strategic target from the Strategic Plan and it is assumed to be solved in more than one week, the impact value is considered as very high.
Early Detection of Risk Committee was established in 2015 and operating under the Board of Directors.
The purpose of the Committee is to identify the threats that may endanger the existence, development, and continuity of our Company or the opportunities that may positively affect the existence, development, and continuity of our Company at an early stage; to implement the necessary activities related to the identified threats and opportunities, and to carry out activities to manage the risks.
Other than detection of the risks, significant risks are reported to the Early Detection of Risk Committee at least twice a year and their assessments are achieved. All impacts are reported quarterly to the system.
In order to evaluate effectiveness of risk management activities, Risk Maturity Levels are measured by Enterprise Development Management and results are reported to the related departments.
Quality of the risks, risk treatment options, risk criticality levels, risk mitigation plans, number of risks are considered while measuring the Risk Maturity Level. In order to increase awareness and follow-up of risks, active risks are reported to the relevant managers every 3 months.
Climate related transitional and physical risks are categorized based on TCFD recommendations. In 2021 the Environmental Management and Climate Change Unit (EM&CCU) initiated the assessment of them, the information sharing and related studies have been realized with the collaboration of Energy Department, Risk Management Department and Sustainability Committee. Significant risks were reported to the Board of Directors after providing recommendations to the CEO.
The R&Os are identified, assessed and managed within the scope of 8 risk classes. explained in 2.1.b. All risks are classified by the risk assessment module as low, medium, high and very high according to their criticality levels. 2148 environmental and energy risks were identified in 2022. Acceptance methods were selected for 1330 of them and control application methods were selected for 818 of them. The Energy and environmental risk maturity levels have been measured also in 2022 and the results are shared with the related departments. Corporate base important risks were explained in the "Turkish Aerospace, 2022 Risk Agenda Report" with comments and measures taken.
With the formulation and the review of short-med & long-term management strategy, transitional risks such as emerging regulation risks including emission mitigation actions for 2021-2022 period, were presented to the EDMR Committee.
A case study of how the described process is applied to physical risks and/or opportunities;
Impacts due to significant extreme weather events are known through the IPCC AR5 Report. The negative impacts of this risk in the campus are assessed by EM&CCU within the leadership of maintenance manager.
Turkish Aerospace could be exposed to the risk of extreme heavy precipitation (rain, hail, snow) etc. resulting with the disruption or interruption of the activities. The equipment of the buildings could be affected, and dis-functioning may require additional maintenance and adaptation. The financial and strategic impact has been assessed. In the sustainability committee meetings the severity of the risk was discussed. New maintenance measures were taken.
Transition opportunities;
Considering water stress situation and drought risk in the region where Turkish Aerospace is located, water efficiency projects such as Zero Liquid Discharge (ZLD) applications and water automation systems (SCADA) and Digital Controllers, were considered in the facility investment plans. These applications have been continuing in 2022 and these are planned to be put in use within 2023-2024 time period.The Zero Liquid Discharge (ZLD) system project in the Aviation Industry was also submitted to the Green World Environmental Awards 2023 program and was among the winners.

Value chain stage(s) covered
Upstream

Risk management process
A specific climate-related risk management process

Frequency of assessment
Annually

Time horizon(s) covered
Short-term
Medium-term
Long-term

Description of process
Turkish Aerospace has prepared an Environmental Evaluation Questionnaire for selected suppliers. These suppliers are selected for specific projects. Turkish Aerospace sent the questionnaire to selected suppliers and collected data from them. After collecting data, the sustainability score is being calculated. This study allows Turkish Aerospace to see suppliers' maturity level in environmental aspect. In near and long term this application is planing to be extended for other suppliers.

C2.2a

(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	The activities of Turkish Aerospace are monitored and coordinated with whole value chain to ensure that current regulation is compliant with climate related ones. All risks arising from climate-related current regulation are considered as part of Turkish Aerospace’s overall risk assessment such as Monitoring, Reporting and Verification (MRV) of GHG Emissions Regulation can have significant impact on the company and other stakeholders. They are systematically considered in the company’s risk identification, assessment and management system based on TCFD recommendations. It is integrated in the Enterprise Risk Management system (ERM). The impact can be substantial, and could include the rise of fines or additional direct or indirect costs. The information collection, assessment of current regulation risks, their prioritization, action plans and their follow-up are fulfilled by related departments. Those are discussed in the Sustainability Committee and reported to the Board of Directors after providing recommendations to the CEO. The board oversight the issue via EDRM. Specific example In order to capture the volatile organic carbons released in the dyeing units in the production line, water washing systems, active carbon filters and other air filters have been started to be used. Water-based painting units replacement instead of solvent units is in progress.

	Relevance & inclusion	Please explain
Emerging regulation	Relevant, always included	All risks arising from emerging climate regulations (e.g. ETS/PMR, EU Green Deal Taxonomy) are systematically considered in the company's risk identification, assessment and management system, and integrated in the ERM system based on TCFD recommendations. The resulting analysis shows that the impact can be substantial, and could include the rise of fines or additional direct or indirect costs. Company specific example: Türkiye is in the way of establishing a carbon emissions trading system (ETS) currently. Under the activities of this project the carbon prices can have significant impact on the company. Purchase of carbon credits to respond cap&trade base targets or carbon taxes for plant wise emissions are assessed in this context. European Commission proposes the regulation establishing a Carbon Border Adjustment Mechanism (CBAM) to reduce global greenhouse gas emissions and prevent carbon leakage that occurs when a company decides to move their production from a country with strict policies to a country that is less strict. In February 2022, the National Climate Council has completed its works which will form the infrastructure of short, medium and long-term strategies, actions, policies and legislation in line with Türkiye's 2053 Net Zero Emissions and Green Development target. Türkiye submitted its updated nationally determined contributions at the 27th Conference of Parties (COP27) in 2022. The Climate Law, set for completion is regarded as another milestone with emission trading system which could accelerate clean transition. Turkish Aerospace makes the assessments base on this new emerging system. The information collection, assessment of emerging regulation risks, their prioritization, action plans and their follow-up are fulfilled by related departments. Those are discussed in the Sustainability Committee and reported to the Board of Directors after providing recommendations to the CEO. The board oversight the issue via EDRM.
Technology	Relevant, always included	All risks arising from technology are systematically considered in the company's risk identification, assessment and management system, and integrated in the ERM system considering TCFD recommendations. The resulting analysis show that the impact can be substantial, such as failing to catch up with technological development and inability to apply effective technology. It represents a risk for the company as well as becoming less competitive because of delay in low carbon transition and these are evaluated as part of our risk assessment. The objective of Turkish Aerospace is to carry Türkiye to an internationally competitive level in aircraft technology. Turkish Aerospace has started preparations and investments for future technological product realizations. According to the "2020 EU Industrial R&D Investment Scoreboard" prepared by the European Commission and published in the first quarter of 2021, Turkish Aerospace was listed among 2500 companies. In 2022, the company spent 52%of its total turnover for R&D investments. As of the end of 2022, the number of completed R&D projects totaled to 168. Total R&D Expenditure increased 3 times compared to the previous year and reached to 12.5 billion TRY. The information collection, assessment of technology risks, their prioritization, action plans and their follow-up are fulfilled by related departments. Those are discussed in the Sustainability Committee and reported to the Board of Directors after providing recommendations to the CEO. The board oversight the issue via EDRM. The assumptions that composite materials used in automotive and aviation today will become the main trend for other sectors in the next 20 years and that a decrease in prices is expected as a result of this spread were shared with the participants. Although electric vehicles are an immature market segment, they aim to change the existing aviation industry by challenging the dominance of hydrocarbon propulsion. In the context of climate change, electric airplanes are likely to have a commercial advantage in the future, as emissions standards and carbon taxes will increase the operating cost of a hydrocarbon fleet. Studies for product development suitable for "sustainable aviation fuels" are in progress. The organization started the technological development by taking advantage of these opportunities.
Legal	Relevant, always included	Climate related disclosure requirements makes the company more sensitive to legal compliance. All risks arising from legal risk type are systematically considered in the company's risk identification, assessment and management system, and integrated in the ERM system by taking into account TCFD recommendations. Turkish Aerospace never encountered this type of risk. External and internal reporting obligations are fulfilled and cross checked in the preparation phase by related departments. (Legal Affairs, Audit Dept.) In case of any realization; the impact for the company could be, loss of Nationwide Reputation. The information collection, assessment of legal risks, their prioritization, action plans and their follow-up are fulfilled by related departments. Those are discussed in the Sustainability Committee and reported to the Board of Directors after providing recommendations to the CEO
Market	Relevant, always included	We closely monitor international and national studies in order to be as ready as possible for the transition to climate related customer expectations. Increasing performance by reducing aircraft weight has become a race in aviation activities. Turkish Aerospace aims to provide products and services which can contribute to reduction of GHG emissions of the customers during use phase. All risks arising from market risk type are systematically considered in the company's risk identification, assessment and management system for the short, med & long-term time horizon. Based on TCFD recommendations, the integration in the ERM system is in place. In order to determine the digital transformation strategy, the selection and determination of the quality of the products to be produced, the restructuring of the supply chain, market, technology and needs analysis, competition analysis and determination of the appropriate competition strategy, production and logistics support planning are carried out. New collaborations which were signed with the customers in the previous reporting year are in progress. The new investment is for the design and production of thermoplastic composite parts which will be featured in the aerial vehicles of the future. It has been mentioned that the biggest development in the upcoming period will be realized with the entry of startups into the satellite services market and the creation of new business models in this field. The company undertook important roles in the National Space Program with IMECE, GOKTURK3 satellites, and unmanned aerial vehicles. The information collection, assessment of market risks, their prioritization, action plans and their follow-up are fulfilled by related departments. Those are discussed in the Sustainability Committee and reported to the Board of Directors after providing recommendations to the CEO. The board oversight the issue via EDRM.
Reputation	Relevant, always included	All risks arising from reputation risk type are systematically considered in the company's risk identification, assessment and management system for the short, med & long-term time horizon. The integration in the ERM system is in place by taking into account TCFD recommendations. Turkish Aerospace initiated a new project with the goal of creating a training catalogue based on augmented reality (AR) and virtual reality (VR). The VR technology was used for Occupational Health and Safety training. The company is preparing to offer training on production and design operations with VR and AR support. Training related to climate change will also be included in this project . The information collection, assessment of reputation risks, their prioritization, action plans and their follow-up are fulfilled by related departments. Those are discussed in the Sustainability Committee and reported to the Board of Directors after providing recommendations to the CEO. The board oversight the issue via EDRM.
Acute physical	Relevant, always included	All risks arising from Acute Physical risk type are systematically considered in the company's risk identification, assessment and management system for the short, med & long-term time horizon. The integration in the ERM system is in place considering TCFD recommendations. In Türkiye extreme weather events increase since 1997. According to obtained results based on IPCC AR5, RCP 4.5 the average annual temperature rising for 2016-2040 in Türkiye is expected to vary between 1°C - 2°C. (Ref: Climate Change Projections for Turkey: Three Models and Two Scenarios- Turkish State Meteorological Service.) It is reported that heavy rain/floods (26%), wind storm (25%), hail (12%), heat wave (11%), and lightning (4%) were recorded as the most observed disaster respectively in 2015. Extreme weather events may also affect certain regions of the country and cause interruptions in work continuity. Turkish Aerospace has a business continuity plan for different scenarios. This plan includes required critical resources, teams, responsibilities of the team members, business impact analysis, progress of processes that determinate the plan to sustain the business continuity in Turkish Aerospace. There are also scenario analyses for extreme weather events. Flood, power cut, fire can be occurred because of the extreme whether events. Proactive and reactive plans and responsible member is written in the plan. Business Continuity Plan is being periodically reviewed and updated to keep up to date. In the reporting year some OHS training and response activities as maintenance have been initiated for this risk driver. The information collection, assessment of acute physical risks, their prioritization, action plans and their follow-up are fulfilled by related departments. Those are discussed in the Sustainability Committee and reported to the Board of Directors after providing recommendations to the CEO. The board oversight the issue via EDRM.
Chronic physical	Relevant, always included	All risks arising from Chronic Physical risk type are systematically considered in the company's risk identification, assessment and management system for the short, med & long term time horizon. The integration in the ERM system is in place considering TCFD recommendations. In order to fulfill its organizational responsibilities against chronic climate change risks, Turkish Aerospace has been conducting risk analyzes between 2016 and 2022 to reduce internal carbon emissions and took measures against the identified risks. With the co-generation plant, the majority of the electricity need in the factory area is met from natural gas, reducing the amount of electricity with higher EF received from the grid. In addition, hot water and steam were produced by utilizing the waste heat in the facility. Between 2016 and 2022, a 23.4% decrease was achieved in carbon footprint. In addition, with the increase in production volume and number of employees in 2022, there is an increase of 7% in carbon footprint compared to 2021. After the transition to ISO 14064:2018 GHG Management Systems, new improvements will be accelerated taking into account new risk analyses. The information collection, assessment of chronic physical risks, their prioritization, action plans and their follow-up are fulfilled by related departments. Those are discussed in the Sustainability Committee and reported to the Board of Directors after providing recommendations to the CEO. The board oversight the issue via EDRM.

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier
Risk 1

Where in the value chain does the risk driver occur?
Upstream

Risk type & Primary climate-related risk driver

Emerging regulation	Carbon pricing mechanisms

Primary potential financial impact
Increased indirect (operating) costs

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

Company-specific description
European Union (EU) goal is to be climate neutral in 2050 and reduce greenhouse gas emissions at least 55% below 1990 levels by 2030 (Fit for 55 package). This package includes a set of proposals to revise and update EU legislation and to put in place new initiatives with the aim of ensuring that EU policies are into line with the climate goals agreed by the Council and the European Parliament. EU wants to ensure clean accessible energy, zero pollution, protect ecosystems and biodiversity and incentive new green economy business models and boost circular economy. To achieve these specified targets, European Commission describes the regulation of carbon pricing in the entire economy. European Commission proposes the regulation establishing a CBAM to reduce global greenhouse gas emissions and prevent carbon leakage that occurs when a company decides to move their production from a country with strict policies to a country that is less strict. CBAM targets imports of products in carbon-intensive industries.
CBAM constitutes regulatory-driven climate risk to Turkish Aerospace because of the increased pricing on imported goods. Turkish Aerospace constantly monitors its activities in order to be ready for CBAM compliance. This regulation is expected to have a medium-term effect to Turkish Aerospace since the scope of the regulation is expected to expand (expected to cover other goods, to cover indirect emissions of the production). CBAM is a regulation to apply tax policy for the certain type of imported products to EU which have greenhouse gas emissions in their entire operations. Carbon price is expected to be 30 €, 50 € and 90€ per greenhouse emissions ton. Tax = Product emission (ton) * Carbon Price

Time horizon
Medium-term

Likelihood
Very likely

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
996547.01

Potential financial impact figure – maximum (currency)
2989641.04

Explanation of financial impact figure
Turkish Aerospace's total Scope 1 carbon emission amount is calculated as 78.746,05 CO2 e.
Scope 1 emissions are used in the calculations which represents the emissions generated directly in the factory.
In 2022 Turkish Aerospace's %40 of income generation is from export activities. (1€=1.0546$)
It can be assumed that;
Carbon emission amount of exported products = 0.40*78.746,05 tons CO2 e which is 31.498,42 tons CO2e.
Estimated carbon tax of €30/ton CO2e, €50/ton CO2e and €90/ton CO2e is based on general balance model of "The New Climate Regime through the Lens of Economic Indicators" Report.
In addition to this report, the data European Union Emission Trading System (EU-ETS) carbon pricing from January 2022 to May 2023 is used and €90/ton CO2e is added to the calculations. A realistic forecast with existing EU-ETS system tax and Scope 1 emissions was included.
Potential financial impact can be calculated as:
31.498,42 tons CO2e*30 € = 944,952.6 € (996,547.01 $) and
31.498,42 tons CO2e*50 € = 1,574,921.5 € (1,660,911.69 $) and
31.498,42 tons CO2e*90 € = 2,834,857.8 € (2,989,641.04 $)

Cost of response to risk
10000000

Description of response and explanation of cost calculation
Turkish Aerospace is making investments in clean energy by a smooth transition to low-carbon production processes. Turkish Aerospace is planning to build roof solar power plant to use renewable energy sources, to start Life Cycle Analyses project to decrease the energy usage and working on energy efficiency projects. By these investments, Turkish Aerospace aims to produce more environmentally friendly products by decreasing its own emissions while mitigating the risk of Carbon Border Adjustment Mechanism. Considering all these projects cost is approximately calculated as 10.000.000$.

Comment
NA

Identifier
Risk 2

Where in the value chain does the risk driver occur?

Downstream

Risk type & Primary climate-related risk driver

Emerging regulation	Mandates on and regulation of existing products and services

Primary potential financial impact
Decreased revenues due to reduced demand for products and services

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

Company-specific description
Turkish Aerospace could be exposed to the risk of being excluded from the global supply chain due to carbon emission restrictions.
By 2050, Europe aims to become the world's first climate-neutral continent. Also, the aviation industry, including Airbus and Boeing, has committed to an industry-wide decarbonization movement that includes two key targets:
1. From 2020, aviation will compensate CO2 emissions (over the 2019 emissions baseline). This means that even though air travel is increasing, CO2 emissions will be mitigated.
2. The long-term climate goal of net-zero carbon emissions by 2050 supports the Paris Agreement's 1.5ºC goal.
As a TIER-1 supplier of Airbus and Boeing, and also being Türkiye's leading aerospace company, Turkish Aerospace has to work for these ambitious targets. Otherwise, we could experience difficulties in sustaining our position in global supply chain. Our customers have started to track the environmental topics of their suppliers. They are following the progress of the company and they are sending questionnaires to see sustainability maturity level of Turkish Aerospace. Therefore, Turkish Aerospace needs to meet the expectations of the customers to sustain its position in supply chain and increase the market value.

