TURKISH AUTOMOTIVE INDUSTRY
SUSTAINABILITY REPORT
2021-2022

OTOMOTİV SANAYİİ DERNEĞİ
AUTOMOTIVE MANUFACTURERS ASSOCIATION

CONTENTS

On the rise in the world

Since the day we were founded, we have been working with full strength for the development of the Turkish automotive industry.

We are at a pivotal moment when we are facing challenging global issues, notably the climate crisis. At the Automotive Manufacturers Association (OSD), in our activities, we pay regard to the measures to be taken and the policies to be implemented on critical issues that deeply affect our industry.

Despite global challenges, we provide sustainable support to the development and growth of our industry through partnerships with our 13 member companies, each of which are global players, and our expert staff.

We have renewed our vision to make the Turkish automotive industry a stronger global player, and we are guided by our roadmap to achieve our goal.

Even more ambitious **sustainability goals**

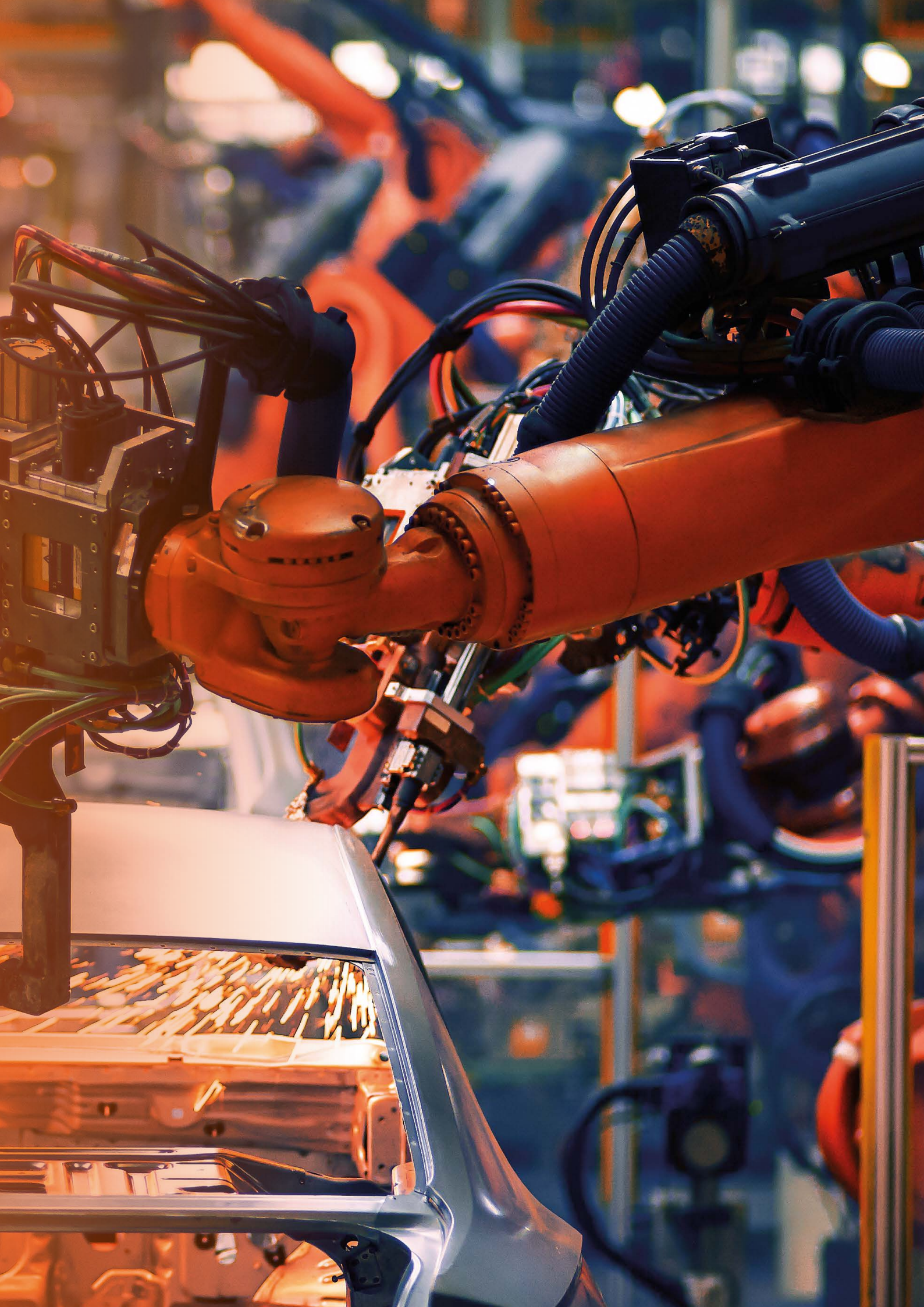
Sustainability practices are increasing in importance every day.

With global climate-oriented policies, both our product structures and production processes are transforming for the transition to a low carbon economy. We have accelerated our investments for the manufacturing of low and zero carbon vehicles. In the last four years, we have reduced greenhouse gases per light vehicle production by 31% and greenhouse gases from the production of other vehicle groups by 55%. We recycle our production waste and contribute them to the national economy. We have achieved a recovery rate of 99%.

Increased **R&D investments**

Türkiye is becoming a global hub for R&D and production in the automotive industry, creating a global impact.

In our journey to achieve “Carbon Neutrality”, we prioritize producing solutions to meet the needs of all vehicle and consumer groups. Our R&D and innovation capabilities are of great importance in this transformation. Undertaking more investments and projects in this field every year, we have increased R&D employment by 35% since 2015.



Large-scale **employment of women**

At the Automotive Manufacturers Association, we are also aware of our responsibilities in terms of social issues.

We support equal opportunities in business life and raise awareness in the sector with our projects that aim to convey the power of women in business life. We increase the share of female employees and the number of female managers every year. In 2022, the share of female employees increased to 12.3% of total employees and 16.2% of total managers.

Boosted **competitiveness**

The preservation and development of a skilled workforce is critical for our country's competitiveness in the domestic and international arena.

The human resources approach of OSD and its members is implemented with policies based on creating a working environment that will increase the performance of employees, observing diversity, ensuring equal opportunities, attracting qualified employees to the sector, preserving the qualified workforce, and continuous improvement.

Promising **new generation**

We held our Automotive Industry Summer Camp for the second time this year to introduce the automotive industry to young people.

With the support of Uludağ Automotive Industry Exporters' Association (OİB), we reached over 55 thousand high school and university students. We got together with young people through online workshops and C-Level talks.


CO2 Output

ABOUT THE REPORT

The Automotive Manufacturers Association (OSD), which has been operating for 48 years since 1974, continues its efforts to develop the automotive industry in Türkiye as the umbrella organization of the sector with its 13 member companies. A member of the Liaison Committee of OICA (International Organization of Motor Vehicle Manufacturers) since January 1995 and ACEA (The European Automobile Manufacturers Association) since March 2006, OSD represents the Turkish automotive industry in the European Union and on international platforms. Through its activities and participation in various technology and innovation platforms, OSD aims to increase the national and international competitiveness of the Turkish automotive industry in line with common interests.

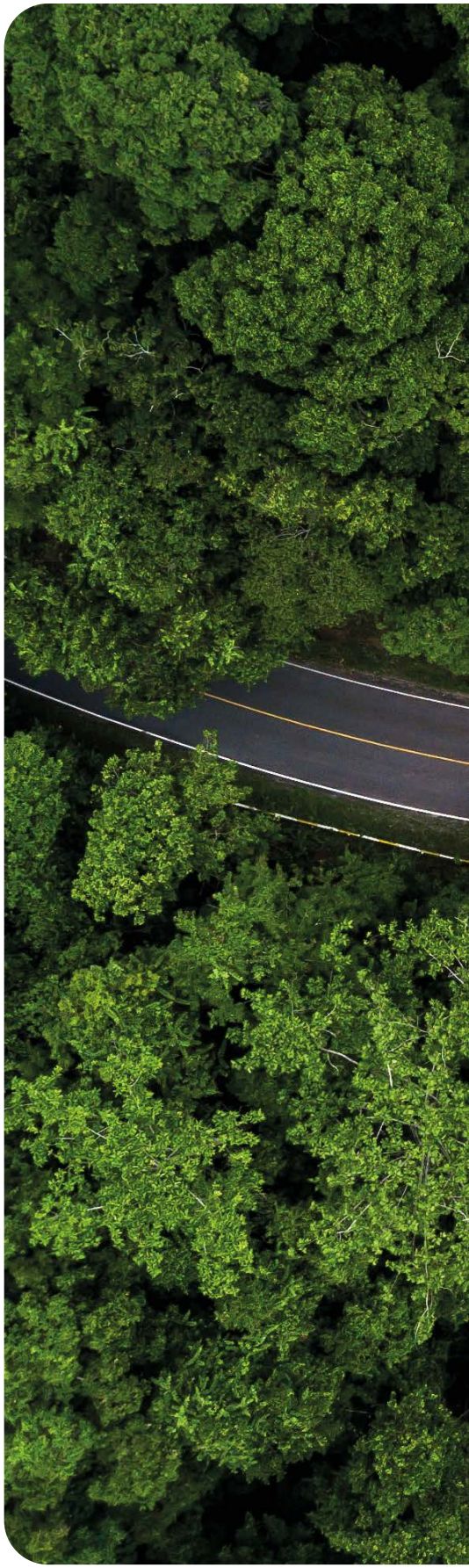
Following the publication of OSD's and Türkiye's first Turkish Automotive Industry Sustainability Report in 2021, based on the principle of continuous improvement, we are now presenting to all our stakeholders the second sustainability report in 2022, in which we disclose the environmental, social and governance performance of OSD and the automotive industry.

Our report covers our activities between January 1, 2021, and December 31, 2022 and has been prepared in accordance with the GRI Standards "Core" option. The data contained in our report has not been subjected to external audit.

The United Nations Global Compact (UNGC) and the Sustainable Development Goals (SDGs) have been taken into account in drafting the content of this report, and the views of internal and external stakeholders at national and international level have been taken into account. We hope that this report, which includes our environmental, social and governance performance in our activities since the publication of the first sustainability report of the Turkish automotive industry, will set an important example for our industry.

For your comments, suggestions and contributions regarding the report, please contact us at the e-mail address below.

osd@osd.org.tr



OSD IN FIGURES

With an impressive performance in 2021 and 2022, the Turkish automotive industry achieved outstanding operational successes.

Direct and Indirect Contribution to the Economic, Technological and Social Development of the Country (2022)

Full Competence
from Design to Production in All Vehicle Groups

Global Partnerships and Globally
Integrated Working Structure

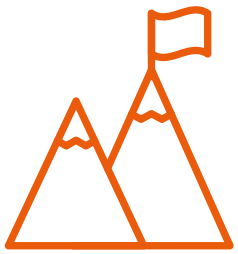
Engineering Exports
in addition to Final Product and Main Component Exports

13
Members

17
Production Facilities

Vehicle Groups Manufactured:

- Automobiles
- Light Commercial Vehicles
- Trucks
- Buses
- Midibuses
- Tractors

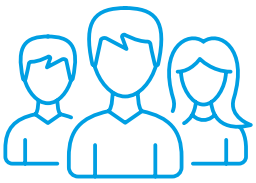


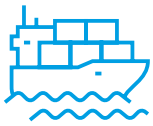
Sectoral Export Leader between 2006-2021

16 Years of Leadership

56 Thousand+
Direct Employment in the Main Industry

550 Thousand+
Employment in the Value Chain



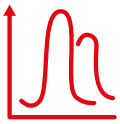


Total Automotive Exports

970 Thousand Units

13% of Total Country Exports

USD 31.5 Billion of Exports



Contribution to Tax Revenues

8%

Production Capacity

2 Million+ Units

Investments

USD 976 Million

Foreign Trade Surplus

USD 9.1 Billion

Production

1.4 Million Units

Turnover[1]

TL 229 Billion

[1]*For the year 2021*

OSD IN FIGURES

In addition to its direct and indirect contribution to the national economy, the Turkish automotive industry plays an important role in Türkiye's technological and social development.

Türkiye's Position in Global Automotive Production (2022)

In the world	13th in Automotive	16th in Automobiles	9th in Commercial Vehicles
In the EU	4th in Automotive	6th in Automobiles	1st in Commercial Vehicles

Environmental Performance in Production

99%
Waste Recovery Rate

300 thousand m^3/year
Wastewater Recovery and Reuse

Last 4 Years

Greenhouse Gas Emissions (Scope 1 + 2):
31% Reduction

Water Use:
5% Reduction

Greenhouse Gas Emissions (Scope 1 + 2):
55% Reduction

Water Use:
45% Reduction

R&D and Innovation (2022)

15
(OSD Members)
R&D Centers

USD
253 Million
R&D Exports

7
TL Billion
R&D Expenditure

5.2 Thousand+
R&D Employees

Number of Patents
236

VISION AND MISSION

Vision

To increase the share of the Turkish Automotive Industry in the Mobility World.

Mission

To formulate policies in order to increase national and international competitiveness in line with our common interests with the Turkish automotive industry that we represent, to inform and guide the relevant institutions in this direction and to take part in policy implementation.

MEMBERS

OSD has 13 members consisting of the manufacturers of the Turkish automotive industry.

TürkTraktör
ANADOLU ISUZU
TOYOTA
FORD OTOSAN
TOFAŞ
TÜRK OTOMOBİL FABRİKASI A.Ş.
HATTAT
OSD
OTOMOTİV SANAYİİ DERNEĞİ
AUTOMOTIVE MANUFACTURERS ASSOCIATION
TEMSA
HYUNDAI
OYAK RENAULT
OTOMOBİL FABRİKALARI
KARSAN
Otokar
MAN
Mercedes-Benz

ABOUT OSD

With 13 member companies, each of which is a major global player, and its expert staff, the Automotive Manufacturers Association has been successfully shaping the development of the automotive industry in Türkiye for 48 years.

OSD held its founding meeting on January 11, 1974, with the coming together of 11 automotive manufacturers. Meeting the conditions specified in the Law No. 1630 on Associations, it was established on June 14, 1974, under the name of "Industry Association of the Manufacturers of Motorized Land Transportation Vehicles of Trucks, Vans, Tractors, Buses and Automobiles". Renamed the "Automotive Manufacturers Association" on November 7, 1979, with a change in its bylaws, the Association has been successfully continuing its efforts to develop the automotive industry in Türkiye for 48 years with 13 member companies, each of which is a global player, and its expert staff. OSD, which has been a member of OICA (International Organization of Motor Vehicle Manufacturers) since January 1995, represents the Turkish automotive industry on international platforms. Since March 2006, OSD has been representing Türkiye in the "Liaison Committee" activities of ACEA (The European Automobile Manufacturers' Association), where current global and local developments are evaluated with the participation of the relevant country associations from the EU, in order to closely follow the developments in Technical Legislation and Global Trade, which are extremely important for the competitiveness of the industry. OSD is a founding member of the Automotive Technology Platform (OTEP) and ITS Türkiye.

Date of Establishment
1974

Total Number of Members
13

MESSAGE FROM THE CHAIRMAN

We closely monitor the process of change and continue our efforts to shape the transformation in our country.

Esteemed Stakeholders,

Our industry has always closely monitored global developments, caught up with global transformation in a timely manner, and thus succeeded in increasing its contribution to our country's economy.

While the climate change that the planet is facing and the economic, environmental and social impacts resulting from these changes have become more pressing as important risk factors that should be anticipated by all humanity, these issues have forced us to develop new approaches to reorganize our business processes. In today's world, where climate-focused global political developments are gaining momentum, technological transformation, rapid change in the world trade environment and the uncertainty that comes with it have set our long-term agenda. Especially with the European Green Deal, change and transformation efforts in all sectors have accelerated significantly in the last 3 years. The transformation process gained further momentum with our country's "2053 Net Zero and Green Development" target. We closely monitor this process of change and continue our efforts to shape the transformation in our country.

In addition to these developments, we simultaneously experience many changes that complicate the trade environment. Supply chain problems arising from both logistics processes and supply/demand imbalances caused by the pandemic, raw material availability issues and energy security risks triggered by the Russia-Ukraine war, unpredictable increases in production input costs as a result of these developments, and the slowdowns in demand in export markets due to rising inflation have become main agenda items.

In this process, we continued our efforts both to fulfill the requirements of the challenging transformation in both product structures and production processes in line with climate-oriented policies, and to protect and further the success of our automotive industry in a challenging trade environment.

In order to fulfill the requirements of this transformation despite the uncertainty in the world, OSD Members announced their decision to invest over EUR 2.5 billion in 2022. In 2022, an investment expenditure approaching USD 1 billion was made.

As a result of these investments, a highly pleasing development for both the automotive industry and our country, an employment increase of 9 percent was materialized in the automotive industry in 2022. In 2022, our production reached 1 million 353 thousand units with a 6 percent growth.

Automotive exports increased by 4 percent in terms of units compared to the previous year and amounted to 970 thousand units. We had a 12.2 percent share of Türkiye's total exports and closed the year with exports worth USD 31.5 billion. The positive contribution to the foreign trade balance reached USD 9.1 billion. The share of domestic vehicles in the domestic market was 45 percent.

In addition to our contribution to the national economy, as the automotive industry, we have important duties for both our products and production facilities in the transition to a low carbon economy. The automotive industry's R&D and innovation capabilities are of great importance in this transformation. Increasing R&D investments and employment every year, OSD Members made a total of USD 378 million of R&D exports in 2021 and 2022. As the automotive main industry,

Annual Production in the Automotive Industry

1.4 million units

we perform very successfully in waste management, water and energy use, and reduction of greenhouse gas emissions with our sustainable and responsible production approach.

Within the scope of our targets to reduce greenhouse gas emissions, we have reduced Scope 1 and Scope 2 emissions in production facilities by 31% per unit in light vehicles and by 55% in other vehicle groups in the last 4 years.

With all these efforts, we are strengthening our position in global competition every year while increasing the value created by our sector for the national economy, society and the environment in line with the Sustainable Development Goals. In the coming period, we will continue to work together with all our stakeholders on sustainability to formulate and implement country policies.

I would like to thank all our members and the OSD Team for contributing to the second Turkish Automotive Industry Sustainability Report, which includes our activities and business results for 2021-2022, as well as our renewed vision and industry targets for 2022. With the belief in the importance of cooperation and information sharing to achieve our goals as a country, I hope that this report will contribute to the work of all our stakeholders.

CENGİZ EROLDU
Chairman of the Board

MESSAGE FROM THE SECRETARY GENERAL

OSD Members continue their efforts to protect the environment, combat climate change, use resources efficiently, minimize waste, implement social responsibility projects that add value, support employment and ensure the participation of women in the workforce, which are among the priority targets of the automotive industry.

Employment in Value Chain

550 thousand+

Esteemed Stakeholders,

Since 1974, we have been working in cooperation with our members and all our stakeholders to carry our country's automotive industry confidently into the future and to create value for our country. We see the climate-oriented targets of developed economies, especially Europe, our most important export market, as important steps in the fight against the climate crisis, and we shape our work with the awareness of the duties and responsibilities these targets introduce to our industry.

We consider it a necessity for the continuity of the contribution to the economy that our industry closely follows the structural changes accelerated by the European Green Deal and the new rules to be introduced in foreign trade in the EU and takes the necessary measures. In parallel with the global goals and our country's "2053 Net Zero and Green Development" target, we continue our efforts by accelerating our sustainability activities with the awareness of our responsibilities.

OSD's 13 members, each of which is an important global player, are carrying out exemplary work with a focus on sustainability. Last year, we published the first "Turkish Automotive Industry Sustainability Report" in order to demonstrate the current level of competence of the industry with data, to shed light on the future policies of our country and to detail the activities carried out by OSD members in line with sustainability in a holistic manner. In 2022, this report, a rare example among the automotive sector associations around the world, was deemed worthy of an award within the scope of "Sustainable Business Reporting" given by the Sustainability Academy. In addition to making us proud, this award made us extremely happy to raise awareness and set an example for other sectors and NGOs.

OSD's 13 members, each of which is an important global player, are carrying out exemplary work with a focus on sustainability.

OSD Members continue their efforts to protect the environment, combat climate change, use resources efficiently, minimize waste, implement social responsibility projects that add value, support employment and ensure the participation of women in the workforce, which are among the priority targets of the automotive industry. Through our sustainability reports, we aim to shed light on the work of all our stakeholders by sharing the trade environment of the global automotive industry and the developments that await us in the future, while revealing the contribution and added value of OSD's 13 members to the economy through production, exports, R&D and innovation, localization efforts and employment with a focus on a cleaner society and a better future. The transformation in the export markets of our industry in recent years and our industry's adaptation process to official regulations can be clearly monitored through our Sustainability Reports.

I hope that our second report, which we have prepared based on 2021 and 2022 data, and in which we demonstrate the entire governance, economic, environmental and social performance of the automotive main industry within the framework of sustainable development principles, will contribute to the work of our valuable stakeholders.

ÖZLEM GÜÇLÜER
Secretary General

BOARD OF DIRECTORS AND ORGANIZATIONAL STRUCTURE

Board of Directors

Cengiz EROLDU
Chairman of the Board

Süer SÜLÜN
Deputy Chairman

Münür YAVUZ
Vice Chairman

Erdoğan ŞAHİN
Vice Chairman

Aykut ÖZÜNER
Vice Chairman

Yusuf Tuğrul ARIKAN
Treasurer

Güven ÖZYURT
Member

İzzet KALAYCI
Member

Barbaros YILDIRIM
Member

Okan BAŞ
Member

Serdar GÖRGÜÇ
Member

Hakan DOĞU
Member

Tolga DOĞANCIOĞLU
Member

BOARD OF DIRECTORS AND ORGANIZATIONAL STRUCTURE

"The highest governing body of the Automotive Manufacturers Association is the General Assembly. The Board of Directors prepares the regulations related to the activities of the Association and submits them to the approval of the General Assembly. The Board of Directors, consisting of 14 regular and 5 alternate members, is elected by secret ballot by the General Assembly for 1 (one) year."

The 47th OSD Ordinary General Assembly Meeting was held in Istanbul on March 30, 2022 with the participation of the public, NGOs, sector representatives and all members. At the General Assembly, the OSD Board of Directors was elected and Tofaş CEO Cengiz Eroldu took over as the new chairman. 2021 business results and activities of the automotive industry and OSD were presented, and

OSD Achievement Awards for 2021 were handed out. In the traditional OSD Meetings section of the General Assembly, the chairpersons of the stakeholder associations of the automotive sector (OSD, ODD, OYDER, TAYSAD, TOKKDER) participated in the panel titled "Reflections of the Transformation in the Automotive Sector on Türkiye: Risks and Opportunities".

OSD Management

Özlem GÜÇLÜER
Secretary General

Meral TURAN AKIRMAK
Environmental Coordinator

Mürşide Ayşin BEKTAŞ CEBECİ
EU and Global Affairs Coordinator

İrem BAÇDAR
Communications and Data Management Coordinator

Necati CAM
Administrative and Financial Affairs Coordinator

Bora PEKİÇTEN
Technical Coordinator

Havva BAYRAK
Assistant to the Secretary General

OSD Committees and Working Groups
Through the contributions of experts, OSD Committees and Working Groups contribute to the development of the industry and the strengthening of the information infrastructure by conducting studies on fundamental and current issues related to the automotive industry.

OSD has 12 Committees in total, including Intelligent Transportation Systems, R&D, Environment, Foreign Trade, Human Resources, Occupational Health and Safety, Logistics, Financial Affairs, Government Relations Managers, After-Sales Services, Technical and Localization, and 4 Working Groups, including Education, Energy Efficiency, Digital Transformation in Industry and Sustainability.

