Tüpraş | Energy To the future

2022 Integrated Report

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You can access the Tüpraş website from the link below:
https://www.tupras.com.tr/en/default

The transition into a carbon neutral energy company

We focus on four business areas - sustainable refining, biofuels, zero-carbon electricity and green hydrogen.

Our Goal

become a carbon neutral

Energy Company

We seek to advance our identity as Turkey's largest industrial enterprise with our contribution to the circular economy and the responsibility we take in the transition to a low carbon economy, and aim to lead the energy transformation. We are taking rapid and strong strides with the Strategic Transition Plan which we have implemented in line with this goal. We resolutely press ahead with our investments in new and priority areas which support our sustainability approach and which offer strong profitability.

We built the plan on the basis of having a balanced and diversified clean energy portfolio. Within the scope of the plan, we focus on four business areas that we have identified as sustainable refining, biofuels, zero-carbon electricity and green hydrogen.

We train a workforce with the knowledge and skills compatible with the low-carbon business models of the future. We strive to improve the environmental and social impacts of our value chain. We aim to achieve inclusion in social benefit with a people-oriented approach. Backed by the operational and financial performance which we have achieved, we continue to contribute to Tüpraş's market and brand value as well as its shareholder value. With our strong corporate structure and governance approach, we act with a focus on creating more positive value for all our stakeholders.

We have determined our main goal as the transition into a carbon neutral energy company by 2050 with new technologies and to become the leading energy company of the future. As we move forward towards reaching our main goal with an integrated strategy, we have shared the results of the steps taken and the outputs of our implementations with our stakeholders through our first integrated report.

Investing in a better future

We use resources efficiently in all of our processes to contribute to the circular economy. While increasing the competitiveness and profitability of our existing assets, we prioritize investment in new areas which offer strong profitability and support our sustainability approach through the resources we create.

Carbon neutral by 2050

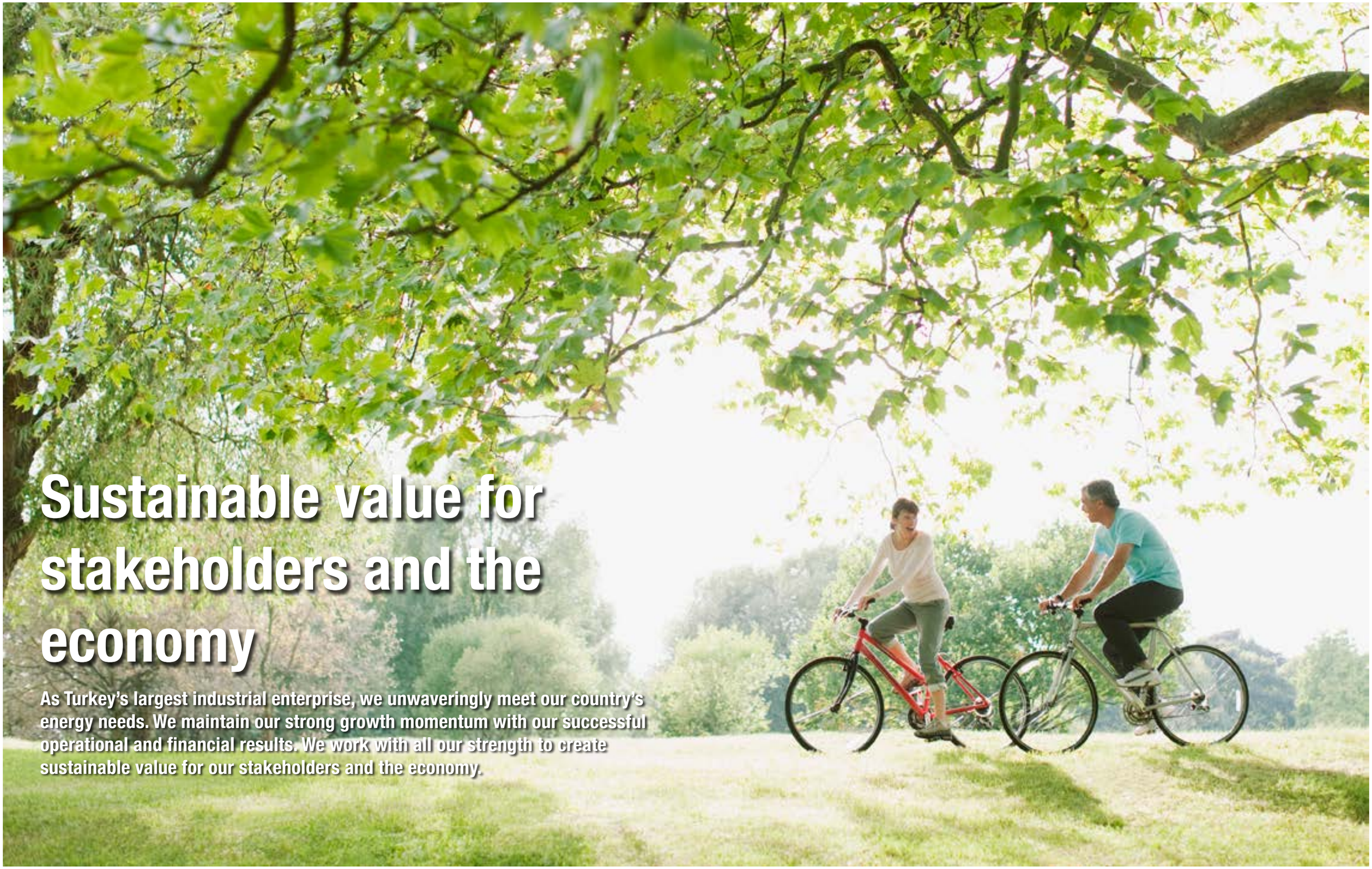
We support our R&D and innovation competency with comprehensive collaborations and incentives. We also reduce the carbon emissions in our refining activities by investing in new generation environmental technologies. We become more steadfast in our steps to become the leading energy company of the future using alternative energy production methods.

Our transformative power rests on competent human resources

We create an egalitarian, inclusive, fair and safe working environment which is respectful to human rights for our human resources. We focus on deploying their talent in the most efficient way. In order to promote the transition to low-carbon business models, we undertake projects which will support our human resources that will implement the strategic transformation.

Contribution to a stronger society

We have increased our contribution in the field of social responsibility, believing that a strong Turkey will rise on the basis of a strong society. We participate in key initiatives that support gender equality. We realize educational projects for students and carry out investments in cultural development.



Sustainable value for stakeholders and the economy

As Turkey's largest industrial enterprise, we unwaveringly meet our country's energy needs. We maintain our strong growth momentum with our successful operational and financial results. We work with all our strength to create sustainable value for our stakeholders and the economy.

About the Report

Tüpraş's reporting activities are focused on accountability and transparency. Our goal is to respond to any questions and requests for information from our stakeholders in a timely, accurate and complete manner, within the scope of the legal framework under which our activities are regulated.

FOCUS ON SUSTAINABILITY AND ENVIRONMENTAL, SOCIAL, GOVERNANCE ACTIVITIES (ESG)

Tüpraş's 2022 Integrated Report (Report) addresses the Company's performance in the fields of Sustainability as well as Environmental, Social, Governance (ESG) activities in detail within the scope of Tüpraş's strategic goal of transforming into a carbon neutral energy company and in line with its strategic priorities.

It is recommended that this Report, which is the main source of explanation regarding the Company's ESG performance, should be reviewed together with the *Policies* available on the Tüpraş website.

REPORTING PERIOD

The figures in the report refer to the period from 1 January 2022 to 31 December 2022 unless otherwise stated. Some realizations from the first quarter of 2023 are also included.

The report includes the integrated business model, which summarizes Tüpraş's ability to create long-term value for its stakeholders, its risk and opportunity management, its priorities, future strategies, stakeholder communication and performance indicators in the financial, environmental, social and managerial fields.

TÜPRAŞ ECOSYSTEM

The information in the report covers the activities undertaken by Tüpraş in Turkey. In order to accurately reflect the entirety of the Company, the report also provides general introductory information regarding Tüpraş's subsidiaries and affiliates listed below.

- Tüpraş Trading Ltd
- Opet Petrolcülük A.Ş.
- Ditaş Deniz İşletmeciliği ve Tankerciliği A.Ş.
- Körfez Ulaştırma A.Ş.
- Entek Elektrik Üretimi A.Ş.
- Tüpraş Enerji Girişimleri A.Ş. (Tupras Ventures)

In line with the financial reporting principles used in the report, the financial data of the subsidiaries was included in the performance figures and shared. References to "Tüpraş", "Company", "we", "us" and "our" and all similar expressions in the report refer to Tüpraş and its consolidated subsidiaries, unless otherwise stated or the context indicates otherwise. Matters related to the detailed financial performance of Tüpraş and its subsidiaries in 2022 are included in the *2022 Annual Report*.

STANDARDS AND FRAMEWORK

Tüpraş 2022 Integrated Report was prepared by taking into account the requirements of the below given standards, frameworks and ESG rating companies.

GRI - Global Reporting Initiative
GRI 11: Oil and Gas Sector Standard 2021

IFRS - International Financial Reporting Standards - Integrated Reporting Framework

SASB - Sustainability Accounting Standards Board
Oil and Gas Industry - Refining and Marketing Standard

Task Force on Climate-related Financial Disclosures

United Nations Global Compact
United Nations Sustainable Development Goals

The UN's Women Empowerment Principles

Koç Holding is one of the global leaders in the field of "technology and innovation" in the United Nations "Generational Equality Forum". The report sets out the gender equality targets and work carried out in the field of technology and innovation as determined by Tüpraş under the guidance of Koç Holding.

Tüpraş's contributions to the United Nations Sustainable Development Goals (SDGs) are detailed in the relevant sections of the report.

CAPITAL MARKETS BOARD (CMB) AND ANNUAL REPORT REFERENCES

Explanations in areas where Tüpraş complies with the principles in the Capital Markets Board (CMB) Sustainability Principles Compliance Framework are included in the *2022 Annual Report*. The company's evaluations regarding the principles which the Company has not yet fully complied with are included in the Statement of Compliance with the Sustainability Principles in the Corporate Governance section of the *2022 Annual Report*.

AUDIT APPROACH

For the selected ESG indicators included in the report, PwC Bağımsız Denetim ve Serbest Muhasebeci Mali Müşavirlik A.Ş. provided a limited assurance report, which is in accordance with International Assurance Audits Standard 3000 - "Assurance Engagements Other than Audits or Reviews of Historical Financial Information, International Framework for Assurance Engagements and Related Conforming Amendments" ("ISAE 3000" Revised) and in accordance with International Assurance Auditing Standard 3410 - "Assurance Engagements on Greenhouse Gas Statements ("ISAE 3410"), which was issued by the International Auditing and Assurance Standards Board. The aforementioned report, which includes the list and scope of the assured indicators, is on pages 183-188. The financial information in the integrated report was audited by the same independent audit firm. Relevant Independent Auditor Reports are included in the *2022 Annual Report*.

The ✓ mark refers to the externally assured value throughout the report.

Message from the General Manager

The year 2022 was a period when we realized the important steps of our Strategic Transition Plan, which we positioned as "Energy to the Future".

İBRAHIM YELMENOĞLU
General Manager

Dear stakeholders,

We have started the year 2023 with the tragedy of the earthquake disaster which deeply affected our country and brought us all great sadness. Although there can be no compensation for our losses, we believe we will heal from the deep wounds inflicted by this disaster and we will overcome the effects of the grave destruction wreaked on our country with unity, fellowship and solidarity.

Looking at the reporting period, we were faced with global situations which precipitated many different crises on the road to normalization and leaving behind the effects of the pandemic. The impacts of the climate crisis, inflationary trends and economic uncertainties, the tensions in the energy and commodity markets stemming from geopolitical risks and temporary supply disruptions triggered growing inequalities and volatilities in the global economy. This took its toll on levels of welfare while also turning a slowdown in the global economy into a recession.

Continuing the journey towards "Energy to the Future"

The year 2022 was a period when we realized the important steps of our Strategic Transition Plan, which we positioned as "Our Energy to the Future". Against the backdrop of global developments, we tirelessly pressed ahead in our work, progressing in line with our goal of transforming into a carbon neutral energy company by 2050.

With our investments in "Sustainable Refining", we aim to become more efficient and profitable, increase the share of value-added (white) products in our portfolio and transfer the income we generate to the investments necessary to achieve the transition to low or zero carbon energy. As part of our plan to reduce our emissions by 27% by 2030 and become a carbon-neutral energy company by 2050, we implemented 52 energy efficiency projects at our refineries this year, reducing our CO_2 emissions by 73,199 tonnes and saving 315,515 Gcal of energy.

As a supporter of the Task Force on Climate-related Financial Disclosures (TCFD), we also carry out important work to integrate our climate crisis-related risks into business processes and to update our targets accordingly. For the first time this year, we obtained limited assurance on our Scope 1 and Scope 2 emissions from an international auditor.

One key initiative in the field of "biofuels" was the license agreement we signed with the global technology company Honeywell UOP to rollout Ecofining™ technology at our İzmir Refinery. In the facility to be established, we plan to convert 400,000 tonnes of vegetable and animal-based waste raw materials into SAF (Sustainable Aviation Fuel), renewable diesel and other products per year.

Preliminary engineering work on the SAF production facility has been completed and we anticipate that it will enter production in 2027.

On our "zero carbon electricity" business line, we took an important step towards becoming "Turkey's leading producer" in 2022. We acquired Entek, which has eight hydroelectric power plants, one wind farm and one natural gas cycle power plant with a combined capacity of 442 MW. Within the scope of our commitment to establish a storage facility, we applied to the Energy Market Regulatory Authority for a preliminary license for an additional 1.5 GW in capacity mostly wind power plants. With the acquisition of Entek, we have taken an important step towards achieving the installed capacity targets set out in the Strategic Transition Plan.

In the coming period, we will focus on producing hydrogen which we still use in refinery processes through the electrolyser method. This is an area which has come under the spotlight in efforts to achieve zero emissions. In parallel with our work in this direction, we have also become a member of Hydrogen Europe, the leading stakeholder organization in the European hydrogen market.

In 2022, we realized USD 173 million in consolidated investment, with 50% of the investment being project investments focused on sustainability and modernization. Major investments include Solar Power Plant Installation, the revamp of the Izmit and Izmir Refineries FCC Unit, Flue Gas Treatment and Energy Recovery and the New Sulphur Unit at the Kırıkkale Refinery.

We established Tupras Ventures, our Company which will operate in the field of enterprise. In line with our strategic priorities within the scope of our transition plan in the coming period, we aim to invest in domestic and IT ventures in the fields of smart IT, energy efficiency, the circular economy and robotic technologies. We are confident that our efforts in the field of enterprise will increase innovation, open innovation and start-up integration, increase efficiency in the refining cycle, improve our ability to produce fuel and biofuels with the lowest environmental impact and strengthen Tüpraş's existing know-how in a wide range of fields.

We are one of our country's largest employers on the basis of the jobs we create. We also invest in the continuous development and advancement of our employees. Our Human Resources Transition Project sets out the new roles and competencies that will be needed for Tüpraş's future. In this vein, we launch programs to equip our employees with the skill and competency sets that will prepare them for these roles.

Our priority is to provide our employees with a fair and safe working environment which respects human rights in all of our processes. As a signatory to the United Nations Women's Empowerment Principles (UN Women WEPs), we are working towards equal representation of women with the aim of being an inclusive workplace.

We continue to strengthen our work, which we carry out with the banner of "Our Energy for Equality Never Ends", with our Diversity, Equality, Inclusion (DEI) Policy. As of the reporting period, we were moving forward in this respect with the target of hiring one woman during every recruitment process. We plan to increase the proportion our employees who are women from 24% to 40% within the next five years in the fields of engineering, R&D, innovation, service design and IT. We consider our 2nd ranking in the Bloomberg Gender Equality Index (GEI) to be an important indicator in this context and believe that we will strengthen with our diversity and differences in our journey to the future.

Meanwhile, we continue to run the program of "Women in Technology and Innovation" with the aim of contributing to Koç Holding's global leadership commitments at the UN Women Generation Equality Forum. With our program, we aim to increase the competencies of 100,000 female students in the field of innovation and technology over the next five years.

Dear stakeholders,

The transparent approach to the performance of institutions in the fields of sustainability is being transformed into a global priority and legal responsibility in the eyes of the stakeholders.

Our Environmental, Social and Governance (ESG) efforts are evaluated on indices including FTSE4Good, MSCI ESG Rating, Sustainalytics and Vigeo Eiris, and in particular the Borsa Istanbul Sustainability Index. We review our practices in this field every year by taking the expectations of national and global investors into account. In this year's report, we disclosed a total of 18 new indicators, including 13 environmental, one social and four corporate governance indicators to the public.

We established the Sustainability Committee to develop practices in the fields of sustainability and ESG, to ensure that these practices are adopted and rolled out within the Company, to advise the senior management and to measure and report performance and progress.

We took our place at the 27th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP27) held in Egypt, where we had the opportunity to convey our 2050 Carbon Neutral Target and the progress in our Strategic Transition Plan to our stakeholders. In order to create long-term value for our stakeholders, we prepared our report this year in accordance with the International Integrated Reporting Framework (IIR) and the industry standards of the Sustainability Accounting Standard (SASB), a first in our sector in Turkey.

Since its establishment, Tüpraş has worked tirelessly to provide the energy Turkey needs and has shared the added value it has created with society. Tüpraş is advancing with solid steps forward on the path it has taken with the aim of becoming a company that produces the energy of the future. I would like to take this opportunity to thank all of our stakeholders for their support in this journey and express my gratitude.

İbrahim Yelmenoğlu
General Manager

Tüpraş at a Glance

The roots of Tüpraş go back to the Batman Refinery, which was established in 1955 to process domestic crude oil. The operations of the four refineries established in İzmit, İzmir, Kırıkkale and Batman have been continuing under the umbrella of Tüpraş since 1983. Tüpraş registered the design capacities of its refineries as 30 million tonnes in 2019 following significant capacity increases and the conversion unit investments realized in its four refineries over the years.

Today, Tüpraş, an integrated oil company with its production complexes and partnerships, and is the world's 30th largest refinery, the 7th largest in Europe and the largest in Turkey. Tüpraş is also our country's leading exporter in the chemicals category.

Tüpraş is one of the few refineries with a high complexity in the Mediterranean, with an average Nelson Complexity Index of 9.5.

OUR SUBSIDIARIES

Tüpraş holds 100% of Tupras Trading Ltd's shares.
Located in the UK, Tupras Trading Ltd closely follows up international market opportunities through its activities, thus supporting Tüpraş's existing foreign trade operations. It also creates additional added value from the supply and sales chain.

Tüpraş holds 41.67% of Opet's shares.
With its 1,857 stations and storage capacity of 1.1 million m³, Opet operates a wide service area in Turkey with five terminals, and provides superior products and services to customers.

Tüpraş holds 79.98% of Ditaş's shares.
With a total of 15 tankers and about 648 thousand DWT carriage capacity Ditaş has Turkey's largest fleet of fuel products and provides significant operational and cost advantages to Tüpraş.

Tüpraş holds 100% of Körfez Ulaştırma A.Ş.'s shares.
Körfez Ulaştırma A.Ş. is the first private railway operator in Turkey.

Tüpraş holds 99.23% of Entek's shares.
With its 330 MW renewable energy capacity and a total installed power of 442 MW, Entek aims to grow in renewable energy and diversify its hydroelectric resource-intensive portfolio.

Tüpraş holds 100% of Tupras Ventures' shares.
Tüpraş established Tupras Ventures in September 2022 for direct investment in start-ups by furthering its open innovation efforts.

The 30th largest refining company in the world
30th
THE LARGEST IN THE WORLD

The 7th largest refining company in Europe
7th
THE LARGEST IN EUROPE

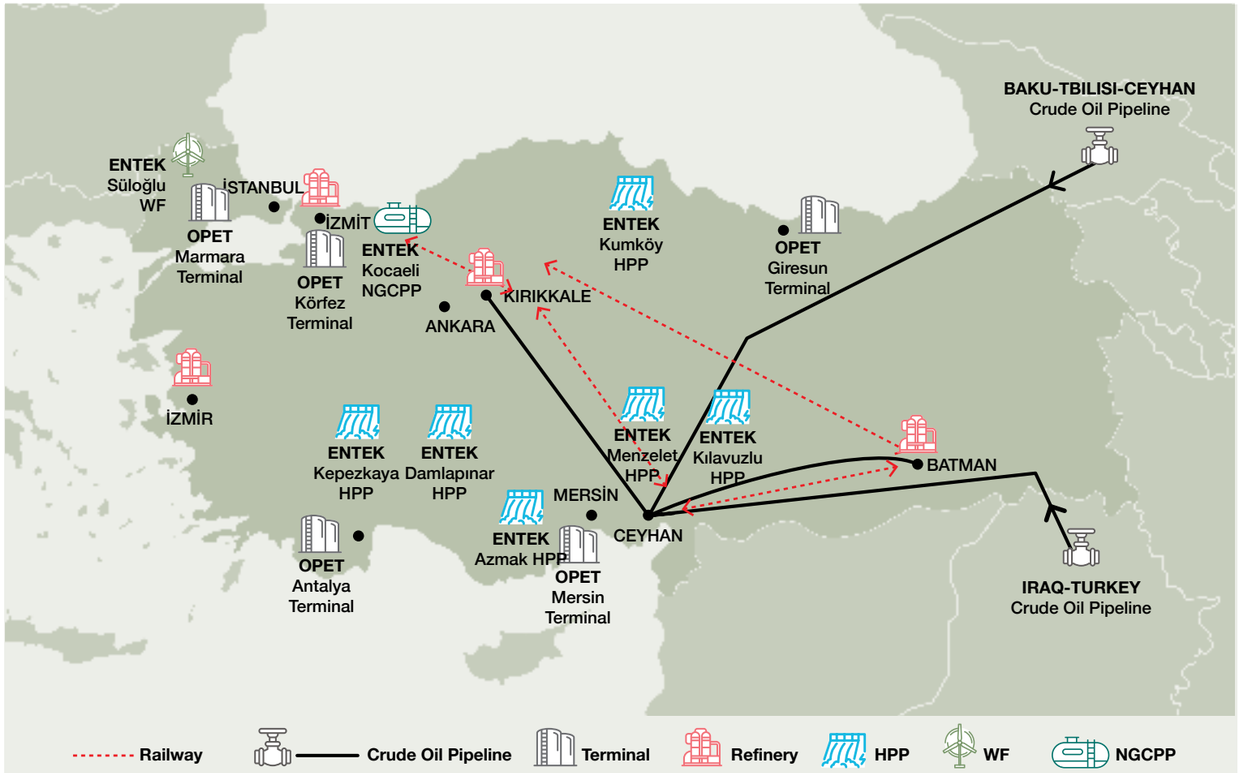
Turkey's largest industrial company
1st
INDUSTRIAL COMPANY

The leading exporter in the chemicals category
1st
RECORD EXPORTS

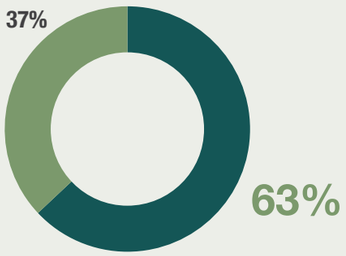
The average number of personnel working within the Group
6,112
EMPLOYEES

Investment of USD 7.2 billion after privatization
USD **7.2** BILLION
INVESTMENTS

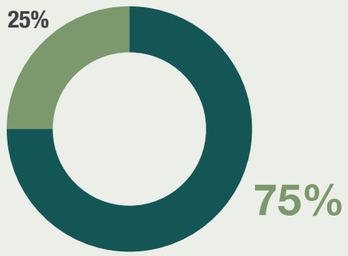
Tüpraş at a Glance



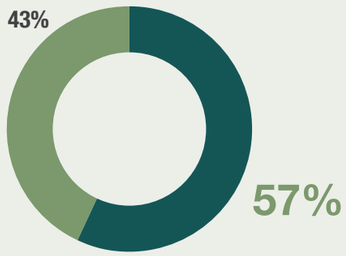
Tüpraş is the largest industrial company in Turkey on the basis of added value and turnover.



Tüpraş's total share in Turkish petroleum products market is 63%.



Tüpraş has 75% of Turkey's current refining capacity.



Tüpraş's total share in Turkey's storage capacity is 57%.

4 refineries | total refining capacity of 30 million tonnes/year

İZMİT REFINERY

İZMİR REFINERY

KIRIKKALE REFINERY

BATMAN REFINERY

5 terminals | 1.1 million m³ storage capacity

1,857 stations

OPET TERMİNALS

OPET STATIONS

15 tankers | 648,050 DWT carriage capacity

519 fuel oil wagons | **35** platform wagons

DİTAŞ

KÖRFEZ ULAŞTIRMA A.Ş.

8 HPP, 1 WF, 1 NGCPP | 442 MW installed capacity

ENTEK

Highlights of Sustainability Activities

ENVIRONMENTAL

12%
Decrease in Scope 1 and Scope 2 emissions achieved since the 2017 base year on the road to becoming Carbon Neutral by 2050

73,199 tonnes CO_2e
Decrease in emissions achieved through 52 energy efficiency projects

94.9%
Energy intensity index value achieved following energy efficiency and modernization work

57.9%
Ratio of recovered water to total water consumption

86.4%
Total waste recovery rate

TCFD supporter

Sustainable Aviation Fuel (SAF)
Production target by license agreement with Honeywell UOP

442 MW
Total capacity of Entek, 99.23% of which was taken over in field of zero-carbon electricity (330 MW renewable)

1,461.5 MW
Total additional capacity, including the solar power plant with a combined capacity of 190 MW and the wind farm with a capacity of 1,271.5 MW for which Entek submitted pre-license applications

135.2 MW
Total capacity started to be installed at the refineries, including 122.6 MW of solar capacity and 12.6 MW in wind capacity

Memberships of Hydrogen Europe and Water Europe

3,379 MWh
Renewable energy generated in the refineries

TL 1,158 million
Environmental investment and operating expenditure

TL 73.3 million
R&D expenditures

SOCIAL

A Signatory to the United Nations Global Compact

Inclusion in the Bloomberg Gender Equality Index for the second time.

14%
Increase in the ratio of female employees

10%
Female employee ratio

312,860 working hours
OHS training

215,589 hours
Training duration provided to 5,113 employees

47.4%
Employee loyalty

86%
Customer satisfaction

85%
Supplier satisfaction

79%
Contractor satisfaction

75%
Ratio of company employees who are members of the Petrol-İş Union

TL 44.4 billion
Tax and other liability payments

TL 288.7 million
Donations and sponsorships within the scope of social responsibility activities

2
patent applications

34
scientific publications

GOVERNANCE

Sustainability Committee established

Limited assurance work on sustainability data

The Materiality Analysis was reassessed within the scope of the GRI Oil and Gas Industry Standards (GRI 11) and double materiality, and guiding core values were determined.

50%
Share of sustainability investment projects in the USD 173 million of consolidated investment expenditure

Acceptance of the Framework Policy on Personal Data Protection, Discipline and Whistleblowing Policy

9.65
Corporate Rating

Tupras Ventures was established.

Sustainability at Tüpraş from Past to Present

2007

- First Corporate Social Responsibility (CSR) Report
- Health, Safety and Environment (HSE) Policy

2008

- GRI compliant CSR Report
- Integrated Management System (ISO 9001, ISO 14001, OHSAS 18001)

2009

- İzmit Wastewater Recovery Unit
- Customer Relationship Management System
- Contractor Management System

2010

- R&D Center
- Tüpraş Ethical Values
- Waste Management Program at Refineries

2013

- ISO 50001:2011 Energy Management System
- ISO/IEC 27001:2005 Information Security Management System

2014

- BIST 30 Sustainability Index
- R&D Center Campus

2015

- Participation in COP21
- İzmit New Wastewater Recovery Unit
- BIST 50 Sustainability Index

2016

- Participation in COP22
- USD 150 million loan from the EBRD for environment and energy efficiency
- Tüpraş Supplier Portal

2017

- Participation in COP23
- Signatory of the UN WEPs
- İzmir Wastewater Recovery Unit
- ISO 10002 Customer Satisfaction Management System
- Innovation Directorate and Idea Unit Portal
- ISO 14064: Greenhouse Gas Verification

2018

- Participation in COP24
- Support for the "HeForShe" movement by the UN WEPs, global cooperation between the UN Women Tüpraş and Fenerbahçe Sport Club
- Tüpraş Solution Center
- METU and İTÜ Teknokent (Technopolises) Data Analytics Centers

2019

- Participation in COP25
- Education provided to 12,000 students with the "Our Energy to the Future: I Code, Model, and Produce Project
- Our Energy for Students Project reached 3,000 students

2020

- Basic Level Zero Waste Certificate at Refineries
- Tüpraş Academy
- Cooperation with Emerald Industrial Innovation Fund
- Participation in "HeForShe" Movement and cooperation with Fenerbahçe "International 16 Days of Activism" campaign
- Reporting within the Sustainability Principles Compliance Framework
- Customer Notification Management System

2021

- Participation in COP26
- Tüpraş Strategic Transition Plan / 2050 Carbon Neutral goal
- Bloomberg 2021 Gender Equality Index
- Tüpraş Diversity, Equality and Inclusion Committee
- İzmit "Terminal Automation System"
- ISO 45001:2018 OHS Management System
- Körfez Ulaştırma - 7 hybrid locomotives
- Target set for 25% members of the Board of Directors to be women within 5 years
- Anti-Bribery and Anti-Corruption, Donations and Sponsorship, Human Rights and Diversity at the Board of Directors policies
- Foreign Trade Control, Sanctions and Export Controls policies
- Compliance with Competition Law, Gift and Hospitality and Supply Chain Compliance policies established
- Codes of Ethics updated, Compliance and Social Investment policies established
- First company in Turkey to implement EFQM model updated with the UN SDGs

2022

- Participation in COP27
- Materiality Analysis
- Tüpraş Sustainability Committee
- Supporter of TCFD
- Acquisition of Entek Elektrik Üretimi A.Ş.
- Licence agreement established with Honeywell for SAF production
- Bloomberg 2022 Gender Equality Index
- Scope 1 and Scope 2 greenhouse gas emissions declared
- Tüpraş Enerji Girişimleri A.Ş. established.
- Membership of Hydrogen Europe platform
- Policies on Notifications, Discipline and Protection of Personal Data Framework set up
- Diversity, Equality and Inclusion policy established
- BIST, Refinitiv, MSCI ESG Rating, FTSE4Good, Sustainalytics ESG Rating, Vigeo Eiris (Moody's ESG Solutions) and Bloomberg Gender Equality Index

2023

- Signatory of the UN Global Compact
- Membership of Water Europe platform
- PwC limited assurance engagement
- UN Generation Equality Forum Action Coalition - Technology and Innovation for Gender Equality
- Basic Level Zero Waste Certificate for new Head Office building

CARBON NEUTRAL BY 2050

Strategic Transition Plan

While structuring the Tüpraş of the future within the scope of Our Energy to the Future, a roadmap for transforming products and services has been determined.

Tüpraş's goal is to meet Turkey's energy needs in a safe and uninterrupted manner as the country moves forward in its development journey, by carrying out continuous improvements and developments in areas such as sustainability and ESG activities.

In this vein, Tüpraş prioritizes the process of tackling the climate crisis and transitioning to a low-carbon economy in line with Koç Holding's vision. It announced its Strategic Transition Plan, which promises to produce the energy of the future, to its stakeholders in 2021.

Under the banner of "Our Energy to the Future", the Strategic Transition Plan sets out that Tüpraş will manage its assets, especially its manufactured capital, with an approach focused on sustainable profitability and to simultaneously invest in new areas that will support the transition to a low carbon economy. Aiming to lead the transformation in the Turkish energy sector, Tüpraş has embarked on the process of transforming itself into a carbon neutral energy company with a balanced and diversified clean energy portfolio by gradually lowering its emissions.

While structuring the Tüpraş of tomorrow within the scope of "Our Energy to the Future", a roadmap for transforming products and services has been determined. As part of its roadmap, Tüpraş plans to obtain the resources required for the transformation from its existing assets. It also plans to render its refining operations more sustainable with improvements in energy efficiency and productivity as well as the investments in value-added products which it will carry out in these areas. In addition, in the first period of the plan, the Company seeks to allocate the majority of new energy investments to zero-carbon electricity facilities, which will be vital in establishing an integrated business model with green hydrogen production.

2030: A key threshold for the Turkish energy sector

With an awareness that the "Green Transformation", which has recently started to gain momentum, offers a number of opportunities in achieving its goals, Tüpraş is in a unique position with its proximity to the EU, which is at the heart of the green transformation, on the one hand, and with the continued growth of demand in the domestic market on the other.

Electric vehicles are expected to lead sales of new passenger vehicles from the beginning of the 2030s, and will become the dominant powertrain before 2040. The use of hydrogen as a fuel is expected to enter a gradual growth process from 2030 and gain more rapid momentum after 2040.

In our country, which is home to one of the world's leading aviation sectors, approximately 10% of aviation fuel is expected to consist of SAF by 2030, while synthetic and hydrogen-based fuels are expected to be included in this pool in the longer term. In view of these expectations, the consumption of fossil fuels in Turkey is predicted to peak in 2030. After 2030, demand for diesel, in particular, will gradually start to be replaced by hydrogen and electric vehicles.

Despite this, the current domestic refining capacity for the production of diesel, a large proportion of which is currently imported, will be needed for some considerable time to come.

HIGHLIGHTS

USD 10 billion

Within the scope of its Strategic Transition Plan, Tüpraş aims to invest a total of approximately USD 5 billion by 2035, and USD 10 billion by 2050 with an annual average investment of USD 350 million.

USD 1.3 billion

The investments are expected to pave the way for an increase in EBITDA to USD 1.3 billion by 2030 - 30% higher than the average over the last 5 years. With the support of its investments in new areas, the Company plans to maintain an EBITDA of USD 1.3 billion in 2035 as the transition to new products intensifies.

30%

New lines of business including SAF, green hydrogen and zero carbon electricity sales are expected to account for 30% of EBITDA by 2035.

80%

New business model that the Company initiates, enables to pay an average of 80% of its distributable profit as dividends.

USD 50 million

Tüpraş plans to invest USD 50 million in the venture capital field until 2030, as part of its investments in new technologies and business models in the energy transformation.

ESG performance

Having continuously improved its overall performance in the Environmental, Social and Governance (ESG) categories, Tüpraş is also planning to benefit from burgeoning ESG focused funding opportunities which have recently emerged in light of the new roadmap.

Strategic Transition Plan

Our Energy to the Future

OUR STRATEGIC GOAL

THE TRANSITION INTO A LEADING CARBON NEUTRAL ENERGY COMPANY

TÜPRAŞ FOCUSES ON FOUR BUSINESS AREAS UNDER THE STRATEGIC TRANSITION PLAN.

MAKE EXISTING ASSETS MORE COMPETITIVE AND PROFITABLE TO FUND THIS TRANSITION	INVEST IN NEW AREAS WHICH SUPPORT OUR SUSTAINABILITY APPROACH		
Sustainable Refining	**Biofuels**	**Zero Carbon Electricity**	**Green Hydrogen**
FORECAST FOR 2050 The share of oil, which was 29% in 2021, will decrease to 17% in 2050 according to the the Announced Pledges Scenario of the International Energy Agency (IEA), while the share of renewable resources, including nuclear and biomass, in energy supply will increase to 60%. There is a general consensus for the future of the energy market that while the dominant position of oil will be gradually replaced by low-carbon alternatives, oil will continue to be one of the most important sources of energy for many years to come.	**FORECAST FOR 2050** In its Announced Pledges Scenario, the IEA predicts that biofuel consumption will increase five-fold by 2050 compared to 2021. Biofuels are expected to play a complementary role in the green transformation both in the transition period and in the long term.	**FORECAST FOR 2050** According to the IEA's Announced Pledges Scenario, it is predicted that global electricity consumption will approximately double by 2050 when compared to its 2021 level. Electricity will play a key role in the energy sector, both in meeting future energy needs directly and more efficiently, and as the main input in the production of green hydrogen.	**FORECAST FOR 2050** According to the IEA's Announced Pledges Scenario, hydrogen is expected to be used most intensively in the transportation industry. Hydrogen consumption is projected to start growing on a significant scale in 2030, and grow by ten-fold by 2050 compared to its 2030 level.
TÜPRAŞ'S RESPONSE Tüpraş's strongest source of strength is refining. Refining is expected to be the driving force of the transformation. Refining is expected to account for **90% of the Company's EBITDA in 2030,** declining to **70% between 2031 and 2035.** Tüpraş plans to **invest a total of USD 5 billion between now and 2035, including approximately USD 2.3 billion on energy efficiency, modernization, decarbonization and value-added product production projects**. While transferring the majority of resources obtained from refining to new investment areas and reducing its carbon footprint, Tüpraş also aims to maintain its dividend distribution policy simultaneously. The new business model allows Tüpraş to **distribute an average of 80% of its net distributable income as dividends.**	**TÜPRAŞ'S RESPONSE** With the foresight that biofuels will offer a competitive advantage in air transportation and play an important and permanent long-term role in the decarbonization of the industry, Tüpraş has turned to renewable fuels, which are obtained from non-food second generation sources and wastes, in its capacity investments which it will step up gradually. The aviation industry is one of our country's leading sectors on a global scale. By focusing on Sustainable Aviation Fuel (SAF), Tüpraş will continue to be the biggest supporter and business partner of the aviation industry going forward. Tüpraş will also contribute significantly to emission reduction targets. The company targets the following in the wake of its investments; · **Processing 400,000 tonnes of vegetable and animal-based waste raw materials per year by 2030,** · **After 2035, to triple the production capacity of SAF with the investments to continue until this period.**	**TÜPRAŞ'S RESPONSE** While establishing the capacities to meet the additional demand for electricity that will arise, Tüpraş uses only zero-carbon resources in line with its approach to tackling climate change. While Tüpraş plans to use most of the electricity to be generated at the facilities which it will establish for green hydrogen production for integration purposes, Tüpraş plans to periodically sell electricity for optimization and provide zero carbon electricity to the consumers. In its move to electricity generation, Tüpraş aims to **be one of the leading companies in the field of zero carbon electricity**, attaining the following installed capacity through both production and possible purchases. · **Approximately 1 GW by 2030,** · **2.5 GW by 2035**	**TÜPRAŞ'S RESPONSE** Tüpraş currently uses hydrogen in refinery processes and is Turkey's largest producer of hydrogen. Tüpraş will focus on producing green hydrogen with electrolysers, which stand out among hydrogen production methods by offering zero emissions. Tüpraş aims the following: · To start the installation of a 20 MW electrolyser in green hydrogen production before **gradually increasing its installed electrolyser capacity to 400 MW by 2030**, and then to start selling green hydrogen in the field of logistics and heavy transportation from 2030; to also **operate in different areas** in the value chain for green hydrogen, which will be the fuel of the future; to **serve many different sectors**, especially transportation; to **be a versatile player** by seizing potential export opportunities, · After reaching an electrolyser capacity of 1 GW by 2035, to **achieve zero carbon emissions from hydrogen production by 2040** with additional capacity installations.

Under this plan, Tüpraş aims to achieve reductions in its **Scope 1 and 2 emissions** from production activities of

27% by 2030, 35% by 2035 and 49% by 2040 compared to its 2017 level.

Tüpraş aims to be continuing its activities as a carbon neutral energy company in 2050.

Achievements and Awards

- The only Turkish company to be included in Bloomberg's "50 Companies to Watch in 2022" list
- The Most Successful Turkish Industrial Enterprise in the EU's R&D and Innovation Program, Horizon2020
- Maintained its position in a wide range of national and international sustainability indices including BIST SI (Refinitiv), S&P Global, MSCI, FTSE4Good, Sustainalytics and Vigeo Eiris (Moody's) and Bloomberg Gender Equality (GEI)
- An award to Gamze Albayrak, who worked as a field worker in the Tüpraş Izmit Refinery, in the "Out of the Box Women" category at the Turkey's Leading Women Awards presented by the Dünya Newspaper.
- First place in the "Gender Equality Awareness" category in the Women-Friendly Brands 2022 Awareness Awards in recognition of its project, "Our Energy For Equality".
- Ranked first in the "Chemicals and Products Sector" category and third in the general ranking in the Export Champions announced by the Turkish Exporters Assembly (TIM).
- First place in the "Chemicals and Products" sector in the "Strong Women of Export" award program of the Turkish Exporters Assembly (TIM).
- LEED Gold Certificate to the Tüpraş Academy and Technical Safety and Environment Directorate buildings within the Kırıkkale Refinery
- Membership to "Hydrogen Europe", the leading stakeholder organization in the European hydrogen market.
- "Fastest Growing Port Facility in terms of Cargo Handling" award to the Izmir Refinery in the 2nd Turkish Maritime Summit of the Ministry of Transport and Infrastructure.
- "Energy Efficiency in Industry Competition (SENVER-22)", held by the Ministry of Energy and Natural Resources:
  - İzmit Refinery: First prize with its project "Increasing Availability in Energy Recovery Equipment".
  - İzmir Refinery: Third prize with its "U-921 Waste Heat Boiler HP-LP Mix Economizer Package Energy Saving with Retube Process" project
  - Kırıkkale Refinery: Special Jury Award with its "Energy Saving Work" project
- The survey carried out by Institutional Investor, covering developing countries in Europe and the Middle East and Africa (EMEA) region, which recognized the best management teams
  - First place in the "ESG" category
  - "Best Company in Investor Relations".
  - CEO of Tüpraş, İbrahim Yelmenoğlu: "Best CEO"
  - CFO of Tüpraş, Doğan Korkmaz: "Best CFO"
  - Tüpraş Investor Relations team: The energy sector's "Best Investor Professionals"
- Third best "In-House Enterprise Project" award with the "Protrack/SecureLogistics" project in the fourth "Corporate Enterprise Awards", organized by Özyeğin University Entrepreneurial Institutions Platform and Fast Company Turkey.
- Tüpraş Corporate Publication Refined Magazine: Winner of the "Best Corporate Publication" category for the second time at the Stevie International Business Awards.

Social Gender Equality

Tüpraş announced its commitment to gender equality in the field of technology and innovation in line with Koç Holding's global leadership at the United Nations Women's Generation Equality Forum.

Tüpraş has pledged to train 100,000 female students within five years in the scope of the "Women in Technology and Innovation Program" which it has developed as well as the educational projects which will unleash the potential of women working in STEM fields while encouraging the development of women-driven technologies. The first step in the program was taken in collaboration with Batman University.

Tüpraş aims to increase the proportion of women working in the Engineering, R&D, Innovation, Service Design, and Information Technologies departments from 23% to 40%, and to increase the proportion of women employees to 50% when hiring new personnel.

Tüpraş Value Generation Model

STRATEGIC TRANSITION PLAN

STRATEGIC GOAL

Becoming a Leading Carbon Neutral Energy Company

STRATEGIC PRIORITIES

- Sustainable Refining
- Biofuels
- Zero Carbon Electricity
- Green Hydrogen

Operational Excellence

CARBON NEUTRAL BY 2050

INPUTS

FINANCIAL CAPITAL
- Total equity of TL 67.2 billion
- Total assets of TL 168.9 billion
- Net debt of TL 16.6 billion
- USD 173 million in consolidated capital expenditure

HUMAN CAPITAL
- 6,112 employees
- 601 female employees
- 1,822 employees paid on a monthly basis
- 4,290 employees paid on an hourly basis
- 10.7 years of average work experience
- TL 15.2 million in education expenditures

MANUFACTURED CAPITAL
- Four refineries (30 million tonnes of crude oil processing capacity)
- Five storage terminals (1.1 million m^3)
- 15 tankers (648,050 DWT), 13 tugs, six mooring vessels, three service craft and one pilot vessel (as of 31 March 2023)
- 12 locomotives (7 hybrids), 519 fuel rail cars, 35 platform cars
- 1,857 stations
- 442 MW of installed capacity (8 hydro-electric power plants, one wind farm and one Natural Gas Cycle Power Plant)*
- 388.6 MW of installed capacity (Tüpraş gas turbine + Steam Turbines + Solar Power Plant)
- 15 million m^2 refining production facility

INTELLECTUAL CAPITAL
- 61 R&D employees
- TL 73.3 million in R&D expenditure
- 52 energy efficiency projects
- 13 R&D projects in priority strategic areas
- Innovation/CVC
- Data Analytics Offices at METU and ITU

SOCIAL AND RELATIONSHIP CAPITAL
- Strong relationships in the Tüpraş ecosystem
- Collaborations with NGOs, academia, public institutions and companies
- Community investment projects
- Sponsorships
- Stakeholder relations

NATURAL CAPITAL
- 19 different types of crude oil amounting to a total of 24.8 million tonnes from 11 countries, including Turkey, which have a specific gravity varying between 18 and 47 API.
- 33,515 TJ of natural gas (for process purposes)
- 27.1 million m^3 in water consumption
- 91.676 TJ of energy consumption
- TL 1,158 million environmental investment and operating expenditure
- Sun, water, wind

OUR GUIDES

OUR GOALS
To meet Turkey's energy needs without interruption
Within the framework of the Strategic Transition Plan, Tüpraş aims to strengthen its operational excellence by increasing the competitiveness and profitability of its existing assets and aims to invest in strategic areas that support the concept of sustainability through the resources it creates.

MAIN GOALS
- To render refining efficient and profitable, to increase the share of value-added (white) products in its portfolio and to direct revenues to low or zero carbon energy transition investments.
- Green hydrogen production facilities,
- Biofuel production facilities, especially Sustainable Aviation Fuel (SAF)
- Wind, solar and other zero-carbon electricity generation plants

INTERMEDIATE GOALS
- USD 50 million in CVC fund resources by 2030
- 80% dividend distribution ratio
- Optimal level of indebtedness

For details, see Strategic Transition Plan pages 26-29.

OUR PRIORITIES
- Greenhouse gas emissions
- Climate change adaptation, resilience and transition
- Air emissions
- Water and wastewater
- Anti-corruption
- Employment practices
- Biodiversity
- Wastes

(Based on GRI11 and double materiality - for Stakeholders and Tüpraş)

OUR FACILITATORS
- Digitalization
- Strong R&D
- Future Talent
- Effective Risk Management
- Long-lasting Corporate Culture

OUR OPERATIONS

SUSTAINABLE REFINING

Crude Oil Supply, Refining and Sales Activities

Product range

LPG, Gasoline/Naphtha, Jet Fuel/Kerosene, Diesel, Fuel Oil, Bitumen, Coke and other products

ZERO CARBON ELECTRICITY

Zero carbon electricity generation*
(Entek and the Batman Solar Power Plant)

EXTERNAL FACTORS
- Economic developments
- The Climate Crisis
- Geopolitical Crises
- Changing Legal Regulations
- Other Factors

RISKS
1- Technical Safety and Environmental Risks
2- Financial Risks
3- Commercial Risks
4- Operational Risks
5- Strategic Risks
6- Compliance and Legal Risks
7- Reputational Risks
8- Climate Related Risks

OUTPUTS

SUSTAINABLE REFINING
- 26 million tonnes of production
- 29.5 million tonnes of sales
- Capacity utilization rate of 91.6%, including semi-finished products
- 79.5% white product ratio in production
- 94.9% Energy Intensity Index
- 95.5% a operational availability rate

ZERO CARBON ELECTRICITY
- 1,160 GWh in electricity generation
- 3,379 MWh in renewable electricity generation at the refineries Entek and the Batman Solar Power Plant

MARITIME TRANSPORT
- 10.6 million tonnes of crude oil
- 6.3 million tonnes of petroleum products

RAILWAY TRANSPORT
- 2.5 million tonnes of fuel products and intermediate products
- 250 thousand tonnes of iron ore

TRADING
- Over 8 million tonnes in product trading
- More than 10 million tonnes of spot crude oil connections

R&D
- 35 ongoing projects (18 on sustainability).
- 103 patent applications, 53 registered trademarks, 386 scientific publications (cumulative)
- 12 Horizon2020, 2 Horizon Europe projects

ENVIRONMENTAL
- 6,452,273 tonnes CO_2e/year (total of Scope 1 and 2 greenhouse gas emissions)
- 22,100 tonnes of total waste
- 12.7 million m^3 of total wastewater discharge

IMPACTS / SDGs (Sustainable Development Goals) / STAKEHOLDERS

FINANCIAL CAPITAL
- Net sales of TL 481,765 billion
- EBITDA of TL 55,587 billion
- 96% Return on Equity
- TL 44,377 billion in Paid tax and similar liability payments
- TL 34.2 billion in Export income
- 63% total share in Turkish petroleum products market
- TL 12.5 billion in dividends distributed
- Corporate Governance Rating of 9.65
- 50% share of sustainability investments

Direct: 8, 16, 17
Indirect: 10

Stakeholders:
- Public Institutions and Organizations
- Shareholders and Investors
- Financial Institutions
- Customers
- Employees
- Trade Unions
- Business Partners and Suppliers

HUMAN CAPITAL
- 215,589 hours of training
- 10% of employees are women
- 21% of mid-level managers are women
- 47.4% employee loyalty
- 5.7% employee turnover rate
- 0.26 LTI Frequency - OSHA
- 17.65 LTI Violence - OSHA
- TL 4.7 billion in paid fees

Direct: 3, 5, 8, 10
Indirect: 4, 17

Stakeholders:
- Employees
- Business Partners and Suppliers
- Trade Unions

MANUFACTURED CAPITAL
- Production which meets 63% of the total consumption of petroleum products
- Generation which meets 0.44% of total electricity consumption

Direct: 8, 12, 17
Indirect: 3, 4, 6, 9, 11, 13, 14

Stakeholders:
- Customers
- Business Partners and Suppliers

INTELLECTUAL CAPITAL
- Emerald Technology Ventures, 11 investments, one exit
- Tupras Ventures, one investment*
- The Koç Group Companies First Private Venture Capital Investment Fund, one investment

*As of 31 March 2023

Direct: 8, 9, 12
Indirect: 7, 13, 17

Stakeholders:
- Educational Institutions
- Business Partners and Suppliers
- Public Institutions and Organizations

SOCIAL AND RELATIONSHIP CAPITAL
- Our Energy for Students
- Social gender equality
- TL 354.8 billion in business volume for suppliers
- 193,171 person*hours of OHS training for Business Partner employees
- TL 288.7 million in donations and sponsorships
- 86% customer satisfaction
- 85% supplier satisfaction
- 79% contractor satisfaction

Direct: 4, 5, 10, 17
Indirect: 8, 11

Stakeholders:
- Non-Governmental Organizations
- Educational Institutions
- Business Partners and Suppliers
- The Media

NATURAL CAPITAL
- Reduction in Scope 2 emissions of 1,486 tonnes of CO_2e with generation of 3,379 MWh of renewable energy at the refineries
- Reduction in emissions of 73,199 tonnes of CO_2e
- 15.7 million m^3 in water recovery
- Additional annual savings with 1,320 TJ in energy efficiency
- 86.4% waste recovery rate

Direct: 7, 12, 13, 14, 15
Indirect: 6, 17

Stakeholders:
- All Stakeholders

*In 2022, Entek, which owns eight hydroelectric power plants, one wind farm and one natural gas cycle power plant with a combined capacity of 442 MW, joined Tüpraş. In addition, the tender processes for power plants with a combined capacity of 13.84 MW, including a wind farm with a capacity of 12.6 MW and a solar power plant with a capacity of 1.24 MW are continuing at the İzmir Refinery. The site application process continues for the 29.3 MW solar power plant at the Kırıkkale Refinery, with a Board Decision for the 28.5 MW solar power plant being awaited from EMRA. The site application process continues for the 5 MW solar power plant at the Batman Refinery.

Management Approach

CORPORATE GOVERNANCE AT TÜPRAŞ

Tüpraş's Shareholding Structure*

Shareholder	Amount of Shares (TL)	Rate of Capital (%)	Voting Right	Rate of Voting Right (%)
Enerji Yatırımları A.Ş.	893,996,545.48	46.4%	89,399,654,548	46.4%
Koç Holding A.Ş.	122,297,870.88	6.35%	12,229,787,088	6.35%
Other	910,501,181.63	47.25%	91,050,118,163	47.25%
Privatization Administration	0.01	0.0%	1	0.0%
Total	1,926,795,598.00	100.0%	192,679,559,800	100.0%

*The Articles of Association registered on 14 April 2023 after the Bonus Capital Increase,

The Company is under the control of its main partners, Enerji Yatırımları A.Ş., Koç Holding A.Ş. and the Koç Family and the companies owned by these companies.

Tüpraş has adopted the Corporate Governance Principles announced in July 2003 by the Capital Markets Board (CMB).

Tüpraş fully complied with all mandatory principles under the Corporate Governance Communiqué which is in effect. It also complied with the majority of the non-mandatory principles. Tüpraş aims to achieve full compliance with the non-mandatory Corporate Governance Principles and continues its efforts in this area.

Tüpraş Board of Directors

Pursuant to the applicable provisions of the Turkish Commercial Code (TCC), save for the inalienable powers of the General Assembly, the Company's all affairs and administration will be carried out by a Board of Directors that will be formed of at least five (5) people, who will be elected by the General Assembly pursuant to the provisions of the TCC and the regulations of the CMB. The number and qualifications of independent members who will serve on the Board of Directors are set according to the CMB's Corporate Governance Principles requirements.

The Company's Board of Directors is always constituted by members possessing the necessary knowledge, skills, and financial and industrial expertise for due fulfillment of responsibilities. As of the date of reporting, Tüpraş Board of Directors is formed of 11 members in total, including a Chair, a Vice Chair and four independent members. The positions of the Chair of the Board of Directors and the General Manager are held by different individuals. All Board members are non-executive in accordance with the definition stipulated in the CMB's Corporate Governance Principles. During the reporting period, two women members are serving on the Board of Directors.

The CVs of the members of the Board are included in the *2022 Annual Report*.

Information concerning the activities of the Tüpraş Board of Directors during the reporting period is set out in the *2022 Annual Report*.

Board of Directors Committees at Tüpraş

Four committees and one board operate under the Board of Directors. The Corporate Governance Committee, Risk Management Committee, Audit Committee and Executive Committee and Ethics Board.

Information regarding the activities of the Tüpraş Board of Directors Committees during the reporting period is included in the *2022 Annual Report*.

Tüpraş Senior Management

Led by the General Manager, the senior management team, which has an executive duty, directs and coordinates the activities as required by the daily business cycle at Tüpraş. As of the reporting date, the senior management team at Tüpraş consisted of the General Manager and six Assistant General Managers.

The CVs of the senior management are included in the *2022 Annual Report* and on the Company's corporate website at *www.tupras.com.tr*.

Efforts to prevent and mitigate conflicts of interest at Tüpraş.

There were no transactions which may have caused any conflict of interest such as lending loans to members of the Board of Directors or the executives by Tüpraş, the disbursement of loans by them or the issuing of guarantees in their favor.

While overseeing the activities of the Company, the Board of Directors evaluates any probability of causing conflicts of interest and the consequences of any conflicts of interest for the Company. The Board takes the necessary decisions to act in the best interests of the Company. In addition to compliance with regulations in related party transactions, the Board of Directors evaluates possible risks of impropriety such as fraud and meticulously handles related party transactions.

The members of the Board of Directors can do business only with the approval of the General Assembly, as stipulated in the first subsection of Articles 395 and 396 of the TCC entitled Competition Ban and Ban on doing Business with the Company and Borrowing for the Company.

Pursuant to the Capital Markets Board Mandatory Corporate Governance Principles No. 1.3.6, the General Assembly shall be informed in the event that shareholders having managerial control, shareholder board members, senior management and relatives up to the second degree of blood or affinity engaged in a significant business transaction creating a conflict of interest with the Company or its subsidiaries, competed with the Company in the same line of business on their own behalf or on the behalf of others, or was involved in the same business as that of the Company as unlimited partner in another company. Information about said transactions must be included as a separate article on the agenda and recorded into the minutes of the General Assembly. To fulfill the requirements of these regulations, permission are sought from the shareholders at the General Assembly and the shareholders are informed of any transaction in this respect.

Some of the shareholders having managerial control, shareholder board members, senior management and relatives up to the second degree of blood or affinity are also board members at several Koç Group companies including those with similar operations to the Company. In 2022, there has not been any material transaction which requires notification in accordance with Corporate Governance Principle No. 1.3.6 of the Corporate Governance Communique.

There were no conflicts of interest at Tüpraş during the reporting period. The Company's related party transactions are set out in detail in the 27th footnote of the Financial Report included in the *2022 Annual Report* (pages 311-315).

Risk Management at Tüpraş

The Board of Directors is responsible for the healthy functioning of the enterprise risk management process, which is vital to Tüpraş's sustainable existence and in strengthening its ability to create shareable value. This process is reviewed by the committee formed by the Board of Directors and necessary information is presented to the Board of Directors.

Under the Board of Directors, there is the **Early Detection of Risk Committee**, which works to early detect the risks that may endanger the Company's existence, development and continuity, to implement the necessary measures in relation to identified risks, and to manage risk.

The Risk Monitoring Committee, which is formed of the General Manager and Assistant General Managers, is responsible for adopting all necessary measures that may endanger the Company's existence and continuity, execution of enterprise risk management strategies effectively, development of necessary policies and practices, and periodic monitoring of action plans related to risks, and risk trends through risk indicators.

At Tüpraş, there is an **Information Security Committee** to ensure information security, and its healthy operation. Also, an **Operational Technologies Cyber Security Committee** has been set up to basically manage cyber security risks, and upgrade technologies infrastructure.