Time horizon
Medium-term

Likelihood
Very likely

Magnitude of impact
Medium-high

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
500000000

Potential financial impact figure – maximum (currency)
700000000

Explanation of financial impact figure
All risks arising from emerging climate regulations (e.g., Net Zero Target, ETS/PMR, EU Green Deal Taxonomy) are systematically considered in the company's risk identification, assessment and management system, and integrated in the ERM system.
The resulting analysis show that the impact can be substantial, and could also include the rise of fines or additional direct or indirect costs. Turkish Aerospace may become subject to lose its revenues especially from foreign customers in the supply chain. Turkish Aerospace's overseas revenue in 2022 is approximately 700,000,000 $. It is assumed that most of the revenue is from foreign customers that are liable to EU Green Deal Taxonomy. If Turkish Aerospace is excluded from the global supply chain, the financial impact can be up to 700,000,000 $

Cost of response to risk
0

Description of response and explanation of cost calculation
Türkiye is in the way of establishing a carbon emissions trading system (ETS) currently. Under the activities of this project the carbon prices can have significant impact on the company. Purchase of carbon credits to respond cap&trade base targets or carbon taxes for plant wise emissions are assessed in this context.
The Paris Agreement Targets, which are the driving force in determining national new road-map, a strategic planning process supporting sustainable development, green economy and green technologies has been started. In February 2022, the National Climate Council has completed its works which will form the infrastructure of short, medium and long-term strategies, actions, policies and legislation aligned with Türkiye's 2053 Net Zero Emissions and Green Development target.
As of 2023, the national strategy plan has not been clarified, the preparatory works are in progress. Türkiye submitted its updated nationally determined contributions at the 27th Conference of Parties (COP27) in 2022. It was declared that Türkiye will reduce its greenhouse gas emissions by 41 percent by 2030 compared to the reference scenario and that it will reach its peak in 2038 at the latest.
A Climate Law, set for completion is regarded as another milestone with emission trading system which could accelerate clean transition. Turkish Aerospace makes the assessments base on this new emerging system.
Although electric vehicles are an immature market segment, they aim to change the existing aviation industry by challenging the dominance of hydrocarbon propulsion. In the context of climate change, electric airplanes are likely to have a commercial advantage in the future, as emissions standards and carbon taxes will increase the operating cost of a hydrocarbon fleet. Studies for product development suitable for "sustainable aviation fuels" are in progress.
New collaborations were signed with the customers in 2021. The new investment is for the design and production of thermoplastic composite parts which will be featured in the aerial vehicles of the future.
In the last five years, the company has invested US$700 million in technology and infrastructure. World's fourth composite facility spanning 100 m2 was inaugurated in 2021. The company undertook important roles in the National Space Program with IMECE, GOKTURK3 satellites, and unmanned aerial vehicles.

Comment
The information collection, assessment of emerging regulation risks, their prioritization, action plans and their follow-up are fulfilled by related departments.
The company continued to be the sole supplier of logistic support services for the Emergency Manned Reconnaissance Aircraft (EMRA) which is included in the Turkish Armed Forces.
Turkish Aerospace was granted the "Supplier of the Year" award by Spirit, one of the world's prominent aerospace manufacturers. Boeing presented to Turkish Aerospace, Delivery and Quality Award. Turkish Aerospace became eligible to join "Boeing Premier Bidder Program.
Other awards in 2022 are:
"Innovation Strategy First Prize" Turkish Exporters,Assembly (TIM)
"Process and Product Development with Thermoplastic Material Project in Sustainable Innovation Category
First Prize" Sustainable Business Awards

“Success Partner” Spirit AeroSystems
“First Place and People's Favorite Award in Production and Industry Category”
"People's Favorite Award in Information and Technology Category"
"Third Prize in Corporate Category" Golden Spider
“Best of Category Award in B2B Category” Horizon Interactive Awards
“Most Popular Companies 9th Place” Realta Consulting Most Popular Companies Research

Identifier
Risk 3

Where in the value chain does the risk driver occur?
Upstream

Risk type & Primary climate-related risk driver

Acute physical	Flood (coastal, fluvial, pluvial, groundwater)

Primary potential financial impact
Decreased revenues due to reduced production capacity

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

Company-specific description
IPCC report estimates that the frequency of heavy precipitation or the proportion of total rainfall from heavy rainfalls will increase in the 21st century over many areas of the globe. Percentage of extreme events recorded in Türkiye in 2022 were; wind storm 21.4%, heavy rain/flood 33.6%, hail 18.5%, heavy snow %11.7, lightning 4.1%, frost 2.5%, landslide 2.7%, and forest fire, avalanche, dust storm, fog, severe cold and drought less than 1% (Report: State of Turkey’s Climate in 2021 - Turkish State Meteorological Service).
According to the Climate Projections for Türkiye prepared by Turkish State Meteorological Service, precipitation irregularities tend to increase in Türkiye. As stated in the RCP4.5 scenario, it is expected that the annual total precipitation anomaly in Türkiye will decrease between 3% and 6% in the period of 2016-2099. It is predicted that the average change in precipitation anomaly will be between 1% and 6% in the first half of the century, and between 5% and 6% in the second half of the century. Therefore, Turkish Aerospace activities may be impacted by sudden heavy precipitation and flood. Due to the interruptions in the supply chain and/or logistics, production and facility might be shut-off.
Considering these risks, insurance has been taken out.

Time horizon
Short-term

Likelihood
Very likely

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
7061281

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
On average the costs associated with plant shutdowns (loss of revenue, additional maintenance) stand at approximately 7.061.281 million USD per day,2022 revenue 1.8 billion USD
It is assumed that all suppliers located in the region will be exposed to this risk for 1 day.
1.8 billion USD / 260 working days in 2022 = 7,061,281 USD

Cost of response to risk
73255.76

Description of response and explanation of cost calculation
The risks are managed through the insurance process.
The cost is related with insurance premium value, covering all climate related risk drivers (73,255.76 USD)

Comment
NA

Identifier
Risk 4

Where in the value chain does the risk driver occur?
Direct operations

Risk type & Primary climate-related risk driver

Acute physical	Drought

Primary potential financial impact
Increased indirect (operating) costs

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

Company-specific description
IPCC report AR5 indicates that climate change is likely to increase the frequency of meteorological droughts (less rainfall) in presently dry regions by the end of the 21st century. This is likely to increase the frequency of short hydrologic droughts (less surface water and groundwater) in this region.
Turkish Aerospace could be exposed to the risk of drought resulting with the disruption or interruption of the production.
Considering water stress situation and drought risk in the region where Turkish Aerospace is located, water efficiency projects such as Zero Liquid Discharge (ZLD) applications and water automation systems (SCADA & Digital Controllers) were considered in the facility investment plans. The investment of these applications was completed in 2021 and some of these were put in use within 2022 such as ZLD system used in chemical surface applications, SCADA systems and Digital Controllers. In addition, ZLD project for the nital-etch and copper coating applications is planned to be put in use within 2023.

Time horizon
Medium-term

Likelihood
Likely

Magnitude of impact
Medium-high

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
7061281

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
The financial impact figure is calculated based on sales or delivery figure of the impacted day.
(Revenues) 1.8 billion USD / 260 working days in 2022 = 7,061,281 USD

Cost of response to risk
0

Description of response and explanation of cost calculation
Zero Liquid Discharge (ZLD) Applications enable to save about 85% of water and ensure zero liquid waste discharge. This project can be expressed as one of the best available techniques in the plants producing air crafts. With the approach and enthusiasm on saving our resources in the world, reusing and recycling options came to table in Turkish Aerospace.
To save fresh water, a water recovery unit, where entire amount of wastewater can be recycled and reused, was established. In the unit, there are different types of operated recovery systems such as active carbon, de-ionized water production, vacuumed evaporator and reverse osmosis. This ZLD applications will be operated in the chemical surface applications such as de-greasing, coppering and etching.
In 2021, two ZLD Projects were considered and total investment cost of these projects are 325.000 Euro + 570.000€ 1,409,449 USD (1€=1.13 $)
Considering water management, the foundation stone of water loss management and building a water balance can be seen as measurement and systematization of data that will represent the field. In order to accomplish this stage 251 smart meters are installed to the water distribution network of Turkish Aerospace. The gathered data from the meters are visualized in a SCADA system called ViewX. Total investment cost of these projects is 297.875 Euro (336,599 USD) in 2021.
Until 2023 for a period of 2 years there is a maintenance contract with the company that implemented the SCADA system. If the existing smart meters breakdown or there is an issue about the SCADA system the contractor will be repairing and solving the issue free of charge. Also, for the newly constructed buildings and investments, there is an environmental requirements part of the contract that includes implementation of water meters and the necessary conditions so that the installation is done by the contractor. Therefore in 2022, no additional investment was made for the meters with regards to the maintenance contract. The reporting period's cost of response is zero.

Comment
In regards to water management, digital controllers are installed to cooling towers also. These controllers increase water efficiency by just-in-time chemical monitoring and control of cooling water which results in lower blow down activity. The blow down water saving for this project is approximately 40%. Also, by optimization with digital controllers chemical consumption to condition cooling water is expected to decrease by 20%. The controllers are implemented in 8 locations in the Turkish Aerospace facility. The gathered data is stored in the server of enVision website where it is monitored by the expert team of the System Assurance Center. The related alarms and problems for each controller are sent to the defined users by e-mail in a just-in-time manner. The investment cost of this project was 120.000 Euro (135,600 USD) in 2021. The investment of 12 digital controllers were made in 2021 and 8 of them were installed that year. In 2022, one more digital controller was installed and the other 3 controllers are going to be implemented to new cooling towers when necessary. Therefore, since the investment completed in 2021 no additional investment was made in 2022.
The total cost for 2021: 1,409,449+336,599+135,600=1,881,648 USD

Identifier
Risk 5

Where in the value chain does the risk driver occur?
Direct operations

Risk type & Primary climate-related risk driver

Emerging regulation	Carbon pricing mechanisms

Primary potential financial impact
Increased indirect (operating) costs

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

Company-specific description
Emerging climate regulations such as ETS (Emissions Trading System), Cap & Trade, Carbon Tax, Corporate Sustainability Reporting Directive (CSRD), Taxonomy or Fit

for 55 are continuously anticipated concerns in Turkish Aerospace. Turkish Aerospace published policies in order to increase its sustainability performance every year with its investments, projects and practices in line with 17 UN Sustainable Development Goals (SDGs) which is also known as the Global Goals, were adopted by the United Nations in 2015. Energy Policy was published for the first time in 2018 while Sustainability Policy was published one year before. In addition to these policies, institutional documents such as Sustainable Clean Energy Policy, Environment and Climate Change Policy, Business Continuity Plan Manual, Enterprise Risk Management Process Manual, ISO 50001 Energy Management System Certificate are taken as reference in shaping these practices.
In Türkiye, 54% of responding companies anticipate to be regulated by carbon pricing systems in the next three years, while 4% of companies are already subject to ETS. In February 2022, Türkiye organized its first Climate Council meeting with participation by public and private institutions as well as nongovernmental organizations. The council recommended the launch of a pilot ETS in 2024 to in order to align the development of a national ETS in Türkiye with the country's 2053 net-zero target. The council also recommended that future allowance auction revenues be devoted to green transformation.
Emerging climate regulation is one of the most essential risks type with the potential to have a substantive financial or strategic impact on Turkish Aerospace. Direct Operations and also upstream and downstream value chain is affected by the changes of regulation. Thus, Turkish Aerospace constantly tracks both the regulatory developments and trends in order to sustain the continued growth.

Time horizon
Short-term

Likelihood
Very likely

Magnitude of impact
Medium-high

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
2024064

Potential financial impact figure – maximum (currency)
3036096

Explanation of financial impact figure
Carbon pricing mechanisms are by far the most commonly reported risk driver with the potential to have a substantive financial or strategic impact on businesses in Türkiye. These mechanisms are becoming progressively widespread globally, as governments and regulators seek to address climate change and encourage the transition to a low-carbon economy. ETS is under consideration and studies are coordinated by Republic of Türkiye Ministry of Environment, Urbanization and Climate Change Directorate of Climate Change. In the Medium Term Programme , conversion of energy taxes to a carbon tax and the introduction of a national ETS. Türkiye plans to explicitly connects a national ETS in Türkiye to the EU CBAM. The price of the ETS is undefined and it is not clear how much reduction is expected in Türkiye. The scope of the ETS studies is decided by the Monitoring, Reporting and Verification (MRV) of GHG emissions system (scope of the sectors, greenhouse gases and threshold values). Since the aviation sector can take place within the scope of ETS, it is a risk for Turkish Aerospace and Turkish Aerospace is following up the ETS studies to be ready for ETS.
TA MRV regulation result for scope1 emissions is nearly 60,000 ton CO2-e (Scope 1 verified emissions)
Our strategic target is to reduce our carbon emissions by 55% in 2030 compared to 2021. Therefore, it is estimated that Turkish Aerospace could be subjected to a carbon tax between %40 and %60 of the 2021 CO2-e.
This amount possibly could be subjected to a carbon tax.
The financial impact calculated is based on the emerging ETS performance in Türkiye.
2022 carbon price in EU was 80.32 € tonne CO2-e. (€/$=1.05)
The max estimated potential financial impact figure = 60,000*80.32*1.05 * 0.6=3,036,096 $
The min estimated potential financial impact figure = 60,000*80.32*1.05 * 0.4= 2,024,064 $

Cost of response to risk
8645100

Description of response and explanation of cost calculation
Measures to be taken against the risk: It can be listed as the increase in operational, logistics and technological infrastructure costs, purchasing new materials, equipment, chemical applications and maintenance costs in order not to decrease efficiency.
A rooftop solar power plant that will produce 9 MW of power will be established.
Approximately 22 788 solar panels will be used. The total cost of solar panels, project, licensing and commissioning was calculated as 8,250,000$.
Solar wall installation cost is 395,100 $.
Total cost is 8,645,100 $.

Comment
na

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?
Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

Identifier
Opp1

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Energy source

Primary climate-related opportunity driver
Use of lower-emission sources of energy

Primary potential financial impact
Reduced indirect (operating) costs

Company-specific description
The energy usage has an indicative role on climate change challenges. Therefore, Turkish Aerospace aims to produce and use the energy more efficiently to reduce the amount of greenhouse gasses and other air pollution emitted. Turkish Aerospace's vision is to reduce consumption on site by identifying energy efficiency opportunities, choosing energy efficient equipment technologies and shifting to renewable energy resources.
In our facility we have 2 solar walls which provides the system to preheat the cold and fresh air received from outside with solar energy by circulating the air in the channels inside.
In addition, Turkish Aerospace started the feasibility study for the roof solar power plant. It is decided that 2 building roofs are suitable. It is planned to build a 9 MW solar power plant. 16,673,869 kWh electricity will be generated annually. In this way, energy costs and carbon emissions will be reduced. According to the data of 2022, 20% of the total electricity consumption will be provided from the solar power plant.
Renewable energy source as solar walls will be beneficial for Turkish Aerospace to decrease the energy costs, to reduce the carbon emissions and air pollution and it is a significant opportunity for the company.

Time horizon
Medium-term

Likelihood
Very likely

Magnitude of impact
Medium-high

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
2310000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
16,673,869 kWh electricity will be generated annually.
The financial profit of this energy is $2,310,000.
The project payback period was calculated as 3.57 years.

Cost to realize opportunity
8645100

Strategy to realize opportunity and explanation of cost calculation
A rooftop solar power plant that will produce 9 MW of power will be established.
Approximately 22 788 solar panels will be used. The total cost of solar panels, project, licensing and commissioning was calculated as 8,250,000$.
Solar wall installation cost is 395,100 $.
Total cost is 8,645,100 $.

Comment
NA

Identifier
Opp2

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Products and services

Primary climate-related opportunity driver
Development of new products or services through R&D and innovation

Primary potential financial impact
Increased revenues resulting from increased demand for products and services

Company-specific description
Turkish Aerospace is specialized on R&D and manufacturing of composite parts for quite a long time. The certification and customer satisfaction of such composite structures require continuous improvement on using of new materials, design, testing and manufacturing technologies. The use of thermoset composite parts in aerospace applications started with certified materials and processes more than 25 years ago. The evolved manufacturing technologies of these thermoset materials ended in good quality parts. However, the competency in the industry started to force suppliers for light weight, cost effective parts and structures with increased manufacturing volume. The R&D on material technology guided companies to use thermoplastic instead of thermosets materials. The impacts of using thermoplastics rather than thermosets start with the storage conditions. Regular thermoset materials have predetermined shelf life which is also subjected to controlled environmental conditions. If the shelf life expires than the material should not be used. Thermoplastics materials eliminate this constraint with its no shelf life property. This material can be used any time needed. Additionally, once thermosets are cured, it is an irreversible process. If the parts formed are scrap than there is no way to use the material again. On the other hand, thermoplastic materials can be used multiple times even if they are cured. These resin phenomenon of thermoplastics drastically reduces the material need for manufacturing. It is a common known fact that once the thermoset material is ready to cure, it needs temperature elevated ovens which are operated in vacuum conditions. The curing time extends to hours in the oven. The layup time of thermosets are also cumbersome and may need addition precise tooling design. Contrarily, thermoplastics can be manufactured in minutes. Once the temperature of the thermoplastics is elevated to required level, they can be shaped on heated press equipment. The energy need of thermoplastics with respect to thermosets are minimized. Finally, the labour hours needed for preparation, manufacturing and final operations of the thermoset are

much higher than similar thermoplastics. As a summary, the infinite material shelf life, decreased energy needed for production, recursive use of material and improved labour hours absolutely decrease the unit price and increase the production rates if thermoplastics are preferred.