In addition to the financial information published every year with an organizational approach centered on the principles of transparency and accountability, OSD contributes to the Turkish automotive industry through various publications and reports, including monthly evaluation reports that aim to share the industry's business results with all stakeholders, the Sustainability Report, the first of which was published last year, and the Turkish Automotive Industry Lifecycle Assessment Report.

RENEWED VISION OF OSD

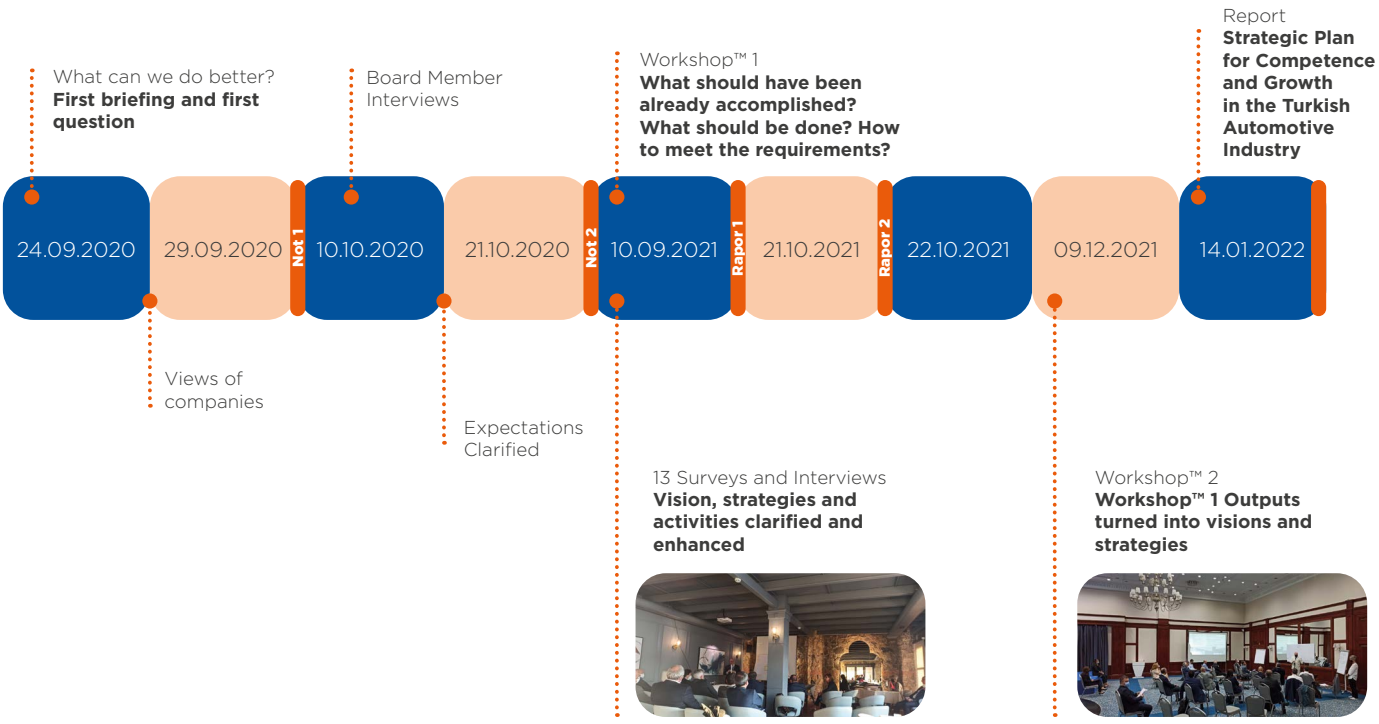
As of December 2021, OSD Board of Directors renewed its vision as “To increase the share of the Turkish Automotive Industry in the Mobility World”.

In 2020, the OSD Board of Directors initiated a Workshop process to evaluate the effectiveness of OSD activities and to reposition OSD where necessary. In this process,

OSD acted with the aim to determine the holistic goals of the automotive industry through a systematic and participatory method and to review/plan the activities required to achieve these goals.

The Workshop process, which was realized with the participation of all members, especially the OSD Board of Directors, was completed in 2022 and shared with all stakeholders at the 47th OSD Ordinary General Assembly Meeting held in March 2022.

OSD Workshop Process



Based on the evaluations made during the workshop, OSD Board of Directors renewed its vision as of December 2021 as "To increase the share of the Turkish Automotive Industry in the Mobility World". In order to concretize the vision, OSD deemed it important to set common goals, criteria and indicators, and OSD members determined the target indicators of the automotive industry for 2030.

Clarity of Vision

To Increase the Share of the Turkish Automotive Industry in the Mobility World.

Indicators	2021	2030
Capacity	2 Million	2.5 Million+
Share in Global Production	1.6%	2%+
Ranking in Global Production	13	To Rank in the Top 10
Ranking in European Production	4	To Rank in the Top 3
Export Value	USD 30 Billion	USD 45 Billion+
Share of Alternative Fuel Vehicles in Production	~16%	-60%

RENEWED VISION OF OSD

Six complementary and integrated strategies have been identified to realize the vision.

Integrated Vision

VISION

To increase the share of the Turkish Automotive Industry in the Mobility World

Strategy 1	Addressing the deficiencies in value chain investments
Strategy 2	Preparing for innovative technologies
Strategy 3	Developing an ecosystem for creativity and collaboration
Strategy 4	Harmonized growth of domestic market and exports
Strategy 5	Attracting new investments
Strategy 6	Innovative and environmentally friendly products and production

CLARITY OF VISION

UNITY OF INTENT

EXECUTIVE POWER

OSD's new vision requires a multidimensional and rapid change and technological transformation that calls for public leadership and the cooperation of all stakeholders.

It is important for the public and all stakeholders to come together with a common vision once the clarity of vision has been achieved, and for stakeholders to collaborate on six integrated strategies by formulating individual plans and activities that support and complement each other. On the other hand, for visions, intentions and plans to be achieved, it is essential to have an executive force in place. In line with its new vision, OSD aims to continue its efforts to shape its activities within the framework of the principles it has identified.

In this context, OSD has identified its material actions and aims to focus its activities on the related issues.

Material Actions

1	Preserving and enhancing the workforce
2	Maintaining the localization rate by adapting to technological developments
3	Developing incentive mechanisms to support transformation
4	Reducing export-critical logistics costs (and times)
5	Increasing export to non-EU markets
6	Creating a roadmap for climate-oriented goals
7	Establishing the connected vehicle legislation and infrastructure
8	Creating the innovation ecosystem
9	Measures to protect and enhance the domestic market, tax policy and practices

SUSTAINABILITY STRATEGY AND TARGETS

OSD's contributions to the United Nations Sustainable Development Goals are of great importance in terms of its efforts to further improve the Turkish Automotive Industry and OSD's representation of Türkiye in international activities.

The Sustainable Development Goals (SDGs) were adopted by the United Nations member states at the United Nations General Assembly in September 2015 and entered into force on January 1, 2016. The 17 universal goals, a roadmap to be completed by 2030 with the aim of eradicating poverty, protecting our planet and combating inequality and injustice, are being integrated into the management models of countries as well as the business world.

The 17 "Sustainable Development Goals" on the road to 2030 introduce responsibilities not only for countries but also for the business world. The impact and contributions of our industry with the awareness of responsibilities for our country's progress towards the SDG goals are presented in the report.

OSD's contributions to the United Nations Sustainable Development Goals are of great importance in terms of its efforts to further improve the Turkish Automotive Industry and OSD's representation of Türkiye in international activities.

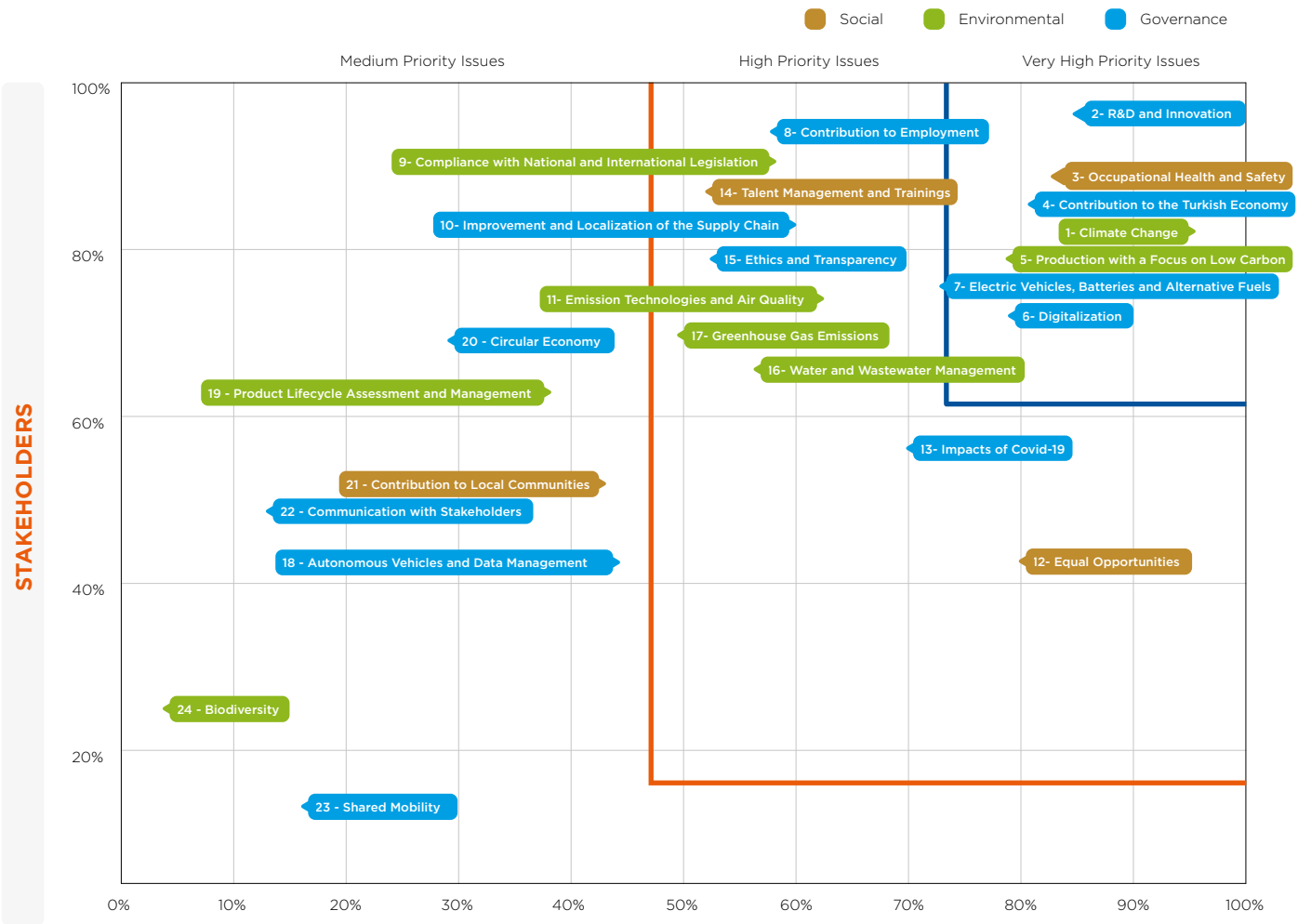
OSD's sustainability focus includes expansion of the sustainability culture, adoption of sustainability activities, development of stakeholders' sustainability efforts and sphere of influence, and implementation of corporate social responsibility projects. To this end, the Sustainability Working Group was established to carry out sustainability activities in an effective and systematic manner. The Working Group currently continues its activities. The aim of this group is to demonstrate the overall responsibility and culture of sustainability in the automotive industry.

In light of the sustainable development goals (SDGs) of the automotive industry, the following activities were undertaken to maintain and improve the industry's global competitiveness:

- Organizing awareness-raising activities to involve all committees and working groups in OSD sustainability management,
- Addressing communication between the committees/ working groups from a sustainability perspective,
- Expanding and mainstreaming the impact of sustainability culture,
- Regularly monitoring current developments in the automotive industry, and
- Carrying out the activities of the Association in accordance with the sustainability framework.

OSD'S MATERIAL SUSTAINABILITY ISSUES

In the process of identifying material issues, preliminary assessments were made with the OSD Sustainability Working Group, materiality questionnaires were sent to stakeholders in Türkiye and abroad, and a survey was conducted.



In 2021, a study was conducted to identify material sustainability issues for the first Sustainability Report of the Turkish Automotive Main Industry. In this study, the expectations of internal and external stakeholders, as well as sectoral issues were taken into account in identifying material sustainability issues. Preliminary assessments were made with the OSD Sustainability Working Group, materiality questionnaires were sent to stakeholders in Türkiye and abroad, and a survey was conducted. A detailed table and graph of the Association's material issues are given below.

Very High Priority Issues

Group	Number	Definition	OSD	Stakeholders
Environmental	1	Climate Change	4.92	4.72
Governance	2	R&D and Innovation	4.75	4.88
Social	3	Occupational Health and Safety	4.67	4.78
Governance	4	Contribution to the Turkish Economy	4.67	4.76
Environmental	5	Production with a Focus on Low Carbon	4.58	4.68
Governance	6	Digitalization	4.58	4.64
Governance	7	Electric Vehicles, Batteries and Alternative Fuels	4.50	4.67

High Priority Issues

Group	Number	Definition	OSD	Stakeholders
Governance	8	Contribution to Employment	4.25	4.85
Environmental	9	Compliance with National and International Legislation	4.21	4.78
Governance	10	Improvement and Localization of the Supply Chain	4.21	4.74
Environmental	11	Emission Technologies and Air Quality	4.25	4.65
Social	12	Equal Opportunities	4.58	4.31
Governance	13	Impacts of Covid-19	4.42	4.46
Social	14	Talent Management and Trainings	4.08	4.78
Governance	15	Ethics and Transparency	4.08	4.73
Environmental	16	Water and Wastewater Management	4.17	4.55
Environmental	17	Greenhouse Gas Emissions	4.00	4.60

Medium Priority Issues

Group	Number	Definition	OSD	Stakeholders
Governance	18	Autonomous Vehicles and Data Management	3.97	4.31
Environmental	19	Product Lifecycle Assessment and Management	3.75	4.53
Governance	20	Circular Economy	3.58	4.59
Social	21	Contribution to Local Communities	3.75	4.39
Governance	22	Communication with Stakeholders	3.25	4.40
Governance	23	Shared Mobility	3.33	4.00
Environmental	24	Biodiversity	3.08	4.13

BUSINESS ETHICS AND COMPLIANCE

As a well-established association, OSD acts in compliance with national and international legislation in all processes. The Association regularly monitors compliance with legal regulations and acts in accordance with the requirements.

OSD conducts all its business processes within the framework of human rights principles and operates in the light of ethical rules. As a well-established association, OSD acts in compliance with national and international legislation in all processes. The Association regularly monitors compliance with legal regulations and acts in accordance with the requirements. Compliance with legal regulations is reported to the General Assembly and the Board of Directors. In all these processes, OSD takes into account social norms and ethical principles as well as legal norms, and continues its activities based on accountability and transparency criteria.

ANTI-BRIBERY AND ANTI-CORRUPTION

There were no cases of bribery, corruption, ethical violations or breaches of transparency at OSD during the reporting period.

OSD attaches importance to human rights, freedom of association and anti-corruption policies and follows codes of conduct in line with social values. There were no cases of bribery, corruption, ethical violations or breaches of transparency at OSD during the reporting period.

RISK MANAGEMENT AND INTERNAL AUDIT

OSD controls the identification and analysis of current and future risks in operational, strategic, financial and legal compliance issues related to all its activities and takes measures against these risks.

OSD's financial and operational risk management processes are managed by the Audit Board. With its risk-based approach, the Board focuses on risk management and control processes. The Audit Board oversees the Association and its members in terms of transparency, accountability, ethical business conduct and compliance with the competitive environment. In all processes, decisions are made and actions are taken in compliance with national and international laws and regulations. The Audit Committee audits compliance with legal regulations and reports the results. OSD shares its financial processes and the conditions of these processes completely and accurately with its members and the public as required by its ethical business conduct.

OSD controls the identification and analysis of current and future risks in operational, strategic, financial and legal compliance issues related to all its activities and takes measures against these risks. The purpose of these control efforts is to determine the approach to the identification, assessment, prioritization, monitoring and reporting of risks, and to identify and implement the measures to be taken against them, as well as the management approach to be adopted.

OSD's risk management approach is driven by the following goals:

- Directly or indirectly aligning the Association's stance with risk management
- Supporting the reputation management strategies necessary to ensure the integrity of the Association
- Establishing strong structures against all risks to ensure sustainability
- Identifying alternative working methods to ensure continuity of operations
- By developing a proactive risk management model, identifying areas of impact that create opportunities even in the worst case

OSD anticipates the risks faced by the Turkish automotive industry, prepares research reports containing preventive measures on various issues, and submits them to the relevant public authorities.

CONTRIBUTION OF THE AUTOMOTIVE INDUSTRY TO THE TURKISH ECONOMY

The Turkish automotive industry is an important global player that develops and produces its own engines and exports engineering to the world, as well as products that are completely locally developed from design to production.

The automotive main industry provides over 550,000 jobs in the total value chain, with direct employment exceeding 56,000.

The automotive industry is considered one of the most important branches of industry for every country due to its contribution to industrialization and economic development. Production activities in the automotive industry in Türkiye started in the 1950s, and the automotive industry has developed over time with both foreign partnerships and 100% local capital investments, reaching its current position as a global player. The automotive industry receives input from a wide range of sectors such as iron and steel, plastics, petro-chemicals, plastics, glass, electronics and textiles, and acts as supplier to many sectors such as transport, tourism, infrastructure, defense, construction and agriculture. Therefore, it is the leading industry in the Turkish economy, as it is the case in other countries. The economic contribution of the sector becomes evident when the size of its sphere of influence is analyzed. In addition to over 56 thousand direct employees, it provides over 550 thousand jobs in the total value chain with a multiplier effect when the raw materials used in production, supply industry products and marketing activities, which are points of contact with the consumer, and its impact on different sectors such as service, dealers, fuel, insurance and finance are taken into account. In addition to its direct and indirect contribution to the national economy, it plays an important role in Türkiye's technological and social development. It makes many important indirect contributions such as attracting new investments, positive impact on the country's image, and strong know-how in the realization of the national automobile project.

The Turkish automotive industry is an important global player that develops and produces its own engines and exports engineering to the world, as well as products that are completely locally developed from design to production. The automotive industry stands out on the global platform with its efficient and high-tech facilities, qualified workforce and strong supply industry.


STRAITS CHALLENGER
PORT KELANG
C.H 5.1M
C.H. 3.4M
C.H. 2.9M
AXLE LOAD

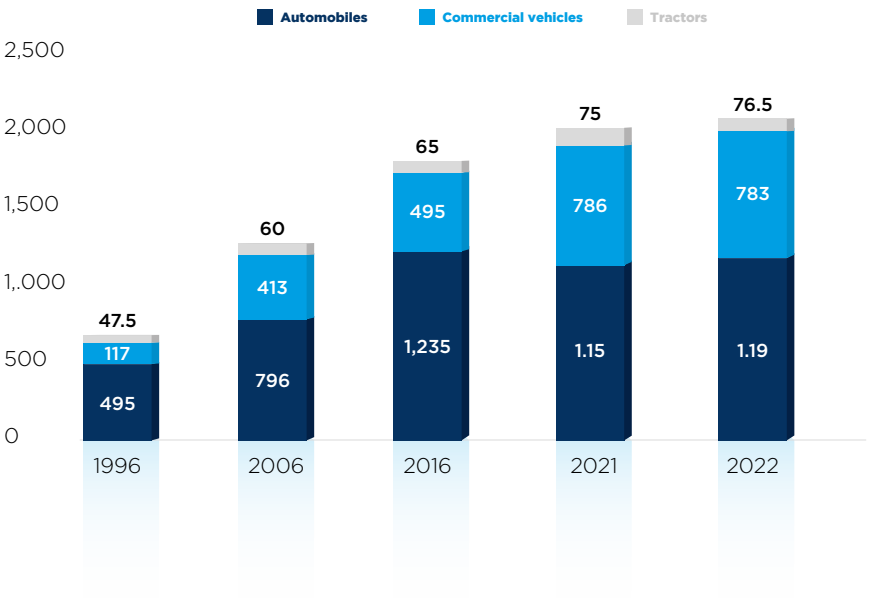
PRODUCTION IN THE AUTOMOTIVE INDUSTRY

The Turkish automotive industry has an annual production capacity of over 2 million units and in line with developing technology and changing customer expectations, continues to invest in transforming and increasing its capacity during the transformation process that the sector is experiencing.

Annual Production Capacity
2 million units+

The Turkish automotive industry has an annual production capacity of over 2 million units and in line with developing technology and changing customer expectations, continues to invest in transforming and increasing its capacity during the transformation process that the sector is experiencing.

Production Capacity of the Turkish Automotive Industry (x1,000 units)



The most important supply chain challenge of 2021-22 was the global microchip shortage. The restrictions on social life, coupled with a significant increase in consumer electronics demand and higher-than-expected demand in the automotive industry, led to an increase in global microchip demand, causing shortages in the supply process. In addition, fires in the facilities of major chip manufacturers, natural disasters and climatic effects in the places where chip manufacturers are located, and the suspension of production due to the pandemic aggravated the crisis. Losses in global vehicle production reached 10.3 million units in 2021 due to microchip supply-related shutdowns and slowdowns announced by automotive factories globally. The loss is estimated to exceed 4 million units in 2022. The impact of microchip supply shortages is projected to continue throughout 2023.

In addition to the microchip shortage, the energy security issued triggered by the Russia-Ukraine war, shortages in raw materials and increases if raw material prices have become important agenda items. Moreover, container availability, freight and container price increases, and driver availability are persisting problems. It has also been observed that tightened quarantine measures due to the occasional increase in Covid-19 cases and new variants, coupled with extraordinary weather conditions, led to capacity decrease, therefore delays in shipment in some ports. Both the shift in demand to air transport due to the bottleneck in ports and the increased measures taken at airports because of the increase in the number of cases caused disruptions in air transport as well. As a result, unit kilogram costs in maritime and air transport have also increased. In addition to all these developments, there have been bottlenecks in driver availability in logistics processes for the last 2 years.

Although the global automotive industry went through an extraordinary period in many respects, the Turkish automotive industry closed the year 2022 with growth.

PRODUCTION IN THE AUTOMOTIVE INDUSTRY

After contracting by 2% in 2021, automotive production grew by 6% in 2022 to 1 million 353 thousand.

After contracting by 2% in 2021, automotive production grew by 6% in 2022 to 1 million 353 thousand. With a production of 1.3 million units in 2021, the Turkish automotive industry ranked 13th in the world and 4th among European Union countries in the production of motor vehicles. It ranks 1st in the European Union countries in the production of commercial vehicles.