Information on risk management activities at Tüpraş during the reporting period is included in the *2022 Annual Report*.

TÜPRAŞ RISK INVENTORY

As a result of risk assessments during the reporting period, Tüpraş categorized its risks under 8 main headings:

The eight main headings are as follows:

TECHNICAL SAFETY AND ENVIRONMENTAL RISKS

Tüpraş continues to work towards its goals of defining and eliminating risks arising from its operations, mitigating them to acceptable levels within the frame of national and international norms. Tüpraş Health and Safety Management System is formulated and certified based on ISO 45001. Tüpraş manages environmental risks under a proactive approach by taking into account the sustainability of the Company and its medium- and long-term plans. It also manages environmental risks by evaluating the environmental impact of investments.

FINANCIAL RISKS

Tüpraş establishes, implements and updates the financial policies necessary for ensuring operation continuity. Continuous monitoring and improvement of processes to reach financial targets are priorities of the Financial Directorate. Financial resources and risks are being managed proactively within existing policies. In this context, currency risk, liquidity risk and interest rate risk are evaluated.

COMMERCIAL RISKS

Tüpraş holds a significant quantity of crude oil, mid-product and product inventory as required by its operation cycle. There is a risk of impairment in value of inventory due to reduction of crude oil and product prices. Tüpraş pricing methodology incorporates a natural hedging logic that captures the sudden and sharp changes in product prices and exchange rates in its sales prices. The Company handles and manages commodity price risk and counterparty risk under this heading.

OPERATIONAL RISKS

Operational risk is defined as the possibility of loss or damage that may arise from the failure of the Company management and/or personnel to act in accordance with the time and circumstances; from faults and hitches in day-to-day operations and governance systems, and from disasters such as earthquake, fire, flood, etc. In this context, supply/transportation risks, product analyses risks in production and sales processes, information technologies risks, project and investment risks, human resources risks, availability risks, and security risks constitute the main headings.

STRATEGIC RISKS

Tüpraş takes potential short-, medium- and long-term risks into consideration when determining the actions to be taken to achieve its strategic goal and objectives in this vein within the scope of the Strategic Transition Plan.

The Company considers that short- and medium-term risks addressed strategically could include various sanctions imposed against the countries, OPEC decisions, natural and energy resource consumption restrictions in connection with sustainability, sensitivity against fossil fuels, sustainability expectations by investors and in financing, changes to regulatory framework and the acceleration of developments driven by the combat against climate change and accelerated energy transitions.

Management Approach

The Company considers long-term potential risks to include the rise in consumption of environment-friendly fuel, developments related to alternative fuels increased efficiency of internal combustion engines, increased manufacturing of electrically powered vehicles and increased electrification, lower emission limits, operational limitations, and higher carbon costs, increased support for decarbonization, stricter regulations, low-cost production and storage of renewable energy resources.

COMPLIANCE AND LEGAL RISKS

This risk covers negatively affected activities following changes to the regulatory framework, misinterpretation of regulations and insufficient or incorrect documentation resulting in lower-than-expected rights and higher-than-expected liabilities.

REPUTATIONAL RISKS

Reputational risk can be defined as the potential negative reputation about the business practices of corporations. Reputational damage may result in the loss of respect for Tüpraş in the eyes of the society, declined demand for products and services, and negatively impacted competitive strength.

Tüpraş established corporate policies and procedures in order to keep its reputation intact at all times, and is executing its crisis management processes within this framework.

CLIMATE RELATED RISKS

Climate related risks and opportunities are managed in view of their maturity, along with their impact and likelihood. Management of the risks is a collaborative effort of many departments and Senior Management. In addition, the Sustainability Committee set up under the chairmanship of the CEO in 2022 and sub-working groups take active role in the process. Climate risks are handled under 2 main headings: Transition Risks and Physical Risks.

Detailed information about the risk management activities and risk categories at Tüpraş during the reporting period is available in the *2022 Annual Report*.

Internal Control at Tüpraş

The internal control system at Tüpraş consists of standards within work flows, job descriptions, authorization system, policies and documented procedures. Tüpraş Risk Management and Audit Department oversees the internal control system in line with risk-based audit plans, adopting a proactive method.

Through audit activities carried out at Tüpraş and its subsidiaries, the activities of the Company are audited in accordance with financial, operational, legal regulations as well as the Company's rules. Audit findings for which actions will be taken are entered in the Tüpraş Risk and Actions Portal, and the actions necessary to be taken are followed up systematically in line with the severity of the finding.

Any risk pertaining to compliance with the Code of Ethics is also constantly taken into account during the audit procedures. Special investigations are also carried out based on the findings of the audits or complaints. Stakeholders may convey their notices to the Company, especially through various channels such as the Tüpraş Stakeholder Communication Management,

Ethics Line and Customer Notification Management System. These platforms are accessible to all kinds of stakeholders. Complaints and notifications received by the Company are monitored and examined in detail by the Risk Management and Audit Department within the framework of confidentiality and in a non-retaliatory manner, taking into account the notifications which need to be processed. Where the examination detects a violation of the Code of Ethics, the Ethics Committee, which is affiliated to the Company's Board of Directors, shall convene and reach a decision.

These platforms, which offer anonymous application, are accessible to all stakeholders. The ethics line can be accessed at *https://secure.ethicspoint.eu/domain/media/en/gui/108227/index.html*. Related services are obtained from an independent third-party provider named Navex. Notifications received by the Company are reviewed by the Tüpraş Chief Legal and Compliance Office or the Koç Holding Legal and Compliance Consultancy if they are related to the Compliance process or the violation of the Special Law. For other matters, the notifications are reviewed by the Tüpraş Risk Management and Audit Department or the Koç Holding Audit Group Presidency. Where a violation of ethical principles has been detected as a result of the investigation, the Ethics Board, which is a body under the Company's Senior Management, shall convenes with a decision taken about the case.

The Risk Management and Audit Department, which organizationally reports to the Company's General Manager, also reports to the Audit Committee at the level of the Board of Directors. The Audit Committee consists of Independent Members of the Board of Directors and convenes at least four times a year and more frequently when necessary. Eight meetings were held in 2022. The Audit Committee is periodically informed of the audits carried out. The selection of the Independent Auditor responsible for the audit of the Company's financial statements is approved by the Tüpraş General Assembly.

The rotation of the firm responsible for the independent audit of the Company and the responsible auditors is carried out in accordance with the CMB regulations. Independent auditors issue a declaration of independence to the Tüpraş Audit Committee. Tüpraş seeks to ensure customer satisfaction, to offer products and services of universal quality and which meet global standards through the effective use of limited natural resources, and to contribute to economic and social development. To this end, it aims to be a symbol of reliability, continuity and prestige for its customers, shareholders, employees and suppliers - in short, for all its stakeholders on a national and global scale. All employees, the three subsidiaries of Tüpraş and all employees of these subsidiaries, third parties doing business on behalf of Tüpraş are obliged to act in accordance with these policies. All Tüpraş employees, regardless of their positions, are expected to exhibit attitudes and behaviors that will ensure the cultural integrity of the Company. Moreover, what is expected from all employees is to ensure that the reputation of the Koç and Tüpraş names and the reliability of their corporate structures are maintained and developed.

Detailed information on internal control activities at Tüpraş during the reporting period is presented in the *2022 Annual Report*.

Tüpraş's Ethical Principles

Tüpraş's Ethical Principles include the Company's responsibilities to its customers, employees, shareholders, suppliers and business partners, competitors, society and humanity. Tüpraş acts in accordance with the Ethical Principles and Compliance Program which it has determined within this framework in its relations with all stakeholders.

An Ethics Committee is in place within the Company to investigate any transgressions related to the Ethical Principles. The Tüpraş Ethics Board is responsible for supervising the operation of these principles and carrying out the necessary investigations in the event of any violation.

The reporting mechanism (Ethics Hotline) may be used by all Tüpraş stakeholders to report any violations of the current legislation, Ethical Principles and other Compliance Policies. The Ethics Hotline provides services 24 hours a day, 7 days a week in more than 50 countries, in 34 languages online and in 19 languages by telephone.

In 2022, the Ethics Board convened immediately and took action in line with the relevant policies for the notifications received through the Ethics Hotline and other channels. There were a total of 46 notifications under the title of violations of the Code of Ethics which were received and reviewed by Tüpraş during 2022. The Ethics Committee convened a total of six times in 2022.

Tüpraş provides compliance training on ethics, human rights, tackling bribery and corruption, prevention of money laundering, international sanctions, Personal Data Protection Law and competition law in an online environment through the Human Resources Directorate in order to raise awareness among its employees. A total of 3,327 employees participated in the ethics training programs in 2022 with 5,121 employee hours of training provided. For 2023, in addition to online ethics and compliance training programs for employees working at Tüpraş's affiliates and subsidiaries, the Company plans to offer in-class training and online ethics and compliance training for third parties.

Detailed information about the ethics and compliance efforts at Tüpraş during the reporting period is available in the *2022 Annual Report*.

Sustainability management systems

As part of its vision of being the leading company in its sector, Tüpraş implements quality management in all production and supply processes. The Company applies international quality and business management standards in its activities as well as internally determined standards.

Tüpraş carries out all of its activities within the framework of the Integrated Management System, consisting of

the ISO 9001 Quality Management System,

the ISO 14001 Environmental Management System,

the OHSAS 45001 Occupational Health and Safety Management System and

the ISO 50001 Energy Management System.

the ISO/IEC 27001 Information Security Management System

the ISO 10002 Customer Satisfaction Management System.

Internal audits of the Integrated Management System were carried out at the Headquarters and refineries in 2022. The standards of the processes of each unit were evaluated and issues affecting the process were reported on during the course of the audits.

The following Integrated Management System external audits were realized;

- At the Batman Refinery on 25-29 July 2022,
- At the Izmit Refinery on 15-19 August 2022
- At the Head Office on 17-19 October 2022

New certification was provided until 2025 for the ISO 50001:2018 Energy Management System Standard.

All of Tüpraş's Refinery laboratories passed the TS EN IEC/ ISO 17025 standard audits in 2022, which is the certificate of international recognition and acceptability of the laboratories by the Turkish Accreditation Agency.

- EN 12591 (coating class) and EN 15322 (coat-back bitumen) and their inspections were realized in the Batman Refinery in February 2022 and the İzmir Refinery in March 2022
- EN 13808 (cationic bitumen emulsions) and EN 14023 (polymer modified bitumen) inspections were realized at the R&D Center on 26-27 May 2022

The validity of CE certificates was extended for one year.

The Customer Satisfaction Management System certification audit was conducted on 29-30 November, 2022, and the ISO 10002 and ISO 10002:2018 certification was extended for another one year.

Policies Implemented at Tüpraş

Various policies are implemented in order to ensure more effective management of Tüpraş's compliance risks and to better respond to the expectations of local and international stakeholders in this area.

Human Rights Policy
Donation and Sponsorship Policy
Supply Chain Compliance Policy
Competition Law Compliance Policy
Sanctions and Export Controls Policy
Community Investment Policy
Gift and Entertainment Policy
Compliance Policy
Tüpraş Code of Ethics
Whistleblowing Policy
Diversity Equality and Inclusion Policy
Personal Data Protection Framework Policy
Remuneration Policy for Members of the Board of Directors and Executive Management
Disclosure Policy
Dividend Policy
Board of Directors Diversity Policy

Management Approach

SUSTAINABILITY MANAGEMENT AT TÜPRAŞ

In order to demonstrate an effective sustainability management model, Tüpraş acts with an awareness of its economic, social and environmental impact it creates in the regions in which it operates. It is focused on managing these impacts within the framework of the principle of "creating value".

Many of the issues that Tüpraş manages under the "Our Energy to the Future" strategy within the scope of its sustainability activities overlap with the principles stated in the "Sustainability Principles Compliance Framework" introduced by the CMB in 2020. In this context, Tüpraş achieved compliance with the majority of the principles covered in the non-compulsory "Sustainability Principles Compliance Framework" developed by the CMB with the "comply or explain" approach.

The place of sustainability in Tüpraş's managerial structure

Within the scope of the managerial mechanisms structured at Tüpraş, the impacts and outcomes reached in the ESG (Environment, Social and Governance) area are periodically reported to the committees within the Board of Directors.

The Company Managers provides a regular flow of information at the monthly Executive Committee meetings with Executive Committee's evaluations taken into account. Issues deemed necessary by the Executive Committee are included on the agenda of the Board of Directors.

Activities in this field are also carried out by the Corporate Governance Committee within the scope of the reporting of Sustainability Principles Compliance.

Within the scope of the Strategic Transition Plan, the Risk Committee, which operates under the Board of Directors, is regularly informed of climate-related risks and opportunities, which are monitored and managed by the Tüpraş senior management. This issue is also studied by the Value of Life Sub-Working Group under the Sustainability Committee.

The General Manager and the Strategy and Sustainability Directorate is responsible for the implementation and coordination of sustainability and ESG issues.

The Strategy and Sustainability Directorate, which reports to the General Manager, is responsible for ensuring coordination with different units within Tüpraş on the execution of strategy and sustainability issues.

Tüpraş Sustainability Committee

In 2022, Tüpraş increased the value generated in the fields of sustainability and the ESG. In this context, the Sustainability Committee was established for the purpose of executing, monitoring, auditing, reviewing, improving and developing the policies, goals and practices within the scope of the sustainability strategy. The purpose of the committee is to develop the ESG practices at Tüpraş, to ensure that these practices are adopted and disseminated throughout the Company, to advise the senior management, to measure and report performance and progress.

Duties of the Tüpraş Sustainability Committee

The Tüpraş Sustainability Committee has the following duties:

- To monitor Tüpraş's sustainability roadmap and developments in its practices with the participation of all internal and external stakeholders, to determine performance criteria in coordination with relevant business units and subsidiaries, to provide direction in line with goals and to audit performance, to ensure that all relevant units of the Company are actively involved in the process and to ensure the integration of this work into all the activities of the Company and its subsidiaries,
- To reorganize, carry out, monitor and audit the sustainability goals, practices, working principles and management systems of the Company by regularly reviewing them and determining priority issues which need to be focused on,
- To establish, authorize and coordinate Sub-Working Groups within the Company within the scope of the work,
- To ensure that the outputs of work overlap with the Company strategy, the Company and subsidiary sustainability policies and the Company expectations.

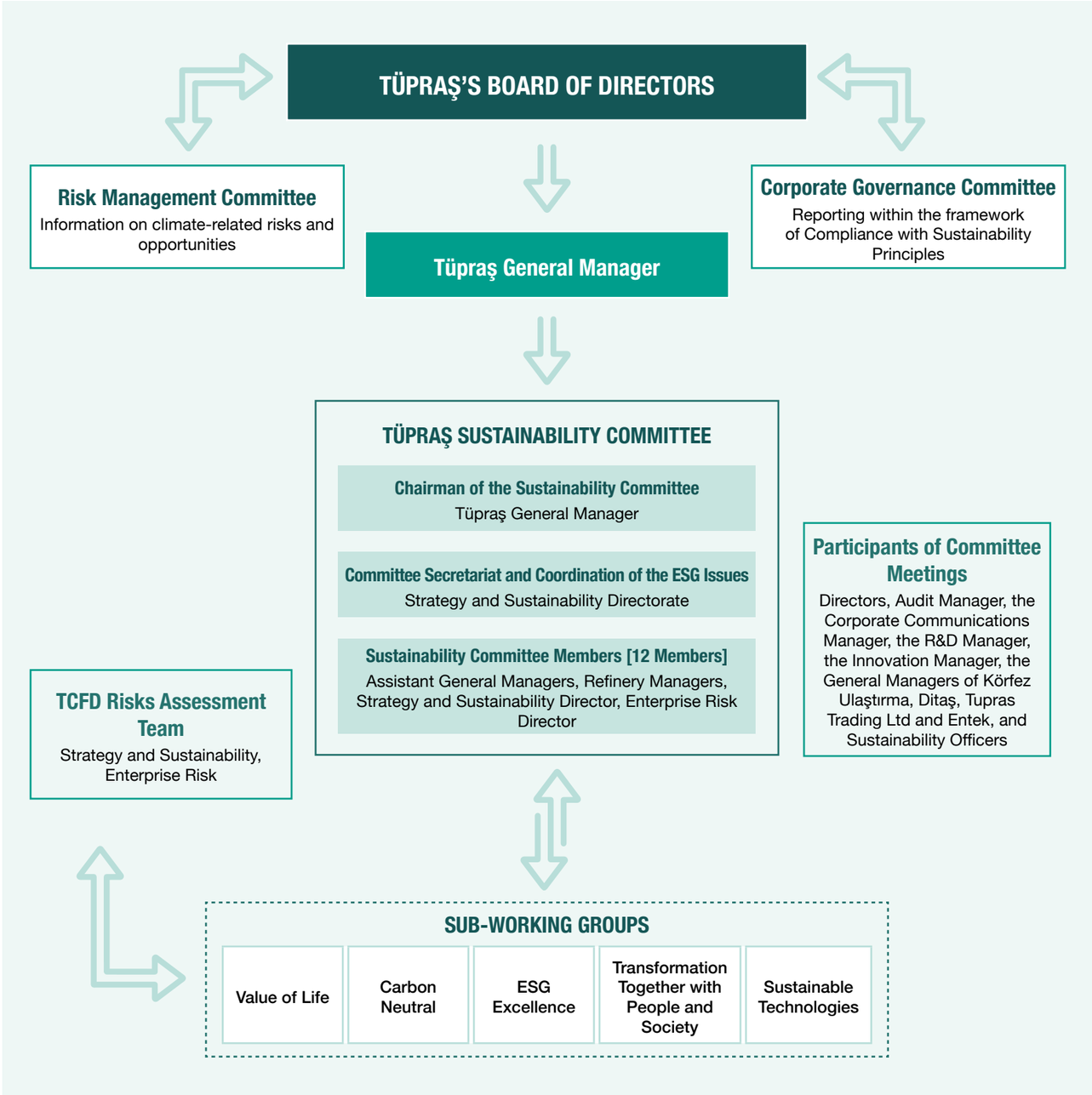
The Committee consists of 12 members, including the General Manager, Assistant General Managers, Refinery Managers, the Strategy and Sustainability Director and Enterprise Risk Director. The committee is carried out by the General Manager. The secretariat and coordination of the committee are under the responsibility of the Strategy and Sustainability Director.

In addition to the senior management, Audit Manager, Corporate Communications Manager, R&D Manager, Innovation Manager, General Managers and Sustainability Officers of Körfez Ulaştırma, Ditaş, Tupras Trading Ltd and Entek companies attend the Committee meetings. The Tüpraş Sustainability Committee, which is planned to convene at least 4 times a year, held its first meeting in December 2022 under the chairmanship of the General Manager with the participation of all committee members. The first meeting of 2023 was held in March and other quarterly meetings were included in the calendar.

Sub Working Groups

A total of five sub working groups have been formed which work under the Sustainability Committee in accordance with the Strategic Transition Plan and by taking stakeholder expectations into account. These sub working groups include the Value of Life, Carbon Neutral, ESG Excellence, Transformation Together with People and Society and Sustainable Technologies. The leaders and group members of the sub working groups have been determined, Sub-working groups are required to meet at least once a month according to their own work schedule. Most of the working groups carry out their work with weekly meetings.

The ESG Excellence Sub-Working Group (SWG) works within the scope of sustainability indices and sustainability frameworks. The SWG detailed the sustainability indices and sustainability frameworks gap analysis work, which it had carried out in 2022, in the first quarter of 2023. As a core working group, it provided guidance on the topics and the content of the topics which other SWGs will work on. As a result of the gap analysis study, the responsibilities under the units were directed to the SWGs*. The Sustainability SWGs are planned to carry out up-to-date work on the issues which are likely to have an impact on the Company in the field of sustainability, in line with global developments.



TCFD Risks Assessment Team

Within the scope of tackling the climate crisis, an area which Tüpraş attaches special importance to, Tüpraş dynamically assesses the TCFD risks with a team which it has formed. Tüpraş provides a flow information and issues recommendations to the relevant unit and the Company management through the Risk Committee and Sustainability Committee.

Management Approach

The work topics included in the interest area of the sub-working group are set out below. The Sustainability Committee may carry out changes in the work topics and their scope.

SUSTAINABILITY SUB-WORKING GROUPS AND CONTRIBUTED SDGs

Value of Life	Carbon Neutral	ESG Excellence	Transformation Together with People and Society	Sustainable Technologies
Water	Scope 1, 2, 3 Emissions	ESG Reporting Frameworks	Stakeholder Relations	Digitalization
Waste Management	Carbon Pricing	ESG Standards	Compliance and Ethics	R&D
Circular Economy	Offsetting Nature Based Solutions (NBSs)	ESG Ratings	Diversity, Equality, Inclusion	Innovation
Biodiversity	Energy Efficiency	Gap Analysis	Occupational Health and Safety	
Green Financing	National and EU Policies		Human Rights	
Climate-Related Risks and Opportunities			Social Gender equality	

ESG performance criteria in the remuneration of the Board of Directors and the senior management

Within the scope of The Remuneration Policy for Tüpraş Board Members and Senior Executives, remuneration and benefits management is organized and implemented in a manner that is fair and objective and which rewards and appreciates high performance, is competitive and offers motivation.

The Senior Management directs the company and employees by sharing the OKRs (Objective Key Results), which also evaluate their own performance, with all employees at the beginning of each year. At the end of the year, employees undergo an evaluation on the basis of these OKRs. In this vein, the senior management determined four OKRs in 2022 and 2023. All were determined by addressing the Strategic Transition Plan and are based on sustainability. Among these are the objectives of conducting refinery operations with a focus on sustainable refining, realizing a future-ready organization by focusing on corporate excellence, advancing the Company's transition into a carbon neutral energy company, and being one of the companies to provide the best working experience.

Sustainability performance is monitored within the scope of the OKRs.

The most important topics include work on reducing carbon emissions, zero-carbon electricity generation, green hydrogen and SAF (Sustainable Aviation Fuel) production. These are taken into consideration in the performance evaluation.

Fixed pay for senior executives is determined in accordance with international standards and legal obligations, taking into account the macroeconomic data in the market, the remuneration policies in place in the market, the size and long-term goals of the company and the positions of the individuals concerned.

The remuneration policy observes the remuneration balances within the Company and competitiveness in the market. In addition to increasing the motivation and loyalty of employees, the policy is also aimed at recruiting qualified employees who will enable Tüpraş's strategic business goals to be achieved.

Bonuses for senior executives are calculated according to the bonus base, the performance of the Company and the individual performance. A summary of the criteria is as follows:

Bonus Base

Bonus Bases are updated at the beginning of each year. They vary depending on the work volume of the executives' positions. When updating the bonus bases, senior management bonus policies in the market are taken into account.

Company Performance

The performance of the Company is determined at the end of the year by measuring the financial and operational targets (market share, exports, overseas operations, productivity, etc.) assigned to the Company at the beginning of each year. In determination of the Company's targets, the sustainability of success and the degree to which it incorporates improvements over previous years are the principles taken into account.

Individual Performance

Definition of individual performance is based on individual and collective objectives and key results determined by Top Level Managers together with their teams and managers. In measurement of individual performance, long term sustainable improvement in non-financial area is a significant principle.

Drawing up of remuneration policies at Tüpraş

Within the scope of the provisions of the Capital Markets Board's Corporate Governance Principles, the Corporate Governance Committee also carries out the task of nominating candidates for the Members of the Board of Directors, developing corporate governance practices regarding the remuneration of the Members of the Board of Directors and senior executives, and forwarding recommendations and suggestions to the Board of Directors. The Corporate Governance Committee presents the performance evaluation of the members of the Board of Directors and senior executives to the Board of Directors. The Committee also submits its recommendations regarding the remuneration of the members of the Board of Directors and senior executives to the Board. Subsequently, the Remuneration Policy for the Members of the Board of Directors and Senior Executives is drawn up. After approval from the Board of Directors, the policy is submitted to the scrutiny and approval of shareholders at the General Meeting.

A transparent wage system is applied, in which the contribution to achieving the corporate goals is kept as a key component according to the levels of responsibility. This serves as a model of wages and side benefits based on the principle of equality and fairness, which is objective, transparent and which reflects the realities of the national and international business world, and which is based on the work carried out. The Company always supports the principle of equal pay for equal work, and does not allow gender gap in terms of pay.

SUSTAINABILITY INDICES AND RATINGS

Tüpraş is included in national and international ESG indices and ratings. The Company carries out work in order to raise its position in these indices and rating frameworks and to continuously improve its performance. The ESG Excellence SWG carries out work in this context.

Tüpraş has been included in the BIST Corporate Governance Index since 2007. It was included in the BIST Sustainability Index, which evaluates the companies listed on the Borsa Istanbul according to international sustainability criteria, when the Index was created in 2014.

	2020	2021	2022	ESG Rating Score Card				
FTSE4Good	2.2	3.4	3.4	0-5				
MSCI ESG Rating	3.9	4.2	4.2	0-10				
V.E. (Moody's)	40	49	-	Weak 0-29/100	Limited 30-49/100	Robust 50-59/100	Advanced 60+/100	
Sustainalytics		33.36	33.98	Risk band				
				Negligible 0-10	Low 10-20	Medium 20-30	High 30-40	Severe 40+
BIST SI (Refinitiv)	61.1	69.3	66.91	Poor 0-25	Satisfactory 25-50	Good 50-75	Excellent 75-100	
Bloomberg GEI Index		63.3	62.91	100				

Management Approach

Taxation is the main source of revenue for the Government. A tax debt is a constitutional debt. Accepting this premise unconditionally, Tüpraş acts in consideration of the public interest in all its practices.

Tax governance and stakeholder engagement at Tüpraş

Tüpraş is focused on fulfilling its tax obligations by fully complying with applicable tax and regulatory legislation in effect. Information on the Company's tax liabilities and payments can be found in the regularly published annual reports.

In February 2022, Tüpraş established the Tax and Incentive Implementation Directorate (TIID) under the Financial Affairs Directorate of the Head Office. The TIID is responsible for a wide range of areas including creating a tax strategy, managing tax investigations and answering questions from stakeholders such as public institutions and customers. A manager and a team of five individuals work directly under the manager in the unit. The unit manager is the person responsible for compliance with Tüpraş's tax strategy. In addition to the Head Office, financial affairs units established at Tüpraş's four refineries also indirectly contribute to the TIID's activities.

The TIID publishes information notes on all tax-related issues so all transactions carried out at the Head Office and the four refineries are carried out in a uniform manner. It checks whether the relevant units are acting according to the explanations. The TIID combines data coming from the units and prepares declarations in full compliance with the legal regulations.

The unit regularly follows legislation in order to foresee potential risks. Regular circular notes published by Koç Holding's tax department are also used to define risks. In addition, regular meetings are held with the tax team at Koç Holding to exchange information on risky issues. The output of the meetings are implemented throughout Tüpraş under the control of TIID.

Tüpraş receives full certification from Ernst & Young that is an independent audit firm. At the end of each accounting period, all accounts and tax transactions are examined and approved by (sworn-in) certified public accountants (CPA). Sworn-in Certified Public Accountants are the units that conduct audits on behalf of the public within the scope of the Law No. 3568 on Certified Public Accountancy and Sworn-in Certified Public Accountancy. Reports prepared by the sworn-in CPAs constitute an external assurance for Tüpraş. Moreover, these reports are the reports that are accepted and processed by the tax office directorates.

Potential concerns of stakeholders about Tüpraş's tax-related policies or practices can be reported to the Tüpraş Customer Services, as well as on the ethics hotline.

The TIID establishes communication with tax authorities. The entire communication cycle takes place within the scope of ethical principles and legal regulations. Work is carried out transparently in order to solve the practicing problems, which arise or may arise, without creating a workload for the public and Tüpraş such as preventing unnecessary correspondence.

Taxation is the main source of revenue for the Government. A tax debt is a constitutional debt. Accepting this premise unconditionally, Tüpraş acts in consideration of the public interest in all its practices.

External stakeholders may contact the Customer Service and ethics hotline to ask any questions regarding tax issues or to convey notifications.

Social evaluation of suppliers

Within the scope of the UN Global Compact and as specified in the Supplier Code of Conduct document, the forms available at the links below are presented to suppliers and suppliers are requested to comply with these rules. The applications of all suppliers who make new applications to the portfolio are evaluated with the confirmation of these forms with the phrase "I have completely read and approved". For those registered in the portfolio, confirmation with the phrase "I have read and I approve" is received as the information is revised on the supplier portal.

Compliance with these rules is checked during the Supplier Workplace Visits and inspected with the Workplace Visit Form. In case of nonconformity, suppliers are removed from the portfolio temporarily or indefinitely. Audit results are not shared with the public.

https://supplier.tupras.com.tr/tedarikci-davranis-ilkeleri_en.html

https://supplier.tupras.com.tr/kuresel-ilkeler-sozlesmesi_en.html

https://supplier.tupras.com.tr/tedarikci-yonetimi-politikasi_en.html

https://gw.tupras.com.tr:80/sap/bc/ui5_ui5/sap/zui5_tpo_v2/yenibasvuru.html?sap-client=001&sap-ui-language=EN&sap-ui-appcache=false

The number of suppliers evaluated in terms of social impacts is 4,587. 31 companies were blocked due to non-compliance with the Ethical Principles. Failure of suppliers to pass compliance audits may have negative effects on Tüpraş's brand value, but this risk is almost non-existent as all suppliers are constantly screened for compliance and sanctions. As a result of the evaluation, no work is done for agreements or improvements with suppliers who have been removed from the portfolio and blocked indefinitely within the scope of ethical principles. The share of this rate in the total is approximately 0.5%.

Stakeholder Relationship at Tüpraş

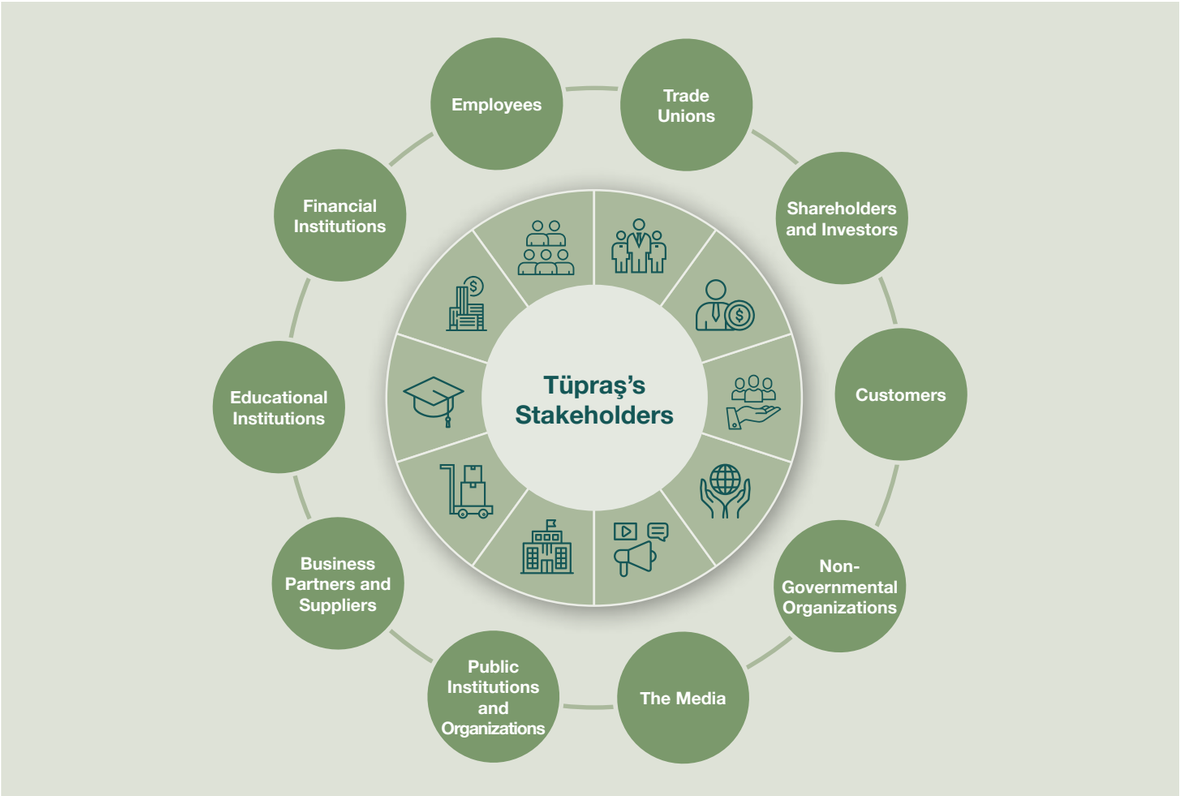
Relationships based on transparency and accountability

Tüpraş considers the feedback, suggestions and demands it receives through this communication as a guiding input in many areas, which will affect the Company's ability to create value, including economic, social and environmental value as follows;

- Development of corporate strategies,
- Determination and management of priority areas, risks and opportunities,
- Creating and updating policies,
- The development of community investment programs

Tüpraş has structured strong channels for its stakeholders by using the communication opportunities offered by the digital infrastructure.

The Company's communication and interaction with stakeholder groups takes place through different platforms.



Tüpraş attaches tremendous importance to being in a sustainable dialogue with its stakeholders.

The Company informs its stakeholders through Material Disclosures in accordance with the principles of equality, transparency, accountability and responsibility.

The Company seeks to ensure that General Meetings are open to all stakeholders, with detailed information shared on the corporate website. It aims to inform all stakeholders as well as shareholders through comprehensive annual reports published, press releases and the activities within the scope of the Disclosure Policy, which is based on transparency.

Tüpraş employees are provided with the opportunity to access circulars and announcements through the intranet portal. In addition to important announcements and publicly disclosed data, the Company's operating and financial results are simultaneously communicated to employees by e-mail. In addition, Tüpraş employees and senior managers come together to evaluate developments which took place during the year as well as the targets, and exchange ideas.

Stakeholders may convey illegal practices or unethical transactions to the Internal Audit Unit, which will be forwarded to the Ethics Board through the Stakeholder Communication Management and Ethics Line available on the internet and intranet sites.

For Customers

The Tüpraş Customer Relations Policy regulates basic activities and other marketing functions within the scope of customer relationship management. The main objectives in this vein are to increase customer satisfaction, improving customer relations and meeting customer demands and expectations to the highest level and as rapidly as possible.

The ISO 10002 Customer Satisfaction and Complaints Management standard is an extension of the Tüpraş Quality Management process. The ISO 10002 standard envisages the continuous improvement of all processes that affect customers and supports the implementation of necessary actions by recording all customer notifications. Existing and potential customers may reach Tüpraş by telephone from the 444 123 0 number and benefit from a high quality of service and communication.

For Suppliers

Tüpraş's Supplier Chain is managed within the scope of the Supplier Chain Compliance Policy, the Tüpraş Supplier Portal and the Tüpraş Supplier Code of Conduct. The Tüpraş Supplier Portal provides an environment of easy, fast and effective communication between the suppliers and Tüpraş. It is used as a source of information, reference, news, measurement and reporting. The suppliers submit their applications through the supplier portal by completing the Tüpraş Supplier Evaluation Survey and the Tüpraş Health Safety Environment Questionnaire.

Tüpraş monitors the performance of its suppliers through SAP software. In addition to workplace visits and technical criteria evaluation, the qualifications specified in the Tüpraş Supplier Code of Conduct and the Supply Chain Compliance Policy are also taken into account.

The Tüpraş Supplier Satisfaction and Tüpraş Contractor Satisfaction surveys are conducted on an annual basis in order to ensure that the sustainability of the supply chain is maintained at the highest levels, to identify changing and developing demands and to further strengthen relations with suppliers.

Targets set to improve levels of satisfaction among customers, suppliers and employees, which are among the key stakeholders, are among the performance scorecards for the Tüpraş management.

Striving for effective stakeholder communication

The Information Policy, approved by the Board of Directors at Tüpraş, determines the methods and principles of communication with stakeholders. The policy is also disclosed in the Public Disclosure Platform (KAP).

Disclosures and notifications to be made on behalf of Tüpraş are tabled by the Members of the Board of Directors, the General Manager, the Assistant General Manager in Charge of Financial Affairs or the Corporate Communications Manager, in addition to the forms, statements and reports signed in accordance with the Company's signature circular.

The Investor Relations Unit consists of Investor Relations Managers who report to the Assistant General Manager in Charge of Financial Affairs. The Investor Relations Unit at Tüpraş conducts promotional activities aimed at existing and potential investors, as well as investment institutions and financial institutions, both in Turkey and abroad. It answers questions sent to the Company within the scope of investor relations.

The Tüpraş Solution Center is a mechanism which stakeholders may apply to anonymously.

Information on the Tüpraş Stakeholders and Communication Methods is presented on page 182.

Tüpraş's Sustainability Priorities

Tüpraş's Materiality Analysis for 2022

Tüpraş regularly reviews its sustainability priorities in line with ESG strategies, changing stakeholder expectations and global trends.

In addition to developments in the global and local markets and the oil and natural gas sector, the climate crisis and similar mega trends also affect Tüpraş's activities and stakeholder expectations.

Tüpraş carried out a Materiality Analysis in 2021 after announcing its Strategic Transition Plan. An external trend analysis was performed before the stakeholder analysis was carried out. Sectorial and global reports, sustainability reporting standards, the priorities of ventures which Tüpraş has an interest in and the priorities of other companies operating in the sector were all examined. Within the scope of the list of materiality topics determined by this analysis, Tüpraş's internal stakeholders and those identified as key external stakeholders were consulted and asked to fill in an online questionnaire where they could express their views.

The topics deemed to be important to the Company and its stakeholders were determined following comprehensive materiality work carried out in 2021. A total of 32 issues were prioritized on the three axes of ESG and the Tüpraş 2021 Materiality Matrix was drawn up. (For detailed information, please refer to pages 29-30 of the *2021 Sustainability Report*).

The topics included in the 2021 Materiality Matrix serve the Strategic Transition Plan and the SDGs (Social Development Goals) determined by Tüpraş in 2021.

At Tüpraş, the sustainability materiality topics and projects are measured with a reputation survey held every two years for all internal and external stakeholders.

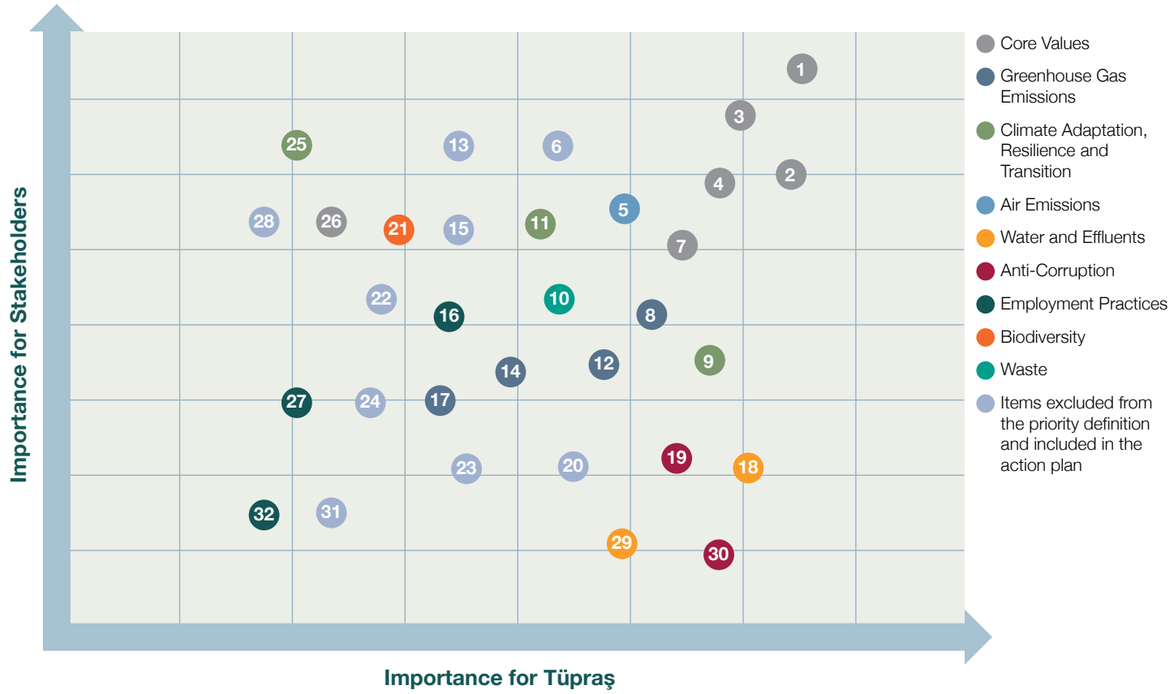
Materiality work is presented to the Board of Directors within the scope of the report as a whole.

Update for 2022

The materiality work for 2021 was re-evaluated in 2022 as a desktop evaluation by taking into account the GRI 11 standard and the double materiality approach. A total of 32 priority issues identified in 2021 were addressed in detail. In light of the developments which took place during 2022, the importance of each issue was re-evaluated. Another input which shaped the work was the double materiality and the reporting framework drawn up by the *GRI Oil and Gas Industry Standards (GRI 11)*, which was to enter effect from 1 January 2023.

Within the scope of the update work, the basic values which guide Tüpraş's actions have served as the basis of the materiality topics. While maintaining the identity and culture of Tüpraş are at the forefront of these efforts, fundamental commitments which enable the Company to proceed in complex situations and the principles which are strongly embraced throughout the Company are defined as core values.

As a result of the updating work, the Tüpraş Management determined the eight topics presented in the table below as the 2022 year materiality topics by being based on the materiality topics published in the 2021 report.



2022 Priorities*

Greenhouse Gas Emissions	Climate Adaptation, Resilience and Transition	Air Emissions	Water and Effluents	Anti-Corruption	Employment Practices	Biodiversity	Waste
8 Energy Efficiency **12** Transition to Low Carbon Economy **14** Utilizing New Low Carbon Technologies **17** Climate Related Physical Risks	**9** Reducing Greenhouse Gas Emissions **11** Responsible Investments **25** Structuring Sustainable Supply Chain Processes	**5** Air Quality	**18** Waste Water Treatment **29** Water Quality and Responsible Water Management	**30** Effective Ethics and Integrity Management **19** Integrity and Accountability	**16** Employee Training, Talent and Career Development **27** Protecting Employee Rights and Improving Employee Welfare **32** Including Employee Opinions	**21** Biodiversity Loss and Deforestation Related Risks	**10** Responsible Waste Management

Core Values

1 Health and Safety	**2** Process Safety	**3** Compliance with Work Ethics and Laws	**4** Tüpraş Brand Value and Reputation	**7** Compliance with Human Rights	**26** Diversity, Equity, Inclusion

Items excluded from the priority definition and included in the action plan

6 Strong Economic Performance
13 Producing Goods and Services That Prioritize Environmental and Social Contribution
15 Customer Satisfaction and Loyalty
20 Efficient Risk and Crisis Management
22 Digitalization
23 Constituting Partnerships Towards Climate Goals
24 Completing Integration, Strengthening Database and Improving Service Quality
28 Improving Existing Goods and Services
31 Increasing Market Share

* 32 issues identified as priority in 2021 were re-evaluated in the desk evaluation in 2022, taking into account GRI 11 and double materiality approach.

Financial Capital

Financial Capital

Tüpraş's driving force

USD 173 million Consolidated investments	50% Share of sustainability projects in consolidated investments	16.5 USD/barrel Net refining margin
TL 482 billion Net sales	TL 41 billion Net profit	strong financial structure

WHAT IS IT?

All of the material resources needed by the business cycle, which enable Tüpraş to carry out its production and trade activities, as well as realize its strategic transition investments and distribute returns to its investors, constitute our financial capital.

WHAT DID WE DO IN 2022?

In 2022, Tüpraş returned to its pre-pandemic performance thanks to its disciplined and effective financial capital management. Its effective financing policies ensured the sustainability of a strong financial structure which will support its operations and growth in 2023 and beyond, without compromising its proactive balance sheet management.

HIGHLIGHTS OF 2022...

- Despite the rapid depreciation of the Turkish Lira, Tüpraş's consolidated investments increased to USD 173 million.
- 50% of the investments consisted of sustainability projects and investments related to sustainability.
- Tüpraş's net refinery margin was balanced at USD 16.5/barrel.
- Net sales increased by 216% to reach TL 482 billion on the back of the increase in sales volumes following the pandemic, higher product prices in the wake of the Russia-Ukraine war and the fall in the value of the Turkish Lira against other currencies.
- Tüpraş recorded TL 56 billion EBITDA with the support of its strong operational results.
- The successful performance in 2022 was also reflected to the bottom line, with a net profit of TL 41 billion.
- Tüpraş recorded a Return on Equity of 96%.

Use of Capital

In line with its short, medium and long-term strategies, Tüpraş directs its financial capital towards investments and operating expenses in order to strengthen its presence in the market and develop the shareholder-stakeholder value generation mechanism.

Although this situation leads to periodical reductions in financial capital, it directly contributes to the growth of the produced capital, allows human capital to maintain its active role in the business cycle and ensures the continuity of the business.

Despite the heavy use of financial capital during investment periods, this situation provides a positive contribution to financial capital as investments become productive in the medium and long term.

Investments in renewable resources will provide a positive contribution to the natural ecosystem, as well as to the social and relationship capital. In addition, such investments will strengthen stakeholder confidence while reducing the Company's environmental footprint.

CONTRIBUTED SDGs

Direct

Indirect

Financial Capital

The importance of financial capital management as a fundamental function at Tüpraş

Tüpraş's strategy in using its financial capital is focused on generating shareholder value. The Company operates this strategy within the scope of a strong and integrated financial planning process, with a balanced approach to achieve long-term success and taking other goals into account.

This process plays a key role in meeting the needs of its investments in business continuity and growth opportunities, as well as in ensuring sustainable commercial operations. Funding needs which cannot be met with the cash surplus and accumulated profits generated by commercial activity are raised in domestic and foreign markets through funding efforts focused on maintaining an optimal balance between financing costs and maturities.

Tüpraş's unwavering goal is to keep its debt-maturity profile in line with the current nature of the conditions offered by the refining industry and the markets, and to maintain its flexible capital structure in line with business needs.

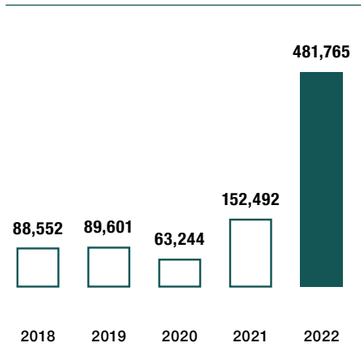
This approach not only saves the cost of borrowed financial capital, but also enables the continuity of targeted liquidity levels. In addition, exchange rate risks are actively managed by the protection mechanisms.

Financial capital is allocated to core strategic investments, investments in subsidiaries and capital assets, and excess funds are invested in short-term instruments. Internal cash generated from operations is used to reduce the debt stock in line with annual plans.

Tüpraş handles its financial KPIs with an analytical approach and evaluates them in the light of a range of criteria in order to meet its efficiency and profitability targets.

Cross-functional improvement programs are carried out in the Company within the scope of total quality management for operational efficiency, product mix optimization, waste reduction and recycling, energy efficiency and supply optimization. Innovative marketing initiatives and various ongoing digital initiatives help the Company achieve a more competitive position with stronger financial performance. These activities also promote cost optimization and support positive cash flow from operations.

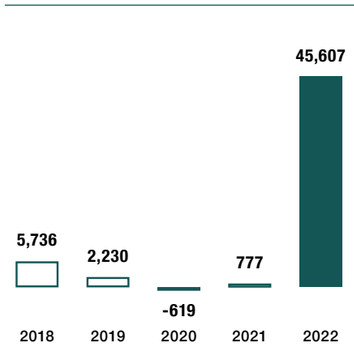
Net Sales (TL million)



216%

Net sales increased by 216% YoY to TL 482 billion due to the increase in sales volumes following the pandemic, higher product prices as a result of the Russia-Ukraine war and the depreciation of the TL against other currencies.

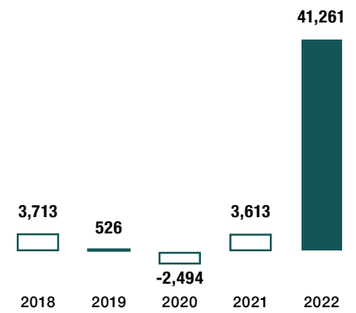
Operating Profit (TL million)



TL 46 billion

The recovery in product margins paved the way for an operating profit of TL 46 billion.

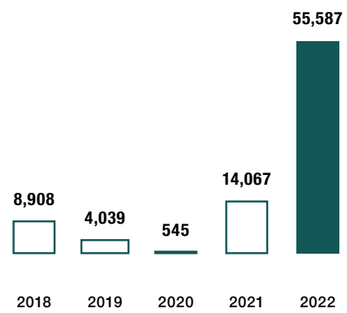
Profit after Tax (TL million)



TL 41 billion

The successful performance obtained in 2022 was also reflected to the bottom line with a net profit of TL 41 billion.

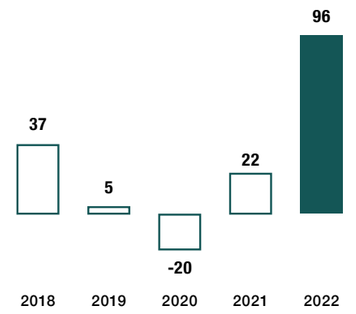
EBITDA (TL million)



TL 56 billion

Thanks to the strong operational results, the Company recorded EBITDA of TL 56 billion.

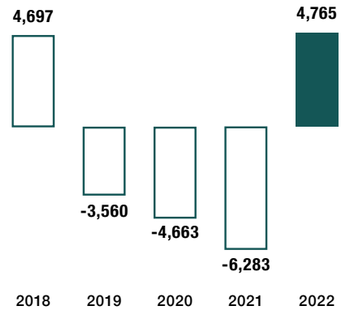
RoE (%)



96%

The 96% profitability rate achieved in 2022 paved the way for a high return on equity.

Net Working Capital (TL million)



TL 4.8 billion

Net working capital turned positive in 2022 and rose to TL 4.8 billion.

Financial Capital

Tüpraş recorded TL 56 billion EBITDA with the support of its strong operational results.

In 2022...

In 2022, Tüpraş returned to its pre-pandemic level of performance thanks to effective financial management.

While the environment of growing uncertainty around the world brought various risks, Tüpraş maintained its working capital and strong balance sheet structure thanks to its strong financial capital management policies.

The decision by European countries to impose sanctions against Russia, Europe's main energy supplier, in retaliation for the invasion of Ukraine, increased all energy prices especially oil. Brent crude oil prices, which peaked at USD 138 /barrel due to supply concerns, followed a volatile and eventually downward course due as concerns of an impending global recession started to take hold. The Brent crude oil price slid to USD 81 /barrel by the end of December.

A deterioration in the supply-demand balance precipitated a rise in margins for all white products while margins for diesel, jet fuel and gasoline reached historic highs. Even as production costs rose to record highs, elevated product margins positively impacted refining profitability. In parallel with these developments, Tüpraş recorded a net refining margin of USD 16.5/barrel.

In the presence of the energy crisis and global economic fluctuations, Tüpraş achieved a total revenue of TL 482 billion by reaching 26 million tonnes total production volume and 29.5 million tonnes total sales with a 92% capacity utilization rate, thanks in part to optimization and operational improvements.

As a result of the increase in product margins as well as a strong course in domestic and international sales, Tüpraş recorded a profit before tax of TL 39.9 billion in 2022.

Significant investments were undertaken in 2022 as the Strategic Transition Plan first announced in 2021 has completed its first year. The takeover of Entek's shares, applications to increase zero-carbon electricity generation capacity, the licensing agreement with Honeywell to produce sustainable aviation fuel, the membership in Europe's leading hydrogen-market stakeholder group Hydrogen Europe, and the formation of Tupras Ventures are only a few of these developments.

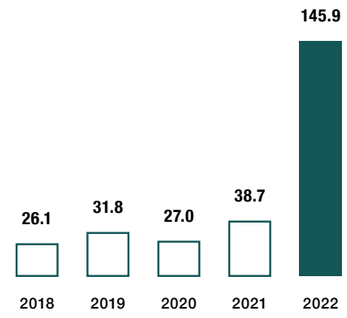
In this period of mounting global volatility, Tüpraş followed a proactive balance sheet management strategy by pursuing effective financing policies and ensuring the sustainability of its financial structure, creating a strong financial structure and effective financial management. Sustaining the strong financial structure which will support Tüpraş's operations in 2023 and beyond continued to be the main target of the effective financial management.

Increase in market value

Increasing its operational profitability in 2022, Tüpraş's market value increased by 277% in TL terms during 2022, from TL 39 billion at the end of 2021 to TL 146 billion at the end of 2022, converging with its historical highs.

Thanks to a combination of higher product margins, an increased capacity utilization rate and a widening in the price gap between heavy and light crudes, Tüpraş was able to significantly boost its profitability in 2022. The Company also managed to increase its market value compared to both 2020 and 2021.

Market Capitalization (TL billion)



277%

Tüpraş's market value increased by 277% in TL terms during 2022, from TL 39 billion at the end of 2021 to TL 146 billion at the end of 2022, converging with its historical highs.

Outperforming the BIST 30 index by 50%

Product margins increased throughout 2022, allowing Tüpraş to notch up a significant recovery in its profitability. The rise in profitability coming on the back of a stronger operational performance and the steps Tüpraş has taken in new business lines in parallel with its long-term strategic plan were also positively reflected to its share price performance. Tüpraş shares outperformed the BIST 30 index by 50% in terms of their annual return performance.

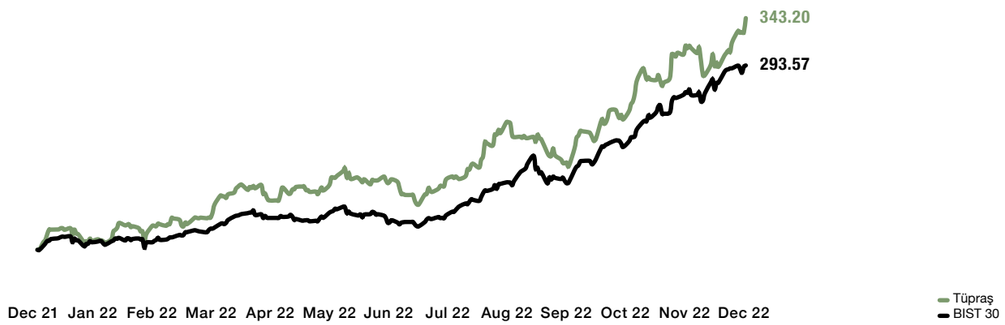
A diverse and rich investor base

46.8% of the Tüpraş shares are traded at Borsa İstanbul (BIST).

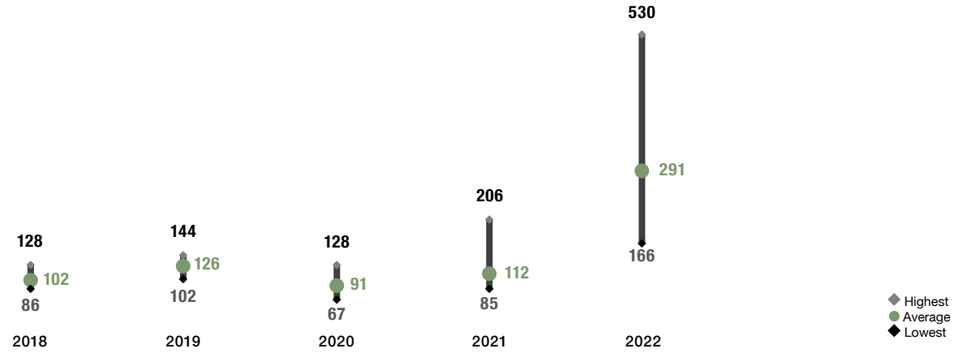
Diversity and richness of investor portfolio are considered as an important indicator of trust and stability from investors' perspective. As an indicator of this, the share of the international institutional investment banks, funds and foreign institutions in the publicly traded shares of Tüpraş stood at 43% as of the end of 2022.

In 2014, Tüpraş was incorporated into the BIST Sustainability Index (XUSRD), which includes companies with a high level of corporate sustainability.

Tüpraş - BIST 30 Index Relative Share Performance in 2022 (%)



Stock Price Trend (TL/stock)



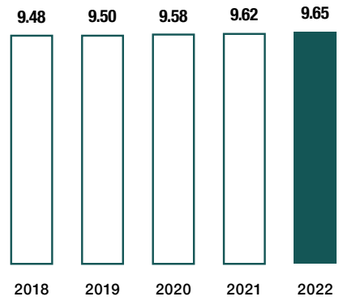
Financial Capital

Tüpraş's financial and operational performance is closely monitored by international credit rating agencies.