Time horizon
Short-term

Likelihood
Very likely

Magnitude of impact
High

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
750000

Potential financial impact figure – maximum (currency)
1250000

Explanation of financial impact figure
It is planned to use thermoplastic materials instead of thermoset materials.
In this context, half of the thermoset material used will be replaced with thermoplastic material in the first stage.
Our company's annual thermoset material expense is approximately $2,5 million. It is calculated that the financial gain to be obtained with the use of thermoplastic material will be minimum $0,75 million ($2,5*0.3) maximum $1,25 million ($2,5*0.5)
In addition to material gain, it is predicted that the use of autoclave will decrease. Annual autoclave electricity consumption of our company is 3,000,000 kWh and electric unit price is $0.1. Total cost of autoclave electricity consumption is $300,000. Autoclave electricity consumption is expected to decrease by half after the use of thermoplastic material and calculated that the financial gain to be minimum $90,000 ($300,000*0,3) maximum $150,000 ($300,000*0,5)

Cost to realize opportunity
10000000

Strategy to realize opportunity and explanation of cost calculation
The amount that is stated above 10,000,000 $ is the total budget for the project.
Up to date, Turkish Aerospace initiated self-funded R&D projects to assess the realization of thermoplastics. In some of the projects, components that are being manufactured with thermosets are re-manufactured with thermoplastics. Well known R&D road map is applied and the related tests are conducted to guarantee performance metrics. Additionally, international joint projects are completed to increase technology readiness level where European aviation master role players involved. The equipment needed for manufacturing thermoplastic parts are purchased for technology demonstration purposes. Cooperation with international and national R&D centers initiated. Dedicated engineering team is trained to study on especially thermoplastic design, analysis, requirements and manufacturing technologies. Software to analyse the formability of thermoplastics is purchased. Material and Process department activities are started to better understand and comment on the behavior of thermoplastic resin. Turkish Aerospace have more than hundreds of active civil and military projects. These indigenous and international projects consist of R&D and manufacturing of small scale to full size aerial vehicles that have potential to replace thermoset parts to thermoplastics. According to design and certification requirements, the thermoset components will be converted to thermoplastics. To realize this objective, additional available equipment and new different size press devices will be purchased. Due to the size and complexity of the parts, new engineering design and analysis studies will be done. Tooling design and simulation software will support us to maximize the mass production of parts. The testing and certification of these components will be assured. To test thermoplastic resin properties under applied load and to derive related strength parameters, additional test apparatus will be purchased. The target cost to realize the short-term objectives will be the minimum budget to initiate business case.

Comment
NA

Identifier
Opp3

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Resource efficiency

Primary climate-related opportunity driver
Use of recycling

Primary potential financial impact
Reduced direct costs

Company-specific description
Titanium alloys are frequently preferred in aviation due to their mechanical properties. Considering the designs of aviation parts, a high buy-to-flight ratio emerges especially on titanium alloys reaching to 20:1 by the use of conventional manufacturing methods. Thus, high amount of by-product swarf material during manufacturing especially in machining process is resulted and these are basically waste in the form of chips. The chips are the low value form of titanium raw material when compared to a feed-stock of manufacturing processes such as wire, plate, powder.
Turkish Aerospace has an active patent for a recycling methodology to aim recovering these chips into a high value product for various processes including additive manufacturing technologies. This patent was considered as “Outstanding Invention” and honored with IFIA Grand Prix award in 2022 due to high value impact on the sustainability, environmental-friendly and cost-efficiently.
In this patent, the whole of the technological methods required to revert the chips generated during production to the value chain is protected. Patent Number: WO2023069053A1

Time horizon
Long-term

Likelihood
Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
5000000

Potential financial impact figure – maximum (currency)
7000000

Explanation of financial impact figure
Turkish Aerospace produces an average of 180 tons of titanium chips annually. By recycling 30% and 60% of these chips as additive manufacturing feed-stock materials and returning them to the value chain, a profit of 5M USD and 7M USD orders can be achieved, respectively. The mentioned figures are calculated by taking a basis of powder material suitable for additive manufacturing feed-stock material price - production

Cost to realize opportunity
7000000

Strategy to realize opportunity and explanation of cost calculation
The amount that is stated above 7,000,000 $ is the total budget for the project.
The feasibility study necessary for returning waste materials to the value chain is carried out, and the technological infrastructure to be used is determined. In this context, the capital and operation expenditure costs are calculated. In addition, the recycling method is protected by the patent. The know-how and industrial demonstration of the methodology in small scale of the patent has been acquired by the projects funded by TÜBİTAK, European Commission and internal budget. The scale-up and the real integration for the basis of 180 tons annual recycling are going to be the decision of Turkish Aerospace managing board.

Comment
NA

Identifier
Opp4

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Resource efficiency

Primary climate-related opportunity driver
Other, please specify (Repair and re-manufacturing)

Primary potential financial impact
Reduced indirect (operating) costs

Company-specific description
For our company, which operates in the aviation industry, it is necessary to obtain various metal alloys in complex geometries and with high precision. For this, a lot of consumption is revealed from the stock material. With the development of additive manufacturing technology, aerospace alloys can be produced with much less waste and with the need for much less workstations.
The waste material or buy-to-flight ratio of additive manufacturing technology is many times lower than conventional methods. In this way, the amount of waste can be reduced to the lowest levels with additive manufacturing methods.
Turkish Aerospace performed feasibility studies to implement additive manufacturing technology for specified projects. With additive manufacturing technology, Turkish Aerospace aims to improve buy-to-flight ratio by decreasing waste material in manufacturing. According to an exemplary feasibility study for EBAM technology (Electron-beam additive manufacturing), it is predicted that the buy-to-flight rate will be improved by at least two times and the amount of waste metal chip will be reduced by at least two times.
Additive manufacturing is sustainable manufacturing method and is helpful for eco-friendly products with eliminating waste, scrap, repair and re-manufacturing processes

Time horizon
Medium-term

Likelihood
Likely

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
20000000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
The financial impact of additive manufacturing can provide several advantages. This figure is based on the analysis of various factors, such as material costs, equipment investments, process improvements, and production speed. These include cost savings, inventory management, shorter production lead times, design freedom, and customization capabilities.
Furthermore, additive manufacturing can impact supply chain management. With 3D printing, businesses can reduce lead times, eliminate the need for stockpiling inventory, and enable on-demand production. This shift in supply chain dynamics can lead to cost savings and improved operational efficiency
Turkish Aerospace has a diverse number of platforms which are composed of thousands of structural spare parts need to be obtained. During the manufacturing or operation, approximately 60,000 number of parts lose their expected performance and are scrapped.

Due to the fact that the type of parts and used raw materials depend on the manufacturing route of parts, the financial impact value is a Turkish Aerospace's confidential information. But, to be given as an insight, this amount of scrapped structural materials cost higher than 20 M USD.

Cost to realize opportunity
2600000

Strategy to realize opportunity and explanation of cost calculation
In traditional manufacturing methods, the amount of material required to produce a part is often very close to or even greater than the weight of the final part. This can result in material waste and additional costs. However, additive manufacturing enables the production of parts that are optimized in design and use only the necessary amount of material. Material costs represent significant consideration. Different materials have varying costs, and the selection depends on factors like application, desired properties, and quality standards. Evaluating the cost per unit volume or weight of the material is essential for accurately estimating overall material expenses.

Comment
NA

Identifier
Opp5

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Resource efficiency

Primary climate-related opportunity driver
Use of more efficient production and distribution processes

Primary potential financial impact
Reduced direct costs

Company-specific description
Life Cycle Assessment is a methodical analysis of the potential environmental impacts of products or services including raw material extraction, production, logistics, usage and end-of-life stages. Since this assessment includes evaluation of potential environmental impacts throughout the entire life cycle, this assessment is related with suppliers and customers. The main phases of the assessment are goal & scope definition, inventory analysis, impact assessment, interpretation.
The International Organization for Standardization provides guidelines and requirements for conducting a Life Cycle Assessment according to ISO 14040 and 14044.
Life Cycle Assessment includes products' carbon, waste and water data and gives an opportunity for companies to see environmental impact for each product and to reduce their environmental impact. It is an opportunity for Turkish Aerospace to see the inefficient areas and potential reductions in energy and materials used in products' life cycle. Since LCA is an internationally accepted standard, it allows external parties to see products' sustainability process. This leads Turkish Aerospace to improve market value with potential new projects.
Turkish Aerospace has formed a team from related departments for Life Cycle Assessment as step 1. This assessment is planned to be start with selected projects. Following step is specifying the scope and finding a method for calculations as step 2. Step 3 will be collecting data and implementing the specified method. Coordination and specification of action plans will be step 4

Time horizon
Medium-term

Likelihood
Very likely

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
100000000

Potential financial impact figure – maximum (currency)
150000000

Explanation of financial impact figure
For four project consultancy is assumed to be bought.
After taking consultancy, it is assumed that the method will be ready to be used for other projects.
Total revenue of four projects for 2022 can be calculated as approximately between 100 M and 150 M USD.

Cost to realize opportunity
60000

Strategy to realize opportunity and explanation of cost calculation
Consultancy service will be taken for life cycle assessment.
The four projects consultancy is assumed to be bought.
4 * 15,000$ = 60,000 $
After taking consultancy, it is assumed that the method will be ready to be used for other projects. Project teams are assumed to perform life cycle assessment for other projects. 15 people will be assigned for the project. Therefore, employees' wages will be a cost for the project. The cost values which will come up after the method for LCA is finalized, are not stated in here.

Comment
NA

Identifier
Opp6

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Resource efficiency

Primary climate-related opportunity driver
Use of recycling

Primary potential financial impact
Reduced direct costs

Company-specific description
A circular economy keeps materials, products, and services in circulation for as long possible. Circular economy aims to minimize waste generation, reduces material use environmental impact of industries and recaptures “waste” as a resource to manufacture new materials and products. With circular economy resource usage is minimized and reuse amount is maximized. While, in linear economy the method of buy-do-throw method is used, in circular economy minimize-reuse-recycle method is used. Therefore, this method in circular economy plays a significant role in slowing climate change. According to Global Resources Outlook 2019 report, “the extraction and processing of materials, fuels and food make up about half of total global greenhouse gas emissions and more than 90 per cent of biodiversity loss and water stress”. Thus, it is important that companies develop strategies and specify their action plans for circular economy.
Turkish Aerospace has started a study about reuse of end-of-life materials with other projects in Turkish Aerospace, in the other industries, in the universities. There are considerable amount of scrap materials in Turkish Aerospace, and the amount of them are increasing extending to years. The number of scrap materials which reaches the end of its life, are 886 in 2022. The end-of-life materials consists of chemical materials, composite materials and other materials. Although they have reached the end of their life for their assigned projects, they can be or become usable in other projects in Turkish Aerospace, in the other industries, in the universities. With this project Turkish Aerospace aims to contribute to circular economy with reducing the material use, waste and environmental impact.

Time horizon
Short-term

Likelihood
Likely

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
500000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
The financial impact of scrap materials which reaches the end of its life in 2022 is approximately $5,000,000. We aim to decrease the scrap amount in end of its life materials %10 with contributing them to circular economy. Therefore, financial impact figure can be calculated as;
$5,000,000 * %10 = $500,000.

Cost to realize opportunity
0

Strategy to realize opportunity and explanation of cost calculation
Working group is formed for this project. Employees will spend their time. Approximately 15 employees are assigned to this project. Therefore, their man-hour can be cost to realize the opportunity

Comment
NA

Identifier
Opp7

Where in the value chain does the opportunity occur?
Upstream

Opportunity type
Energy source

Primary climate-related opportunity driver
Other, please specify (product indigenization activities)

Primary potential financial impact
Reduced direct costs

Company-specific description
Turkish Aerospace carries out product indigenization activities due to following reasons:
• Products subject to restrictive regulations or supply constraints,
• Products that are determined to provide a cost advantage if they are procured domestically,
• Products determined to be able to prevent foreign exchange outflow if they are procured from domestic sources,
• Products that will provide superiority to our country with the skills to be gained.
Before the indigenization activities, these products were purchased from many different countries. Due to calendar constraints, these products were shipped with the fastest possible type of shipping, mostly by air.
After the indigenization activities, these indigenious products started to be transported from within the country and therefore from closer locations to our facility.
For this reason, the carbon emissions arising from the transportation of these products have decreased.
Due to confidentiality, we cannot explain which products were indigenized, which foreign companies these products were purchased from before and which domestic companies started to be purchased after indigenization.
A total of 23 products were indigenized in 2021 and 2022. The changes in transportation activities related to these products were determined as km/product or km/product group.

Time horizon
Short-term

Likelihood
Very likely

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
640420

Potential financial impact figure – maximum (currency)
798900

Explanation of financial impact figure
Due to confidentiality, the weight and size properties of the products cannot be shared. Along with these features of the products, the shipping costs vary according to the special agreements made with the shipping companies. However, in order to indicate a range value, the unit price per kilometer for road transport is assumed to be $2, and the unit price per kilometer for air transport is assumed to be $6.
When calculating the minimum financial impact (gain), it is assumed that air transport is preferred for products purchased from the USA and road transport is preferred for products purchased from Europe. In addition, it is assumed that an order is placed for each product once in 2022.
The calculation made by the distance advantages obtained after indigenization is as follows;
Total distance reduction for all products purchased from USA: (10.290 km * 2) + (8.475 km * 2) + (11.200 km * 5) = 93.530 km
Total distance reduction for all products purchased from Europe: (2.360 km * 2) + 3.220 km + (2.710 km * 4) + (2.555 km * 3) + 2.075 km + 4.240 km + (3.430 km * 2) = 39.620 km
Total Potential Financial Impact: (93.530 km * $6) + (39.620 km * $2) = $640.420
When calculating the maximum financial impact (gain), it is assumed that air transport is preferred for products purchased from both USA and Europe. In addition, it is assumed that an order is placed for each product once in 2022.
The calculation made by the distance advantages obtained after indigenization is as follows;
Total distance reduction for all products purchased from USA: (10.290 km * 2) + (8.475 km * 2) + (11.200 km * 5) = 93.530 km
Total distance reduction for all products purchased from Europe: (2.360 km * 2) + 3.220 km + (2.710 km * 4) + (2.555 km * 3) + 2.075 km + 4.240 km + (3.430 km * 2) = 39.620 km
Total Potential Financial Impact: (93.530 km * $6) + (39.620 km * $6) = $798.900

Cost to realize opportunity
0

Strategy to realize opportunity and explanation of cost calculation
Turkish Aerospace is constantly increasing its indigenization activities as a country and company strategy.
Due to confidentiality of indigenization projects, we cannot explain the cost to realize opportunity.

Comment
NA

Identifier
Opp8

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Products and services

Primary climate-related opportunity driver
Development of new products or services through R&D and innovation

Primary potential financial impact
Increased revenues resulting from increased demand for products and services

Company-specific description
As Turkish Aerospace, we aim to contribute to our company and our country's aviation ecosystem by designing models for R&D and innovation collaborations, knowing that we can achieve our targeted leadership in the aviation and defense industry with the best contributions of all our stakeholders and researchers. We continue our activities to manage internal and external relations, to create, construct and operate cooperation projects / programs / mechanisms / models in accordance with our R&D and innovation cooperation strategy in order to provide sustainable competitive advantage on a global scale, in line with our vision and goals.
As Turkish Aerospace we focus on sustainable innovation and support the creation of ideas and products that contribute to the ecological environment and innovative production. We consider R&D and innovation collaborations as a one-to-one tool that increases our competence and capacity in order to improve our corporate and environmental performance on the way to our sustainability goals. In this context, we implement young talent programs to train qualified human resources, and we provide maximum support to entrepreneurship and innovation activities in order to provide innovation.
Thanks to entrepreneurship program, it is aimed to shape the future of Turkish Aerospace with the contributions of employees and to cooperate with the start-up ecosystem that is developing day by day in Türkiye by focusing on open innovation activities in order to contribute to these studies.
The HANGAR CAMPUS Innovation Program is designed to be open to the applications of associate degree, undergraduate, graduate and doctoral students from all universities in Türkiye. In the first period of the program, which is aimed to be opened in 2023, the focus is determined as "Carbon Reduction in Aviation".
The fact that our Sustainability Committee focuses on climate related topics, and that similar studies are carried out in our country, the reason for preference has been determined with the support of our product group.
In order to create the innovation strategy of Turkish Aerospace that will provide this focus, entrepreneurship and open innovation strategy workshops are held under participation of our Chairman and / or General Manager, Executive Board Members, Directors and relevant Managers.

Time horizon
Medium-term

Likelihood

Very likely

Magnitude of impact
High

Are you able to provide a potential financial impact figure?
No, we do not have this figure

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
Due to the diversity of the activities, uncertainty of customer behavior and the confidentiality reasons, the financial impact cannot be quantified.
Developing technologies to reduce emissions generated in the use phase of the products is the material issue for Turkish Aerospace .
Climate and other market related emerging technologies, fuel, material and design pathways including innovative operational solutions for existing and future products are on the way of development.
Our customers are on the way to launch zero- emission aircraft on the market by 2035.
A new collaboration was signed with a customer including a new investment for the design and production of thermoplastic composite parts.

Cost to realize opportunity
13800

Strategy to realize opportunity and explanation of cost calculation
Although a cost item will be created within the scope of the opportunities and reward mechanisms to be created for the selected entrepreneurs, it is planned that these formations will generate more income and cause less consumption in short-term or mid-term.

Comment
HANGAR CAMPUS Innovation Program
Program design is set up by examining best practice benefits. Students will be able to apply to the HANGAR CAMPUS Innovation Program in teams of 2 to 5 people. The first term of HANGAR Campus, which will be our first open innovation program focused on innovation and entrepreneurship, is expected to last approximately 4 months. A Demo Day is planned to be held at the end of the program. During the program, It is aimed to provide training, mentoring, IP writing support, investment opportunities, being hired and internship opportunities, having chance to gain privileges in other related Turkish Aerospace programs, infrastructure support, commercialization and networking support, budget support for MVP (Minimum Viable Product), PoC opportunity at our facilities. Additionally, there will be cash award to the teams who successfully complete the program. HANGAR Campus has been designed end-to-end as a multi-stakeholder and highly prestigious program where maximum added value will be created with minimum cost and has been prepared for implementation.
Emphasizing that the "sustainability" theme, which is among our innovation focus topics, should also be taken into account in both entrepreneurship and open innovation activities in every period, we determined the related theme as a horizontal focus topic for all aspects.

C3. Business Strategy

C3.1

(C3.1) Does your organization's strategy include a climate transition plan that aligns with a 1.5°C world?