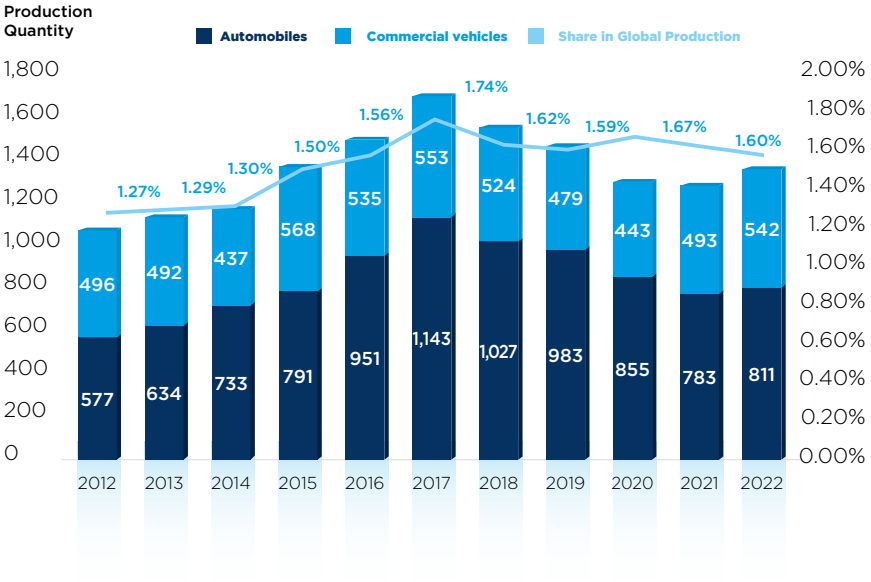
Türkiye's Position in the Global Automotive Production[3]

	Automotive	Commercial Vehicles	Total
In the EU	6th	1st	4th
In the world	14th	9th	13th

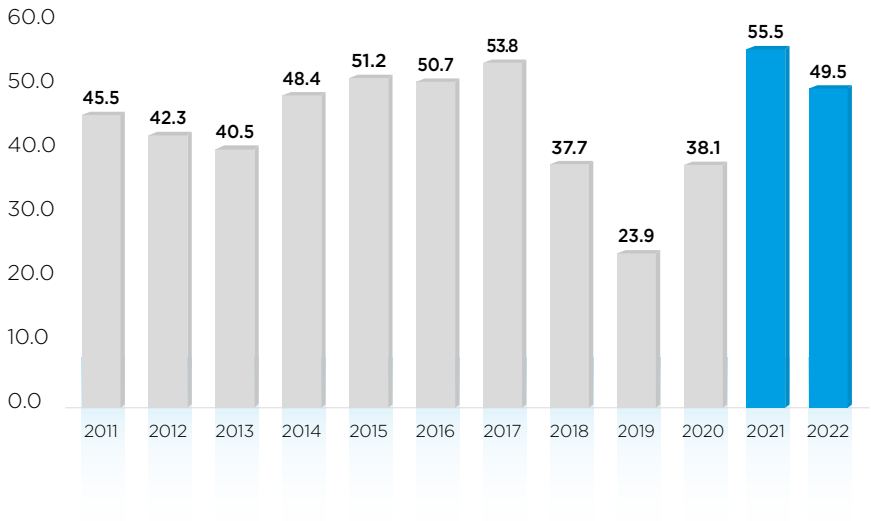
[3]*Based on 2022 results.*

The tractor group was significantly affected by supply and logistics issues in 2022. Closing 2021 with a 30% increase compared to the previous year, tractor production decreased by 11% in 2022 to 49 thousand 541 units.

Production in the Turkish Automotive Industry



Tractor Production



AUTOMOTIVE INDUSTRY EXPORTS

The automotive industry is one of Türkiye's largest exporting industries. It was the export champion for 16 consecutive years between 2016-2021 and ranked second in the sectoral export ranking in 2022 by accounting for 13 percent of Türkiye's exports.

Number of Automotive Exports in 2021

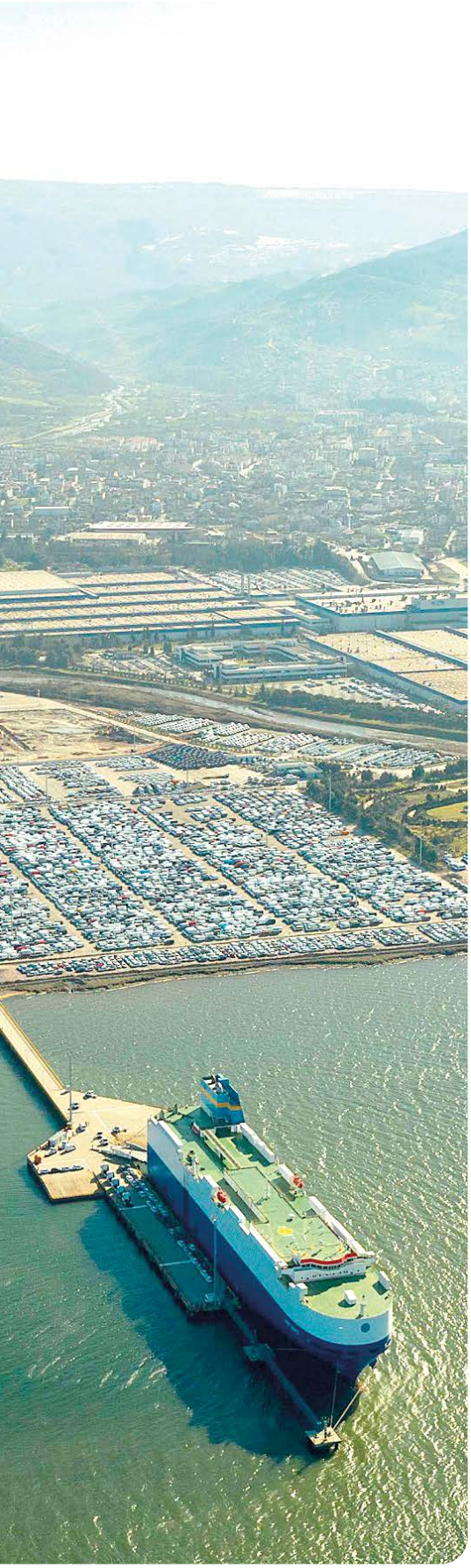
937 thousand

Number of Automotive Exports in 2022

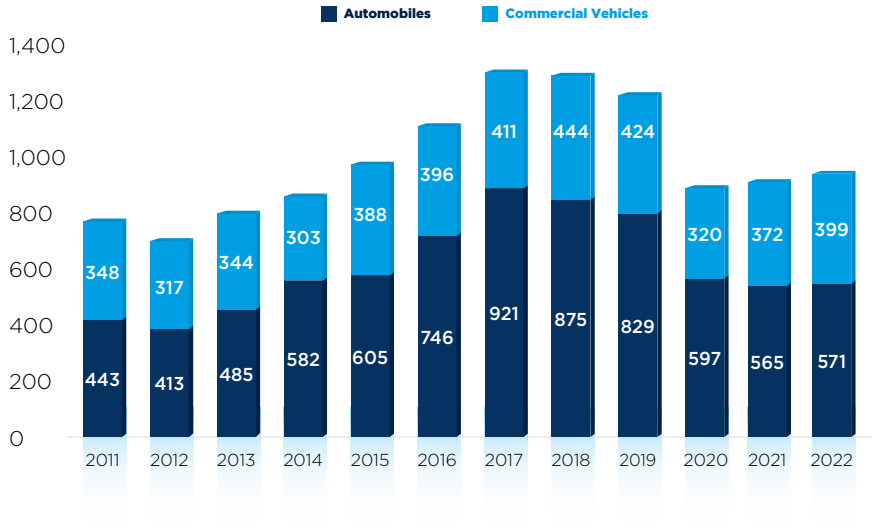
970 thousand

The automotive industry is one of Türkiye's largest exporting industries. It was the export champion for 16 consecutive years between 2016-2021 and ranked second in the sectoral export ranking in 2022 by accounting for 13 percent of Türkiye's exports.

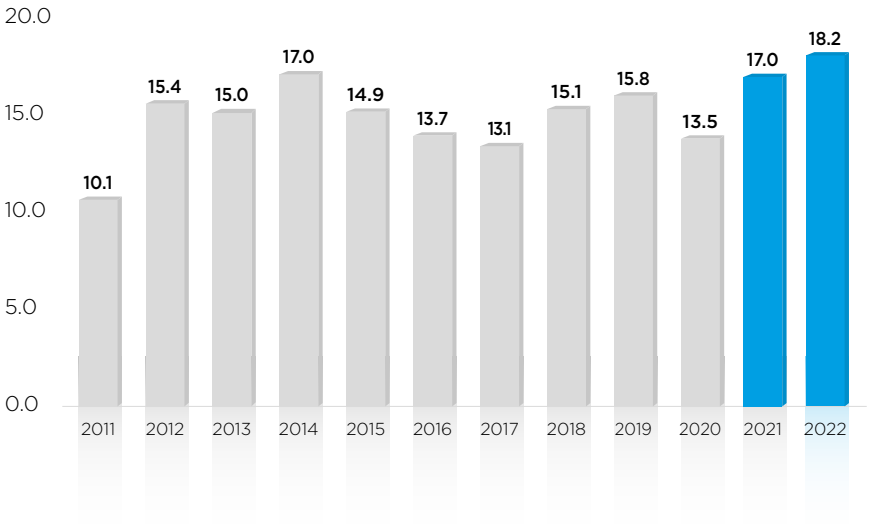
Türkiye is the EU's most important trading partner in both the automobile and commercial vehicle segments. In 2022, the EU automobile market contracted by 5% and the commercial vehicle market by 15% as a result of inflation in the EU and the reducing effect of the war on demand. Despite this contraction in its most important export market, the Turkish automotive industry increased its exports by 4% on a unit basis in 2022, reaching 970 thousand units. In 2022, tractor exports increased by 7% to 18,154 units.



Turkish Automotive Industry Exports (x1000) units



Tractor Exports (x1,000 Units)



AUTOMOTIVE INDUSTRY EXPORTS

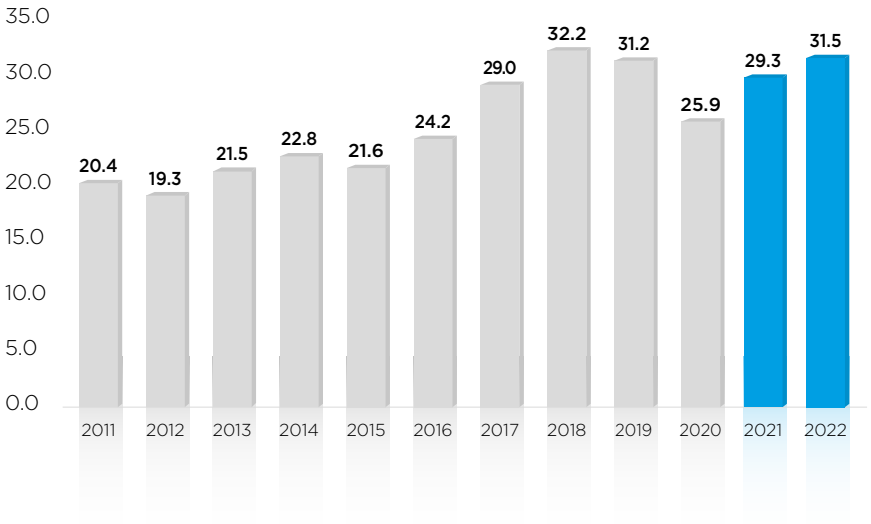
In 2022, the automotive industry increased its exports by 6% in value terms and achieved vehicle exports of USD 31.5 billion.

Exports per kg in the Automotive Industry in 2022

USD 10.24

According to Uludağ Automotive Industry Exporters' Association (OİB) data, the EUR/USD parity caused a loss of approximately USD 3 billion in 2022. Still, in 2022, the automotive industry increased its exports by 6% in value terms and achieved vehicle exports of USD 31.5 billion. According to foreign trade data for the last 10 years, the automotive industry has posted a foreign trade surplus every year except for 2013 and 2015. The automotive industry's foreign trade surplus for the last 10 years has amounted to USD 6 billion. In 2022, despite the extraordinary developments in the supply chain, a positive contribution to the foreign trade balance was maintained with a foreign trade surplus of USD 9.1 billion. With the production of vehicles with higher added value, the automotive industry's exports per kg in 2022 materialized at USD 10.24.

Turkish Automotive Industry Exports (USD Million)



Export Figures by Sector – USD 1,000

Sectors	2021	2022	Change ('22/'21)	Share (22) (%)
Chemicals and Chemical Products	25,423,259	33,524,626	31.9	13.2
Automotive Industry	**29,334,555**	**30,995,808**	**5.7**	**12.2**
Ready-to-Wear and Apparel	20,240,570	21,205,484	4.8	8.3
Steel	22,246,796	21,062,568	-5.3	8.3
Electricity and Electronics	14,160,869	15,193,324	7.3	6.0
Ferrous and Non-Ferrous Metals	12,357,927	14,385,433	16.4	5.7
Grains, Legumes, Oilseeds and Products	9,146,823	11,473,748	25.4	4.5
Machinery and Components	9,411,505	10,371,714	10.2	4.1
Textiles and Textile Raw Materials	10,141,869	10,358,778	2.1	4.1
Furniture, Paper and Forestry Products	6,989,164	8,440,766	20.8	3.3
Total Exports	**225,214,458**	**254,209,535**	**12.9**	**100.0**

** Uludağ Automotive Industry Exporters' Association (OİB)*

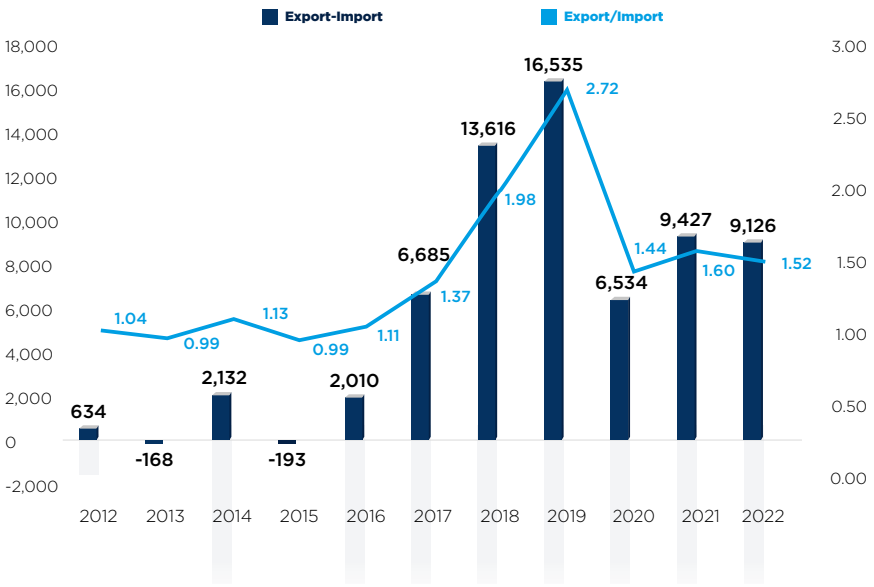
AUTOMOTIVE INDUSTRY EXPORTS

According to foreign trade data for the last 10 years, the automotive industry has posted a foreign trade surplus every year except for 2013 and 2015.

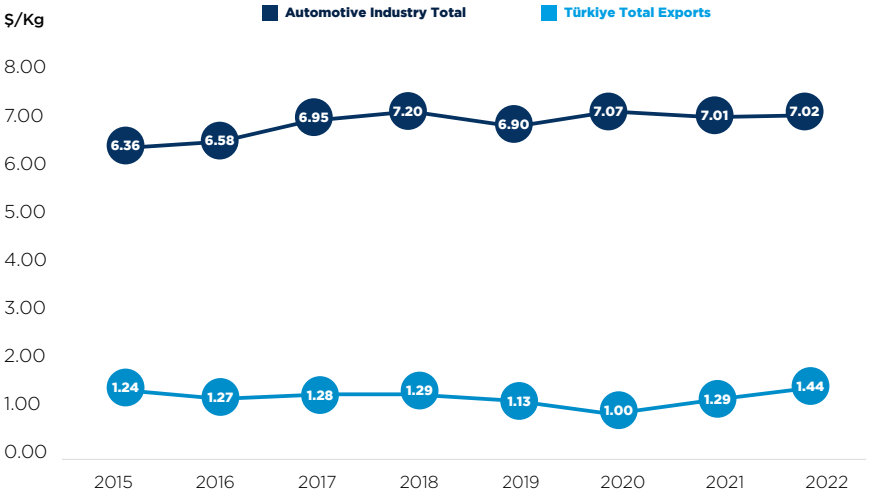
Foreign Trade Surplus in the Automotive Industry in 2022

USD 9.1 billion

Foreign Trade



Export Development per kg



Türkiye is the EU's most important trading partner in both the automobile and commercial vehicle segments. Türkiye accounts for 18% of the EU's vehicle imports in terms of units and 16% in terms of value.

(Million €)	2016	2017	2018	2019	2020	2021	% change 21/20	% share 2021
Türkiye	10,489	12,237	12,694	13,022	9,775	9,489	-2.9	15.7
United Kingdom	16,780	16,097	15,128	14,111	9,997	9,126	-8.7	15.1
United States	7,246	6,529	5,550	9,510	10,571	8,191	-22.5	13.5
South Korea	3,452	5,200	5,804	6,576	5,519	7,111	+28.8	11.8
Japan	7,857	8,348	8,808	10,737	8,136	7,098	-12.8	11.7
China	229	405	479	864	2,020	6,195	+206.6	10.2
Mexico	2,153	4,622	5,214	5,006	4,141	4,617	+11.5	7.6
Morocco	1,623	1,974	2,357	2,542	2,362	3,270	+38.4	5.4
South Africa	3,332	3,586	4,422	5,669	3,486	3,212	-7.9	5.3
Thailand	858	863	711	782	443	634	+43.0	1.0
World	**57,320**	**63,226**	**63,833**	**71,260**	**58,022**	**60,514**	**+4.3**	**100.0**

**Source: https://www.acea.auto/files/ACEA_Pocket_Guide_2022-2023.pdf#page=48*

(Units)	2016	2017	2018	2019	2020	2021	% change 21/20	% share 2021
Türkiye	860,478	974,269	971,148	929,834	654,486	628,529	-4.0	17.6
China	73,661	113,658	157,428	154,400	196,476	498,830	+153.9	14.0
United Kingdom	1,225,657	952,151	918,899	955,323	876,226	481,134	-45.1	13.5
Japan	491,779	553,948	583,057	676,032	486,100	409,542	-15.7	11.5
South Korea	295,551	412,882	436,693	443,441	318,931	377,669	+18.4	10.6
United States	258,883	248,460	265,827	355,766	394,643	314,112	-20.4	8.8
Morocco	201,189	246,664	293,959	306,518	258,402	311,850	+20.7	8.7
Mexico	134,875	230,755	265,680	222,463	173,754	180,827	+4.1	5.1
South Africa	174,743	172,252	210,842	267,755	173,578	147,830	-14.8	4.1
Switzerland	67,714	71,508	73,085	65,099	54,168	60,391	+11.5	1.7
World	**4,123,915**	**4,318,539**	**4,468,412**	**4,619,698**	**3,717,702**	**3,564,742**	**-4.1**	**100.0**

** Source: https://www.acea.auto/files/ACEA_Pocket_Guide_2022-2023.pdf#page=48*

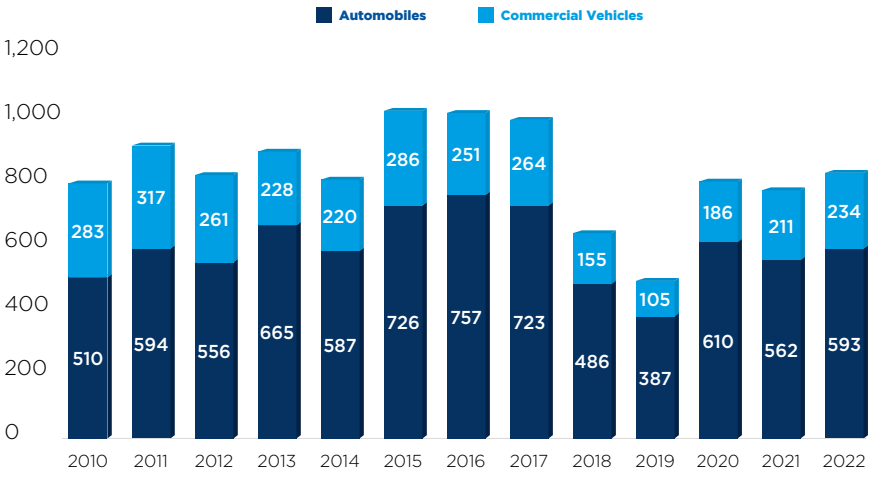
DEVELOPMENT OF THE TURKISH AUTOMOTIVE MARKET

Due to many simultaneously experienced problems in the supply chain, the Turkish automotive market contracted by 3% in 2021 and grew by 7% to 827 thousand units in 2022.

The potential of the domestic market has been suppressed and predictability has become difficult due to both the ruptures in the supply chain and significant increases in costs, as well as price increases due to the multiplier effect of high tax rates.

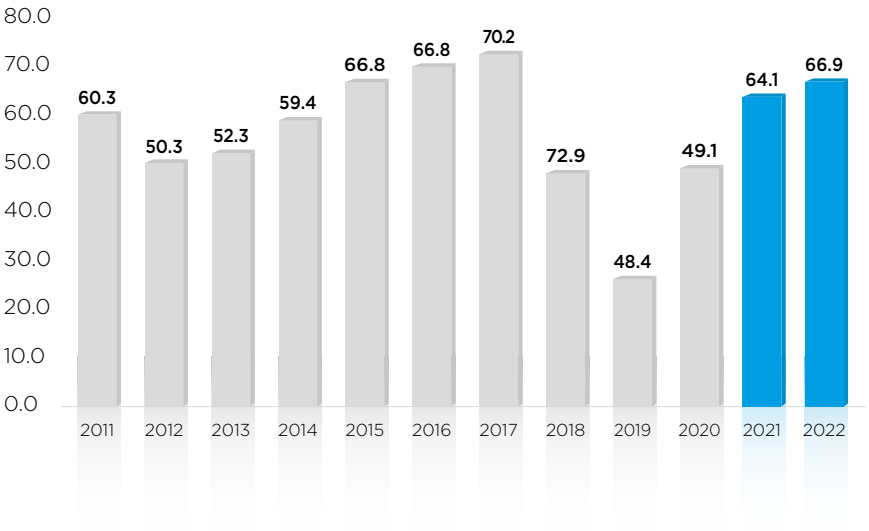
The domestic market, which experienced a serious contraction due to the pandemic, recovered rapidly in 2020 as a result of changing consumer transport habits, postponed demand and the successful management of the pandemic process in our country. Due to many simultaneously experienced problems in the supply chain, the market contracted by 3% in 2021 and grew by 7% to 827 thousand units in 2022. The potential of the domestic market has been suppressed and predictability has become difficult due to both the ruptures in the supply chain and significant increases in costs, as well as price increases due to the multiplier effect of high tax rates.

Turkish Automotive Market (*1,000 Units)



Despite recession concerns in both global economies and in our country, the domestic market grew by 5%, reaching a level of 67,000 units in 2022, due to increased demand in the positively differentiated agriculture sector and the positive impact of credit availability.

Turkish Tractor Market (x1000 Units)



As a result of many factors mentioned above, challenges in the supply of new vehicles made it difficult for car owners to replace their old vehicles, and consumers who have recently entered the automotive market to buy second-hand vehicles. Approximately half of the 21.5 million vehicles in Türkiye's vehicle fleet were produced before 2000. The average age of automobiles is 13.6, light commercial vehicles 13.1, heavy commercial vehicles 17 and tractors 24.3 years. The aging of the vehicle fleet and difficult access to new vehicles also hinder the reduction of exhaust emissions. The lower fuel efficiency of older vehicles means higher carbon emissions per distance traveled.