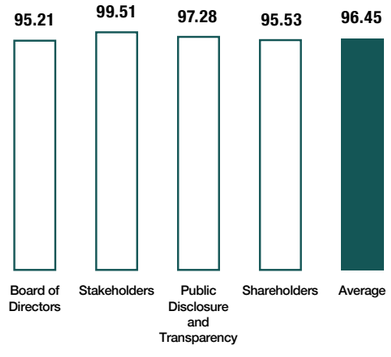
Credit Ratings

Credit Rating Agency	Last update	Type of Rating	Credit Rating Note	Outlook
Fitch Ratings	October 2022	Long Term Corporate Credit Rating	B	Stable
	July 2022	Long Term Corporate Credit Rating	B	Negative
	February 2022	Long Term Corporate Credit Rating	B+	Negative
In its latest update, Fitch Ratings confirmed Tüpraş's long-term foreign currency credit rating as "B" and upgraded its outlook from "negative" to "stable".				
Moody's Investors Service	August 2022	Long Term Corporate Credit Rating	B3	Stable
Moody's Investors Service lowered Turkey's long-term country credit rating from B2 to B3 with a stable outlook, and revised the country borrowing ceiling in foreign currency from B2 to B3. Moody's Investors Service stated that Tüpraş's credit rating was limited to the country's borrowing ceiling. Moody's lowered its long-term credit rating for the Company from "B2" to "B3" and revised its outlook from "negative" to "stable".				
JCR Eurasia Rating	December 2022	Long-Term National Rating	AAA (tr)	Stable
JCR Eurasia Rating determined Tüpraş's long-term national rating as "AAA (tr)" - the highest possible rating – and its short-term national rating as "J1+ (tr)" with a "stable" outlook. In the assessment, Moody's determined Tüpraş's long-term international rating in foreign and local currency as "BB" with a "negative" outlook.				

Corporate Governance Rating Note



Corporate Governance Rating Composition (%)



Investments which enable the sustainability and transition of the refining business

Tüpraş's priority in allocating its financial capital is to invest in its produced capital and R&D in order to continuously improve its competitive position.

After the transfer of Tüpraş to the Koç Group, an array of strategic investment decisions were taken with a focus on technological development, change and transformation by improving product quality, operational excellence, efficiency, occupational safety, legal requirements and sustainability. Strategic investment decisions continue to be taken in these areas. Tüpraş's investments during the last seventeen years have reached USD 7.2 billion, of which USD 6.5 billion has been allocated to refining.

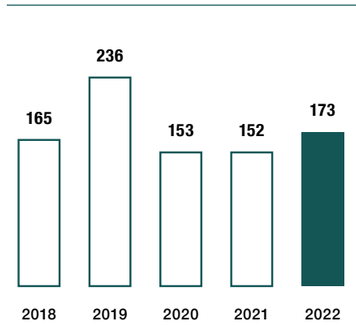
Sustainability projects and investments were the key focal points for Tüpraş in terms of investments.

Sustainability projects and investments made up 50% of the investments realized in 2022. In 2022, Tüpraş undertook a total of USD 122 million on an unconsolidated basis. In the same period, when evaluated together with its subsidiaries, Ditaş, Körfez Transportation, Tupras Trading Ltd and Entek, the consolidated investment spending reached USD 173 million. On the other hand, the total sum of regional and large-scale incentive certificates obtained for various ongoing projects in the Tüpraş refineries stood at TL 4.56 billion. These investments and projects are considered as an important step for Tüpraş to achieve its sustainability goals and to spread its environmentally friendly practices to a wide scope.

Tüpraş focused on sustainability areas such as the installation of renewable energy units, the renewal of flue gas emission units and sulphur recovery in 2022. In this vein, 60 new and 183 ongoing investment projects were carried out in 2022 with the aim of achieving significant contributions to the continuity, efficiency and profitability of Tüpraş.

Detailed information about the investments carried out at Tüpraş during the reporting period is available in the *2022 Annual Report*.

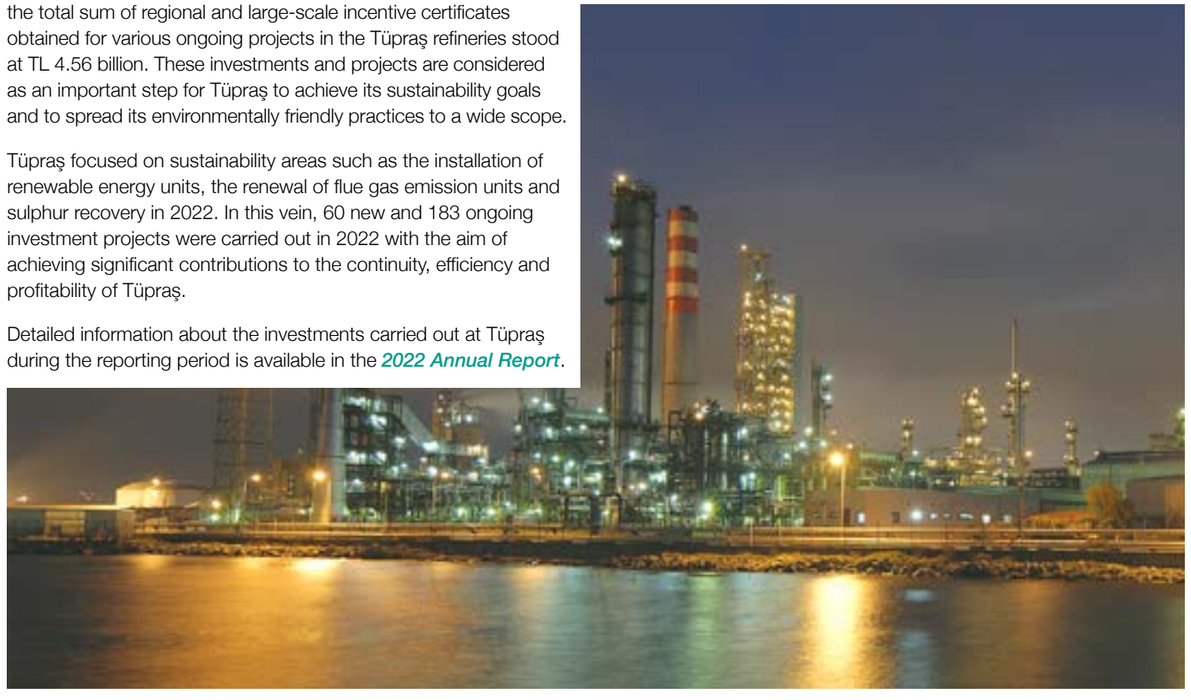
Investment Expenditure (USD million)



USD 173 million

Consolidated investments amounted to USD 173 million.

In line with its strategic transition plan, sustainability projects and investments are among the focal points of Tüpraş.



Financial Capital

Tüpraş considers its investments in process improvement, energy efficiency, HSE and environmental projects, which serve its sustainable refining target, to be ESG-oriented investments.

ESG and sustainability standards of investments at Tüpraş

Tüpraş considers its investments in process improvement, energy efficiency, HSE and environmental projects, which serve its sustainable refining target, to be ESG-oriented investments.

Likewise, investments in the sustainable aviation fuel, zero-carbon electricity and green hydrogen fields, and HSFO gas scrubber investments for electric train wagons and ships are also considered as sustainability-focused efforts.

Big steps and gains in the financing of transition

Tüpraş undertook a significant investment in the field of "zero-carbon electricity" by taking over the shares in the renewable energy company, Elektrik Üretim A.Ş. (Entek), an affiliate of Koç Holding and Aygaz. With the realization of the transfer transaction, another important step has been taken towards Tüpraş's 2050 Carbon Neutral Target. Tüpraş acquired shares with a nominal value of TL 942,727,458.04, corresponding to 99.23% of Entek's capital. With Entek's eight hydroelectric plants, one wind farm and one natural gas cycle power plant, Tüpraş has achieved significant progress towards its target of realizing a generation capacity of 1 GW by 2030 and 2.5 GW by 2035 within the scope of its Strategic Transition Plan.

Entek applied to EMRA (Energy Market Regulatory Authority) for a pre-license in 2022 with the commitment to establish an additional storage facility to its current capacity. The application covers a total of 22 projects with a total installed capacity of 1,461.5 MW, including a 190 MW solar power plant and a 1,271.5 MW wind farm. Entek will continue to advance towards becoming an important player in the energy world of the future as it pursues the addition of storage facilities to support its growth goals in the field of renewable energy.

Tüpraş plans to undertake investments in the refining field within the scope of the zero-carbon electricity transition. The contract for the construction of a solar power plant with a 12.58 MW of capacity, to be commissioned at the Kırıkkale Refinery in June 2023, was signed in September 2022, and the contract for the construction of an additional 16.72 MW of capacity at the solar power plant was signed in February 2023. In addition, an application has been submitted to EMRA to add 37.7 MW of capacity. The 1.24 MW capacity solar power plant, which is under construction at the İzmir Refinery, is planned to be completed in the second quarter of 2024, and the 12.6 MW capacity wind farm scheduled for completion in the third quarter of 2024. Another transition investment, planned for Batman Refinery, was signed in February 2023 for a solar power plant with a capacity of 5.0 MW and is scheduled to be commissioned in September 2023.

Sustainable aviation fuel investment

Turkey has an important share in the world aviation industry. With its extensive production and R&D capabilities, Tüpraş will continue to be the biggest supporter and business partner of our country's aviation industry. In 2022, the Company took another important step in the production of SAF, which will contribute significantly to its emission reduction targets, and signed a license agreement with Honeywell for the use of UOP Ecofining™ technology at the İzmir Refinery. As a result of this project, 400,000 tonnes of vegetable and animal-based waste raw materials will be converted into sustainable aviation fuel, renewable diesel and other products every year, with the investment planned to be completed in 2027.

Tüpraş subsidiaries continuing their activities that contribute to financial capital

With the largest fleet of oil tankers in Turkey, Ditaş expanded its number of tankers to 15 and its fleet capacity to 648,050 DWT with the investments it undertook in 2022. Ditaş completed 2022 with a net profit of USD 60.9 million.

Körfez Transportation, our country's first private railway operator, transported 2.5 million tonnes of hydrocarbons in 2022 and played an organizational role in the transportation of 250,000 tonnes of iron ore. Körfez Transportation rounded off the year with a net profit of TL 267.8 million.

Tupras Trading Ltd, which continues its activities in the UK, contributes to the financial capital of Tüpraş with spot crude oil trading in addition to its fuel trading activities. In 2022, the Company traded more than 8 million tonnes of products and concluded approximately 10 million tonnes of spot crude oil connections to meet the needs of Tüpraş refineries. With these activities, Tupras Trading Ltd recorded turnover of TL 83 billion.

Entek sold 2.7 billion kWh of electricity in 2022, of which 1.5 billion kWh was met through its own production and 1.2 billion kWh generated and sold through renewable energy sources. Entek became a 10% partner in WAT Mobilite Çözümleri Teknoloji ve Ticaret A.Ş., a Koç Group companies, which was established in May 2022 with the mission of rolling out electric vehicle charging stations throughout Turkey. WAT Mobilite recorded a net profit of TL 1,939 million.

With 1,857 fuel stations, Opet rounded off the year with a successful performance, taking its total market share to 18.82% (18.84% in white products and 31.62% in black products). Opet generated a net profit of TL 979 million in 2022.

Tupras Ventures – a new breakthrough in enterprise

Established as a wholly owned subsidiary of Tüpraş, Tupras Ventures will develop collaborations by drawing on its experience to bring innovative technologies to domestic and foreign enterprises in the refining sector.

With a focus on all kinds of smart IT, industry 4.0, green energy and natural resources, energy efficiency, the environment and recycling, and in particular priority issues such as bio-based products, hydrogen, zero-carbon electricity, carbon management and related sub-sectors, Tupras Ventures aims to generate added value by investing in domestic and international technology initiatives in the fields of waste management and robotic solution technologies.

Human Capital

Human Capital

Tüpraş's most valuable asset

6,112 Total number of employees	**10%** Female employee ratio	**215,589 hours** Training
70% Proportion of employees who are members of a union	**0.26** LTI frequency	**2.5%** Disabled employee ratio

WHAT IS IT?

Tüpraş employees constitute its human capital with their individual competencies and accumulated knowledge.

WHAT DID WE DO IN 2022?

Sharing the Koç Group's philosophy of "Our Most Valuable Asset is Our Human Resources", Tüpraş has determined maintaining and improving an inclusive workplace and equal opportunity conditions as its main human resources agenda and has carried out its activities and investments.

2022 HIGHLIGHTS...

- The total number of employees was 6,112, with women accounting for 10% of all employees.
- Tüpraş published its Diversity, Equality and Inclusion Policy.
- A total of 215,589 hours of training was provided to 5,113 employees*.
- The employee loyalty score increased by 12.4 points compared to the previous ye year to reach 47.4%. The loyalty score among employees paid on a monthly basis was 76%, setting a new record for the last 10 years
- 4,290 Tüpraş employees (70% of the total, including subsidiaries) are unionized.
- Tüpraş employs a total of 151 disabled employees (2.5% of the total).
- The LTI frequency of employees of Tüpraş and its business partners decreased to 0.26, with the LTI severity declining to 17.65 (employees of its business partners), while the process safety accident frequency fell to 0.27
- The Tüpraş Academy, offering workshops, training classes, a conference hall and a a library, was established in the Kırıkkale Refinery. A total of 4,314 employees were able to benefit from the Academy in 2022.
- 445 Tüpraş employees became data literate.

*Excluding subsidiaries and OHS trainings

Use of Capital

Tüpraş undertakes systematic investments in the fields of human rights in line with its strategic goals, focusing on employee participation to increase employee belonging and satisfaction, employee development to strengthen human capital and in OHS, to provides a safe and healthy work environment.

Throughout the value chain, including the production and trade cycle, the Company directs human capital in accordance with the competencies and career plans of the personnel, and is able to assign human capital to different projects in order to meet project requirements and share know-how.

Although the investments and efforts realized in this vein reduced financial capital during the reporting period, Tüpraş's natural, social, manufactured and intellectual capital will develop in a positive direction as a result of the benefits to be gained in the upcoming period, reflecting positively to financial capital in the medium and long term,.

CONTRIBUTED SDGs

Direct

Indirect

Safe and Healthy Work Environment

human rights

Inclusion and Equal Opportunity

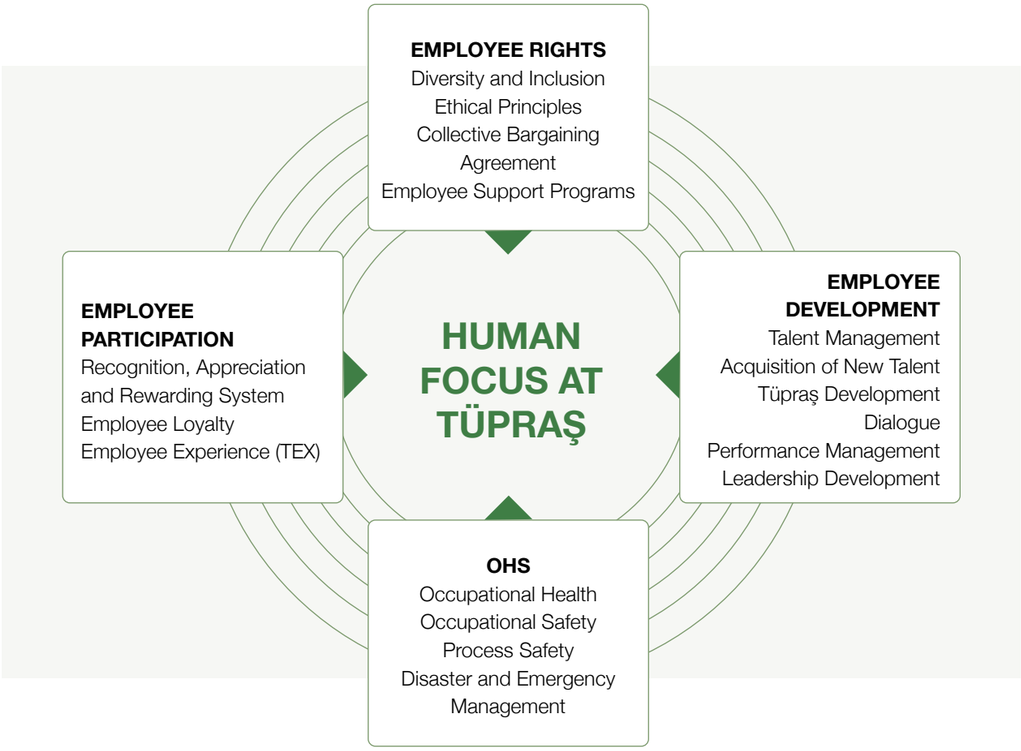
Human Capital

Tüpraş is even stronger with its competent, highly motivated, effective and qualified human resources.

EVER STRONGER WITH OUR HUMAN RESOURCES

In common with other Koç Group companies, Tüpraş adopts the philosophy of "Our Most Valuable Asset is Our Human Resources". This approach forms the core of the Tüpraş Human Resources Policy.

Tüpraş has determined maintaining and improving an inclusive workplace and equal opportunity as its main approach to human resources. In this vein, Tüpraş implements practices which will observe human rights, employee participation, employee development and OHS, which are the focus of human resources at Tüpraş, with preventing discrimination in the workplace, increasing the employment of women and providing equal opportunity being among the top priorities.



"Our Energy Never Ends for Equality"

Tüpraş has been a supporter of the UN Women's "HeForShe" movement since 2015.

https://www.heforshe.org/en

HeForShe

Tüpraş announced its goal of becoming an inclusive and equitable workplace in the energy sector to its stakeholders by signing the United Nations Women's Empowerment Principles (WEPs) in 2017

In this vein, while in-house practices are developed, pioneering projects are implemented which will raise awareness in society and trigger transformation.

https://www.weps.org/

WOMEN'S EMPOWERMENT PRINCIPLES

The Diversity, Equality and Inclusion Committee was established at Tüpraş in 2021 with the aim of maintaining and developing a business environment that supports diversity, equality and inclusion. The main purpose of establishing the committee was to create a living organizational culture at Tüpraş.

In recognition of these activities, Tüpraş was included in the Bloomberg Gender Equality Index in 2021 and disclosed its *Diversity, Equality and Inclusion Policy* to the public in 2022.

Bloomberg

Human resources as a long-term goal

Human resource planning at Tüpraş is carried out with a long-term perspective. The basis of this perspective is the recruitment of employees who will realize the Company's corporate goals. Enhancing leadership abilities, developing scientific and operational competencies through continuous training, and carrying out career planning form the main axes of Human resource planning.

Tüpraş uses contemporary, inter integrated systems that enable the production of business results in all human resources processes, from the recruitment process to the performance management system and the development, remuneration and termination processes.

All kinds of rights and benefits provided to the title and position at Tüpraş are predefined and equal for all. Gender is not a factor determining pay at Tüpraş.

A transparent wage system is applied, in which the contribution to achieving the corporate goals is kept as a key component according to the levels of responsibility. This serves as a model of wages and side benefits based on the principle of equality and fairness, which is objective, transparent and which reflects the realities of the national and international business world, and which is based on the work carried out.

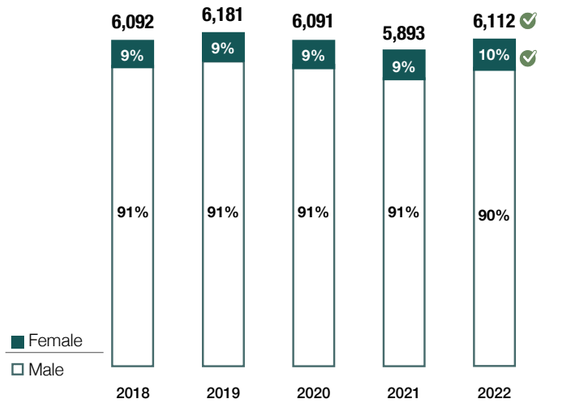
The Company has a remuneration approach which prioritizes the contribution made to achieving the corporate goals. Within the scope of market wage comparisons, the Company works with internationally accepted research firms and besides wage structures, regular sectoral wage researches and wage management policies are followed up to date.

Objective data are used in the Company's training, rotation and promotion decisions. The rules and frameworks adopted in this direction are shared with the employees. All communication channels, including the intranet portal, are used effectively so that all employees can have up-to-date information.

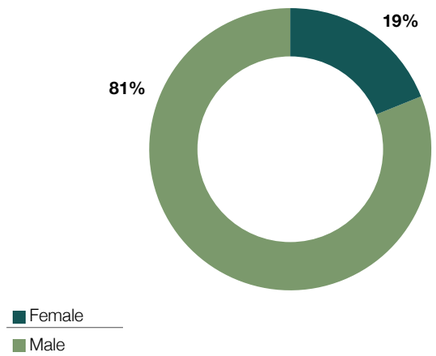
Human Capital

The Diversity, Equality and Inclusion Committee was established at Tüpraş in 2021 with the aim of maintaining and developing a business environment that supports diversity, equality and inclusion. The main purpose of establishing the committee was to create a living organizational culture at Tüpraş.

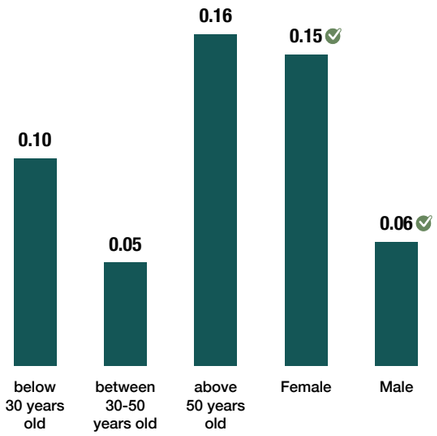
Number of Employees at Year-End (%)



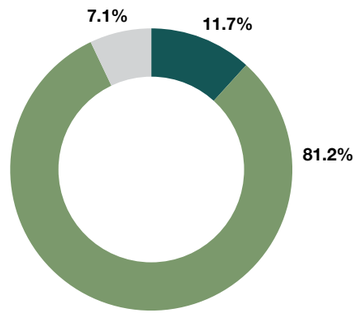
Breakdown of Middle and Senior Managers (%)



Employee Turnover Rate (%)*



Number of Employees by Age Groups (%)*



below 30 years old	718
between 30-50 years old	4,962
above 50 years old	432

*Excluding Tupras Trading Ltd

Tüpraş Values and Working Culture Principles, the Labor Law regulating business life in Turkey and national legislation constitute the framework which forms the basis for the execution of duties, authorities and responsibilities at Tüpraş.

Open Office Practice

An "open office" is implemented in order to support and improve the communication process between the management and the employees throughout the Company. All kinds of complaints, opinions and suggestions are shared through the open office communication. At the same time, employees have been informed that they should contact the Human Resources teams when they experience any problems with the management.

An area covered and regulated in a broad framework

The Company's Articles of Association, Personnel Regulation, Collective Bargaining Agreement, Code of Obligations, Tüpraş Values and Working Culture Principles, the Labor Law regulating business life in Turkey and national legislation constitute the framework which forms the basis for the execution of duties, authorities and responsibilities at Tüpraş.

The Tüpraş Ethical Principles, Job Descriptions, Collective Bargaining Agreement and Personnel Regulation are other sets of rules which all employees familiarize themselves with which complement the Tüpraş HR universe.

Religion, language and race are not asked in job advertisements, job application forms and job interviews. In accordance with the principle of "The Right Person for the Right Job", there is no discrimination in the recruitment of employees.

Tüpraş management did not receive any complaints regarding discrimination during the reporting period.

Full Compliance with Human Rights

Tüpraş's guide is the Universal Declaration of Human Rights. Full compliance with human rights is an unchanging target for Tüpraş.

Tüpraş observes the Universal Declaration of Human Rights as its guide. The Company is focused on respecting human rights in all of the regions in which it operates.

Creating and maintaining a positive and professional working environment for its employees is the basic principle of Tüpraş. Tüpraş acts in accordance with global ethical principles on issues such as recruitment, promotion, career development, pay, benefits and diversity and respects the rights of its employees to form and participate in non-governmental organizations of their own choice. Under no circumstances does it tolerate forced labor, child labor or any forms of discrimination and harassment.

Tüpraş clearly sets out its commitments in this area in its *Human Rights Policy* approved by the Board of directors, which is also published on its website since the beginning of 2021.

Tüpraş takes into consideration the following international standards and principles regarding human rights as a priority:

The UN Guiding Principles on Business and Human Rights (2011),

UN Global Compact (2000),

ILO Declaration of Fundamental Principles and Rights at Work (1998),

Women's Empowerment Principles (2011),

Worst Forms of Child Labor Convention (No. 182).

The OECD Guidelines for Multinational Enterprises (2011)

A Company Focused on the Efficiency and Satisfaction of its Human Resources

Talent management is a process designed with a development focus which enables the human resources to be evaluated in the most effective way and to correctly determine their developmental needs.

With its talent management approach Tüpraş provides:

Discovering talent which will support the achievement of future strategy and goals,

Providing solutions in accordance with the expectations and needs of different talent profiles,

Sustainable institutional and individual development with interdisciplinary learning opportunities.

With its integrated Human Resources systems, Tüpraş provides talented individuals with a focused and original employee experience where they can showcase their potential.

The talent strategy, established in a structure fully compatible with business strategies, supports Tüpraş in preparing for the future.

Human Capital

LEADERSHIP SCHOOLS

The leadership schools designed for Tüpraş leaders were commissioned in 2020. All company leaders were participating in the program as of the end of 2022. Employees who will take on a management or leadership role for the first time will continue to benefit from the program. In addition to the leadership schools, more than 100 Tüpraş employees participated in Koç Group leadership programs as well as various other leadership programs in 2022.

ONLINE INTERNSHIP PROGRAM

Tüpraş also views strengthening vocational training as an important responsibility. The Company contributes to vocational education in Turkey with projects for high school and university students, as well as the employees of its business partners.

In 2022, a total of 159 students were provided with internship opportunities at Tüpraş.

Internship activities were carried out entirely through internal resources. More than 50 Tüpraş employees contributed nearly 400 hours to the development of students by providing one-to-one training, department presentations, guidance and mentoring support. The high satisfaction of the participating students was reflected in the net recommendation score, which was measured as +53 in the experience surveys conducted during the internship.

NEXTREMERS PROGRAM

The Nextremers Project Student Program, which aims to contribute to the professional and personal development of university students, continued to reach young talented individuals in 2022. On the one hand, they continued to develop in their business life by contributing to the project outputs of the teams they were involved in with the responsibilities and initiatives they took on, while on the other, they participated in development programs specially designed for them.

In 2022, 48 students participated in the program.

Development is a fundamental focus for Tüpraş.

Within its focus on the improvement and structural change activities in human resources, Tüpraş has attached tremendous importance to training and development activities aimed at the development of both the professional knowledge and skills and the behavioral capabilities of its employees, while attracting a qualified workforce and deploying them in the most efficient and productive manner.

- The Tüpraş Academy was established in the Kırıkkale Refinery. The Academy, which provides workshops, training classes, a conference hall and a library, prepared online training content with internal trainers, with 121 online training courses on different subjects reaching 4,314 employees through internal training.
- In order to develop the competencies of "I Work Safely and with an Agile Mind", 100 online personal development classes were held on 21 different topics, in which 756 employees attended.
- Tüpraş employees are prepared for the competencies of the future with training programs such as the "RPA (Robotic Process Automation) Coaches" and "Analytical Tüpraş Training and Project Program".
- 1,882 employees attended the technical training programs which they requested through the Tüpraş Development Dialogue on 399 different topics.

E-TECH ACADEMY

The E-TECH ACADEMY was commissioned in order to offer a comprehensive and online training platform which meets international standards in order to improve the technical competencies of employees in the technical departments. A total of 57 different areas of training content with a total of 227 hours were made available to employees in the Academy, allowing employees access to technical training without putting themselves at risk of exposure to COVID-19. To date, 775 training records have been created on the platform.

In July 2022, 3,820 hours of personal development training was commissioned covering 20 different topics for paid employees. Employees may follow their personal development training programs on both their PCs and mobile devices through a specially designed training platform.

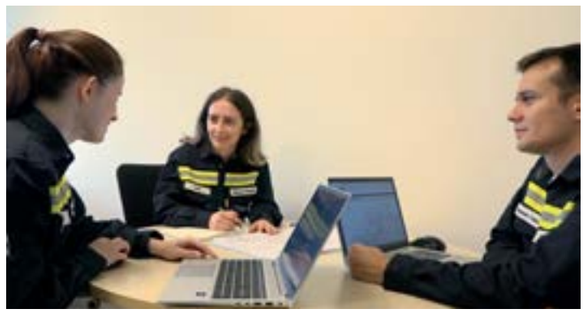
DATA LITERACY

Tüpraş aimed to offer the Data Literacy Training Project to all company employees. Under the program, 445 employees have qualified to become data literate within the scope of Data Visualization, Basic Statistics and Introduction to Power BI.

Within the scope of talent management...

Tüpraş aims that the talented individuals who will carry the Company into the future are brought into the organization, with the development of leadership and technical competencies through the training and development programs designed specifically for Tüpraş, along with support in making the right career planning.

In this context, the leadership development of the employees is supported through the training and development activities,



project work and on-the-job learning/rotation processes, which are designed by the leading business schools and university collaborations for the development of professional knowledge and skills and personal talents of the employees.

Within the scope of the development programs aimed at improving the leadership competencies of the employees, development programs which include effective communication, coaching and development, cooperation development and future-oriented development are designed. The talent management process, which enables effective guidance of human resources and identifying development needs, serves as a guide in promotions and appointments.

The "Tüpraş Development Dialogue" is used in order to establish an open dialogue between managers and their employees for the development of employees.

Education Indicators*	Number of Employees	Total Hours of Training	Average Training Hours
Monthly Paid	1,296	85,231	67
Hourly Paid	3,817	130,358	36
Total	**5,113**	**215,589**	**42**

*Excluding subsidiaries

Tüpraş Development Dialogue - A System Based on Open Communication

The "Tüpraş Development Dialogue" is used in order to establish an open dialogue between managers and their employees for the development of employees.

The behavioral competencies, career development plans and individual development needs of employees receiving monthly salaries are evaluated in an environment where the employee and the manager come together and establish a dialogue with the "Tüpraş Development Dialogue" tool.

The "I Work with a Safe and Agile Mind" program, which was created together with employees for the first time in Tüpraş, consists of three sections.

The program aims

- to develop competence by evaluating employee competencies,
- to evaluate their professional/technical qualifications,
- to help them gain a perspective on career development, assess their openness to rotation and their mobility status, to plan possible career paths within Tüpraş, and
- to determine individual development needs in both behavioral and professional areas.

The Tüpraş Development Dialogue tool was implemented in 2022 with the participation of 96% of monthly-paid employees, with the focus on developing a perspective which will foster dialogue, feedback, rotation, development and looking at the future differently within the Company.

In line with the plans made for development focuses, 21 different behavioral competencies and 24 vocational and technical training programs were provided with the participation of 756 employees in the training development catalog and professional development activities in 2022, with the participation of 492 employees.

Human Capital

Performance Management - A Target and Success-Oriented Structure

The performance management for monthly paid employees is realized with the Koç Dialogue system.

The Koç Dialogue system is a transparent and dynamic performance system which can be updated throughout the year, in which inspirational targets and success criteria are adopted.

The system is designed on the basis of multi-faceted, structured and instant opinion exchange mechanisms between managers and employees, in accordance with the objectives and target results (OKR-Objectives and Key Results) method. At the end of the year, performance improvement results are shared with employees through feedback which covers the entire year.

The total pay for all employees who are paid on a monthly basis consists of a basic salary, variable pay (premium) and fringe benefits. Pay is updated every year in line with the country's economic indicators, market data on pay and company data.

At Tüpraş, the senior management provides all employees with feedback of their performance results for the period and their target expectations.

Employee Loyalty and Employee Experience

Tüpraş has a long-standing practice of monitoring and evaluating employee loyalty through independent surveys.

Tüpraş's overall loyalty score in 2022 increased by 12.4 points compared to the previous year to stand at 47.4%. The loyalty score among employees drawing a monthly salary at 76%, while for those paid on an hourly basis it stood at 36%.

Tüpraş Employee Experience studies, which are unique to Tüpraş and were created at the beginning of 2021 with the participation of employees in order to integrate the employee experience approach more deeply into the processes, continued to be carried out in 2022.

In this context, there was an increase in the loyalty scores among both employees drawing a monthly salary and those on an hourly salary, which was achieved by developing faster solutions and realizing concrete actions more quickly with teams of managers and agile working methods in "7 experience themes which we need to improve first".

Employee Support Practices

Tüpraş strengthens the total value it offers to its employees with employee support programs.

TİSK Employee Support Program: The Employee Support Program is provided by a fully specialized professional team which serves the lifestyles and individual needs of Tüpraş employees and their families.

Medihis Online Health Service: Medihis is a digital health platform with a digital data archive feature that can be used by the Company doctors, employees and their families.

Support Program at Work: The program includes screening, training and individual psychological support work carried out by industrial psychologists at all refineries, is ongoing.

Extended Health Insurance Program: All employees are covered by complementary health insurance, and may benefit from private health coverage at preferential rates for themselves and their families.

Flexible Working Hours: At Tüpraş, employees receiving a monthly paid have the opportunity to organize the times they start and end their shifts on a daily and weekly basis in accordance with their personal needs and preferences, provided the management is aware and within certain limits.

Nursery Fringe Benefit Package: The Nursery Fringe Benefit Package supports the work-leisure balance in particular, and the career development of female employees.

Adaptation Process Guidance Program: This program practice is offered in the first 3-month orientation period to help newly recruited Tüpraş employees adapt to the corporate culture and ensure that they start work quickly

Flexible Side Benefit (Flextra) Package: With this system, each year employees may choose from a wide pool of side benefit such as life insurance, gifts and discount checks and individual pension programs, in addition to their existing side benefits, and have the option to change side right packages in accordance with their lifestyles and different individual needs. This is offered to employees every year with the Company's contribution.

Remote Working Support Packages: Employees working remotely at Tüpraş are provided with lunch and support for a company phone line.

Office Free Common Office: Employees working remotely may work from any common office within the Koç Group, using the office free reservation system based on their work plans. Tüpraş has four common offices within the scope of the Office Free application.

Tüpraş strives to demonstrate an employer identity that respects the rights of its employees to be members of a union, and which allows and supports the free exercise of these rights.

Recognition, Appreciation and Rewarding Systems

Tüpraş aims to reward exemplary work and experience with the Recognition and Appreciation of Success and Rewarding System. The implemented systems contribute to the creation of a corporate environment which employees will be proud and happy to work in.

To ensure that the employees at Tüpraş who are paid on a monthly basis are rewarded for their performance in line with their targets, a premium system which provides an additional (variable) income to the annual base pay is applied by taking their performance into account. At the same time, a Refinery Suggestions system is in place which supports and encourages individual and original ideas from employees in the refineries in areas such as process improvement, energy saving, resource saving, efficiency in production, environmental protection and occupational safety. Within the scope of another practice that encourages employee participation in decision making and as a requirement of the collective bargaining agreement, two union representatives take part in the decision processes of the disciplinary committee for employees who are paid on an hourly basis.

The Tüpraş Achievement Recognition and Appreciation and Rewarding System includes six different sub-processes:

1. Annual awards (Scientific Publication and Innovation, Seniority, etc.)
2. Successful projects and practices of Tüpraş employees are rewarded with "Tüpraş Employee Experience Improvement Awards" in order to improve their working life experiences,
3. Instantaneous rewards,
4. The HSE (Health, Safety and Environment) awards,
5. The "Bravo" Platform, which ensures appreciation for good practices and behavior which reflects the Company's culture and values, and that such practices can be transparently displayed by all employees.
6. The System aims to reveal and evaluate good ideas from all employees, to encourage their continuous development, and ensure employees feel "a part of the common solution" through models which support the participation of employees in the Company management.

Respect the Union Rights of Employees

Tüpraş strives to demonstrate an employer identity that respects the rights of its employees to be members of a union, and which allows and supports the free exercise of these rights.

Tüpraş boasts an exemplary history of union relations. A Collective Bargaining Agreement has been systematically in place since the establishment of the Company; employees were offered support to become members of unions and non-governmental organizations organized within the framework of the legal regulations.

There are union workplace representatives at Tüpraş, where the Petrol-İş Union is organized, in numbers determined within the framework of legal regulations.

All employees at Tüpraş paid on an hourly basis work under the Collective Bargaining Agreement as a member of a union.

Tüpraş expects its meticulous approach towards protecting union rights to be adopted by its suppliers and business partners. Checks are carried out to ensure that suppliers and business partners fully implement union rights in their operations.

Every 3 years, a Collective Bargaining Agreement process is carried out with the Petrol-İş Union, of which 75% of the Company's employees (3,817 employees) are members (excluding subsidiaries). The current Collective Bargaining Agreement in place is delivered to all union member employees in the form of a booklet. It is also kept up-to-date on the Company's intranet portal. Work processes are managed in accordance with the provisions of the relevant Collective Bargaining Agreement articles.

During the reporting period, 30 Tüpraş employees played an active role in the management of the unions they were members of. At the same time, 1,216 employees receiving monthly salaries took on the responsibility of being an employer's representative.

Human Capital

Tüpraş health and safety targets; In addition to secondary indicators such as lessons learned and the findings of audits in past years, holistic way with new developments and trends are determined as a whole by the Koç Holding and the Tüpraş Senior Management.

HEALTH AND SAFETY PRACTICES

The health and safety of its employees is a top priority for Tüpraş, with the philosophy of occupational safety being an indispensable value at the heart of all of its activities.

Tüpraş health and safety targets; In addition to secondary indicators such as lessons learned and the findings of audits in past years, holistic way with new developments and trends are determined as a whole by the Koç Holding and the Tüpraş Senior Management.

These targets are periodically audited by certification and rating agencies, as well as by the Koç Holding and the General Manager of Tüpraş. Sectoral comparison tables and related actions are periodically reported to the senior management of Koç Holding and Tüpraş, and the values are also presented to the public along with corporate reports, including international rating agencies.

Tüpraş's Occupational Health and Safety (OHS) mission is to ensure employees return home, healthy, at the end of each working day, while its vision is to ensure employees return home in an even healthier manner with more awareness. In line with this mission and vision, it incorporates all kinds of applications and technologies so that each individual considers the safety first and foremost of themselves and then of the others and the facilities around them, and takes the necessary actions, in terms of both health and OHS.

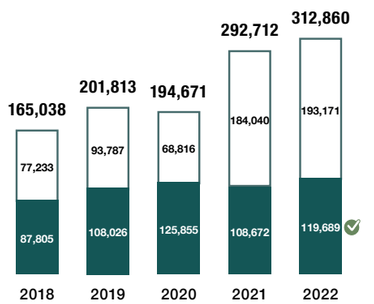
A Health, Safety and Environmental (HSE) Policy and Strategy has been established in order to uphold the safety of all employees and stakeholders in Tüpraş's areas of activity and to ensure an accident-free work environment.

The main objective of Tüpraş's OHS approach is to prevent risks which may occur and to eliminate risks within the framework of the standards, and to reduce them to an acceptable level when it is not possible to eliminate them.

The General Manager of Tüpraş is responsible to Koç Holding for the implementation of health and safety measures. The health and safety performance at Tüpraş is included in the remuneration system and practices in the evaluation of individual and collective targets.

The OHS activities at Tüpraş are planned and carried out by the Technical Safety Directorate, which technically reports to the General Manager. Activities and key performance indicators (KPI) are periodically reported to the senior management.

OHS Training Programs



312,860
Employee hours

In 2022, a total of 312,860 person hours of OHS training was provided to employees of Tüpraş and its business partners.

Tüpraş aims to fully ensure OHS at the workplace in its refineries. In this vein, employees are informed of the regulations and instructions, act in accordance with them and take the necessary precautions.

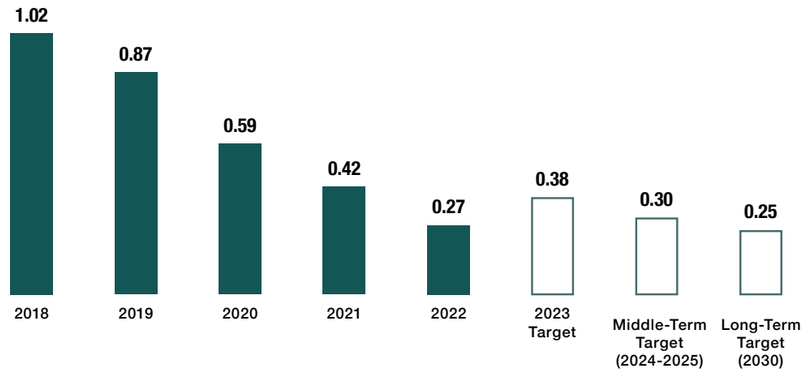
The human resources management and the company management participate in the platform, which is geared towards occupational safety, and topics such as OHS are discussed, and suggestions are assesed and necessary actions are taken. Training is given to employees regularly in the workplaces, and the content of the training is reviewed according to practices and developments.

Risk assessments at refineries are completed in a timely manner in accordance with legal regulations; occupational accidents are followed up on a consolidated basis and reported on an annual basis.

Activity Areas located in the Very Hazardous Class

Practices are developed by allocating resources to ensure the health and safety of employees in refineries during the acceptance, processing and storage of raw materials and ancillary products and in all operating, maintenance and administrative activities during the sale process with the aim of effecting improvements in each passing period.

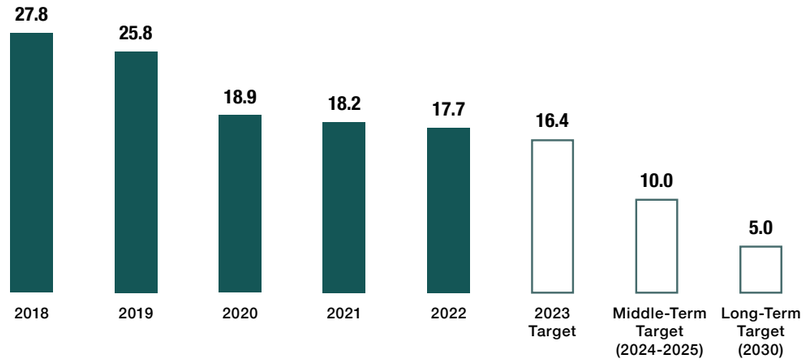
Process Safety Accident Frequency (per 1 million / working hours)



down 35%
Process Safety Accident Frequency

The process safety accident frequency converged with its long-term target, with a decrease of 35%.

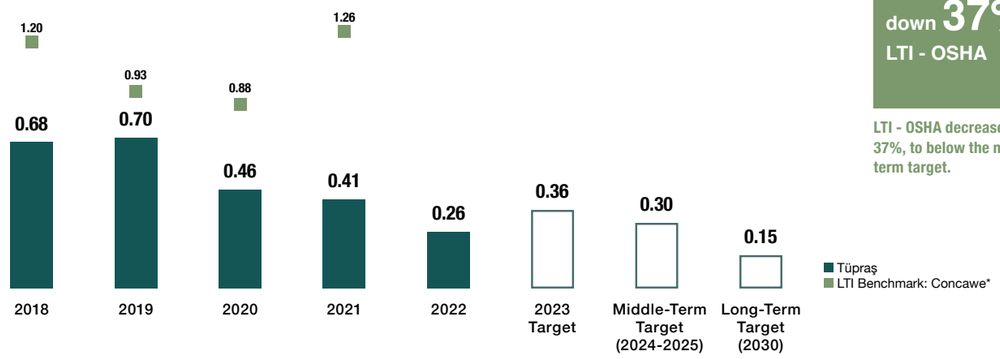
LTI Intensity - OSHA* (per 1 million / working hours)



down 3%
LTI Intensity - OSHA

LTI Intensity - OSHA dropped 3%.

LTI - OSHA* (per 1 million / working hours)



down 37%
LTI - OSHA

LTI - OSHA decreased by 37%, to below the medium-term target.

*40 companies operating oil refineries in the European Economic Area. Figures for 2022 were not available as of the publication date of this report.

Human Capital

Safety is not the job for a single working group in Tüpraş. It is a requirement for everyone to follow.

Tüpraş continues its work towards the goal of identifying and eliminating the risks arising from its activities or, where this is not possible, reducing risks to an acceptable level within the framework of national and international standards.

At Tüpraş, the Health and Safety Management System has been shaped and certified on the basis of the ISO 45001 standard. While the national legislation, relevant international standards and best practices form the basis of the management system, practices specific to Tüpraş are developed on this basis. All employees and solution partners are expected to uncompromisingly comply with HSE and Process Safety Standards. OHS training is compulsory for all contractors before starting work. In addition, activity-based risk assessments, items requiring attention to and sections setting out procedures where situations do not proceed as planned are included in the technical training provided to employees.

Safety is a requirement that everyone must follow

Safety is not the job for a single working group in Tüpraş. It is a requirement for everyone to follow.

In order to ensure employee participation at every stage of the management system, opinions are sought from respondents including business partners and suppliers and are evaluated. These parties are consulted when deciding on the steps to be taken and their methods.

Communication channels have been established and two-way dialogues were formed in order to ensure employee participation in the safety process. The performance of these activities is followed with metrics.

Workers and union representatives are natural members of the legally established OHS Board. They attend monthly meetings and convey their views and complaints regarding the OHS Management System. All members of the OHS Board receive training on their roles, authorities and responsibilities. Worker representatives may also convey their views through OHS in collective bargaining agreements and other meetings.

An examination of OHS accident statistics for the last 5 years and the causes of the accidents finds that deficiencies in the use of personal protective equipment, inappropriate use of tools or the use of tools for the wrong purpose were responsible for most accidents rather than the first three technical steps in the risk management hierarchy.

Tüpraş focused on technical training of its employees in order to avoid such situations and achieve the target of "Zero Accidents". In the same vein, the practice of conducting field inspections by responsible supervisors as well as OHS departments was expanded.

With the aim of improving general OHS performance, the following steps were taken to create a safer working environment and reach a healthier and more aware employee group in 2022;

- In refineries, the Company entered the second phase of the contractor management system. Tüpraş employed more competent OHS personnel and ensured that specialist personnel and contractors met the administrative and technical OHS requirements.
- A risk assessment-based approach was provided with the work permit system specific to planned stops. Some steps seen in normal business practice were redesigned and a safer and more effective working system was developed. Time devoted to work was safely increased and field supervision and safety referral competencies were developed from the planning of the work up to its completion.

Digitization of Work Permit System

The tender for the digitization of the work permit system, which is a key step in the work control (CoW) process was completed and preparations for its implementation at the Izmit Refinery were completed.

The digital work permit ensured simpler and more specific activity-based risks and controls, while readable and understandable uniform documents were created. The system will pave the way for a new area of synergy will be created at Tüpraş by integrating maintenance planning, smart P&iD, stock control and competence systems in order to establish a clearer and more regular work flow.

Individual and Team Development Activities

Within the scope of safety culture activities, it is aimed to reach a higher level of awareness by carrying out individual and team development activities.

"Stress at Work" is one of the reasons behind employee accidents and loss of working days.

Investments have been undertaken in technical measures to tackle noise, vibration, lighting, dust and working positions, which are industrial hygiene factors that can lead to stress, within the scope of managing the issue. Within the scope of the activities carried out with the aim of protecting employees from stress, in addition to industrial psychologist support provided by Tüpraş, employees undergo examinations of their mental state during periodic health examinations, while meetings, coffee breaks and field tours are also organized with the participation of the senior management where employees can share their ideas regarding their work.

Measures such as surveys and one-to-one communication are organized where employees may easily convey their opinions.

Opportunities such as social events, sport competitions and events have been organized for employees to allow them to relax spiritually by getting away from the monotonous work environment.

Studies on human factors and human performance optimization will continue in 2023.

The findings of the audit conducted by the Ministry of Labor and Social Securi, the BSI (British Standards Institution) and Koç Holding were evaluated. Most issues were resolved quickly while additional risk assessments were conducted for the actions expected to take some time. Hazards which were identified were brought under control until the main actions were completed.

Health Risk Assessment (HRA) studies

Health Risk Assessment (HRA) studies continue in all of the refineries. As part of the HRA studies, all area-specific (units, workshops, laboratories, warehouses) risk factors, including chemical, physical, biological, ergonomic and psychological, are evaluated in detail. Technical and administrative measures are taken to eliminate employees' exposure to these factors or to reduce their exposure to within acceptable limits. The results obtained are monitored through periodic controls. Stress Management activities and the development of a safe and peaceful working environment will continue in order to prevent stress-induced health issues and workforce losses.

The OHS Aspect in New Projects and Changes

OHS issues are also evaluated for new projects and operations or changes planned. While determining new sources of danger that may affect employees, the measures to be taken are put into the program and followed while still in the design and manufacturing phase.

In order for Tüpraş to achieve its goals in its strategic transition journey in a healthy and safe manner and for employees to fulfil their duties safely for new production areas, necessary plans have been made.

A structure has been established in order to respond to prepare for and reduce the impact of all emergency situations that may occur in the refineries, where support will be received first from the unit, refinery and other refineries, depending on the magnitude of the incident.

Emergency management - a responsibility followed by the management of Tüpraş

The Tüpraş management ensures that Tüpraş is fully prepared in emergency situations, that the competence of the teams is at the desired level and that the crisis management team is established on the basis of the incident command system consisting of authorized and competent personnel. Tüpraş performs studies after each event and ensures that the necessary actions are taken to prevent recurrence of the incidents and follows up with monitoring.

Interventions in Emergency Situations

Tüpraş carries out its interventions in emergency situations with competent teams and high-capacity modern equipment, which is primarily within its own structure and whose primary tasks concern emergency preparedness and response. As external support, it may also call on expert personnel of solution partners serving in the field for assistance depending on the class of the incident that has occurred.

The technical safety team established for emergency response in refineries consists of employees, each of whom is specialized in their field. There are also trained support teams in different units that provide support during emergency situations.

The fire response teams include rope access specialists, able to rescue victims who may be trapped in industrial environments such as closed areas and similar, and HAZMAT specialists to deal with chemicals and oil spill response.

International standards for the development of emergency protection and response systems

National and international standards (NFPA, IMO, IRATA, etc.) are taken as a basis in the training provided for the modernization of emergency protection and response systems, as well as in continuous improvements and increasing the competence of its teams.

In order to prevent the occurrence of emergency situations and reduce their effects, firefighting, fire and gas detection, and passive systems are used in an established manner, they are constantly updated, improved, and modernized in accordance with the needs and developing technologies.

Human Capital

Neighboring facilities along with public institutions and organizations participate in the drills conducted by Tüpraş as stakeholders, with their teams and equipment.

Systematic drills

In order to minimize the risks that may arise in emergencies, to prepare for emergencies and increase awareness and to intervene with methods that reach the target, high-level emergency, fire, search and rescue, hydrocarbon cloud / toxic gas emission, chemical and hydrocarbon spill drills are carried out in all refineries.

In accordance with the schedule determined every year, while the drills are monitored under the KPIs and necessary actions taken.

In order to prepare for high-level incidents, increase the capacity of joint work and response on a regional level, neighboring facilities along with public institutions and organizations (such as AFAD, UDEM and UMKE) participate in the drills conducted by Tüpraş as stakeholders, with their teams and equipment.

Proactive measures are taken to prevent spills in land and marine environments caused by the Company's activities. Tüpraş attaches priority to carrying out periodic checks and maintenance in all of its processes and activities by implementing best practices that are accepted worldwide, and working to prevent possible leaks.

In addition to the use of safe systems to prevent spills that may occur in maritime transportation and sea filling, resources are constantly available to keep the effects of any spills to a minimum. Agreements are in place with expert solution partners in order to prevent and reduce the effects of marine spills, while the necessary equipment, materials and trained teams as well as continuous service is provided to ensure 24/7 coverage.

Competent teams equipped with fighting equipment and materials to deal with any spills that occur in railway transportation, with the equipment kept ready in designated areas. The teams work with authorized response solution partners.

In land spills, proactive and active measures are taken to ensure that the possible spillages do not cause pollution to the soil and groundwater, and do not reach receiving environments such as seas and rivers. Chemicals are stored in the flood pool, thus preventing their spread.

The reported numbers of leaked spills for 2022 are set out in the Performance Indicators section. The Company intervened immediately following these spills, preventing environmental pollution, and the spilled products were recovered. In order to prevent recurrence, incident investigations were conducted and appropriate actions were taken.

Continuous improvement cycle

Efforts to increase the capacity of active response systems (fire and gas detection, fireproofing, fire water lines, etc.) and equipment modernization (fire engines) projects continue in the refineries within the scope of fire protection and fire safety. Tüpraş continuously improves and develops its emergency response processes and preparations through internal and external audits, following and applying the latest technological advances and international good practices.

Work continued on the establishment and implementation of the Road and Traffic Safety system, with activities to improve traffic safety by raising awareness. Tüpraş takes necessary measures to avoid traffic accidents which may cause material damage or personal harm on the highway and in the refinery.

Tüpraş manages traffic risks by providing training to drivers, improving physical road conditions through engineering solutions and monitoring driver behavior with the assistance of appropriate technological support.

16 Process Safety preliminary and after-basic performance indicators, which are prepared in accordance with international standards and applications (API754, CCPS etc.), are monitored on a monthly basis. The aim is to take measures before accidents occur and to prevent a repeat of accidents by learning lessons from the accidents that have happened.

In addition to the digitalization studies, projects are carried out on the management of process safety risks and the continuous monitoring of the effectiveness of barriers online.

In this context, the Process Safety KPIs followed are as follows:

PS KPI-1 - Number of Process Safety Incidents

PS KPI-2 - Process Safety Incident Investigation Actions Delays

PS KPI-3 - Timely Completion of Process Safety Incident Investigations (% Completed)

PS KPI-4 - Planned Process Hazard Analysis-PHA (HAZOP, SifPro, FTA/ETA) studies completion status

PS KPI-5 - Process Hazard Analysis-PHA (HAZOP, SifPro, FTA/ETA) studies actions follow-up

PS KPI-6 - Process Safety Critical Equipment Mechanical Integrity Tests/Technical Controls tracking

PS KPI-7 - Number of Primary Content Loss

PS KPI-8 - Emergency Drills

PS KPI-9 - Emergency Drills Action Tracking

PS KPI-10 - ESD (Emergency Shut Down) Trip By-Pass

PS KPI-11 - IPF Failures/Errors That Result in Danger

PS KPI-12 Number of Process Safety Critical Equipment That Fails Periodic Tests

PS KPI-13 - Alarm Management

PS KPI-14 - Monitoring of Change Management System (CMS) Actions

PS KPI-15 - Change Management System (CMS) - Process Hazard Analysis Completion Rate

PS KPI-16 - Monitoring of Pre-Start-up Safety Review (PSSR) Actions

KPI evaluations are carried out on an annual basis with detailed analysis and benchmark company/institution/organization reports within the scope of process safety.

In Tüpraş's Refineries, the Process Safety Management System consisting of 14 main titles aimed at Operational Discipline and Operational Excellence is implemented on the basis of management leadership and ownership with the CCPS and OSHA reference. With the Process Safety Management System, all areas such as maintenance and control activities, operating procedures, change management, process hazard analysis, training and competence, and contractor management that may lead to process safety accidents are evaluated together within the scope of Tüpraş's safety requirements.

The internal audit process, which was implemented in order to review the relevant topics and identify areas requiring improvement within the scope of the Process Safety Management System, was reviewed in 2022 and control forms were prepared, and reporting got underway in the digital environment through the SAP Audit Management for systematic follow-up and analysis.

An approach that considers new and potential risks

Risks arising from operations are monitored under HAZOP (Hazard and Operability) studies, which are reviewed every 2 years and renewed every 4 years.

Considering the developing and changing processes and potential threats in the world, in our country and in the refineries, cyber security and start-up risk assessment studies have also been integrated into the processes. Internal trainings, including major accident scenarios, are implemented both in-class and online, in order to raise awareness among employees and improve their competencies, especially in process safety. In addition to classroom training, online training on the Process Safety Management System topics are prepared as repetition training and it is ensured that related users receive the required training.

In addition to the digitalization studies, projects (such as alarm management, digitization of SU/SD procedures, digitalization of CMS and PSSR field control forms) are carried out on the management of process safety risks and the continuous monitoring of the effectiveness of barriers online.

Work on potential risks in cyber security and process safety are carried out in cooperation with the Process Safety Department and the Cyber Security Department.

Manufactured Capital

Manufactured Capital

Tüpraş's biggest strength

27.5 million tonnes Total charge (refining)	**29.5 million tonnes** Total sales (refining)	**79.5%** White product yield (refining)
96% The share of rail in land transportation (refining)	**16.8 million tonnes** Total tanker transportation (refining)	**2.7 billion kWh** Electric energy sales (Entek)

WHAT IS IT?

All physical assets and infrastructure and superstructures required for Tüpraş to carry out its operations constitute its manufactured capital.

WHAT DID WE DO IN 2022?

Tüpraş maintained its activities in line with its sustainable refining and zero-carbon electricity goals, which it aims to achieve within the scope of the Strategic Transition Plan. It prioritized work of key importance which will contribute to this transformation.

HIGHLIGHTS OF 2022...

- Tüpraş's total charge amounted to 27.5 million tonnes.
- The Company recorded total sales volume of 29.5 million tonnes, including international and transit sales.
- Its capacity utilization stood at 92%.
- 53 kinds of petroleum products were supplied to the market.
- The productivity of high value-added white products stood at 79.5%.
- The last link of the 360-degree digital customer experience was completed.
- Tupras Trading Ltd realized in excess of 8 million tonnes of product trade. It secured more than 10 million tonnes of spot crude oil connections to meet the needs of the Tüpraş refineries. 96.5% of the transportation of both crude oil and petroleum products were carried out in line with the needs of the Tüpraş refineries.
- Opet's number of stations increased to 1,857.
- In 2022, Ditaş purchased the 6,600 DWT tanker, Ocean Angel, thereby increasing the number of tankers in its fleet to 14. The Company transported 10.5 million tonnes of crude oil and 6.3 million tonnes of petroleum products. With the purchase of the 105,171 DWT Kuruçeşme tanker in the first quarter of 2023, the Company's fleet expanded to 15 tankers.
- Körfez Ulaştırma brought 75 new fuel wagons and seven hybrid locomotives into operation. With rail transportation rising to 2.5 million tonnes, the share of highway transportation in total highway and rail transportation declined to 4%.
- Entek sold 2.7 billion kWh of electricity, with 1.5 billion kWh of the sales realized from its own production and 1.2 billion kWh through generation from renewable energy sources.