Row 1

Climate transition plan

No, but our strategy has been influenced by climate-related risks and opportunities, and we are developing a climate transition plan within two years

Publicly available climate transition plan

<Not Applicable>

Mechanism by which feedback is collected from shareholders on your climate transition plan

<Not Applicable>

Description of feedback mechanism

<Not Applicable>

Frequency of feedback collection

<Not Applicable>

Attach any relevant documents which detail your climate transition plan (optional)

<Not Applicable>

Explain why your organization does not have a climate transition plan that aligns with a 1.5°C world and any plans to develop one in the future

Türkiye has accelerated the fight against climate with the ratification of the Paris Agreement in October 2021 when its net- zero pledge by 2053 was confirmed. In February 2022, the National Climate Council has completed its works which will form the infrastructure of short, medium and long-term strategies, actions, policies and legislation in line with Türkiye's 2053 Net Zero Emissions and Green Development target. Türkiye submitted its updated nationally determined contributions at the 27th Conference of Parties (COP27) in 2022. It was declared that Türkiye will reduce its greenhouse gas emissions by 41 percent by 2030 compared to the reference scenario and that it will reach its peak in 2038 at the latest.
In line with the Paris Agreement Targets, which are the driving force in determining national new road-map, a strategic planning process supporting sustainable development, green economy and green technologies has been started.
As of 2023, the national strategy plan has not been clarified, the preparatory works are in progress.
A Climate Law, set for completion is regarded as another milestone with emissions trading system which could accelerate clean transition. After Türkiye's 2053 Net Zero Emissions commitment was approved, analyzes and projections were carried out in order to be in line with the relevant commitment, and the TA's Strategic Plan was updated by adding targets explained in C 1.3.a , in the context of SDG 13 and TCFD recommendations, it was approved by our Board of Directors on 31.10.2022.
Turkish Aerospace is aware that transitional plan must ensure the alignment with net-zero target.
Near-term and long-term SBT's aligning with a 1.5°C world and verifiable and quantifiable KPI's are in the examination phase. The actions taken by other companies in the sector is continuously monitored and evaluated in terms of their applicability to our company.
Our strategic target is to reduce our carbon emissions by 55% in 2030 compared to 2021 and to specify our actions within the vision of becoming carbon-neutral by 2050. The relevant strategic plan has been revised at the end of 2022 and this target has been clearly declared. The Climate Road map has also been decided to be achieved in 2023.
Next year the road map will be completed by discussing the activities to be carried out in the relevant departments in terms of improvements, and the realizations will be periodically audited. The Board will perform the oversight.

Explain why climate-related risks and opportunities have not influenced your strategy

<Not Applicable>

C3.2

(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?

	Use of climate-related scenario analysis to inform strategy	Primary reason why your organization does not use climate-related scenario analysis to inform its strategy	Explain why your organization does not use climate-related scenario analysis to inform its strategy and any plans to use it in the future
Row 1	Yes, qualitative and quantitative	<Not Applicable>	<Not Applicable>

C3.2a

(C3.2a) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Transition scenarios: IEA 2DS	Company-wide	<Not Applicable>	Climate-related scenarios are used to direct and inform business strategy decisions, especially for emission reduction pathways. The global market trends help Turkish Aerospace to assess transitional risks.The outcome of this work was shared with the board who oversight the performance of the system. While conducting our qualitative analysis, for transition scenario IEA 2DS, was applied to assess the risks. Base on World Energy Model following related macro -drivers were examined. Population, GDP assumption by region, fossil fuel prices by scenario, CO2 prices for electricity, industry and energy production. Customer global market forecasts on CO2 emissions were assessed, covering the sector. Various inputs to consider the 2017- 2050 time horizon were selected. Türkiye submitted its updated nationally determined contributions at the 27th Conference of Parties (COP27) in 2022. It was declared that Türkiye will reduce its greenhouse gas emissions by 41 percent by 2030 compared to the reference scenario and that it will reach its peak in 2038 at the latest.This projection was examined, and global trends were reassessed. These analysis directed us to fuel efficiency, renewable use and emission reduction activities in asset level. In corporate level, Turkish Aerospace will continue to use the scenario analysis for a clear transition pathway to reach net zero emissions before 2053. (In February 2022, the National Climate Council has completed its works which will form the infrastructure of short, medium and long-term strategies, actions, policies and legislation in line with Türkiye's 2053 Net Zero Emissions and Green Development target.)
Physical climate scenarios: RCP 4.5	Company-wide	<Not Applicable>	Climate-related scenarios are used to direct and inform business strategy decisions, especially for emission reduction pathways. The global risk assessments help Turkish Aerospace to evaluate physical risks. The outcome of this work was shared with the board who oversight the performance of the system. For the purpose to identify the most relevant chronic and acute risks and evaluate potential impacts on the company activities, we uses IPCC's RCP 2.6, RCP 4.5 and RCP 8.5 scenarios by taking into account forecasts for the long-term evolution of precipitation & wind patterns and temperature from short to long term until 2050. The physical parameters requiring a long-term analysis are updated by World Bank Knowledge Portal source. The results of these assessments show that as acute physical risk; floods precipitation extremes weather conditions can cause damage to our assets. The company accelerated the process of reducing this risk by: *Focusing in fuel efficiency, *Accelerating renewable energy use *Increasing emission reduction activities in asset level. *Reinforcing preventive measures and maintenance activities for business continuity and crisis management capabilities of the company * Revising insurance policy and procedures .
Physical climate scenarios: RCP 2.6	Company-wide	<Not Applicable>	Climate-related scenarios are used to direct and inform business strategy decisions, especially for emission reduction pathways. The global risk assessments help Turkish Aerospace to evaluate physical risks. The outcome of this work was shared with the board who oversight the performance of the system. For the purpose to identify the most relevant chronic and acute risks and evaluate potential impacts on the company activities, we uses IPCC's RCP 2.6, RCP 4.5 and RCP 8.5 scenarios by taking into account forecasts for the long-term evolution of precipitation & wind patterns and temperature from short to long term until 2050. The physical parameters requiring a long-term analysis are updated by World Bank Knowledge Portal source. The results of these assessments show that as acute physical risk; floods precipitation extremes weather conditions can cause damage to our assets. The company accelerated the process of reducing this risk by: *Focusing in fuel efficiency, *Accelerating renewable use *Increasing emission reduction activities in asset level. *Reinforcing preventive measures and maintenance activities for business continuity and crisis management capabilities of the company * Revising insurance policy and procedures .

C3.2b

(C3.2b) Provide details of the focal questions your organization seeks to address by using climate-related scenario analysis, and summarize the results with respect to these questions.

Row 1

Focal questions

The problem definition was carried out by engagement and dialogue, detailed strategic conversation was carried out. Knowledge gaining about scenarios and their interactions with company environment was completed.
The assumptions, biases and changing mental models was interpreted to help the company's decision-making. Executive-level support was carried out by the president of Sustainability Committee. The communication with other departments and EDRM was fulfilled. TCFD recommendations and scientific consensus after AR5& AR6 were considered as a rational for selecting the scenarios disclosed Identification of past trends. and current climate state was fulfilled.
Some physical and transitional questions:
What past climate-related patterns, trends, events, or variables have significantly affected the company? How and why did these factors exert influence on the company?
What are some other potential touch-points, both physical and transition, where climate-related issues affect the company and its environment (supply chains, customers, operations)? What effects could there be on infrastructure, business continuity, people?
What possible future developments need to be probed? What are the significant changes in customer preferences, markets, societies, policies, legal frameworks, and technological innovations? What are the key uncertainties and driving forces to shape future performance? What variables are needed to support decision-making? Which technological trends could play a key role in 2030 and 2050.(e.g., saf, light materials, renewable energy, carbon capture and storage, electrification etc)?
We use IPCC (The RCP2.6 scenario represents the 2015 Paris Climate Agreement for a 1.5 °C stabilization) to understand the stringency of 1.5°C compared to beyond 2°C, RCP4.5 scenario and International Energy Agency (IEA 2DS, B2DS) scenarios, which provide broader context, and better frame for the focal questions used in R&O assessments.
Beside corporate assessments, energy intensive and critical business units were studied first. The expansion of scenario analysis will be carried out for the next year.
The time horizon over which the focal question(s) are considered was chosen by taking into consideration IPCC and Paris Agreement time-frames and also corporate capital planning and investment horizons, the useful life of major company assets All of them are aligned with chosen scenarios.
While evaluating the climate related risks of Turkish Aerospace's for 2022-2030, the Strategy and Affiliates Vice President stated that, aviation industry's OEM companies that contribute to the climate balance and sustainability may not want to deal with companies that cannot keep up with climate change decarbonization projects. This issue was addressed in the plan as a threat. Risks and opportunities continue to be evaluated throughout the year within the scope of sustainability committee studies, risk management and strategic plan review and revision studies."

Results of the climate-related scenario analysis with respect to the focal questions

Transition R&O Results: Light and energy efficient product design has a priority in all R&D financial planning.
The strategy to customer expectations is resilient. Contracts and business deals with customers are already done.
In the last five years, the company has invested US$700 million in technology and infrastructure. World's fourth composite facility spanning 100 m2 was inaugurated in 2021.
The company continued to be the sole supplier of logistic support services for the Emergency Manned Reconnaissance Aircraft (EMRA) which is included in the Turkish Armed Forces.
Turkish Aerospace was granted the "Supplier of the Year" award by Spirit, one of the world's prominent aerospace manufacturers.
Boeing presented to Turkish Aerospace , Delivery and Quality award.
Turkish Aerospace became eligible to join "Boeing Premier Bidder Program".
Physical Risks Results:
Turkish Aerospace continued to conducting IPCC based risk analyses between 2016 and 2022 to reduce internal carbon emissions and took measures against the identified risks.
1-With the co-generation plant, the majority of the electricity need in the factory area is met from natural gas, reducing the amount of electricity with higher emission. In addition, hot water and steam were produced by utilizing the waste heat in the facility.
2-The SPPs will start to be operate with 5,000 kWh hourly capacity in 2024 and this capacity will be increased gradually per year. The projected SPP operating capacity and electricity consumption is given below. The predicted hourly electricity consumption for 2030 is 21,477 kWh. According to the projections for 2030, %55 of the electricity demand will be met by SPPs and the remaining %45 part will be supplied as Green Electricity.
Even if 55% is not provided by SPP, all the needs will be met from green energy.
2024: 5,000 kWh (%31,68 of demand)
2025: 7,000 kWh (%40,92 of demand)
2026: 9,408 kWh (%55 of demand)
2027: 9,896 kWh (%55 of demand)
2028: 10,578 kWh (%55 of demand)
2029: 11,219 kWh (%55 of demand)
2030: 11,812 kWh (%55 of demand)
3-For the purpose to increase company-wide water efficiency by digital control and monitoring of water, an investment of 472,000 $ was realized. Digital control system called 3D TRASAR which is used for light industrial cooling water applications are implemented in order to optimize chemical dosing in cooling towers and eliminate manual operations.
4- "Water Automation System" as Innovation Projects for Water Efficiency.
In order to accomplish, water loss management and building a water balance as measurement and systematization of data, 251 smart meters are installed to the water distribution network of Turkish Aerospace. The gathered data from the meters are visualized in a SCADA system called XView. Measurements and monitoring of 80 buildings, including production and employee housing area, are instantly visible through this incorporated system.

C3.3

(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	In the frame of the proposed “Green Stimulus” as part of the EU green deal, older generation air crafts will be replaced with more efficient latest generation ones for the purpose to reduce the GHG emissions of the fleet. The priority of the aviation industry is to ensure that vehicles perform longer with less energy. The materials consisting of various components in the aircraft must be the lightest materials with the highest durability. In addition to their superior performance properties, thermoplastic composites provide advantages due to their short production cycle, unlimited life, recyclable and repairable ability. Turkish Aerospace follows new standards, regulations and policies with a technology road-map. Continuity is ensured by increasing R&D projects and investments. Having recorded prominent developments in many fields from production to R&D investment, Turkish Aerospace earned new capabilities and took steps to build new facilities and infrastructure, which broke new ground in Türkiye, Expectation to increase fund support within the scope of Türkiye's and EU's sustainability efforts is high. But there is also;New sanctions within the scope of global sustainability targets and risk of job loss in case of non-compliance with sanctions, additional costs that may occur in the same scope. In the last five years, the company has invested US$700 million in technology and infrastructure. World’s fourth composite facility spanning 100 m2 was inaugurated in 2021. The assumptions that composite materials used in automotive and aviation today will become the main trend for other sectors in the next 20 years and that a decrease in prices is expected as a result of this spread were shared with the participants. The company continued to be the sole supplier of logistic support services for the Emergency Manned Reconnaissance Aircraft (EMRA) which is included in the Turkish Armed Forces. Turkish Aerospace was granted the “Supplier of the Year” award by Spirit, one of the world’s prominent aerospace manufacturers. Boeing presented to Turkish Aerospace, Delivery and Quality award. Turkish Aerospace became eligible to join “Boeing Premier Bidder Program”.
Supply chain and/or value chain	Yes	The risks originating from supplier companies can create both threats and opportunities for Turkish Aerospace. In the risk management studies carried out, it is aimed to prevent possible threats and seize opportunities. In the event that contracts become unmanageable due to reasons such as supplier-induced long downtime, export license issues, indefinite delays, climate-related downtime or losses; It is ensured that solutions such as termination of the contract are kept on the agenda, and that a new contract is prepared in parallel with an alternative supplier, if necessary. The company also has important activities under environmental and energy issues in order to reduce the risk of climate change affecting value chain In the evaluation made among Airbus suppliers, our company received an (A-) score. “Environmental Sustainability Evaluation Questionnaire for Supplier and Supporting Industry Firms” was prepared within the scope of increasing the awareness of our suppliers on sustainability and disseminating sustainability activities among suppliers. In 2022, Supplier and Sub-Industry Companies ; The Environmental Sustainability Assessment Survey has been revised.
Investment in R&D	Yes	Developing technologies, to reduce emissions generated in the use phase of the products is the material issue for Turkish Aerospace. Emerging technologies, fuel, material and design pathways including innovative operational solutions for existing and future products are on the way of development. As an example, one of our customers is on the way of to launch zero- emission aircraft on the market by 2035. In the last five years, Turkish Aerospace has invested US$700 million in technology and infrastructure. World’s fourth composite facility spanning 100 m2 was inaugurated in 2021. A new collaboration was signed with a customer including a new investment for the design and production of thermoplastic composite parts. Turkish Aerospace took second place in the R&D 250 “Companies with the Highest R&D Expenses in Türkiye. Number of R&D Projects is 120 Our Total R&D Spending is TRY 4,389,000,000.
Operations	Yes	Reducing emissions generated from operational activities is always in the concern of the company. Turkish Aerospace has been conducting risk analyses between 2016 and 2021 to reduce internal carbon emissions and took measures against the identified risks. With the co-generation plant, the majority of the electricity need in the factory area is met from natural gas, reducing the amount of electricity with higher EF, received from the grid. In addition, hot water and steam were produced by utilizing the waste heat in the facility. After the transition to ISO 14064:2018 GHG Management Systems, new improvements will continue by taking into account new risk analyses.

C3.4

(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Direct costs Indirect costs Capital expenditures Capital allocation Access to capital	The identified risks and opportunities have influenced the financial statement and it has been incorporated into the financial planning process. In the long-term the climate strategy will create value by developing the business model. The company plans to resource the different aspects of the climate transition plan next year . In Turkish Aerospace, assessing and responding market opportunities will positively affect the revenue. Some examples from the reporting year's innovation program; Participants were informed about the expectations regarding the use of UAVs in the civil field, electronic commerce capable of vertical take-off and landing, and carrier UAVs related to "last mile delivery". It has been emphasized that the impact of the progress in this field on the supply chain and the increasing number of companies preparing to enter the short / medium distance electric air taxi market. Information was provided on the effects of the market, which is expected to reach USD 300 Billion in 2030, on the sectors of airlift, construction, agriculture, manufacturing and surveillance. Assumptions that it would be possible to place satellites in low orbit with UAVs were shared with the participants. The assumptions that composite materials used in automotive and aviation today will become the main trend for other sectors in the next 20 years and that a decrease in prices is expected as a result of this spread were shared with the participants Consequently production costs will be budgeted in the planning phase. R&D expenses over a longer time horizon and insurance costs are budgeted for the time being. All the elements have been influenced by current R&Os which are oversight by the board with the support of the relevant committees. Climate-related issues will have an influence on our indirect cost strategy in the long-term. To meet CO2 reduction criteria, indirect costs such as production and engineering wages, product development, and testing costs will increase. Digitization and developing innovative applications for decarbonization took active role in all over the field of direct and indirect operations costs. The long term plan is updated by on a yearly basis revision of capital strategy while short term budgeting enables the financial processing. With the awareness that climate related issues and water security are on the same line, the following study was carried out at Turkish Aerospace: Use Water Network Measurement and SCADA System Installation works are carried out in the factory and lodging area. Measurements and monitoring of a total of 80 buildings, including production buildings and lodgings, can be viewed instantly on the system. In this way, water consumption amounts will be evaluated on a building basis, and a “water consumption map” will be created by revealing which processes need improvement in order to reduce water consumption and use water resources effectively. With the established SCADA system, consumption data can be seen daily, weekly and monthly. For each meter; location, working status and daily, monthly and annual graphics are included in the system. With the software, in which many processes in the field of waste management related to the environment are transferred to the digital environment, significant savings will be achieved in the detailed follow-up of time, labor and emissions. With the software, operations such as waste shipment, waste transportation requests, new Hazardous Waste Point (TAN) requests, zero waste entries, waste container requests and environmental targets can be entered. The module will be made available on Turkish Aerospace’s Portal. The investment in establishing a sustainable system for the calculation of greenhouse gas emissions and corporate carbon and water footprint in accordance with the ISO 14064 & 14046 standards is in progress. Budget allocations are made. Major climate related events affecting production are not frequent, even so, given the unpredictability and potential impact on company financials.Turkish Aerospace continually evaluates risk mitigation strategies.

C3.5

(C3.5) In your organization's financial accounting, do you identify spending/revenue that is aligned with your organization's climate transition?

	Identification of spending/revenue that is aligned with your organization's climate transition	Indicate the level at which you identify the alignment of your spending/revenue with a sustainable finance taxonomy
Row 1	No, but we plan to in the next two years	<Not Applicable>

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?
Absolute target

C4.1a

(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.