Number of Vehicle Owners per 1,000 People (2021)

Türkiye	222
Argentina	373
Russia	397
Brazil	366
Mexico	276

The number of vehicle owners per 1,000 people in our country was 222 by the end of 2021. Compared to similar economies such as Argentina, Russia and Brazil, this number is quite low. This gap points to the growth potential of the domestic market.

INVESTMENTS IN THE AUTOMOTIVE INDUSTRY

OSD members continue to invest in electrification transformation and industrial development at full speed. Despite all challenges and uncertainties, the Turkish automotive industry made an investment of USD 976 million in 2022.

The new alternative fuel products developed by the Turkish automotive industry are met with great interest on international platforms. The industry continues to share its battery investments with the public.

Today, it is clear that electrification in the field of transport is accelerating in the world with the effect of global environmentalist policies. The European Green Deal, announced as the new growth strategy for the EU, the most important export market of the automotive industry, to become a carbon neutral continent by 2050, marks an important transformation in many areas, including transport. An analysis of the distribution of EU's emissions by sector reveals that transport accounts for a quarter of the EU's greenhouse gas emissions, and road transport accounts for 95 percent of greenhouse gas emissions in transport. From this perspective, the importance of the steps to be taken in the field of transport to achieve carbon neutrality becomes clear.

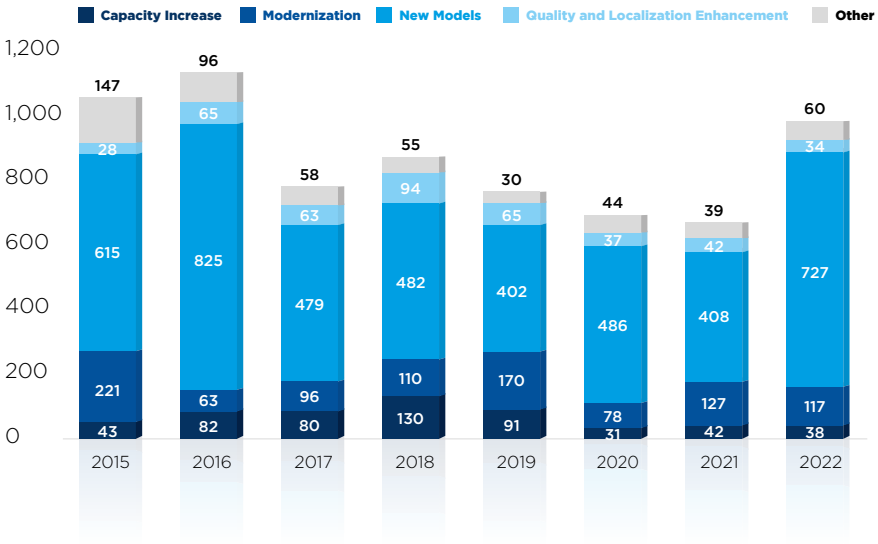
Türkiye exports roughly 75% of its total automotive production and makes roughly 80% of its exports to the European

market. Therefore, in order to maintain the competitiveness of the industry and sustain its contribution to the economy, it is imperative to produce in a way that responds to developments in the EU. The automotive industry closely follows these developments and continues its efforts to manage them. Some OSD members have started to produce and export electric vehicles. The new alternative fuel products developed by the Turkish automotive industry are met with great interest on international platforms. The industry continues to share its battery investments with the public.

OSD members continue to invest in electrification transformation and industrial development at full speed. Despite all challenges and uncertainties, the Turkish automotive industry made an investment of USD 976 million in 2022.

- Ford Otosan continues to accelerate its efforts for electric vehicle production. It plans to launch its new generation PHEV and BEV models in 2023, while establishing Türkiye's first electric vehicle integrated facilities including batteries at its Kocaeli Plant with a total investment of EUR 2 million.
- Toyota Otomotiv Sanayi Türkiye has decided to invest approximately TL 7 billion in hybrid and rechargeable hybrid cars and battery production facilities.
- Production of the new Mitsubishi Colt automobile will start at Oyak Renault Bursa production facilities.
- Karsan has signed a 5-year agreement with Oyak Renault for the production of the current Megane Sedan, effective from the end of 2022, and will produce 55 thousand cars annually.
- Otokar is the first hybrid, electric and smart bus company in Türkiye and is prioritizing the electric transformation of cities with the export of its electric bus models to Europe.
- Anadolu Isuzu made the world premiere of its new electric commercial vehicle Big-e at Hannover IAA Transportation.
- By entering the European market, Temsa and Karsan continue their electric bus and mobility investments and represent Türkiye in the European market.
- Türk Traktör and Hattat lead modern agricultural practices. To this end, they are making significant R&D investments and working to increase productivity in agriculture and to localize tractor production.
- With its Aksaray R&D center, Mercedes-Benz Türk carries out infrastructure studies for the future of sustainable and carbon-neutral transport and continues to invest in electric vehicle charging stations and alternative fuel vehicles, including hydrogen.

Investments by the Automotive Industry (USD Million)



R&D AND INNOVATION, DIGITAL TRANSFORMATION

The automotive industry is among the sectors that spend the most on R&D in the world today. In order to maintain the global competitiveness of our industry, we both increase R&D investments and support qualified labor force in this field.

Total R&D Employees
5,275

R&D and Innovation
The automotive industry has been experiencing a considerable transformation process in the last 10 years due to emergent technologies and changing customer expectations. In addition to this transformation, there are many challenging targets for both product structures and production processes due to climate-oriented policies that have gained momentum recently.

Connected, autonomous, shared and electric vehicles, referred to as CASE, which are decisive in the transformation of the global automotive industry, are among the R&D and innovation priorities of the automotive industry. In addition, in recent years, in order to achieve the targets set by climate-oriented policies and to maintain the global competitiveness of the automotive industry, R&D studies have been carried out on alternative fuels, battery technologies, driver support and safety systems and interface development for these systems, weight reduction and material technologies, use of recycled materials within the framework of circular economy principles, and digitalization.

The automotive industry is among the sectors that spend the most on R&D in the world today. In order to maintain the global competitiveness of our industry, we both increase R&D investments and support qualified labor force in this field. The total R&D budget of 15 R&D centers of 13 OSD member companies reached TL 7 billion in 2022. Expanding their R&D activities and increasing their investments every year, OSD member companies have achieved a 6-fold increase in their R&D employment in the last 15 years.

R&D Employment in 2022

R&D EMPLOYEES	FEMALE	MALE	TOTAL
Blue-collar	6	704	710
White-collar	911	3,654	4,565
- Expert & Engineer	801	2,986	3,787
- Manager	110	668	778
TOTAL	**917**	**4,358**	**5,275**

While great importance is attached to the development of R&D personnel, employees' postgraduate and doctoral studies in the academic field are also supported. Aware of the importance of university-industry cooperation for technological transformation and innovation, OSD member companies engage in an average of nearly 50 university-industry collaborations every year.

R&D centers, which can now make R&D exports by using sustainable and new technologies in the automotive industry, have made R&D Engineering exports of USD 1.1 billion from 2015 to the end of 2022.

The R&D Committee continues to hold regular meetings in order to follow the current developments in R&D legislation, which plays an extremely important role for our country and our industry to maintain its competitiveness on a global basis, and to conduct studies that can carry our industry to advanced levels with a proactive approach.

191
R&D and Design Centers (Main and Supply Industry) (2022)

15
R&D Centers (OSD Members)

125
USD Million
R&D Exports (2021)

→

253
USD Million
R&D Exports (2022)

3.4
TL Billion
R&D Expenditure (2021)

→

7.0
TL Billion
R&D Expenditure (2022)

4.6
Thousand
R&D Employees (2021)

→

5.2
Thousand
R&D Employees (2022)

315
Patents (2021)

→

236
Patents (2022)

R&D AND INNOVATION, DIGITAL TRANSFORMATION

The implementation of digital solutions in line with developing technologies is becoming more and more important for the Turkish automotive industry to maintain its competitiveness.

Digital Transformation

The traditional automotive industry business model is based on the mechanical development and production of internal combustion engines and fundamental improvements in the supply chain. With the digital transformation, the automotive industry's strategies are diversifying as mobility services, connectivity-oriented services and similar services are in demand. This diversification is also important in terms of its potential to generate recurring revenue sources compared to one-off vehicle sales and will impact the revenue streams of automotive companies in the near future. Changes in demand that drive digitalization, such as the decline in the desire of the younger generation to own personal vehicles and the increase in sustainable modes of transport, are important for defining the change in the business models of the automotive industry.

In production and supply processes, digital transformation of the entire value chain is recognized as the first step and the most fundamental pillar of Industry 4.0. Digital applications, data analytics, cloud-based platforms and more efficient, collaborative solutions that facilitate tracking and verification processes are considered necessary to improve the value chain.

The implementation of digital solutions in line with developing technologies is becoming more and more important for the Turkish automotive industry to maintain its competitiveness. Areas of Digital Transformation, including Artificial Intelligence, Big Data and Analytics, Intelligent Systems, Intelligent Robots, Sensors, Internet of Things, Virtual/Augmented Reality, Additive Manufacturing, Simulation, Horizontal Vertical Integration, Cyber Security, Cloud Technology, etc. are among the important agenda items of the automotive industry. In this context, the Technology Transformation Working Group of the OTEP Automotive Technology Platform, of which OSD is a founding member, was established in 2017, and the name of this working group was changed as the "OTEP Automotive Industry Digital Transformation Working Group" in 2019.

As of 2022, a total of 108 members from 53 industrial organizations, academia and public institutions participate in the network by attending the Working Group meetings. In the meetings held in 2021 and 2022, information was shared on the changes, system installations and updates made towards digital transformation, especially within the industry companies, and examples of integration with supply companies as part of this transformation were presented. This platform serves to maintain the automotive industry's relations with digital transformation solution providers, universities and technopolis organizations.

OTEP Automotive Industry Digital Transformation Working Group serves to maintain the automotive industry's relations with digital transformation solution providers, universities and technopolis organizations.

SUPPLY CHAIN MANAGEMENT

2021 and 2022 were marked by supply chain volatility.

OSD conducts a Supplier Satisfaction Survey every two years to strengthen the relationship between the automotive main industry and the supply industry, analyze the current situation and take the necessary steps for a stable supply chain.

2021 and 2022 were marked by supply chain volatility.

The first half of 2021 was marked by fluctuations affecting the automotive supply chain, such as the disruptions in semiconductor production due to drought in China, the world's largest source of silicon, and the suspension of production in chip production facilities in Japan due to earthquake and fire. The semiconductor supply problems were compounded by the fact that Taiwan Semiconductor Manufacturing Company, the world's largest producer of these components, experienced disruptions in production due to the drought in Taiwan. The water-intensive nature of semiconductor production suggests that disruptions in production may not be a one-off problem, but one that could recur in the future as climate change worsens. The sustainability of the supply chain in the coming years and the introduction of monitoring and reporting technologies along the supply chain is seen as an important competitive opportunity.

In the second quarter of 2021, the global container and maritime transport crisis gained prominence. Problems in the supply of containers led to disruptions in the supply of products and raw materials. These problems, in turn, led to an increase in container and ship transport costs, hence raw material and component costs.

In the first quarter of 2022, chip supply issues and the container crisis continued to be an important agenda item for automotive manufacturers. In the first half of the year, the chip and container crises were compounded by problems in the supply of various raw materials and parts used in automotive production due to Russia's invasion of Ukraine, and significant increases in the prices of these raw materials due to the impact of the war and global inflation. Although the problems in chip supply improved in the second half of the year, raw material costs continued to affect the profitability of the automotive main and supply industries. Despite signs of weakening in raw material prices, price volatility persisted, making it difficult for producers and suppliers to make plans.

All these developments, coupled with the fact that the automotive industry has advanced competencies in advanced supply chain risk modeling, early detection capability and substitution management, led to the acquisition of new perspectives in supply chain strategies due to the increasing supply chain vulnerability in recent years. Strategy and competency development efforts continue in areas such as the acceleration of nearshoring-onshoring approaches, supplier diversity, connected supply chain, flexibility approach in addition to cost, and identification of alternative supply and sales channels.

OSD conducts a Supplier Satisfaction Survey every two years to strengthen the relationship between the automotive main industry and the supply industry, analyze the current situation and take the necessary steps for a stable supply chain. The Supplier Satisfaction Survey, the fifth of which was conducted in 2022, measures the satisfaction and relationship strength of suppliers serving the heavy and light vehicle industry with the main industry companies, and identifies actions that can be taken to improve these areas. Considering that an average automobile consists of approximately 30,000 separate parts supplied from various manufacturers, strengthening the relationship between the automotive main industry and the supply industry and developing joint capacity is of great importance for our sector to maintain its competitiveness in the global arena.

LOCALIZATION

The Turkish automotive supply industry has significant technological and competitive know-how that corresponds to an important place in today's vehicle cost structure and is capable of producing main industry products with up to 80% domestic contribution share.

Localization rates of up to 70% in passenger cars and 80% in commercial vehicles

Passenger Cars
70%

Commercial Vehicles
80%

In the automotive industry, where competitiveness is increasing day by day due to globalization, technological developments, changes in legislation and the introduction of new producer countries/brands, the supply industry plays a critical role in the successful and competitive position Türkiye has reached today. In this challenging competitive environment, the main and supply industries have important roles to play in maintaining and improving the automotive industry's sustainable competitiveness.

The Turkish automotive supply industry has significant technological and competitive know-how that corresponds to an important place in today's vehicle cost structure and is capable of producing main industry products with up to 80% domestic contribution share. According to TAYSAD data, there are approximately 1,000 automotive industry supply companies in Türkiye and the industry, which has a business volume of USD 26.5 billion, exported to approximately 200 countries in 2022, generating an annual export revenue of USD 13 billion.

Ministry of Industry and Technology statistics indicate that the automotive supply industry has 135 R&D centers for automotive design and engineering, and 24 design centers.

Looking at today's automotive parts requirements, according to the Ministry of Industry and Technology, the product range of automotive supply industry companies is diverse enough to allow 85-90% of the vehicles manufactured in our country to be manufactured domestically. The domestic contribution share of motor vehicles produced in the Turkish automotive industry reaches approximately 70% for passenger cars and 80% for commercial vehicles.

However, as a result of global developments and technological change on the climate axis in the automotive industry, the needs of the automotive main industry are also changing with the transition to alternative fuel vehicles. The need for new components from the automotive supply industry is increasing and demand for some existing components is decreasing. In order for the automotive industry to keep

[4] *Source: https://www.sanayi.gov.tr/istatistikler/istatistiki-bilgiler/mi0203011502*
[5] *Source: https://www.sanayi.gov.tr/istatistikler/istatistiki-bilgiler/mi0203011503*
[6] *Source: https://www.sanayi.gov.tr/plan-program-raporlar-ve-yayinlar/sektor-raporlari/mu2511011622*

pace with these developments, the supply industry must deploy these product groups in the fastest, most reliable and most competitive way.

In 2030, half of the cost of a vehicle is expected to come from electronics and software. This share is expected to rise to two-thirds by 2050. In order to maintain the competitiveness of Türkiye's automotive industry, domestic production of these components, which constitute a significant portion of vehicle costs, should be prioritized. In this direction, technical cooperation and partnerships with companies that have the necessary technologies and R&D investments are among the priorities of the industry.

OSD Localization Committee carries out studies in coordination with stakeholders in order to identify the issues and parts/components that are critical for our industry to be brought to our country within the framework of our country's policy on localization and to cooperate/coordinate with the relevant institutions as the representative of the automotive industry in this regard. In order to maintain the domestic contribution rate in automotive production, the Working Groups established within OTEP, of which OSD is a founding member, work within the framework of pre-competitive cooperation on technological transformation in the supply industry with the participation of relevant stakeholders. To this end, group studies are underway to evaluate emergent and prominent technologies under the headings of Electrification, and Battery and Software, which are considered as priority areas.

CLIMATE CHANGE AND ENVIRONMENTAL MANAGEMENT

With the "2053 Net Zero and Green Development" target announced as Türkiye's new growth strategy, our country has entered an important transformation process similar to the one in the EU.

According to the 2023 Global Risks Report published by the World Economic Forum in January 2023, climate and environmental risks are among the most important global risks, as in previous years. The report states that the global pandemic and the war in Europe, energy, inflation, food and security crises will remain important in the next two years, as they are now. In addition, the top five risks that will dominate the next two years include "natural disasters and extreme weather events" and "climate action failure". Unless the world starts to cooperate more effectively on climate change mitigation and climate adaptation, it will be faced with global warming and ecological degradation over the next 10 years. **Four of the top five risks in the next 10 years are climate and environmental risks, including failure to mitigate and adapt to climate change, natural disasters and extreme weather events, and biodiversity loss.**

World Economic Forum Global Risks Report

These findings demonstrate the urgency of climate and environment issues and the serious risks they pose.

According to the UN Paris Agreement, global temperature rise should be limited to 1.5 degrees Celsius to prevent environmental, social and economic damage. However, according to the UN report Emissions Gap 2022: The Closing Window, published in October 2022, the world is currently on a 2.5 degree warming pathway and the climate commitments made by countries to the UN do not include any convincing steps to achieve the 1.5-degree target.

On the other hand, the world's largest economies are taking important steps to transition to a carbon-free economy, and the EU's announcement of the European Green Deal to increase the Paris Agreement 2030 target, to become a climate neutral continent in 2050 and to achieve zero pollution has been an important milestone in global efforts. With the European Green Deal, which the EU announced in December 2019 as its new growth strategy, the EU is undergoing a significant transformation in transport, buildings, agriculture, industry, finance, digitalization and foreign trade. Considering that ~70% of Türkiye's automotive exports are destined for EU countries, it is critical for our sustainability that our industry closely follows the structural changes and new rules to be introduced in foreign trade with the European Green Deal in the EU and takes important steps.

Türkiye officially became a party to the Paris Agreement in October 2021, followed by the President's announcement of the "2053 Net Zero and Green Development" target. At COP27, which took place in Sharm El Sheikh between November 6-18, 2022, the framework of Türkiye's updated NDC was announced by Murat Kurum, Minister of Environment, Urbanization and Climate Change. According to this update, Türkiye has changed its emission reduction target for 2030 from 21% to 41%.

With the "2053 Net Zero and Green Development" target announced as Türkiye's new growth strategy, our country has entered an important transformation process similar to the one in the EU. The work on the 12th Development Plan covering the years 2024-2028, which started in late 2022, is very important as it will guide this transformation process. OSD acts as the chairman and rapporteur of the Automotive Industry Working Group of the 12th Development Plan and prepares the automotive industry report with the participation of all relevant stakeholders. OSD has also participated and contributed to other 12th Development Plan studies such as the Specialized Commission on the Impact of Climate Change on Sustainable Development and the Working Group on New Approaches to Foreign Trade. In addition, it also took part in the work on strategy documents updated in line with Türkiye's "2053 Net Zero and Green Development" target.

In line with its Net Zero/Carbon-Neutral targets, OSD works to follow the developments in the EU and Türkiye on issues such as Climate and Cleaner Production, Circular Economy, Product Standards and Transformation in the EU/Turkish Market, and to take the necessary steps for the adaptation of the automotive industry.

Issues that stand out for our industry in addition to climate targets are:
- *Climate and Cleaner Production*
- *Circular Economy*
- *Product Standards and Transformation in the EU/ Turkish Market*

In 2021 and 2022, issues related to all these areas were included in the agendas of the OSD Board of Directors, relevant Committees and Working Groups.

With the contributions of all Ministries under the coordination of the Ministry of Trade, the Green Deal Action Plan was published in 2021 as a roadmap for Türkiye's public and private sectors. In this context, the "Sustainability Action Plan" prepared by the Turkish Exporters' Assembly (TIM), aims to "draft Sectoral Action Plans" and the Automotive Industry Exporters' Association (OIB) developed the "Turkish Automotive Industry Sustainability Action Plan" with the contributions of OSD and TAYSAD in 2022.

With the "Automotive Sector Sustainability Action Plan", sustainability actions have been formulated to include both the main industry and the supply industry of the Turkish automotive industry. The report is available on the OIB and OSD websites.

[7] *Source: https://www3.weforum.org/docs/WEF_GRR23_Press_Release_TR.pdf*

CLIMATE TARGETS

The automotive industry is taking the necessary steps to identify the risks and opportunities brought about by the climate crisis, reduce greenhouse gases, transition to a low carbon economy and adapt to changing climate conditions.

Automotive companies publish their 2030 and 2050 climate targets and reshape their business processes in line with these targets.

The Turkish automotive industry sees the "2053 Net Zero and Green Development" target announced as Türkiye's new growth strategy and the announcements of developed economies, especially the EU, to increase the targets under the Paris Agreement and their efforts to become carbon neutral/net zero as an important step towards combating the climate crisis. Climate change is considered one of the most important issues that should be prioritized for the sustainability of the business world as well as countries. The automotive industry is taking the necessary steps to identify the risks and opportunities brought about by the climate crisis, reduce greenhouse gases, transition to a low carbon economy and adapt to changing climate conditions. To this end, automotive companies publish their 2030 and 2050 climate targets and reshape their business processes in line with these targets.

In addition, some of the companies of the automotive main and supply industry are included in the Science-Based Targets initiative, and signatory companies are committed to calculating and reducing greenhouse gas emissions based on scientific data. You can find out more about the companies included in SBTi by clicking here.

Ford Otosan, Daimler Truck AG and MAN Truck and Bus SE, which produce heavy vehicles in Türkiye, have also signed the European Automobile Manufacturers' Association (ACEA) Heavy Vehicle Roadmap Joint Statement. This declaration sets a target that all new trucks sold in the EU will be fossil fuel-free by 2040 in order to achieve the EU's 2050 carbon neutrality target.


HATTAT
T 4110

CLEANER PRODUCTION

The best available technologies and the quality/environmental systems and standards implemented by OSD members in their production processes stand out with their high performance in national and international assessments and audits.

Since its establishment, the Environmental Committee has continued its regular monthly work without interruption in line with the developments in the field of environment and continued to hold regular meetings in 2021 and 2022.

Considering the Sustainable Development Goals and the Paris Agreement, the business world and all industrial sectors have responsibilities for transition to a low-carbon economy and reducing environmental pollution. For full environmental compliance, OSD and all its members are focused on developing projects with a focus on efficiency, reducing the use of natural resources, implementing innovative processes, preventing pollution, working to minimize negative impacts on the environment, and raising awareness for environmental protection throughout the lifecycle.

In 1996, the OSD Environmental Committee was established within OSD by bringing together the environmental officers/ engineers of OSD members in order to share information and experience on compliance with environmental legislation. Since its establishment, the Environmental Committee has continued its regular monthly work without interruption in line with the developments in the field of environment and continued to hold regular meetings in 2021 and 2022.

In 2021 and 2022, the OSD Environmental Committee carried out a detailed examination of important issues such as the European Green Deal, electric vehicle battery recovery, carbon emissions management. Current developments were conveyed in the Committee and information flow was provided for companies to take action in the near future. OSD Environmental Committee organized World Environment Day/Environment Week activities in 2021 and 2022. In addition, the content of the Corporate Sustainability Training was prepared for OSD and TAYSAD members, and Corporate Sustainability Training was organized in cooperation with BÜYEM and UN SDSN Türkiye. (For detailed information: ....)

The best available technologies and the quality/environmental systems and standards implemented by OSD members in their production processes stand out with their high performance in national and international assessments and audits. All OSD member companies included in this report have established the ISO 14001 Environmental Management System and were certified accordingly. In addition, the facilities of OSD members undergo regular environmental inspections by the Ministry of

Environment, Urbanization and Climate Change (MoEUCC). There were no cases of non-compliance with environmental laws and regulations during the reporting period.