Use of Capital

The growth of Tüpraş depends on the development in its manufactured capital and the investments undertaken in this field.

Tüpraş realizes the necessary growth and capacity development investments by constantly updating its financial capital, facilities, equipment, infrastructure and superstructure, which constitute its manufactured capital, and logistics competencies and ensuring they remain up-to-date and efficient. With the outputs obtained from this cycle, the Company is able to meet its needs for energy by monitoring the rapid change in the global energy market.

In line with Tüpraş's focus on zero-carbon electricity solutions, it will direct its financial capital to these investments in the short term. This will positively impact all capital elements, including natural, social and relationship and intellectual capital, as well as manufactured capital, in the medium and long term.

Responsible management of manufactured capital will contribute to occupational health and safety and, consequently, to human capital. Eliminating the negative environmental impacts of production processes by undertaking the required investment will provide a positive contribution to the natural ecosystem and, at the same time, to social and relationship capital. In turn, this will reduce the Company's environmental footprint, strengthening stakeholder trust.

Zero-Carbon Electricity

high efficiency

Unique Competence

CONTRIBUTED SDGs

Direct

Indirect

Manufactured Capital

Tüpraş deploys its manufactured capital in line with its mission to meet Turkey's demand for energy

İZMİT REFINERY	İZMİR REFINERY	KIRIKKALE REFINERY	BATMAN REFINERY	TUPRAS TRADING	OPET TERMINALS	OPET STATIONS	DİTAŞ*	KÖRFEZ ULAŞTIRMA A.Ş.	ENTEK
Capacity: **11.3 million tonnes/year** Nelson Complexity: **14.5** Storage Capacity: **3.0 million m³**	Capacity: **11.9 million tonnes/ year** Nelson Complexity: **7.66** Storage Capacity: **2.5 million m³**	Capacity: **5.4 million tonnes/year** Nelson Complexity: **6.32** Storage Capacity: **1.3 million m³**	Capacity: **1.4 million tonnes/year** Nelson Complexity: **1.83** Storage Capacity: **299,000 m³**	Based in London, the office trades spot crude oil in addition to fuel trading activities	Marmara **735,933 m³** Mersin **240,000 m³** Körfez **45,450 m³** Giresun **43,130 m³** Antalya **19,442 m³**	**1,857 stations**	4 Crude Oil Tankers: **470,067 DWT** 7 Oil/ Petroleum Product Tankers: **116,533 DWT** 4 Asphalt Tankers: **61,450 DWT** **13** Tugs, **6** Mooring Vessels, **3** Service Vessels, **1** Pilot Vessel * As of 31 March 2023	Fuel oil wagon: **519** Platform wagon: **35** Locomotive: **12**	8 HPP: **264 MW** 1 Wind Farm: **66 MW** 1 Natural Gas Plant: **112 MW**

REFINING

Turkey's first and largest refining company

Tüpraş uses its manufactured capital in line with its mission to meet Turkey's energy needs, carrying out activities to meet the country's requirement for petroleum products.

The Company supplies 53 types of petroleum products through four refineries and leased terminals throughout the country. It meets a significant portion of Turkey's demand for energy. The process, which starts with the supply of crude oil, continues within the scope of the refining cycle and ends with the production of petroleum products including LPG, gasoline and naphtha, jet fuel, kerosene, diesel, fuel oil, bitumen and machine oils, and their sale and distribution to domestic and foreign markets.

In this process, Tüpraş offers its petroleum products directly and on a wholesale basis to its customers. Customers, which represent one of the most important stakeholder groups for the Company, include companies licensed by the Energy Market Regulatory Authority (EMRA) to distribute fuel oil, LPG, bunker fuel (Fuel and Mineral Oil delivered to marine vessels and aircraft), jet fuel and mineral oil; industry, which predominantly uses petroleum products, petrochemical and paint companies, the General Directorate of Highways, municipalities, other official institutions and contractors approved by these institutions, private construction or contracting companies, cement manufacturers, trading companies and the Ministry of National Defence on behalf of the Turkish Armed Forces.

Tüpraş optimizes its crude oil purchasing operations and diversifies its sources in order to ensure optimal use of its manufactured capital, to distribute the risk in the supply chain, and to provide price and freight advantages.

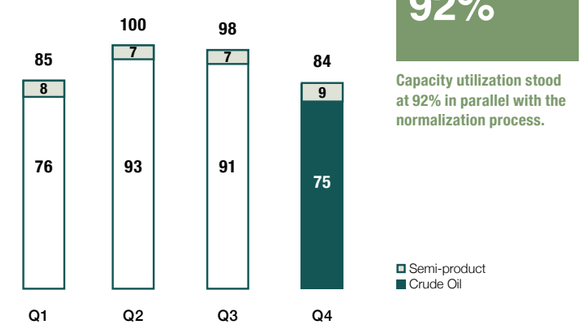
In this context, the Company realizes a significant proportion of its crude oil purchases through annual contracts with state owned oil companies. On the other hand, Tüpraş turns to additional options offering flexibility and diversifies its purchases in order to procure types of crude oil which offer the characteristics required to meet the demand for products.

Continuing its activities in the UK, Tupras Trading Ltd contributes to Tüpraş's activities with spot crude oil trading in addition to its fuel trading activities.

92% capacity utilization with an optimal charge in 2022

In 2022, Tüpraş increased its total charge on the back of increasing demand and a recovery in product margins. The total charge, which amounted to 27.5 million tonnes including crude oil and semi-finished products, increased by 1.2 million tonnes compared to 2021. Capacity utilization, on the other hand, was stabilized at 92%. In the same period, the production volume stood at 26 million tonnes. High value-added white product productivity was realized at 79.5% due to the high crude oil charge and the RUP (Residuum Upgrade Project) stoppage during the year.

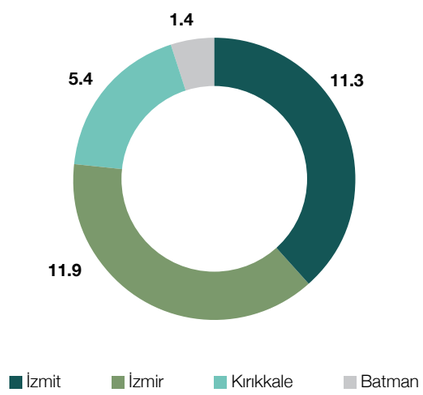
Capacity Utilization (%)



92%

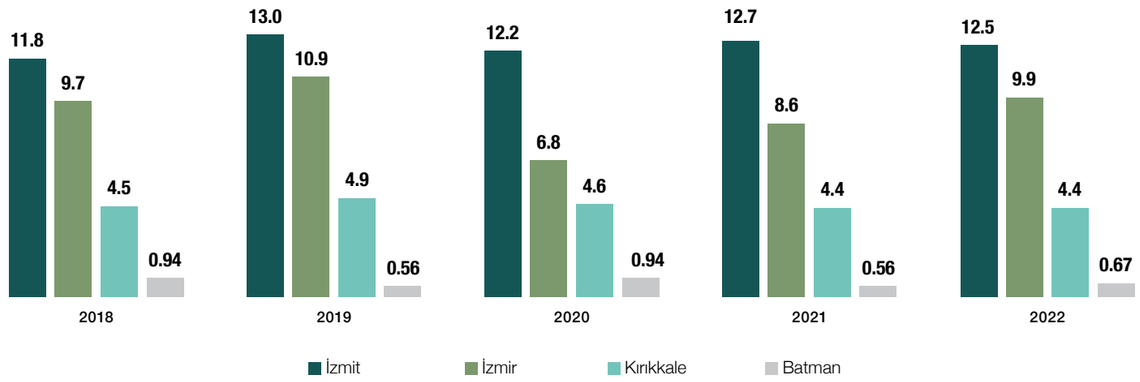
Capacity utilization stood at 92% in parallel with the normalization process.

Breakdown of Total Refining Capacity (million tonnes)

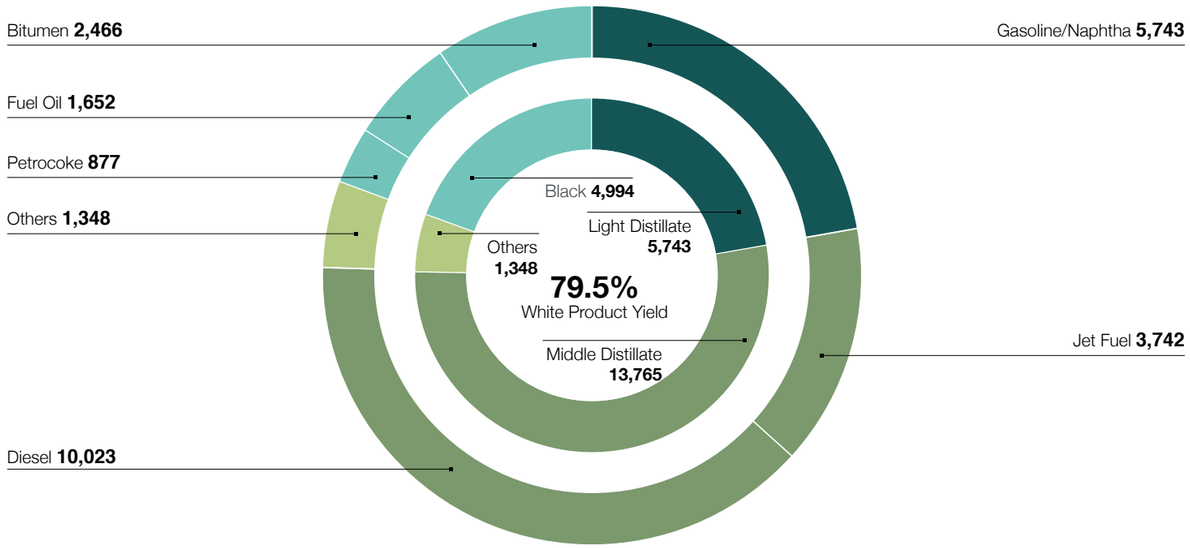


Manufactured Capital

Total Charge of Refineries (million tonnes)

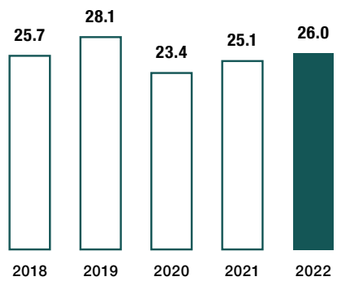


Product Distribution (thousand tonnes)



Manufactured Capital

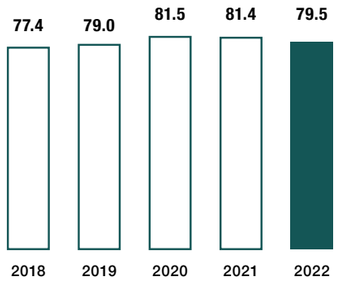
Total Production (million tonnes)



3.8%

Total production increased by 3.8% on the back of increasing demand and a recovery in product margins.

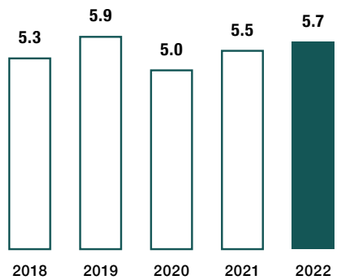
White Products (%)



79.5%

High value-added white products accounted for 79.5% of total production due to the high crude oil charge and the stoppage in the RUP unit during the year.

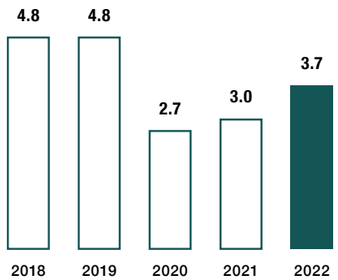
Gasoline and Naphtha (million tonnes)



4.2%

Light distillate production increased by 4.2%, driven by demand and margins.

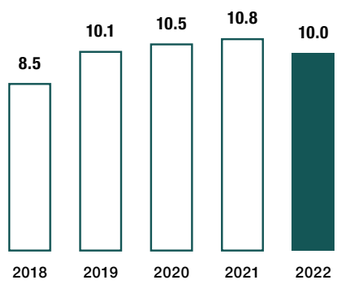
Jet Fuel (million tonnes)



26.5%

Jet fuel recorded the sharpest increase in production of any product, with a surge of 26.5%.

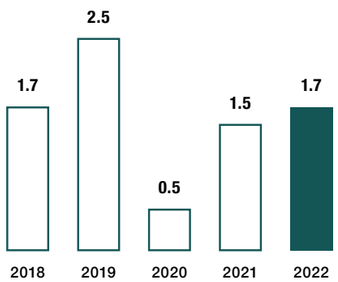
Diesel (million tonnes)



down 6.9%

The decrease in domestic consumption was reflected in diesel oil production, which declined by 6.9%.

Fuel Oil (million tonnes)



10.4%

As demand for fuel oil continued to recover, production increased by 10.4% in 2022.

Product	Domestic Sales	Development
Gasoline	3.2 million tonnes	Tüpraş met almost all of demand in the Turkish gasoline market with sales of 3.2 million tonnes, an increase of 11% compared to 2021.
Jet fuel	3.6 million tonnes	The Turkish jet fuel market, which had contracted during the pandemic, recovered more rapidly than expected and what had been seen in global markets in 2022. In line with its mission to meet the country's needs for jet fuel, Tüpraş uninterruptedly provided products to the market both through its production and through procurements from abroad.
Diesel	12.3 million tonnes	Although domestic diesel consumption decreased compared to 2021, Tüpraş increased its sales by 8%. Tüpraş met domestic demand without interruption both through production and imports of final products. It played an important role in preventing the impact of the Ukraine-Russia war on the product prices and supply from turning into a nationwide energy crisis.

Manufactured Capital

The Landfill Contactless Sales System allows the driver experience to be managed without human contact through the support of kiosks, the mobile app and the Tüpraş Solution Center.

Contribution to manufactured capital through digitalization work

Tüpraş develops customer-oriented sales approaches in changing market conditions. The sales, delivery, after-sales service and marketing processes are all reviewed in this context. It uses digitalization as a key tool in responding to customer demands and expectations.

The digital transformation journey within the scope of the Landfill Digital Customer Experience project started with the Driver - Tanker Queue Tracking Application. It continues with the Contactless Sales and Land Fill Appointment System projects. In addition to the Tüpraş Customer Portal application and the Tüpraş Solution Center (444 123 0) developed within the same scope, the Customer Notification Management System, which was specially designed to meet the needs of customers, has also been carried to the future with digitalization applications.

Gains in the digitalization and business processes thanks to efficiency activities

- The module sets out to realize the registration processes using robotic technologies in order to contribute to efficiency in internal processes. After the digitalization of the registration/change applications in the customer portal, the module was put into use in January 2023.
- Jet fuel and sulphur were included within the scope of the Land Fill Appointment System, which was first launched with the petrocoke product on 1 December 2022. Kerosene and High Sulphur Fuel Oil were included in the system from April 2023. Tüpraş will implement and expand this practice to all of its products by the end of 2023.
- The Landfill Contactless Sales System has been implemented and integrated in parallel with the TAS (Terminal Automation System) transformation. The system enables the driver experience to be managed without human contact, with the support of kiosks, a mobile app and the Tüpraş Solution Center. The entire transformation process is expected to be completed in 2023. The Landfill Contactless Sales Project, which is the first of its kind in the refining sector, will be integrated into the wagon, pipeline and sea filling processes going forward, depending on the operational feasibility.
- The Driver Portal Mobile Application provides drivers with instant access to necessary information and announcements, enabling them to track their orders and appointments on an end-to-end basis. The work on digital execution of the driver and vehicle registration procedures trough the Tüpraş customer website and by using the driver portal proceeds carefully ahead of its implementation in 2023. In addition, a self-service option started to be offered through the Customer Portal platform for payment refund requests from customers for their current account balances.
- As of April 2023, the digitalization of the manual transactions of the Daily Coupon Service process, which distributor license holders carry out to meet the mandatory oil stock obligation, was completed. In line with the zero-paper initiative, work on the digital execution of official internal and external correspondence with stakeholders of the Head Office and Refinery Sales Units over the KEP (Registered e-mail) address through the Izonay app by using the e-signature and mobile signature was completed. Transactions such as bitumen protocols were also included in the e-signature system.

- A 24/7 service started to be provided at the Tüpraş Solution Center. Service topics were expanded in parallel with the product-based expansion of the scope of appointment and contactless sales.
- In the process of optimization of maritime transportation, work was completed in the ship logistics model with the aim of shortening delays associated with customer jetties.

While these projects digitalize all processes between Tüpraş and its customers, they allow customers to complete their daily operations without human interaction and in a much shorter space of time. This work completed the last link of the 360-degree digital customer experience. The expected financial return (savings and efficiency) from the digitalization projects carried out by Tüpraş in 2022 was calculated to be approximately TL 237 million per year. Similarly, by transferring 48 new processes to robots, improvements in productivity amounting to approximately 50 person days was obtained from RPA projects for 2022.

A Customer Satisfaction Survey score of 86

Tüpraş successfully fulfilled its responsibilities in meeting the demands of its customers in the domestic market with its wide and diversified fleet as well as its alternative production and supply solutions in 2022.

In the Tüpraş Customer Satisfaction Survey, positive feedback was received on product and service quality with an overall satisfaction score of 86.

PREPARING TO IMPLEMENT THE WORK THAT WILL ADVANCE ITS MANUFACTURED CAPITAL TO NEW HORIZONS

Tüpraş's initiative in the field of biofuels

Tüpraş is preparing to produce SAF.

The Company has started work on biofuel production using the Ecofining™ technology, under the license agreement it has entered into with Honeywell UOP.

The project in the field of "biofuels" is one of the four business focuses of the Tüpraş Strategic Transition Plan for the coming period. The project will start to be implemented with the Ecofining facility, which will process vegetable and animal-based waste raw materials at the İzmir Refinery, with 400,000 tonnes of waste raw materials to be processed annually and converted into SAF, renewable diesel and other products.

Biofuels obtained from waste raw materials play an important role in reducing the carbon footprint and complying with the legislation in the refining sector.

Renewable fuels offer properties which converge with petroleum-based diesel and jet fuels. They may be used as substitute fuels in certain proportions without the need for engine alterations. This technology will be implemented in conjunction with Tüpraş for the first time in our country.

Manufactured Capital

Production of Polymer Grade Propylene

Engineering work for the Polymer Grade Propylene Production Project was completed. Within the scope of the project, the propylene compound, produced in the FCC and Delayed Coker Units and which is contained in the LPG stream, will be separated in the separation columns of the units to be established at the İzmir and İzmit refineries.

The polymer grade (99.5% purity) propylene stream to be produced is the raw material of a number of important products in the petrochemical and chemical industries.

The Polymer Grade Propylene investment is a vital component of Tüpraş's sustainable refining goals. It will also expand the Company's value-added product portfolio. The project is planned to be commissioned at the end of 2026.

HİDROSİMO - a new digital product in Tüpraş's product range

HİDROSİMO was launched by the Simulation Team at Tüpraş and progressed through the In-house Enterprise Program. It brings a digital product to Tüpraş's manufactured capital.

It allows users to perform engineering calculations through a web-based program. HİDROSİMO was put into use at Tüpraş. Work on its internal use and commercialization is ongoing, with sales of the product to external customers expected to commence going forward.

HİDROSİMO performs pressure loss, erosion limits, velocity calculations and fluid regime analyzes of fluids passing through the pipelines. It also performs comprehensive engineering calculations such as instrument and control systems design under a single roof. In addition, this software enables adequacy and feasibility analysis of existing equipment and systems.

Maximizing production sustainability at the refinery

The Pilot Scale R&D Coker Unit was designed to ensure the safe and sustainable operations of the Refinery Coker Unit. Installation and commissioning work has been completed.

The unit is the first Coker unit to be established on a pilot scale in Turkey. The unit allows possible charges which are or may be processed in the refinery's Coker Unit to undergo testing. In addition, potential solutions are developed by investigating the causes of operational problems such as stability issues and incidences of incompatibility. The unit thus aims to provide a strong contribution to the sustainability of production by minimizing production losses and reducing operational risks.

New products adding value to the portfolio

Studies on the development of the asphaltic primer product carried out by Tüpraş in cooperation with TÜBİTAK SAGE were completed in 2022. The first sale of asphaltic primer, which is used to coat the inner surfaces of warheads in the defence industry, was performed in the same year. Asphaltic primer was developed at the Tüpraş R&D laboratory, with user performance tests performed at the TÜBİTAK SAGE laboratories before the product was approved. It has also served as an important innovation in terms of eliminating the problems experienced in imports caused by supply chain breaks.

Asphaltic Aster has helped Tüpraş meet its sustainable refining goals in line with its 2050 Strategic Transition Plan. As a product with high added value, it has contributed to the diversification of its product portfolio. The formulations required for gasoline, kerosene and diesel fuels, whose specifications are in a certain niche fuel category, were developed by the Tüpraş R&D center and added to the Tüpraş product portfolio. Expanding the Tüpraş product range, examining the effects of bioethanol, biodiesel and green diesel components, which will be used in Turkey in the coming years, on fuel, developed the human resources in the field of fuel expertise and laboratory infrastructure.

Working to the objective of diversifying the manufactured capital

Tüpraş has prioritized the following investments in addition to the zero-carbon electricity investments which it will implement within the scope of the Strategic Transition Plan announced in 2021.

- Energy efficiency and decarbonisation projects, which increase operational efficiency and reduce Scope 1 and Scope 2 emissions, for sustainable refining,
- Green hydrogen production facilities,
- Biofuel production facilities, especially sustainable aviation fuel

Tupras Trading Ltd

Contributing to Tüpraş's income base

Tupras Trading Ltd continued to contribute to Tüpraş and its manufactured capital with its activities in the trade of fuel oil, light and medium distillates and crude oil products in 2022.

Derivative transactions in futures markets to manage share price risk are carried out through Tupras Trading Ltd. In addition to the method of tendering, price optimization is provided through one-to-one negotiation. The conversion of imports to be based on FOB (Free on Board) and exports to be based on CIF (Cost Insurance and Freight) also helped ensure freight optimization.

Tupras Trading Ltd plays an active role in third-party trade, in addition to providing commercial flexibility which allows Tüpraş to continue its operations without interruption in the crude oil and intermediate product supply chain, with the aim of profitably exporting its products to new regions and optimizing the refinery system. Accordingly, Tupras Trading Ltd has provided a valuable contribution to its base.

In a year marked by severe price volatility, Tupras Trading Ltd traded more than 8 million tonnes of fuel oil, light and medium distillate products in 2022. The Company realized more than 10 million tonnes of spot crude oil connections to mee the needs of the refineries.

Market risk and operational risks, which form a natural part of Tupras Trading Ltd's business model, are effectively managed within the scope of risk policies. Taking measures and developing policies are carried out by the Tüpraş Risk Management Committee.

Opet

An important part of Tüpraş's manufactured capital

Opet is one of the leading participants in the fuel distribution industry. In addition to retail sales, the Company also operates in the fields of commercial and industrial fuel sales, storage and international product trade.

The distributor has 1,857 stations and a storage capacity of 1.1 million m^3. It manages an extensive service providing network throughout Turkey with its five terminals and employs more than 1,000 people.

Opet operates in the following areas.

- Production and marketing of mineral oils through Opet-Fuchs, a 50-50% partnership with the German mineral oil Company, Fuchs,
- Jet fuel supply and sales with THY-Opet, a 50-50 partnership with Turkish Airlines (THY),
- The operation of the electric vehicle charging network with WAT Mobilite, in which Opet holds a 24% stake,
- The operation of stations through Opet Market ve Akaryakıt İstasyon İşletmeciliği A.Ş.

Serving a wide array of domestic and foreign airlines at all airports throughout Turkey, THY-Opet sold 765,360 m^3 of jet fuel in 2022. Meanwhile, Opet Fuchs maintained its production activities at its new facility in Aliağa, İzmir, realizing mineral oil sales of 40,998 tonnes.

Manufactured Capital

Ditaş

Bringing operational and cost advantages to Tüpraş

Ditaş is an important link in Tüpraş's value and logistics chains. Ditaş provides ship-ownership, brokerage/chartering, pilotage, tug, inspection and agency services. It carries out the transportation of crude oil and petroleum products as an important part of Tüpraş's manufactured capital. Ditaş performs these services through the tankers it owns, as well as the tankers it leases on a time and voyage basis.

Providing operational and cost advantages to Tüpraş with more than 45 years of experience, Ditaş transported 10.5 million tonnes of crude oil and 6.3 million tonnes of petroleum products in 2022 with 96.5% of the shipments carried out to meet the needs of Tüpraş's refineries.

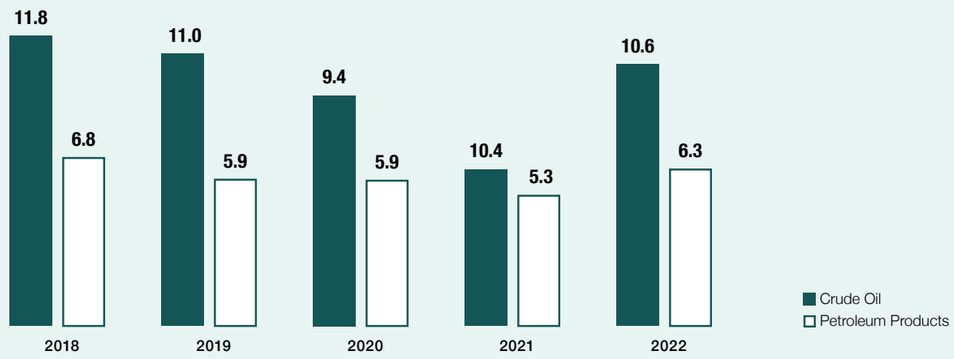
Ditaş acts as a broker between ship owners and importers and exporters of crude oil and petroleum products by chartering domestic and foreign tankers. It also provides port and strait agency services.

In 2022, Ditaş purchased a 6,600 DWT tanker, Ocean Angel, built in 2017 and registered in Hong Kong. The tanker was subsequently renamed Turk Cumhuriyet. With the purchase of the 105,171 DWT Kuruçeşme tanker in the first quarter of 2023, the Company's fleet expanded to 15 tankers.

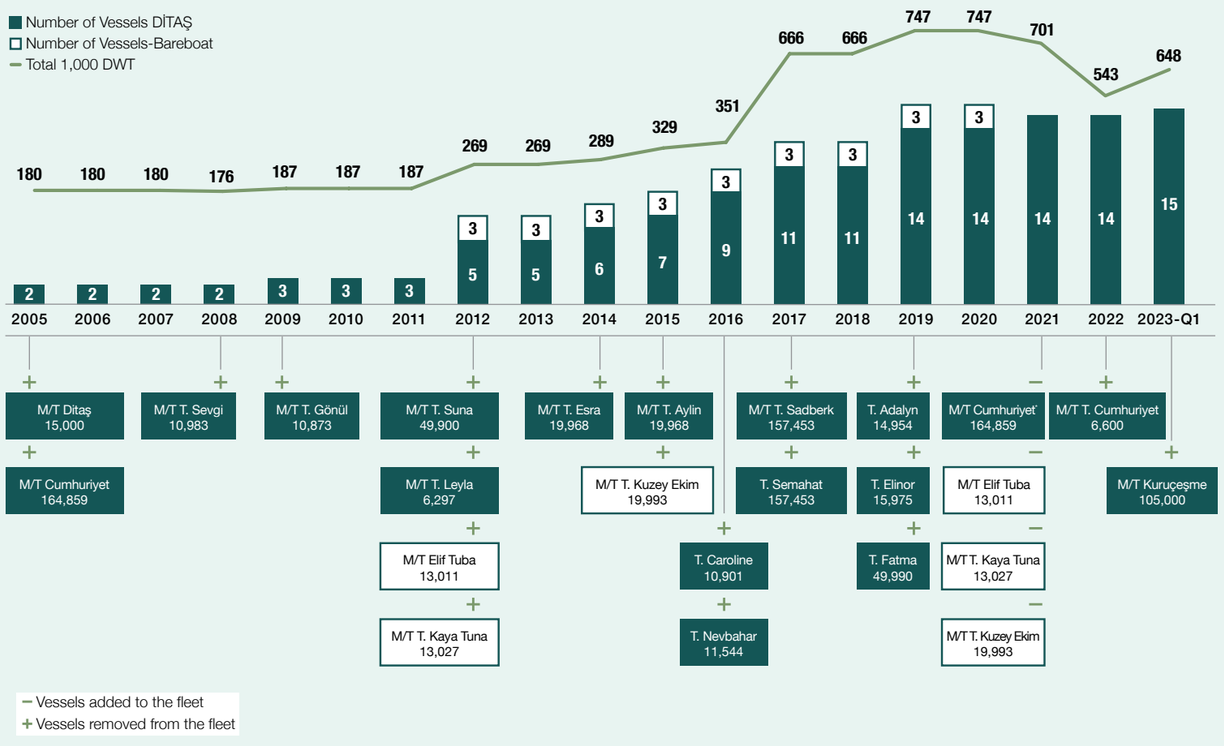
As the first company in Turkey to hold the International Standard for Maritime Pilot Organizations (ISPO) Compliance Certificate, Ditaş also holds the ISM (International Safety Management) code, the ISPS (International Ship and Port Facility Security Code) code and voluntary MLC (Maritime Labour Convention) Compliance certificates. The Company's offices, ships and terminals carry out their activities within the scope of ISO 9001:2015 Quality Management System and ISO 14001:2015 Environmental Management System.

Ditaş became the first company in Turkey and the 11th company in the world to be awarded the ISPO Certificate, which it received for its pilotage services in the Izmir Terminal. The TMSA (Tanker Management and Self Assessment) currently serves as an important reference point in tanker operations and its implementation is required by oil companies. Ditaş successfully passed the TMSA Office Review in 2022 within the scope of TMSA compliance activities. The ships under the Ditaş operation hold the OCIMF Sire system certificate of conformity. Work to switch to Sire 2.0 was completed in 2022.

Ditaş - Crude Oil And Petroleum Products Transported (million tonnes)



Ditaş - Number of Vessels and Carriage Capacity



Körfez Ulaştırma A.Ş.

Turkey's first private railway operator

Körfez Ulaştırma, which provides increasing logistical advantages and convenience to Tüpraş with its growing fleet, operates as a railway train operator (RTO).

In 2022, Körfez Ulaştırma used a total of 519 fuel wagons and 35 platform wagons, including the new fuel wagons that it commissioned during the year. In 2022, the Company started to transport Tüpraş's petrocoke product on the İzmit-Kırıkkale line.

Körfez Ulaştırma increased the volume of fuel products and intermediate products carried from 1.7 million tonnes to 2.5 million tonnes in 2022, all of which were transported with its own trains. The amount of iron ore carried by Körfez Ulaştırma in its organizer role stood at 250,000 tonnes in 2022.

Thanks to Körfez Ulaştırma's performance in 2022, the share of road transportation in total road and rail transportation, which had stood at 38% in 2017, decreased to 4%. In addition to the economic benefit provided, this also paved the way for environmental and social benefits.

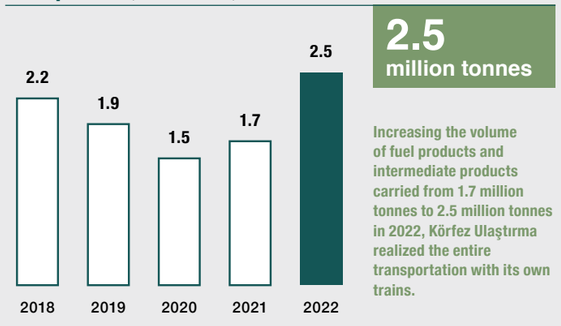
Seven hybrid locomotives, which had been ordered by Körfez Ulaştırma from the Swiss company, Stadler, in 2019, have been operating commercially in the electric business model since the beginning of 2022.

Contribution to manufactured capital: 75 new fuel wagons

Körfez Ulaştırma also supports the development of railway transportation in Turkey. It has further strengthened its logistics operations with the inclusion of 75 new wagons in the fleet.

Wagons were purchased from the world's largest manufacturer, the US-based Greenbrier. The wagons meet the requirements of the Technical Specifications for Interoperability (TSIs), which is the highest standard determined for the railway sector within the scope of EU standards. With their resistance to high pressures, the wagons are suitable for the rail transportation of all white products produced at refineries.

Total Volume of Fuel Product and Intermediate Product Transported* (million tonnes)



Manufactured Capital

Entek

An objective of growth in renewable energy and diversifying the weight of hydroelectric resources in renewable energy

One of Turkey's first private sector auto-producer companies, Entek commands a total installed capacity of 442 MW. Enter operates a total of eight hydroelectric power plants in Kahramanmaraş, Karaman, Samsun and Mersin with a combined capacity of 264 MW, a wind farm in Edirne with a capacity of 66 MW and one natural gas cycle power plant in Kocaeli with a capacity of 112 MW.

Entek aims to grow in the field of renewable energy and diversify its portfolio, consisting mostly hydroelectric energy. The Company raised its installed wind capacity to 66 MW with the license amendment made for the Süloğlu wind farm in August, which was established in Edirne in 2022.

Entek applied for the 20 MW Hybrid solar power plant for the Süloğlu wind farm on 16 November 2022. This request was accepted by EMRA on 5 January 2023.

Within the scope of the new legislation published on 19 November 2022, Entek has submitted a preliminary license application for a total of 22 projects with a combined capacity of 1,461.5 MW, including solar power plants with a capacity of 190 MW and wind farms with a capacity of 1,271.5 MW, with a commitment to establish a storage facility.

All these steps are of tremendous importance for Tüpraş's growth strategy in zero-carbon electricity.

Entek sold 2.7 billion kWh of electric energy in 2022, with 1.5 billion kWh in sales from production and generation from renewable energy sources accounting for 1.2 billion kWh of the total.

Renewable Energy Portfolio

	Installed Capacity (MW)	Generation (GWh)				
	2022	2018	2019	2020	2021	2022
Wind Farm						
Süloğlu	66	225	212	222	215	230
Hydro-electric Power Plants						
Damlapınar	16.4	62	71	66	50	68
Kepezkaya	28.0	82	115	100	63	99
Kumköy	17.5	68	98	79	43	65
Azmak	24.4	49	102	84	61	45
Kılavuzlu	54.0	144	276	235	178	179
Menzelet	124.0	309	664	577	458	475
Total	**330.3**	**940**	**1,539**	**1,364**	**1,070**	**1,160**

Intellectual Capital

Intellectual Capital

Tüpraş's assurance of the future

TL 73.3 million R&D expenditures	103 Total number of patent applications	53 Total number of registered brands
386 Total number of scientific publications	PoC with 15 ventures The Inowhatif 360 Program	11 entries + 1 exit Start-up Investments

WHAT IS IT?

Our brand, the intellectual competencies related to our technical expertise and experience, and our intangible assets constitute our intellectual capital.

WHAT DID WE DO IN 2022?

While realizing its investments and its work towards its strategic goal of "Transforming into a Leading Carbon Neutral Energy Company", Tüpraş has achieved gains that will offer new leverage in our value creation in the short, medium and long term.

HIGHLIGHTS OF 2022...

The R&D Center

- The Company spent TL 73.3 million on R&D operations.
- In 2022, Tüpraş applied to national and internationally supported fund programs for 13 projects. A total of 35 projects have been carried out so far, of which 18 are related to sustainability.
- A total of 43 researchers, 14 of whom hold a post graduate degree with eight having a doctorate, 16 laboratory technicians and two support personnel worked at the R&D Center. Eight researchers continued their doctorate studies and nine researchers continued their post graduate studies.
- The Company collaborated with more than 150 stakeholders from 26 countries.
- The R&D Center carried out its activities with more than 150 devices equipped with the state-of-the-art technology in the office, laboratory and pilot facility buildings, which have a total area of 12,950 m².
- In 2022, the Company applied for two patents (one TR, one PCT). Since the R&D Center entered operation, a total of 103 patent applications have been submitted, of which 73 are national and 30 are international.
- Tüpraş applied for one national trademark in 2022. The Company holds a total of 53 trademarks, 11 of which are internationally registered and 42 of which are nationally registered.
- Tüpraş R&D Center published 34 international and national scientific papers in (10 articles, 24 presentations) 2022. This takes the number of publications to 386 since the Center became operational.

Innovation Studies

- Within the scope of the Idea Unit In-house enterprise Program, 150 in-house entrepreneurs have had the opportunity to work with the lean enterprise method on a total of 44 projects since 2017. Four of these projects were commercialized and implemented. The "Protrack/ SecureLogistics" project won an award in the "In-house Enterprise Project" category in the "Corporate Enterprise Awards" organized by the Özyeğin University, the Entrepreneurial Institutions Platform and the Fast Company Turkey.
- Every year, thousands of start-up technologies from Turkey and abroad are evaluated. In addition to the Turkish enterprise ecosystem, collaborations have been established with start-ups from more than ten countries over three continents, such as North America, Europe and Asia.
- The Inowhatif 360 Program is carried out by a team of employees from four refineries and general directorate, under the coordination of the innovation and venture capital directorate. Within the scope of the Inowhatif 360 Program, PoC (Proof of concept) scenarios were created with 15 domestic and international ventures for operational processes. In addition, a cooperation process was also carried out.
- The venture capital company, "Tupras Ventures", was established in order to seize opportunities and new technologies, to realize new business models and potential collaborations by investing in innovation focus areas, especially in Tüpraş's transition areas such as hydrogen, biofuel, and zero carbon electricity. Tupras Ventures will invest in related fields in all regions, especially in Turkey, Europe and America.
- In 2020, Tüpraş signed a long-term cooperation agreement with Emerald Technology Ventures, an international venture capital fund based in Switzerland. The Company became an investor in the Industrial Innovation fund. In this context, Tüpraş started investments with the Limited Partner (LP) status through Emerald and has invested in 11 start-ups and exited one start-up to date.

Digitalization Studies

- Adapting to the business life of the future is a fundamental goal for Tüpraş.
- Tüpraş is carrying out 10 projects on the Digitization Platform.
- In 2022, potential efficiencies of TL 237 million had been identified thanks to analytical and artificial intelligence projects.
- Tüpraş Data Governance Policy was published.
- The Data Governance Committee was established.
- Robotic studies were carried out.
- The Data Literacy Program was launched.

* 2 of the projects are supported by Horizon2020, 1 of them is supported by Horizon Europe, 2 of them are supported by TÜBİTAK - 5 projects are carried out with Tüpraş's own resources.

Use of Capital

In line with its strategic goals, Tüpraş systematically invests in R&D, innovation and digitalization, which strengthen its intellectual capital. The Company carries out the following in order to improve its processes along the value chain, including their operational and cost efficiencies.

- Tüpraş directs its financial capital to R&D and innovation and digitalization work,
- Tüpraş directs its human capital to these efforts.
- Although the investments that have been undertaken reduce financial capital in the reporting periods, the benefits and positive effects to be obtained in the upcoming period will pave the way for Tüpraş's natural, social, manufactured and intellectual capital to develop in a positive direction. The investments will provide valuable leverage in Tüpraş's sustainable financial growth by contributing to the Company's medium and long-term brand value.

CONTRIBUTED SDGs

Direct

Indirect

Intellectual Capital

R&D CENTER

Tüpraş R&D center is a stakeholder and driving force of strategic transition.

Work to prepare Tüpraş for the short, medium and long term is carried out at the R&D Center.

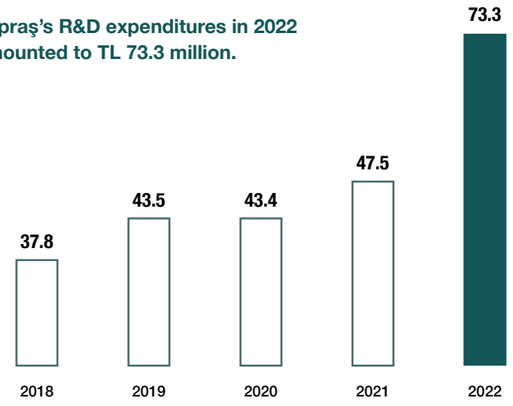
Developing innovative solutions and technologies for new investments which will be implemented within the framework of the Strategic Transition Plan, the R&D Center prepares Tüpraş for the medium and long term.

A wide array of projects which will increase Tüpraş's profitability are also carried out at the R&D Center.

With a focus on sustainable refining, the R&D Center works to increase the effectiveness of R&D activities in its refining operations. Tüpraş also develops national and international collaborations. The Company continues to work on carbon capture, utilization and storage, green hydrogen, renewable fuel, water and waste management, energy efficiency, innovative process technologies and digitalization with an emphasis on environmental sustainability.

R&D expenditure (TL million)

Tüpraş's R&D expenditures in 2022 amounted to TL 73.3 million.



THE 9 FOCUS AREAS OF THE R&D CENTER

The R&D Center works in harmony with the refinery teams within the framework of strong national and international collaborations and common goals. The R&D Center has nine focus areas.

Carbon Capture, Utilization and Storage (CCUS)

In line with its strategic goal, Tüpraş aims to develop the Carbon Capture, Utilization and Storage (CCUS) technologies and to bring the developed technologies into the Company.

The following activities are carried with a focus on the CCUS;

- Under **Horizon2020, work on the** ***MOF4AIR*** (Metal Organic Frameworks for CO_2 Adsorption Processes in Power Production and Energy Intensive Industries) and ***COZMOS*** (Efficient CO_2 conversion over multisite Zeolite-Metal nanocatalysts to fuels and OlefinS) projects is ongoing.
- With the support of TÜBİTAK, MOFAC2CAP (Development of Innovative Mof Aerojel Composites for Carbon Dioxide Capture) and Technical and Economic Research of the Most Appropriate Business Model for the Injection of Flue Gas / Carbon Dioxide to be Captured from the Batman Petroleum Refinery in the West Raman Field is being carried out.
- The R&D Center carries out the PSA-to-Fuels Project (Development of Catalytic Systems Focusing on the Conversion of Refinery Process Gases Rich in Carbon Dioxide into Valuable Fuels or Chemicals). ***Additional information regarding the projects is contained on page 136 in the Tüpraş 2022 Annual Report.***
- The "PSA-to-Fuels" project was launched with KÜTEM (Koç University Tüpraş Energy Center) within the scope of the collaboration between industry and academia. In the project, work on laboratory test studies for the conversion of refinery process gases containing high CO_2 into products with high added value using innovative catalysts continued in 2022.

For information about KÜTEM, please click here.

Green Hydrogen

Tüpraş carries out initiatives to create ecosystems along the green hydrogen value chain.

Tüpraş applied for the ETERNITY (Demonstrating the First Green Hydrogen Valley in Turkey) project with 21 partners from 4 countries under the coordination of Tüpraş at the "Hydrogen Valley" call of Horizon Europe.

Renewable Fuel

Tüpraş closely monitors various raw material sources and conversion technologies in the field of renewable fuels.

- Tüpraş cooperates with organizations such as the Boğaziçi University, Koç University, Turkish Airlines, THY-Teknik and THY OPET in the "Micro-Jet - Microalgae Based Sustainable Bio-Jet Fuel" project within the scope of the TÜBİTAK ARDEB 1003.
- The ***EBIO*** project (Biofuels through Electrochemical transformation of intermediate BIO-liquids) is being carried out under Horizon2020.

Intellectual Capital

Tüpraş is working on three EU-funded projects and one R&D Center project. With these projects, Tüpraş aims to contribute to the circular economy to promote the management and recovery of water and waste.

Circular Economy

Tüpraş is working on three EU-funded projects and one R&D Center project. With these projects, Tüpraş aims to contribute to the circular economy to promote the management and recovery of water and waste.

- Under Horizon2020, Tüpraş is carrying out the ***CORALIS*** project (Creation of new value chain Relations through novel Approaches facilitating Long-term Industrial Symbiosis), the ***AquaSPICE*** project (Advancing Sustainability of Process Industries through Digital and Circular Water Use Innovations) and EPC-EqTech (an innovative turnkey solution to process spent caustic created in the Oil&Gas industry at low-cost, and which meets wastewater regulations.
- Work on the "Making use of energy production from refinery treatment sludge" project continues within the R&D center.

Energy Efficiency

Tüpraş is carrying out energy efficiency projects in order to reduce energy consumption.

- Work continues on Tüpraş's first project under Horizon Europe, ***FLEXIndustries*** (Digitally-enabled FLEXible Industries for reliable energy grids under high penetration of Variable Renewable Energy Sources).
- Under Horizon2020, work continues on the ***BAMBOO*** (Boosting new Approaches for flexibility Management by Optimizing process Off-gas and waste) project.

Sustainable Refining

Tüpraş focuses on solutions and improvement efforts in order to increase operational efficiency for its sustainable refining strategy.

- One atmospheric and one vacuum distillation unit were commissioned.
- A Laboratory Scale Coking Unit was placed in the R&D Center.
- Data pool studies and method development studies for reducing the determination limits of organic chlorine in refinery operations have reached the final stage.
- Studies on the comparison of commercial catalysts in the hydro-processing units on a peer-to-peer basis in purchasing processes with hydro-processing pilot plant studies continue. In addition, studies for investigating the effect of operating conditions on catalyst performance continue.
- Under Horizon2020, the project of ***ACHIEF*** - Innovative high performance Alloys and Coatings for HIghly EFficient intensive energy processes continues.

Innovative Process Technologies

The refinery serves the goal of transforming intermediate or end products into valuable chemicals and fuels with innovative and environmentally friendly process and material technologies.

Under Horizon2020;

- Work within the scope of the ***MACBETH*** (Membranes and Catalysts Beyond Economic and Technological Hurdles)" project continues.
- Work within the scope of the ***BIZEOLCAT*** (Bifunctional Zeolite based Catalysts for Sustainable Hydrocarbon Transformation)" project continues.

Smart Production and Operation

With its work focusing on smart production and operations, Tüpraş develops holistic and cognitive solutions that serve efficiency and profitability for the safe, sustainable and responsible production.

In order to support refinery processes at many points, from tanks to processes and sales, work that are focused on digitalization are carried out.

Under Horizon2020, the following projects are carried out.

- ***HYDROPTICS*** (Photonics sensing platform for process optimization in the oil industry)
- ***FACTLOG*** - Energy-aware Factory Analytics for Process Industries

Commercial Solutions

Commercial solutions is focused on commercializing the material, product, fuel and digital solution project outputs, which are developed for refineries or various industrial establishments within the scope of R&D projects, in a way to be overlap with the Tüpraş strategy and to increase profitability.

Within the scope of the niche fuel project, which is one of the commercial solutions, formulations for gasoline, kerosene and diesel fuels were developed. They were added to the Tüpraş product portfolio.

With the "Development of Alternative Products for Insulation and Coating Applications" project, the final stage has been reached in the 2 product formulations, which are alternative to the existing products used in the asphalt, insulation, industrial oil and printing markets.

In the "Development of Ceramic-Based Heat Insulation Materials for Refinery Applications" project carried out in cooperation between the university and the industry between 2018 and 2021, creation of a business model and commercialization studies are carried out for the material, whose pilot field application had been completed.

Tüpraş applied for a total of 14 projects since the start of the Horizon Europe program. Tüpraş is involved in the "CCUS-ZEN" project as a networking partner.

Intellectual Capital

COLLABORATION WITH MORE THAN 150 STAKEHOLDERS FROM 26 DIFFERENT COUNTRIES

Tüpraş R&D Center has collaborated with more than 150 stakeholders from 26 different countries since its establishment.

Tüpraş plays an active role in the creation of the EU's R&D and innovation roadmap, within the scope of its goal of becoming a carbon neutral energy company by 2050. Tüpraş has

- A. SPIRE, which contributes to the resource efficient process industry,
- Hydrogen Europe, which was established to lead green hydrogen studies and form consortia,
- Water Europe, which was established to cooperate with the European water service providers and water users for research and innovation and to find solutions to global problems.

Highlights of Other Developments in the Field of Collaborations

Membership of Tüpraş in the S7PRINT Robotics initiative, which was established to promote the development, usability and application of robotic technology in refineries, continued in 2022.

Membership of Tüpraş in the "Delayed Coking Project", which has been carried out under the coordination of the Tulsa University (USA) since 2017, has continued.

KÜTEM was established within the Koç University with the support of Tüpraş. KÜTEM focuses on developing domestic and environmentally friendly alternative fuel technologies, digital transformation work, reducing foreign dependency on technology and solving the energy supply problem.

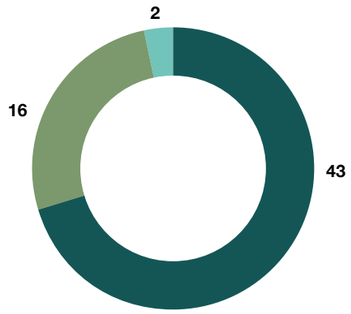
In the TÜBİTAK 2244 Industry-PhD Program, which covers the years 2020 and 2028, joint studies are carried out with the Eskişehir Technical University. The project serves to support doctoral students for critical material production technologies and thus to educate qualified personnel for the refinery sector and Turkey.

THE R&D CENTER AGILE ORGANIZATION STRUCTURE

The center continues to develop its research infrastructure and technical competencies in a market that is constantly changing and where competition is high with its agile organizational structure. Tüpraş R&D Center aims to maximize the value it offers with the right prioritization in the focus of interaction with its stakeholders.

While long-term tasks and projects are carried out in value focused teams that are cross-functional and autonomous, values and goals are managed in parallel with the Tüpraş strategy. Expertise and competency development is managed in the areas of expertise that have the same competencies and that aim to develop competency.

R&D Centre Employee Distribution (person)



GAINS PROVIDED TO THE R&D CENTER BY THE AGILE ORGANIZATIONAL STRUCTURE

- Short Project Durations
- Maximum Value Offered to Customers
- Operating Rapid Decision-Making Processes by Working with Autonomous and Aligned Teams
- Development in the Areas of Expertise and Effective Use
- Ability of Teams to Focus on Projects and to Generate Output

INNOVATION STUDIES

Innovation studies have been a fundamental component of Tüpraş's intellectual capital since 2017.

In-house entrepreneurship, open innovation programs, start-up integration work and start-up investments are important facilitators in the sustainability and ESG (Environmental, Social and Governance) journey of Tüpraş.

THE IDEA UNIT IN-HOUSE ENTREPRENEURSHIP PROGRAM

At Tüpraş, innovation and entrepreneurship climate is promoted by the Idea Unit In-house Entrepreneurship Program.

In the program, internal and external communication and training activities are carried out in order to support cultural transformation, generate value systematically and increase competence.

With the Idea Unit Portal, updates are shared about entrepreneurship projects as well as innovation studies at Tüpraş.

Since 2017, 5 campaigns have been carried out in the Idea Unit In-house Entrepreneurship Program. 150 in-house entrepreneurs have had the opportunity to work on a total of 44 projects with the design-focused thinking and lean entrepreneurship method. 4 of these projects were commercialized and 2 more projects are planned to be commercialized in 2023.

Innovation Volunteers

In order to roll out innovative thinking and an in-house entrepreneurship perspective throughout Tüpraş, work carried out with the "Innovation Volunteers" teams with the participation of the employees at different levels.

Internal Mentoring Program

The employees designated among the in-house entrepreneurs support in-house entrepreneurship projects as internal mentors. Internal mentors participate in in-house events, idea generation workshops, and all processes of the Idea Unit In-house Entrepreneurship Program. They also take part in ecosystem events as a panelist or speaker.

WHAT IS PROTRACK?
Protrack is Tüpraş's domestic software product. It is a platform that shares instant location information by providing security to valuable fluid carrier logistics companies at every stage from filling to unloading. The software has created a solution to the problems of undesired loss, leakage and location tracking, which are experienced in transportation. The commercialization process of Protrack has started in 2022.

Intellectual Capital

OPEN INNOVATION AT TÜPRAŞ

Within the scope of its open innovation activities, Tüpraş carries out activities that support sustainable growth and continuity, which overlaps with its strategies. Through open innovation studies, the Company aims to find innovative solutions for its internal needs and to capture growth areas and opportunities, which are parallel to new technologies in line with energy transition.

In addition to the entrepreneurship pool, which includes more than 15,000 start-ups, the Company continuously searches on the domestic and international network. The Company screens for technology needs routinely with the Company internal units. By monitoring closely the investment and start-up programs in the world, specific to the Company's focus areas, new solutions are suggested for business units, even though they are not identified as areas of need.

Under the main headings of energy transition, sustainability and operational excellence, the Company screens for topics such as green hydrogen, carbon management, energy storage, renewable electricity, waste and wastewater management, energy efficiency and optimization, robotic solutions, IOT (internet of things), artificial intelligence and machine learning. Accordingly, the Company collaborates and carries out investment work.

Every year, the Company interacts with more than 500 start-ups from Turkey and abroad. In addition to the Turkish entrepreneurship ecosystem, the Company has collaborated with start-ups from more than 10 countries from 3 continents namely North America, Europe and Asia.

In 2022, entrepreneurs carried out processes with a total of more than 30 units from 4 refineries and the General Directorate. Demo studies were conducted with more than 150 stakeholders within Tüpraş.

THE INOWHATIF 360 PROGRAM

The purpose of the Inowhatif 360 Program is to provide operational benefit as an early implementer of the ventures that can solve the needs and problems in the site processes for refinery sustainability and efficiency, and to bring Tüpraş together with innovations in the sector rapidly.

The Inowhatif 360 Evaluation Team was formed with the participation of representatives from all locations of Tüpraş. In order to roll out the Inowhatif 360 Program and to ensure effectiveness in cooperation, in 2022, the Inowhatif 360 Evaluation Team held detailed meetings with the participation of many domestic and international ventures and the relevant units of Tüpraş with regard to operational processes. Proof of Concept scenarios were created with 15 ventures in many different fields such as "Image Processing", "Sensor Solutions", "Waste Heat Solutions", "Waste Water Technologies" and "Robotic Solutions" and the cooperation process has continued.

INVESTMENT IN EMERALD TECHNOLOGY VENTURES

The Emerald Industrial Innovation Fund is an international venture capital fund that invests in new technology companies in the USA and Europe. In 2020, Tüpraş entered into a long-term cooperation with the Emerald Industrial Innovation Fund and became an investor. The Company has started investments with Limited Partner status through Emerald. As of the end of 2022, the Company invested in 14 start-ups and exited 1 start-up. Emerald invests in sustainable technologies and measures the direct impact of portfolio companies. Sustainability - Emerald - Industrial investment for a sustainable future.

TUPRAS VENTURES WAS ESTABLISHED IN 2022.

Funding amounting to USD 50 million from Tüpraş for venture capitals by 2030

"Tupras Ventures", a venture capital company, was established in order to seize opportunities and new technologies, to realize new business models and potential collaborations by investing in innovation focus areas, especially in the Company's transformation areas. Tupras Ventures was established to invest mainly in in the priority issues such as bio-based products, hydrogen, zero carbon electricity, carbon management, and related sub-sectors, in all geographical areas, primarily in Turkey, Europe and America. Tupras Ventures also aims to invest in the ventures in the fields of all kinds of smart information technologies, industry 4.0, green energy and natural resources, energy efficiency, environment and recycling, waste management, robotic solution technologies.

Within the framework of its Strategic Transition Plan, Tüpraş announced that it will allocate USD 50 million until 2030 in the field of venture capital, particularly in new technologies and business models in energy transformation.

IN ORDER TO PRODUCE A COMMON IMPACT IN INNOVATION STUDIES

The Event Series of Inowhatif Talks

Aiming to keep the entrepreneurial climate alive, the Inowhatif Talks series continued also in 2022 with inspiring content on innovation, technology and new business models.

Here2Next Platform

Tüpraş is one of the founders of the "Here2Next" platform. The platform was created by 9 leading companies by coming together in order to draw attention to the added value of collaborations between institutions and start-ups.
For detailed information https://here2next.org/

Entrepreneurial Institutions Turkey Platform

Tüpraş is also actively involved in the Entrepreneurial Institutions Turkey Platform. The platform was established with the aim of improving inter-institutional learning, raising awareness about successful practices, and rolling out of systematic practices of in-house entrepreneurship.
For detailed information https://girisimcikurumlarplatformu.org/

The TÜSİAD Entrepreneurship Ecosystem and Corporate Entrepreneurship Working Group

Tüpraş is a member of the TÜSİAD Entrepreneurship Ecosystem Working Group and the Entrepreneurship in Institutions Working Group.
Click for detailed information.

Promotion and Collaboration Development Work

Within the scope of its work on integration with the entrepreneurship ecosystem, Tüpraş participates in many events aimed for early-stage and advanced-stage start-ups and entrepreneur candidates. The Company organizes programs and offers mentorship support to entrepreneurs.

Intellectual Capital

In 2022, Tüpraş unwaveringly maintained its innovative and pioneering practices in order to ensure adaptation to its digital strategies that it had published within the framework of the Strategic Transition Plan.

Innovation in Young Minds and Women's Entrepreneurship Program

The program was realized in cooperation with Tüpraş and the Batman University.