Target reference number
Abs 1

Is this a science-based target?
No, but we are reporting another target that is science-based

Target ambition
<Not Applicable>

Year target was set
2021

Target coverage
Company-wide

Scope(s)
Scope 1
Scope 2

Scope 2 accounting method
Location-based

Scope 3 category(ies)
<Not Applicable>

Base year
2021

Base year Scope 1 emissions covered by target (metric tons CO2e)
71370.5

Base year Scope 2 emissions covered by target (metric tons CO2e)
23194.82

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 2: Capital goods emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 4: Upstream transportation and distribution emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 6: Business travel emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 7: Employee commuting emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 10: Processing of sold products emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 11: Use of sold products emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 14: Franchises emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 15: Investments emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Other (upstream) emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Other (downstream) emissions covered by target (metric tons CO2e)
<Not Applicable>

Base year total Scope 3 emissions covered by target (metric tons CO2e)
<Not Applicable>

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)
94565.32

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1
100

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2
100

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target as % of total base year emissions in Scope 3, Category 1: Purchased goods and services (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 2: Capital goods emissions covered by target as % of total base year emissions in Scope 3, Category 2: Capital goods (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target as % of total base year emissions in Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 4: Upstream transportation and distribution covered by target as % of total base year emissions in Scope 3, Category 4: Upstream transportation and distribution (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target as % of total base year emissions in Scope 3, Category 5: Waste generated in operations (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 6: Business travel emissions covered by target as % of total base year emissions in Scope 3, Category 6: Business travel (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 7: Employee commuting covered by target as % of total base year emissions in Scope 3, Category 7: Employee commuting (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 8: Upstream leased assets (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target as % of total base year emissions in Scope 3, Category 9: Downstream transportation and distribution (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 10: Processing of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 10: Processing of sold products (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 11: Use of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 11: Use of sold products (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 13: Downstream leased assets (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 14: Franchises emissions covered by target as % of total base year emissions in Scope 3, Category 14: Franchises (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Category 15: Investments emissions covered by target as % of total base year emissions in Scope 3, Category 15: Investments (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Other (upstream) emissions covered by target as % of total base year emissions in Scope 3, Other (upstream) (metric tons CO2e)
<Not Applicable>

Base year Scope 3, Other (downstream) emissions covered by target as % of total base year emissions in Scope 3, Other (downstream) (metric tons CO2e)
<Not Applicable>

Base year total Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)
<Not Applicable>

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes
100

Target year
2030

Targeted reduction from base year (%)
55

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]

Scope 1 emissions in reporting year covered by target (metric tons CO2e)
78746.04

Scope 2 emissions in reporting year covered by target (metric tons CO2e)
33645.47

Scope 3, Category 1: Purchased goods and services emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 2: Capital goods emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 4: Upstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 5: Waste generated in operations emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 6: Business travel emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 7: Employee commuting emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 8: Upstream leased assets emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 9: Downstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 10: Processing of sold products emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 11: Use of sold products emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 12: End-of-life treatment of sold products emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 13: Downstream leased assets emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 14: Franchises emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Category 15: Investments emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Other (upstream) emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Scope 3, Other (downstream) emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Total Scope 3 emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)
112391.52

Does this target cover any land-related emissions?
No, it does not cover any land-related emissions (e.g. non-FLAG SBT)

% of target achieved relative to base year [auto-calculated]

Target status in reporting year
Revised

Please explain target coverage and identify any exclusions
The abs 1 revision took place for the year 2022
While only the S2 target was chosen in 2021 with the same base year, in the reporting year S1 was added to this target in order to be aligned with company's net zero target.
The revised target covers total scope 1&2 emissions with no exclusion.
The Solar Power Plants (SPP) will start to operate in 2024 with approximately 5,000 kWh (hourly average) capacity.
As of 2021, Turkish Aerospace's average hourly electricity demand was about 10,861 kWh.
In addition, considering new investment and buildings, the electricity demand forecast is considered to increase about 21,447 kWh for 2030.
By 2030, it is aimed to meet the electricity demand from SPPs (%55) and green electricity (%45) and 100% by 2050
Even if 55% is not provided by SPP, all the needs will be met from green energy.

Plan for achieving target, and progress made to the end of the reporting year
The plan for achieving S1+S2 target
Due to limited natural gas supply because of Russia-Ukraine War; the S1 & S2 emissions increased in the reporting year because of coal usage increase in the stationary combustion. The area and FTE figures were increased in 2022.
The renewable energy usage for S2 emissions will start in 2024
The S1 emissions reduction is planned by following activities:
1-Awareness activities on energy use practices
2- Transition from conventional vehicles to EVs in mobile combustion
3-Energy Efficient Design Criteria Setting in new buildings
4-Building insulation works
5-Solar Power Plant installations in the open areas of the company
7-Maintenance, repair, and revision works on heating & cooling, ventilation, pressure air, vacuum, aspirators, steam humidifiers, process coolers, treatment devices, transformers, UPS and generators etc.
8- Renovation on control systems
9-Substitution of cooling gases and extinguishers
10- Operation, maintenance, and repair of facilities' technology infrastructure
The S2 reduction is planned by the following activities
LED-equipped fixtures, local lighting techniques will continue.
The SPPs will start to be operate with 5,000 kWh hourly capacity in 2024 and this capacity will be increased gradually every year. The projected SPP operating capacity and electricity consumption is given below. The predicted hourly electricity consumption for 2030 is 21,477 kWh. According to the projections for 2030, %55 of the electricity demand will be met by SPPs and the remaining %45 part will be supplied as Green Electricity.
Even if 55% is not provided by SPP, all the needs will be met from green energy
2024: 5,000 kWh (%31,68 of demand)
2025: 7,000 kWh (%40,92 of demand)
2026: 9,408 kWh (%55 of demand)
2027: 9,896 kWh (%55 of demand)
2028: 10,578 kWh (%55 of demand)
2029: 11,219 kWh (%55 of demand)
2030: 11,812 kWh (%55 of demand)
Turkish Aerospace is planning to offset the residual emissions through the voluntary carbon offset markets or renewable energy certifications.

List the emissions reduction initiatives which contributed most to achieving this target
<Not Applicable>

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?
Net-zero target(s)

C4.2c

(C4.2c) Provide details of your net-zero target(s).

Target reference number
NZ1

Target coverage
Company-wide

Absolute/intensity emission target(s) linked to this net-zero target
Abs1

Target year for achieving net zero
2050

Is this a science-based target?
No, but we are reporting another target that is science-based

Please explain target coverage and identify any exclusions
Linked target as ABS1
Total base year emissions covered by target in all selected scopes (S1+S2) are 4,879,396.25 ton CO2-e in 2021.
By 2030, it is aimed to provide 100 % of electricity grid consumption from SPPs.
In 2030 the Scope 1 & Scope 2 emissions will be reduced 55% compared to base year.
In 2030 the scope 2 emissions will be zero.
Other targets will be developed and planned by taking into account long-term investments for the neutralization in 2050

Do you intend to neutralize any unabated emissions with permanent carbon removals at the target year?
Yes

Planned milestones and/or near-term investments for neutralization at target year
Other emission reduction targets will be developed next year in the course of developing our road map for the neutralization in 2050. Our strategic target is to reduce our carbon emissions by 55% in 2030 compared to 2021(S1+S2) and to specify our actions within the vision of becoming carbon-neutral by 2050.
The improvement phases will be assessed and reported
Related projects to be implemented;
*Awareness activities on energy use practices
* Transition from conventional vehicles to EVs
*Energy Efficient Design criteria setting in new buildings
*Building insulation works
*Solar Power Plant installations in the open areas of the company
*Maintenance, repair, and revision works on heating & cooling, ventilation, pressure air, vacuum, aspirators, steam humidifiers, process coolers, treatment devices, transformers, UPS and generators etc.
* Renovation on control systems
*Substitution of cooling gases and extinguishers
* Operation, maintenance, and repair of facilities' technology infrastructure
*LED-equipped fixtures, local lighting techniques

Planned actions to mitigate emissions beyond your value chain (optional)
The expectations from our suppliers are to comply with all laws and regulations and to manage their business in accordance to the requirements and targets set up for Environmental Management Systems including emission measurements, waste management and water consumption. The response rate and the performance rate are the main indicators of this success. We need to ensure business continuity in the context of climate related topics aligned with Paris Agreement Requirements throughout our company's commitments. This engagement will allow our tier 1 suppliers to ameliorate their own performance as well as cascade their own suppliers.
The company will take into account energy efficiency at the procurement stage, with the integration and minimization of logistics activities, emphasis on environmentally friendly technologies in the selection of machinery / equipment.

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.
Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	1	0
To be implemented*	1	1426
Implementation commenced*	1	7514
Implemented*	1	3722.38
Not to be implemented	0	0

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative category & Initiative type

Energy efficiency in production processes	Compressed air

Estimated annual CO2e savings (metric tonnes CO2e)
99.95

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 2 (location-based)

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
22417

Investment required (unit currency – as specified in C0.4)
2411

Payback period
<1 year

Estimated lifetime of the initiative
6-10 years

Comment
Savings realized from the improvements made in the compressed air system.

Initiative category & Initiative type

Energy efficiency in production processes	Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)
66

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 2 (location-based)

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
11794

Investment required (unit currency – as specified in C0.4)
153104

Payback period
11-15 years

Estimated lifetime of the initiative
16-20 years

Comment
Control of aluminum and small furnace with automation system.

Initiative category & Initiative type

Energy efficiency in buildings	Lighting

Estimated annual CO2e savings (metric tonnes CO2e)
259.18

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 2 (location-based)

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
14920

Investment required (unit currency – as specified in C0.4)
40833

Payback period
1-3 years

Estimated lifetime of the initiative
11-15 years

Comment
211 Led lamps were changed in the B200 building.

Initiative category & Initiative type

Energy efficiency in buildings	Building Energy Management Systems (BEMS)

Estimated annual CO2e savings (metric tonnes CO2e)
115.68

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 2 (location-based)

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
18645

Investment required (unit currency – as specified in C0.4)
0

Payback period
<1 year

Estimated lifetime of the initiative
>30 years

Comment
Closing of clean room air handling units during the Eid holiday

Initiative category & Initiative type

Energy efficiency in buildings	Solar shading

Estimated annual CO2e savings (metric tonnes CO2e)
3231.58

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 2 (location-based)

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
46130

Investment required (unit currency – as specified in C0.4)
127596

Payback period
1-3 years

Estimated lifetime of the initiative
11-15 years

Comment
Solar-Wall application to B420 and B23 Buildings

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Dedicated budget for energy efficiency	Turkish Aerospace drives investment in, energy, water, waste and VOCs for all activities generated from buildings and manufacturing processes. It supports and enables deployment of smaller and larger projects, including energy efficiency projects, with short and long-term time horizons. In 2022 Turkish Aerospace invested in energy efficiency for following buildings: Assembly Buildings, Test and Engineering Buildings, Manufacturing Building, Warehouse, Cafeteria, Technical Building, Office Buildings, Paint Shops, Heat Plant .
Dedicated budget for low-carbon product R&D	Substitution of existing products with lower emission options is aligned with the Research and Development activities. There is an increased demand for new low carbon technologies, materials, products and services. As of the end of 2022, the number of completed R&D projects totaled to 168. Total R&D Expenditure increased 3 times compared to the previous year and reached to 12.5 billion TRY. In August 2022; 3rd AKSUNGUR, delivered to Turkish Navy Commander. Previous year, the unmanned aerial vehicle has been joined the firefighting missions by undertaking the task of air surveillance during the forest fires in the country.
Compliance with regulatory requirements/standards	Legal harmonization studies and legal product investments works on EU Green Deal products that reflect new GHG reduction opportunities to our country are studied to drive investment.
Internal incentives/recognition programs	For each project within the scope of VAP (Energy Efficiency Projects) 30% of the project amount will be paid to Turkish Aerospace by the related Ministry as an incentive.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products?
Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products.

Level of aggregation
Product or service

Taxonomy used to classify product(s) or service(s) as low-carbon
No taxonomy used to classify product(s) or service(s) as low carbon

Type of product(s) or service(s)

Aviation	Other, please specify (firefighting UAV)

Description of product(s) or service(s)
Turkish Aerospace has proven the value it attaches to society and environment with its AKSUNGUR product. Completed in a short period of 18 months and included in the National inventory, AKSUNGUR joined the firefighting missions by undertaking the task of air surveillance during the 2021-forest fires in the country. Serving as a great aid in the firefighting efforts, the unmanned aerial vehicle remained in the air for 60 hours, played a role in saving 3 people from a fire- observation tower.
Emergency Manned Reconnaissance Aircraft which is included in the inventory of Turkish Armed Forces is actively partaking in search and rescue, operates in emergencies such as earthquakes and floods.
Four, CL-215 amphibious firefighting air crafts whose maintenance needs were met in 2021, with the support of Turkish Aerospace to the Ministry of Agriculture and Forestry, started to be used in areas where fires broke out in 2022.
In August 2022; 3rd AKSUNGUR, delivered to Turkish Navy Commander.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)
No

Methodology used to calculate avoided emissions
<Not Applicable>

Life cycle stage(s) covered for the low-carbon product(s) or services(s)
<Not Applicable>

Functional unit used
<Not Applicable>

Reference product/service or baseline scenario used
<Not Applicable>

Life cycle stage(s) covered for the reference product/service or baseline scenario
<Not Applicable>

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario
<Not Applicable>

Explain your calculation of avoided emissions, including any assumptions
<Not Applicable>

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year
0

C5. Emissions methodology

C5.1

(C5.1) Is this your first year of reporting emissions data to CDP?
No

C5.1a

(C5.1a) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?

Row 1

Has there been a structural change?
No

Name of organization(s) acquired, divested from, or merged with
<Not Applicable>

Details of structural change(s), including completion dates
<Not Applicable>

C5.1b

(C5.1b) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?

	Change(s) in methodology, boundary, and/or reporting year definition?	Details of methodology, boundary, and/or reporting year definition change(s)
Row 1	No	<Not Applicable>

C5.2

(C5.2) Provide your base year and base year emissions.

Scope 1

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
71370.5

Comment
Scope 1 emissions include; stationary combustion, mobile combustion and fugitive emissions.
Stationary combustion consists of the use of natural gas and lignite for heating and diesel fuel burned in generators.
Within the scope of mobile combustion, diesel and gasoline fuels consumed by road and airline vehicles are taken into account.
Fugitive emissions originate from refrigerant gas and fire extinguishing systems.

Scope 2 (location-based)

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
23194.82

Comment
Scope 2 emissions cover the electricity purchased from National Interconnected System.

Scope 2 (market-based)

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
0

Comment
Turkish Aerospace consumes electricity purchased from the grid. Therefore, we don't have any Scope 2 market-based emissions.

Scope 3 category 1: Purchased goods and services

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
115629.59

Comment
Emissions from purchased materials and services have been calculated

Scope 3 category 2: Capital goods

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
0

Comment
Indirect emissions from capital goods are not classified as significant based on the materiality assessment.

Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
0

Comment
As a result of the materiality assessment for indirect emissions, it was determined that this category is not relevant.

Scope 3 category 4: Upstream transportation and distribution

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
4332.51

Comment
Emissions from the transport of upstream materials have been calculated. (Includes road, air and sea transportation.)
Quantity and category correction for 2021 result in this category was made by a 3rd party verification company.

Scope 3 category 5: Waste generated in operations

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
469.23

Comment
Waste water, domestic, organic, hazardous etc. Emissions related to waste disposal have been calculated

Scope 3 category 6: Business travel

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
1061.53

Comment
Indirect emissions from business travel by road, air, sea and rail have been calculated.

Scope 3 category 7: Employee commuting

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
1722.28

Comment
Employee commuting to and from work is done by road, shuttle and ring vehicles.

Scope 3 category 8: Upstream leased assets

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
0

Comment
NA, We have no leased assets.

Scope 3 category 9: Downstream transportation and distribution

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
28515.19

Comment
Downstream transportation and distribution emissions include road, air and sea transport.
The value has been recalculated since it was noticed that there was an error in the activity data.
Quantity and category correction for 2021 result in this category was made by a 3rd party verification company.

Scope 3 category 10: Processing of sold products

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
0

Comment
NA

Scope 3 category 11: Use of sold products

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
4631930.43

Comment
Emissions originating from the fuel burned during the use phase of manufactured aircraft have been calculated.

Scope 3 category 12: End of life treatment of sold products

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
1170.17

Comment
Emissions due to post-use recovery of the product as metal scrap or waste recycling have been calculated.

Scope 3 category 13: Downstream leased assets

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
0

Comment
NA

Scope 3 category 14: Franchises

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
0

Comment
NA

Scope 3 category 15: Investments

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
0

Comment
NA

Scope 3: Other (upstream)

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
0

Comment
NA

Scope 3: Other (downstream)

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
0

Comment
NA

C5.3

(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.
IPCC Guidelines for National Greenhouse Gas Inventories, 2006
ISO 14064-1
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)
Other, please specify (Defra Environmental Reporting Guidelines: Including streamlined energy and carbon reporting guidance, 2021 TURKISH ELECTRICITY TRANSMISSION CORPORATION/ Electricity Production-Transmission Statistics for year 2018, 2019, 2020)

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)
78746.046

Start date
<Not Applicable>

End date
<Not Applicable>

Comment
Scope 1 emissions cover stationary combustion, mobile, fugitive and process emissions.
The verification of reporting year's emissions has been completed in May, 2023.

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based
We are reporting a Scope 2, location-based figure

Scope 2, market-based
We have no operations where we are able to access electricity supplier emission factors or residual emissions factors and are unable to report a Scope 2, market-based figure

Comment
Turkish Aerospace consumes electricity purchased from the grid-National Network
In addition, the electricity produced by using natural gas in the Co- generation system is also consumed within the facility.

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?

Reporting year

Scope 2, location-based
33645.47

Scope 2, market-based (if applicable)
<Not Applicable>

Start date
<Not Applicable>

End date
<Not Applicable>

Comment
The figure represents the emissions generated from electricity purchased from the national grid.

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1, Scope 2 or Scope 3 emissions that are within your selected reporting boundary which are not included in your disclosure?
No

C6.5

(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
465552.21

Emissions calculation methodology
Hybrid method
Average data method
Spend-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
In the relevant category; Emissions from domestic and foreign products and services are calculated.
All calculations are completed in accordance with ISO 14064-1:2018 and verified in accordance with ISO 14064-3:2019 standards for the reporting year emissions.