The environmental performance of OSD companies is continuously improved through cooperation, information sharing and teamwork in the OSD Environmental Committee, and very important steps are taken to implement the Best Available Techniques required by the European Union legislation as well as the existing regulations.

OSD studied the STS BREF document published in the EU in December 2020, and accordingly, prepared the Draft Reference Document on Integrated Pollution Prevention and Control for Surface Treatment Using Solvents in the Automotive Sector (Draft BAT Reference Document) and VOC Mass Balance Guide and Calculation Module. This report, while presenting an evaluation of the environmental performances of facilities in 2021-2022, also includes an assessment conducted according to the limits specified in the EU's STS BREF BAT Conclusions.

The report offers an analysis of the environmental performance of OSD members' production facilities (energy use, greenhouse gases, water use, wastewater and waste quantities, etc.) and covers 2019-2022 data. Environmental performance indicators are grouped and evaluated as the production averages of light vehicles (passenger car and light commercial vehicle) and other vehicles (buses, trucks, tractors)[8]. In the previous sustainability report (2020 Sustainability Report), 6 plants were evaluated in terms of light vehicle production.

[8]*Hattat Traktör data is not included in other vehicles data.*

CLEANER PRODUCTION

OSD member plants supported the harmonization process of Directive 2010/75/EC in Türkiye as a pilot sector.

The Directive 2010/75/EC on Industrial Emissions (IED) introduces a new approach to industrial installations based on the prevention of pollution at the source and an integrated environmental permit process.

However, since Honda ceased production in Türkiye, this report excludes Honda data. In some facilities that produce other types of vehicles, only buses or only trucks are manufactured, while in others, vans, buses, minibuses, etc. are manufactured together. It is worth noting that in the evaluation of the unit usage in the production of other vehicles, there is a difference in unit usage only in the production of trucks or buses, and this evaluation aims to show the total consumption and the development over the years in facilities other than those engaged in light vehicle production.

Cleaner Production and Best Available Techniques in the Automotive Industry

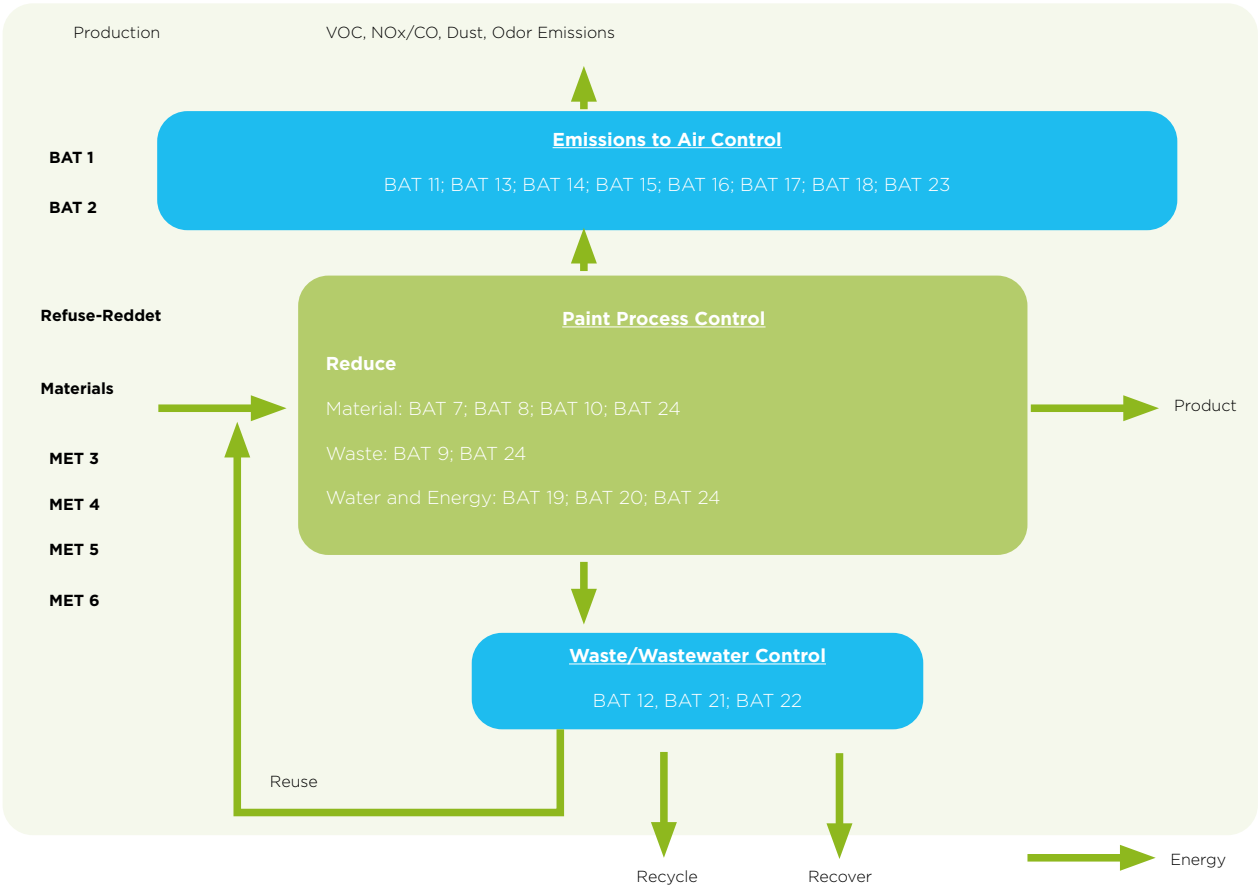
The Directive 2010/75/EC on Industrial Emissions (IED) introduces a new approach to industrial installations based on the prevention of pollution at the source and an integrated environmental permit process. Instead of requiring facilities to meet end-of-pipe limit values, the approach also requires the implementation of numerous "best available techniques" defined in the relevant reference documents, ranging from resource utilization to pollution prevention processes. OSD member plants supported the harmonization process of Directive 2010/75/EC in Türkiye as a pilot sector. In 2016, the Ministry of Environment and Urbanization carried out the "Project for Determining the Compliance Status and Requirements of Automotive Production Facilities Subject to Integrated Environmental Permit" (EÇİ Project). Within the scope of the project, the compliance status and investment requirements of OSD members' facilities were assessed. The final report of the project states that the VOC limits for the automotive industry specified in Türkiye's Regulation on Controlling Industrial Air Pollution and the Directive limits applied in the EU are at the same level and that the facilities in Türkiye are in compliance with the current EU legislation. The STS BREF 2007 version, which was addressed in the EÇİ project and used in the Draft Reference Document on Integrated Pollution Prevention and Control for Surface Treatment Using Solvents in the Automotive Sector, was updated in the EU after the project and the STS BAT Conclusions was published on December 9, 2020. The STS BAT Conclusions published in the EU includes significant changes (new parameters and lower limits).

While automotive plants in the EU are transitioning to these limits, the automotive industry in Türkiye is also following the developments in the EU and continues its investment and improvement processes to comply with the new limits.

Best Available Techniques in the automotive sector according to STS BAT:

BAT 1: Environmental Management System
BAT 2: Overall Environmental Performance
BAT 3-4: Selection of Raw Materials
BAT 5: Transportation and Storage of Raw Materials
BAT 6: Distribution of Raw Materials
BAT 7: Coating Processes
BAT 8: Drying/Curing
BAT 9: Cleaning
BAT 10: Monitoring – Solvent Mass Balance
BAT 11: Monitoring – Air Emissions
BAT 12: Monitoring – Emissions to Wastewater
BAT 13 : Maintenance and Inspection under Other than Normal Conditions
BAT 14-16: VOC Emissions
BAT 17: NOx and CO Emissions
BAT 18: Dust Emissions
BAT 19: Energy Efficiency
BAT 20: Water Consumption and Wastewater Production
BAT 21: Emissions to Wastewater
BAT 22: Waste Management
BAT 23: Odor Emissions
BAT 24: VOC Emissions, Energy and Raw Material Consumption

5R Integrated Pollution Prevention Approach in the Automotive Sector and Best Available Techniques



When the compliance status of the facilities in Türkiye with the best available technologies defined in the STS BAT Conclusions is evaluated, it is seen that many techniques such as water-based paint, treatment of VOC emissions, use of environmentally friendly materials, material-waste-water and energy reduction etc. are widely used in the facilities.

CLEANER PRODUCTION

The prominent topics of the working group meetings in 2021 and 2022 were the reduction of Scope 1 and Scope 2 emissions in automotive production facilities, monitoring innovations in the sector, implications of carbon reduction strategies and targets implemented in facilities, and renewable energy certificates.

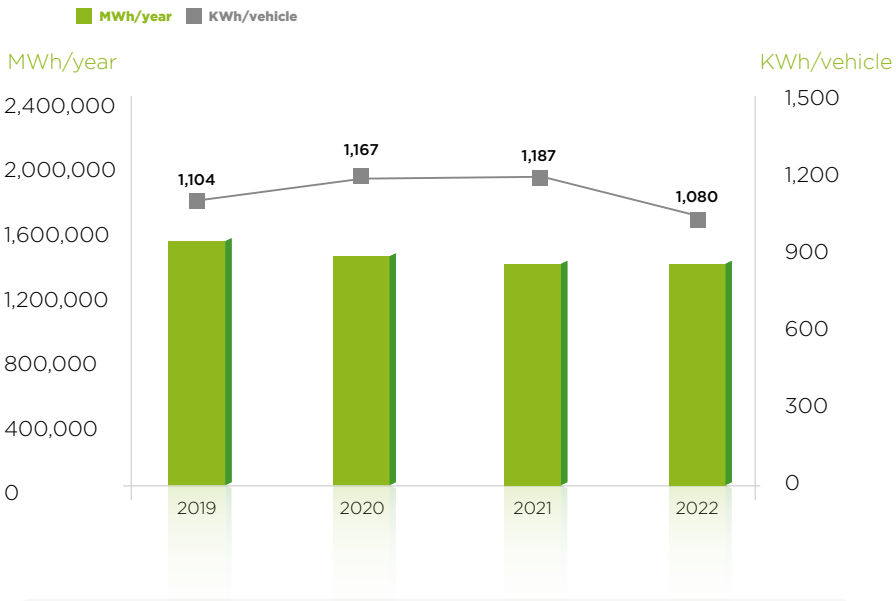
ENERGY MANAGEMENT

Energy efficiency in production has an important place in combating the climate crisis, and energy efficiency efforts reduce both environmental impacts and greenhouse gas emissions from production.

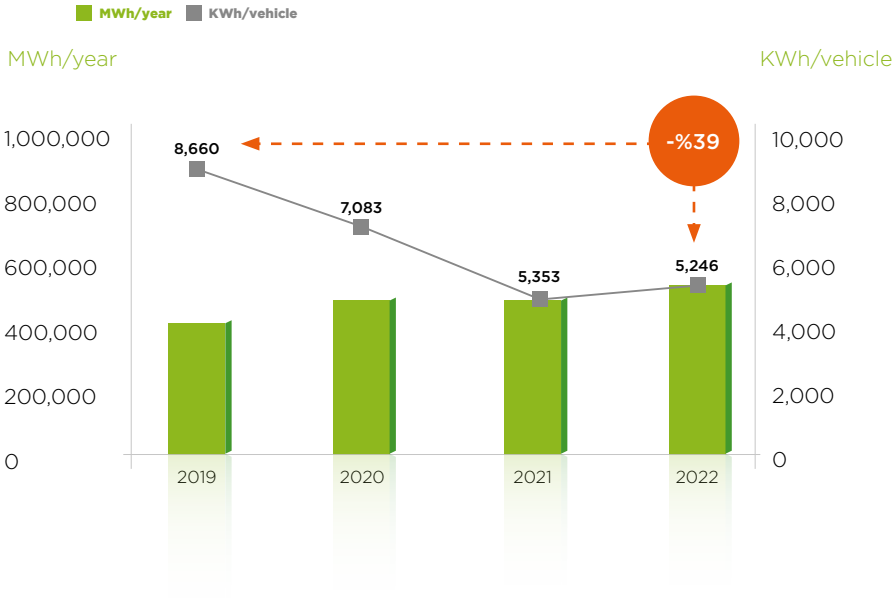
In 2017, the OSD Energy Efficiency Working Group was established within OSD by bringing together the energy managers of OSD members to share information and experience on energy law, energy efficiency and greenhouse gas reduction. The prominent topics of the working group meetings in 2021 and 2022 were the reduction of Scope 1 and Scope 2 emissions in automotive production facilities, monitoring innovations in the sector, implications of carbon reduction strategies and targets implemented in facilities, and renewable energy certificates.

Member companies act in line with and follow national standards and management systems. The ISO 50001 Energy Management Standard is the most widely applied standard. 11 companies have been certified with ISO 50001.

Total Energy Consumption - Light Vehicles



Total Energy Consumption - Other Vehicles



Best Available Techniques in the Paint Process - Energy Consumption of Light Vehicles

When the total equivalent energy consumption per light vehicle production of OSD members is evaluated between the years 2019-2022, it is seen that the consumption per unit vehicle has followed a horizontal course in recent years and occurred as 1,080 KWh/vehicle in 2022.

When other vehicle groups (trucks, buses, tractors, etc.) are evaluated, it is seen that unit energy consumption has decreased by 39% in the last four years to 5,246 KWh/vehicle.

In automotive production, ~65% of energy consumption takes place in paintshops. In line with the 2010/75/EU Industrial Emissions Directive, the best available techniques in paint coating processes (STS-BATC) have been defined.

According to the STS BAT Conclusions published in the EU on December 9, 2020 for "Surface Treatment Using Organic Solvents", the energy consumption that may be reached using the best available techniques in automotive plant paintshops is defined as 1.30 MWh/vehicle for light vehicles. The average paint process energy consumption of OSD members' plants that produce only light vehicles is below this limit value and was materialized as 0.64 MWh/vehicle in 2022.

In the Turkish automotive industry, many best available techniques such as continuous monitoring of energy consumption, analysis of energy losses, insulation, waste heat recovery, automation systems, etc. are widely used.

Sustainable Energy Performance in the Paint Process with Best Available Techniques

39% Energy Efficiency in the Production of Other Vehicles

CLEANER PRODUCTION

OSD Members monitor and reduce Scope 1 and Scope 2 emissions within the scope of climate targets.

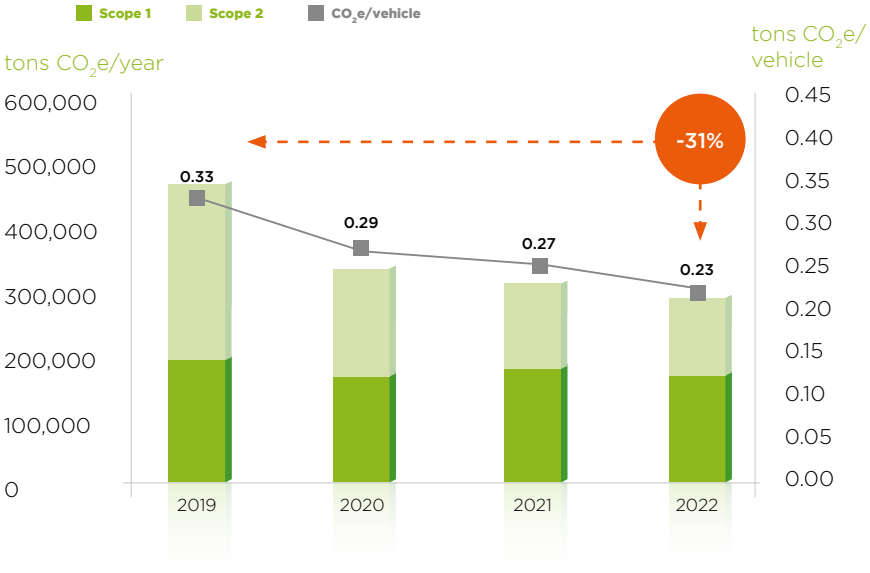
GREENHOUSE GAS EMISSIONS

With the "Regulation on Monitoring and Reporting of Greenhouse Gas Emissions" published on May 17, 2014, the facilities included in the scope of the regulation are obliged to prepare a monitoring plan for their emissions, submit it to the Ministry of Environment, Urbanization and Climate Change and obtain approval, and submit annual greenhouse gas reports verified by authorized verification bodies to the Ministry. The scope and obligations of the Regulation are in line with the EU's MRV Directive and automotive plants with a rated thermal power of 20 MW and above are included in the scope. All OSD some facilities have established the ISO 14064 Greenhouse Gas and Emissions Management System and were certified accordingly.

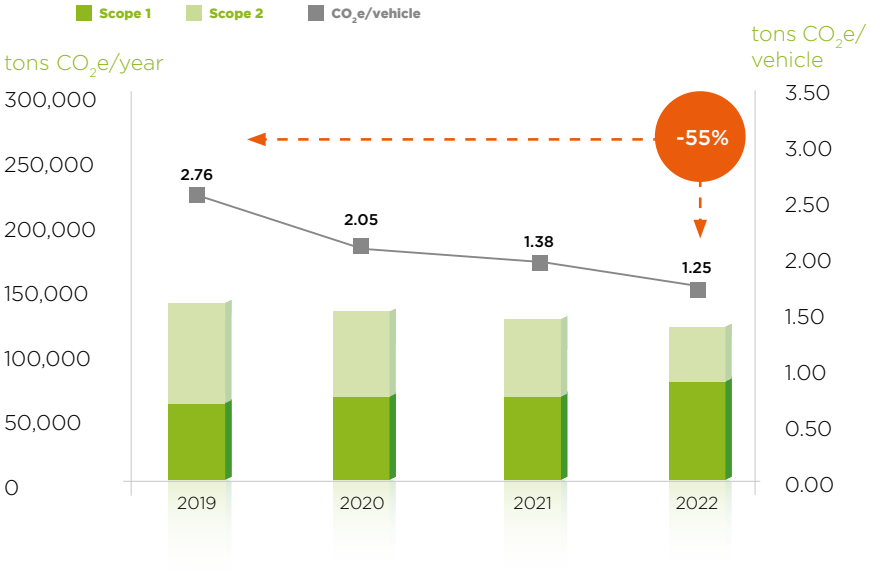
In 2022, greenhouse gas emissions of the automotive industry were 0.23 tons CO_2e/vehicle in the production of light vehicles and 1.25 tons CO_2e/vehicle in the production of other vehicles. In 2022, an improvement of 31% was achieved in light vehicle production compared to the last four years. A significant part of the improvement was due to the introduction of electricity from renewable energy sources, while Scope 1 emissions were also reduced through energy efficiency projects. Due to the efficiency in energy consumption in the production of other vehicles, a 55% improvement in greenhouse gas reduction per unit vehicle was achieved in the last four years.

Greenhouse Gas Reduction of 31% in Light Vehicle Production and of 55% in Heavy Vehicle Production in the Last 4 Years

Greenhouse Gas Emissions - Light Vehicles



Greenhouse Gas Emissions - Other Vehicles



CLEANER PRODUCTION

OSD members assess their risks in accessing water resources and prioritize water saving and recycling projects.

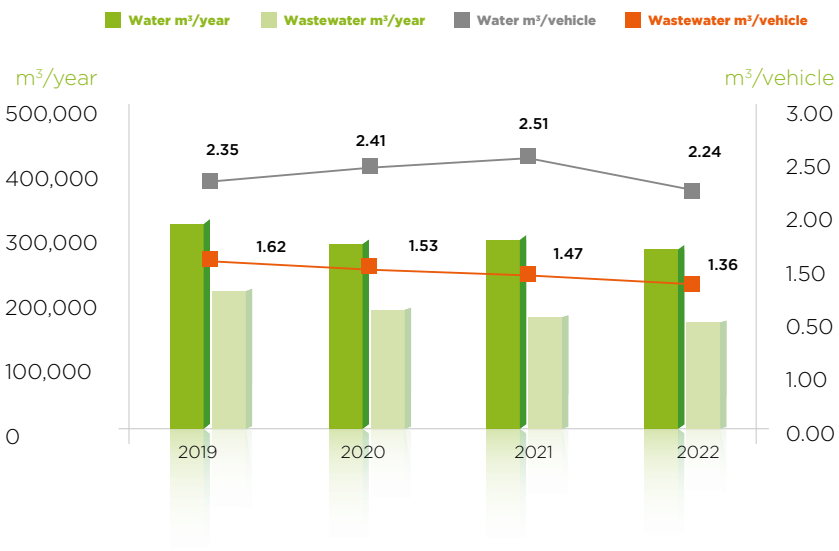
WATER AND WASTEWATER MANAGEMENT

The effects of global climate change are manifested in reduced water resources, droughts, heat waves, increased flooding and reduced productivity in agriculture. According to DSI (State Hydraulic Works) data, the annual amount of water available per capita in Türkiye was 1,652 m^3 in 2000, 1,544 m^3 in 2009 and 1,346 m^3 in 2020. (Source: https://www.dsi.gov.tr/Sayfa/Detay/754) Türkiye's per capita available water potential is decreasing due to climate change, positioning Türkiye among the countries experiencing water pressure.

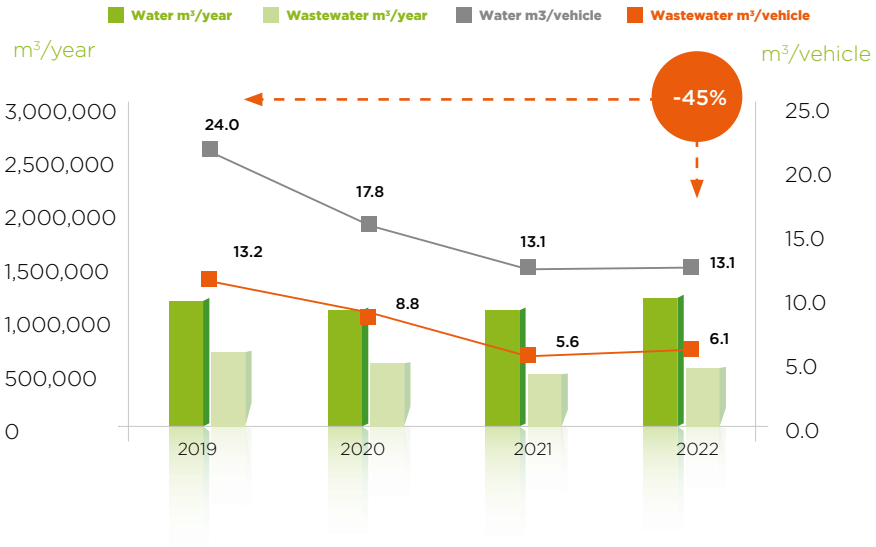
Therefore, OSD members assess their risks in accessing water resources and prioritize water saving and recycling projects. Water efficiency is increased through the use of advanced technology in investments, upgrading activities and paintshops, and projects are being developed for water reuse. Thanks to a responsible production approach, member facilities recover and reuse approximately 300 thousand m^3 of wastewater each year through water technology investments.

The water supplied during operational processes comes from taps and underground sources. The use of groundwater is controlled by legislation, so OSD members using groundwater fulfill their obligations and keep their impact on the aquifer under control. Industrial wastewater generated as a result of production processes and domestic wastewater generated in the facilities are treated in treatment plants. The water discharged to the receiving environment is discharged according to the parameters and limits specified in Table 18.2 of the Regulation on Water Pollution Control. Information on water and wastewater management is shared during environmental management trainings to raise awareness of employees and increase their level of knowledge.