The program started with a seminar titled "Fundamentals of Innovation and Entrepreneurship" at the Batman University. All content was created by Tüpraş in an original manner throughout the program. Seminars and trainings were given by the Tüpraş innovation team without external support. In addition, the Tüpraş internal mentors provided mentorship support to the Batman University students. Tüpraş participants also took part in the Demo Day event of the program.
Click for detailed information. (in Turkish only)

PREPARING TÜPRAŞ FOR THE FUTURE WITH DIGITALIZATION AND OUR WORK ON DIGITAL TALENT

Adaptation to the work life of the future is a fundamental goal for Tüpraş

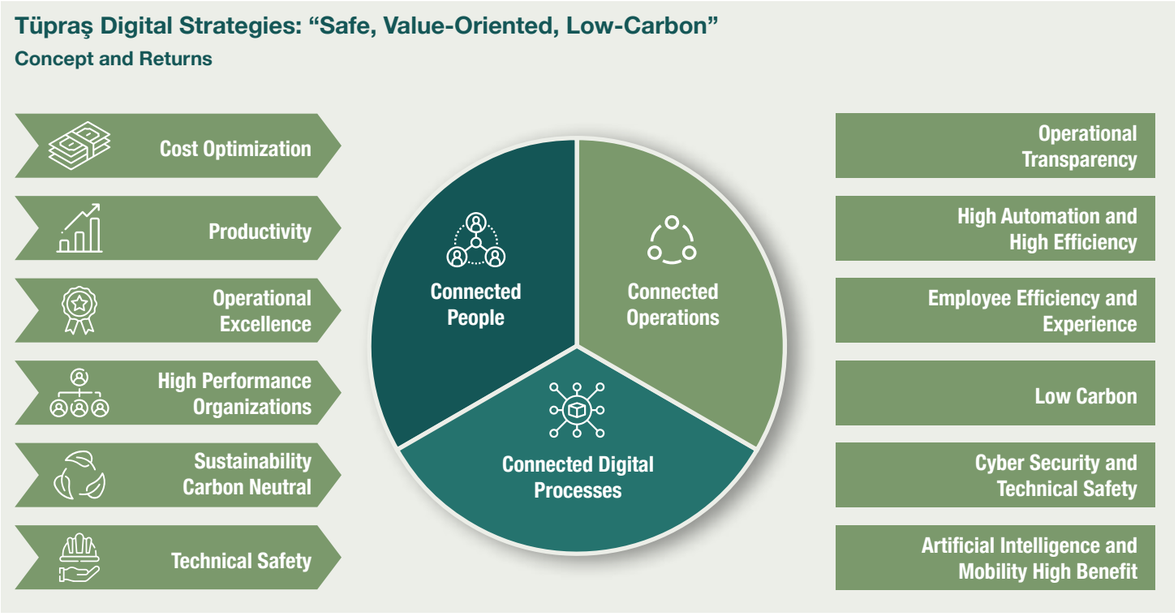
In 2022, Tüpraş unwaveringly maintained its innovative and pioneering practices in order to ensure adaptation to its digital strategies that it had published within the framework of the Strategic Transition Plan.

Tüpraş has created the Digitalization Platform to implement digital strategies and further strengthen its organizational structure by identifying initiatives compatible with the future of work.

The platform work team was established with a broad participation approach. The team will focus on carrying out Tüpraş's digital transformation efforts in the most effective manner by adopting agile working methods.

Another of the platform's goals is to minimize the duplication of work in the field of digitalization and to maximize the efficiency of valuable resources with the cooperation of different business units.

Ten projects had been carried out within the scope of R&D activities as of the end of 2022. These projects are classified in the focus areas of smart production, smart quality, smart business solutions and smart technologies. Multi-stakeholder collaborations have been established for the projects. Two of the projects were supported by Horizon2020, one by Horizon Europe and two by TÜBİTAK. Five projects have been carried out with Tüpraş's own resources. Detailed information on all of Tüpraş's digital strategies and the technologies that the Company is focused on is available at the following link;
https://www.tupras.com.tr/en/strategy#dijital-donusum



DIGITALIZATION STUDIES

A wide range of data analytics and AI work carried out in Tüpraş

The energy efficiency and EII instant monitoring activities, which had got underway in 2020, continued with the participation of field workers at all refineries.

End-to-end applications, which were designed to bring a competitive advantage to the Company's financial and commercial operations, were brought into use. The created AI systems were combined under the name of the FINTEL platform, which was transformed into a platform that has an impact on the decision-making stages.

The projects carried out in the fields of analytics and artificial intelligence in 2022 generated efficiency potential amounting to TL 237 million for Tüpraş.

Strong data governance contributing to overall efficiency and value creation

The aim of Tüpraş's data governance efforts is to create the highest amount of value from data. Another aim of the work is to render the data understandable, shareable, manageable and protectable within the Company, while seeking to create a data culture which will strengthen the common perspective.

In 2022, DACAMA (Data Capability Maturity Assessment) activities were carried out in cooperation with KoçDigital, which concluded with the reporting of Tüpraş's strengths and areas for improvement.

A total of 22 people were selected as data owners and data controllers in the pilot units and the Company organized data governance awareness training.

The Tüpraş Data Governance Policy was set out in 2022 and made available to employees. The Data Governance Committee was subsequently established and its first meeting was held, and the Data Governance Data Quality Policy was finalized.

New Stages in Robotics Studies

Tüpraş Robotics Team expanded the pilot trials that it started in 2021 in periodic control studies of oil storage tanks, measurements and risky business areas in refinery fields, in Izmit, Izmir and Batman Refineries in 2022.

The RUVI OilDiver (Bottom Control Robot in an Operational Tank) project, which an ATEX certified by TÜBİTAK, is a first in Turkey and one of the few such projects in the world.

Tüpraş completed the test applications with the smart four-legged Spot robot which can be controlled remotely at Boston Dynamics' production sites. Tüpraş completed the Tracked Robot trials in 2022, which will provide significant advantages in areas with uneven ground such as tank yards and off sites for autonomous observation work in the field.

Intellectual Capital

Tüpraş has a wealth of data in terms of production and process systems and equipment assets. With the integration of this data, the Company planned to carry out maintenance, planning and asset strategy management from a single platform.

EXAMPLE PROJECTS

TAS (Terminal Automation System) & Contactless & Appointment Based Sales

With the Terminal Automation System (the TAS app) project, which is included in its medium-term plan, Tüpraş transferred all work processes in the sales systems of ships, pipes, land, wagon filling, scrap, etc. to the digital environment. By starting product-based appointment-based sales processes in tanker filling processes, Tüpraş has continued to take firm steps towards achieving its goal of offering a 360-degree digital customer experience through the app, which is a first in its sector.

AR-VR-XR Based Work

Tüpraş prepared the "Oven Control" and "Fire Vehicle Promotion and Extinguishing" scenarios by using Extended Reality (XR), Augmented Reality and Virtual Reality technologies.

Asset Management Work

Tüpraş has a wealth of data in terms of production and process systems and equipment assets. With the integration of this data, the Company planned to carry out maintenance, planning and asset strategy management from a single platform. Pilot projects have been launched at the İzmit, Kırıkkale and Batman refineries with technology suppliers, who are leaders in their sectors. The pilot projects will offer Tüpraş the opportunity to reduce energy costs and maintenance costs and improve operational efficiency.

Field Mobilization and Electronic Work Permit System

Work on the use of industrial tablets in the site environment continued in 2022. The process of selection for technology and firms for the "Electronic Work Permit System" project was completed. Pilot studies and the rolling out process will be carried out in 2023.

New Digital Technology Trials

In 2022, the pilot trials (PoCs- Proof of Concept) of more than 50 technologies were conducted at Tüpraş within the scope of the "Connected People - Agile Return, Design the Future" strategy. The "GIS (Geographic Information System)", "Shopfloor Management", "APM (Application Performance Management Tools)", "Quantum Computing", "Kubernetes & Dockerization" technologies were determined as the technologies which have matured under refinery conditions and yielded efficiency.

Within the scope of the strategy of "Creating a Smart and Autonomous Refinery", an isolated LTE network was established at the İzmit Refinery with the frequency specially allocated by the Information Technologies and Communications Authority (BTK). The push-to-talk radio service was successfully tested.

Tüpraş's mission is to democratize data and ensure that it is used at every point of the decision-making mechanism, and that the "single and same" data is at the center of decisions at all levels.

Multi-faceted Value Provided by Digital Talent Development Programs

Tüpraş's mission is to democratize data and ensure that it is used at every point of the decision-making mechanism, and that the "single and same" data is at the center of decisions at all levels.

The "Analytical Tüpraş Training and Project Program", which had been launched in 2021, and the "RPA Coaches" program, which will manage the RPA (Robotic Process Automation) activities, continued with increasing number of participants in 2022.

More than 110 employees of Tüpraş gained data citizenship capability. Repetitive tasks and work processes were accelerated with 155 RPA coaches. With over 200 robotic processes, efficiency that is equivalent to 16,208 person/day was achieved.

DATA LITERACY

Tüpraş started a new "Data Literacy Program" in 2022. The Data Literacy Program is designed to provide all employees with the necessary competencies to use and analyze data in the most effective way.

More than 700 employees participated in the training program with 445 employees successfully passing the exams and being certified as data literate.

In 2022, the "Tüpraş Trains its Software Developers" program was launched for those who volunteer to develop their app needs in their own domain.

Both site and office workers exhibited intense interest in the "Hack Your Job" hackathon, which was organized in cooperation with the Koç Holding under the slogan of "Koç employees are redesigning their work at Tüpraş". A total of 37 teams applied in the event and the nine teams which passed the pre-selection went on to create their own work solutions, with three projects being awarded.

Tüpraş Cyber Security Strategy

Within the scope of information security and compliance, actions targeted for employees, suppliers and customers were completed during 2022 under the awareness program which is determined annually.

According to the architectural and legal compliance processes related to cyber incidents, an increasing level of security consultancy was provided to all relevant stakeholders in the IT/OT fields. Integration and adjustments were carried out for the production, operation and change processes to ensure that any harm arising from cyber threats was addressed. Reputational risk continued to be the most important factor in rolling out the cyber security culture and awareness activities.

System and infrastructure change/transformation projects in the cyber operations and response processes, in addition to the follow-up and integration of new generation security products, played a major role in tackling cross border threats.

Cyber-attack monitoring and defence have been shaped around a zero-trust approach. Pre-detection with threat seeking and continuous attack simulation has enabled accurate and timely incident responses. Relevant strategies and initiatives have been updated accordingly.

Social and Relationship Capital

Social and Relationship Capital

Tüpraş's approach to corporate citizenship

TL 288.7* million Total donations and sponsorships	support for education	support for the arts
support for sport	support for enterprise	support for regional development

WHAT IS IT?

Strong stakeholder collaborations built up over many years, which contribute to the strengthening of society and increase social welfare, constitute the social and relationship capital of Tüpraş.

WHAT DID WE DO IN 2022?

Tüpraş continued to develop long-term, mutually beneficial relationships with its stakeholders and increase its social impact in order to improve its business and improve the welfare of society. The Company carried out work to contribute to development in the fields of gender equality, education, culture and arts and the environment.

The devastating earthquake, whose epicenter was in Kahramanmaraş, struck while this report was being prepared. Immediately in the wake of the earthquake, Tüpraş directed all of its strength and capacity to aid the areas affected by the devastation.

HIGHLIGHTS OF 2022...

- Within the scope of the Innovation in Young Minds and Women's Enterprise Program, the first of the "Fundamentals of Innovation and Enterprise" seminars was presented to participants at the Batman University in March.
- 30 trainee students and eight Nextremers attended the training provided within the scope of The Feminist Technologies for Generation Equality Internship Program at Tüpraş.
- Through workshops on Our Energy to the Future: I Code, Model, Produce Project, Tüpraş reached nearly 10,000 primary school pupils at 41 primary schools.
- Within the scope of the global cooperation with the United Nations Women's Unit (UN Women), the HeForShe Movement and the Fenerbahçe Sports Club, training on social gender was provided to 197 athletes and managers from 5 amateur branches and 62 sports media members.
- Tüpraş continued to support the Arter Contemporary Art Museum, the Istanbul Drama Festival, the Deniz Temiz Association/TURMEPA and the Batman Disabled Sports Club Association. The Company maintained its contributions to the YKY Anatolian Civilizations Book Series.
- In 2022, Tüpraş allocated a total of TL 288.7 million to donations and sponsorships*.

* https://tprstaticfilessa.blob.core.windows.net/assets/uploads/tprspolitika/tr/tupras_bagis_ve_sponsunluk_politikasi.pdf

Community Empowerment through long-term cooperation

with Stakeholders

Use of Capital

In order to achieve its strategic goals, it is vital that Tüpraş continuously develops stakeholder trust and loyalty, which is reflected in its Social and Relationship Capital.

Donations and sponsorships as well as the support provided to issues determined to be a social priority create added value. This cycle indirectly contributes to other capital elements and strengthens the Company's position as a responsible corporate citizen among its stakeholders.

CONTRIBUTED SDGs

Direct

Indirect

Social and Relationship Capital

As the leader of Turkish industry, Tüpraş transfers its energy to projects which will accelerate social development. It also creates value for society, which is its largest stakeholder group.

WITH ITS IDENTITY AS A RESPONSIBLE CORPORATE CITIZEN, TÜPRAŞ IS FOCUSED ON PROVIDING A MULTIFACETED AND EXTENSIVE CONTRIBUTION TO SOCIAL DEVELOPMENT.

As the leader of Turkish industry, Tüpraş transfers its energy to projects which will accelerate social development. It also creates value for society, which is its largest stakeholder group.

SUPPORT FOR EMPLOYEE VOLUNTEERING AT TÜPRAŞ

The voluntary participation of employees in the corporate social value creation cycle is a concept that finds strong response and is supported in many ways in today's world. As a responsible and exemplary producer, Tüpraş encourages and supports the voluntary participation of its employees in corporate social responsibility projects designed in the light of its corporate culture and values, and carried out its work accordingly.

Consisting of Tüpraş employees and their families, Volunteer Teams also work in partnership with local and national non-governmental organizations to take part in corporate responsibility projects. They contribute to the production of added value by offering their know-how and experience.

Throughout 2022, the Tüpraş Volunteers individually contributed to a number of social responsibility projects.

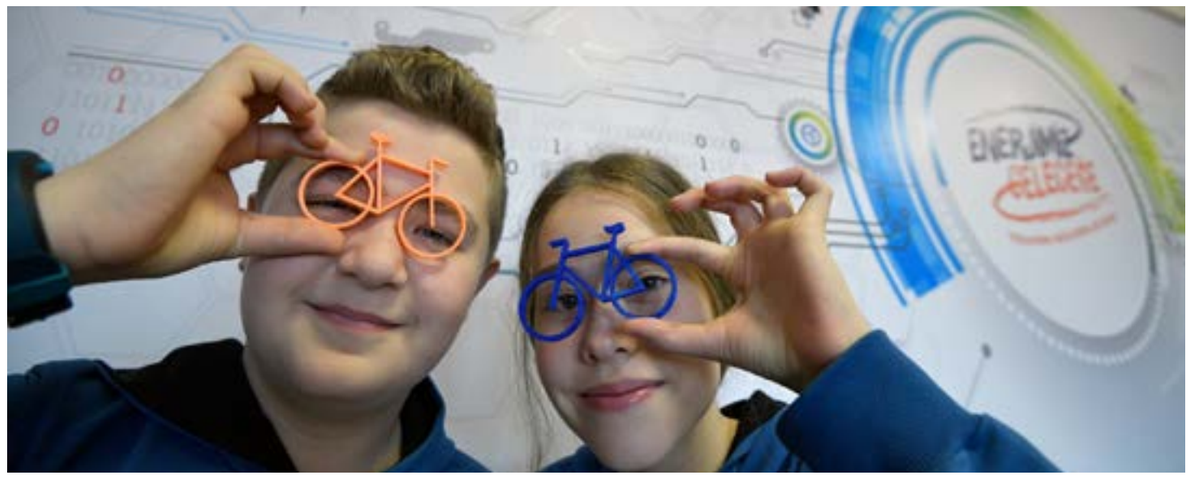
Social Gender Equality

A signatory to the United Nations Women's Empowerment Principles (UN WEPs) since 2017, Tüpraş continues its efforts in line with its goal of being an inclusive workplace.

The Company develops pioneering applications and implements corporate social responsibility programs aimed at increasing social awareness. The social projects carried out in this context contribute to Gender Equality Goal No. 5 of the United Nations Sustainable Development Goals.

Tüpraş embodies its work on gender equality within the scope of the following activities which are discussed in detail in the following section.

- Women in Technology and Innovation
- The UN Women HeForShe Fenerbahçe awareness



WORK IN EDUCATION TO PROMOTE EQUALITY IN THE FIELD OF TECHNOLOGY AND INNOVATION

Tüpraş supports diversity, equality and inclusion with the principle of "Our Energy for Equality Never Ends". It carries out its activities with the aim of creating a pioneering and exemplary business environment. The Company also continues to work to raise awareness about the empowerment of women and girls in society.

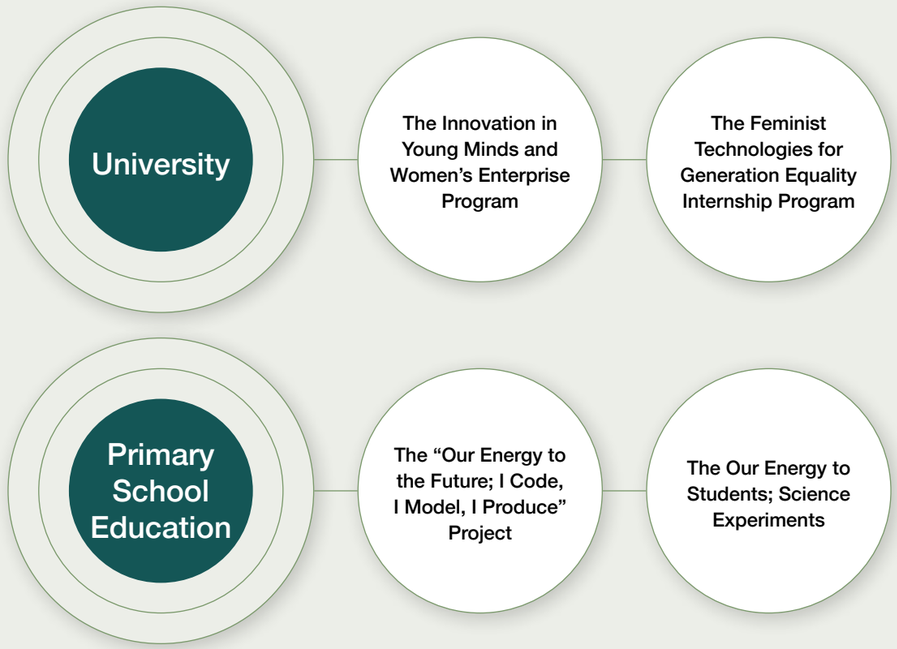
Koç Holding, which Tüpraş is a part of, is one of the Technology and Innovation Action Group Leaders in the United Nations Women's Generation Equality Forum. Under Koç Group's guidance, Tüpraş also carries out projects to contribute to the equality commitments of the UN Women's Generation Equality Forum in the field of Technology and Innovation.

The target of reaching 100,000 female students to reveal their potential in the STEM fields

Within the scope of the Women in Technology and Innovation Program, Tüpraş has planned to reach a total of 100,000 female students, 90,000 of whom are in secondary schools and 10,000 in university, within the next five years. Tüpraş also plans to roll out educational projects that will unveil the potential of girls and women seeking to work in the STEM fields.

In line with the program, Tüpraş aims to develop educational content and model applications by developing collaborations with the public sector, universities, NGOs and social organizations, as well as to implement mentoring programs for women and girls.

TÜPRAŞ'S WOMEN IN TECHNOLOGY AND INNOVATION PROGRAM



FOR UNIVERSITY STUDENTS

The Innovation in Young Minds and Women's Enterprise Program

The Innovation in Young Minds and Women's Enterprise Program, which had got underway in October 2021 and was implemented in cooperation with Batman University, has the following aims:

- To foster an entrepreneurial culture among university students, especially female students,
- To facilitate young people's access to the technology and innovation ecosystem.

The program's working model was developed by the Program Working Group with the participation of academics from Batman University, the Tüpraş Corporate Communications Directorate and the Innovation Directorate and the Tüpraş education projects consultant. The Working Group organized weekly online meetings during the pandemic process and defined student selection-evaluation-participation processes for the program. It later completed the preparations for the launch and communication activities.

Introductory seminar with the participation of over 200 academics

In order to provide a detailed and wide-ranging promotion of the program, more than 200 academics from various faculties participated in the "Enterprise and Its Importance" and "Innovation in Young Minds and Women's Enterprise Program" online introductory seminar at Batman University.

A program with a long-term perspective

In the first phase of the program, which is planned with a long-term perspective, Tüpraş offers the "Fundamentals of Innovation and Enterprise" seminars for all students in each academic year.

During the seminars, university students are informed about creative thinking, innovation and entrepreneurial tools. The latest developments regarding enterprise at Tüpraş and the global enterprise ecosystem come under scrutiny.

The first seminar within this scope was presented for participants at Batman University in March 2022.

In the second phase of the program, enterprise training programs lasting for 12 weeks were provided to a group of 40 students consisting of 3rd and 4th year undergraduate students who had passed the evaluations.

A 60% proportion of female students

The Innovation in Young Minds and Women's Enterprise Program is a structured program which is only provided at Batman University, with 60% of the participants being girls.

The modules of the program cover various topics such as developing innovative ideas, starting a new venture, understanding the problem, designing the solution, market research, business model components, entrepreneurial tools and presentation techniques.

Participating students gain the following skills from the training they receive.

- The ability to understand the problems and requirements correctly and develop an appropriate product;
- A development approach by testing the solution they produce on potential users, and
- An entrepreneurial mindset which develops solutions to the problem

During the program, online training is offered and Tüpraş in-house entrepreneurs are appointed as mentors to the student groups. This applied approach provides an important and permanent contribution to students in the development of ideas and the creation of the implementation steps of the project. Through the program, students will receive personal development training that will contribute to their competencies.

In addition to the online training program, students came together on 9-10 June 2022 and 13-14 October 2022. Face-to-face training activities were provided which offered students the opportunity to experience preparation in advance to present their ideas and provided the synergy of working as a group.

Following the "Demo Day" event planned for 2023, project ideas are planned to be directed to different entrepreneurial channels.

Going forward, Tüpraş plans to roll out the Innovation in Young Minds and Women's Entrepreneurship Program outside Batman in cooperation with the universities in Kocaeli, Kırıkkale, Istanbul and Izmir, where it operates.

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The Internship Program for University Students: Equality for Generations and Women-oriented Technologies

The Feminist Technologies for the Generation Equality Internship Program was designed and implemented with the aim of raising awareness of inclusion and equality among university students and to improve their level of perception by considering the gender equality perspective.

Within the scope of the internship program, students received training on "I Am Aware of Equality - Gender Equality" by the Mother Child Education Foundation (AÇEV), and "Innovative Thinking and Generating Ideas" by the Tüpraş Innovation Directorate. The students also received the training on the "UN Sustainable Development Goals and Sustainability", provided by the Tüpraş Corporate Communications Directorate.

Thirty trainee students and eight Nextremers participated in the online internship program in 2022. University students, who are encouraged to produce technologies and products which will bring ease to the lives of female field workers through training, innovative thinking and technology, prepared five innovative projects.

FOR PRIMARY SCHOOL PUPILS

The "Our Energy to the Future; I Code, I Model, I Produce" Project

In cooperation with the General Directorate of Primary Education under the Ministry of National Education, Tüpraş developed the social responsibility project "Our Energy to the Future; I Code, I Model, I Produce". The project is intended to educate new generations that are inquisitive and possess innovative thinking, problem solving and production skills by increasing their access to technology and digital education from an early age.

Robotic coding, three-dimensional (3D) modelling and production skill classes were established for pupils in the 7th and 8th grades of 41 secondary schools in Batman, Kırıkkale, İzmir and Izmit, where the refineries are located, between 2018 and 2021.

Social and Relationship Capital

To help the "Our Energy is for Students Project" reach a wider student base, 11 science experiment training videos were prepared in 2022.

With the contribution of Boğaziçi University Faculty of Education

Under this project robotic coding training is given in order to introduce digital technologies to children, allowing them to develop skills such as problem solving, cause and effect relationships, critical thinking-questioning, self-expression and the development of psycho-motor behavior. This training develops children's power to understand, interpret and guide the technological world. The measurement and assessment process of the project is conducted under the consultancy of Boğaziçi University Faculty of Education.

The "Our Energy Is for Students"; Science Experiments Project by the Tüpraş Volunteers

With the aim of raising the scientists of the future by fostering a love of science among 5th, 6th, 7th and 8th grade secondary school pupils, Tüpraş implemented the Our Energy is for Students project in cooperation with the Ministry of National Education.

Pupils learn that science has a place in all aspects of life, with the importance of men and women working together and working safely impressed upon them, especially in the world of science.

The project, which got underway in 2018, has already reached more than 3,000 students through 287 experiments carried out at six schools in Kocaeli. To help the "Our Energy is for Students Project" reach a wider student base, 11 science experiment training videos were prepared in 2022.

A SYSTEMATIC AND SUSTAINABLE CONTRIBUTION TO EDUCATION

"Our Energy for Equality Never Ends" by TEF (The Turkish Education Foundation)

The "Our Energy for Equality Never Ends" scholarship fund was set up by Tüpraş in 2016 within the body of the Turkish Education Foundation (TEV). The scholarship provided scholarship support to 19 students in the 2021-2022 academic year.

To date, 98 female students have benefited from the scholarship fund, which aims to provide equal opportunities for female students in education.

The Koç University Anatolian Scholarship Students Program

The Anatolian Scholars Program is a scholarship program that was launched by Koç University 2011 with the aim of providing equal opportunities in education for successful young people who need financial support.

A total of 23 students have received scholarship support, including two scholarship students who entered university in the 2022-2023 academic year.

Our Energy Never Ends for Equality

Gender Equality Social Awareness Work

In 2018, Tüpraş entered cooperation with the Fenerbahçe Sports Club and global cooperation with the United Nations Women, HeForShe Movement in order to raise social awareness in the field of gender equality. The joint work initiated is the only large-scale commitment to be undertaken on gender equality in the field of sport.

The aim of the global cooperation is to raise awareness of gender equality through sport, to eliminate gender stereotypes and transform harmful social norms, and to create an inclusive and safe environment for women in the sports ecosystem.

Within the scope of this awareness campaign carried out between 2018 and 2021 under the slogans "Equal Together" and "Our Energy Never Ends for Equality", Fenerbahçe Soccer Team wore the HeForShe logo on their right arms. Tüpraş took this cooperation one step further and became the shirt sponsor for the Fenerbahçe Sports Club's five amateur branches, including rowing, boxing, table tennis, swimming and athletics for the 2021-2024 seasons.

Fenerbahçe Sports Club Gender Equality Committee

In 2022, a Gender Equality Committee was established at the Fenerbahçe Sports Club within the scope of developing gender sensitive practices. The Gender Equality Action Plan was created for the 2022-2025 period. The Protection Policy was prepared to tackle "discrimination, sexual harassment and abuse". The policy is planned to be finalized in 2023.

Training for 197 athletes

In 2022, 197 Fenerbahçe Sports Club members participating in five amateur branches, including rowing, athletics, swimming, table tennis and boxing received training under the headings of "different fields of gender equality, including men in gender equality and behaviors and preventing violence against women in sports".

A total of 62 media professionals who are responsible for the Fenerbahçe Sports Club corporate media, including Fenerbahçe TV, social media and radio completed their training on the production and broadcasting of gender-sensitive media content.

Support for the 16-Days of Activism Campaign

In 2022, Tüpraş supported the "16-Days of Activism" Campaign with the aim of preventing violence against women and girls, in cooperation of the Batman University, UN Women and the HeForShe Movement, Tüpraş held a conference to raise awareness on this issue among university students.

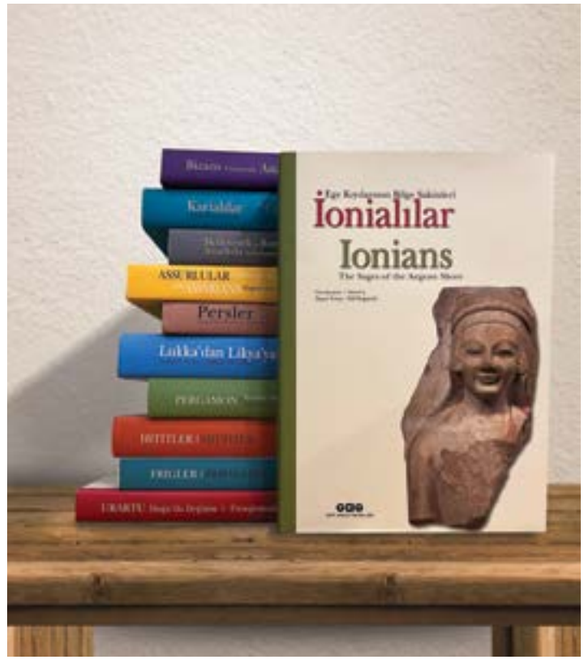
The Fenerbahçe and Galatasaray Sports Club Women's football teams came head-to-head within the scope of the 16 Days of Activism Campaign to combat violence against women. During this friendly match, the KADES application reached more than 9,000 people and the Fenerbahçe Sports Club's social media posts reached 46,000 people. The ALO 183 helpline number was embellished on the shirts of the Fenerbahçe Sports Club Women's Football Team throughout the season in order to raise awareness of referral mechanisms against violence against women.

The practices developed in the International Sports Sciences Congress held in Antalya between 28 November and 1 December within the scope of the program were shared as good examples.

Social and Relationship Capital

CONTRIBUTION TO HISTORY, CULTURE AND THE DEVELOPMENT OF ART

Anatolian Civilizations Book Series



Since 2011, Tüpraş carried the world of ancient civilizations that have left their mark on the ancient lands of Anatolia to future generations through an epic series of books on Anatolian Civilizations. So far, with the collaboration of Yapı Kredi Culture and Art Publishing, 11 publications were introduced to readers:. Anatolian Civilizations Series; "Urartu, Change in the East", "Phrygians: In Midas's Land, In the Shadow of Monuments", "Hittites - An Anatolian Empire", "Pergamon, A Hellenistic Capital in Anatolia", "From Lukka to Lycia: Sarpedon and the Land of St. Nicholas", "Persians, the Power and Glory in Anatolia", "Assyrians, from the Tigris to Taurus: The Kingdom of God Assur", "Anatolia in Hellenistic and Roman Times: Kings, Emperors, City States", "The Carians – From Seafarers to City Builders", "Anatolia in the Byzantine Period", and " Wise Inhabitants of the Aegean Coasts: Ionians".

Arter Museum of Modern Art: "Our Energy is for Art"

Aiming to help create a setting where youngsters and children can freely get acquainted with modern art, Tüpraş has undertaken corporate sponsorship of Arter Museum of Modern Art for a period of five years starting from 2019.

Arter is an accessible and sustainable platform of culture and life with its multi-disciplinary programs in art.

İstanbul Theater Festival

İstanbul Theater Festival is being organized by İKSV (İstanbul Foundation for Culture and Arts) for 17 years with the sponsorship of Koç Holding Energy Group, namely Aygaz, Opet and Tüpraş. The 26th İstanbul Theater Festival met with the theater aficionados between 25 October-26 November 2022, during which 35 plays were staged. The physical performances of the festival reached approximately 25 thousand people in 2022.

FOR SUSTAINABLE SEAS

DTO Fethiye Waste Collection Boat visits Göcek Bay

The Deniz Temiz (Clean Sea) Association/(TURMEPA), which provides mobile services in the bays frequented by yachts and pleasure craft through waste collection boats under the banner of sustainable sea tourism, helps to reduce the environmental footprint of marine tourism by collecting thousands of tonnes of liquid waste.

The DTO Fethiye liquid waste collection boat is sponsored by Tüpraş since 2016.

The boat collected 737,961 liters of waste water from 1,721 boats and thus helped keep 5.9 million liters of seawater clean during the 2022 summer season with its activities in Göcek Bay.

CONTRIBUTIONS TO REGIONAL DEVELOPMENT

Tüpraş Batman Disability Sports Club

Since the 2007-2008 season, Tüpraş has been supporting The Batman Disability Sports Club Association. The Batman Disability Sports Club was promoted to the Turkish Federation of the Physically Disabled, the Wheelchair Basketball 2nd League in the 2017-18 season and to the Wheelchair Basketball 1st League in the 2019-2020 season. Having been in the 1st League for the last 3 seasons, the team will compete in the 1st League in the 2022-23 season. Hosting 52 licensed players, the club continues its activities with 23 players. The club has been providing hundreds of disabled young people with the opportunity to perform sport for 16 years.

Batman Tüpraşspor Football Club

Established in 1995, Tüpraşspor Football Club offers a platform for talented young people living near the Batman Refinery to enjoy sport with an awareness, in a healthy environment, thus giving them the chance to succeed. Managed by the Tüpraş volunteers in cooperation with the Provincial Directorate of Youth and Sport, Batman Amateur Sports Clubs Federation, Turkey Football Federation and other clubs, Tüpraşspor Football Club has a total of 97 players, 65 of whom are licensed and 32 of whom are unlicensed, between the ages of 13 and 19.

Social and Relationship Capital

SUPPORT FOR THE EARTHQUAKE REGION

HELPING VICTIMS THROUGH A DIFFICULT PERIOD IN A SPIRIT OF SOLIDARITY

The earthquake, with its epicenter in Kahramanmaraş, struck on 6 February 2023 and directly affected 11 provinces. The tragedy caused the death of thousands of our citizens and the injury of tens of thousands. From the first hours of the earthquake disaster, Tüpraş started to deliver its support to the disaster area working together with the official authorities and the Koç Holding Crisis Coordination Center.

CORPORATE AIDS

Tüpraş uninterruptedly delivered vital supplies of fuel in the disaster areas. Free fuel support was provided to earthquake victims, as well as those stranded on roads and to hospitals, along with construction equipment, generators, ambulances and search and rescue and debris removal teams to 11 provinces at the points determined by AFAD (Disaster and Emergency Management Authority) and through mobile stations.

Equipment such as construction equipment and tools, generators and lighting used in search and rescue and debris removal were sent to the region. Shelter containers, accommodation materials such as beds and campsites, drinking water, canned food, basic necessities such as coats, work clothes and boots were also shipped to the region through the AFAD.

Tüpraş Refinery Search and Rescue Teams (RSR) were among the first teams to reach the earthquake zone. Despite the challenging and risky conditions in the field, the RSR teams fought to the end unwaveringly. The RSR teams worked untiringly and whole heartedly with great devotion in cooperation with the official authorities. The RSR teams rescued eight survivors from the wreckage before the team of 77 people (RSR teams) successfully completed their mission and returned.

The Company continues its relief activities by providing food support with heavy vehicles in the earthquake zone.

VOLUNTARY SUPPORTS AND AIDS

After the earthquake disaster, Tüpraş directed its entire social investment activities and volunteering activities to contribute to the earthquake victims.

BLOOD DONATION CAMPAIGN

Tüpraş employees participated in the blood donation campaign carried out by the Red Crescent within the first 24 hours of the earthquake. In addition to meeting immediate needs such as for clothing, hygiene materials, blankets, heaters, baby food, employees provided items such as toys and stationery products which will help heal the wounds suffered by the child earthquake victims, and these were delivered to the region.

A BRIDGE BETWEEN HEARTS WITH VOCATIONAL HIGH SCHOOLS

In Izmit, Kırıkkale and Batman, stoves were produced to meet the needs of earthquake victims for heating, in collaboration between vocational and technical Anatolian high schools and Tüpraş. With material support from Tüpraş, stoves were produced in the workshops by metal work teachers and students doing internship at the Tüpraş refineries. The stoves were distributed to Hatay, Elbistan, Gaziantep, Kahramanmaraş, Pazarcık and Malatya under the coordination of the AFAD.

THE KOÇ GROUP AID PROGRAM

After the earthquake, Koç Holding launched a comprehensive aid program by declaring a program of mobilization covering all of its companies. In this context, in addition to the ongoing in-kind aid, a TL 2 billion resource was allocated for project-based aids. Tüpraş took part in the Koç Group aid program as a Group company providing the main contribution.

CONTINUED CONTRIBUTION TO EDUCATION IN THE CONTAINER CITIES

For rapid recovery after a disaster, it is important to implement inclusive support activities that can benefit more victims.

Koç Group launched the project to establish temporary living spaces in three provinces affected by the earthquake. The project consists of 5,000 containers to accommodate approximately 20,000 people and will include social facilities.

Tüpraş is providing "Our Energy to the Future: I Code, I Model, I Produce" coding classes to support the education of primary school children in the living centers to be established in the container cities.

Tüpraş Volunteers continue to contribute to the campaigns determined throughout the Group as a part of the aid efforts.

TECHNOLOGY SUPPORT FOR FEMALE STUDENTS

Tüpraş Athletics Team ran at the Runtalya Marathon on 5th March to contribute to the Turkish Education Foundation (TEV) Technology Support for Distance Education Scholarship Fund.

Within the scope of the fund launched by TEV to enable female university students who were affected by the earthquake to continue their education without interruption, computers were provided to students so they could continue their education online.

Tüpraş Athletics Team provided one-year scholarships to three female university students through voluntary donations, and collected the second highest amount of donations on behalf of the TEV in the Runtalya Marathon.

SUPPORT FOR FEMALE STUDENTS ON THE 8th MARCH INTERNATIONAL WOMEN'S DAY

Focusing on inclusion and equality in all its work processes, Tüpraş continued to contribute to the support of women and girls, especially in the disaster areas. On International Women's Day on 8th March, donations were made to the TEV's Technology Support for the Distance Learning Scholarship Fund on behalf of each female employee working at Tüpraş. To help female university students in the disaster areas continue their education without interruption, Tüpraş helped supply the computers that the students needed.

Natural Capital

Natural Capital

Tüpraş's responsibility for the future

91,676 TJ Total energy consumption	**1,320 TJ** Additional annual savings achieved with energy efficiency	**15.7 million m³** Total water recovery
94.9 Energy Intensity Index	**124** Limited assurance for environmental performance indicator	**TL 1,158 million** Environmental investment and operating expenditure

WHAT IS IT?

The water, natural gas, crude oil, solar energy and wind used in the operational cycle at Tüpraş are among our planet's natural assets. In addition to these natural resources, the sum of the ability to take care of the environment by using resources responsibly and effectively, and the perspective of conservation, constitutes natural capital.

WHAT DID WE DO IN 2022?

In 2022, Tüpraş used natural resources to provide high-quality products and services to its customers and to ensure the security of its energy supply. Taking into account the delicate balance between the natural environment and the human ecosystem, Tüpraş has worked with the focus of creating sustainable value for all of its stakeholders. It accordingly reached the targets it set in regard to climate and the environment. It has pressed ahead with its investment and restructuring activities in line with the target of becoming a carbon neutral energy company.

Clean and Sustainable Investments

carbon neutral goal

Resource Efficiency

HIGHLIGHTS OF 2022...

- A total of 18.1 million m³ of raw water was consumed, equal to 0.72 m³ of raw water per tonne of processed crude oil. In the same period, a total of 15.7 million m³ of water was recovered.
- A total of 24.8 million tonnes of crude oil in 19 different varieties with a specific gravity of between 18 and 47 API was procured from 11 countries, including Turkey. 25.1 million tonnes of crude oil and 431 thousand tonnes of natural gas were used for processing purposes.
- Tüpraş consumed a total of 91,676 TJ of energy, with the refineries generating 3,379 MWh of clean energy from the sun.
- TL 1,158 million was spent on environmental investment and operations.
- Energy efficiency activities stood at 1,320 TJ. The Energy Intensity Index stood at 94.9.
- In line with the UN Sustainability Development Goals, the Tüpraş Water Roadmap was created in 2022, which prioritizes reducing raw water consumption.
- In 2022, Tüpraş became a member of Water Europe.
- The revenue generated from waste recycling and industrial symbiosis increased significantly in 2022, reaching TL 45.7 million.
- Contributing to natural capital, Tüpraş carried out a total of 14 R&D activities, nine of which were supported by the European Union Horizon2020 project, two by TÜBİTAK and three through Tüpraş's own funds.
- Services to obtain limited assurance were taken for 124 environmental performance indicators in 2022. (See Limited Assurance Statement)

Use of Capital

Tüpraş's operations are dependent on natural resources. Therefore, the protection and responsible consumption of natural resources is critical to building a sustainable future. The Tüpraş Strategic Transition Plan, which has completed its first year, aims to reduce emissions by 27% by 2030 and to transform Tüpraş into a carbon neutral energy company by 2050. In line with this goal, clean and sustainable investments will be realized by improving the natural capital. As investments are undertaken in infrastructure and operations which use resources efficiently, Tüpraş's financial capital will increasingly be directed into transforming the manufactured capital. The use of natural capital will then be reduced in phases.

The evolving and updated capabilities of transforming human capital will pave the way for improvements in the use of natural capital in the long run, contributing to the progress towards a low-carbon economy. Activities to support resource efficiency will contribute to the financial capital by providing cost savings. Limited natural resources will be preserved thanks to the improved use of natural capital. This will uphold stakeholder trust in Tüpraş and, therefore, in the social and relationship capital and ultimately in the market value and reputation of the Company.

CONTRIBUTED SDGs

Direct

Indirect

Natural Capital

With its Strategic Transition Plan, Tüpraş has set the goal of increasing the use of low-carbon and renewable resources in natural capital elements.

The climate crisis: the result of human-made activities

The phenomenon of global warming triggered by the increasing concentration of greenhouse gasses in the atmosphere and, consequently, the climate crisis associated with the process of climate change, are the results of human-made activities. There is a high degree of scientific consensus on this issue.

For more information

United Nations Environment Program -UNEP

Home – Climate Change: Vital Signs of the Planet (nasa.gov)

IPCC Report

Working to the goal of becoming carbon neutral by 2050

As a responsible leading energy company, Tüpraş aims to be carbon neutral by 2050 and announced its strategic transition strategy to the public in this vein in 2021. With its Strategic Transition Plan, the Company has set the goal of increasing the use of low-carbon and renewable resources in natural capital elements.

Within the scope of its 2050 carbon neutral goal, Tüpraş works with the aim of protecting the natural environment and reducing its effects on climate change and its environmental footprint.

Tüpraş's performance in reducing greenhouse gas emissions that trigger the climate crisis will have a positive impact on the Company's growth and sustainability in the medium and long term. This will also reflect positively to social welfare and healthy development. The Company also cooperates closely with its stakeholders along the value chain such as business partners, contractors, educational institutions, start-ups and the NGOs in order to increase its resilience within the framework of its strategic transition.

The Tüpraş Climate Change Vision and Adaptation Strategy

Tüpraş presses forward in its journey of tackling the climate crisis and transitioning to a low-carbon economy under the guidance of the vision set out by Koç Holding.

Tüpraş adopts a responsible and respectful approach to the environment by focusing on improving its environmental performance and reducing the environmental impacts of its activities.

The Company implements projects which reduce and continuously improve the environmental impact in production processes while fulfilling its responsibilities within the scope of environmental obligations. Technology and process choices are made in accordance with EU standards in the design of projects, taking into account all environmental impacts.

Playing active role and contributing to work to tackle the climate crisis

Tüpraş participates in working groups, meetings and seminars organized by relevant institutions and non-governmental organizations in Turkey and abroad, especially the Ministry of Environment, Urbanization and Climate Change, the UN Climate Change Conference of the Parties (COP), the Task Force on Climate-related Financial Disclosures (TCFD). It actively supports work carried out to tackle the climate crisis and exchanges information and experience.

A supporter of the TCFD

The Task Force on Climate-related Financial Disclosures (TCFD) is an initiative which aims to create a transparent technical platform which is comparable based on certain criteria where institutions define how they manage the risks and opportunities arising from climate change and present their analysis to their stakeholders.

Being a leading industrial company that supports the TCFD, Tüpraş integrates the risks associated with the climate crisis into its business processes and updates its targets accordingly.

Tüpraş evaluated the transition and physical risks stemming from the climate crisis before completing its strategic transition efforts of "Our Energy to the Future". It has internalized the steps which will be taken to manage these risks and the opportunities that will arise in its strategy.

The TCFD recommendations are based on the four basic areas of governance, strategy, risk management and metrics and targets. Details of these recommendations are set out in the *Tüpraş 2021 Sustainability Report*, with details on the TCFD and risk methodology set out in the *Recommendations of the Task Force on Climate-related Financial Disclosures*.

Details of the TCFD work, prepared and periodically updated by Tüpraş, are included in the Risk and Opportunities section of the Risk Inventory, which is in the 8th category.

Systematic monitoring of environmental performance

Having adopted the principle of pursuing policies focused on the environment and people in all of its business processes, Tüpraş carries out its activities within the scope of the ISO 14001 Environmental Management System. Detailed information on these activities is provided is available in Tüpraş's corporate website under the *Environmental Management Policy* tab.

Tüpraş systematically monitors its environmental performance targets. It keeps track of climate and environmental legislation requirements in the internal audit processes and records the performance indicators.

Tüpraş's environmental practices and performance are subject to the Koç Group Environmental Audit process, in addition to the audits carried out by the Ministry of the Environment, Urbanization and Climate Change, provincial organizations and independent institutions.

Corrective and improvement actions are planned in response to the findings of the environmental audit, and relevant actions are taken.

The Tüpraş environmental performance results are presented to the upper management of the Company in the annual Management Review Meetings and future work and performance targets are determined.

Natural Capital

Tüpraş regularly monitors oil spills at its facilities and reports any incidents and the amounts.

Focusing on reducing the environmental impact of refinery processes and developing alternative fuel technologies

While fulfilling its responsibilities within the scope of environmental obligations, Tüpraş implements projects that reduce and continuously improve the environmental impacts of the production processes. Tüpraş selects technologies and process in line with "best available techniques" by taking into account all environmental impacts within the scope of its planned investments. The Company follows the requirements of ISO 14001 Environmental Management System Standards in all of its operating facilities and carries out certification studies at regular intervals.

Highlights from the work within the scope of emission management

The Ministry of Environment, Urbanization and Climate Change monitors flue gas emissions for 31 flues at the Tüpraş refineries. The Company fulfilled all national legislation requirements in 2022.

Tüpraş also carries out activities to ensure that flue gas emissions comply with the Industrial Emissions Directive no 2010/75/EC. Best available techniques are monitored with the highest standards applied to reduce emissions from operations.

Tüpraş's Scope 1 emissions are regularly monitored and reported within the scope of the Regulation on the Monitoring of Greenhouse Gas Emissions and the Communiqué on Monitoring, Reporting and Verification valid in our country.

In 2022, Tüpraş had its Scope 1 and Scope 2 emissions verified by a third-party independent organization within the framework of the ISO 14064-1 Standard for Verification and Reporting of Greenhouse Gas Emissions. The Company also received limited assurance service under the GHG Protocol. The ISO 14064 verification process for the 2017-2021 Scope 1 and Scope 2 emissions was completed.

The verification of greenhouse gas reduction amounts obtained from selected energy efficiency projects is carried out by independent third parties within the scope of ISO 14064-2, and the verified data is shared with the public.

	2017	2018	2019	2020	2021	2022*
Scope 1 GHG Emissions (tonnes CO_2e/year)	7,249,964	6,103,645	6,172,574	5,724,407	5,865,652	6,396,648 ✓
Scope 2 GHG Emissions (tonnes CO_2e/year)	79,386	37,872	32,943	24,518	48,403	55,625 ✓
Greenhouse Gas Intensity (tonnes CO_2e/tonnes Crude Oil Processed)	0.26	0.25	0.23	0.25	0.24	0.26 ✓
Greenhouse Gas Intensity (tonnes CO_2e/tonnes Charge)	0.24	0.23	0.21	0.23	0.22	0.23 ✓

*ISO14064 Data validation process is in progress.

Studies within the Scope of Emission Reduction

Use of Clean Fuels

Energy required for the processes is provided from natural gas and refinery gas to the maximum extent possible, thus achieving reductions in SO_2 and particulate matter emissions.

Tüpraş ensures that emissions are kept to a minimum by burning clean fuel. Emissions are managed in a manner which meets the obligations set out under national legislation and by monitoring international standards.

Reducing NO_x Emissions

New technologies and plant conditions are controlled by using burners that will ensure low NO_x emissions in the energy generation activities necessary for refinery operations, and NO_x emissions are reduced.

Reduction of Volatile Organic Compounds (VOC)

As part of the efforts to reduce VOC emissions, proactive measures are being taken to prevent possible leaks and ensure that possible sources of VOC leaks are brought under control through the use of leak detection and repair (LDAR) technologies.

Closed sampling systems are becoming more popularized and double-walled floating ceilings are being used to reduce VOCs caused by the tanks.

The investment includes the establishment of Vapor Recovery Systems to reduce emissions from filling. Steam recovery units had entered operation at the İzmir and Kırıkkale Refineries as of the end of 2022.

Tüpraş established a mass emission declaration methodology in line with the EU E-PRTR (European Pollutant Release and Transfer Register) Directive in order to more effectively manage its non-GHG (Green House Gas) emissions.

Sustainability and life cycle analysis (LCA) studies continued at Tüpraş in line with the UN SDGs. Additionally, work on managing the environmental impacts arising from operations and planned investments continued under a holistic approach.

Recovery of Flare Gases

At Tüpraş, the gases coming to flares are recovered and used as fuel in furnaces, thus contributing to the efforts to reduce consumption of natural resources and emissions.

Natural Capital

Highlights of the Work within the Scope of Life Cycle Analysis

- Training sessions were held during the year to raise awareness about life cycle thinking and analysis. The common purpose of this training was to ensure that all process teams adopted the life cycle thinking, and to widen this approach.
- The projects proposed to the investment program within the scope of Tüpraş's internal practices include an "environmental opinion" requirement, and "control criteria and warnings" documents have been drafted and brought into use in order to employ the opinions set out in the pre-feasibility and feasibility stages of the investment program in order to evaluate the opinions given on an equal basis in all refineries. Thus, with the life cycle idea in the projects in the investment program, the consumption of resources and environmental burdens resulting from the projects will be evaluated in a standardized approach.
- "Environmental Cost Tables" are used to meet the minimum GRI (Global Reporting Initiative) criteria, in order to reveal the environmental costs incurred throughout the year.
- Investment requirements were determined within the scope of compliance with emission limits in line with EU directives 2010/75 EED and 2015/2193 MCPD, are reviewed regularly every year.
- Within the scope of Sustainable Refining, models were created for the LCA (life cycle analysis) with the contribution of the process-environment and energy teams of a total of 12 units, including eight at the Izmit Refinery, three at the Kırıkkale Refinery and one at the Batman Refinery. Analytical studies were completed for the specified time duration. The LCA determined the points requiring improvement from an environmental perspective. This work contributed to the efforts to support sustainable refining.
- The following steps were taken in line with Tüpraş's objective of "sustainable refining", in order to ensure environmental sustainability;
  - The LCA work was carried out for existing units. The work determined all environmental impacts arising from the activities and the sub-processes behind these impacts, and improvement activities continued.
  - An "Environmental Sustainability Index", specific to Tüpraş, was created for new investments. With this index, economic indicators and environmental impacts will be taken into account in an integrated manner within the scope of evaluating important projects in terms of their investment potential.
  - In 2022, the Company also followed up on developments within the scope of the EU Green Deal, the impact of the Russia-Ukraine war on global efforts to tackle climate change and potential legislation regarding the EU Green Deal which has been proposed by the EU Commission, and the technical teams were kept up-to-date.

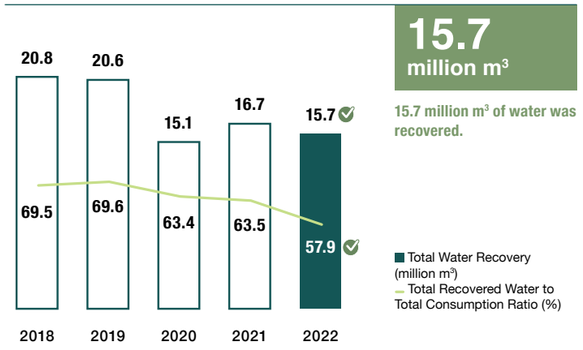
Water - a basic component of natural capital

Tüpraş constantly monitors the ratio of the water consumed at its refineries to the volume of processed crude oil in line with the objectives of reducing the extraction of raw water, and thus the consumption of natural resources, while promoting the sustainable use of natural resources, preserving the structure of biological diversity and providing economic benefits.

Tüpraş implements a wide array of water saving practices. These applications include the recovery of refinery and urban waste present in water streams carried out the Waste Water Recovery Unit, the reuse of condensed steam streams as a source of water, the reuse of the process waste waters treated in the pre-treatment units in the production units and the optimization of the cooling tower water requirement to reduce the consumption of natural resources at the refineries.

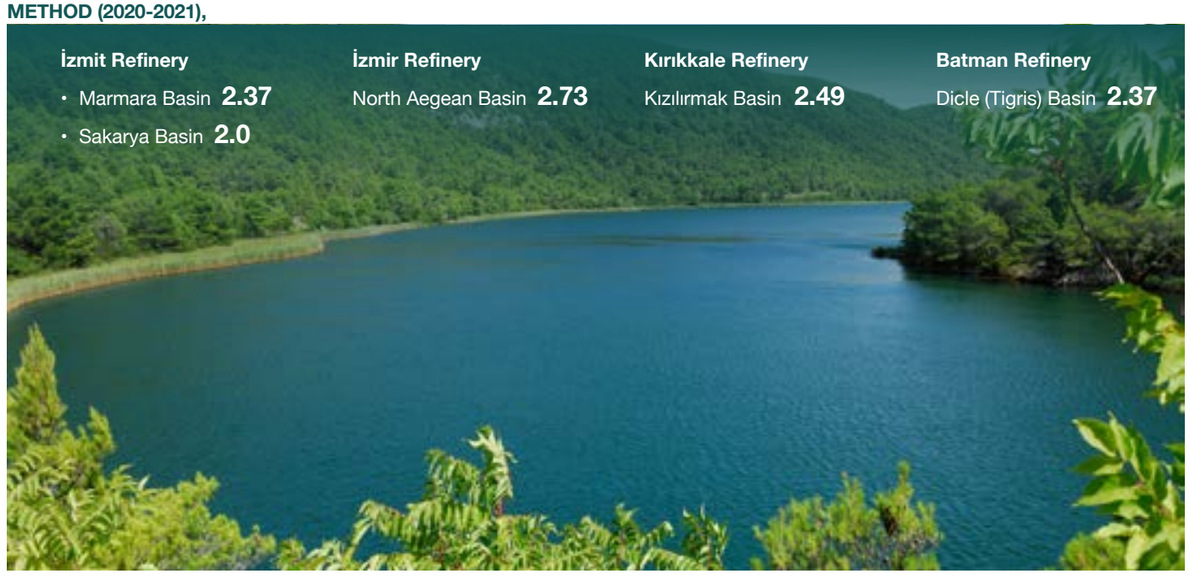
Tüpraş consumed a total of 18.1 million m^3 of raw water in its operations in 2022, with 0.72 m^3 of raw water usage per tonne of processed crude oil. In the same period, a total of 15.7 million m^3 in water was recovered.

Waste Water Recovery (million m^3)



In the context of determining water risks, Tüpraş conducted a risk-based assessment for the basins where its refineries are located, using the internationally accepted ***WRI Aqueduct*** method. The results obtained were evaluated in conjunction with the reports prepared on the subject at a national level. Basin-based risk assessment was completed for all refineries in 2020 and 2021. Assessments were carried out and a risk score of between 0 and 5 was given.

BASIN WATER RISK IN THE REGIONS WHERE THE REFINERIES ARE LOCATED, CALCULATED BY THE WRI AQUEDUCT METHOD (2020-2021),



Tüpraş is the leader of the Water and Wastewater Management Working Group within the Koç Group Environmental Board.

The Working Group is responsible for the preparation, implementation and follow-up of the Koç Group Water and Wastewater Management Standard and technical guidelines in place to create holistic water and wastewater management principles in Group companies, improve sustainability performance and address environmental responsibilities in a more systematic approach.

In 2022, studies for the Tüpraş Water Road Map started in line with the UN SDG. It is planned that the outputs and targets will be shared with the public in the upcoming period.

The Company plans the following work under the headings of "Reducing the Amount of Discharge", "Alternating and Optimizing Water Resources", "Preparing for Renewed Discharge Limits in Advance", "Appropriate Declaration and Commitment", which are necessary for the effective management of water. The Company aims to achieve the following through the planned work mentioned above.

- Reducing raw water consumption,
- Minimizing the Company's environmental impact caused by waste water discharge,
- Monitoring, reporting and verifying water holistically,

Moreover, a gap analysis will be conducted by a third-party company in 2023 in order to monitor the water footprint accurately. In addition, Tüpraş will issue a statement to the CDP regarding climate and water.

The Koç Group established the Water Task Force in February 2023. The Koç Group Water Vision and Water Roadmap will be one of the most important outputs of this task force. Tüpraş is one of the influential stakeholders of this task force.

Tüpraş established a team in the field of biodiversity with the participation of its employees from different disciplines.

In 2021, Tüpraş prepared the Biodiversity Guide within the framework of the United Nations Convention on Biological Diversity. A team from different disciplines was formed to monitor this issue. After the benchmark study was completed, a discussion took place regarding the place of biodiversity in the Company's priority assessments and the need for a separate policy on biodiversity, as well as which projects should be carried out. Biodiversity work is handled and followed up in the Value of Life Sub-Working Group under the Sustainability Committee, established in September 2022.