Capital goods

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
1795.99

Emissions calculation methodology
Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
Emissions of all fixed assets purchased by Turkish Aerospace in the reporting year are calculated with the well-to-tank approach.
All calculations are completed in accordance with ISO 14064-1:2018 and verified in accordance with ISO 14064-3:2019 standards for the reporting year emissions.

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
28276.67

Emissions calculation methodology
Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
The calculation was made by multiplying the fuel and electricity consumption data with the emission factors taken from DEFRA scope 3 emissions. The calculation methodology is based on the GHG Protocol.
Calculations for Electricity T&D and WTT-All Fuels (Scope-3 emission)
All calculations are completed in accordance with ISO 14064-1:2018 and verified in accordance with ISO 14064-3:2019 standards for the reporting year emissions.

Upstream transportation and distribution

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
38453.71

Emissions calculation methodology
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
For upstream transport and distribution emissions (raw material transport, capital goods transport, waste transport, product transport, contract shipping), weight data transported and distance transported data were obtained for Turkish Aerospace's air, road and sea transports. Emission factors were calculated from DEFRA's 2022 database.
All calculations are completed in accordance with ISO 14064-1:2018 and verified in accordance with ISO 14064-3:2019 standards for the reporting year emissions.

Waste generated in operations

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
305.31

Emissions calculation methodology
Waste-type-specific method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
Solid waste amounts by waste type were collected from waste management information forms submitted to the ministry. Emission factors are calculated from DEFRA, 2022.
All calculations are completed in accordance with ISO 14064-1:2018 and verified in accordance with ISO 14064-3:2019 standards for the reporting year emissions.

Business travel

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
8268.2

Emissions calculation methodology
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
The calculation was made by multiplying the travel data by air, land, sea and rail with the emission factors obtained from DEFRA's 2022 database. The calculation methodology is based on the "GHG Protocol Corporate Value Chain -Scope 3" Standard. All calculations are completed in accordance with ISO 14064-1:2018 and verified in accordance with ISO 14064-3:2019 standards for the reporting year emissions.

Employee commuting

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
2578.72

Emissions calculation methodology
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
Calculation was made by multiplying the commuting data of the employees with the emission factor taken from the ICCT.
All calculations are completed in accordance with ISO 14064-1:2018 and verified in accordance with ISO 14064-3:2019 standards for the reporting year emissions.

Upstream leased assets

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Turkish Aerospace has no leased assets in its upstream activities.

Downstream transportation and distribution

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
1222.97

Emissions calculation methodology
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
For downstream transport and distribution emissions, Turkish Aerospace's air, road and sea transports carried weight data and transported distance data were obtained. Emission factors were calculated from DEFRA's 2022 database.
All calculations are completed in accordance with ISO 14064-1:2018 and verified in accordance with ISO 14064-3:2019 standards for the reporting year emissions.

Processing of sold products

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Scope 3 “Processing of Sold Products” does not apply to Turkish Aerospace.

Use of sold products

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
4039543.88

Emissions calculation methodology
Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
Emissions originating from the fuels used in the produced aircraft have been calculated. The calculation methodology is based on the GHG Protocol.
All calculations are completed in accordance with ISO 14064-1:2018 and verified in accordance with ISO 14064-3:2019 standards for the reporting year emissions.

End of life treatment of sold products

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
832.51

Emissions calculation methodology
Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
2022 Turkish Aerospace product amount is multiplied by the product end-of-life emission factor. The product end-of-life emission factor is derived from the DEFRA 2022 database.
All calculations are completed in accordance with ISO 14064-1:2018 and verified in accordance with ISO 14064-3:2019 standards for the reporting year emissions.

Downstream leased assets

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
There are no leased assets in downstream operations.

Franchises

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Turkish Aerospace does not have any franchises in its activities.

Investments

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
The data is processed in the Purchased goods and services category

Other (upstream)

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
There are no other upstream emissions outside of the above categories.

Other (downstream)

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
There are no other downstream emissions outside of the above categories.

C6.7

(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?
No

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure
0.0000612

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)
112391.52

Metric denominator
unit total revenue

Metric denominator: Unit total
1835932958.25

Scope 2 figure used
Location-based

% change from previous year
18.46

Direction of change
Decreased

Reason(s) for change
Change in revenue

Please explain
The intensity figure was 0.00007505 in 2021.
The revenue increased in the reporting year.

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?
Yes

C7.1a

(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	77412.86	IPCC Fifth Assessment Report (AR5 – 100 year)
CH4	88.25	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	299.07	IPCC Fifth Assessment Report (AR5 – 100 year)
SF6	52.82	IPCC Fifth Assessment Report (AR5 – 100 year)
HFCs	893.04	IPCC Fifth Assessment Report (AR5 – 100 year)

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/area/region.

Country/area/region	Scope 1 emissions (metric tons CO2e)
Turkey	78746.046

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.
By facility
By activity

C7.3b

(C7.3b) Break down your total gross global Scope 1 emissions by business facility.

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
Kahramankazan	78746.046	40.081491	32.588543

C7.3c

(C7.3c) Break down your total gross global Scope 1 emissions by business activity.

Activity	Scope 1 emissions (metric tons CO2e)
Natural gas consumed in co-generation	29066.21
Natural gas consumed in the heat plant	20026.86
Natural gas consumed in facilities	1067.77
Diesel consumption in the generator	24.67
Use of lignite for heating	9203.46
Gasoline consumption for on road vehicles	1532.4
Diesel oil consumption for on road vehicles	5430.9
Aviation gasoline	47.13
Aviation-jet kerosene	5239.35
Fugitive emissions from air conditioning systems &chillers	4691.48
Fugitive emissions from fire extinguishers	1144.87
Gasoline consumption for off road vehicles	15.17
Diesel oil consumption for off road vehicle	568.81
Fugitive emissions from wastewater	3.75
Process activities	25.46
Diesel consumption in the fire pumps	24.76
Diesel consumption in the heat plant	601.87
Use of Other Gases	0.17
Use of Acetylene	0.03
Use of Propane	3.1
Use of Nitrous Oxide	27.83

C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4

(C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO2e.

	Gross Scope 1 emissions, metric tons CO2e	Net Scope 1 emissions , metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Electric utility activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (midstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	78746.046	<Not Applicable>	This coverage includes stationary combustion, mobile combustion, fugitives and process emissions. Stationary combustion consists of the consumption of natural gas, coal, diesel, CO2, propane, acetylene and nitrous oxide fuels. Within the scope of mobile combustion, emissions from diesel, gasoline and aviation fuels consumed in road and aircraft were calculated. Fugitive emissions from refrigerant gas and fire extinguishing systems and wastewater were calculated.
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

C7.5

(C7.5) Break down your total gross global Scope 2 emissions by country/area/region.

Country/area/region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Turkey	33645.47	0

C7.6

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By business division

C7.6a

(C7.6a) Break down your total gross global Scope 2 emissions by business division.

Business division	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Manufacturing and Facility Buildings	27967.07	0
Storage and Hangar Buildings	894.51	0
Other Buildings (Offices, Test Centers, Laboratories, Cafeterias etc.)	4783.88	0

C7.7

(C7.7) Is your organization able to break down your emissions data for any of the subsidiaries included in your CDP response?

Not relevant as we do not have any subsidiaries

C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7

(C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7) Break down your organization's total gross global Scope 2 emissions by sector production activity in metric tons CO2e.

	Scope 2, location-based, metric tons CO2e	Scope 2, market-based (if applicable), metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (midstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	33645.47	0	Turkish Aerospace consumes electricity purchased from the grid. Therefore, we don't have any Scope 2 market-based emissions
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

C-TO7.8

(C-TO7.8) Provide primary intensity metrics that are appropriate to your indirect emissions in Scope 3 Category 11: Use of sold products from transport.

Activity
Aviation

Emissions intensity figure
0

Metric numerator (Scope 3 emissions: use of sold products) in Metric tons CO2e
0

Metric denominator
p.km

Metric denominator: Unit total
0

% change from previous year
0

Vehicle unit sales in reporting year
0

Vehicle lifetime in years
0

Annual distance in km or miles (unit specified by column 4)
0

Load factor
na

Please explain the changes, and relevant standards/methodologies used
na

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?
Increased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO2e)	Direction of change in emissions	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	0	No change	0	There is no change in renewable energy consumption
Other emissions reduction activities	3722.38	Decreased	3.31	The emissions reduction activities implemented during 2022 have been resulted with a reduction of 3,722.38 tons of CO2 e. We calculated the percentage (3,722.38/112,391.52) *100 = -3.31%
Divestment	0	No change	0	There is no divestment in the reporting year
Acquisitions	0	No change	0	There is no acquisitions in the reporting year
Mergers	0	No change	0	There is no mergers in the reporting year
Change in output	21549	Increased	19.17	The increase in emissions amounted to 21,549 tCO2e in change in output category The scope1&2 emissions of the reporting year was 112,392 tCO2e The percentage value: 21,549/112,391.52)*100= 19.17%
Change in methodology	0	No change	0	No change in methodology
Change in boundary	0	No change	0	No change in boundary
Change in physical operating conditions	0	No change	0	No change in physical operating condition in the reporting year
Unidentified	0	No change	0	No unidentified change
Other	0	No change	0	No other change

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?
Location-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 0% but less than or equal to 5%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	0	358192.8	358192.8
Consumption of purchased or acquired electricity	<Not Applicable>	0	76466.98	76466.98
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	0	<Not Applicable>	0
Total energy consumption	<Not Applicable>	0	434659.75	434659.75

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	Yes
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	Yes

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Sustainable biomass

Heating value
Unable to confirm heating value

Total fuel MWh consumed by the organization
0

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment
NA

Other biomass

Heating value
LHV

Total fuel MWh consumed by the organization
0

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment
NA

Other renewable fuels (e.g. renewable hydrogen)

Heating value
LHV

Total fuel MWh consumed by the organization
0

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment
NA

Coal

Heating value
LHV

Total fuel MWh consumed by the organization
74450.07

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
43398.07

MWh fuel consumed for self-generation of steam
31059

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment
There is lignite use for heating purposes

Oil

Heating value
LHV

Total fuel MWh consumed by the organization
0

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment
NA

Gas

Heating value
LHV

Total fuel MWh consumed by the organization
233351.7

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
62370.55

MWh fuel consumed for self-generation of steam
35534.34

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
135446.8

Comment
Natural gas is consumed for electricity generation and heating purposes.

Other non-renewable fuels (e.g. non-renewable hydrogen)

Heating value
LHV

Total fuel MWh consumed by the organization
50384.01

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
50384.01

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment
The figure represents mobile fuels with other non- renewable fuels such as propane etc.

Total fuel

Heating value
LHV

Total fuel MWh consumed by the organization
358192.8

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
156152.63

MWh fuel consumed for self-generation of steam
66593.33

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
135446.8

Comment
The figure covers total fuel consumed by Turkish Aerospace.

C8.2d

(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	59475.28	59475.28	0	0
Heat	112936.2	112936.2	0	0
Steam	38978.12	38978.12	0	0
Cooling	0	0	0	0

C8.2g

(C8.2g) Provide a breakdown by country/area of your non-fuel energy consumption in the reporting year.

Country/area
Turkey

Consumption of purchased electricity (MWh)
76466.9

Consumption of self-generated electricity (MWh)
59475.2

Is this electricity consumption excluded from your RE100 commitment?
<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)
0

Consumption of self-generated heat, steam, and cooling (MWh)
151914.3

Total non-fuel energy consumption (MWh) [Auto-calculated]

C-TO8.5

(C-TO8.5) Provide any efficiency metrics that are appropriate for your organization's transport products and/or services.

Activity
Aviation

Metric figure
0

Metric numerator
Other, please specify (Due to confidentiality reason the data cannot be declared.)

Metric denominator
Production: Other, please specify (Due to confidentiality reason the data cannot be declared.)

Metric numerator: Unit total
0

Metric denominator: Unit total
0

% change from previous year
0

Please explain
Due to confidentiality reason the data cannot be declared.

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

Description
Waste

Metric value
573

Metric numerator
kg waste

Metric denominator (intensity metric only)
FTE

% change from previous year
15

Direction of change
Decreased

Please explain
• Zero waste management system is carried out effectively.
• 99% of waste is recovered.
• Awareness activities and waste reduction practices are emphasized within the scope of environmental sustainability.
•Materials that are needed for reuse are re-evaluated in different production areas. Total of 27.9 tonnes of materials were diverted 77 different units to be reused.
•Waste management practices are followed through integrated environmental audits carried out 4 times a year.
•Awareness of waste management practices is increased with the Green Flag League

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Description
Other, please specify (Waste water)

Metric value
27.72

Metric numerator
cubic meter waste water

Metric denominator (intensity metric only)
FTE

% change from previous year
4

Direction of change
Decreased

Please explain
• Application of on-site recycling systems (Zero Liquid Discharge)-ZLD, SCADA systems used in buildings to measure water utilization and digital control system called 3D TRASAR to optimize chemical dosing in cooling towers.

Description
Other, please specify (Water usage)

Metric value
75.52

Metric numerator
cubic meter of water used

Metric denominator (intensity metric only)
FTE

% change from previous year
11

Direction of change
Decreased

Please explain
Appropriate armatures and equipment are selected in new building projects, rainwater collection, treatment and usage options are investigated, and wastewater recovery applications (grey-water systems) are evaluated.
• With the water measurement and automation project,water consumption in the production areas and lodging areas will be measured on a building-based daily basis with the SCADA system.
• Dry type industrial systems and equipment that do not require water consumption are preferred in production.
• Dry landscape practices are carried out to reduce the amount of water used in irrigation.
• The wastewater treated in the domestic wastewater treatment plant is used as irrigation water and a significant amount of water is recovered.
• Digital control system called 3D TRASAR is used for light industrial cooling water applications are implemented in order to optimize chemical dosing in cooling towers and eliminate manual operations.
• Application of Zero Liquid Discharge (ZLD) system in chemical surface applications.

C-TO9.3/C-TS9.3

(C-TO9.3/C-TS9.3) Provide tracking metrics for the implementation of low-carbon transport technology over the reporting year.

Activity
Aviation

Metric
Production

Technology
Other, please specify (Reducing aircraft weight or Vehicle using SAF or Thermoplastic composite parts)

Metric figure
0

Metric unit
Other, please specify (NA)

Explanation
We closely monitor international and national studies in order to be as ready as possible for the transition to climate related customer expectations. Increasing performance by reducing aircraft weight has become a race in aviation activities.
Turkish Aerospace aims to provide products and services which can contribute to reduction of GHG emissions of the customers during usage phase.
As part of the ongoing spoiler project, the company assembled mid-scale solid fiber reinforced thermoplastic prototype spoilers by welding, and used this process for the first time in a closed structure at its facilities.
All risks arising from market risk type are systematically considered in the company's risk identification, assessment and management system for the short, med & long-term time horizon. The integration in the ERM system is in place.
In order to determine the digital transformation strategy, the selection and determination of the qualities of the products to be produced, the restructure of the supply chain, market, technology and needs analysis, competition analysis and determination of the appropriate competition strategy, production and logistics support planning are carried out.
The new collaborations were signed with the customers in 2021.The new investment is for the design and production of thermoplastic composite parts which will be featured in the aerial vehicles of the future.
The company undertook important roles in the National Space Program with IMECE, GOKTURK3 satellites, and unmanned aerial vehicles.

C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6

(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

	Investment in low-carbon R&D	Comment
Row 1	Yes	The objective of Turkish Aerospace (TA) is to carry Türkiye to an internationally competitive level in aircraft technology. TA has started preparations and investments for future technological products. The company spent 45% of its total turnover for R&D investments in 2022. TA closely monitors the EU Green Deal and necessary technologies in order to achieve the EU Green Deal goals and objectives in the aviation sector. In 2021, TA prepared and published a report on the EU Green Deal and Related Aviation Technologies for the SASAD ARGETEK commission. Continuing to work with the same commission in 2022, TA continues its efforts to avoid possible additional taxes and penalties in the future in order to reduce its carbon footprint as the trigger of the studies. TA has determined the necessary technologies and included them in the Technology Road map document. TA continues to carry out R&D projects in accordance with the technologies determined by the EU Green Consensus to realize the low carbon emission requirements according to the Technology Road map. Therefore, TA continued its activities in the R&D projects reported in the previous report in 2022. The total equity amount transferred to these 5 projects in 2022 is 1,046,000 USD. Their breakdown is given in the table below. Two of these projects were completed at the end of 2022. • Determination and Modeling of the Effects of Additive Manufacturing on the Mechanical Performance of Structural Parts: TA-funded R&D Project is carried out in collaboration with METU. • NLR Metal Additive Manufacturing Program-Phase 2: It is aimed to develop additive manufacturing processes from design up to certification/qualification phases in this TA-funded R&D Project carried out in collaboration with worldwide technology partners • Thermoplastic Spoiler (Wing of Tomorrow): It is aimed to gain the new capability of single piece thermoplastic composite material design and manufacturing while developing a thermoplastic spoiler to be used on the Airbus Wing of Tomorrow Concept. • Low Cost Aileron Development: In this Project it is aimed to perform product design and prototype manufacturing of the Airbus A350-900 and A350-1000 ailerons by using a low-cost manufacturing technique known as One Shot – SQRTM. • Development of Innovative Bonding Methods for Structural Composite Parts used in Aviation Applications:

C-TO9.6a/C-TS9.6a

(C-TO9.6a/C-TS9.6a) Provide details of your organization's investments in low-carbon R&D for transport-related activities over the last three years.