Total Water and Wastewater - Light Vehicles

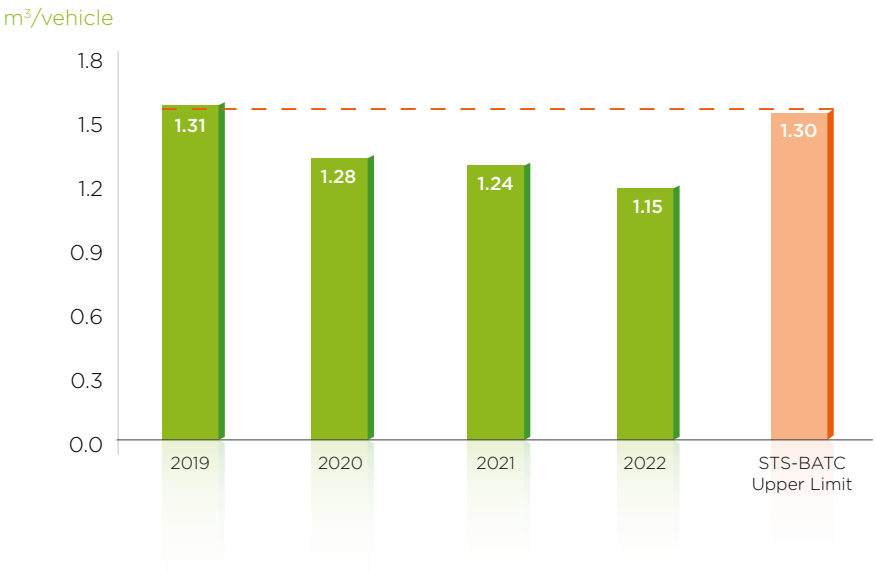


Total Water and Wastewater - Other Vehicles



An analysis of water use in the production activities of OSD members reveals that between 2019 and 2022, water use per unit vehicle decreased by approximately 5% for the production of light vehicles and by 45% for the production of other vehicles. In the same period, the unit amount of wastewater in the production of other vehicles decreased by 54%.

Best Available Techniques in the Paint Process - Water Consumption Light Vehicles



Water consumption is also monitored in paint coating process, which is the process with the highest environmental impact in automotive production facilities.

According to the **STS BAT Conclusions** published in the EU on December 9, 2020 for "Surface Treatment Using Organic Solvents", the energy consumption that may be reached using the best available techniques in automotive plant paintshops is defined as 1.3 MWh/vehicle for light vehicles. The average paint process-related water consumption of OSD member light vehicle manufacturing plants is below this limit value.

CLEANER PRODUCTION

Today, 99% of the automotive main industry's waste is recycled or used as alternative energy, and the facilities provide examples of good practices within the scope of the Zero Waste Regulation.

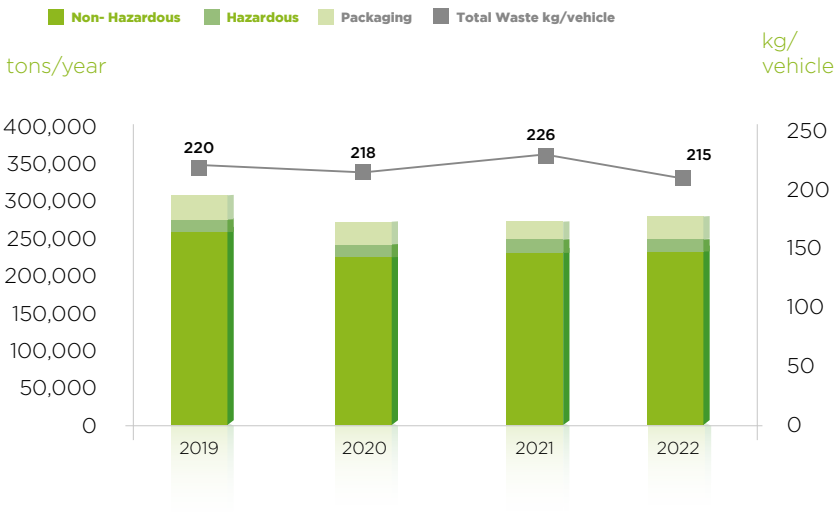
When the total waste distribution of OSD member plants is analyzed, it is seen that 83% of the waste generated from the plants is non-hazardous waste, 12% is packaging waste and 5% is hazardous waste.

WASTE MANAGEMENT

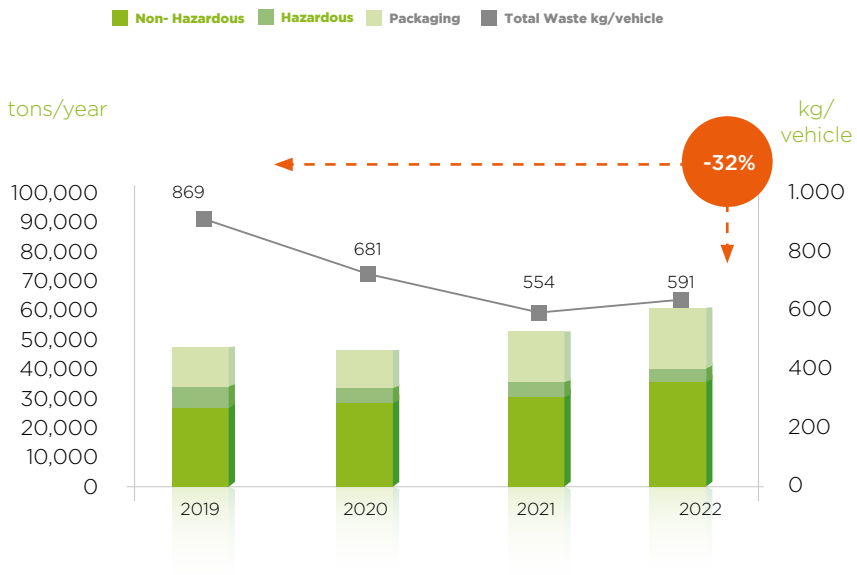
The automotive industry in our country has been a pioneer in recycling the waste generated by production and bringing them into the economy ever since it started production. Especially at the end of the 90s, attempts were made to use waste specific to the automotive industry such as paint sludge, phosphate sludge, waste tires and waste oil for energy recovery in cement plants. Today, 99% of the automotive main industry's waste is recycled or used as alternative energy, and the facilities provide examples of good practices within the scope of the Zero Waste Regulation.

When the total waste distribution of OSD member plants is analyzed, it is seen that 83% of the waste generated from the plants is non-hazardous waste, 12% is packaging waste and 5% is hazardous waste.

Total Waste - Light Vehicles



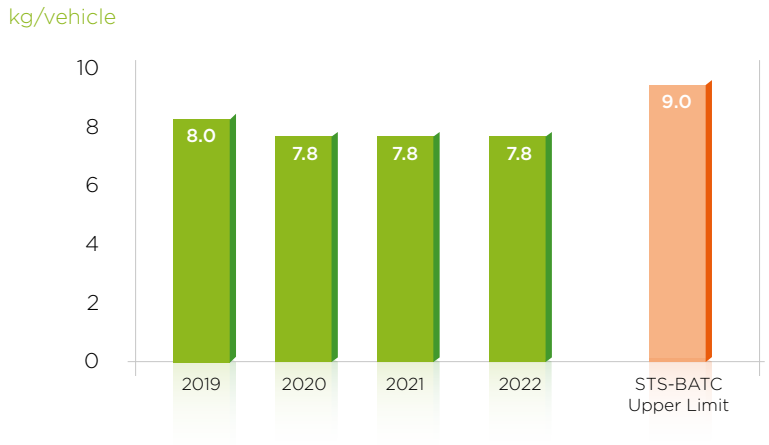
Total Waste - Other Vehicles



An analysis of the amount of waste generated in OSD's production activities reveals that the total amount of waste per unit of light vehicle production remained the same between 2019 and 2022, while it decreased by 32% in other vehicle groups.

Waste Recovery
99% Waste Recovery in Automotive Production

Best Available Techniques in the Paint Process - Waste Generation Light Vehicles



Waste Minimization in the Paint Process with Best Available Techniques

The best available techniques to minimize the generation of hazardous waste are widely used in the sector. According to the STS BAT Conclusions published in the EU on December 9, 2020 for "Surface Treatment Using Organic Solvents", the upper limit value of the amount of waste that may be generated using the best available techniques in automotive plant paint processes is 9 kg/vehicle. The average of light vehicle production facilities is below this value.

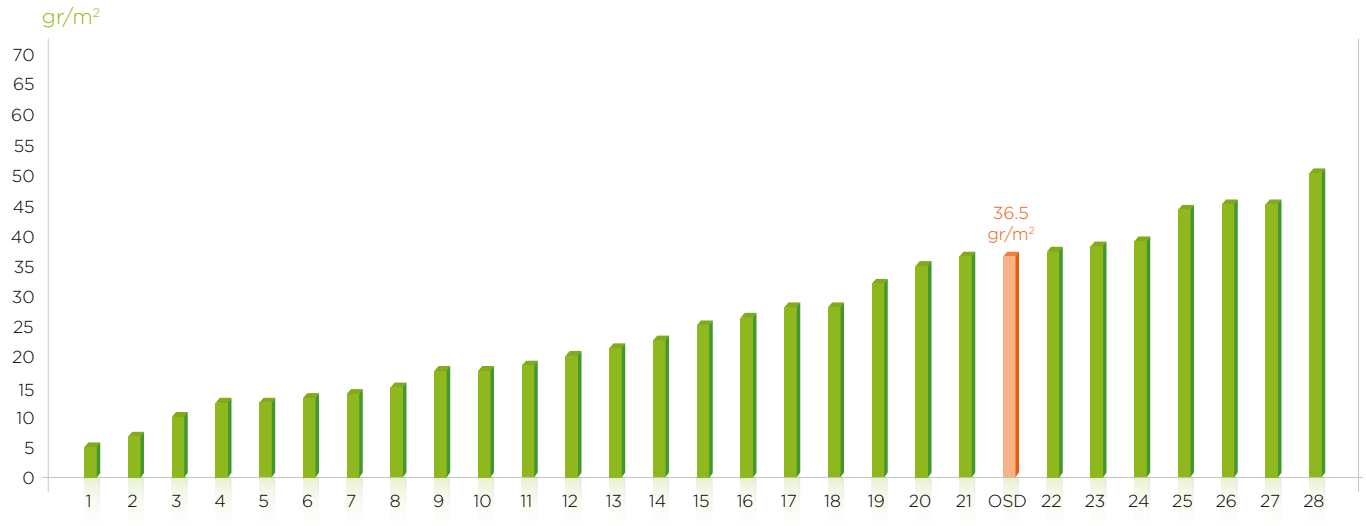
CLEANER PRODUCTION

Automotive plants in Türkiye take into account the EU limit values in their new investments, and it is seen that VOC emissions have been significantly reduced thanks to projects and investments undertaken in recent years.

VOLATILE ORGANIC COMPOUND (VOC) EMISSIONS

In the EU, techniques and limit values for the control of Volatile Organic Compound (VOC Solvent) emissions from automotive paint coating processes are defined in the STS-BATC Best Available Techniques for Surface Treatment with Solvents Conclusions published on December 9, 2020. The document foresees a transition period for existing facilities. This document identifies the best available techniques for automotive paintshop facilities. Many of the techniques identified, such as conversion to environmentally friendly conjugate materials, use of water-based paint, incineration and treatment techniques for controlling VOC emissions, waste heat recovery, etc., are widely used in the Turkish automotive industry. **Solvent emission (VOC) levels**[9] of automobile plants in the EU and the Türkiye average are provided in the graph below.

VOC Emissions in Passenger Car Facilities in the EU and Average of OSD Member Facilities - gr/m²

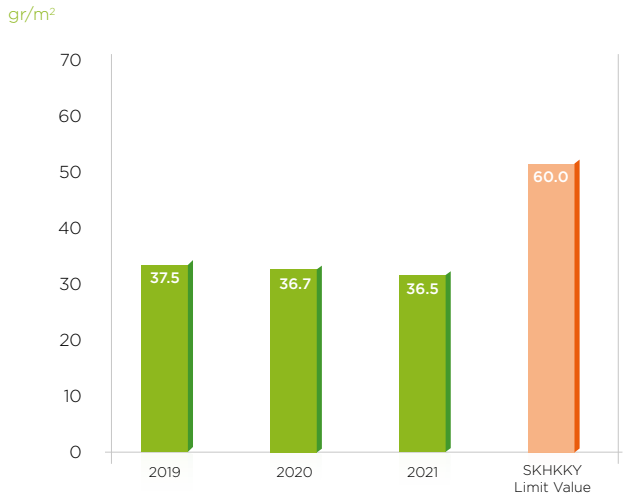


[9]*Source: STS Bref Document, 2020, p.46*

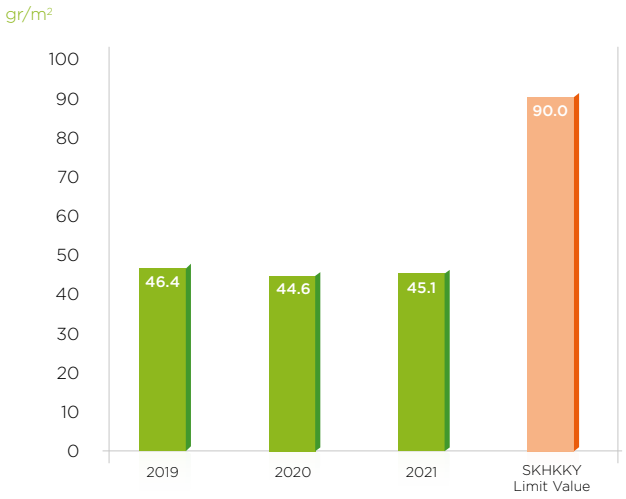
The ETS BAT Conclusions published in December 2020 in the EU reduces the VOC (Volatile Organic Compound) limits for automotive paintshop facilities specified in the draft ETS BREF 2007, which was taken as basis in the EÇİ Project conducted by the MoEUCC in 2016. According to the EU's STS BAT Conclusions, based on best available techniques, the VOC limit values in automotive paintshop facilities were updated as 30 g/m² for cars, 40 g/m² for light vehicles, 50 g/m² for trucks and 150 g/m² for buses.

The graphs show the comparison of the average values of the facilities of OSD members for 2021 and the limit values of SKHKKY (Regulation on the Control of Industrial Air Pollution). (Data for 2022 is not included as it has not yet been calculated.) Automotive plants in Türkiye take into account the EU limit values in their new investments, and it is seen that VOC emissions have been significantly reduced thanks to projects and investments undertaken in recent years.

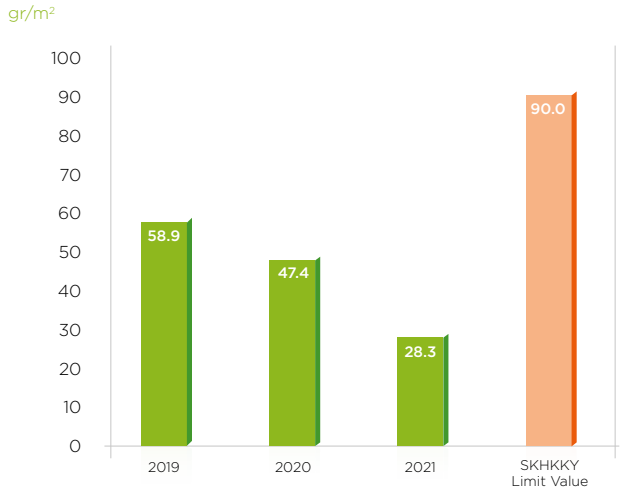
Volatile Organic Compound (VOC) Emissions - Automobiles (M1) gr/m²



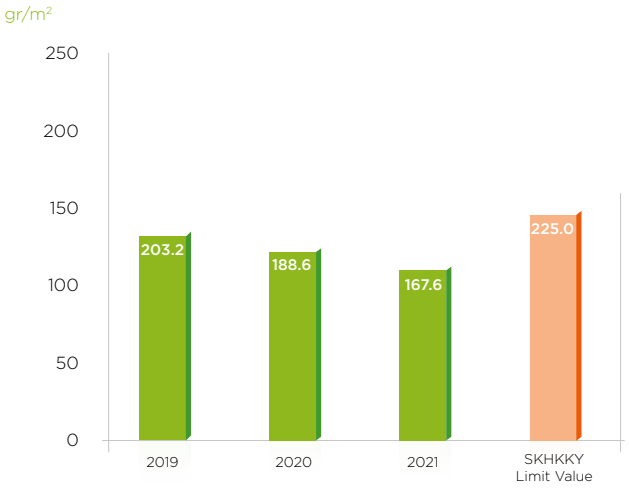
Volatile Organic Compound (VOC) Emissions - Vans (N1) gr/m²



Volatile Organic Compound (VOC) Emissions - Trucks (N2/N3) gr/m²



Volatile Organic Compound (VOC) Emissions - Buses (M²/M³) gr/m²

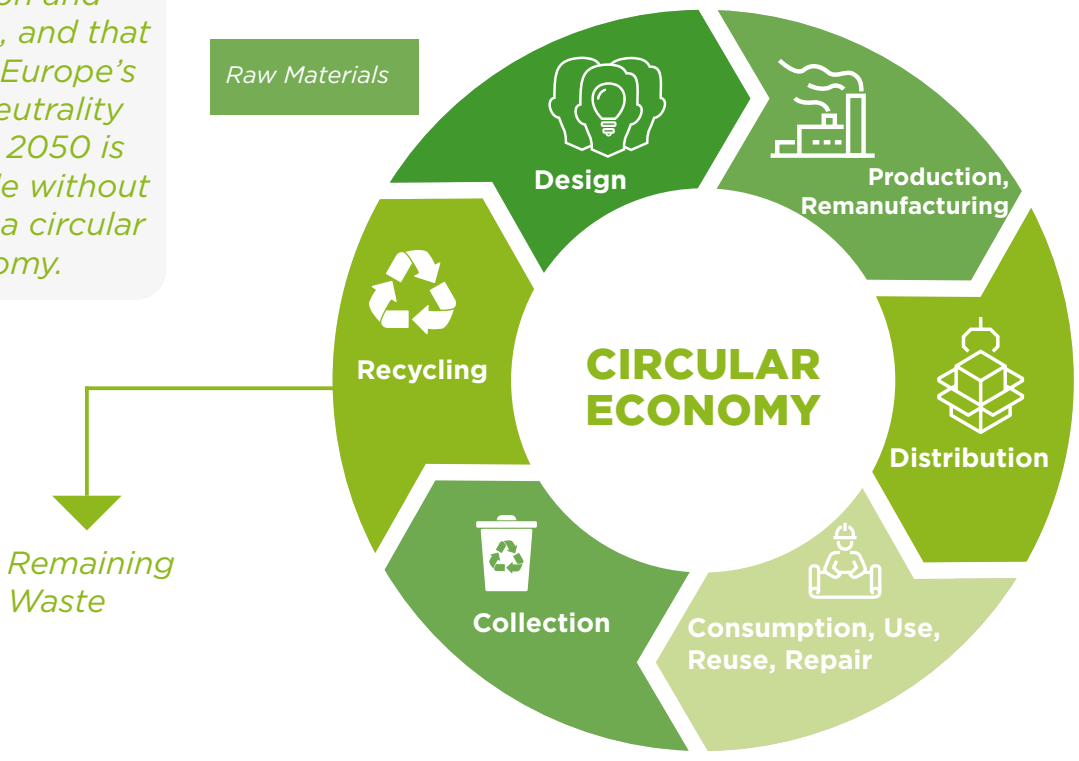


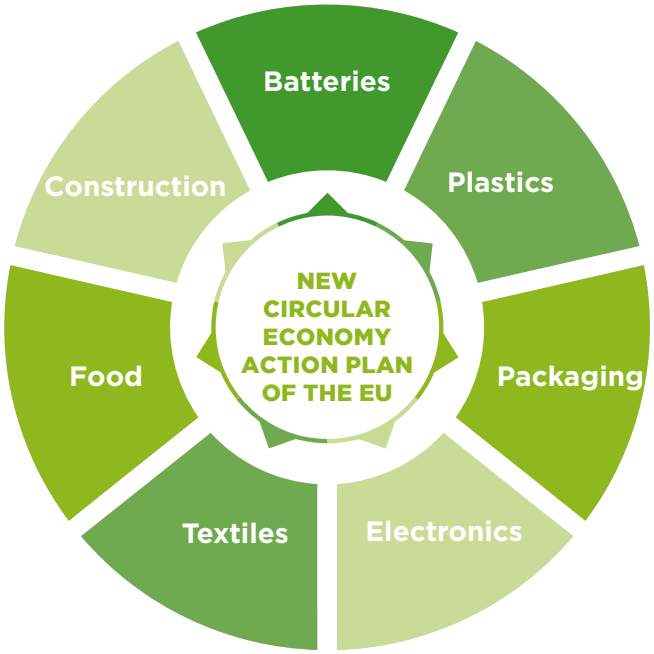
CIRCULAR ECONOMY

The Ministry of Environment, Urbanization and Climate Change launched the "Technical Assistance Project for the Assessment of Türkiye's Potential for Transition to Circular Economy" in 2022. The outputs of the 3-year project will contribute to the preparation of national strategies and action plans.

The European Commission notes that half of global greenhouse gas emissions come from raw material extraction and production, and that achieving Europe's carbon neutrality target by 2050 is not possible without moving to a circular economy.

The circular economy is an economic model that focuses on continuity and environmental protection, from the use of raw materials for production to the generation of waste. It adopts the principles of "Reduce-Reuse-Recycle" rather than "Take-Make-Dispose" as compared to the traditional or linear model of economics. This model aims to minimize waste throughout the entire lifecycle of products and is a production and consumption model that aims to improve the product lifecycle.





According to the Global Resources Outlook(2019), global raw material extraction tripled between 1970 and 2017 and continues to increase. More than 90% of biodiversity decline and water scarcity is caused by the extraction and processing of raw materials. On March 11, 2020, the European Commission published the New Circular Economy Action Plan communication document under the European Green Deal. The Action Plan aims to accelerate the radical transformation envisaged by the European Green Deal and to build on the circular economy actions implemented since 2015.

The EU's Circular Economy Action Plan sets out strategies in 7 key areas, and important regulations are on the agenda for the automotive industry, especially on Plastics and Batteries.

It is stated both in the Türkiye Green Deal Action Plan of 2021 published by the Ministry of Trade, and the Climate Council decisions published in 2022, that Türkiye will prepare a Circular Economy Action Plan regarding compliance with the obligations under the EU's Circular Economy Action Plan as part of the EGD.

In this context, the Ministry of Environment, Urbanization and Climate Change launched the "Technical Assistance Project for the Assessment of Türkiye's Potential for Transition to Circular Economy" in 2022. The outputs of the 3-year project will contribute to the preparation of national strategies and action plans. Both OSD and its members participated in the surveys and the workshop organized to this end, and shared opinions especially on recycled plastics and batteries.

(More on the project: https://dongusel.csb.gov.tr/proje-faaliyetleri-i-105791)

CIRCULAR ECONOMY

Thanks to countries' 2050 Carbon Neutrality targets, the electric vehicle market will expand significantly. Battery supply and management are particularly important on the road to 2050.

One of the main areas identified by the EU for the transition to a circular economy is plastics. In this context, the European Commission has initiated the process of updating the EU's existing Directive 2000/53/EC on end-of-life vehicles.