An agreement for collaboration was established with the Institute of Environmental Sciences at the Boğaziçi University to conduct biodiversity studies at the İzmit Refinery and its impact area. Through this cooperation, the Company plans to compare the biodiversity characterization in terrestrial and marine environments with past trends, to conduct a comparison of the impacts of similar sized facilities on biodiversity in academic literature, to evaluate the relationship with environmental parameters and to prepare a report containing future recommendations for the protection of biodiversity and means to effect improvement. In addition, Ornithologist Observation Reports have been prepared for the regions where Solar Power Plants are planned to be built.

Work conducted with the circular economy approach

With the contribution of industrial symbiosis and recycling processes structured at Tüpraş, the waste recovery rate increased to 86.4% in 2022. This reflects the rising amount of waste being brought into the circular economy. The revenue generated by waste recycling and industrial symbiosis increased significantly in 2022, to reach TL 45.7 million.

Natural Capital

The contribution to the circular economy, which is one of the most important components of environmental sustainability, is reinforced with the responsible production and consumption approach to waste management in refineries. By achieving reductions at the source, recovery at the source and with the industrial symbiosis processes established, work which will be among the best practices on an international scale has been implemented at Tüpraş.

All Tüpraş refineries hold the Basic Level Zero Waste Certificate. In addition, the Head Office building obtained a Basic Level Zero Waste Certificate. Once the Qualified Certificate criteria are published by the Ministry of the Environment, Urbanization and Climate Change, Tüpraş will apply for the Qualified Certificate. At the same time, training sessions and optimization studies continue ahead of the rollout the "Zero Waste" perspective in all operations and activities.

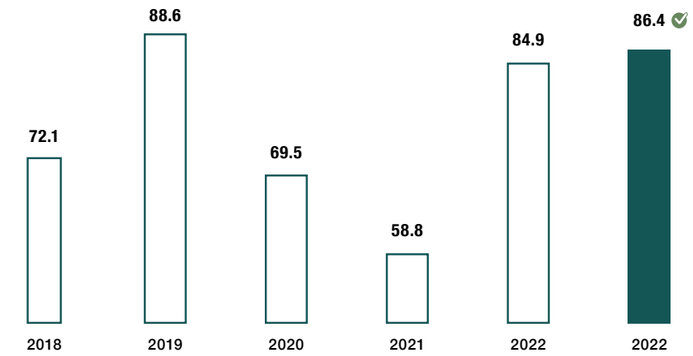
In 2022, new industrial symbioses were established and refinery process wastes were brought into the circular economy. A composting machine was commissioned at the İzmit Refinery for the composting of food waste. The machines are also planned to be rolled out in the other refineries, depending to performance data.

Koç Holding, a member of the Business Plastic Initiative (IPG), is committed to phasing out single-use plastics by 2023. The initiative to reduce the consumption of single-use plastics, which was first rolled out in 2021 at Tüpraş, continued in 2022.

Recycling of catalysts, activated carbons, wastes, sand blasting sand wastes, absorbents, sewerage sludge, the spent lye and evaluation studies as a secondary raw material are supported by R&D activities and new business units are being established.

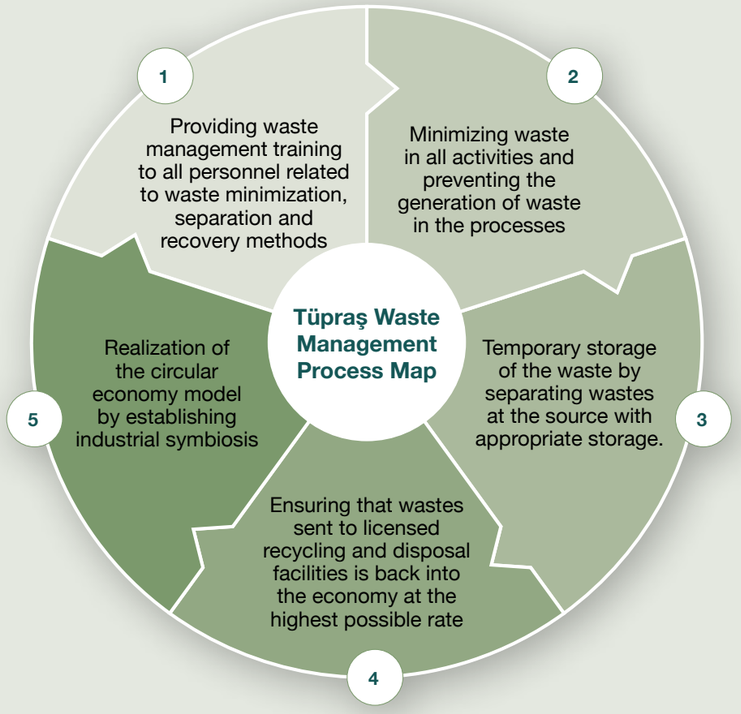
Tüpraş obtained the hazardous waste export permit to send used catalysts containing precious metals such as Co, Mo, Ni, W, Pt and Re, which cannot be recovered in Turkey, to be recycled instead of being disposed of in landfill sites. Thus, Tüpraş contributed to the efforts to reduce the consumption of natural resources and to support the circular economy.

Waste Recovery Rate (%)



+1.5 points

The waste recovery rate stood at 86.4% in 2022, an increase of 1.5 points.



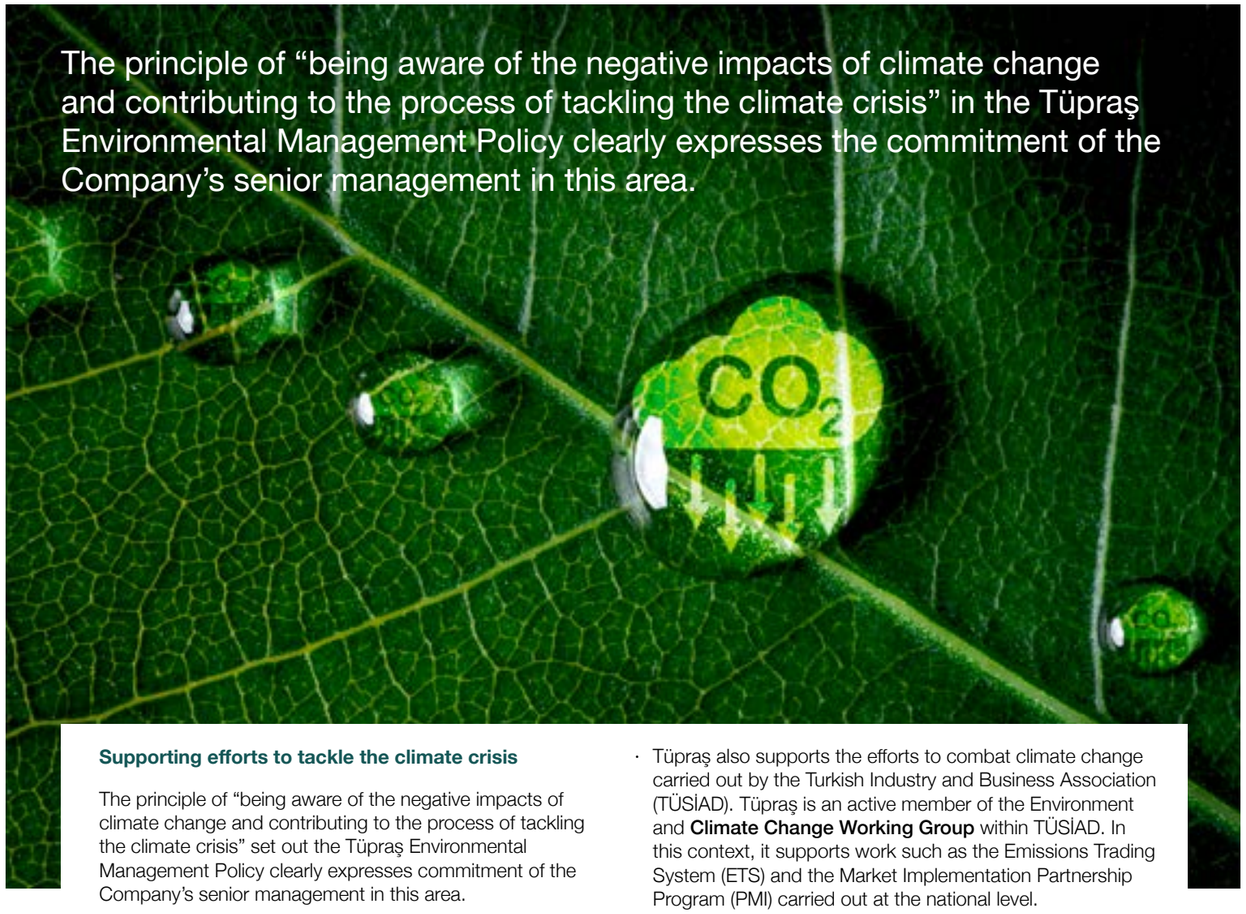
Natural Capital

R&D activities which contribute to natural capital

A total of 18 projects with a focus on sustainability are being carried out under R&D studies.

These projects can be classified in the focus areas of carbon capture, transformation and storage, green hydrogen, biofuels, water, waste recycling. Of these projects, which include the development of technology, material development and application studies in the specified focus areas, and in which multi-stakeholder collaborations are established, nine receive support under the scope of the European Union's Horizon2020 program, with two receiving support through TÜBITAK programs and three being carried out with the Company's own resources.

The AquaSPICE project aims to carry out the field application of an innovative technology for the recovery of various waste water produced at the Izmit Refinery. The project, which is planned to be commissioned in 2023, also includes goals in terms of digitalization.	The EPC EqTech aims to conduct field trials of innovative electrochemical technologies developed for dirty caustic treatment for the first time in the refining industry. Work continues on the preparation of the infrastructure at the Kırıkkale Refinery for the unit, which will enter operation in 2023.	The CORALIS project is conducting investigations on a regional and national basis to determine if dirty caustic can be used directly by another company within the scope of industrial symbiosis without any further processing. Potential industries were identified in the project, with meetings held with these industries, and the suitability of the material was evaluated.
The "Determination of the Biogas Potential of Refinery Waste Water Treatment (WWT) Sludge" project aims to determine the biogas potential of the WWT sludge which is currently referred for disposal, and to identify environmental and economic benefits. Optimum conditions for pre-treatment have been determined. Airless degradation tests continue under optimum conditions of the selected processes.	The "Photo-Electrocatalytic Hydrogen Production from H2S" project is carried out jointly with KUTEM (The Koç University TÜPRAŞ Energy Center). Second phase studies for the project are ongoing. The optimization studies are aimed at increasing the durability performance of the developed small-scale system along with the application of new methods to increase the sulphur conversion efficiency and rate of hydrogen recovery.	The MOF4AIR project aims to develop innovative materials that will efficiently capture carbon dioxide in order to reduce the emission of carbon dioxide gas from industrial processes. In 2022, installation work continued for three demonstration units in three different demonstration areas. Infrastructure work on the demo MOF4AIR unit to be established at the Tüpraş Izmit Refinery site was carried out in parallel with the installation work. The MOF4AIR unit will be commissioned in 2023.
The COZMOS project involves the development of innovative catalysts in order to efficiently convert carbon dioxide gas in process streams arising from industrial processes into high value-added products such as propane and propylene. The designed pilot facility was established at the Tüpraş R&D Center in 2022. Performance tests will be carried out at the pilot plant for the developed catalysts under different conditions during 2023.	The MOFAC2CAP includes the development of innovative MOF/aerogel composite materials for the selective capture of carbon dioxide from carbon dioxide-rich process gas mixtures and flue gases. The carbon dioxide capture performances of the developed materials will be determined in the laboratory scale adsorption test system. The installation of the adsorption test system will be completed in 2023. The project is supported within the scope of TÜBİTAK 1071 Program with the M.ERA-NET 2020 call opened by the European Union.	The project for "The Technical and Economic Investigation of the Most Appropriate Business Model for the Injection of Flue Gas/Carbon Dioxide to be Captured from the Batman Petroleum Refinery to the Batı Raman field" is carried out in cooperation between Tüpraş and the Turkish Petroleum Corporation (TPAO) under the execution of the METU Petroleum Research Center under the TÜBİTAK 1005 Program. The project will examine the technical and economic feasibility of capturing waste carbon dioxide gas in the flue gases released at the Batman Refinery, its transportation to the Batı Raman field and its injection to the field with the improved oil recovery method.



The principle of "being aware of the negative impacts of climate change and contributing to the process of tackling the climate crisis" in the Tüpraş Environmental Management Policy clearly expresses the commitment of the Company's senior management in this area.

Supporting efforts to tackle the climate crisis

The principle of "being aware of the negative impacts of climate change and contributing to the process of tackling the climate crisis" set out the Tüpraş Environmental Management Policy clearly expresses commitment of the Company's senior management in this area.

The Company actively contributed to the efforts to tackle the climate crisis by participating in working groups, meetings and seminars organized by the relevant institutions and non-governmental organizations both in Turkey and abroad, especially by the Ministry of the Environment, Urbanization and Climate Change.

- Tüpraş has been an active participant in the **UN Climate Change Conference of the Parties (COP)** since 2015. It participated in the COP27 conference held in Sharm El-Sheikh in Egypt in 2022. This provided Tüpraş with the opportunity to take the pulse of the global climate agenda and share its experiences through various presentations.
- Tüpraş participated in the Climate Council held in Konya in February 2022, hosted by the Environment, Urbanism and Climate Change Presidency. All aspects of climate change were discussed during the event, with special working groups formed on climate change. This contributed to the determination of medium and long-term strategic goals with advisory decisions also emerging to form a basis for the Climate Law and secondary legislation.
- Tüpraş also supports the efforts to combat climate change carried out by the Turkish Industry and Business Association (TÜSİAD). Tüpraş is an active member of the Environment and **Climate Change Working Group** within TÜSİAD. In this context, it supports work such as the Emissions Trading System (ETS) and the Market Implementation Partnership Program (PMI) carried out at the national level.
- Within the scope of internal carbon pricing, Tüpraş takes the shadow price approach for carbon into account as a parameter in the feasibility and evaluation studies of investment projects. The shadow carbon price is updated periodically by taking the carbon price forecasts reached by research firms, international carbon market prices and country expectations into account. Through these efforts, Tüpraş prepares for future climate policies by promoting low-carbon investments, reducing climate-related financial risks and better understanding the effects of investments on climate. Work on carbon pricing instruments is carried out by the relevant units and the Carbon Neutral Sub-Working Group of the Sustainability Committee. The work strengthens Tüpraş's know-how in carbon pricing.
- The Carbon Transformation Program includes a comprehensive and applicable roadmap which was initiated by Koç Holding with the goal of becoming carbon neutral by 2050 as part of the efforts of the tackle the climate crisis and transition to a low carbon economy. Tüpraş is a stakeholder of the **Carbon Transformation Program**.

Natural Capital

How do we manage the priorities and issues associated with the climate crisis?

Tüpraş carries out its activities in the field of sustainability with the aim of complying with the generally accepted approach and good practices. Tüpraş's sustainability efforts are managed under the Our Energy to the Future strategy.

Tüpraş carries out its efforts to tackle the climate crisis and transition to a low-carbon economy in line with the vision set out by its main shareholder, Koç Holding.

Tüpraş has been the pioneer of the Turkish energy sector for 67 years. It aims to invest in new areas which support the transition to a low carbon economy and to lead the transformation of the Turkish energy sector while managing its current assets under an approach which prioritizes sustainable profitability within the scope of the Strategic Transition Plan which it has created with the aim of producing the energy of the future. In line with the plan, the process of transformation to a carbon neutral energy company with a balanced and diversified clean energy portfolio has got underway by reducing emissions. Tüpraş has defined the TCFD climate-related risks and opportunities as short-, medium- and long term risks.

Monitoring Climate-Related Risks and Opportunities

Risks	Opportunities
Short term risks · The perception of its work and the shared literature and posts within the scope of climate as green washing by its stakeholders · Failure or delay in adapting to technological applications that will increase operational efficiency and reduce climate risk	**Short term opportunities** Increasing the skills of the existing workforce and supporting their compatibility with the requirements of the age
Mid-term risks · Policy and compliance risk · The carbon pricing risk of Tüpraş's main suppliers, increasing raw material prices in connection with the climate and, as a result, higher costs · Changes in customer behavior as sensitivity regarding fossil fuels reduces demand for the petroleum products produced by Tüpraş · The financial and insurance market increases the prices it changes Tüpraş due to its sector, or terminates or significantly reduces its services to Tüpraş. · Loss of prestige and reputation in the eyes of stakeholder groups such as customers, investors, employees and suppliers as a result of not adapting a low carbon economy or delaying the transition. Reduction in competitive clout as a result of loss of reputation, with a negative impact on the share price · Failure to achieve the targeted success in new technologies for the transition to a low-carbon economy in which investments are made · Failure to carry out the investments in the new technologies which will enable the transition to a low-carbon economy at the right time · Physical Risks - Chronic Risks: Water Stress, Drought, Heatwaves, Cold snaps · Acute Risks: Floods, Storms	**Mid-term opportunities** · Participating in the carbon market · Use of low-emission energy sources and new technologies · Use of incentives in policies announced regarding compliance · Turning to alternative raw material resources which may be more cost-effective or efficient · Entering new markets for Tüpraş by diversifying its product portfolio (biofuels, zero-carbon electricity and hydrogen) · Increasing revenue as a result of diversification in the product portfolio · Diversification in the financial markets and instruments in line with current climate-related trends and influences such as green bonds, sustainability-related bonds or insurance products · Disclosure of plans which may positively impact stakeholders, or carrying out activities which differentiate the Company from other institutions in the sector by undertaking pioneering work in carbon studies, having obtained consultancy from companies which are specialized and competent in their fields.
Long term risks · Technological transformation · Inability to keep up with technological developments	**Long term opportunities** · Increasing efficiency in processes by switching to new technologies · Reducing operational costs with technological investments · Meeting the demands within the scope of the legislation with modernization and efficiency projects, ensuring efficiency in operational costs and reducing emissions

Tüpraş analyzes the risks and opportunities arising from climate change and aims to report it regularly to its stakeholders.

To render manufactured capital more competitive and sustainable

In line with the risks which it has identified and in line with its long-term strategic goals, Tüpraş is primarily focused on creating the resources it needs in order to transform its existing manufactured capital into a more competitive and more sustainable structure. Accordingly, Tüpraş will be able to invest in new strategic areas which will serve sustainability in the medium and long term. Tüpraş will allocate 60% of the investments it will undertake by 2030 to investments in its existing manufactured capital. It aims to carry out these activities in accordance with the EU Taxonomy.

Tüpraş's strategic resilience

In addition to possible extreme weather events, Tüpraş has also initiated preparations to focus on the increase in energy costs and carbon pricing. It has internalized the possible consequences of risks under different scenarios in their planning.

In 2022, Tüpraş studied climate-related risks on a weekly basis for a 3-month period with a team consisting of the members from the Risk Management and Audit and the Strategy and Sustainability departments. In light of the developments experienced within the plans during the reporting period, work continues towards the Company's target of becoming carbon neutral by 2050.

Tüpraş's business model is integrated with its renewable energy portfolio, carefully crafted with comprehensive strategic planning for different scenarios, including raw material and product diversity. The business model aims to transform Tüpraş into a Carbon Neutral energy company in 2050.

Tüpraş's process of identification and assessment of climate-related risks

Tüpraş first received consultancy services to identify its climate-related risks in 2021.

Climate-Related Risks were added to the Tüpraş Enterprise Risk Management Inventory as a separate category in 2022. The Company has been regularly reviewing its climate-related risks since 2022. Necessary revisions and updates on the basis of probability and risk are carried out with the participation of the TCFD working team and Value of Life Sub-Working Group, which works under the Sustainability Committee.

Climate-related risks are one of the work areas carried out by the Value of Life Sub-Working Group operating under the Sustainability Committee. The Strategy and Sustainability Directorate also takes part in this work. In addition, Tüpraş carries out activities with Koç Holding within the framework of the TCFD.

Climate-related risks are managed at a departmental level with the applicable senior management and the Board of Directors, as well as being monitored in a consolidated basis by the enterprise risk management. Tüpraş reports its activities in this field to the Board of Directors through the Corporate Governance Committee within the scope of the Compliance with Sustainability Principles reporting.

Climate-related risks and opportunities, determined greenhouse gas targets and new investment areas as well as the emission reduction roadmap are monitored and managed within the scope of the Strategic Transition Plan. Reports are presented to the Early Detection of Risk Committee within the body of the Board of Directors within the scope of risks and opportunities related to climate.

Tüpraş continues to work on determining key performance indicators within the scope of climate-related risks and opportunities, with the determination of leading risk indicators also on the agenda.

In its Environmental Management Policy, Tüpraş is committed to continuously monitoring its emissions in order to tackle climate change and keep air quality under control.

Scope 1 and 2 emissions are regularly monitored and reported within the scope of the Monitoring Reporting and Verification (MRV) communiqué. Tüpraş has had its emissions under the Scope 1, Scope 2, and the Scope 3 emissions as of 2021 verified by a third-party independent organization authorized by the Ministry of the Environment, Urbanization and Climate Change within the framework of ISO 14064-1 Verification and Reporting of Greenhouse Gas Emissions Standard. Best available techniques are monitored and the highest standards are applied to minimize emissions from operations. Risks which may arise within the scope of greenhouse gas policies, emission management, climate-related reporting, emission intensity and carbon pricing are all assessed.

Tüpraş applies the OKR (Objectives and Key Results) method in the process of managing climate-related risks and opportunities. Within the scope of OKR, which is used to monitor the targets and performance of employees at Tüpraş, risks are taken into account while determining the targets. The determined targets are reviewed periodically throughout the year.

Identified risks are reported to the senior management on an annual basis. In addition, reports are prepared six times a year at Board level.

Annexes

SDGs Performance Realization Table

The UN SDG	Indicator	What was realized in 2020	What was realized in 2021	What was targeted for 2022	Realized in 2022	Targeted for 20223	Current status towards the target
Climate and Environmental Management							
	Following global trends and new technologies in the energy sector	The Company participated in the *Decarbonisation Leaders Network*. Global and sectoral developments were followed in the context of the European Green Deal and climate change.	The Company participated in the *COP26*. The Company participated in the B20 and WEF working groups. The Company contributed to the work of the NGOs to combat climate change (TÜSİAD Green Deal Task Force). The Company participated in the preparatory work of the Climate Council.	Continuing to participate in the Conference of the Parties and to take part in the relevant platforms.	Tüpraş's experiences were shared by participating in the *COP27* conference held in Sharm El-Sheikh in Egypt.	The Company aims to participate in the COP28 Conference of the Parties, to follow Climate Law and related work in Turkey and to issue a statement to the CDP.	
	Increasing the use of renewable energy		The solar power plant met more than 25% of the Batman Refinery's electricity needs.	Continuing installation work for renewable energy power plants at other refineries.	Installation work on solar power plants continued at the İzmir, Kırıkkale and Batman refineries, and work on installing a wind power plant continued at the İzmir Refinery.	The Company aims to continue work on installing renewable energy power plants at the refineries and to increase the installed capacity.	
	Ensuring a decrease in the energy intensity index (delta)	The energy intensity index stood at 99.1.	The energy intensity index stood at 93.5, exceeding the target performance.	Keeping the energy intensity index at the level of good examples by maintaining its energy efficiency activities.	The energy intensity index stood at 94.9.	Energy Roadmap work is planned within the scope of sustaining the energy intensity index at the level of good examples to meet the 2030 target, by maintaining energy efficiency activities.	Energy Roadmap study projects have been determined and studies related to the projects have been initiated.
	Evaluation of environmental impacts of processes		The goal of establishing a Life Cycle Analysis (LCA) model and carrying out Life Cycle Analysis for CCUS (Carbon Capture, Use and Storage) projects was achieved in four processes at the Izmit Refinery.	Completion of half of the total number of units at the Izmit Refinery, three units at the Kırıkkale Refinery and one unit at the Batman Refinery.	Models were created for the LCA of a total of 12 units, eight units at the İzmit Refinery, three units at the Kırıkkale Refinery and one unit at the Batman Refinery. The analysis for the specified time interval were completed with the contribution of the process-environment and energy teams.	The Company aims to create and analyze the LCA models for three units at the İzmit Refinery, one unit at the İzmir Refinery and two units at the Batman Refinery.	
	Increasing the amount of water recovery	15.1 million m^3 of water was recovered.	16.7 million m^3 of water was recovered.	Continuing to increase the amount of water recovered.	15.7 million m^3 ✔ of water was recovered.	The Company aims to participate in the Koç Group water vision and water roadmap activities and to complete the Tüpraş Water Roadmap. It plans to set targets for reducing the usage amount of raw water.	
	Obtaining Zero Waste Documents	The Zero Waste Basic Level Certificate was awarded at four refineries.	A waste management system was established at the new Head Office building and personnel training was provided.	Applying for the Basic Level Zero Waste Certificate for the Headquarters.	An application was submitted for the Basic Level Zero Waste Certificate for the new Head Office building.	The Company plans to obtain a Basic Level Zero Waste certificate for the new Head Office building. It aims to regularly enter data into the Zero Waste Information System.	This goal was achieved during the preparation of the report. The Basic Level Zero Waste certificate was obtained for the new Head Office building.
	Contributing to the circular economy	The use of waste as raw material continued with industrial symbiosis projects.	Symbiosis projects and composting projects were carried out.	Continuing symbiosis projects for disposal waste and composting work for domestic waste.	With the established industrial symbiosis and recovery efforts, the waste recovery rate increased to 86% with the wastes brought into the circular economy.	The Company aims to maintain the recovery rates by continuing its circular economy activities. It aims to expand the compost work, which had started at the Izmit Refinery, to the Batman Refinery.	
	Biodiversity studies		A team working on biodiversity issues was established and the Biodiversity Guide was published.	Continuing the work of biodiversity teams.	Biodiversity studies began to be followed in the Value of Life Sub-Working Group under the Sustainability Committee, which was established in September 2022. Cooperation was established with the Boğaziçi University's Institute of Environmental Sciences to carry out biodiversity activities at the İzmit Refinery and its impact area.	The Company plans to prepare a specialist report setting out future recommendations for the assessment of terrestrial and marine biodiversity and conservation of biodiversity at the Izmit Refinery and its impact area.	Reporting work has been initiated.

SDGs Performance Realization Table

The UN SDG	Indicator	What was realized in 2020	What was realized in 2021	What was targeted for 2022	Realized in 2022	Targeted for 20223	Current status towards the target
Focusing on People at Tüpraş							
5, 10	Helping to give women a voice in demanding their rights and expressing their needs.	A women's board was established within the scope of the practices. Training was provided to support the development of the women's board at the İzmir Refinery.	The women's board was transformed into the "Diversity, Equality and Inclusion Committee". A site representative, young generation representative and female employee representative were among the permanent members of the committee.	Working as the committee that decides and implements the diversity, equality and inclusion practices at Tüpraş and the implementation of 70% of the committee's decisions (with 30% of the decisions to be evaluated in the long term)	Work has started on the committee's goal of gender equality in recruitment and increasing the number of female employees on site (30% long-term target).	The Company aims to continue to increase the number of female employees on site.	All planned work got underway.
5, 8, 10	Increasing the involvement of female employees in fieldwork and improving their experience.	Physical working conditions were improved for female site workers at all refineries.	Meetings were held with female field workers to improve the experience. The outputs of the listening sessions were brought to the attention of the Diversity, Equality and Inclusion Committee, and 2022 plans were put in place.	Preparing the guide for being a woman on site and preparing special orientation programs, with 50% of the women recruited to be on site.	The rate of women in all recruitment reached 49%.	The Company plans to prepare a guide on becoming a woman on site and to prepare adaptation programs.	
5, 8, 10	Creating a business environment that promotes diversity, equality and inclusion		The "Diversity, Equality and Inclusion Committee" was established. Work on the Diversity, Equality and Inclusion Policy got underway.	Increasing the awareness of both managers and employees through Diversity, Equality and Inclusion training, publishing the policy and developing a Diversity, Equality and Inclusion focused business environment with implementation guides.	The Diversity, Equality and Inclusion Policy was published. The decision was taken to provide training on raising awareness of unconscious prejudices. Preparations were initiated for a guiding document on Diversity, Equality and Inclusion.	The Company aims to complete the guidance document on Diversity, Equality and Inclusion, to launch the Diversity, Equality and Inclusion development platform and to initiate reverse mentoring programs.	
5, 8, 10	Inclusion of talent that will carry Tüpraş to the future and development of leadership and technical competencies		"Tüpraş Leadership Schools" won the gold award in the "Best Blended Training Program" category and the silver award in the "Best Leadership Development Program" category at the Brandon Hall HCM (Human Capital Management) Excellence Awards. Three levels of talent development programs were launched to identify and develop talent within Tüpraş.	Designing a leader development program specific to Tüpraş that will develop leaders and prepare them for the future in accordance with the Strategic Transition Plan, designing a platform where employees can follow their own applications for talent development programs, supporting equal opportunity.	Leadership development was achieved through experience oriented leadership and management schools (leadership 101, leadership 102) programs. The decision was taken to proceed with the Talent Development Programs in their current form. Program content was developed on Sustainability, Digitization, Data Orientation and Agile Working.	The Company aims to create an environment that will enable talented individuals to be included in the in-house enterprise programs and transform their future-oriented ideas into a business model.	
3, 4	Improving the employee experience and increasing employee loyalty	Surveys were prepared. The Future of Work employee experience team and employee experience teams were established. Training was provided to increase the level of knowledge and awareness among the teams.	Experience teams (TEX & DEX teams) with wide participation of employees were established. 414 employees were interviewed on a one-on-one basis to improve their work experience. Actions were determined and implemented on the experiences which were sought to be improved upon. With all these team formations and experience improvements, the Company won first prize in the category of Creating Value in the Business Life of the Future at the PERYÖN/Human Value Awards.	Continuation of work with experience teams consisting of management teams in seven experience themes selected for improvement by listening to employees.	The overall employee loyalty score increased by 12.4 points compared to the previous year to reach 47.4%. ✔ The loyalty score of 76% among the employees drawing a salary was the highest score recorded in the last 10 years. Work was carried out with the teams consisting of management teams, agile coaches and the EX officers in the seven experience themes deemed to be a priority for improvement in terms of the Tüpraş Employee Experience. A total of 313 people took part in the work with 93 actions were implemented throughout Tüpraş, and more than 172 actions specific to the locations were implemented.	Themed teamwork is planned to continue with the aim of ensuring that Tüpraş is one of the most popular companies in Turkey to work in, providing the best working experience. By improving the employee experience, Tupras aims to reduce employee turnover and improve employee loyalty scores.	Experience teams formed in seven themes started their work.

SDGs Performance Realization Table

The UN SDG	Indicator	What was realized in 2020	What was realized in 2021	What was targeted for 2022	Realized in 2022	Targeted for 20223	Current status towards the target
Social Development							
	Our Energy to the Future: I Code, Model, Produce Project; robotic coding, three-dimensional modelling and production skill classes for 7th and 8th grade primary school pupils	The project was transformed during the COVID-19 pandemic and with the support of 60 volunteer teachers and 10,000 masks with visors were produced for healthcare workers using 3D printers in schools.	The project was implemented in 41 schools in Batman, Kırıkkale, Izmir, Izmit and Istanbul. Teacher training was organized.	Organizing activities for students, especially girls.	Five million students, two million of whom are girls, were reached with the film. The film featured the concepts of contributing to industry such as the "Development of Industry and Enterprise in Our Country" and "Maritime and Shipbuilding".	The Our Energy to the Future Project will continue in 41 schools, with plans to set up a classroom in each of the Koç Holding container cities to be established in Hatay and Kahramanmaraş.	The Our Energy to the Future Project continues in 41 schools.
	Our Energy is for Students; A series of science experiments for 5th and 6th grade primary school pupils	The content of the experiments was prepared during the pandemic.	The experiments were transferred to online media.	Sharing the lessons with the public.	11 science experiment training videos were prepared.	The Company plans to share the videos on the Tüpraş website in cooperation with the Ministry of National Education.	
	The Program of Women in Technology and Innovation; Enterprise training for university students, especially female students		The "Feminist Technologies for Generation Equality Online Internship Program" was organized. Collaborations with universities were established.	Collaboration with the Batman University within the scope of the "Innovation in Young Minds and Women's Power Program".	The first of the "Fundamentals of Innovation and Enterprise" seminars was held at Batman University in March 2022. With the enterprise camps organized, online and face-to-face training was provided with original content. Students were able to experience enterprise processes.	It is planned to expand the program in cooperation with universities in Kocaeli, Kırıkkale, Istanbul and Izmir, where Tüpraş operates, as well as Batman.	All work related to this project were directed to contribute to the continuation of the education of university students affected by the earthquake in cooperation with the Turkish Education Foundation.
	UN Women HeForShe Movement, Fenerbahçe Sports Club cooperation	The UN Women's Office in Turkey supported the "16 Days of Activism" campaign with the voluntary participation of its employees. Three "Athlete Workshops" and one "Change Leaders" training events were held.	The Fenerbahçe Sports Club organized training and awareness programs for the rowing, boxing, table tennis, swimming and athletics branches.	Continuing awareness training programs	The Gender Equality Committee was established at the Fenerbahçe Sports Club. Training was provided to 197 members of the Fenerbahçe Sports Club and 62 media professionals.	Tüpraş aims to create a Gender Equality Action Plan for the 2022-2025 period.	Work continues on the implementation of the Action Plan.
Responsible Value Chain Management							
	Creating awareness on Information Security	The information security awareness training which was given in 2019 was transferred to an online training platform in 2020.	As part of the awareness program, information security online training was provided to all Tüpraş personnel. Extensive social engineering tests were carried out. Cyber security bulletins were published on a quarterly basis. Monthly information posters were posted. Event-based awareness e-mails were sent. Refinery and head office entry door films were renewed and information security issues were addressed.	Continuing work on general information security training with special content for Tüpraş with the support of an agency within the scope of the awareness program created for the ISO 27001 ISMS Re-certification period. Establishing separate training for field workers, providing brief animation videos for events specific to the subject. Preparing online publications on security within Tüpraş. Renewal of information security labels and their rollout on site and at the new Head Office. Periodic continuation of social engineering tests, bulletins and poster posts. Organization of information security day and award-winning competition. Quarterly reporting of cyber bulletins. Preparation of an awareness program for 2022, which was published on the website.	Online interactive training planned within the scope of the 2022 Awareness Program, animation videos, posting of the Cyber News Bulletins containing the Tüpraş Cyber Security work and the world and Turkey cyber security headline topics on a quarterly basis, and the phishing tests applied throughout Tüpraş were carried out within the scheduled dates. In addition, the Refinery and Head Office Information Security labels were renewed with any deficiencies addressed. Informative mailing activities specific to the conditions of the period were carried out. Posters on various subjects were placed. Employees who performed successfully in the information security exams were rewarded. Additional training was assigned to employees who failed their information security training and social engineering tests.	Within the scope of the Tüpraş Cyber Security Awareness Program for 2023, Tüpraş plans to provide training activities that will address general cyber security awareness issues. Tüpraş also plans to carry out training activities that will appeal to the social circles of the employees so cyber-security becomes a way of life. Special themes were selected for all months and the 2023 Cyber Security Calendar was created. In addition to periodic training, social engineering, and agenda-specific mailing work. Information will be provided on related issues according to the content of this calendar. As around the world, October was chosen as the month of cyber awareness. Cyber security publications, cyber drills, and cyber simulation organization are among the other planned awareness activities.	
	Creating economic, environmental and social benefits by reducing tanker traffic on highways	The rate of transportation using roads was reduced to 2.5%, with rail transportation increased.	The rate of land transportation using rail increased to 94%.	Increasing the rate of transportation using rail to 95% by transferring different products to rail transportation.	The rate of rail use in land transportation increased to 96%.	The transfer of different products to rail transportation is aimed at keeping the proportion of transportation using rail at 95%.	Due to the earthquake, the volume of rail transport in the region was restricted.
	Observing the environmental benefit in the supply chain		The Installation of the Ballast Water Treatment System on the T. Leyla ship was completed and the system started to be used actively.	Planning of Ballast Water Treatment System Installation work on the T. Suna ship.		The Company aims to carry out an ESG assessment for suppliers and to add a sustainability question set to supplier applications.	
	Ensuring customer satisfaction; follow-up of requests and customer suggestions	Customer Notification Management software was brought into use.	The driver portal/ mobile application project was implemented. The Tüpraş Solution Center and Tüpraş Customer Portal topic headings and service areas were expanded. The Izmit Refinery Land Filling Contactless Sales Project was commissioned. The petrocoke appointment system was brought into use.	Expanding the Tüpraş Solution Center and Tüpraş Customer Portal topic headings and service area. Commissioning of the Land Filling Contactless Sales Project at the İzmir, Kırıkkale and Batman Refineries. Switching to the appointment system for all products.	The Landfill Contactless Sales Digital Platform was commissioned. An appointment system was introduced in landfill deliveries of jet fuel and sulphur. The extension of all refineries to the land filling process was completed.	The Company aims to complete the entire transformation process regarding the Land Fill Contactless Sales System and to switch to the appointment system for all products.	The Black Fill Appointment system was commissioned on 1 April for kerosene and High Sulphur Fuel Oil (HSFO) and will be commissioned for Fuel Oil and Heating Oil on 1 May.

SDGs Performance Realization Table

The UN SDG	Indicator	What was realized in 2020	What was realized in 2021	What was targeted for 2022	Realized in 2022	Targeted for 20223	Current status towards the target
R&D, Innovation and Digitalization							
	Increasing the number of collaborations and projects in the field of R&D	A total of 29 international project applications were filed. Five projects were accepted in Horizon2020. The total number of national and international applications increased from 20 to 33. Tüpraş became the most successful Turkish industrial enterprise in terms of the rate of return on funding provided by the Horizon2020 Program.	Applications were submitted for four new funding mechanisms (Turkey-Hungary MartERA, Japan EIG Concert and TÜBİTAK 1005 programs). Three Horizon Europe applications were made (Bridge4Uni, Dilute, FlexIndustries).	Subscribing to new platforms and applying to national and international support programs in order to increase cooperation in the field of R&D.	The Company became a member of the Hydrogen Europe and Water Europe platforms. Eleven Horizon Europe applications were submitted.	The Company aims to apply to national and international support programs and new funding mechanisms.	
	Increasing the number of project applications and projects within the scope of R&D.	Eleven project applications were filed Within the scope of Horizon2020.	The Company joined the consortium for two Horizon Europe projects and started preparations for the application (CHOICE, CCUS ZEN). The Company applied to join the TÜBİTAK ARDEB 1005 support program.	Taking initiatives and taking part in projects to create a green hydrogen ecosystem in Turkey and to play its part in this ecosystem.	An application was submitted to the ETERNITY project within the scope of the Horizon Europe program, in the role of coordinator for the small-scale hydrogen valley call. An "Electrolyser Working Group" was established for green hydrogen production.	The Company aims to take part in projects where innovative solutions and technologies are developed in the new investment areas and for digitalization within the framework of the Strategic Plan.	
	Increasing the number of internationally funded projects and commissioning of ongoing projects.	Five projects were accepted in Horizon2020.	While the work of 12 Horizon2020 projects continues, an additional EPC-Eqtech project has been launched.	Realization of the first site applications of ongoing internationally funded projects Bringing new technologies and solutions to Tüpraş which are compatible with the Strategic Transition Plan.	Commissioning of the carbon dioxide conversion unit within the scope of the COZMOS project, work on which continues under the Horizon2020 program.	The Company aims to carry out site applications in ongoing internationally funded projects.	
	Supporting in-house entrepreneurs Rolling out a culture of enterprise mentoring	Internal mentors started to support selected in-house enterprise projects.	Internal mentors started to follow ongoing enterprise projects and started mentoring sessions.	Internal mentors provide direct and active mentoring support through the work for the ecosystem, while the new term of the in-house enterprise program got underway.	In addition to In-house enterprise projects, internal mentors and mentoring support were provided to Batman University students within the scope of the "Innovation in Young Minds and Women's Power Program".	In addition to in-house enterprise projects, internal mentors are directed to Start-up Mentoring requests for the enterprise ecosystem with the aim of developing their mentoring competencies.	The Tüpraş Internal Mentors also started to act as mentors in external Incubation and Acceleration Programs.
	Supporting in-house entrepreneurs	Two projects were commercialized within the scope of the in-house enterprise program.	One new project was commercialized, taking the number of commercialized projects to three.	Completion of pilot phase scenarios of the 2022 in-house enterprise projects. Final progress or closure decisions on ongoing projects in the in-house enterprise projects portfolio.	Project statuses were evaluated within the scope of carrying out projects with the Lean Enterprise and Agile Methodologies. Decision taken not to continue on two projects as a "smart fail".	Progress or closure decisions for the three ongoing projects to be taken at the end of the second quarter.	One project is in the pilot phase and two projects are in the implementation phase.
	Increasing collaborations and sharing ideas to create solutions which will address the Company's problems.	Access channels to domestic and foreign start-ups were diversified. The roof program design was rolled out for collaborations with open innovation studies.	The Inowhatif 360 Open Innovation Program was designed. Meetings were held with the team providing support for the program launch and technical evaluation.	Increasing the transformation of collaborations with ventures that offer solutions in the field of operational excellence to business results.	Cooperation has been entered into with 32 start-ups since 2017. Collaboration was carried out with ventures from more than 10 countries on three continents (North America, Europe and Asia).	Focus areas were updated by conducting detailed needs analyzes with business units. Tüpraş plans to introduce at least ten innovative technologies for existing site and operational applications to the Company within the scope of the Inowhatif 360 Program.	The Inowhatif Start-up Challenge Program got underway, targeting domestic ventures for the determined focus areas. The process of searching for international ventures continues.
	Strengthening ties with the enterprise ecosystem, increasing mutual benefit.	A long-term cooperation agreement was signed with the Emerald Industrial Innovation Fund, which is an international venture capital fund. There was an increase in the number of start-ups with which cooperation was developed.	Detailed interviews were conducted with more than 35 start-ups from Turkey and abroad. PoC scenarios were prepared with 17 ventures and the cooperation process was carried out. The Company invested in five start-ups under LP status through Emerald Technology Ventures.	Diversifying corporate entrepreneurial business development models by entering strategic agreements with start-ups, increasing cooperation with start-ups and interactions with potential investors in the field of energy transformation.	Since 2020, 11 investments have been undertaken through Emerald. Tupras Ventures (Tüpraş Enerji Girişimleri A.Ş.) was established with the aim of developing cooperation and carrying out investments with the ventures in the focus areas that will contribute to the energy transformation.	The Company aims to initiate investments in domestic and foreign ventures.	The Company invested in longenics, which develops Green Hydrogen Electrolyser Systems.
	Increasing data interpretation technologies within the scope of digital transformation.	More than 15 projects were launched in the field of data analytics. With the completed projects, a culture of decision-making based on data has been developed.	In the field of data analytics, roll out and training processes of all projects, which were completed in the production area at a refinery, were started in other suitable refineries. Online tracking of analytical projects started. The systematic development of regular performance measurement continued.	Ensuring the sustainability of completed and rolled out analytical projects and tracking their added value.	In this context, a process called DBO (Digital Based Operations), which is carried out with the Financial Reporting Directorate, was put into use. Each digital transformation and analytical project developed was examined together with the business unit and financial teams, and their potential for gains was reported realistically. The "Healthcheck" process was initiated to regularly monitor and report the use of commissioned projects.	Data governance work to be carried out with the aim of creating a data culture that will render data understandable, shareable, manageable and protectable within the organization by creating value from data.	DACAMA (Data Capability Maturity) work was initiated and Tüpraş's strengths in data management and its areas of improvement were reported. The Tüpraş Data Governance Committee was formed and the Data Governance Policy was prepared as the first output and published on a platform accessible for all Tüpraş employees.

Stakeholders and Communication Methods

Employees	Sustainability Report (annual), Annual Report (annual), Employee Engagement Survey (annual), Internal Communication Meetings (annual), Performance Evaluation Meetings (annual), Occupational Health and Safety Boards (monthly), Technical Safety Bulletins (weekly/monthly), Internal Information Announcements (instant), Social Projects (continuous), Social Activity Clubs (continuous), Refinery Suggestion System (continuous), Recognition, Appreciation and Reward System (continuous), Tüpraş Ethical Principles (continuous), Collective Bargaining Agreement (continuous)), Employee Training (continuous), Website (continuous), Refinery Knowledge Base (continuous), Stakeholder Communication Management System (continuous) and Corporate Portal (continuous), Corporate Reputation and Perception Surveys (biennial)
Educational Institutions	R&D Partnerships (on a project basis), Donations and Sponsorships (upon request), Infrastructure and Trainer Supports (upon request), Graduate and Sectoral Specialization Programs (continuous), Website (continuous), Stakeholder Communication Management System (continuous), Corporate Reputation and Perception Surveys (two years)
Business Partners and Suppliers	Sustainability Report (annual), Supplier Satisfaction Survey (annual), Technical Safety Bulletins (weekly/monthly), Meetings and Interviews (upon request), Tüpraş Ethical Principles (continuous), Business Partner HSE-G System (continuous), Website (continuous), Stakeholder Communication Management System (continuous), Corporate Reputation and Perception Surveys (biennial)
Public Institutions and Organizations	Sustainability Report (annual), Annual Report (annual), Audits (periodic/instant), Meetings and Interviews (upon request), Joint Projects (upon request), Incentives (upon request), Website (continuous), Stakeholder Communication Management System (continuous), Corporate Reputation and Perception Surveys (biennial)
Media	Sustainability Report (annual), Annual Report (annual), Meetings and Interviews (upon request), Press Conferences and Releases (instant), Website (continuous), Stakeholder Communication Management System (continuous), Corporate Reputation and Perception Surveys (biennial)
Customers	Sustainability Report (annual), Customer Satisfaction Survey (annual), Meetings and Interviews (upon request), Customer Portal (continuous), Customer Relationship Management System (continuous), Tüpraş Ethical Principles (continuous), Tüpraş Solution Center (continuous), Stakeholder Communication Management System (continuous), Corporate Reputation and Perception Surveys (biennial)
Shareholders and Investors	Sustainability Report (annual), Annual Report (annual), General Assembly Meetings (annual), Interim Activity Reports (quarterly), Information and Material Disclosures (instant), Roadshow and Investor Presentations (upon request), Meetings and Interviews (Upon request), Analyst Presentations and Teleconferences (quarterly), Tüpraş Ethical Principles (continuous), Website (continuous), Stakeholder Communication Management System (continuous), Corporate Reputation and Perception Surveys (biennial)
Trade Unions	Sustainability Report (annual), Annual Report (annual), Occupational Health and Safety Boards (monthly), Meetings and Interviews (continuous), Collective Bargaining Agreement (continuous), Website (continuous), Stakeholder Communication Management System (continuous), Corporate Reputation and Perception Surveys (biennial)
Non-Governmental Organizations	Sustainability Report (annual), Annual Report (annual), Meetings and Interviews (upon request), Joint Projects (upon request), Donations and Sponsorships

Task Force on Climate-related Financial Disclosures (TCFD) and Tüpraş

Adaptation to climate change, resilience and transition are among the eight priorities for Tüpraş.

Tüpraş took two important steps in its approach to addressing climate risk in 2022.

The first of these steps was the addition of Climate-Related Risks and Opportunities to the Company's Risk Inventory. The second was that as a supporter of the *Task Force on Climate-related Financial Disclosures (TCFD)*, in addition to the TCFD risks announced in the 2021 Sustainability Report, the TCFD opportunities were also included in the reporting process.

In the coming period, Tüpraş will press ahead with its activities in line with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) and continue its reporting scope with the TCFD Proposed Disclosures.

The TCFD Risk Assessment Team

In 2022, a team consisting of risk, strategy and sustainability specialists was formed to work on this issue within the scope of the Company's sustainability structuring.

Tüpraş's goal is to dynamically manage the TCFD risks with the TCFD Risk Assessment Team and the Value of Life Sub-Working Group of the Sustainability Committee, which it established in 2022 within the context of its efforts to tackle the climate crisis, which it attaches special importance to.

The output of the work to be carried out by the team are conveyed to the Company's senior management through the Risk Committee and Sustainability Committee, as well as trough periodic reporting such as in the Integrated Report and the CDP reporting. Necessary recommendations are provided accordingly.

Detailed information on Sustainability Management at Tüpraş can be found in the Governance Approach section (pages 34-41).

TCFD: An approach that considers risks in two groups

Climate-related risks refer to the potential adverse effects of climate change on an organization. TCFD divides these risks into two main groups: transition risks and physical risks.

- Transition risks are related to issues related to policy, the markets, technology and reputation.
- Physical risks arising from climate change consist of acute risks such as the increased frequency and destructiveness of extreme weather events and long-term chronic risks such as water stress, heatwaves and cold weather.

Task Force on Climate-related Financial Disclosures (TCFD) and Tüpraş

TRANSITION RISKS

TCFD Risk Category	Risks	Opportunities	Definition/ Characteristics	Explanation	Tüpraş's Approach-Action	Impact	Probability	Term
Policy and Compliance Risk	Changes in national and international carbon pricing policies and implementation of new legislation	Participating in the carbon market Use of low-emission energy sources and new technologies Use of incentives in the policies announced regarding compliance	Legislative changes implemented to the regulatory framework in order to encourage the transition to a low carbon economy in direct operations or in the supply chain are defined as policy and compliance risk. The enactment of carbon taxes in a manner that will affect the costs, stakeholder sensitivity regarding fossil fuels (Paris Agreement, Green Deal), commissioning of the emission trading system, changes in the perception and sensitivity of investors and finance providers in terms of sustainability, legislative changes which may impact activities, costs and sales such as reducing greenhouse gas emission limits and introducing a carbon tax and restrictions on the use of vehicles running on fossil fuels in urban environments are evaluated within this scope.	The effects of the Emissions Trading System (ETS) and the Carbon Border Adjustment Mechanism (CBAM).	In addition to national legislation, the possible impacts of EU regulations and international legal regulations on Tüpraş's activities are evaluated regularly. Work is carried out on alternative action scenarios. Similarly, developments in the ETS and Climate Law and legislative processes are closely monitored. Tüpraş takes internal carbon pricing into account as a metric in its feasibility studies of investment projects. The investments to be carried out in new areas are planned by giving consideration to EU Taxonomy.	High	Likely	Medium Term
Market Risk	Major Suppliers' Carbon Pricing Risk		Carbon pricing can cause major suppliers in the market to face cost increases, while at the same time negatively impacting their financial position as a result of fluctuations.	**EBITDA at Risk** Market risk is calculated by Trucost using the "EBITDA at Risk" metric. The EBITDA at Risk metric enables the calculation of forward-looking projections of the financial risk Tüpraş's suppliers and the potential impact on current earnings of companies if they are required to pay a price for their greenhouse gas emissions in the future. This assessment enables Tüpraş to identify the value chain exposed to carbon pricing risks under the scenario of 2°C warming.	Tüpraş carries out work for a sustainable value chain. In this context, it works to identify ways to reduce exposure to carbon pricing risk over time by influencing and encouraging its suppliers. Tüpraş is also working on Scope 3 emissions. It will prepare action proposals to reduce these emissions.	High	Likely	Medium Term
	Increase in raw material prices (or costs) due to climate-related risks.	To turn to alternative raw material sources that may be more cost-effective or efficient.	Climate-related risks may lead to higher costs of crude oil, petroleum intermediates and natural gas procured by Tüpraş.		Prices of procured crude oil and natural gas costs are closely monitored. The Company's focus is on carrying out purchases at optimal cost level.	High	Likely	Medium Term

Task Force on Climate-related Financial Disclosures (TCFD) and Tüpraş

TCFD Risk Category	Risks	Opportunities	Definition/ Characteristics	Explanation	Tüpraş's Approach-Action	Impact	Probability	Term
Market Risk	Changes in customer behavior, reducing demand for petroleum products, which directly affects Tüpraş.	Entering new markets by diversifying Tüpraş's crude oil product portfolio (biofuels, H2, zero-carbon electricity solutions) Increasing revenues as a result of diversification in the product portfolio.	Legislative changes may precipitate a decline in consumer demand for Tüpraş's products.		Customer data and sales data is closely monitored. Necessary actions are taken in a timely manner. Tüpraş invests in the addition of new products to its product portfolio.	High	Likely	Medium Term
	Any increase in premiums levied against Tüpraş by the financial and insurance market to due to its sector. The financial and insurance market terminates or significantly reduces its services to Tüpraş due to the sector it is operating in.	Diversification of financial markets and instruments due to current climate-related trends and impacts (Green bonds, sustainability-related bonds or insurance products)	Participants providing services to processes involving fossil fuels in the finance and insurance market are demonstrating increasing sensitivity to climate-related issues. This could lead to an increase in credit or insurance costs, or present difficulty in procuring products or services in these markets.		Tüpraş closely monitors new products and services developed within the scope of tackling the climate crisis in the financial and insurance markets. The changes in the approaches and pricing of participants in these markets towards the oil sector, which Tüpraş operates in, are followed closely and trends are observed. In addition, the Strategic Transition Plan at Tüpraş and the steps the Company has taken in this vein are shared with its counterparties. External questions on this subject are responded to, maintaining the Company's high reputation in the sector.	Medium	Likely	Medium Term
Reputation Risk	Loss of prestige and reputation in the eyes of stakeholder groups such as customers, investors, employees and suppliers as a result of not transitioning to a low carbon economy or delaying the transition. Reduction in competitive clout as a result of loss of reputation, adversely affecting share value.	Announcing plans that will have a positive impact on stakeholders, taking consultancy from companies which are specialists and competent in their fields, carrying out activities, and distinguishing the Company from other institutions in the sector by undertaking pioneering work in carbon studies.	Failure or delay in transitioning to a low carbon economy may lead to loss of prestige and reputation among stakeholder groups. The widespread public perception that operations increase climate-related risks may lead to more questioning of the Company's activities and its effects from stakeholders. A compromised reputation may result in credit and insurance institutions losing confidence in the activities carried out, while also discouraging investors from investing in the Company or leading them to reduce their investment in the Company.		The Company's continuously keeps its finger on the pulse of its stakeholders by following new developments, including on social media, in addition to direct interviews. Necessary actions are taken in a timely manner to resolve any incidents and communications which may affect the Company's reputation before they turn into crises. In order to correctly manage posts about Tüpraş, the Company ensures that the public is informed with qualified and sufficient content transparently, at the right time and at the right intervals.	High	Likely	Medium Term
	Climate related posts being perceived as "greenwashing" by stakeholders		The situation where posts and explanations made within the scope of the climate crisis and the ESG are not perceived correctly by stakeholders, and are considered as green laundering.		By organizing meetings with its investors, Tüpraş strives to provide timely and accurate information regarding its shares and explanations, and to answer questions from investors. Stakeholder questions directed to Tüpraş are answered by the relevant units, primarily Investor Relations and Corporate Communications departments. Fully complying with legal regulations, stakeholders are informed on the PDP platform of any developments within the scope of the Company's activities, in a timely and detailed manner.	High	Likely	Short Term

Task Force on Climate-related Financial Disclosures (TCFD) and Tüpraş

TCFD Risk Category	Risks	Opportunities	Definition/ Characteristics	Explanation	Tüpraş's Approach-Action	Impact	Probability	Term
Technology Risk	Technological transformation risk The risk of lagging behind technological developments	Increasing efficiency in processes by switching to new technologies Carrying out technological investments to reduce operational costs Meeting demands within the scope of the legislation with modernization and efficiency projects, ensuring efficiency in operational costs, reducing emissions	Early decommissioning of existing products and technology to mitigate the adverse effects of climate change. Failure to ensure the technological investments and transformation which need to be carried out in the face of climate change. Inability to achieve the desired efficiency in big data analysis, agile transformation and robot processes. Lagging behind in terms of technology and losing the competitive edge to other companies in the refining sector.		Tüpraş follows developments in the global refining and energy sector closely and meticulously. Tüpraş strives to reach the required maturity by introducing sustainable products and product technologies. The Company invests in clean technologies. The Tüpraş R&D Center develops new technologies. With modernization projects, investments are undertaken in order to manage existing operations more efficiently.	High	Likely	Long Term
	Failure to achieve the desired success in new technologies.					High	Likely	Medium Term
	Failure to carry out investments in technology at the right time.					High	Likely	Medium Term
	Failure to adapt to technological developments which may positively affect workforce and process efficiency, or being late to do so.	Increasing the capabilities of the existing workforce and ensuring the workforce is able to handle the demands of the age.				High	Likely	Short Term

Task Force on Climate-related Financial Disclosures (TCFD) and Tüpraş

PHYSICAL RISKS

TCFD Risk Category	Risks	Opportunities	Definition/Characteristics	Explanation	Tüpraş's Approach-Action	Impact	Probability	Term
Chronic Risk	Water Stress Heatwaves Cold Weather Drought		The sustainability of Tüpraş's operations, production continuity and financial situation being negatively affected due to chronic adverse water or atmospheric conditions. Incurring additional costs within the scope of combating chronically ongoing adverse events in water/air conditions. The risk of moving a plant or facility due to chronic adverse water or atmospheric conditions. Increases in insurance premiums.	In order to foresee their effects on the Company's activities, physical risk headings, which are considered important for the Company and that are foreseen to occur on a chronic scale are evaluated.	Within the scope of the study on the "Identification of Water Risks", a risk-based assessment of the basins where the refineries are located was conducted using the internationally accepted WRI Aqueduct method. The results obtained were evaluated together with the reports prepared on the subject at the national level. Chronic water and atmospheric risks are monitored. Work is carried out to determine which chronic risks the Company is exposed to. Basin Management Plans are being prepared. Water level monitoring studies are carried out. Waste water is recycled. Efforts are made to reduce raw water consumption. The risks of Tüpraş facilities, especially to adverse changes in climate, are analyzed and action plans are prepared. Technical Standards, which form the basis for equipment design and selection, are evaluated by considering ambient weather conditions.	High	Remote possibility	Medium Term
Acute Risk	Floods Storms Heatwaves		Increase in insurance premiums in parallel with the increase in the frequency of physical risks.	In order to forecast their effects on the Company's activities, physical risk headings, which are considered important for the Company and which are foreseen to occur on an acute scale, are evaluated.	Necessary insurance policies are obtained. Work on acute risks is carried out at the refineries. Infrastructure analysis and necessary investment plans are drawn up in this context. Buildings are reviewed for durability. Drills (flood and fire) are held regularly at the refineries and action is taken based on the findings of these drills.	High	Remote possibility	Medium Term