Activity
Aviation

Technology area
Airframe

Stage of development in the reporting year
Applied research and development

Average % of total R&D investment over the last 3 years
20

R&D investment figure in the reporting year (unit currency as selected in C0.4) (optional)
0

Average % of total R&D investment planned over the next 5 years
45

Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan
This row represents "Determination and Modeling of the Effects of Additive Manufacturing on the Mechanical Performance of Structural Parts" Project

Activity
Aviation

Technology area
Airframe

Stage of development in the reporting year
Applied research and development

Average % of total R&D investment over the last 3 years
20

R&D investment figure in the reporting year (unit currency as selected in C0.4) (optional)
44863

Average % of total R&D investment planned over the next 5 years
45

Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan
This row represents “NLR Metal Additive Manufacturing Program-Phase 2” Project

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Activity
Aviation

Technology area
Airframe

Stage of development in the reporting year
Applied research and development

Average % of total R&D investment over the last 3 years
20

R&D investment figure in the reporting year (unit currency as selected in C0.4) (optional)
776920

Average % of total R&D investment planned over the next 5 years
45

Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan
This row represents Thermoplastic Spoiler (Wing of Tommorow) Project

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Activity
Aviation

Technology area
Airframe

Stage of development in the reporting year
Applied research and development

Average % of total R&D investment over the last 3 years
20

R&D investment figure in the reporting year (unit currency as selected in C0.4) (optional)
223645

Average % of total R&D investment planned over the next 5 years
45

Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan
This row represents “Low Cost Aileron Development” Project

Activity
Aviation

Technology area
Airframe

Stage of development in the reporting year
Applied research and development

Average % of total R&D investment over the last 3 years
20

R&D investment figure in the reporting year (unit currency as selected in C0.4) (optional)
480

Average % of total R&D investment planned over the next 5 years
45

Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan
This row represents “Development of Innovative Bonding Methods for Structural Composite Parts used in Aviation Applications” Project

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C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Reasonable assurance

Attach the statement
F11b_Verification_Statement_GHG_TUSAS_2021_v2.pdf
F11b_Verification_Statement_GHG_TAI_2022_v2.pdf
Re- verifcation notification.pdf

Page/ section reference
Verification_Statement_GHG Turkish Aerospace_2022 pages:3,4
Verification_Statement_GHG_TUSAS_2021_v2
Re - verification notification

Relevant standard
ISO14064-3

Proportion of reported emissions verified (%)
100

C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

Scope 2 approach
Scope 2 location-based

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Reasonable assurance

Attach the statement
F11b_Verification_Statement_GHG_TUSAS_2021_v2.pdf
F11b_Verification_Statement_GHG_TAI_2022_v2.pdf
Re- verifcation notification.pdf

Page/ section reference
Verification_Statement_GHG Turkish Aerospace_2022 pages:3,4
Verification_Statement_GHG_TUSAS_2021_v2
Re - verification notification

Relevant standard
ISO14064-3

Proportion of reported emissions verified (%)
100

C10.1c

(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.

Scope 3 category
Scope 3: Purchased goods and services
Scope 3: Capital goods
Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)
Scope 3: Upstream transportation and distribution
Scope 3: Waste generated in operations
Scope 3: Business travel
Scope 3: Employee commuting
Scope 3: Downstream transportation and distribution
Scope 3: Use of sold products
Scope 3: End-of-life treatment of sold products

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Reasonable assurance

Attach the statement
F11b_Verification_Statement_GHG_TUSAS_2021_v2.pdf
F11b_Verification_Statement_GHG_TAI_2022_v2.pdf
Re- verifcation notification.pdf

Page/section reference
Verification_Statement_GHG Turkish Aerospace_2022 pages:3,4
Verification_Statement_GHG_TUSAS_2021_v2
Re - verification notification

Relevant standard
ISO14064-3

Proportion of reported emissions verified (%)
100

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?
No, but we are actively considering verifying within the next two years

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?
No, but we anticipate being regulated in the next three years

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

National secondary legislation on Monitoring, Reporting and Verification of GHG Emissions (MRV)is in force since 2015. The aim of this legislation is to introduce cap & trade emissions trading system for emission intense sectors. Possible carbon market policy options for Türkiye were studied under the activities of Partnership For Market Readiness Turkey Project (phases 1&2). After the workshops which took place before pandemic, with the participation of public & private sector representatives, it is notified that a national ETS will be implemented, it will be very similar to EU-ETS cap for different sector groups.

In 2021, the Minister of Environment, Urbanization and Climate Change announced that a national ETS will be implemented. It is expected that this ETS will be very similar to EU-ETS with an 80% cap on emissions and the rest will be subject to free and auctioned allocations.

Studies, for the establishment of a national emission trading system covering sectors primarily which are in the scope of MRV Regulation, are expected to start as pilot phase in 2024 and officially in 2025, On the other hand, the Climate Law, set for completion is regarded as another milestone with emission trading system which could accelerate clean transition. Turkish Aerospace monitors compliance with emerging law and ETS regulation. The company will continue to attend related workshops for the alignment of its strategy with the National Strategy covering ETS regulation and Paris Agreement Requirements. The company follows internal and customer related requirements base on the European and International policy developments related with climate change.

There is dedicated team working on related regulations including internal carbon pricing: the compliance, environment and energy working groups are always in interaction **with current and emerging regulatory developments which have potential to influence the strategy. Related information is always carried out and communicated with the CEO.**

For the purpose to be ready for the carbon pricing mechanism before it is introduced, Turkish Aerospace has started to work towards reducing its GHG emissions for the purpose to be resilient to the anticipated potential impacts in the long-term.

C11.2

(C11.2) Has your organization canceled any project-based carbon credits within the reporting year?
No

C11.3

(C11.3) Does your organization use an internal price on carbon?
Yes

C11.3a

(C11.3a) Provide details of how your organization uses an internal price on carbon.

Type of internal carbon price
Internal fee

How the price is determined
Cost of required measures to achieve emissions reduction targets

Objective(s) for implementing this internal carbon price
Change internal behavior
Drive energy efficiency
Drive low-carbon investment
Identify and seize low-carbon opportunities
Navigate GHG regulations
Stakeholder expectations

Scope(s) covered
Scope 1
Scope 2

Pricing approach used – spatial variance
Differentiated

Pricing approach used – temporal variance
Evolutionary

Indicate how you expect the price to change over time
The likelihood of a carbon border-adjustment based tax is expected to have a long term effect on operational costs.
Climate related emerging regulation based risks are detected by this study which have impacts on the decision-making process for our current and future strategies.
Due to EU Green Deal- Carbon Border Adjustment mechanism, increased pricing on imported goods is considered a key regulatory-driven climate risk. We closely monitor compliance with EU Green Deal, the emerging regulation and other critical climate policies. General balance model, possible costs of Border Carbon Regulation for 30 € &50 € /ton CO2-e
price in export and production categories of different industry sectors was assessed for 2020-2030 period, by TUSİAD
("The New Climate Regime through the Lens of Economic Indicators" Report)
The price used is min 33$ for 30 € /ton CO2-e and max 55 $ for 50 € /ton CO2-e possible costs
(Average currency 1€=1.10$ in 2022)

Actual price(s) used – minimum (currency as specified in C0.4 per metric ton CO2e)
33

Actual price(s) used – maximum (currency as specified in C0.4 per metric ton CO2e)
55

Business decision-making processes this internal carbon price is applied to
Capital expenditure
Operations
Procurement
Product and R&D
Risk management
Opportunity management
Value chain engagement

Mandatory enforcement of this internal carbon price within these business decision-making processes
Yes, for all decision-making processes

Explain how this internal carbon price has contributed to the implementation of your organization's climate commitments and/or climate transition plan
The price on carbon influences the decision-making process for current climate strategies and future emerging situations.
ETS studies are triggered from Carbon Boarder Adjustment Mechanism (CBAM). According to this mechanism if national carbon price is lower than EU ETS price, countries should pay additional CBAM certificate price which is equal to the difference between these prices.
This is central to the implementation of climate transition plan target setting
Target 5.2.1 Carbon Emissions
Reducing our direct (Category 1) and indirect (Category 2) emissions by 55% by 2030 compared to 2021

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?
Yes, our suppliers
Yes, our customers/clients
Yes, other partners in the value chain

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement
Information collection (understanding supplier behavior)

Details of engagement
Collect GHG emissions data at least annually from suppliers
Collect targets information at least annually from suppliers
Collect climate-related risk and opportunity information at least annually from suppliers
Collect climate transition plan information at least annually from suppliers
Collect other climate related information at least annually from suppliers

% of suppliers by number
20

% total procurement spend (direct and indirect)
40

% of supplier-related Scope 3 emissions as reported in C6.5
20

Rationale for the coverage of your engagement
The rational for the coverage of this survey is assessment of critical suppliers which have impact on total procurement spent.
In corporate carbon footprint calculation studies; in order to calculate the greenhouse gases within the scope of Category-3 Transportation and Category-4 Purchased Products, information on the weight and transportation type of all kind of materials such as procured product/raw material/service/kit/chemical data was derived from this coverage.

Impact of engagement, including measures of success
In 2021, we worked with more than 300 domestic and 700 foreign suppliers. The expectations from our suppliers were to comply with all laws and regulations and to manage their business in accordance to the requirements and targets set up for ISO 14001 Environmental Management Systems. Including emission measurements, water consumption and waste management.
In 2022, Environmental Sustainability Evaluation Questionnaire for Supplier and Sub-Industry Firms" has been revised within the scope of increasing the awareness of our suppliers on Sustainability including Climate Change.
The attached Annex No:4 "Greenhouse Gas Inventory Conditions" which takes place in "Environmental Management Regulations for Suppliers" was revised. Climate, energy and CDP related new requirements have been added to the questionnaire. The response rate and the performance rate are the main indicators of this success.
Measuring the maturity of the suppliers that our company works with (the scope of the supplier could be classified) regarding their overall sustainability activities is surveyed; "Within the scope of the Dissemination of Sustainability Activities to Supplier Companies carried out by the Corporate Development Directorate, 80% of the suppliers working in Airbus projects were selected according to the total cost, and the prepared questionnaire was sent to 22 companies by the Supply Chain Quality Assurance unit on 21.11.2022.
There are a total of 44 questions in the survey under the following headings.
1. ENVIRONMENTAL MANAGEMENT PRACTICES
2. WASTE MANAGEMENT PRACTICES
3. WATER AND WASTEWATER MANAGEMENT APPLICATIONS
4. EMISSIONS AND AIR QUALITY
5. OBJECTIVES, STRATEGY AND PRACTICES
6. GOVERNANCE
The results for the 11 companies that returned to the survey were scored out of 100 by the Corporate Development Department and a summary analysis was prepared as follows.
Within the scope of the "Sustainability Road-map - Supply Chain Meeting" held on 08.03.2023, the questionnaire applied to the suppliers with a high volume of work previously worked within the scope of Airbus projects was discussed. It was discussed that with the consultancy service procurement planned within the scope of the 2023 road-map, necessary improvements/updates (if any) could be made and the survey could be disseminated for all projects across the company."

Comment
We perform assessments through our Procurement Risk Assessment module.
Demands of Company's Supply Chain Management from our suppliers:
1-Key Suppliers: Performing existing environmental management systems, (Ex: Waste and waste water management practices) or acquiring ISO 14001 certification
2-Starting to record electricity / water / natural gas etc. consumption activity data and Information on the weight and transportation type of all kinds of materials such as procured product/raw material / service/kit/chemical
3-Focusing on energy-saving and renewable activities.
4-Participating the training on Greenhouse Gas Emission monitoring and reduction methods

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Type of engagement
Engagement & incentivization (changing supplier behavior)

Details of engagement
Run an engagement campaign to educate suppliers about climate change
Provide training, support, and best practices on how to make credible renewable energy usage claims
Provide training, support, and best practices on how to set science-based targets
Directly work with suppliers on exploring corporate renewable energy sourcing mechanisms
Climate change performance is featured in supplier awards scheme
Offer financial incentives for suppliers who reduce your operational emissions (Scopes 1 & 2)
Offer financial incentives for suppliers who reduce your downstream emissions (Scopes 3)
Offer financial incentives for suppliers who reduce your upstream emissions (Scopes 3)
Offer financial incentives for suppliers who increase the share of renewable energy in their total energy mix
Offer financial incentives for suppliers who develop/adopt a climate transition plan
Facilitate adoption of a unified climate transition approach with suppliers

% of suppliers by number
20

% total procurement spend (direct and indirect)
40

% of supplier-related Scope 3 emissions as reported in C6.5
20

Rationale for the coverage of your engagement
We defined critical workers, critical machines, critical subsidiary industry companies, critical suppliers, critical subcontractors and critical buildings and identified the activities for the resources we need to ensure business continuity aligned with Paris Agreement Requirements throughout our company.

Local companies constitute a very important part of our company's suppliers as our nationalization efforts contributors.
In order for Turkish Aerospace to collect accurate and consistent data from its suppliers in the coming years, critical suppliers were taken into preliminary evaluation.
In 2022 progressive improvements were performed about GHG emission data collection systematic. Training of suppliers have been accelerated. Reasons and related requirements for providing accurate and transparent data was explained.
Reducing emissions from transportation with actions such as targeting, consolidating, routing, etc. was in the agenda.
“Based on the decisions taken within the scope of the “Turkish Aerospace- Deploying Sustainability Activities to Supplier Companies” held on 20.10.2022; "The Contractor will have ISO 14001 certificate within the scope of sustainability activities and will carry out carbon emission reporting activities in line with Turkish Aerospace's request" was added and announced to the relevant Procurement and Contract Directorates via e-mail on 10.02.2023.
In order to calculate the greenhouse gases within the scope of Category-3 Transportation and Category-4 Purchased Products, information on the weight and transportation type of all kinds of materials such as procured product/raw material/service/kit/chemical data continued to be reported.

Impact of engagement, including measures of success
The expectations from our suppliers is to comply with all laws and regulations and to manage their business in accordance to the requirements and targets set up for ISO 14001 Environmental Management Systems including emission measurements, waste management and water consumption.
The response rate and the performance rate are the main indicators of this success. We need to ensure business continuity in the context of climate related topics aligned with Paris Agreement Requirements throughout our company's commitments. This engagement will allow our tier 1 suppliers to ameliorate their own performance as well as cascade their own suppliers.
Due to the fact that Expeditors is the contracted airline carrier of Turkish Aerospace and the company collects the shipments from foreign customs and transfers them to Turkish Aerospace. An information collection was requested from the company on 13 March 2023 regarding the reduction of carbon footprint.
In this context, Expeditors submitted 2 different reports regarding the Green House Gas – GHG emissions in Turkish Aerospace air import shipments in 2022. In these reports;
o How much Green House Gas – GHG would be caused if all air import cargoes were transported only by air,
o Green House Gas – GHG measurements, where 35% of the cargoes are actually brought by air + land transportation,
o In the actual scenario, it was stated that 11% less GHG release was achieved in the GHG release compared to the first scenario.
In addition, according to the USA main transportation scheme of Expeditors, the consolidated cargoes are collected in Frankfurt and transported directly to Ankara by truck, instead of being transported to the final destination by air. The main reasons for this are to reduce the cost of transportation and reduce the carbon footprint.”

Comment
As Turkish Aerospace, we take care to ensure that all our employees have equal information and risk awareness regarding the performance of our Company's subcontractors. In order to increase our effectiveness in the construction and negotiation of future contracts and to manage our supplier selection process with the right decisions, we take an inclusive approach by ensuring that the performance of subcontractors is followed by all relevant units. Supply chain risks are determined and followed up by the relevant units in detail, such as natural disasters, global crises, epidemics, and terrorist incidents. We determine the situations that may affect our activities by making capacity assessments for the production and design areas of our working partners.
We check the capacities of our suppliers on a monthly basis or during business transfer processes with the help of data entries made through the Subsidiary Industry Portal. In case we foresee a bottleneck in the medium and long term, we implement joint control and improvement plans with our suppliers by making risk entries

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement & Details of engagement

Collaboration & innovation	Run a campaign to encourage innovation to reduce climate change impacts

% of customers by number
20

% of customer - related Scope 3 emissions as reported in C6.5
40

Please explain the rationale for selecting this group of customers and scope of engagement
Our customers are the Turkish Armed Forces and other public institutions and organizations in Türkiye and large aerospace and defense industry companies such as Boeing, Airbus, Sikorsky, Spirit, Northrop Grumman abroad.
The market, which is expected to reach USD 300 Billion in 2030, on the sectors of airlift, construction, agriculture, manufacturing and surveillance satellites in low orbit with UAVs will pose big opportunities to the sector. To focus on these opportunities will facilitate the green growth and national strategy implementation phase in the med term.
This group of customers and high-tech companies are always in the main concern of Turkish Aerospace. While the companies are being examined, in-house entrepreneurship and open innovation studies they have implemented, their collaborations with start-ups and their investments in start-ups are emphasized. It is planned to work on the topics that Turkish Aerospace decided to work on, in the med- term, primarily through acceleration / competitions to be organized within the framework of in-house entrepreneurship and open innovation program. The aim at this stage is to transform the ideas collected from within or outside of the company into projects and to evaluate them at regular intervals by the "Innovation Committee" to be established within Turkish Aerospace. In order to achieve this goal, it is planned to provide training and mentoring support to Turkish Aerospace employees who submit ideas to related programs or to ideas selected from outside the organisation. At the end of the process, it is aimed to work on the projects selected by the Innovation Committee and decided to invest, by including them in the company's ordinary business processes.

Impact of engagement, including measures of success
For the purpose of creating value in social, economic and environmental issues, we develop collaborations with our customers, public institutions and organizations. In the last 10 years, patent applications made as a result of studies in the field of space have increased significantly. As Turkish Aerospace, in 2022 the company made a total of 133 patent applications, 65 of which are national and 38 are international, the remaining 30 are utility model applications. Turkish Aerospace is the "First Quarter of the Year Türkiye Champion" in International Patent Applications.
Studies on new business models that space missions can use are shared with stakeholders and customers, as the reduction of barriers to entry into the sector makes it easier for most countries, including Türkiye, to launch a space program. In line with customer demands, the CDP Climate Change Program started to be reported for the first time by Turkish Aerospace.
Measure of success is the collaboration projects or new investment projects partaking in climate related transition issues.
As an example, one of our customers is on the way of to launch zero- emission aircraft on the market by 2035.
In the last five years, Turkish Aerospace has invested US$700 million in technology and infrastructure. World’s fourth composite facility spanning 100 m2 was inaugurated in 2021. A new collaboration was signed with a customer, including a new investment for the design and production of thermoplastic composite parts which will be used as an important material in climate related transition studies

C12.1d

(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.

The most fundamental factor shaping today's technology trends is sustainability. With the European Green Consensus published by the European Commission, it is aimed to ensure economic growth while reducing natural resource consumption and to zero the net emission value of greenhouse gases until 2050.