USE OF RECYCLED PLASTICS

Accordingly, obligations are being discussed, such as 15-25% of plastics used in the automotive industry being recycled plastics by 2030 and 20-30% by 2035, the targeted source of recycled plastics being consumer waste, and at least 25% of this being recovered from end-of-life vehicles. In addition, automotive companies also set recycled plastic targets as part of their carbon neutrality goals. To this end, OSD members are working towards their goals. It is important to establish the necessary infrastructure in our country for the mandatory targets planned by the EU and the increasing demand. OSD shared the needs of the automotive industry for the development and support of the existing capacity with public institutions in 2022.

BATTERY RECYCLING

Thanks to countries' 2050 Carbon Neutrality targets, the electric vehicle market will expand significantly. Battery supply and management are particularly important on the road to 2050.

In the EU, the update of the current Battery Directive (2006/66) aims to promote a circular industry, ensure the collection and recycling of end-of-life batteries, increase the reuse of components and materials and ban hazardous substances, as well as introduce a "digital battery passport" by January 1, 2026. On the other hand, in Türkiye, the MoEUCC is currently updating the Regulation on Control of Waste Batteries and Accumulators.

Within the framework of circular economy principles, when the capacity of automotive batteries drops to approximately 80% of their initial capacity, secondary uses such as energy storage become more prominent. With the increase in electric and hybrid vehicles, countries need to create the infrastructure for processes such as the secondary use of automotive batteries, their recycling after secondary use, and the recovery and reuse of critical minerals in battery production. With a similar approach, projects are being carried out in our country, as in the EU, for the secondary use of end-of-life batteries for energy storage purposes, and then for the recovery of valuable minerals.

The Battery Working Group was established under the Automotive Technology Platform (OTEP), of which OSD is a founding member.

SUSTAINABLE PRODUCTS IN THE AUTOMOTIVE INDUSTRY

The automotive market is undergoing a significant transformation with the introduction of automotive product standards, the shift towards electric and alternative fuel vehicles, and infrastructure-building for alternative fuel vehicles.

OSD Technical Committee monitors the development and transformation of vehicle emission standards in both the EU and Türkiye.

Within the scope of Türkiye's "2053 Net Zero and Green Development Goal" and the goal of our most important market, the EU, of reducing greenhouse gases from transport, the automotive market is undergoing a significant transformation with the introduction of automotive product standards, the shift towards electric and alternative fuel vehicles, and infrastructure-building for alternative fuel vehicles. It is of great importance for the sustainability of our industry to prepare the technological infrastructure and to be ready for this transformation through R&D and innovation.

As part of the electrification transformation in the automotive industry, in order for our country's automotive industry to respond to this transformation and for suppliers who are particularly at serious risk to take the right steps in the transformation, new and priority technology areas are being identified to provide guidance within the Working Groups formed under OTEP with the participation of relevant stakeholders from all fields, and assessments are being made. Efforts are undertaken to create joint project proposals within the framework of pre-competitive cooperation with the aim of maintaining the localization rate of production in our country.

To this end, group studies evaluating new and prominent technologies under the headings of Battery, Electrification and Software, which are considered to be prioritized, started in 2022, while the long-standing Digital Transformation studies continued.

The battery is the most prominent and most costly system of production that must inevitably be localized. More than 100 industry, academia and public employees support the work of the group, where all stages of the battery design and production process are discussed in detail.

In the electrification transformation, the priority part groups for localization required by the Main Industry have been identified. At the same time, a study was conducted to assess the level of preparedness of the supply industry within the framework of this transformation. The goal is to identify high value-added parts that will meet the needs and to engage in the necessary pre-competition collaborations by combining the results of the two studies.

In the studies conducted in the field of software, many areas where the need for trained employees, data management and certification come to the fore are evaluated and suggestions are made on the actions that need to be taken.

The Digital Transformation Working Group has been active since 2017 and has reached 108 members. In the meetings held in 2021 and 2022, which constitute an important source for the digital transformation steps that need to be taken in order for the supply industry to be compatible with the main industry, the main industry companies shared the changes, system installations and updates they have made towards digital transformation, and examples of integration with supply companies within this transformation were presented.

Assessments are being made to form groups to work on materials, autonomous and connected vehicle systems, data management, Internet of Things, artificial intelligence, testing and verification, which are identified as secondary priority groups.

PRODUCT EMISSION STANDARDS & INFRASTRUCTURE IN THE AUTOMOTIVE INDUSTRY

Within the scope of the transition to a low-carbon economy and carbon neutrality targets of countries around the world, legislative arrangements are on the agenda to reduce greenhouse gas emissions from transport and to ensure that new vehicles to be sold are low/zero emission. The International Energy Agency's (IEA) Global EV Policy Explorer report includes countries' policies and measures for transition to low-emission and alternative fuel vehicles, as well as targets announced by some countries.

The OSD Technical Committee monitors the development and transformation of vehicle emission standards in both the EU and Türkiye. The OSD Technical Committee continues to work in close cooperation with the Ministry of Industry and Technology on EU technical legislation and the transposition of EU technical legislation into domestic legislation in order to increase industrial competitiveness. The OSD Technical Committee also plays an active role in the Technical Subcommittee established within MARTEK (Motor Vehicles Technical Committee), which is coordinated by the Ministry of Industry and Technology.

At the international level, OSD represents our industry in the Liaison Committee meetings organized four times a year within ACEA (European Automobile Manufacturers' Association), where global and local developments are evaluated with the participation of relevant country associations from the EU. At the same time, by actively participating in the work of the Technical Committee of OICA (International Organization of Motor Vehicle Manufacturers), developments in global technical legislation are closely monitored. Necessary information is communicated to members and relevant institutions and organizations.

SUSTAINABLE PRODUCTS IN THE AUTOMOTIVE INDUSTRY

The legislative work to completely phase out the sale of new petrol and diesel cars and light commercial vehicles by 2035, with stricter emission limits for new cars and LCVs to be sold in the EU, is ongoing.

In the EU, the updating processes of the Regulation on CO_2 Emission Performance Standards for New Passenger Cars and for New Light Commercial Vehicles (EU Regulation 2019/631) and the Directive on the Deployment of Alternative Fuels Infrastructure (EU Directive 2014/94) for reducing transport-related emissions continued in 2022, as announced by the European Commission with "Fit for 55" on July 14, 2021. The proposals introduced by the updating process of the EU legislation, which is still ongoing, are provided below.

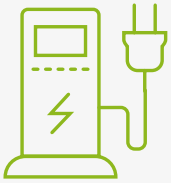
CO_2 reduction for cars (%)

	2025	2030	2035
Former Targets	15%	37.5%	
New Targets	15%	55%	100%

CO_2 reduction for Light Commercial Vehicles (%)

	2025	2030	2035
Former Targets	15%	31%	
New Targets	15%	50%	100%

Development of publicly accessible charging/hydrogen refueling stations that are easy to access, easy to use, interoperable and located at fixed intervals along Europe's main transport roads



Approximate number of charging stations that will be needed based on national average fleet targets for cars and light commercial vehicles;

2025	2030	2040	2050
1 million	3.5 million	11.4 million	16.3 million

Source: ACEA

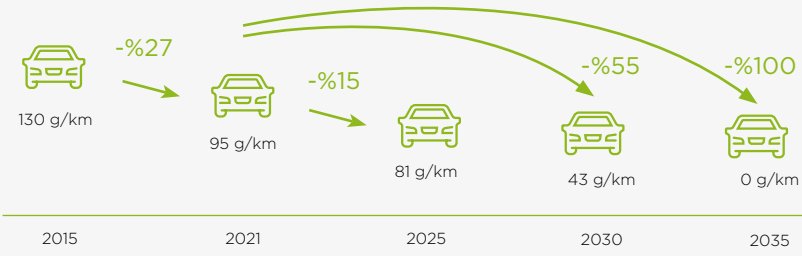
An agreement was reached to end the regulatory incentive mechanism for zero and low emission vehicles (ZLEV) by 2030.

The proposal to completely phase out the sale of new petrol and diesel cars and light commercial vehicles by 2035, with stricter emission limits for new cars and LCVs to be sold in the EU, was voted and adopted by the European Parliament on June 8, 2022. Following negotiations between the European Parliament and the European Council, a provisional agreement was reached on October 27, 2022 on the draft proposed by the European Commission.
The agreed-upon topics regarding the CO_2 emissions of cars and light commercial vehicles are as follows:

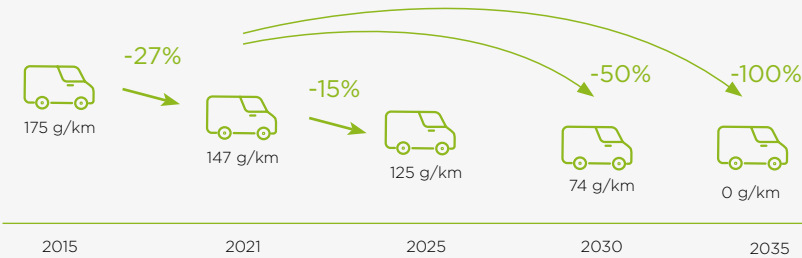
- The EU CO_2 target for 2030 (relative to 2021) is 55% for cars and 50% for LCVs,
- A target of 100% in 2035 for new cars and LCVs to be sold in the EU,
- Ending the regulatory incentive mechanism for zero and low emission vehicles (ZLEV) by 2030

The regulation will be published after formal agreement between the Council and the Parliament.

Automobiles - CO_2



Light Commercial Vehicles - CO_2



SUSTAINABLE PRODUCTS IN THE AUTOMOTIVE INDUSTRY

The "Mobility Vehicles and Technologies Roadmap" was published by the Ministry of Industry and Technology in June 2022, setting numerical targets for electric vehicles and infrastructure for 2023-2025-2030.

The European Commission has proposed that all new city buses sold in the EU should be zero-emission by 2030.

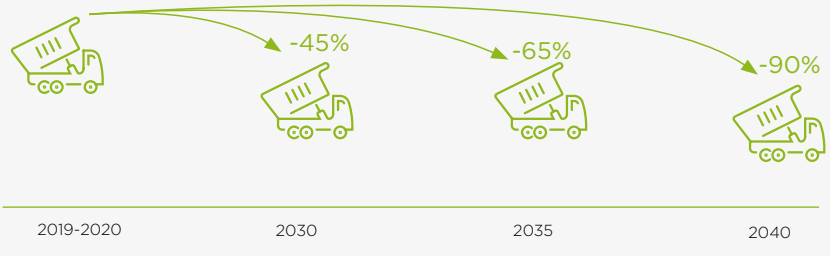
In the EU, the issue of reducing and eventually eliminating emissions of heavy commercial vehicles is still being studied. A draft regulation was published on February 14, 2023. On 14 February 2023, the EU Commission published a draft proposal to update the existing Regulation on Setting CO_2 Emission Performance Standards for New Heavy-Duty Vehicles (EU Regulation 2019/1242) and to introduce stricter CO_2 emission standards for almost all heavy commercial vehicles (buses, trucks). The European Commission states that trucks, city buses and intercity buses are responsible for 6% of total EU greenhouse gas (GHG) emissions and more than 25% of GHG emissions from road transport. The proposed emission standards for Heavy Commercial Vehicles aim to transition this segment of the road transport sector to zero emission mobility and contribute to the EU's climate and zero pollution targets.

The Commission proposes the phased implementation of stricter CO_2 emission standards for almost all new Heavy Commercial Vehicles with certified CO_2 emissions compared to 2019 levels, in particular:

- 45% emission reduction by 2030,
- 65% emission reduction by 2035,
- 90% emission reduction by 2040.

The Commission also proposes that all new city buses should be zero-emission by 2030 in order to accelerate the deployment of zero-emission buses in cities.

Heavy Commercial Vehicles - CO_2



The proposal for a new Directive to replace the existing Alternative Fuel Infrastructure Directive in the EU was published by the EU Commission on July 14, 2021, which envisages the expansion of charging capacity, adequate charging and refueling infrastructure, electric charging capacity every 60 km and hydrogen refueling capacity every 150 km, in line with the zero emission vehicle target of EU countries. In this context, studies are underway in the EU, and in the vote held by the EU Parliament on October 17, 2022, it was agreed that electric charging stations should be placed every 60 km, while hydrogen refueling stations should be placed every 100 km instead of every 150 km with an accelerated timeframe envisaging completion in 2028 instead of 2031. The tripartite negotiations (Parliament-Council-Commission) are expected to be completed and the directive is expected to be finalized in 2023.

In Türkiye, the "Mobility Vehicles and Technologies Roadmap" was published by the Ministry of Industry and Technology in June 2022, setting numerical targets for electric vehicles and infrastructure for 2023-2025-2030.

Electric Vehicles (Automotive) and Electric Vehicle Technologies

Targets	2023	2025	2030
Electric Vehicles		Having more than 1 electric passenger car and light commercial vehicle manufacturer that makes exports	Achieving at least 75% localization rate of electric vehicles
	Increasing the market share of electric vehicle sales, especially light commercial vehicles, to 7.5%	Increasing the market share of electric vehicle sales to 10%	Increasing the share of electric vehicles to 35%
	Reaching approximately 110 thousand vehicles in the electric vehicle stock	Reaching approximately 402 thousand vehicles in the electric vehicle stock	Reaching approximately 2.5 million vehicles in the electric vehicle stock
	Developing 3 applications that become international brands in the field of micromobility		Exporting solutions developed in the field of micromobility and being in the top 5 in the world in this ranking
Infrastructure	Installing a total of 18,000 public charging sockets (21% DC)	Installing a total of 53,000 public charging sockets (30% DC)	Installing a total of 251,000 public charging sockets (35% DC)
	Making electricity grid infrastructure investments, taking into account the need for charging stations (expected to reach an annual load of 4.3 billion kWh)	Developing alternative energy sources according to the grid load of electric vehicles	Developing and investing in electricity grid infrastructure to utilize regeneration resources according to the energy load of electric vehicles

In addition, the following legislative regulations on charging infrastructure for alternative vehicles were published in 2021 and 2022.

- Law on the Amendment of Certain Laws, published in the Official Gazette No. 31700 of December 25, 2021
- Regulation on the Amendment of the Regulation on Technological Product Investment Support Program, published in the Official Gazette No. 31786 of March 22, 2022
- Regulation on Charging Services, Procedures and Principles Regarding Applications for Charging Network Operator License, published in the Official Gazette No. 31797 of April 2, 2022

SUSTAINABLE PRODUCTS IN THE AUTOMOTIVE INDUSTRY

In January 2023, the Ministry of Energy and Natural Resources published the “Hydrogen Technologies Strategy and Roadmap of Türkiye”.

With the adoption of the Euro Standards after 1990, both greenhouse gas (CO_2) and pollutant emission parameters (NOx, PM) of motor vehicles have significantly decreased year by year.

In the ongoing legislative work, it is important that the needs of medium and heavy commercial net zero emission vehicles are included in the legislation as technical requirements. Accordingly, it is important to design the net zero electric vehicle charging infrastructure by taking into account the needs of medium and heavy commercial vehicles. Additionally, the necessary refueling/ charging station infrastructure for hydrogen-powered or other emerging fuels are should also be included in regulations. Hydrogen fuel is particularly important for heavy commercial vehicles, and work on hydrogen refueling infrastructure is ongoing in the EU. In Türkiye, in January 2023, the Ministry of Energy and Natural Resources published the “Hydrogen Technologies Strategy and Roadmap of Türkiye”. However, the “Mobility Vehicles and Technologies Roadmap” does not include product or infrastructure targets for heavy commercial vehicles.

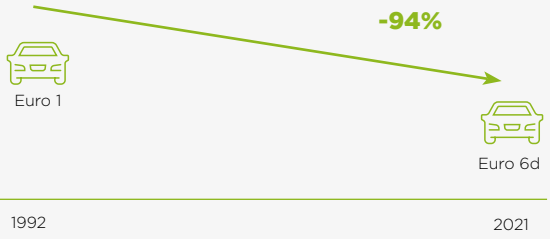
The Ministry of Energy and Natural Resources published the “Hydrogen Technologies Strategy and Roadmap of Türkiye” in January 2023.

TÜRKİYE’S JOURNEY TO EMISSION REDUCTION AND VEHICLE FLEET

With the adoption of the Euro Standards after 1990, both greenhouse gas (CO_2) and pollutant emission parameters (NOx, PM) of motor vehicles have significantly decreased year by year. Under national type approved light-duty vehicles ((EC) 715/2007), Euro 6d emission level has become mandatory for new passenger cars in Türkiye as of January 1, 2021, and for light commercial vehicles as of March 1, 2022. On the other hand, Euro VI-E emission level has been adopted for heavy-duty vehicles ((EC) 595/2009) as of February 15, 2022. For tractor group vehicles, Phase V emission level will be introduced as of January 1, 2023. Euro emission limits and OBD (On Board Diagnosis) levels of light- and heavy-duty vehicles and tractor group vehicles are at the same level with the EU.

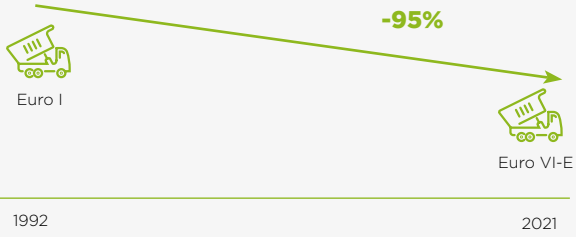
TÜRKİYE'S EMISSION TRANSITION AND VEHICLE FLEET (2020)

Gasoline Passenger Cars - NOx

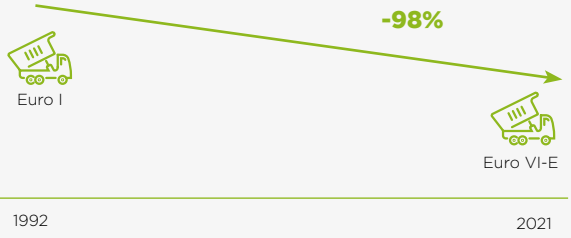


Diesel Passenger Cars - NOx

Diesel Heavy-Duty Vehicles - NOx



Diesel Heavy-Duty Vehicles - PM



Share in Vehicle Fleet %	Before Euro 1 and Euro Norm	Euro 3	Euro 4 Euro IV	Euro 5 Euro V	Euro 6 Euro VI	Total
Vehicle Fleet (Light-Duty)	35%	12%	10%	34%	9%	100%
Vehicle Fleet (Heavy-Duty)	59%	-	9%	20%	11%	100%
Total Vehicle Fleet	36%	12%	10%	33%	9%	100%

	~ >11 years: 48%	~ >11 years: 52%
CO	~ 80%	~ 20%
PM	~ 90%	~ 10%
HC + NOx	~ 80%	~ 20%

Pollutant Parameters

CO Carbon Monoxide

PM Particulate Matter

HC Hydrocarbon

NOx Nitrogen Oxide

SUSTAINABLE PRODUCTS IN THE AUTOMOTIVE INDUSTRY

To reach Türkiye's "2053 Net Zero and Green Development Goal", it is important that policies are developed, and incentive mechanisms are sustained to renew the existing vehicle fleet and to bring the vehicles to be de-registered into the economy at end-of-life vehicle facilities.

It is critical to develop policies to remove highly polluting old vehicles from traffic and replace them with environmentally friendly vehicles with new generation technology.

Studies show that as much as 80% of a vehicle's carbon dioxide emissions during its product lifecycle come from fuel production and vehicle use. Roughly half of the vehicle fleet in our country consists of vehicles over 11 years old, and these vehicles account for 80-90% of the air pollutant parameters of the total fleet.

It is known that with the transition from Euro 1 to Euro 6, vehicles contribute to the reduction of both greenhouse gas emissions and air pollution and related health problems in cities. As Euro norms increase, there will be significant improvements in average fuel consumption.

In order to reduce emissions from road vehicles, to have a positive impact on foreign trade balance by reducing oil imports of our country and to reduce the health effects and costs associated with air pollutants, it is important to formulate policies to remove old vehicles with high pollutant qualities from traffic and replace them with environmentally friendly vehicles with new generation technology.

To reach Türkiye's "2053 Net Zero and Green Development Goal", it is important that policies are developed, and incentive mechanisms are sustained to renew the existing vehicle fleet and to bring the vehicles to be de-registered into the economy at end-of-life vehicle facilities.

Türkiye's first Climate Council was held on February 21-25, 2022, with the aims of determining short, medium and long-term strategic goals with the active participation of all stakeholders in line with our country's 2053 net zero emission and green development goals, contributing to the legislation to be developed on climate issues, and creating a roadmap including fundamental policies and priority actions in the context of reducing greenhouse gas emissions and adaptation to climate change. The Climate Council commission decisions of February 25, 2022, included the decision to "Develop a sector-based policy on the transformation of the existing vehicle fleet into vehicles with low unit energy consumption and low emissions or zero emissions in all vehicle groups, plan and implement a vehicle renewal program" in relation to the renewal of the existing vehicle fleet.

Euro 7/VII:
In the EU, the draft work for the Euro 7/VII was completed and published by the European Commission on November 10, 2022. According to the draft, Euro 7 emissions for new passenger cars and light commercial vehicles will be introduced in July 2025 and for heavy commercial vehicles in July 2027. Euro 7 foresees seriously challenging emission tests. This is considered to be a challenging target for manufacturers that have made high technological development in internal combustion engines over the years and have reached significant levels. It requires considerable research and development, especially in exhaust gas filtration systems. Positioned as an intermediate transition on the road to zero emissions, Euro7 will introduce additional engineering and investment needs to the automotive ecosystem.

Roughly half of the vehicle fleet in our country consists of vehicles over 11 years old, and these vehicles account for 80-90% of the air pollutant parameters of the total fleet.

In addition, Euro 7 will also introduce limits on non-exhaust emissions (particulate emissions from brake disc and tire wear). While these emissions are considered to be the right approach as they will also be a requirement for zero emission vehicles, there is still significant progress to be made in terms of technical specifications and validation tests.

The issue is being evaluated both on the ACEA LC platform and by the OSD Technical Committee.

EMPLOYMENT, DIVERSITY AND INCLUSION

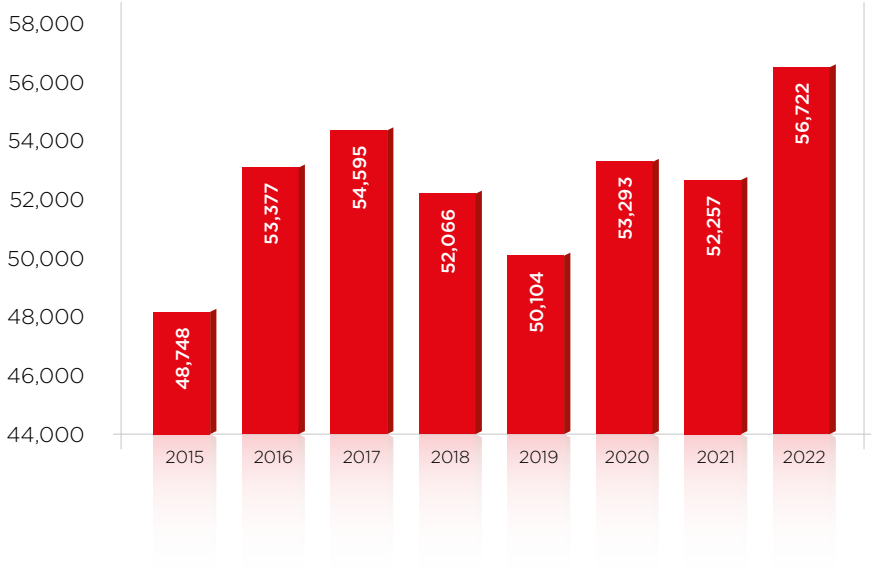
The human resources approach of OSD and its members is implemented with policies based on creating a working environment that will increase the performance of employees, observing diversity, ensuring equal opportunities, attracting qualified employees to the sector, preserving the qualified workforce, and continuous improvement.