Performance Indicators

Operational Performance	2018	2019	2020	2021	2022	Notes
Processed Crude Oil (thousand tonnes)	24,540	27,238	22,583	24,418	25,126	
Production (thousand tonnes)	25,695	28,112	23,389	25,086	26,048	
Total Sales (thousand tonnes)	29,830	29,197	24,503	27,586	29,475	
Domestic Sales (thousand tonnes)	25,638	22,391	19,831	21,707	23,457	
International Sales (thousand tonnes)	4,191	6,807	4,356	5,250	5,732	
Transit Sales (thousand tonnes)			316	629	287	
Import of Products (thousand tonnes)	6,252	2,827	2,927	2,792	5,013	
Total White Product Ratio (%)	77.4	79.0	81.5	81.4	79.5	
Crude Oil Capacity Usage Rate (%)	87.3	90.8	75.3	81.4	83.8	
Semi-Product Included Capacity Usage Rate (%)	95.9	97.8	81.8	87.7	91.6	

Economic and Administrative Performance	2018	2019	2020	2021	2022	Notes
Net Sales (TL million)	88,552	89,601	63,244	152,492	481,765	
Operating Profit (TL million)	5,736	2,230	-619	777	45,607	
Profit Before Tax (TL million)	3,724	-311	-3,795	2,358	39,876	
Profit After Tax (TL million)*	3,713	526	-2,494	3,613	41,261	
EBITDA (TL million)	8,908	4,039	545	14,067	55,587	
Net Debt (Cash) (TL million)	11,967	8,424	9,420	12,017	-16,593	
Return on Equity (RoE) (%)	37	5	-20	22	96	
Debt Leverage Ratio (%)	1.3	2.1	17.3	0.9	-0.3	
Net Working Capital (USD million)	4,697	-3,560	-4,663	-6,283	4,765	
Investment Expenditures (Unconsolidated, USD million)	138	157	113	112	122	
Investment Expenditures (Consolidated, USD million)	165	236	153	152	173	
Earnings per Share (TL)	14.83	2.10	-9.96	12.70	149.11	
Gross Dividend per Share (TL)	15.15	-	-	-	45.41	
Net Dividend per Share (TL)	12.88	-	-	-	40.87	
Taxes and Other Liabilities (TL million)	31,590	31,262	35,673	15,550	44,377	
Pension Fund Liabilities (TL million)	103.9	122.0	136.6	163.3	302.4	
Donations and Sponsorships (TL million)	40.1	3.6	22.7	3.0	288.7	
Corporate Governance Rating Note	9.48	9.50	9.58	9.62	9.65	
Fitch Ratings Long-term Foreign Currency Rating Note	BB+ (negative)	BB- (stable)	B+ (negative)	B+ (negative)	B (stable)	
Moody's Ratings Long-term Rating Note	Ba2 (negative)	B1 (negative)	B2 (negative)	B2 (negative)	B3 (stable)	
JCR-ER Long-term Foreign Currency and Local Currency Rating Note				BB (stable)	BB (negative)	
Customer Satisfaction (%)	88.8	88.0	87.0	86.0	86.0	
Supplier Satisfaction (%)	88.1	86.5	84.7	83.0	85.0	
Contractor Satisfaction (%)	80.6	79.2	83.7	76.0	79.0	
R&D Expenditures (TL million)	37.8	43.5	43.4	47.5	73.3	

*As of the date of the report

Environmental Performance	2018	2019	2020	2021	2022	Notes
Direct Energy Consumption (TJ)	91,752	96,528	86,613	87,139	91,223	
Natural Gas (TJ)	45,342	51,039	43,842	45,946	33,515	
Fuel Oil (TJ)	3,481	2,292	3,433	1,705	7,590	
Fuel Gas (TJ)	40,562	41,028	37,808	38,282	47,695	
Coke (TJ)	2,367	2,169	1,530	1,206	2,423	
Indirect Energy Consumption - Electricity (TJ)	172	32	-179	-95	454	
Total Energy Consumption (TJ)	**91,924**	**96,560**	**86,434**	**87,044**	**91,676**	
Change in Energy Consumption (%)	-12.51	5.04	-10.49	0.71	5.25	
Energy Consumption Per Crude Oil Processed (GJ/tonnes)	3.75	3.55	3.83	3.56	3.65	
Energy Intensity Index Value (%)	99.1	98.4	99.1	93.5	94.9	
Energy Intensity (GJ/tonnes production)	3.6	3.4	3.7	3.5	3.5	
Number of Energy Efficiency Projects (#)	21	24	30	65	52	
Energy Efficiency Savings (TJ)	3,620	473	713	1,925	1,320	
Energy Efficiency Savings (USD million)	36.0	3.8	4.3	13.2	34.2	
GHG Emissions Reductions through Energy Efficiency Projects (tonnes CO_2e)	243,666	26,292	39,608	106,708	73,199	
Renewable Electricity Generation (MWh)					3,379	
Total Raw Water Consumption (million m^3)	18.2	18.0	18.6	15.6	18.1	
Total Water Consumption (million m^3)	**29.9**	**29.6**	**23.8**	**26.3**	**27.1**	
Surface Water Sources (million m^3)	17.2	17.2	17.8	14.9	17.4	
Grid (million m^3)	1.1	0.8	0.7	0.7	0.6	
Treated Wastewater from Körfez Municipality (million m^3)	11.7	11.6	5.2	10.7	9.0	
Water Consumption per Crude Oil Processed (m^3/tonnes)	0.74	0.66	0.82	0.64	0.72	
Water Consumption per Production (m^3/tonnes)	0.71	0.64	0.80	0.62	0.69	
Total Recovered Water (million m^3)	20.8	20.6	15.1	16.7	15.7	
Total Recovered Water to Total Water Consumption Ratio (%)	69.5	69.6	63.4	63.5	57.9	
Total Waste Water Discharge (million m^3)	14.3	15.5	11.0	11.3	12.7	
COD discharge amount (tonnes/year)	1,035	968	759	896	1,075	
Average COD Concentration (mg/L)	72	62	69	79	85	
Total Amount of Waste (tonnes)	**32,646**	**34,433**	**20,372**	**25,019**	**22,100**	
Hazardous Waste (tonnes)	23,617	22,144	17,224	13,048	13,363	
Non-Hazardous Waste (tonnes)	9,029	12,290	3,148	11,971	8,737	
Waste According to Disposal Method (tonnes)						
Recycling (tonnes)	28,934	23,947	11,978	21,253	19,095	
Disposal (tonnes)	3,712	10,486	8,394	3,766	3,005	
Total Waste Recovery Ratio (%)	88.6	69.5	58.8	84.9	86.4	
Savings from Waste Recovery and Industrial Symbiosis (TL million)				25.3	45.7	
Saplings Planted in Afforestation Works (#)	920	200	46	500	920	
Amount of CO_2 Emission Eliminated by Afforestation Works (tonnes CO_2e)	380	83	19	206	380	
Spending on Environmental Investments and Operating Expenses (TL million)	150	268	238	388	1,158	
Environmental Penalties (TL)			176,998/ 132,748	193,035/ 144,776	263,032/ 197,274	(1)
Water Penalties (TL)			88,499/ 66,324		263,032/ 197,274	(2)
Total number of spills (>1 barrel)					4	
Number of spills reaching the receiving environment (Sea/river) (>1 barrel)					4	
Number of spills causing soil pollution (> 1 barrel)					0	
Amount of spills (m^3)					2.9	
Recovery from spilled product (m^3)					2.7	

Performance Indicators

Environmental Performance	2018	2019	2020	2021	2022	Notes
Environmental Training (people x hours)	**10,391**	**14,127**	**7,020**	**12,897**	**7,184**	
Tüpraş Employees (people x hours)	4,168	4,200	2,502	9,676	2,003	
Contractors' Employees (people x hours)	6,223	9,927	4,518	2,971	5,123	
Community (people x hours)	0	0	0	250	58	
Scope 1 GHG Emissions (tonnes CO_2e/year)	6,103,645	6,172,574	5,724,407	5,865,652	6,396,648	(3)
Scope 2 GHG Emissions (tonnes CO_2e/year)	37,872	32,943	24,518	48,403	55,625	(3)
Scope 1 & Scope 2 GHG Emissions (tonnes CO_2e/year)	6,141,517	6,205,517	5,748,925	5,914,055	6,452,273	(3)
Greenhouse Gas Intensity (tonnes CO_2e/tonnes Crude Oil Processed)	0.25	0.23	0.25	0.24	0.26	
Greenhouse Gas Intensity (tonnes CO_2e/tonnes Charge)	0.23	0.21	0.23	0.22	0.23	
Greenhouse Gas Intensity (tonnes CO_2e/tonnes production)	0.24	0.22	0.25	0.24	0.25	
Other Greenhouse Gas Emissions from Combustion						
CH_4 Emission Amount (tonnes)	111.63	113.37	107.12	108.73	123.55	(4)
CH_4 Emission Amount (tonnes CO_2e)	3,125.55	3,174.43	2,999.29	3,044.31	3,459.41	(4)
N_2O Emission Amount (tonnes)	10.89	10.32	10.17	9.68	13.14	(4)
N_2O Emission Amount (tonnes CO_2e)	2,886.23	2,734.42	2,695.61	2,565.97	3,583.28	(4)

Health and Safety Performance	2018	2019	2020	2021	2022	Notes
LTI Frequency- OSHA (frequency)	**0.68**	**0.70**	**0.46**	**0.41**	**0.26**	
Tüpraş Employees (frequency)	0.69	0.70	0.60	0.23	0.32	
Contractors' Employees (frequency)	0.68	0.70	0.36	0.54	0.22	
LTI Severity- OSHA (frequency)	**27.80**	**25.80**	**18.90**	**18.20**	**17.65**	
Tüpraş Employees (frequency)	20.20	17.90	21.50	10.10	15.06	
Contractors' Employees (frequency)	33.70	31.30	17.00	23.60	19.45	
Total Recordable Incident Rate – OSHA (frequency)	**4.3**	**4.0**	**3.7**	**3.4**	**3.3**	
Tüpraş Employees (frequency)	3.3	4.6	4.8	4.2	3.9	
Contractors' Employees (frequency)	5.1	3.5	2.9	2.9	2.8	
Restricted Work Case – OSHA (frequency)	**2.58**	**1.73**	**0.88**	**1.18**	**1.13**	
Tüpraş Employees (frequency)	2.2	2.5	1.3	2.0	1.9	
Contractors' Employees (frequency)	3.6	1.2	0.5	0.6	0.6	
Occupational Illness (frequency)	**0**	**0**	**0**	**0**	**0**	
Tüpraş Employees (frequency)	0	0	0	0	0	
Contractors' Employees (frequency)	0	0	0	0	0	
Fatality Rate (frequency)	0.04	0.00	0.05	0.00	0.00	
Tüpraş Employees (frequency)	0.09	0.00	0.12	0.00	0.00	
Contractors' Employees (frequency)	0.00	0.00	0.00	0.00	0.00	
Traffic Accident (frequency)				2.58	2.48	
Total Amount of OHS Training (people x hours)	**165,038**	**201,813**	**194,671**	**292,712**	**312,860**	
Tüpraş Employees (people x hours)	87,805	108,026	125,855	108,672	119,689	
Contractors' Employees (people x hours)	77,233	93,787	68,816	184,040	193,171	
Near Miss - Unsafe Act (UA) &Unsafe Condition (UC) Reporting (#)	9,710	9,475	11,504	17,699	24,509	
Management Site Tours (#)	2,674	2,854	1,393	2,041	1,441	
PTW Site Inspections (#)	2,582	3,166	1,344	5,119	7,851	
Energy Isolation Inspections (#)	2,200	2,549	1,134	2,665	4,247	
3rd Party Audits (#)	2	7	8	15	3	
Equipment - Tool Compliance Performance (%)	97	96	96	93	98	
HSE Action Closure Performance (%)	89	86	84	80	82	
Overdue Safety Critical Equipments (#)	853	1,393	1,060	751	405	

Health and Safety Performance	2018	2019	2020	2021	2022	Notes
Fatalities as a Result of Work-Related Incidents	**1**	**0**	**1**	**0**	**0**	
Tüpraş Employees (#)	1	0	1	0	0	
Contractors' Employees* (frequency)	0	0	0	0	0	
Process Safety Accident Frequency (frequency)	**1.02**	**0.87**	**0.59**	**0.42**	**0.27**	
Ditaş - LTI Frequency	3.12	2.68	1.04	1.95	1.56	
Ditaş - LTI Severity	31.8	23.2	24.0	116.1	24.9	
Körfez Ulaştırma - LTI Frequency - OSHA (frequency)	0.0	0.8	0.8	0.0	0.0	
Körfez Ulaştırma - LTI Severity - OSHA (frequency)	0.0	12.4	11.2	0.0	0.0	

Supply Performance	2018	2019	2020	2021	2022	Notes
Indirect Product and Service Procurement						
Supply Operations (TL million)	1,911	2,017	2,024	1,776	6,263	
Domestic (TL million)	1,164	1,608	1,791	1,210	4,409	
Custom manufacturing (TL million)	13	14	10	22	45	
International (TL million)	734	395	224	544	1,808	
Local Purchase Rate (%)	61.60	80.43	88.90	69.36	71.11	
Number of Indirect Product and Service Suppliers (#)	2,164	2,060	1,920	1,664	1,815	
Number of Local Suppliers (#)	1,783	1,691	1,708	1,566	1,513	
Total Number of Suppliers Assessed (#)	767	841	738	616	559	
Number of Suppliers Assessed According to Environmental Criteria (#)	65	102	46	80	56	
Direct Raw Material and Product Procurement						
Number of Critical Suppliers (#)	52	43	44	43	43	
Number of Direct (Tier 1) Suppliers (#)	68	56	56	53	51	
Number of Critical and Direct (Tier 1) Suppliers (#)	52	43	44	43	43	
Amount of Payment Made to Critical and Direct (Tier 1) Suppliers (TL billion)	76.0	83.5	57.6	123.6	348.5	
Number of Critical and Indirect (non-Tier 1) Suppliers (#)	-	-	1	2	-	

Social Performance	2018	2019	2020	2021	2022	Notes
Total Amount of Training (hours)	**384,405**	**238,168**	**93,244**	**142,703**	**215,589**	
Female (hours)	34,968	40,919	19,017	21,122	28,385	
Male (hours)	349,437	197,249	74,227	121,581	187,204	
Monthly-Paid (hours)	103,165	125,107	54,171	71,247	85,231	(5)
Hourly-Paid (hours)	281,241	113,061	39,073	71,455	130,358	(5)
Total Amount of Training per Employee (average hours per employee)	**70**	**44**	**17**	**28**	**42**	**(5)**
Female (average hours per employee)	70	80	36	43	53	(5)
Male (average hours per employee)	71	40	15	26	41	(5)
Monthly-Paid (average hours per employee)	82	98	42	58	67	(5)
Hourly-Paid (average hours per employee)	67	27	10	18	36	(5)
Training Hours by Age Group (hours)	**384,405**	**238,168**	**93,244**	**142,703**	**215,589**	**(5)**
under 30 (hours)	221,683	88,832	29,178	32,127	37,857	(5)
30-50 (hours)	149,172	138,456	60,422	105,846	167,217	(5)
over 50 (hours)	13,550	10,880	3,644	4,730	10,515	(5)
Training Hours by Managerial Level (hours)	**100,782**	**126,236**	**44,898**	**31,454**	**85,430**	**(5)**
New hirings (hours)	82,061	104,109	33,698	27,075	75,689	(5)
Mid-level managers (hours)	16,523	20,651	10,897	4,145	9,021	(5)
Senior executives (hours)	2,198	1,476	303	234	720	(5)

Performance Indicators

Social Performance	2018	2019	2020	2021	2022	Notes
Training Hours by Training Type (hours)				**549**	**98,127**	**(5)**
Ethical Principles and Code of Conduct Trainings (hours)				549	5,102	(5)
Anti-Bribery and Anti-Corruption Training (hours)					542	(5)
Sustainability and Environmental Training (hours)					92,483	(5)
Training Expenses (TL)	10,147,704	1,677,419	849,719	10,936,690	15,194,327	(5)
Training expenses per employee (TL)	1,859	308	159	2,117	2,936	(5)
Employee Loyalty Survey Results (%)	**57.2**	**35.8**	**61.0**	**35.0**	**47.4**	**(5), (6)**
Monthly-Paid by Age Groups						
under 25 (%)		59	81	80	67	(5), (6)
25-29 (%)		39	64	31	67	(5), (6)
30-34 (%)		45	60	32	67	(5), (6)
35-44 (%)		57	73	57	81	(5), (6)
45-54 (%)		68	82	67	82	(5), (6)
55 years and above (%)		73	86	76	88	(5), (6)
Hourly-Paid by Age Groups						
under 25 (%)		53	94	60	xx	(7)
25-29 (%)		35	72	37	53	(5), (6)
30-34 (%)		25	57	28	30	(5), (6)
35-44 (%)		28	50	23	36	(5), (6)
45-54 (%)		27	53	29	39	(5), (6)
55 years and above (%)		41	84	44	77	(5), (6)
Monthly-Paid Employees by Gender						
Female (%)		48	68	46	75	(5), (6)
Male (%)		55	71	51	77	(5), (6)
Hourly-Paid Employees by Gender						
Female (%)		38	75	51	71	(5), (6)
Male (%)		29	56	26	35	(5), (6)
Total Number of Interns (#)	**1,020**	**724**	**430**	**206**	**159**	
Minimum Starting Salary to Minimum Wage Ratio						
Monthly-Paid	2.2	1.9	1.9	1.9	2.3	
Hourly-Paid	3.2	3.0	3.0	2.8	3.3	

Employee Demographics	2018	2019	2020	2021	2022	Notes
Total Number of Employees (#)	**6,092**	**6,181**	**6,091**	**5,893**	**6,112**	
Female (#)	524	543	544	529	601	
Male (#)	5,568	5,638	5,547	5,364	5,511	
Contractor Employees * (#)	**719**	**744**	**729**	**672**	**721**	
Female (#)	198	213	214	176	185	
Male (#)	521	531	515	496	536	
Employees by Contract Type (#)						
Employees with a Fixed Term Employment Contract (#)	**6,088**	**6,176**	**6,089**	**5,893**	**6,102**	
Female (#)	522	541	543	529	596	
Male (#)	5,566	5,635	5,546	5,364	5,506	
Employees with a Temporary Employment Contract (#)	**4**	**5**	**2**	**0**	**10**	
Female (#)	2	2	1	0	5	
Male (#)	2	3	1	0	5	

Employee Demographics	2018	2019	2020	2021	2022	Notes
Employees by Salary Category (#)						
Hourly-Paid (#)	**4,644**	**4,660**	**4,578**	**4,400**	**4,290**	
Female (#)	142	146	142	130	122	
Male (#)	4,502	4,514	4,436	4,270	4,168	
Monthly-Paid (#)	**1,448**	**1,521**	**1,513**	**1,493**	**1,822**	
Female (#)	382	397	402	399	479	
Male (#)	1,066	1,124	1,111	1,094	1,343	
Ratio of Female Managers (%)						
New hirings (%)	74.4	73.5	73.0	74.7	79.0	
Mid-level managers (%)	25.0	25.9	27.0	24.7	20.2	
Senior executives (%)	0.6	0.6	0.0	0.6	0.7	
Employees by Employment Type (%)						
Full-Time (#)	**6,089**	**6,177**	**6,091**	**5,893**	**6,108**	
Female (#)	522	541	544	529	600	
Male (#)	5,567	5,636	5,547	5,364	5,508	
Part-Time (#)	**3**	**4**	**0**	**0**	**4**	
Female (#)	2	2	0	0	1	
Male (#)	1	2	0	0	3	
Employees by Age Groups (#)						
under 30 (#)	1,904	1,769	1,420	690	718	
30-50 (#)	3,662	3,935	4,217	4,804	4,962	
over 50 (#)	526	477	454	399	432	
Number of Employees by Managerial Level (#)						
Senior Executives						
By Gender (#)	**36**	**37**	**34**	**35**	**40**	
Female (#)	1	1	0	1	3	
Male (#)	35	36	34	34	37	
Mid-Level Managers						
By Gender (#)	**201**	**211**	**239**	**230**	**259**	
Female (#)	41	43	46	44	55	
Male (#)	160	168	193	186	204	
New Hirings (#)						
By Gender	**721**	**433**	**215**	**191**	**435**	
Female (#)	91	75	40	37	137	
Male (#)	630	358	175	154	298	
By Age Group						
under 30 (#)	531	242	101	45	211	
30-50 (#)	170	186	111	114	212	
over 50 (#)	20	5	3	32	12	
Number of Employees Hired by Managerial Level						
New hirings (#)	27	26	27	37	72	
Mid-level managers (#)	14	12	12	8	12	
Senior executives (#)	4	3	3	1	2	
Number of Employees Leaving (#)	**387**	**350**	**299**	**205**	**401**	
Female (#)	39	56	36	31	89	
Male (#)	348	294	263	174	312	
Employee Turnover by Age Group						
under 30 (%)					0.10	(8)
30-50 (%)					0.05	(8)
over 50 (%)					0.16	(8)

Performance Indicators

Employee Demographics	2018	2019	2020	2021	2022	Notes
Employee Turnover Ratio						
Female (%)					0.15 ✓	(8)
Male (%)					0.06 ✓	(8)
Employee Turnover Ratio by Managerial Level						
New hirings (%)					0.14	(8)
Mid-level managers (%)					0.10	(8)
Senior executives (%)					0.03	(8)
Number of Employees Leaving Voluntarily (#)						
under 30 (#)					56	(8)
30-50 (#)					139	(8)
over 50 (#)					3	(8)
Employee Turnover Ratio of Employees Leaving Voluntarily						
under 30 (%)					0.08	(8)
30-50 (%)					0.03	(8)
over 50 (%)					0.01	(8)
Female (%)					0.08	(8)
Male (%)					0.03	(8)
Employees under Collective Agreement (#)	4,644	4,660	4,578	4,400	4,290 ✓	(8)
Number of Employees on Parental Leave (#)	23	31	32	30	33 ✓	(8)
Number of Employees Returning to Work After Parental Leave (#)	19	21	22	29	29 ✓	(8)
Number of Employees on Paternity Leave (#)	453	446	350	334	342	(8)
Total Number of Ethnic Minority Employees (#)	0	0	0	0	0	(8)
Total Number of Disabled Employees (#)	150	150	147	147	151 ✓	(8)
Female (#)	23	25	24	24	21 ✓	(8)
Male (#)	127	125	123	123	130 ✓	(8)
Average Seniority of Level of Newly Hired Female Employees (#)	7.5	4.2	4.8	5.1	4.8 ✓	(8)
Average Seniority of Level of Newly Hired Male Employees (#)	4.9	5.4	6.1	6.6	7.4 ✓	(8)
Number of Part-Time Employees (#)	3	4	0	0	4	(8)
Female (#)	2	2	0	0	1	(8)
Male (#)	1	2	0	0	3	(8)
Employee Turnover Ratio (%)	0	0	0	0	0	(8)
Number of Employees in STEM Positions (#)	75	76	81	79	77 ✓	(8), (9)
Female (#)	36	38	40	40	39	(8), (9)
Male (#)	39	38	41	39	38	(8), (9)
Number of Employees in Income Generating Positions (#)				3,149	3,310 ✓	(8), (10)
Female (#)				300	333	(8), (10)
Male (#)				2,849	2,977	(8), (10)
Number of Vulnerable Audiences Reached by Inclusion Programs (#)					**1,626**	**(8)**
Youth (#)					1,100	(8)
Females (#)					526	(8)
Amount Spent for These Programs (TL)					300,000	(8)

✓: Externally assured value.
*: Including contractors.
(1) Environmental penalties exceeding USD 10,000 have been reported. (Penalty Taken/Penalty Paid)
(2) Water penalties are included in environmental penalties.
(3) ISO14064 Data verification process has been completed for the years 2018-2021, and is ongoing for the year 2022.
(4) Calculated using IPCC emission factors. Included in total reported CO_2e under ISO 14064 verifications.
(5) Excluding subsidiaries.
(6) Based on the results of the Tüpraş employee loyalty survey.
(7) The figure for 2022 was not reported due to lack of data.
(8) Excluding Tupras Trading UK.
(9) STEM: Science, Technology, Engineering, Math
(10) Employees working in Production/Operations, Engineering, Project Management, Financial Operations, General Management, Operational Planning, Procurement, Strategic Planning, Sales, R&D, Product/ Service Design, Marketing and Treasury functions

Biodiversity Assessment

Since the refinery sites at Tüpraş are in areas that have been under anthropogenic influence for a considerable time, they are not host to endemic plant and animal species. However, some protected species are present in the areas where the refineries are located. Some of the species, which are also included in the EIA reports, are species that are "at high risk of extinction in the wild" as declared by the International Union for Conservation of Nature (IUCN) and which are "strictly protected" under the European Convention on the Conservation of Wildlife and Habitats (BERN).

	Bird Species	Reptile Species	Mammal Species
İzmit	· Kestrel (RDB: A2), Falco columbarius and Gull of Prey (RDB: B.1.2)	· Common Tortoise (IUCN: VU)	· Big and Small Horseshoe Bat with (BERN Appendix-2)
İzmir	· Crested Pelican (IUCN: VU) · Falco columbarius (RDB: B2) · Pirate Seagull, Little Seagull, Blackback Gull (RDB: B3)	· Pelobates syriacus (IUCN: VU)	
Kırıkkale	· Crested Grebe, Falcon, Kestrel, Bee-East, Strangling Lark Soot Swallow (MAK: 1) · Kestrel, Henna Partridge, Freckle Partridge (RDB: A2)	· Common Tortoise (IUCN: VU) · Yellow Snake (IUCN: NT)	
Batman	· Crested Lark (RDB: A.3, BERN: Annex-2, MAK: Annex-I) · Swallow (BERN: Annex-2, MAK: Annex-I) · Dove and Starling (MAK: Annex-I)		

None of the Company's refineries are located near Ramsar sites.

Tüpraş 2022 Integrated Report – Reporting Principles

This reporting principles (the "Reporting Principles") provides information on the data preparation and reporting methodologies of indicators within the scope of the limited assurance in the Tüpraş Türkiye Petrol Rafinerileri A.Ş.'s (the "Company" or "Tüpraş") Tüpraş 2022 Integrated Report (the "2022 Integrated Report"). The indicators include social indicators, environmental indicators and economic indicators. It is the responsibility of the Company's management to ensure that appropriate procedures are in place to prepare the indicators mentioned above in line with, in all material respects, the Guidance.

The data included in this guideline is for the fiscal year ended 31 December 2022, and as detailed in the "Key Definitions and Reporting Scope" section, included the İzmit Refinery Directorate (the "İzmit Refinery"), İzmir Refinery Directorate (the "İzmir Refinery"), Kırıkkale Refinery Directorate (the "Kırıkkale Refinery"), Batman Refinery Directorate (the "Batman Refinery") which is the responsibility of Tüpraş Türkiye Petrol Rafinerileri A.Ş. as a total of 4 Refineries (collectively mention as "Refineries"). The indicators that the contractor Company is included in the scope are marked with a ✓ and the contractor Company is not included in the scope of the indicators, except for the indicators with the ✓.

General Reporting Principles

In preparing this guidance document, consideration has been given to following principles:

- Information Preparation – to highlight to users of the information the primary principles of relevance and reliability of information; and
- Information Reporting – to highlight the primary principles of comparability / consistency with other data including prior year and understandability / transparency providing clarity to users.

Key Definitions and Reporting Scope

For the purpose of this report, the Company defines:

Type	Indicator	Scope
Environmental	**Direct Energy Consumption (TJ)**	
	Natural Gas (TJ)	In the reporting period, it refers to the total amount of natural gas used as energy source, which is monitored from the invoices received from service providers for the refineries included in the scope. Only the amount used for industrial operations is included in the consumption amount.
	Fuel Oil (TJ)	In the reporting period, it refers to the total amount of fuel oil used by the Company as an energy source, which can be tracked through Tüpraş database portal (*Tüpraş Historian Database*) for the refineries included in the scope and mapped through financial reporting systems. Only the amount used for industrial operations is included in the consumption amount.
	Fuel Gas (TJ)	In the reporting period, it refers to the total amount of fuel gas used by the Company as an energy source, which can be tracked through Tüpraş database portal (*Tüpraş Historian Database*) for the refineries included in the scope and mapped through financial reporting systems. Only the amount used for industrial operations is included in the consumption amount.
	Coke (TJ)	In the reporting period, it refers to the total amount of coke used as energy source by İzmir Refinery and İzmit, which is monitored through Tüpraş database portal (*Tüpraş Historian Database*) and can be mapped through financial reporting systems. Only the amount used for industrial operations is included in the consumption amount.
	Indirect Energy Consumption – Electricity (TJ)	In the reporting period, it refers to the total amount of electricity purchased by the Company as an energy source for the refineries included in the scope, which is monitored through EPİAŞ *(Enerji Piyasaları İşletme A.Ş.)* tracking system and can be mapped through financial reporting systems. Only the amount used for industrial operations is included in the consumption amount.
Environmental	**Total Energy Consumption (TJ)**	In the reporting period, it refers to the total amount of Direct Energy Consumption and Indirect Energy Consumption consumed by the Company.
	Change in Energy Consumption (%)	In the reporting period, it refers to the percentage change between the Company's total energy consumption in 2021 and the total energy consumption in 2022.
	Energy Consumption Per Crude Oil Processed (GJ/tonnes)	In the reporting period, it refers to the ratio of Total Energy Consumption to the amount of crude oil processed, which can be mapped by the Company's financial reporting systems.
	Energy Intensity (GJ/tonnes production)	In the reporting period, it refers the ratio of the Company's Total Energy amount to the total production amount, which is the sum of the amount of crude oil processed as mapped by the Company's financial reporting systems and the amount of intermediate products (LPG, burner fuel oil, coke, fuel gas) monitored from Tüpraş database portal (*Tüpraş Historian Database*).
	Number of Energy Efficiency Projects (#)	In the reporting period, it refers to the number of projects monitored in-house with the Energy Efficiency Projects document and project-specific internal control approval in order to reduce the amount of Direct Energy Consumption and Indirect Energy Consumption of the Company.
	Energy Efficiency Savings (TJ)	In the reporting period, it refers to the reduction effect on Direct Energy Consumption and Indirect Energy Consumption of the projects monitored in-house with the Energy Efficiency Projects document and project-specific internal control approval in order to reduce the Direct and Indirect Energy Consumption of the Company.
	Energy Efficiency Savings (USD million)	In the reporting period, it refers to the million US dollar impact of the reduction in the amount of Direct Energy Consumption and Indirect Energy Consumption of the projects followed in-house with the Energy Efficiency Projects document and project-specific internal control approval in order to reduce the amount of Direct Energy Consumption and Indirect Energy Consumption of the Company, calculated by multiplying the amount of reduction by the unit price. The US dollar impact is calculated by converting the TL savings effect obtained at the end of the year at the monthly average sales rates of the Central Bank of the Republic of Turkey.
	GHG Emissions Reductions through Energy Efficiency Projects (tonnes CO_2e)	In the reporting period, it refers to the reduction amount obtained by calculating the emission reduction obtained by multiplying the reduction in the amount of Direct Energy Consumption and Indirect Energy Consumption by the emission factor and net calorific value coefficients used in the calculation of Scope-1 and Scope-2 emissions by the reduction in the amount of Direct Energy Consumption and Indirect Energy Consumption of the projects followed in-house with the Energy Efficiency Projects document and project-specific internal control approval in order to reduce the amount of Direct and Indirect Energy Consumption of the Company.
	Renewable Electricity Generation (MWh)	It refers to the production amount generated from the solar power plant in the Batman Refinery during the reporting period, followed by the screens under the responsibility of Türkiye Elektrik Üretim A.Ş (TEİAŞ) and the Tüpraş database portal (*Tüpraş Historian Database*).
	Total Grey Water Consumption (million m^3)	In the reporting period, it refers to the total amount of Surface Water Sources and Grid Water consumed by the refineries, which is monitored through Monthly Assessment Reports submitted to the Ministry of Environment, Urbanization and Climate Change on a monthly basis.

Tüpraş 2022 Integrated Report – Reporting Principles

Type	Indicator	Scope
Environmental	**Total Water Consumption (million m³)**	In the reporting period, it refers to the total amount of Surface Water Sources, Grid Water and Treated Wastewater from Körfez Municipality consumed by the Refineries, which is monitored through Monthly Assessment Reports submitted to the Ministry of Environment, Urbanization and Climate Change on a monthly basis.
	Surface Water Sources (million m³)	In the reporting period, it refers to the amount of surface source water consumed by the Refineries, which is monitored through Monthly Assessment Reports submitted to the Ministry of Environment, Urbanization and Climate Change on a monthly basis.
	Grid (million m³)	In the reporting period, it refers to the amount of grid consumed by Batman Refinery, which is monitored from the invoices received from service providers and TPAO (*Türkiye Petrol Anonim Ortaklığı*).
	Treated Wastewater from Körfez Municipality (million m³)	In the reporting period, it refers to the amount of grid consumed by İzmit Refinery, which is monitored by invoices received from Körfez Municipality.
	Water Consumption per Crude Oil Production (m³/tonnes)	In the reporting period, it refers to the ratio of Total Grey Water Consumption to the amount of crude oil processed as mapped by the Company's financial reporting systems.
	Water Consumption per Production (m³/tonnes)	In the reporting period, it refers the Total Grey Water Consumption refers to the ratio of Total Grey Water Consumption to the production amount, which is the sum of the amount of crude oil processed as mapped by the Company's financial reporting systems and the amount of intermediate products (LPG, burner fuel oil, coke, fuel gas) monitored from Tüpraş database portal (*Tüpraş Historian Database*).
	Total Recovered Water (million m³)	In the reporting period, it refers the amount of water recovered and reused in the Water Recovery Units of the Company, monitored through meters and Tüpraş database portal (*Tüpraş Historian Database*).
	Total Recovered Water to Total Water Consumption Ratio (%)	In the reporting period, it refers to the ratio of the amount of water recovered and reused in the Water Recovery Units of the Company, monitored by meters and Tüpraş database portal (*Tüpraş Historian Database*), to Total Water Consumption.
	Total Waste Water Discharge (million m³)	In the reporting period, it refers to the amount of wastewater produced by the refineries, which is monitored through Monthly Assessment Reports declared to the Ministry of Environment, Urbanization and Climate Change on a monthly basis.
	Total Amount of Waste (tonnes)	In the reporting period, it refers to the total amount of Hazardous Waste and Non-Hazardous Waste generated by the Company.
	Hazardous Waste (tonnes)	In the reporting period, it refers to the amount of hazardous waste generated by the Company, which is monitored by MOTAT (Mobil Atık Takip Sistemi) on the Ministry of Environment, Urbanization and Climate Change portal (Entegre Çevre Bilgi Sistemi).
	Non-Hazardous Waste (tonnes)	In the reporting period, it refers to the amount of non-hazardous waste generated by the Company, monitored from the Ministry of Environment, Urbanization and Climate Change portal (Entegre Çevre Bilgi Sistemi) and invoices received from licensed waste treatment facilities.
	Waste According to Disposal Method	
	Recycling (tonnes)	In the reporting period, it refers to the amount of waste subjected to recycling by the Company, which is tracked with the "R" recycling code determined by the Ministry of Environment, Urbanization and Climate Change from the invoices received from the Ministry of Environment portal (Entegre Çevre Bilgi Sistemi) and licensed waste processing facilities.
	Disposal (tonnes)	In the reporting period, it refers to the amount of waste subjected to disposal by the Company, which is tracked with the "D" disposal code determined by the Ministry of Environment, Urbanization and Climate Change from the invoices received from the Ministry of Environment, Urbanization and Climate Change portal (Integrated Environmental Information System) and licensed waste treatment facilities.

Type	Indicator	Scope
Environmental	**Total Waste Recovery Ratio (%)**	In the reporting period, it refers to the ratio of the Company's Recycling Waste Amount to Total Waste Amount in the reporting period.
	Savings from Waste Recovery and Industrial Symbiosis (TL million)	In the reporting period, it refers to the TL amount earned from the wastes recovered with the waste codes defined by the Ministry of Environment, Urbanization and Climate Change, which can be followed by the Company's sales reports and mapped with the financial reporting systems.
	Saplings Planted in Afforestation Works (#)	In the reporting period, it refers to the amount of purchased trees followed by purchase invoices.
	Amount of CO_2 Emission Eliminated by Afforestation Works (tonnes CO_2e)	In the reporting period, it represents the number of Saplings Planted in the Company's Afforestation Works and the CO_2 amount calculated by taking the acceptance of converting the carbon of a 25 cm diameter red pine tree into carbon dioxide from the tree/CO_2 calculation of the ''Ege Orman Vakfı".
	Scope 1 GHG Emissions (tonnes CO_2e/year)	In the reporting period, it refers to the amount of direct greenhouse gas emissions resulting from the Company's fixed and mobile resources, originating from Direct Energy Consumption, monitored from Tüpraş database portal (*Tüpraş Historian Database*). Consumptions originating from the Headquarters are also included. The Company calculates greenhouse gas emissions in accordance with the standard " ISO 14064-1:2018 Greenhouse gases — Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals ".
	Scope 2 GHG Emissions (tonnes CO_2e/year)	In the reporting period, it refers to the amount of indirect greenhouse gas emissions resulting from the amount of electricity purchased by the Company, sourced from Indirect Energy Consumption, monitored from Tüpraş database portal (*Tüpraş Historian Database*). Consumptions originating from the Headquarters are also included. The Company calculates its greenhouse gas emissions according to the standard "ISO 14064-1:2018 Greenhouse gases — Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals "
	Scope 1 & Scope 2 GHG Emissions (tonnes CO_2e/year)	In the reporting period, it refers to the sum of the Company's Scope 1 GHG Emissions and Scope 2 GHG Emissions in the reporting period.
	GHG Intensity (tonnes CO_2e/ tonnes Crude Oil Processed)	In the reporting period, it refers to the ratio of the sum of the Company's Scope 1 GHG Emissions and Scope 2 GHG Emissions to the amount of crude oil processed as mapped by the Company's financial reporting systems.
	GHG Intensity (tonnes CO_2e/tonnes Charge)	In the reporting period, the ratio of the sum of the Company's Scope 1 GHG Emissions and Scope 2 GHG Emissions to the total amount of crude oil, which is the sum of product production amount, fuel items production amount and lost product amounts mapped by the Company's financial reporting systems.

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Type	Indicator	Scope
Social	**Total Number of Employees (#)**	In the reporting period, it refers to the total number of employees who were monitored through Tüpraş Human Resources data platform and who were reported to the Social Security Institution. Intern employees are not included in the total number of employees. Entek, Ditaş and Körfez Enterprises subsidiaries of Tüpraş are also included.
	Contractor Employees * (#)	In the reporting period, it refers to the total number of contractor Company employees of the Company, which is tracked through Tüpraş Human Resources Contractor Company Employee list and matched with the Social Security Institution Employment Declaration of the service provider. Entek, Ditaş and Körfez Enterprises subsidiaries of Tüpraş are also included.
	Employees by Contract Type (#)	In the reporting period, it refers to the number of people working in the Company classified according to the definition of Fixed Term Employment Contract and Indefinite Term Employment Contract as defined in the Labor Law No: 4857 and monitored through Tüpraş Human Resources data platform. Intern employees are not included in the number of employees according to contract type. Entek, Ditaş and Körfez İşletmeleri subsidiaries of Tüpraş are also included.
	Employees by Salary Category (#)	In the reporting period, it refers to the number of people working in the Company classified according to the definition of Monthly Paid and Hourly Paid as defined in the Labor Law No. 4857, which is monitored through Tüpraş Human Resources data platform. Intern employees are not included in the number of monthly paid and hourly paid employees. Entek, Ditaş and Körfez İşletmeleri subsidiaries of Tüpraş are also included.
	Ratio of Female Managers (%)	In the reporting period, the ratio of the number of female employees at the managerial levels of the Company, including entry-level managers with the title of "Chief Engineer/Coordinator", mid-level managers with the title of "Manager, Director, Chief Specialist, Senior Chief Specialist, Project Manager, Senior Project Manager" and senior-level managers with the title of "Assistant General Manager, Director, Group Manager", to the Total Number of Employees. Entek, Ditaş and Körfez Enterprises subsidiaries of Tüpraş are also included.
	Employees by Employment Type (#)	In the reporting period, it refers to the number of people working in the Company classified according to the definition of Full-Time and Part-Time as defined in the Labor Law No. 4857, which is monitored through Tüpraş Human Resources data platform. Intern employees are not included in the number of Full Time and Part Time employees. Entek, Ditaş and Körfez İşletmeleri subsidiaries of Tüpraş are also included.
	Employees by Age Groups (#)	In the reporting period, it refers to the breakdown of Company employees, who were monitored through Tüpraş Human Resources data platform and whose employment notifications were made to the Social Security Institution, according to age groups below 30, between 30-50 and above 50. Tüpraş's subsidiaries Entek, Ditaş and Körfez Enterprises are also included. Employees by Salary Category is monitored in the Employees by Salary Category breakdown.
	Number of Employees by Managerial Level (#)	In the reporting period, it refers to the number of people at the levels defined as mid-level and senior management levels of the Company employees who are monitored through Tüpraş Human Resources data platform and whose Employment Notifications are made to the Social Security Institution. The Company's managerial levels of the Company, including entry-level managers with the title of "Chief Engineer/Coordinator", mid-level managers with the title of "Manager, Director, Chief Specialist, Senior Chief Specialist, Project Manager, Senior Project Manager" and senior-level managers with the title of "Assistant General Manager, Director, Group Manager".

Type	Indicator	Scope
Social	**New Hirings (#)**	In the reporting period, it refers to the number of people hired by the Company and declared to the Social Security Institution with the Employment Declaration. Entek, Ditaş and Körfez İşletmeleri subsidiaries of Tüpraş are also included.
	Number of Employees Leaving (#)	In the reporting period, it refers to the number of people declared to the Social Security Institution of the Company with the Declaration of Leaving Employment. Intern employees are not included in the number of employees who left their jobs. Entek, Ditaş and Körfez İşletmeleri subsidiaries of Tüpraş are also included.
	Employees Under Collective Agreement (#)	In the reporting period, it refers to the number of people with whom collective agreement were made in accordance with the Collective Agreement Law No. 4688 and who were reported to the Ministry of Treasury and Finance as contracted. Entek, Ditaş and Körfez İşletmeleri subsidiaries of Tüpraş are also included.
	Number of Employees on Parental Leave (#)	In the reporting period, it refers to within the scope of the Regulation on "Part-Time Work to be Performed After Parental Leave or Unpaid Leave", it refers to the number of female employees who took parental leave within the periods specified in the regulation.
	Number of Employees Returning to Work After Parental Leave (#)	In the reporting period, it refers to within the scope of the Regulation on "Part-Time Work to be Performed After Parental Leave or Unpaid Leave", it refers to the number of female employees who returned to work after taking parental leave within the periods specified in the regulation.
	Average Seniority of Level of Newly Hired Female Employees (#)	In the reporting period, it refers to the average seniority of female employees who were recruited by the Company and whose seniority was calculated based on the date declared to the Social Security Institution with the Employment Declaration within the reporting year.
	Average Seniority of Level of Newly Hired Male Employees (#)	In the reporting period, it refers to the average seniority of male employees who were recruited by the Company and whose seniority was calculated based on the date declared to the Social Security Institution with the Employment Declaration within the reporting year.
	Employee Turnover Ratio (%)	In the reporting period, it expresses the ratio of the number of employees who quit their jobs declared by the Company to the Social Security Institution with the Declaration of Leaving Work within the reporting period to the Total Number of Employees. It is monitored in gender breakdown.
	Total Number of Disabled Employees (#)	In the reporting period, it refers to the Company's Law No. 5378 on Persons with Disabilities refers to the number of employees who are defined as disabled in the Law No. 5378 on Persons with Disabilities and who were hired by the Company and declared to the Social Security Institution with the Employment Declaration within the reporting year.
	Number of Employees in STEM Positions (#)	In the reporting period, it refers to the number of people working in the R&D function, which the Company defines as STEM (Science, Technology, Engineering, Math) positions, monitored through Tüpraş Human Resources data platform.
	Number of Employees in Income Generating Positions (#)	In the reporting period, it refers to the number of people working in "Production/ Operations, Engineering, Project Management, Financial Operations, General Management, Operational Planning, Purchasing, Strategic Planning, Sales, R&D, Product or Service Design, Marketing, Treasury" functions, which the Company defines as income generating positions and which are monitored through Tüpraş Human Resources data platform.
	Minimum Starting Salary to Minimum Wage Ratio	In the reporting period, it refers to the ratio of the minimum starting salary approved by the senior management to the official minimum wage determined by the Labor and Social Security Institution in the reporting period.

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Type	Indicator	Scope
Social	**Total Amount of Training (hours)**	In the reporting period, it refers to the total number of training hours attended by Company employees, as tracked by Human Resources on Tüpraş's training tracking platform. It is tracked by age (according to age groups below 30, between 30-50, above 50), by management level (entry-level managers are "Chief Engineer/ Coordinator", mid-level managers are "Manager, Director, Chief Specialist, Senior Chief Specialist, Project Manager, Senior Project Manager" and senior managers are "Assistant General Manager, Director, Group Manager") and Employees by Salary Category.
	Total Amount of Training per Employee (average hours per employee)	In the reporting period, it refers to the ratio of total training hours attended by Company employees to the Total Number of Employees, which is monitored through the training tracking platform of Human Resources belonging to Tüpraş. It is tracked in the Employees by Salary Category breakdown.
	Ethical Principles and Code of Conduct Trainings (hours)	In the reporting period, it refers to the number of hours of training on ethical principles and code of conduct attended by Company employees, which is tracked on the training tracking platform of Tüpraş owned by Human Resources.
	Environmental Training (people x hours)	It refers to the environmental training hour, during the reporting period, followed by the training tracking platform of Tüpraş, in which Company and Contractor employees and the Society participate.
	Employee Loyalty Survey Results (%)	In the reporting period, it refers to the results of the employee engagement survey conducted by third-party Companies the results of which are shared.
	Total Number of Interns (#)	In the reporting period, it refers within the scope of the definition of "intern" in the Framework Regulation on Practical Trainings in Higher Education, the Company refers to the total number of interns employed to complete their optional or compulsory internships.
	Total Amount of OHS Training (people x hours)	In the reporting period, it refers to the total number of compulsory or non-compulsory Occupational Health and Safety training hours provided by Human Resources according to hazard class within the scope of "Occupational Health and Safety Law No. 6331", which are tracked on Tüpraş's training tracking platform and attended by Company employees.
	LTI Frequency- OSHA (frequency)	In the reporting period, it refers to the ratio of the number of injury incidents that occurred to the Company employee during a work-related activity and prevented him/her from coming to the workplace on the next shift or the next working day, and which were followed up through notifications made to the Social Security Institution, to the total working hours in the reporting period.
	LTI Severity- OSHA (frequency)	In the reporting period, it refers to the ratio of the number of lost days due to an injury that occurred to a Company employee during a work-related activity and prevented him/her from coming to work on the next shift or the next working day, which is monitored through notifications made to the Social Security Institution, to the total working hours in the reporting period.

Type	Indicator	Scope
Social	**Total Recordable Incident Rate – OSHA (frequency)**	In the reporting period, it refers to the ratio of the total number of incidents involving death, lost time injury, limited incapacity for work and medical treatment applications, which occurred during a work-related activity of the Company employee and prevented him/her from coming to the workplace on the next shift or the next working day, and which are monitored through notifications made to the Social Security Institution, to the total number of working hours in the reporting period.
	Restricted Work Case – OSHA (frequency)	In the reporting period, it refers to the ratio of the number of incidents, monitored through notifications made to the Social Security Institution, in which an injury sustained by a Company employee in a work-related activity causes the employee to perform his/her own work for less time or to be directed to a simpler job, to the total number of working hours in the reporting period.
	Occupational Illness (frequency)	In the reporting period, it refers to the ratio of the number of people who fall under the definition of "occupational disease" within the scope of the "Occupational Health and Safety Law No. 6331" and who are followed up through notifications made to the Social Security Institution to the total number of working hours in the reporting period.
	Fatality Rate (frequency)	In the reporting period, it refers to the ratio of the number of employees of the Company that fall under the definition of "fatal occupational accidents" within the scope of the "Occupational Health and Safety Law No. 6331", which are followed up through notifications made to the Social Security Institution, to the total working hours.
	3rd Party Audits (#)	In the reporting period, it refers to the number of OHS, Process Safety, Emergency and Road Safety audits conducted by official, local or international 3rd party accredited companies, including Koç Holding, and monitored through external audit forms.
	Fatalities as a Result of Work-Related Incidents (#)	In the reporting period, it refers to the number of employees of the Company who fall under the definition of "fatal occupational accident" within the scope of the "Occupational Health and Safety Law No. 6331", which is followed up through notifications made to the Social Security Institution.
Economic	**Number of Local Suppliers (#)**	In the reporting period, it refers to the number of local suppliers included in the Company's total suppliers that can be mapped through financial reporting systems.
	Total Number of Suppliers Assessed (#)	In the reporting period, it refers to the number of evaluations of the suppliers included in the total suppliers of the Company through Tüpraş Supplier Evaluation portal.
	Number of Suppliers Assessed According to Environmental Criteria (#)	In the reporting period, it refers to the number of suppliers included in the total suppliers of the Company that were assessed according to environmental criteria through Tüpraş Supplier Assessment portal.

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Preparation of the Data

1. Environmental Indicators

Direct Energy Consumption (TJ)

Within the scope of the Company's direct energy consumption, natural gas, fuel oil, fuel gas and kok energy sources are reported.

Natural Gas Consumption (TJ)

Natural gas consumption refers to the amount of natural gas entering all refineries and is obtained from service providers' invoices. The resulting Gcal unit is converted to TJ with the following conversion factor.

1Gcal= 0,004184 TJ

Fuel oil Consumption (TJ)

Fuel oil consumption refers to the amount of fuel oil entering the system in all refineries. The consumption amount is obtained by taking the amount of fuel oil passing through the flow meters. The flow meters used have calibration reports verified by the Company's certified instrument team. The Gcal unit obtained from the consumption amount is converted to TJ with the following conversion factor.

1Gcal= 0,004184 TJ

Fuel Gas Consumption (TJ)

Fuel gas consumption refers to the amount of fuel gas entering the system at all refineries. The consumption amount is obtained by taking the amount of fuel oil passing through the flow meters. In addition to the amount of fuel gas, tail gas produced in the flow of the system is added to the total amount of fuel gas and reported. The flow meters used have calibration reports verified by the Company's certified instrument team. The Gcal unit obtained from the consumption amount is converted to TJ with the following conversion factor.

1Gcal= 0,004184 TJ

Coke Consumption (TJ)

Coke consumption refers to the amount of process-generated FCC unit coke released in all refineries. This coke is calculated according to the standard calculation methodology reported by the relevant process experts and used as energy consumption amount. The outputs of these calculations are regularly reported to senior management and other units. The Gcal unit obtained from the consumption amount is converted to TJ with the following conversion factor.

1 Gcal= 0,004184 TJ

Indirect Energy Consumption – Electricity (TJ)

Electricity Consumption (TJ)

Electricity consumption refers to the electricity consumption purchased from external sources in all refineries. It is obtained from consumption values monitored by meters and consumption values billed by service providers. The MW unit obtained from the consumption amount is converted to TJ with the following conversion factor.

1 MW=0,0036 TJ

Energy Consumption Per Crude Oil Processed (GJ/tonnes)

Energy consumption value refers to the value verified by Direct Energy Consumption (TJ). Crude Oil Processed (tonnes) refers to the amount of crude oil processed as mapped by the Company's financial reporting systems.

Formula:

Direct Energy Consumption (TJ)*1000= Direct Energy Consumption (GJ)

Direct Energy Consumption (GJ) / Crude Oil Processed (tonnes)

Total Energy Consumption (TJ)

Formula:

Direct Energy Consumption (TJ) + Indirect Energy Consumption (TJ)

Water Consumption per Crude Oil Processed (m^3/tonnes)

Crude Water Use value refers to the value verified by Total Crude Water Consumption (million m^3). Crude Oil Processed (tonnes) is derived from the amount of crude oil processed, which is an input to the financials.

Formula:

Total Crude Water Consumption (million m^3) / Crude Oil Processed (tonnes)

Water Consumption per Production (m^3/tonnes)

Formula:

Water Use (million m^3) / 1.000.000= Raw Water Use (m^3)

Water Use Amount (m^3) = Raw Water Use Amount (tonnes)

Water Use (tonnes) / Production Amount (m^3) *100

Ratio of Reclaimed Water to Total Water Consumption (%)

Formula:

Amount of water recovered (million m^3) / Total water consumption (million m^3) *100

Total Waste Recovery Ratio (%)

Formula:

Total Amount of Waste Recovered (tonnes) / Total Amount of Waste (tonnes) *100

Amount of CO_2 Emission Eliminated by Afforestation Works (tonnes CO_2e)

The biomass (vegetative mass) of a 25 cm diameter red pine tree is 220 kg, until this tree reaches 25 cm diameter 220 kg x 0.51 (the tree's carbon concentration) = 112.2 kg of carbon from the atmosphere and is 112.2 x (44/12) Calculated assuming (conversion coefficient of carbon to carbon dioxide) = equivalent to 411.4 kg of carbon dioxide (CO_2): (Reference: *https://www.egeorman.org.tr/hesaplayicilar/karbon-ayakizi/*)

Formula:

Sapling Planted in Afforestation Works * 411.4

Scope 1 GHG Emissions (tonnes CO_2e/year)

Scope-1 emissions refer to the amount of emissions resulting from the stationary combustion process. Within the scope of Scope-1 emissions, the emission amounts generated by natural gas, fuel oil, fuel gas and tail gas consumption are included in the verification. Other emission sources are not included in the scope of verification as they constitute 5% of the total Scope-1 emission value.

The amounts of Natural Gas, Fuel oil and Fuel gas consumption data, which constitute the Direct Energy Amount (TJ), that are considered as emission sources are included in the emission calculation. For this reason, the consumption amounts verified under the Direct Energy Amount (TJ) heading and the consumption amounts included in the Greenhouse Gas Emission calculation do not represent the same values. The activity data used in the Greenhouse Gas Emission calculation is in line with the measurement points determined in accordance with the Regulation on Monitoring of Greenhouse Gas Emissions.

Formula:

Emission Amount = Activity Data *Emission Factor*Oxidation Factor

Activity Data= Consumption Amount*Net Calorific Value (TJ)

Oxidation Factor = 1

Emission Factor:

The emission factor for natural gas is obtained from the local natural gas supplier where each refinery is located (Izmit: IZDAS, Izmir: Izmir Gaz, Kırıkkale: KIRGAZ, Batman: SİBADAŞ)

Emission factors for fuel oil, fuel gas, and tail gas are calculated within the Company based on the fuel composition obtained from GC (Gas chromatography). Although they vary according to refineries, the values in Table: 1, Table: 2, Table: 3 and Table: 4 are taken into account.

Net Calorific Value:

Emission factors for fuel oil, fuel gas and tail gas are calculated within the Company based on the fuel composition obtained as a result of content and GC (Gas chromatography). Although they vary according to refineries, the values in Table: 1, Table: 2, Table: 3 and Table: 4 are taken into account.

Natural Gas

The amount of Natural Gas included in the Direct Energy (TJ) consumption, which is considered as an emission source, is included in the emission calculation. The amount of Natural Gas consumption that generates Greenhouse Gas Emissions is obtained from flow meters. The flow meters used have calibration reports verified by the Company's certified instrument team. Uncertainty calculations of flow meters are included in the calculation.

Emission Factor:

[(Natural gas MW (kg/kmole)/22.414/Natural gas MW (kg/kmole))* (Natural gas (kg/kmole)/100*44.0095/(12.01*1000))]/(4.186*Natural gas LHV (kcal/Nm^3)/1000000000)

Natural Gas MW: [(MW of H_2*H_2 vol%)+(MW of CO_2*CO_2 vol%)+(MW of CO*CO vol%)+(MW of CH_4*CH_4 vol%)]/100

Natural Gas Molar Mass of C (kg/kmole): [CO_2 vol%+CO vol%+CH_4 vol%]*12.01/100

Net Calorific Value:

[(MW of H_2*H_2 vol%)+(MW of CO_2*CO_2 vol%)+(MW of CO*CO vol%)+(MW of CH_4*CH_4 vol%)]/(100*22.414)*1000

Fuel Gas

The amount of Fuel gas included in the Direct Energy Amount (TJ) consumption, which is considered as an emission source, is included in the emission calculation. The amount of Fuel gas consumption that generates Greenhouse Gas Emissions is obtained from flow meters. The flow meters used have calibration reports verified by the Company's certified instrument team. Uncertainty calculations of flow meters are included in the calculation. Fuel gas consumption for İzmit Refinery is calculated in 2 different regions, A and B regions.