We develop collaborations with many of our stakeholders, including our employees, customers, suppliers, universities, public institutions and organizations and the society, in order to create value in social, economic and environmental topics. We carry out aviation and space base activities of

our country with our original products, projects, technology centers and R&D investments.

Within the framework of the “Domestic and National Technology Move” initiated in 2005, we continue our production activities as a subcontractor with our successful deliveries within the scope of strong collaborations we signed with our stakeholders on a global scale.

Developing technologies to reduce emissions generated in the use phase of the products is the material issue for Turkish Aerospace.

Emerging technologies, fuel, material and design pathways including innovative operational solutions for existing and future products are on the way of development. As an example, one of our customers is on the way of to launch zero- emission aircraft on the market by 2035. In the last five years, Turkish Aerospace has invested US$700 million in technology and infrastructure. World’s fourth composite facility spanning 100 m2 was inaugurated in 2021.

It is our priority to increase the energy efficiency awareness of our stakeholders by complying with the relevant legal and other requirements in order to improve our climate-related performance day by day. Although we increased our total indoor area by 55% in 2022 compared to 2019, we limited our energy consumption with an increase of 25%. Thanks to our energy management system activities and increased awareness, we have increased our energy performance and ensured that the energy consumption remains below the growth rate of our company.

While identifying technology topics that will contribute to our sustainable development, we work with experts in the relevant field, examine and analyse the technologies on which the world's leading aerospace and defense companies, research institutions and universities are working.

The HANGAR Campus Innovation Program is designed to be open to the applications of associate, undergraduate, graduate and doctoral students aged between 18-30 from all universities in Türkiye, and in its first term, the focus was determined as "Carbon Reduction in Aviation".

In particular, sustainability, which is one of the horizontal innovation focus areas of our company, is carried out for startup exploration. In this context, it has been evaluated that cooperation can be made with relevant sustainability startups in line with our strategic goals in the events attended to conduct one-on-one entrepreneurial meetings. Collaboration and PoC (Proof of Concept) studies with start-ups continue on issues such as carbon capture, recycling, and biofuel production. In this context, coordination with the Energy and Infrastructure Integration Department was ensured and the process was advanced.

As Turkish Aerospace Industries, we participate in national and international fairs and provide the opportunity for our employees to present their inventions to other stakeholders in the ecosystem in which we operate.

In 2022, we participated in the Istanbul International Invention Fair (ISIF), where more than 270 inventions were exhibited, with our 46 inventions.

We received a total of 36 awards, including 19 bronze, 13 silver, 3 gold medals and the "IFIA Grand Prix" award at ISIF, with our inventions evaluated by the international jury consisting of experts in their fields.

As of the end of 2022, the number of completed R&D projects totaled to 168. Total R&D Expenditure increased 3 times compared to the previous year and reached 12.5 billion TRY.

In August 2022; 3rd AKSUNGUR, delivered to Turkish Navy Commander. Previous year, the unmanned aerial vehicle has been joined the firefighting missions by undertaking the task of air surveillance during the forest fires in the country.

C12.2

(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization’s purchasing process?

Yes, climate-related requirements are included in our supplier contracts

C12.2a

(C12.2a) Provide details of the climate-related requirements that suppliers have to meet as part of your organization's purchasing process and the compliance mechanisms in place.

Climate-related requirement
Climate-related disclosure through a non-public platform

Description of this climate related requirement
In corporate carbon footprint calculation studies following requirements are fixed;
In order to calculate the greenhouse gases within the scope of Category-3 Transportation and Category-4 Purchased Products, information on the weight and transportation type of all kinds of materials such as procured product/raw material/service/kit/chemical is needed. (ISO 14064:2018 requirements)
Other relevant requirements;
In 2022, Environmental Sustainability Evaluation Questionnaire for Supplier and Sub-Industry Firms" has been revised within the scope of increasing the awareness of our suppliers on Sustainability including Climate Change.
The attached Annex No:4 "Greenhouse Gas Inventory Conditions" which takes place in "Environmental Management Regulations for Suppliers" was revised. Climate, energy and CDP related new requirements have been added to the questionnaire. There are a total of 44 questions in the survey.
Some of the Environmental Sustainability and Climate Change Practices questions:
Do you have a company strategy on environmental management and climate change?
Are the risks/opportunities of climate change on your company being evaluated?
Does your company do the Carbon Disclosure Project (CDP- Carbon & Water)?
Give brief information about the emission sources in your company.
Is the amount of Greenhouse Gas Emissions caused by company activities calculated? If yes, is verification and documentation available?

% suppliers by procurement spend that have to comply with this climate-related requirement
20

% suppliers by procurement spend in compliance with this climate-related requirement
20

Mechanisms for monitoring compliance with this climate-related requirement
Certification
Supplier self-assessment
First-party verification
Second-party verification
Supplier scorecard or rating

Response to supplier non-compliance with this climate-related requirement
Exclude

C12.3

(C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?

Row 1

External engagement activities that could directly or indirectly influence policy, law, or regulation that may impact the climate
Yes, we engage directly with policy makers
Yes, our membership of/engagement with trade associations could influence policy, law, or regulation that may impact the climate

Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?
No, but we plan to have one in the next two years

Attach commitment or position statement(s)
<Not Applicable>

Describe the process(es) your organization has in place to ensure that your external engagement activities are consistent with your climate commitments and/or climate transition plan
Monitoring of consistency of the engagement activities with overall climate strategy is ensured under the supervision of the CEO. Climate related policies and guidelines are examined, then implemented by taking into account IPCC guidelines and Paris Agreement time frames.
Corporate capital, investment horizons and the useful life of major company assets are always assessed.
The company follows internal and customer related requirements base on the European and International climate related policy developments. There is an interactive communication process through related departments in the alignment phase.
Strategy, Technology Directorate, The Sustainability Committee , Compliance , Energy groups and Environment Management & Climate Change Unit are responsible for reviewing and advising pursuit of innovative policies and technologies that promote improve environmental and social sustainability. The multidisciplinary senior-level team oversee the actions in response to company climate change strategies. The carbon neutrality strategy and progress is monitored by periodic meetings.
The company will continue to attend related workshops for the alignment of its strategy with the National Strategy covering Paris Agreement Requirements and ETS Regulation. For the purpose to be ready for the carbon pricing mechanism before it is introduced, Turkish Aerospace has started to work towards reducing its GHG emissions to be resilient to the anticipated potential impacts in the long-term. The awareness raising of employees take place to leverage corporate culture.
With the leadership of the sustainability committee, the internal and external consistency is facilitated, monitored and communicated.

Primary reason for not engaging in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate
<Not Applicable>

Explain why your organization does not engage in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate
<Not Applicable>

C12.3a

(C12.3a) On what policy, law, or regulation that may impact the climate has your organization been engaging directly with policy makers in the reporting year?

Specify the policy, law, or regulation on which your organization is engaging with policy makers
Türkiye's 2050 net zero target and possible regulations to curb emissions,

Mandatory GHG reporting
Draft National Climate Change Act, Draft National Climate Change Adaption Strategy and Action Plan,
Türkiye's Action Plan on EU Green Deal (especially CBAM),:The EU Green Deal would prevent the risk of carbon leakage by putting a tax or carbon price on imports of certain goods in EU. Pricing on imported goods is considered as a key emerging regulatory-driven climate risk at Turkish Aerospace in the context of Carbon Border Adjustment mechanism.
Draft National Energy Supply Projection Paper of Türkiye
The NDC of Türkiye in the UNFCCC

Category of policy, law, or regulation that may impact the climate
Low-carbon products and services

Focus area of policy, law, or regulation that may impact the climate
Alternative fuels
Circular economy
Electricity grid access for renewables
Energy attribute certificate systems
Energy efficiency requirements
Extended Producer Responsibility (EPR)
Green electricity tariffs/renewable energy PPAs
Low-carbon innovation and R&D
Technology requirements

Policy, law, or regulation geographic coverage
Regional

Country/area/region the policy, law, or regulation applies to
Turkey

Your organization's position on the policy, law, or regulation
Support with no exceptions

Description of engagement with policy makers
The incoming system would have a long term effect on operational costs and regulatory constraints in the future.
The company monitors compliance with this emerging regulation, it has a close relationship with relevant ministry directorates in Türkiye and works together in meetings/ workshops on the transposition of EU regulations into Turkish law and their regulations.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation
<Not Applicable>

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Please explain whether this policy, law or regulation is central to the achievement of your climate transition plan and, if so, how?
<Not Applicable>

Specify the policy, law, or regulation on which your organization is engaging with policy makers
Other, please specify
Zero Waste Project

Category of policy, law, or regulation that may impact the climate
Climate change mitigation

Focus area of policy, law, or regulation that may impact the climate
Climate-related targets

Policy, law, or regulation geographic coverage
National

Country/area/region the policy, law, or regulation applies to
Turkey

Your organization's position on the policy, law, or regulation
Support with no exceptions

Description of engagement with policy makers
The Zero Waste Project was initiated in March 2019 with the aim of efficient use of resources, reducing the amount of waste generated, establishing an effective waste collection system and ensuring the recovery/recycling of wastes. Turkish Aerospace has become the first company among industrial establishments in Türkiye to receive the Basic Level Zero Waste Certificate issued by the Ministry of Environment, Urbanization and Climate Change. Zero Waste Certificate was obtained on 30.01.2020 and is valid until 30.01.2025. Turkish Aerospace supported the awareness raising events on this topic, for different sectors and shared its opinions in the related field.
In order to raise environmental awareness and draw attention to important issues such as sustainability, climate change, circular economy, resource efficiency, and zero waste, joint studies are carried out with the Corporate Communications Unit, apart from the Green Flag League project. In this context, awareness activities were carried out in 2021 based on the themes of "Zero Waste Life Philosophy" and "For a Sustainable World" and the slogans "How can we save? ".
At the 76th General Assembly of the United Nations, Türkiye announced that it would approve the Paris Climate Agreement and with the Presidential Decision dated 04.11.2021 and numbered 4738, the agreement entered into force on 10.11.2021. In this context, zero waste philosophy, carbon neutral industry practices and the use of renewable energy resources will gain importance in the Green Agreement adaptation process, and the role of climate change will increase in strategic targets.
Turkish Aerospace performance on zero waste applications has been continued to be used by the Ministry as a good practice example for other industries of the same sector.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation
<Not Applicable>

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Please explain whether this policy, law or regulation is central to the achievement of your climate transition plan and, if so, how?
<Not Applicable>

C12.3b

(C12.3b) Provide details of the trade associations your organization is a member of, or engages with, which are likely to take a position on any policy, law or regulation that may impact the climate.

Trade association
Other, please specify (Defence industry manufacturers association (SASAD). It supports the SASAD members to perform aligned with the Paris Agreement principles on climate related issues and makes efforts in this regard.)

Is your organization's position on climate change policy consistent with theirs?
Consistent

Has your organization attempted to influence their position in the reporting year?
Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position
Türkiye is in the way of establishing a carbon emissions trading system (ETS) currently. Under the activities of this project, the carbon prices can have significant impact on the company. Purchase of carbon credits to respond cap & trade base targets or carbon taxes for plant wise emissions are assessed in this context.
In February 2022, the National Climate Council has completed its works which will form the infrastructure of short, medium and long-term strategies, actions, policies and legislation in line with Türkiye's 2053 Net Zero Emissions and Green Development target. Turkiye is expected to submit its updated nationally determined contributions at the 27th Conference of Parties (COP27) in 2022. A Climate Law, set for completion is regarded as another milestone with emission trading system which could accelerate clean transition.
Turkish Aerospace monitors compliance with this emerging law and other ETS regulation, it has a close relationship with relevant ministry directorates in Türkiye and works together on the transposition of EU regulations into Turkish law.
Defense industry manufacturers association (SASAD) supports its members to perform aligned with the Paris Agreement principles and targets on climate related issues and makes efforts in this regard.
With the defense industry manufacturers association (SASAD), series of meetings were realized during 2021.
SASAD
Relevant decisions are:
1-Starting the carbon emission inventory preparations within the scope of the Paris Agreement/ IPCC requirements.
2- Scheduling related workshops and awareness raising training in the Association.
3-Representation of all companies, including Turkish Aerospace , which are members of SASAD, at the Ministry meetings
4-Discussing the outcomes of the Climate Council progressively.
5-Initiating access to green finance with the EBRD
6-Detailing the work with the Ministry of Industry for EU Green Deal harmonization
The company will start to attend directly to related workshops of National Climate Council, for the coming National Strategy Meetings.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)
0

Describe the aim of your organization's funding
<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

C12.4

(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Publication
In voluntary sustainability report

Status
Underway – previous year attached

Attach the document
TURKISH AEROSPACE SUSTAINABILITY REPORT 2021.pdf

Page/Section reference
Emission figures 9-48-52
Corporate Governance& Strategy 24-29
Risk Management 27-29
Environmental Management&Climate Change Practices (other metrics) 45-52
Energy Management 55-58

Content elements
Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics
Other, please specify (Energy Management)

Comment
Sustainability Report 2021 is available on the company's website
https://www.tusas.com/en/corporate/sustainability

C12.5

(C12.5) Indicate the collaborative frameworks, initiatives and/or commitments related to environmental issues for which you are a signatory/member.

	Environmental collaborative framework, initiative and/or commitment	Describe your organization's role within each framework, initiative and/or commitment
Row 1	Other, please specify (American Waste Water Works Ass.)	Turkish Aerospace is the member of American Water Works Association which is an international non-profit, scientific and educational association founded to improve water quality and supply. In this context, Turkish Aerospace, has activities such as participating in training, webinars, giving opinions by participating in evaluation surveys.

C15. Biodiversity

C15.1

(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related issues within your organization?

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity	Scope of board-level oversight
Row 1	Yes, both board-level oversight and executive management-level responsibility	During the investments and activities,the impacts on biodiversity in land and aquatic environment is always in the concern of our organization in decision making process. Cost allocation covering biodiversity category in the investment actions is evaluated for each case in the sustainability and EC meetings, and the oversight on the R&O's assessments is performed both in executive and board level.The water policy covering biodiversity has been revised currently. Sustained communication efforts and campaigns to increase awareness on biodiversity and its values, is planned in company wide scale. The first step is to arrange organization base awareness raising activities about global and regional biodiversity. We can ensure this activity with the knowledge and assistance of the agricultural faculty which carries out its activities in the region. Our first goal is to reduce the direct pressures on biodiversity and promote sustainable use in our activity side. For this purpose we will evaluate our current impact on our environment, then to improve the status of biodiversity by safeguarding ecosystem and species, this study will be executed aligned with area-based conservation measures. It was decided to add the subject of the transport of pollutants and their effects on living things to the Environmental Awareness Training held in Turkish Aerospace, and 8744 people were given training on the relevant subject during the reporting year	<Not Applicable>

C15.2

(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments	Initiatives endorsed
Row 1	Yes, we have made public commitments only	Commitment to not explore or develop in legally designated protected areas Commitment to respect legally designated protected areas Commitment to no conversion of High Conservation Value areas	<Not Applicable>

C15.3

(C15.3) Does your organization assess the impacts and dependencies of its value chain on biodiversity?

Impacts on biodiversity

Indicate whether your organization undertakes this type of assessment
No, but we plan to within the next two years

Value chain stage(s) covered
<Not Applicable>

Portfolio activity
<Not Applicable>

Tools and methods to assess impacts and/or dependencies on biodiversity
<Not Applicable>

Please explain how the tools and methods are implemented and provide an indication of the associated outcome(s)
<Not Applicable>

Dependencies on biodiversity

Indicate whether your organization undertakes this type of assessment
No, but we plan to within the next two years

Value chain stage(s) covered
<Not Applicable>

Portfolio activity
<Not Applicable>

Tools and methods to assess impacts and/or dependencies on biodiversity
<Not Applicable>

Please explain how the tools and methods are implemented and provide an indication of the associated outcome(s)
<Not Applicable>

C15.4

(C15.4) Does your organization have activities located in or near to biodiversity- sensitive areas in the reporting year?
No

C15.5

(C15.5) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity- related commitments
Row 1	Yes, we are taking actions to progress our biodiversity-related commitments	Land/water protection Land/water management Species management Education & awareness Law & policy Livelihood, economic & other incentives

C15.6

(C15.6) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	No, we do not use indicators, but plan to within the next two years	Other, please specify (The indicators are in the evaluation phase)

C15.7

(C15.7) Have you published information about your organization's response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
In voluntary sustainability report or other voluntary communications	Content of biodiversity-related policies or commitments	Turkish Aerospace Water Policy page 2/2 (Article I) TURKISH AEROSPACE WATER POLICY.pdf TURKISH AEROSPACE ENVIRONMENTAL& CLIMATE CHANGE POLICY.pdf

C16. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

C2.1b_Turkish Aerospace Risk Procedure Tables
TURKISH AEROSPACE RISK PROCEDURE TABLES.PDF

C16.1

(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Environmental Management and Climate Change Unit Chief	Other, please specify (Environmental Management and Climate Change Unit Chief)

SC. Supply chain module

SC0.0

(SC0.0) If you would like to do so, please provide a separate introduction to this module.

SC0.1

(SC0.1) What is your company's annual revenue for the stated reporting period?

	Annual Revenue
Row 1	

SC1.1

(SC1.1) Allocate your emissions to your customers listed below according to the goods or services you have sold them in this reporting period.

SC1.2

(SC1.2) Where published information has been used in completing SC1.1, please provide a reference(s).

SC1.3

(SC1.3) What are the challenges in allocating emissions to different customers, and what would help you to overcome these challenges?

Allocation challenges	Please explain what would help you overcome these challenges

SC1.4

(SC1.4) Do you plan to develop your capabilities to allocate emissions to your customers in the future?
Please select

SC2.1

(SC2.1) Please propose any mutually beneficial climate-related projects you could collaborate on with specific CDP Supply Chain members.

SC2.2

(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to take organizational-level emissions reduction initiatives?
Please select

SC4.1

(SC4.1) Are you providing product level data for your organization's goods or services?
Please select

Submit your response

In which language are you submitting your response?
English

Please confirm how your response should be handled by CDP

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options	Yes	Public

Please confirm below
I have read and accept the applicable Terms