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Emission Factor:

[(Fuel Gas MW (kg/kmole)/22.414/Fuel Gas MW (kg/kmole))* (Fuel Gas (kg/kmole)/100*44.0095/(12.01*1000))]/(4.186*Fuel Gas LHV (kcal/Nm^3)/1000000000)

Fuel Gas MW: [(MW of H_2*H_2 vol%)+(MW of CO_2*CO_2 vol%)+(MW of CO*CO vol%)+(MW of CH_4*CH_4 vol%)]/100

Fuel Gas Molar Mass of C (kg/kmole): [CO_2 vol%+CO vol%+CH_4 vol%]*12.01/100

Net Calorific Value:

[(MW of H_2*H_2 vol%)+(MW of CO_2*CO_2 vol%)+(MW of CO*CO vol%)+(MW of CH_4*CH_4 vol%)]/(100*22.414)*1000

Fuel Oil

The amount of Fuel gas included in the Direct Energy Amount (TJ) consumption, which is considered as an emission source, is included in the emission calculation. The amount of Fuel gas consumption that generates Greenhouse Gas Emissions is obtained from flow meters. The flow meters used have calibration reports verified by the Company's certified instrument team. Uncertainty calculations of flow meters are included in the calculation.

Emission Factor and Net Calorific Value:

ASTM D-4868 Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry (Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry) is used to calculate NKD (Net Calorific Value), sulfur content determination and emission factor of fuel oil is calculated based on the accepted C/H ratio according to sulfur content.

Tail Gas

Natural gas or naphtha is used as input for hydrogen production in the Hydrogen Unit in the process. In the process, pure H_2 is obtained from the system. The gas with a certain amount of H_2 remaining is called tail gas. Tail gas consumption amount that creates Greenhouse Gas Emission is obtained from flow meters. The flow meters used have calibration reports verified by the Company's certified instrument team. Uncertainty calculations of flow meters are included in the calculation. Tail gas consumption for İzmit Refinery is calculated in 2 different regions, A and B regions.

Emission Factor:

[(PSA Off-gas MW (kg/kmole)/22.414/PSA Off-gas MW (kg/kmole))*(PSA Off-gas Molar Mass of C (kg/kmole)/100*44.0095/(12.01*1000))]/(4.186*PSA Off-gas LHV (kcal/Nm^3)/1000000000)

Tail Gas MW: [(MW of H_2*H_2 vol%)+(MW of CO_2*CO_2 vol%)+(MW of CO*CO vol%)+(MW of CH_4*CH_4 vol%)]/100

Tail Gas Molar Mass of C (kg/kmole): [CO_2 vol%+CO vol%+CH_4 vol%]*12.01/100

Net Calorific Value:

[(MW of H_2*H_2 vol%)+(MW of CO_2*CO_2 vol%)+(MW of CO*CO vol%)+(MW of CH_4*CH_4 vol%)]/(100*22.414)*1000

Emission Factors and Net Calorific Values included in the calculation of Scope 1 emissions for refineries are as follows:

Table: 1

İzmit Refinery	Emission Factor (tonnes CO_2/TJ)	Net Calorific Value (GJ/tonnes)
Natural Gas	55.56	49.07
Region A Fuel Gas	54.88	49.76
Region B Fuel Gas	52.50	50.35
Fuel Oil	80.05	40.55
Region A Tail Gas	106.85	11.48
Region B Tail Gas	155.42	7.19

Table: 2

İzmir Refinery	Emission Factor (tonnes CO_2/TJ)	Net Calorific Value (GJ/tonnes)
Natural Gas	55.62	49.07
Fuel Gas	55.25	47.60
Fuel Oil	81.57	38.74
Tail Gas	131.23	8.62

Table: 3

Kırıkkale Refinery	Emission Factor (tonnes CO_2/TJ)	Net Calorific Value (GJ/tonnes)
Natural Gas	55.65	48.70
Fuel Gas	57.25	49.18
Fuel Oil	77.29	40.80
Tail Gas	180.68	6.35

Table: 4

Batman Refinery	Emission Factor (tonnes CO_2/TJ)	Net Calorific Value (GJ/tonnes)
Natural Gas	56.06	46.08
Fuel Gas	57.60	48.15
Fuel Oil	77.00	39.39

Scope 2 GHG Emissions (tonnes CO_2e/year)

Formula:

Scope 2 Greenhouse Gas Emissions= Purchased Electricity * Emission Factor

The electricity emission factor was calculated considering the regions where the Refineries are located and based on the data published by the International Energy Agency, and the emission factor value (0.44 tCO_2eq/MWh) was taken from the Refineries. (Source: *https://enerji.gov.tr/evced-cevre-ve-iklim-elektrik-uretim-tuketim-emisyon-faktorleri*)

Scope 1 & Scope 2 GHG Emissions (tonnes CO_2e/year)

Formula:

Total Scope 1 and Scope 2 Greenhouse Gas Emissions (tonnes CO_2e/year)= Scope 1 Greenhouse Gas Emissions (tonnes CO_2e/year) + Scope 2 Greenhouse Gas Emissions (tonnes CO_2e/year)

Greenhouse Gas Intensity (tonnes CO_2e/tonnes Crude Oil Processed)

It is calculated as the ratio of the total amount of greenhouse gas emissions (tonnes of CO_2e) generated by Scope 1 and Scope 2 emissions to Crude Oil Processed.

Formula:

Greenhouse Gas Intensity (tonnes CO_2e/tonnes Crude Oil Processed) = Total Greenhouse Gas Emissions (tonnes CO_2e) / Crude Oil Processed (tonnes)

Greenhouse Gas Intensity (tonnes CO_2e/tonnes Charge)

Formula:

Charge Amount (tonnes)= Crude Oil Charge Amount + Intermediate Product Charge Amount (including natural gas charge) = Product Production Amount + Fuel Items Production Amount + Loss Amount

Greenhouse Gas Intensity (tonnes CO_2e/tonnes Charge) = Total Greenhouse Gas Emissions (tonnes CO_2e) / Charge Amount (tonnes)

2. Social Indicators

Employee Turnover Ratio (%)

Formula:

Number of employees who quit / Total number of employees

Ratio of Female Managers (%)

Formula:

Entry Level + Mid Level + Senior Level Number of Female Employees / Total number of employees

Total Amount of Training (hours)

Formula:

Total Training (average hours per person)= Total training hours (hours)/ Total number of people trained

LTI Frequency - OSHA (frequency)

Formula:

LTI incidents x 1 million/working hour

LTI Severity - OSHA (frequency)

Formula:

LTI lost working days x 1 million/working hour

Total Recordable Incident Rate – OSHA (frequency)

Formula:

Number of incidents x 1 million/working hour

Restricted Work Case – OSHA (frequency)

Formula:

Number of incidents x 1 million/working hour

Occupational Illness (frequency)

Formula:

Number of occupational illnesses x 1 million/working hour

Fatality Rate (frequency)

Formula:

Number of deaths x 1 million/working hour)

Restatements

The measuring and reporting of sustainability-related data inevitably involves a degree of estimation. Restatements are considered where there is a change in the data of greater than 5 percent at the Company level.

Tüpraş's Memberships and the Platforms it Supports

Tüpraş is a member of, and extends support to, a range of national and international associations, unions and social initiatives. Tüpraş's presence on these platforms helps strengthen the Company's relations with other national and international sector players.

Tüpraş became a member of the Water Europe and Hydrogen Europe platforms in 2022.

- UNITED NATIONS GLOBAL COMPACT
- TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES
- WATER EUROPE
- HYDROGEN EUROPE
- A.SPIRE SUSTAINABLE PROCESS INDUSTRIES
- CHAMBER OF SHIPPING / ALİAĞA BRANCH
- WORLD ENERGY COUNCIL TURKISH NATIONAL COMMITTEE (DEKTMK)
- AEGEAN REGION CHAMBER OF INDUSTRY (EBSO)
- ENERGY EFFICIENCY ASSOCIATION (ENVERDER)
- ETHICS AND REPUTATION SOCIETY (TEID)
- INTEGRATED REPORTING TURKEY NETWORK (ERTA)
- ENTREPRENEUR INSTITUTIONS PLATFORM
- KIRIKKALE CHAMBER OF COMMERCE AND INDUSTRY
- KOCAELİ CHAMBER OF INDUSTRY (KSO)
- CORPORATE COMMUNICATORS ASSOCIATION (KID)
- THE PROCESSES4PLANET (P4PLANET) PARTNERSHIP
- TIM MEDITERRANEAN EXPORTERS' ASSOCIATIONS (AİB)
- TECHNOLOGY INFORMATION MANAGEMENT AND AUDIT INSTITUTE ASSOCIATION (ISACA-İSTANBUL CHAPTER)
- TSE CEN/TC/ 019/WG 21, 24
- TSE, MTC 1: PETROLEUM PRODUCTS, GAS AND LIQUID FUELS, OILS AND RELATED PRODUCTS MIRROR COMMITTEE
- TURKISH BRITISH CHAMBER OF COMMERCE AND INDUSTRY (TBCCI)
- ALL BATTERY IMPORTERS AND MANUFACTURERS ASSOCIATION
- TURKISH DISASTER RISKS REDUCTION PLATFORM
- FOREIGN TRADE ASSOCIATION OF TURKEY (TURKTRADE)
- TURKISH QUALITY ASSOCIATION (KALDER)
- TURKISH COGENERATION AND CLEAN ENERGY TECHNOLOGIES ASSOCIATION (TURKOTED)
- CORPORATE GOVERNANCE ASSOCIATION OF TURKEY (TKYD)
- UNION OF CHAMBERS AND COMMODITY EXCHANGES OF TURKEY (TOBB) / LPG ASSEMBLY LEGISLATION COMMITTEE / LPG ASSEMBLY AUTOGAS COMMITTEE / PETROLEUM ASSEMBLY AHU COMMITTEE / NATURAL GAS ASSEMBLY
- TURKISH INDUSTRIALISTS AND BUSINESS ASSOCIATION (TÜSİAD) / INVESTMENT AND INCENTIVES / ENERGY / TAX / COMPETITION LAW / ENTREPRENEURSHIP ECOSYSTEM / ENVIRONMENT AND CLIMATE CHANGE
- TURKISH INVESTOR RELATIONS SOCIETY (TÜYİD)

Limited Assurance Report

Limited Assurance Report
to the Board of Directors of Tüpraş Türkiye Petrol Rafinerileri A.Ş.

We have been engaged by the Board of Directors of Tüpraş Türkiye Petrol Rafinerileri A.Ş. (the "Company" or "Tüpraş") to perform a limited assurance engagement in respect of the Selected Sustainability Information (the "Selected Information") stated in the Tüpraş 2022 Integrated Report (the "2022 Integrated Report") for the year ended 31 December 2022 and listed below.

Selected Information

The scope of the Selected Information for the year ended 31 December 2022, which is subject to our limited assurance work, set out in the pages 16, 19, 22, 23, 32, 33, 62, 66, 68, 69, 70, 72, 128, 129, 132, 134, 135, 137, 145, 147, 162, 163, 164, 165, 166, 167 and 168 of the 2022 Integrated Report with the sign ✓ is summarised below:

Social Performance Indicators

- Total Number of Employees (#)
- Contractor Employees (#)
- Employees by Contract Type (#)
- Employees by Salary Category (#)
- Ratio of Female Managers (%)
- Employees by Employment Type (#)
- Employees by Age Groups (#)
- Number of Employees by Managerial Level (#)
- New Hirings (#)
- Number of Employees Leaving (#)
- Employees Under Collective Agreement (#)
- Number of Employees on Parental Leave (#)
- Number of Employees Returning to Work After Parental Leave (#)
- Average Seniority of Level of Newly Hired Female Employees (#)
- Average Seniority of Level of Newly Hired Male Employees (#)
- Employee Turnover Ratio (%)
- Total Number of Disabled Employees (#)
- Number of Employees in STEM Positions (#)
- Number of Employees in Income Generating Positions (#)
- Minimum Starting Salary to Minimum Wage Ratio
- Total Amount of Training (hours)
- Total Amount of Training per Employee (average hours per employee)

Limited Assurance Report

- Ethical Principles and Code of Conduct Trainings (hours)
- Environmental Training (people x hours)
- Employee Loyalty Survey Results (%)
- Total Number of Interns (#)
- Total Amount of OHS Training (people x hours)
- LTI Frequency- OSHA (frequency)
- LTI Severity- OSHA (frequency)
- Total Recordable Incident Rate – OSHA (frequency)
- Restricted Work Case – OSHA (frequency)
- Occupational Illness (frequency)
- Fatality Rate (frequency)
- 3rd Party Audits (#)
- Fatalities as a Result of Work-Related Incidents (#)

Environmental Performance Indicators

- Direct Energy Consumption (TJ)
  - Natural Gas (TJ)
  - Fuel Oil (TJ)
  - Fuel Gas (TJ)
  - Coke (TJ)
- Indirect Energy Consumption – Electricity (TJ)
- Total Energy Consumption (TJ)
- Change in Energy Consumption (%)
- Energy Consumption Per Crude Oil Processed (GJ/tonnes)
- Energy Intensity (GJ/tonnes production)
- Number of Energy Efficiency Projects (#)
- Energy Efficiency Savings (TJ)
- Energy Efficiency Savings (USD million)
- Renewable Electricity Generation (MWh)
- GHG Emissions Reductions through Energy Efficiency Projects (tonnes CO_2e)
  - Total Grey Water Consumption (million m^3)
- Total Water Consumption (million m^3)
  - Surface Water Sources (million m^3)
  - Grid ((million m^3)
  - Treated Wastewater from Körfez Municipality (million m^3)
- Water Consumption per Crude Oil Processed (m^3/tonnes)
- Water Consumption per Productin (m^3/tonnes)
- Total Recovered Water (million m^3)
- Total Recovered Water to Total Water Consumption Ratio (%)
- Total Waste Water Discharge (million m^3)
- Total Amount of Waste (tonnes)
  - Hazardous Waste (tonnes)
  - Non-Hazardous Waste (tonnes)
- Waste According to Disposal Method
  - Recycling (tonnes)
  - Disposal (tonnes)
- Total Waste Recovery Ratio (%)
- Savings from Waste Recovery and Industrial Symbiosis (TL million)
- Saplings Planted in Afforestation Works (#)
- Amount of CO_2 Emission Eliminated by Afforestation Works (tonnes CO_2e)
- Scope 1 GHG Emissions (tonnes CO_2e/year)
- Scope 2 GHG Emissions (tonnes CO_2e/year)
- Scope 1 & Scope 2 GHG Emissions (tonnes CO_2e/year)
- GHG Intensity (tonnes CO_2e/tonnes Crude Oil Processed)
- GHG Intensity (tonnes CO_2e/tonnes Charge)

Economic Performance Indicators

- Number of Local Suppliers (#)
- Total Number of Suppliers Assessed (#)
- Number of Suppliers Assessed According to Environmental Criteria (#)

Our assurance was with respect to the year ended 31 December 2022 information only and we have not performed any procedures with respect to earlier periods or any information other than Selected Information marked with ✔ in the 2022 Integrated Report and, any other elements included in the 2022 Integrated Report and, therefore, do not express any conclusion thereon.

Criteria

The criteria used by the Company to prepare the Selected Information is set out in section "Appendix-1: Tüpraş 2022 Integrated Report – Reporting Principles" (the "Reporting Principles") on pages 170-181 of the 2022 Integrated Report.

Limited Assurance Report

The Company's Responsibility

The Company is responsible for the content of the 2022 Integrated Report and the preparation of the Selected Information in accordance with the Reporting Principles. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation of Selected Information that is free from material misstatement, whether due to fraud or error.

Inherent Limitations

Non-financial performance information is subject to more inherent limitations than financial information, given the characteristics of the subject matter and the methods used for determining such information.

The absence of a significant body of established practice on which to draw to evaluate and measure non-financial information allows for different, but acceptable, measures and measurement techniques and can affect comparability between entities. The precision of different measurement techniques may also vary. Furthermore, the nature and methods used to determine such information, as well as the measurement criteria and the precision thereof, may change over time. It is important to read the Selected Information in the context of the Reporting Principles.

In particular, the conversion of different energy measures to Terajoule (TJ) and energy used to carbon emissions is based upon, inter alia, information and factors generated internally and/or derived by independent third parties as explained in the Reporting Principles. Our assurance work has not included examination of the derivation of those factors and other third-party information.

Our Independence and Quality Management

We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

Our firm applies International Standard on Quality Management 1, which requires the firm to design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Our Responsibility

Our responsibility is to form a conclusion, based on limited assurance procedures, on whether anything has come to our attention that causes us to believe that the Selected Information has not been properly prepared in all material respects in accordance with the Reporting Principles. We conducted our limited assurance engagement in accordance with International Standard on Assurance Engagements 3000 (Revised), *Assurance Engagements other than Audits or Reviews of Historical Financial Information*', and, in respect of greenhouse gas emissions, International Standard on Assurance Engagements 3410, *Assurance Engagements on Greenhouse Gas Statements*, issued by the International Auditing and Assurance Standards Board.

A limited assurance engagement is substantially less in scope than a reasonable assurance engagement under ISAE 3000 and ISAE 3410. Consequently, the nature, timing and extent of procedures for gathering sufficient appropriate evidence are deliberately limited relative to a reasonable assurance engagement.

The procedures we performed were based on our professional judgment and included inquiries, observation of processes performed, inspection of documents, analytical procedures, evaluating the appropriateness of quantification methods and reporting policies, and agreeing or reconciling with underlying records.

Given the circumstances of the engagement, in performing the procedures listed above we:

- made inquiries of the persons responsible for the Selected Information;
- understood the process for collecting and reporting the Selected Information. This included analysing the key processes and controls for managing and reporting the Selected Information;
- evaluated the source data used to prepare the Selected Information and re-performed selected examples of calculation;
- performed limited substantive testing on a selective basis of the preparation and collation of the Selected Information prepared by the Company and
- A site visit was made to the Company's Izmit Refinery Directorate, located in Kocaeli, in order to observe the completeness and integrity of the emission sources regarding Selected Information, the data sources and the Company's methods of collecting these data. The site visited was selected by considering the share of the emission amount of the İzmit Refinery Directorate in the total emission amount. Our procedures do not include testing information systems or controls at these sites to collect and aggregate field data.
- undertook analytical procedures over the reported data.

Limited Assurance Report

Limited Assurance Conclusion

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that Company's Selected Information for the year ended 31 December 2022, is not properly prepared, in all material respects, in accordance with the Reporting Principles.

Restriction of use

This report, including the conclusion, has been prepared for the Board of Directors of the Company as a body, to assist the Board of Directors in reporting Tüpraş Türkiye Petrol Rafinerileri A.Ş.'s performance and activities related to the Selected Information. We permit the disclosure of this report within the 2022 Integrated Report for the year ended 31 December 2022, to enable the Board of Directors to demonstrate they have discharged their governance responsibilities by commissioning a limited assurance report in connection with the Selected Information. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the Board of Directors of Tüpraş Türkiye Petrol Rafinerileri A.Ş. as a body and Tüpraş Türkiye Petrol Rafinerileri A.Ş. for our work or this report save where terms are expressly agreed and with our prior consent in writing.

PwC Bağımsız Denetim ve
Serbest Muhasebeci Mali Müşavirlik A.Ş.

Cihan Harman, SMMM
Partner

Istanbul, 9 May 2023

SASB Index

Sustainability Disclosure Topics & Accounting Metrics

Table 1. Sustainability Disclosure Topics & Accounting Metrics

TOPIC	ACCOUNTING METRIC	CATEGORY	UNIT OF MEASURE	CODE	
Greenhouse Gas Emissions	Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations	Quantitative	Metric tonnes (t) CO_2-e, Percentage (%)	EM-RM-110a.1	**Performance Indicators** (Page: 164) The percentage of emissions covered under emissions limiting regulations is not reported.
	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	EM-RM-110a.2	**Strategic Transition Plan** (Page: 26-29) Natural Capital (Page: 133)
Air Quality	Air emissions of the following pollutants: (1) NO_x (excluding N_2O), (2) SO_x, (3) particulate matter (PM10), (4) H_2S, and (5) volatile organic compounds (VOCs)	Quantitative	Metric tonnes (t)	EM-RM-120a.1	**Natural Capital** (Page: 133) Studies on NO_x, SO_x, particulate matter and volatile organic compound emission reduction are carried out in refineries. However, there is no reporting for these emissions.
	Number of refineries in or near areas of dense population	Quantitative	Number	EM-RM-120a.2	**Tüpraş at a Glance** 4, (Page: 20-21)
Water Management	(1) Total fresh water withdrawn, (2) percentage recycled, (3) percentage in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic meters (m^3), Percentage (%)	EM-RM-140a.1	**Natural Capital** (Page: 135) **Performance Indicators** (Page: 163) In the context of determining water risks, Tüpraş makes risk-based assessments for the basins where its refineries are located, using the internationally accepted WRI Aqueduct method. However, there is no reporting on consumption in these regions.
	Number of incidents of non-compliance associated with water quality permits, standards, and regulations	Quantitative	Number	EM-RM-140a.2	**Performance Indicators** (Page: 163) The number of incidents is not reported. Water penalties are reported in terms of currency.
Hazardous Materials Management	Amount of hazardous waste generated, percentage recycled	Quantitative	Metric tonnes (t), Percentage (%)	EM-RM-150a.1	**Performance Indicators** (Page: 163)
	(1) Number of underground storage tanks (USTs), (2) number of UST releases requiring cleanup, and (3) percentage in states with UST financial assurance funds	Quantitative	Number, Percentage (%)	EM-RM-150a.2	Tüpraş does not have an underground hazardous material storage tank.
Workforce Health & Safety	(1) Total recordable incident rate (TRIR), (2) fatality rate, and (3) near miss frequency rate (NMFR) for (a) full-time employees and (b) contract employees	Quantitative	Rate	EM-RM-320a.1	**Performance Indicators** (Page: 164)
	Discussion of management systems used to integrate a culture of safety	Discussion and Analysis	n/a	EM-RM-320a.2	**Human Capital** (Page: 72-77)

SASB Index

TOPIC	ACCOUNTING METRIC	CATEGORY	UNIT OF MEASURE	CODE	
Product Specifications & Clean Fuel Blends	Percentage of Renewable Volume Obligation (RVO) met through: (1) production of renewable fuels, (2) purchase of "separated" renewable identification numbers (RIN)	Quantitative	Percentage (%)	EM-RM-410a.1	**Strategic Transition Plan** (Page: 26-29) **Manufactured Capital** (Page: 89) Tüpraş started to work on biofuel production using Ecofining™ technology, under the license agreement it signed with Honeywell UOP.
	Total addressable market and share of market for advanced biofuels and associated infrastructure	Quantitative	Reporting currency, Percentage (%)	EM-RM-410a.2	**Strategic Transition Plan** (Page: 26-29) **Manufactured Capital** (Page: 89) Tüpraş started to work on biofuel production using Ecofining™ technology, under the license agreement it signed with Honeywell UOP.
Pricing Integrity & Transparency	Total amount of monetary losses as a result of legal proceedings associated with price fixing or price manipulation	Quantitative	Reporting currency	EM-RM-520a.1	*Tüpraş 2022 Annual Report* (Page: 288) Competition Board investigation
Management of the Legal & Regulatory Environment	Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industry	Discussion and Analysis	n/a	EM-RM-530a.1	Tüpraş does not have such an activity.
Critical Incident Risk Management	Process Safety Event (PSE) rates for Loss of Primary Containment (LOPC) of greater consequence (Tier 1) and lesser consequence (Tier 2)	Quantitative	Rate	EM-RM-540a.1	**Performance Indicators** (Page: 165)
	Challenges to Safety Systems indicator rate (Tier 3)	Quantitative	Rate	EM-RM-540a.2	Not reported
	Discussion of measurement of Operating Discipline and Management System Performance through Tier 4 Indicators	Discussion and Analysis	n/a	EM-RM-540a.3	Not reported

Table 2. Activity Metrics

ACTIVITY METRIC	CATEGORY	UNIT OF MEASURE	CODE	
Refining throughput of crude oil and other feedstocks	Quantitative	Barrels of oil equivalent (BOE)	EM-RM-000.A	**Manufactured Capital** (Page: 82-87) **Performance Indicators** (Page: 162) Tüpraş makes on tonnage-based reporting instead of barrel-based reporting.
Refining operating capacity	Quantitative	Million barrels per calendar day (MBPD)	EM-RM-000.B	**Manufactured Capital** (Page: 82-83) **Performance Indicators** (Page: 162) Tüpraş makes on tonnage-based reporting instead of barrel-based reporting.

GRI Index

Within the Essentials Service, the GRI Services team reviewed that the GRI Content Index was presented in a clear and consistent manner in line with the standards and references to disclosures 2-1 to 2-5, 3-1 and 3-2 were consistent with the relevant sections of the report. The service was performed on the Turkish version of the Report.

STATEMENT OF USE	Tüpraş Türkiye Petrol Rafinerileri A.Ş. has reported in accordance with the GRI content index for the period 01.01.2022-31.12.2022.
GRI 1 USED	GRI 1: Foundation 2021
SECTOR STANDARD	GRI 11: Oil and Gas Sector 2021

GRI STANDARD	DISCLOSURE	LOCATION	OMISSION	SECTOR STANDARD REFERENCE NUMBER
GENERAL DISCLOSURES				
GRI 2: GENERAL DISCLOSURES 2021	2-1 Organizational details	Tüpraş at a Glance, Page: 18-21		
	2-2 Entities included in the organization's sustainability reporting	About the Report, Page: 14-15		
	2-3 Reporting period, frequency and contact point	01.01.2022-31.12.2022 Annual Contact, Page: 205		
	2-4 Restatements of information	The emission data published in the previous report has been updated as a result of the verification work conducted on the data. Natural Capital, Page: 132-133 Environmental Performance, Page: 164		
	2-5 External assurance	About the Report, Page: 14-15 Limited Assurance Report, Page: 183-188		
	2-6 Activities, value chain and other business relationships	Tüpraş at a Glance, Page: 18-21 *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/tupras_annual_report_2022.pdf*, Page: 80-82 *https://www.tupras.com.tr/en/rafineries* *https://www.tupras.com.tr/en/products*		
	2-7 Employees	Human Capital, Page: 62-71 Employee Demographics, Page: 166-168		
	2-8 Workers who are not employees	Stakeholder Relationship at Tüpraş, Page: 45 Social and Relationship Capital, Page: 118-119 Supply Performance, Page: 165 Social Performance, Page: 166 *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/tprspolitika/en/Tupras_Supply_Chain_Compliance_Policy.pdf*		
	2-9 Governance structure and composition	Management Approach/Corporate Governance at Tüpraş, Page: 34-35 *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/tupras_annual_report_2022.pdf*, Page: 26-29, 204-206, 208-209		

GRI Index

GRI STANDARD	DISCLOSURE	LOCATION	OMISSION	SECTOR STANDARD REFERENCE NUMBER
GRI 2: GENERAL DISCLOSURES 2021	2-10 Nomination and selection of the highest governance body	Management Approach/Corporate Governance at Tüpraş, Page: 34-35 *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/tupras_annual_report_2022.pdf*, Page: 204-206		
	2-11 Chair of the highest governance body	Management Approach/Corporate Governance at Tüpraş, Page: 34-35 *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/tupras_annual_report_2022.pdf*, Page: 26-29		
	2-12 Role of the highest governance body in overseeing the management of impacts	Management Approach/Corporate Governance at Tüpraş, Page: 34-35 Management Approach/Sustainability Management at Tüpraş, Page: 38-41 *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/tupras_annual_report_2022.pdf*, Page: 204-206		
	2-13 Delegation of responsibility for managing impacts	Management Approach/Corporate Governance at Tüpraş, Page: 34-35 Management Approach/Sustainability Management at Tüpraş, Page: 38-41 *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/tupras_annual_report_2022.pdf*, Page: 204-206		
	2-14 Role of the highest governance body in sustainability reporting	Management Approach/Corporate Governance at Tüpraş, Page: 34-35 Management Approach/Sustainability Management at Tüpraş, Page: 38-41 *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/tupras_annual_report_2022.pdf*, Page: 122		
	2-15 Conflicts of interest	Management Approach/Corporate Governance at Tüpraş, Page: 34-35		
	2-16 Communication of critical concerns	Stakeholder Relationship at Tüpraş, Page: 44-45 Stakeholders and Communication Methods, Page: 152 *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/tprspolitika/en/code_of_ethics.pdf* *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/tprspolitika/en/Tupras_Disclosure_Policy.pdf*		
	2-17 Collective knowledge of the highest governance body	*https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/tupras_annual_report_2022.pdf*, Page: 26-29		

GRI STANDARD	DISCLOSURE	LOCATION	OMISSION	SECTOR STANDARD REFERENCE NUMBER
GRI 2: GENERAL DISCLOSURES 2021	2-18 Evaluation of the performance of the highest governance body	Management Approach, Page: 40-41 *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/tupras_annual_report_2022.pdf*, Page: 225-229		
	2-19 Remuneration policies	*https://tprstaticfilessa.blob.core.windows.net/assets/uploads/tprspolitika/en/tprs_remuneration_policy.pdf*		
	2-20 Process to determine remuneration	Management Approach, Page: 40-41 Human Capital, Page: 65		
	2-21 Annual total compensation ratio	Not applicable	All data is being processed to calculate the specified ratios, and it is planned to publish the relevant ratios in the annual report for the next year.	
	2-22 Statement on sustainable development strategy	Management Approach/Sustainability Management at Tüpraş, Page: 38-41 Strategic Transition Plan, Page: 26-29		
	2-23 Policy commitments	Management Approach, Page: 37 *https://www.tupras.com.tr/en/policies*		
	2-24 Embedding policy commitments	Management Approach, Page: 37 *https://www.tupras.com.tr/en/policies*		
	2-25 Processes to remediate negative impacts	Stakeholder Relationship at Tüpraş, Page: 44-45 *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/tprspolitika/en/Tupras_Disclosure_Policy.pdf*		
	2-26 Mechanisms for seeking advice and raising concerns	Stakeholder Relationship at Tüpraş, Page: 44-45 *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/tprspolitika/en/code_of_ethics.pdf* *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/tprspolitika/en/tupras_whistleblowing_policy.pdf*		
	2-27 Compliance with laws and regulations	Management Approach, Page: 36-37 *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/tupras_annual_report_2022.pdf*, Page: 220-221		
	2-28 Membership associations	About the Report, Page: 14-15 Tüpraş's Memberships and the Platforms it Supports, Page: 182		
	2-29 Approach to stakeholder engagement	Stakeholder Relationship at Tüpraş, Page: 44-45 Stakeholders and Communication Methods, Page: 152		
	2-30 Collective bargaining agreements	Human Capital, Page: 71		

GRI Index

GRI STANDARD	DISCLOSURE	LOCATION	OMISSION	SECTOR STANDARD REFERENCE NUMBER
MATERIAL TOPICS				
GRI 3: MATERIAL TOPICS 2021	3-1 Process to determine material topics	Tüpraş's Sustainability Priorities, Page: 46-47		
	3-2 List of material topics	Strategic Transition Plan, Page: 28-29 Tüpraş's Sustainability Priorities, Page: 46-47		
	GHG EMISSIONS			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Strategic Transition Plan, Page: 28-29 Management Approach, Page: 36-37 Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Tüpraş's Sustainability Priorities, Page: 46-47 Natural Capital, Page: 128-133		11.1.1
GRI 302: ENERGY 2016	302-1 Energy consumption within the organization	Natural Capital, Page: 128-132 Environmental Performance, Page: 163		11.1.2
	302-2 Energy consumption outside of the organization	Natural Capital, Page: 128-132 Environmental Performance, Page: 163		11.1.3
	302-3 Energy intensity	Natural Capital, Page: 128-132 Environmental Performance, Page: 163		11.1.4
GRI 305: EMISSIONS 2016	305-1 Direct (Scope 1) GHG emissions	Natural Capital, Page: 128-133 Environmental Performance, Page: 164		11.1.5
	305-2 Energy indirect (Scope 2) GHG emissions	Natural Capital, Page: 128-133 Environmental Performance, Page: 164		11.1.6
	305-3 Other indirect (Scope 3) GHG emissions	Natural Capital, Page: 128-133 Natural Capital, Page: 141		11.1.7
	305-4 GHG emissions intensity	Natural Capital, Page: 128-133 Environmental Performance, Page: 164		11.1.8
	CLIMATE ADAPTATION, RESILIENCE, AND TRANSITION			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Strategic Transition Plan, Page: 28-29 Management Approach, Page: 36-37 Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Tüpraş's Sustainability Priorities, Page: 46-47 Natural Capital, Page: 128-133		11.2.1
GRI 201: ECONOMIC PERFORMANCE 2016	201-2 Financial implications and other risks and opportunities due to climate change	Natural Capital, Page: 140-141 Task Force on Climate-related Financial Disclosures and Tüpraş, Page: 153-161		11.2.2
GRI 305: EMISSIONS 2016	305-5 Reduction of GHG emissions	Strategic Transition Plan, Page: 28-29 Natural Capital, Page: 128-133, 140-141 Environmental Performance, Page: 164		11.2.3
	AIR EMISSIONS			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Management Approach, Page: 36-37 Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Tüpraş's Sustainability Priorities, Page: 46-47 Natural Capital, Page: 128-133		11.3.1
GRI 305: EMISSIONS 2016	305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	Natural Capital, Page: 133		11.3.2
GRI 416: CUSTOMER HEALTH AND SAFETY 2016	416-1 Assessment of the health and safety impacts of product and service categories	Natural Capital, Page: 132-133		11.3.3
	WATER AND EFFLUENTS			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Management Approach, Page: 36-37 Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Tüpraş's Sustainability Priorities, Page: 46-47 Natural Capital, Page: 128-133		11.6.1
GRI 303: WATER AND EFFLUENTS 2018	303-1 Interactions with water as a shared resource	Natural Capital, Page: 134-135 Environmental Performance, Page: 163		11.6.2
	303-2 Management of water discharge-related impacts	Natural Capital, Page: 134-135 Environmental Performance, Page: 163		11.6.3
	303-3 Water withdrawal	Natural Capital, Page: 134-135 Environmental Performance, Page: 163		11.6.4
	303-4 Water discharge	Natural Capital, Page: 134-135 Environmental Performance, Page: 163		11.6.5
	303-5 Water consumption	Natural Capital, Page: 134-135 Environmental Performance, Page: 163		11.6.6
	ANTI-CORRUPTION			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Management Approach, Page: 36-37 Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Tüpraş's Sustainability Priorities, Page: 46-47		11.20.1
GRI 205: ANTI-CORRUPTION 2016	205-1 Operations assessed for risks related to corruption	Management Approach, Page: 36-37 *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/tprspolitika/en/tupras_anti_bribery_and_corruption_policy.pdf*		11.20.2
	205-2 Communication and training about anti-corruption policies and procedures	Social Performance, Page: 166		11.20.3
	205-3 Confirmed incidents of corruption and actions taken	There are no confirmed incidents of corruption and actions taken during the reporting period *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/tupras_annual_report_2022.pdf*, Page: 129		11.20.4

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GRI STANDARD	DISCLOSURE	LOCATION	OMISSION	SECTOR STANDARD REFERENCE NUMBER
	EMPLOYMENT PRACTICES			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Management Approach, Page: 36-37 Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Tüpraş's Sustainability Priorities, Page: 46-47 Human Capital, Page: 62-71		11.10.1
GRI 401: EMPLOYMENT 2016	401-1 New employee hires and employee turnover	Employee Demographics, Page: 166-168		11.10.2
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	There are no benefits provided to full-time employees that are not provided to temporary or part-time employees at Tüpraş.		11.10.3
	401-3 Parental leave	Employee Demographics, Page: 168		11.10.4 11.11.3
GRI 402: LABOR/ MANAGEMENT RELATIONS 2016	402-1 Minimum notice periods regarding operational changes	Human Capital, Page: 62-71		11.10.5
GRI 404: TRAINING AND EDUCATION 2016	404-1 Average hours of training per year per employee	Social Performance, Page: 165-166		11.10.6 11.11.4
	404-2 Programs for upgrading employee skills and transition assistance programs	Human Capital, Page: 68-71		11.10.7
GRI 414: SUPPLIER SOCIAL ASSESSMENT 2016	414-1 New suppliers that were screened using social criteria	Management Approach, Page: 43		11.10.8 11.12.3
	414-2 Negative social impacts in the supply chain and actions taken	Management Approach, Page: 43		11.10.9
	BIODIVERSITY			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Management Approach, Page: 36-37 Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Tüpraş's Sustainability Priorities, Page: 46-47 Natural Capital, Page: 128-133		11.4.1
GRI 304: BIODIVERSITY 2016	304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Tüpraş Value Generation Model, Page: 32-33 Natural Capital, Page: 135 SDGs Performance Realization Table, Page: 144-145 Biodiversity Assessment, Page: 169		11.4.2
	304-2 Significant impacts of activities, products and services on biodiversity	Tüpraş Value Generation Model, Page: 32-33 Natural Capital, Page: 135 SDGs Performance Realization Table, Page: 144-145 Biodiversity Assessment, Page: 169		11.4.3
	304-3 Habitats protected or restored	Tüpraş Value Generation Model, Page: 32-33 Natural Capital, Page: 135 SDGs Performance Realization Table, Page: 144-145 Biodiversity Assessment, Page: 169		11.4.4
	304-4 IUCN Red List species and national conservation list species with habitats in areas affected by operations	Biodiversity Assessment, Page: 169		11.4.5
	WASTE			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Management Approach, Page: 36-37 Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Tüpraş's Sustainability Priorities, Page: 46-47 Natural Capital, Page: 128-133		11.5.1
GRI 306: WASTE 2020	306-1 Waste generation and significant waste-related impacts	Natural Capital, Page: 135-137 Environmental Performance, Page: 163		11.5.2
	306-2 Management of significant waste-related impacts	Natural Capital, Page: 135-137 Environmental Performance, Page: 163		11.5.3
	306-3 Waste generated	Natural Capital, Page: 135-137 Environmental Performance, Page: 163		11.5.4
	306-4 Waste diverted from disposal	Natural Capital, Page: 135-137 Environmental Performance, Page: 163		11.5.5
	306-5 Waste directed to disposal	Natural Capital, Page: 135-137 Environmental Performance, Page: 163		11.5.6
NON-MATERIAL TOPICS				
	ECONOMIC IMPACTS			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Message from the General Manager, Page: 16-17 Strategic Transition Plan, Page: 26-27 Management Approach, Page: 36-37 Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Tüpraş's Sustainability Priorities, Page: 46-47		11.11.1 11.14.1 11.19.1 11.21.1
GRI 201: ECONOMIC PERFORMANCE 2016	201-1 Direct economic value generated and distributed	Tüpraş Value Generation Model, Page: 32-33 Financial Capital, Page: 50-59 Economic and Administrative Performance, Page: 162		11.14.2 11.21.2
	201-2 Financial implications and other risks and opportunities due to climate change	Natural Capital, Page: 140-141 Task Force on Climate-related Financial Disclosures and Tüpraş, Page: 153-161		11.2.2
	201-3 Defined benefit plan obligations and other retirement plans	*https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/tupras_annual_report_2022.pdf*, Page: 270-271, 295-297 https://tprstaticfilessa.blob.core.windows.net/assets/uploads/tprspolitika/en/tupras_staff_compensation_policy.pdf		
	201-4 Financial assistance received from government	*https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/tupras_annual_report_2022.pdf*, Page: 309-310		11.21.3

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GRI STANDARD	DISCLOSURE	LOCATION	OMISSION	SECTOR STANDARD REFERENCE NUMBER
GRI 202: MARKET PRESENCE 2016	202-2 Proportion of senior management hired from the local community	Not applicable	This ratio is not available as all senior management staff are employed from the local community.	11.14.3
GRI 203: INDIRECT ECONOMIC IMPACTS 2016	203-1 Infrastructure investments and services supported	Manufactured Capital, Page: 88-90, 92-93		11.14.4
	203-2 Significant indirect economic impacts	Tüpraş Value Generation Model, Page: 32-33 Economic and Administrative Performance, Page: 162		11.14.5
GRI 204: PROCUREMENT PRACTICES 2016	204-1 Proportion of spending on local suppliers	Tüpraş Value Generation Model, Page: 32-33 Supply Performance, Page: 165		11.14.6
GRI 206: ANTI-COMPETITIVE BEHAVIOR 2016	206-1 Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	*https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/tupras_annual_report_2022.pdf*, Page: 220-221 *https://www.tupras.com.tr/en/policies*		11.19.2
	PAYMENTS TO GOVERNMENTS			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Message from the General Manager, Page: 16-17 Management Approach, Page: 36-37 Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Tüpraş's Sustainability Priorities, Page: 46-47		11.21.1
GRI 207: TAX 2019	207-1 Approach to tax	Tüpraş Value Generation Model, Page: 32-33		11.21.4
	207-2 Tax governance, control, and risk management	Management Approach, Page: 42		11.21.5
	207-3 Stakeholder engagement and management of concerns related to tax	Management Approach, Page: 42		11.21.6
	207-4 Country-by-country reporting	Tüpraş Value Generation Model, Page: 32-33 *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/tupras_annual_report_2022.pdf*, Page: 309-310		11.21.7
	ASSET INTEGRITY AND CRITICAL INCIDENT MANAGEMENT			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Management Approach, Page: 36-37 Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Tüpraş's Sustainability Priorities, Page: 46-47 Natural Capital, Page: 128-133		11.8.1
GRI 306: EFFLUENTS AND WASTE 2016	306-3 Significant spills	Human Capital, Page: 76 Natural Capital, Page: 135-137 Environmental Performance, Page: 163		11.8.2
	SUPPLIER ENVIRONMENTAL ASSESSMENT			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Management Approach, Page: 36-37 Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Stakeholder Relationship at Tüpraş, Page: 42-43 Tüpraş's Sustainability Priorities, Page: 46-47		

GRI STANDARD	DISCLOSURE	LOCATION	OMISSION	SECTOR STANDARD REFERENCE NUMBER
GRI 308: SUPPLIER ENVIRONMENTAL ASSESSMENT 2016	308-1 New suppliers that were screened using environmental criteria	Supply Performance, Page: 165		
	308-2 Negative environmental impacts in the supply chain and actions taken	Natural Capital, Page: 140-141 Stakeholder Relationship at Tüpraş, Page: 44-45 Task Force on Climate-related Financial Disclosures and Tüpraş, Page: Page: 154-155 *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/tprspolitika/en/Tupras_Supply_Chain_Compliance_Policy.pdf*		
	CLOSURE AND REHABILITATION			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Management Approach, Page: 36-37 Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Tüpraş's Sustainability Priorities, Page: 46-47 Human Capital, Page: 62-71		11.7.1 11.10.1
GRI 402: LABOR/ MANAGEMENT RELATIONS 2016	402-1 Minimum notice periods regarding operational changes	Human Capital, Page: 62-71		11.7.2 11.10.5
	OCCUPATIONAL HEALTH AND SAFETY			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Management Approach, Page: 36-37 Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Tüpraş's Sustainability Priorities, Page: 46-47		11.9.1
GRI 403: OCCUPATIONAL HEALTH AND SAFETY 2018	403-1 Occupational health and safety management system	Human Capital, Page: 72-77 *https://www.tupras.com.tr/health-and-safety-management-system-policy*		11.9.2
	403-2 Hazard identification, risk assessment, and incident investigation	Human Capital, Page: 72-77		11.9.3
	403-3 Occupational health services	Human Capital, Page: 72-77 *https://www.tupras.com.tr/health-and-safety-management-system-policy*		11.9.4
	403-4 Worker participation, consultation, and communication on occupational health and safety	Human Capital, Page: 72-77 Stakeholders and Communication Methods, Page: 152		11.9.5
	403-5 Worker training on occupational health and safety	Human Capital, Page: 72 Health and Safety Performance, Page: 164		11.9.6
	403-6 Promotion of worker health	Human Capital, Page: 72-77		11.9.7

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GRI STANDARD	DISCLOSURE	LOCATION	OMISSION	SECTOR STANDARD REFERENCE NUMBER
GRI 403: OCCUPATIONAL HEALTH AND SAFETY 2018	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Human Capital, Page: 72-77		11.9.8
	403-8 Workers covered by an occupational health and safety management system	Human Capital, Page: 72-77		11.9.9
	403-9 Work-related injuries	Health and Safety Performance, Page: 164-165		11.9.10
	403-10 Work-related ill health	Health and Safety Performance, Page: 164-165		11.9.11
	NON-DISCRIMINATION AND EQUAL OPPORTUNITY			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Management Approach, Page: 36-37 Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Tüpraş's Sustainability Priorities, Page: 46-47 Human Capital, Page: 67 *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/tprspolitika/en/deip_policy.pdf*		11.11.1
GRI 405: DIVERSITY AND EQUAL OPPORTUNITY 2016	405-1 Diversity of governance bodies and employees	Human Capital, Page: 68-71 Employee Demographics, Page: 166-168 *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/tprspolitika/en/tupras_board_of_directors_diversity_policy.pdf*		11.11.5
	405-2 Ratio of basic salary and remuneration of women to men	At Tüpraş, remuneration is based on performance and there is no gender discrimination in remuneration. *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/tprspolitika/en/tprs_remuneration_policy.pdf*		11.11.6
GRI 406: NON-DISCRIMINATION 2016	406-1 Incidents of discrimination and corrective actions taken	There are no incidents of discrimination during the reporting period. *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/tupras_2022_faaliyet_raporu.pdf*, Page: 68-69-346		11.11.7
	FREEDOM OF ASSOCIATION AND COLLECTIVE BARGAINING			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Management Approach, Page: 36-37 Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Tüpraş's Sustainability Priorities, Page: 46-47 Human Capital, Page: 62-71		11.13.1
GRI 407: FREEDOM OF ASSOCIATION AND COLLECTIVE BARGAINING 2016	407-1 Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	Human Capital, Page: 71		11.13.2

GRI STANDARD	DISCLOSURE	LOCATION	OMISSION	SECTOR STANDARD REFERENCE NUMBER
	CHILD LABOR			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Management Approach, Page: 36-37 Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Tüpraş's Sustainability Priorities, Page: 46-47 Human Capital, Page: 67		
GRI 408: CHILD LABOR 2016	408-1 Operations and suppliers at significant risk for incidents of child labor	Tüpraş does not employ child labor.		
	FORCED LABOR AND MODERN SLAVERY			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Management Approach, Page: 36-37 Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Tüpraş's Sustainability Priorities, Page: 46-47 Human Capital, Page: 67		11.12.1
GRI 409: FORCED OR COMPULSORY LABOR 2016	409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labor	There are no incidents of forced or compulsory labor during the reporting period. .		11.12.2
	CONFLICT AND SECURITY			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Management Approach, Page: 36-37 Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Tüpraş's Sustainability Priorities, Page: 46-47		11.18.1
GRI 410: SECURITY PRACTICES 2016	410-1 Security personnel trained in human rights policies or procedures	Social Performance, Page: 166		11.18.2
	RIGHTS OF INDIGENOUS PEOPLES			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Management Approach, Page: 36-37 Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Tüpraş's Sustainability Priorities, Page: 46-47		11.17.1
GRI 411: RIGHTS OF INDIGENOUS PEOPLES 2016	411-1 Incidents of violations involving rights of indigenous peoples	There are no incidents of violations involving rights of indigenous peoples during the reporting period.		11.17.2
	LOCAL COMMUNITIES			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Management Approach, Page: 36-37 Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Tüpraş's Sustainability Priorities, Page: 46-47		11.15.1

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GRI STANDARD	DISCLOSURE	LOCATION	OMISSION	SECTOR STANDARD REFERENCE NUMBER
GRI 413: LOCAL COMMUNITIES 2016	413-1 Operations with local community engagement, impact assessments, and development programs	Not applicable.	As part of its social investments policy, Tüpraş continues to work to reduce its environmental impact and increase social contribution in the geographies where it has refineries and subsidiaries. Tüpraş sees the United Nations Sustainable Development Goals as a guide in all its business processes and practices and carries out projects that will serve these purposes and contribute to the society. With this approach, social responsibility programs are carried out in many areas such as gender equality and education, protection of natural resources, culture and sports. Tüpraş designs social investment programs to ensure cooperation between the private sector, public and non-governmental organizations, and measures the effects of the programs through perception surveys for stakeholders. *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/tprspolitika/en/community_investment_policy.pdf* *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/faaliyet-raporlari/tupras_annual_report_2022.pdf*, Page: 170-177	11.15.2
	413-2 Operations with significant actual and potential negative impacts on local communities	Not applicable.	Although Tüpraş does not have a significant negative impact on the local community due to its activities, the refining sector is always in a high risk class because of its nature. However, the Company operates in a way that minimizes risks. The Company commits to the specified topics at: *https://www.tupras.com.tr/environmental-management-system*	11.15.3
	PUBLIC POLICY			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Tüpraş's Sustainability Priorities, Page: 46-47		11.22.1
GRI 415: PUBLIC POLICY 2016	415-1 Political contributions	Tüpraş does not support any political institution. *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/tprspolitika/en/code_of_ethics.pdf* *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/tprspolitika/en/tupras_donations_and_sponsorship_policy.pdf* *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/tprspolitika/en/community_investment_policy.pdf*		11.22.2
	CUSTOMER PRIVACY			
GRI 3: MATERIAL TOPICS 2021	3-3 Management of material topics	Management Approach/Sustainability Management at Tüpraş, Page: 38-40 Tüpraş's Sustainability Priorities, Page: 46-47 *https://tprstaticfilessa.blob.core.windows.net/assets/uploads/tprspolitika/en/code_of_ethics.pdf*		
GRI 418: CUSTOMER PRIVACY 2016	418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	There are no incidents of substantiated complaints concerning breaches of customer during the reporting period.		

TOPICS IN THE APPLICABLE GRI SECTOR STANDARDS DETERMINED AS NOT MATERIAL

Topic	Explanation
GRI SECTOR STANDARD	
Land and resource rights 11.16	Not applicable. Since Tüpraş does not have any activity areas that cause or contribute to involuntary resettlement to be evaluated in terms of impact on human rights, no response has been given.

Glossary

AÇEV	Mother Child Education Foundation
API	American Petroleum Institute
ASTM	ASTM (American Society for Testing and Materials) International Standards
BERN	Convention on the Conservation of European Wildlife and Natural Habitats
BIST	Borsa İstanbul
BM	United Nations
BSI	British Standards Institute
CBAM	Carbon Border Adjustment Mechanism
CCPS	Center for Chemical Process Safety
CIF	Cost, Insurance, and Freight (delivery of goods with freight and insurance costs paid)
CMB	Capital Markets Board
CMS	Change Management System
COD	Chemical Oxygen Demand
COP	United Nations Conference of the Parties
DWT	Unit of weight used in international maritime trade and the shipping industry
EBITDA	Earnings Before İnterest, Taxes, Depreciation and Amortization
EBRD	European Bank for Reconstruction and Development
EFQM	European Foundation for Quality Management
EIA	Environmental Impact Assessment
EII	Energy Intensity Index
EMRA	Energy Market Regulatory Authority
ESD	Emergency Shut Down
ESG	Environmental, Social, & Governance
ETS	Emissions Trading System
FCC	Fluid Catalytic Cracking Unit
FOB	Free on Board (Delivery method on board)
GEI	Gender Equality Index
GRI	Global Reporting Initiative
HAZMAT	Hazardous Materials
HAZOP	Hazard and Operability Study
HCM	Human Capital Management
HPP	Hydroelectric Power Plant
HSE	Health, Safety and Environment
IEA	International Energy Agency
IFRS	International Financial Reporting Standards
IIR	International Integrated Reporting
ILO	International Labor Organization
IMO	International Maritime Organization
IRATA	Industrial Rope Access Trade Association
ISM	International Safe Management
ISO	International Standards Organization
ISPO	International Standard for Maritime Pilot Organizations
ISPS	International Ship and Port Security
IT-OT	Information Technologies-Operational Technologies
IUCN	International Union for Conservation of Nature
İKSV	İstanbul Foundation for Culture and Arts
İPG	Business Plastic Initiative
KalDer	Turkish Quality Association
KAP	Public Disclosure Platform
KPI	Key Performance Indicators
KUTEM	Koç University Tüpraş Energy Center
LCA	Life Cycle Analysis
LPG	Liquefied Petroleum Gas
LTI	Lost Time Injury
MLC	Maritime Labor Convention
MRV	Monitoring Reporting and Verification
NFPA	National Fire Protection Association
NGCPP	Natural Gas Conversion Power Plant
NGO	Non-Governmental Organizations
NOX	Nitrous oxide
OCIMF	Oil Companies International Marine Forum
OECD	Organisation for Economic Co-operation and Development
OHS	Occupational Health and Safety
OHSAS	Occupational Health And Safety Management System
OKR	Objectives and Key Results
OPEC	Organization of the Petroleum Exporting Countries
OSHA	Occupational Safety and Health Administration
PCT	Patent Cooperation Treaty
PERYÖN	People Management Association of Turkey
PMI	Partnership for Market Implementation
PMR	Partnership for Market Readiness
PSSR	Pre-Start-up Safety Review
RAMSAR	An international convention for the conservation and sustainable use of wetlands.
RPA	Robotic Process Automation
RSR	Refinery Search and Rescue
RTO	Railway Train Operator
RWC	Restricted Work Case
SAF	Sustainable Aviation Fuel
SASB	Sustainability Accounting Standards Board
SKA	Sustainable Development Goals
SO2	Sulfur dioxide
SRD	Health-Risk Assessment
STEM	Science, Technology, Engineering and Mathematics
SWG	Sub-Working Group
TAS	Terminal Automation System
TCFD	Task Force on Climate-related Financial Disclosures
TEV	Turkish Education Foundation
TEX	Tüpraş Employee Experience Concept
TİM	Türkiye Exporters Assembly
TİSK	Turkish Confederation of Employer Associations
TMSA	Tanker Management and Self-Assessment
TPAO	Türkiye Petrolleri Anonim Ortaklığı
TRIR	Total Recordable Incident Rate
TURMEPA	Deniz Temiz (Clean Sea) Association
TÜSİAD	Turkish Industry and Business Association
UNGC	United Nations Global Compact
UNWEPs	United Nations Women's Empowerment Principles
VOC	Volatile Organic Content
WF	Wind Farm
WRI	World Resources Institute
WWT	Waste Water Treatment
XUSRD	Borsa Istanbul Sustainability Index
E-PRTR	European Pollutant Release and Transfer Register
B20	G20 Business Summit
CCUS	Carbon Capture, Use and Storage
UMKE	National Medical Rescue Team
DBO	Digital Based Operations
BGYS	Information Security Management System
RUP	Fuel Oil Conversion Project
MartERA	Maritime and Marine Technologies for a new Era
CVC	Corporate Venture Capital
METU	Middle East Technical University
ROE	Return on Equity
PS	Process Safety
İTÜ	Istanbul Technical University
TCC	Turkish Commercial Code
NMFR	Near-Miss Frequency Rate
LOPC	Loss of Primary Containment
BOE	Barrel Oil Equivalent
MBPD	Million Barrels Per Day
TSI	Technical Specifications for Interoperability
KADES	Women's Support Application
HSFO	High Sulfur Fuel Oil
BTK	Information Technologies and Communications Authority
PHA	Process Hazard Analysis
VR	Virtual Reality
MCPD	Medium Combustion Plant Directive
LDAR	Leak detection, repair
P&iD	Piping and Instrumentation Diagram
AR	Augmented Reality
CDP	Carbon Disclosure Project
KVKK	Personal Data Protection Law
FTA/ETA	Fault Tree Analysis / Event Tree Analysis
WEF	World Economic Forum
PoC	Proof of Concept
XR	Extended Reality
AFAD	Disaster and Emergency Management Authority
MoTAT	Mobile Hazardous Waste Transport
DACAMA	Data & Analytics Capabilities Maturity Analysis
NBSs	Nature Based Solutions
CoW	Control of Work
VTUM	Tax and Incentive Implementation Directorate
CSR	Corporate Social Responsibility
IoT	Internet of Things
SU/SD	Start-up/Shut Down
SifPro	Security Integrity Level assessment working method
IPF	Instrumented Protective Function

Contact

Türkiye Petrol Rafinerileri A.Ş. (Tüpraş)
Gülbahar Mah. Büyükdere Cad. No: 101/A
34394 Şişli/İstanbul
Telephone: (+90 212) 878 90 00
Fax: (+90 212) 211 30 81-82
E-mail: info@tupras.com.tr
Website: www.tupras.com.tr

Strategy and Sustainability
Çağatay Ölken
Strategy and Sustainability Director
E-mail: cagatay.olken@tupras.com.tr
Telephone: (+90 212) 878 99 99
Fax: (+90 212) 211 30 81-82

Enterprise Risk
Levent Bayar
Enterprise Risk Director
E-mail: levent.bayar@tupras.com.tr
Telephone: (+90 212) 878 99 50
Fax: (+90 212) 211 30 81-82

Corporate Communications
Çiler Teber
Corporate Communications Manager
E-mail: ciler.teber@tupras.com.tr
Telephone: (+90 212) 878 91 99
Fax: (+90 212) 211 30 81-82

Financial Planning and Reporting
Zeynep Keskin
Financial Planning and Reporting Director
E-mail: zeynep.keskin@tupras.com.tr
Telephone: (+90 212) 878 99 11
Fax: (+90 212) 211 30 81-82

Integrated reporting consultancy, content development, Turkish and English editing, design
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