In 2021, the employment of 13 members of OSD increased by 1% compared to the previous year, while in 2022, the number of employees increased by 9% compared to the previous year due to new investments.

Human Resources Policy and Employment Development:
The priorities of OSD and its members' human resources policies are to create an employment culture in line with strategic goals and sustainable priorities, to bring qualified employees into the sector through talent management, to create working environments that will improve the performance of employees, to observe diversity, to ensure equal opportunities and to continuously improve human resources processes.

The human resources approach of OSD and its members is implemented with policies based on creating a working environment that will increase the performance of employees, observing diversity, ensuring equal opportunities, attracting qualified employees to the sector, preserving the qualified workforce, and continuous improvement.

Development of Employment in the Automotive Main Industry



The employment in the Turkish automotive main industry, with 14 members of OSD, hovered around 50-55 thousand in the 2016-2020 period. In 2021, Honda ended its production in Türkiye with a global policy change. As of that year, the employment figures cover 13 OSD members. In 2021, the employment of 13 members of OSD increased by 1% compared to the previous year, while in 2022, the number of employees increased by 9% compared to the previous year due to new investments.

In 2022, in line with planned projects and new investments, growth in employment and the need for qualified workforce continued, and total main industry employment exceeded 56,000.

In 2022, the number of employees working in R&D activities, one of the most important components of the labor force requirement, increased by 16% compared to the previous year, and the R&D center employment of OSD member companies exceeded 5 thousand.

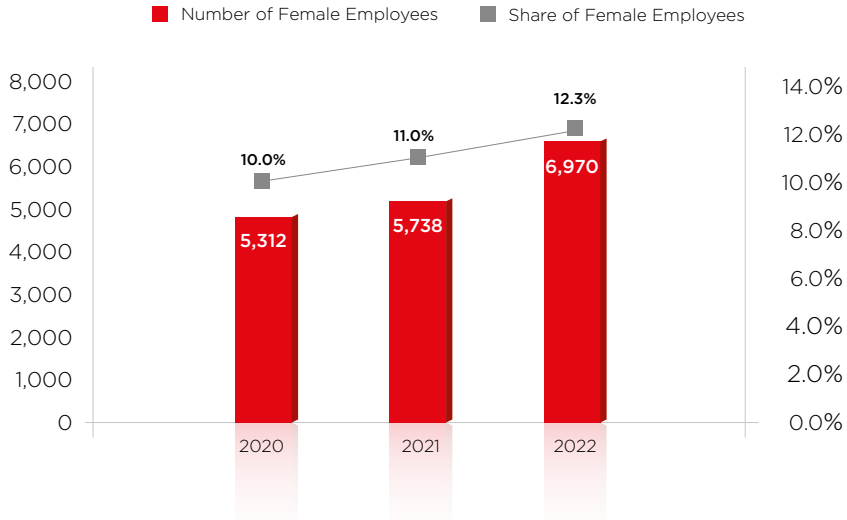
Since 2015, total employment of OSD members has increased by 16%, while R&D employment of OSD members has increased by 35%.

According to the November 2022 Labor Force Statistics published by TurkStat, the direct and indirect employment of the Turkish automotive industry is approximately 550 thousand.10

Demographic Indicators:
The automotive industry's qualified workforce, high level of education and competence, and corporate business style that sets an example for the global business world, stand out as important criteria in attracting new investments to our country. OSD members continue to work and make considerable investments to maintain the long-term employment of qualified labor in our industry. An analysis of 2021 demographic indicators shows that 18% of total employment in 2021 consisted of office workers and the share of female employees was 11%. It is seen that 12.3% of total employment in 21 consisted of office workers and the share of female employees was 11%.

Türkiye's socio-economic development and the improvement of women's status in society are of vital importance for the automotive industry to grow stronger in the future. OSD and its members prioritize the support and employment of the female workforce and aim to ensure that women can take part in working life at all levels. They also create opportunities to attract women to the automotive world and support them on their career path. The results of many studies conducted in Türkiye and around the world shows that women's presence in economic life has a positive impact on both the value chain created and the earnings obtained. OSD considers ensuring women's equal participation in economic as one of Türkiye's most important issues.

Development in the Number of Female Employees



Breakdown of Employees by Education

	2020	2021
Primary Education	6.0%	4.4%
High School/Vocational High School/ Technical High School	57.0%	57.3%
Vocational School	15.5%	15.6%
Undergraduate	16.0%	17.8%
Graduate	4.4%	4.7%
PhD	1.0%	0.2%
Total	100%	100%

[10] C-29 (Manufacture of motor vehicles, trailers and semi-trailers) and G-45 (Wholesale and retail trade and repair of motor vehicles and motorcycles) figures were used for the calculation.

EMPLOYMENT, DIVERSITY AND INCLUSION

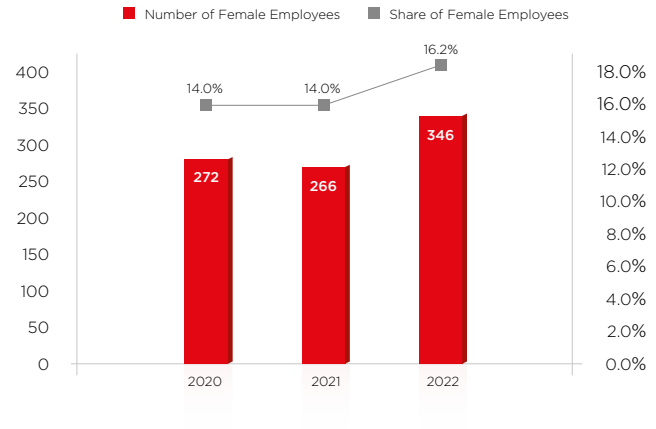
For professional development, OSD members support the training of employees through competency development programs in academies established within their companies.

More than 73% of the automotive industry consists of high school, vocational high school and vocational school graduates. For professional development, OSD members support the training of employees through competency development programs in academies established within their companies.

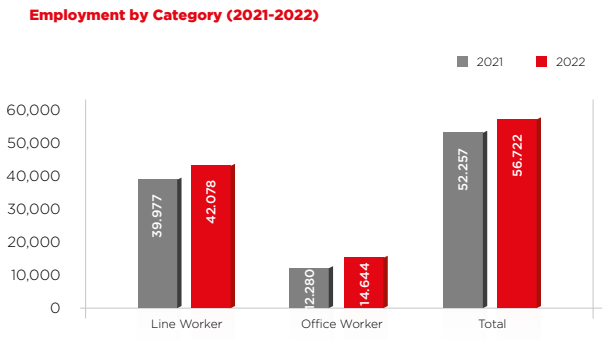
Breakdown of Employees by Age

By Age	Gender	2019	2020	2021
18 - 30	Female	4.1%	3.5%	5.4%
	Male	30.6%	30.8%	27.2%
31 - 50	Female	4.1%	4.0%	5.5%
	Male	58.8%	59.2%	59.3%
Above 50	Female	0.1%	0.1%	0.1%
	Male	2.3%	2.4%	2.5%
TOTAL		100.0%	100.0%	100.0%

Development of Women in Total Top Management Positions



Employment by Category



EMPLOYMENT (2021)

TITLE/DESCRIPTION	FEMALE	MALE	TOTAL
WORKER - LINE WORKER (Blue-collar)	2,487	34,206	36,693
FOREMAN - SUPERINTENDENT - SUPERVISOR (Level 1) (Blue-collar)	86	3,198	3,284
Total Blue-collar	**2,573**	**37,404**	**39,977**
TEAM LEADER (Level 1) (White-collar)	0	61	61
TEAM LEADER - CREW LEADER - DIRECTOR - CHIEF (Level 2)	186	1,134	1,320
GROUP LEADER (Level 2) (White-collar)	0	19	19
EXPERT - CLERK - OFFICE WORKER (White-collar)	2,713	6,269	8,982
MIDDLE MANAGEMENT (White-collar)	234	1,426	1,660
TOP MANAGEMENT (White-collar)	32	206	238
Total White-collar	**3,165**	**9,115**	**12,280**
TOTAL	**5,738**	**46,519**	**52,257**

EMPLOYMENT (2022)

TITLE/DESCRIPTION	FEMALE	MALE	TOTAL
WORKER - LINE WORKER (Blue-collar)	3,219	36,089	39,308
FOREMAN - SUPERINTENDENT - SUPERVISOR (Level 1) (Blue-collar)	113	2,657	2,770
Total Blue-collar	**3,332**	**38,746**	**42,078**
TEAM LEADER - CREW LEADER - DIRECTOR - CHIEF (Level 2)	233	2,136	2,369
EXPERT - CLERK - OFFICE WORKER (White-collar)	3,058	6,959	10,017
MIDDLE MANAGEMENT (White-collar)	331	1,645	1,976
TOP MANAGEMENT (White-collar)	15	144	159
TEAM LEADER (Level 1) (Blue-collar)	0	97	97
GROUP LEADER (Level 2) (Blue-collar)	0	15	15
PRODUCTION LEADER (Level 1) (White-Collar)	**1**	**10**	**11**
Total White-collar	**3,638**	**11,006**	**14,644**
TOTAL	**6,970**	**49,752**	**56,722**

TITLE	DEFINITION
WORKER - LINE WORKER (Blue-collar)	Represents all blue-collar employees who are paid by the hour and are covered by collective bargaining agreements. Includes all direct and indirect line employees working in facilities and engaged in automotive production.
FOREMAN - SUPERINTENDENT - SUPERVISOR (Level 1) (Blue-collar)	First-level managers who manage line workers. Refers to employees paid by the hour.
TEAM LEADER - CREW LEADER - DIRECTOR - CHIEF (Level 2)	First-level managers who are responsible for line workers. Refers to white-collar employees with a fixed monthly salary.
EXPERT - CLERK - OFFICE WORKER (White-collar)	All white-collar employees without team management responsibilities.
MIDDLE MANAGEMENT (White-collar)	Middle level managers, unit managers, directors and employees leading teams.
TOP MANAGEMENT (White-collar)	General Manager, employees directly reporting to the General Manager.

TRAINING AND CONFERENCES

OSD and its members provide the opportunity and platforms for continuous improvement by designing processes that enable their employees, whom they see as their most important talent and asset in achieving their sustainability goals, to unleash their potential.

In order to support the development of its employees, OSD members provide training opportunities both through in-house academy activities and through outsourcing.

OSD and its members create training and advancement opportunities for the development of their qualified workforce. All approaches that complement each other, such as supporting the development of qualified employees for the automotive industry, preparing and supporting their career development, enabling their creativity to emerge, increasing their competencies through trainings, and providing opportunities for their professional and personal development contribute to the development of the sector.

In order to support the development of its employees, OSD members provide training opportunities both through in-house academy activities and through outsourcing. Continuity in training activities is seen as one of the most important elements for the development of employees and the sector. By its very nature, the automotive industry has to adapt to global developments by maintaining its flexible structure. For this reason, all of the training, awareness, development and innovation activities carried out on a continuous basis contribute to industrial development. Moreover, maintaining a qualified workforce within the sector and preventing brain drain is seen as one of the most critical elements for competitiveness and the development of the national economy.

OSD and its members provide the opportunity and platforms for continuous improvement by designing processes that enable their employees, whom they see as their most important talent and asset in achieving their sustainability goals, to unleash their potential. The Association aims to regularly support the development of the talents it recruits, to train them for higher positions, and to bring out their innovative and creative sides through effective communication. It also aims to increase the skills of its employees through training programs, to direct them to programs that contribute to their personal and professional development, and to provide them with efficient living spaces and a safe working environment. Throughout 2021, OSD Members averaged 37 hours of training activities targeting professional and personal development per unit employee.

The automotive industry contributes to the development of the sector by organizing training/conference activities for both its own employees and stakeholders.

In addition, internship opportunities offered within the scope of vocational high school-industry cooperation and internship processes carried out in cooperation with university-industry collaborations bring qualified and high-potential workforce to the automotive industry.

AUTOMOTIVE INDUSTRY SUMMER CAMP

Students had limited access to internship opportunities in 2020-2021 due to the pandemic. Therefore, the OSD Education Working Group initiated the Automotive Industry Online Summer Camp project. The Automotive Industry Online Summer Camp targeted mainly engineering students for social responsibility purposes. The summer camp was enriched with activities in which experts at OSD member companies shared their experiences with the participants, and the participants had the opportunity to get to know the sector closely thanks to the Online Activity.

More than 50 thousand students registered for the summer camp, the first of which was held between July 1-14 in 2021. Live online broadcasts were watched by more than 36 thousand students instantly, and the total number of views of 4 special sessions with CEOs and CHROs exceeded 188 thousand. In the Automotive Industry Summer Camp Youth Conversations special sessions, students met with the CEOs and CHROs of the sector. They had the chance to ask their questions to the executives and listen to them talk about their student years, experiences and how they discovered themselves. At the end of the 2021 summer camp, students who met the necessary conditions were entitled to receive an online internship participation certificate. The Automotive Industry Summer camp project has been recognized as a summer internship by 29 university departments such as Mechanical, Industrial, Electrical and Electronics Engineering.

Following the interest shown in the 2021 Automotive Industry Summer Camp and the success it has achieved, the OSD Automotive Industry Summer Camp was organized online for the second time in 2022 between June 24 and July 1. The program received over 55,000 applications and reached over 46,000 views on the launch day of June 24. During the camp, participants received 1,260 hours of training and attended 720 minutes of workshops. The CEO Talks and CHRO Talks sessions at the camp had over 32 thousand real-time views. At the end of the summer camps, 50,145 people received certificates of participation and 8,587 people received certificates of achievement. 73% of the participants of the 2022 camp were engineering students and 37% were women. The program received applications from 185 universities and 81 provinces.

OSD Human Resources Committee, HR Project Group

55 Thousand+
Total Applications

46 Thousand+
Total Views

720
Minutes of Workshops

1,260
Minutes of Training

34 Thousand+
Total Views

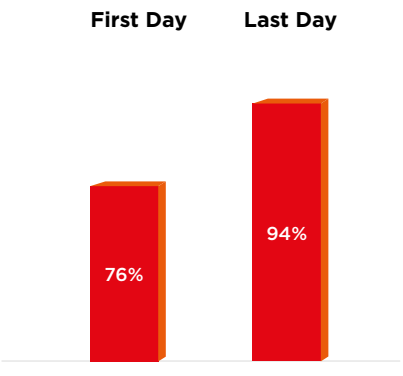
50,145 People
entitled to receive a certificate of participation

8,587 People
entitled to receive a certificate of achievement

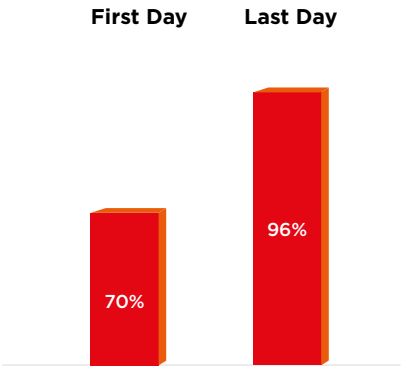
TRAINING AND CONFERENCES

73% of the participants of the 2022 camp were engineering students and 37% were women. The program received applications from 185 universities and 81 provinces.

The results of the evaluation surveys conducted during the 2022 summer camp show that the rate of interest of the participants in the automotive industry before and after the summer camp increased from 73% to 94% and the rate of desire to pursue a career in the automotive industry rose from 70% to 96%.



How Interested Are You in the Automotive Sector?

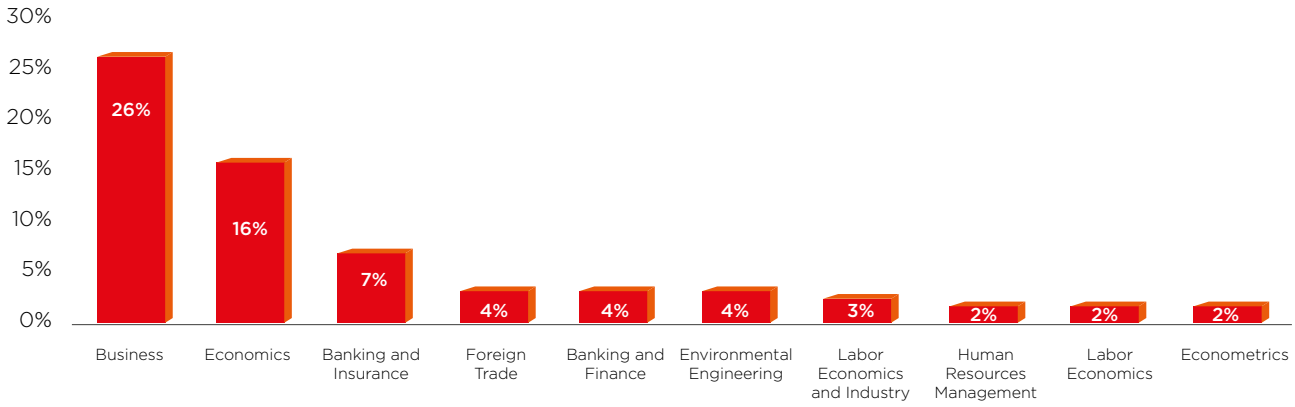


Would You Consider a Career in the Automotive Sector?

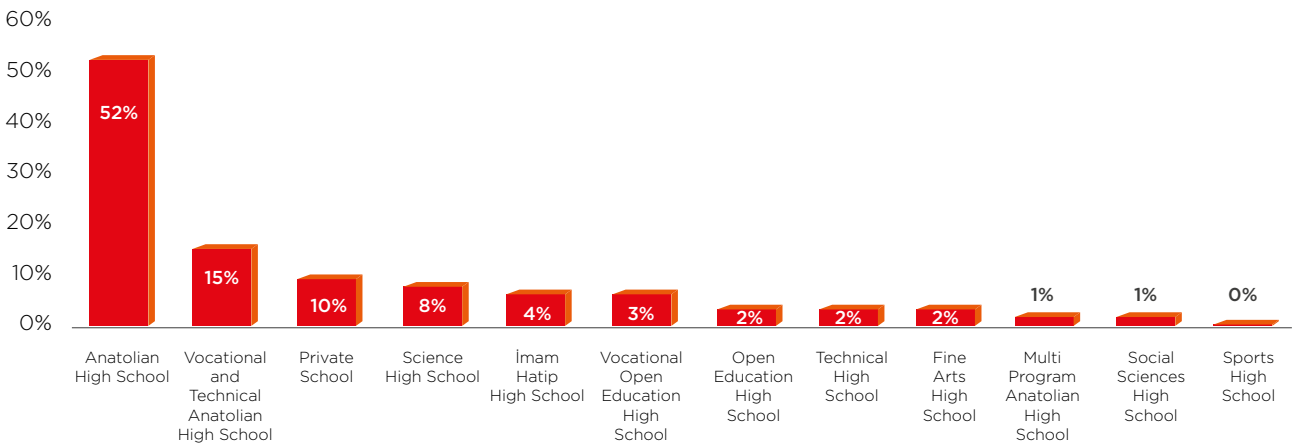
The automotive industry contributes to the development of the sector by organizing training/ conference activities for both its own employees and stakeholders.

The breakdown of the participants of the 2022 OSD Summer Camp by university and high school is given below.

University Departments - Highlights



Breakdown by High School



TRAINING AND CONFERENCES

Aiming to contribute to the development of the sector, OSD continues to organize trainings and conferences shaped around developing technologies, sectoral best practices, trends, consumer expectations and the environment.

Main Themes of International Automotive Engineering Conference (IAEC):

2016
Lightweighting in the Automotive Industry

2017
Future of Mobility

2018
The Present and Future of Electronics and Software in the Automotive Industry

2019
Electric Vehicle Technologies and Their Future

2020
Connected Vehicles and Smart Infrastructure (Online)

2021
Game-Changing Transformation in the Automotive Industry (Online)

2022
Sustainability

International Automotive Engineering Conference (IAEC)

The automotive industry, which makes significant contribution to the national economy and is among the leading industrial groups, needs to improve its R&D and innovation capabilities, encourage the use of alternative resources to increase its product development capacity, and support university-industry cooperation.

Aiming to contribute to the development of the sector, OSD continues to organize trainings and conferences shaped around developing technologies, sectoral best practices, trends, consumer expectations and the environment. Based on these objectives and requirements, the International Automotive Engineering Conference (IAEC) has been organized annually since 2016 to provide direction and knowledge-sharing for engineering and R&D activities in the automotive industry. The Conference also aims to convey to the participants, from a technical perspective, the steps to be taken in engineering issues in the automotive industry and the current dynamics of engineering in the automotive industry and the opinions of experts in the international arena.

IAEC 2022, which is organized with a different main theme every year, was held at Sabancı University Show Center on November 17-18 with the main theme of “Sustainability”. The Conference included panels on “Circular Economy”, “Environmental Impact (Carbon-Neutral & Product Lifecycle)”, “Present and Future Predictions of Digital Transformation”, “Alternative Fuel Vehicles and Infrastructure”, “EV” Charging Structure”. 439 people attended the first day of the conference, organized physically after 2 years, while the second day was attended by 505 people.

(For more information: https://iaec.ist/)

Corporate Sustainability Training

It is known that sustainability training is very important and necessary for all companies operating in the manufacturing sector.

Corporate Sustainability Training for the automotive main and supply industry was organized online by OSD in cooperation with BÜYEM (Boğaziçi University Lifelong Learning Center) and

UN SDSN Türkiye on the following dates:

- Automotive Manufacturers Association (OSD) Corporate Sustainability Training Program - October 5-November 16, 2021 (For OSD Members)
- Automotive Manufacturers Association (OSD) Corporate Sustainability Training Program - October 26-November 30, 2021 (For TAYSAD Members)

Within the scope of the program, a total of 28 hours/person training was provided. At the end of the training, 71 OSD Members and 48 TAYSAD members were entitled to receive certificates.

The corporate sustainability training was useful for all employees of OSD member companies to review the environmental and social impacts of their company and individual activities as well as their management approach.

In addition, in order to support the BÜYEM Sustainability Certificate Program, OSD provided information on the sustainability efforts of the automotive industry in the training programs organized by BÜYEM for different sectors in January 2022 and December 2022.

OSD Türkiye Environment Week Event 2022

June 5 has been designated as World Environment Day at the United Nations Conference on the Environment in 1972. Activities organized to raise awareness for environmental protection are organized throughout the first week of June and celebrated by institutions through online or face-to-face events.

The OSD Environmental Committee organized online Environment Day/ Week events in 2021 and 2022. OSD, TAYSAD, UIB and TOBB members participated in the webinar held on June 10, 2022.

At the event, where the opening speeches were delivered by Özlem Güçlüer, OSD Secretary General and Tuğba Dinçbaş, PhD, Head of the Department of Greenhouse Gas Reduction Policies at the Ministry of Environment, Urbanization and Climate Change of the Republic of Türkiye, presentations were made on climate change and the transformation of the automotive industry, the transformation of the automotive supply chain, CBAM, and incentives and support for transformation.

OSD Türkiye Environment Week Event Program (June 10, 2022)

Opening speeches
Özlem Güçlüer – Automotive Manufacturers Association Secretary General
Tuğba Dinçbaş, PhD – Head of the Department of Greenhouse Gas Reduction Policies at the Ministry of Environment, Urbanization and Climate Change

Presentations
Climate Change and the Transformation of the Automotive Industry – Meral Turan Akırmak (OSD)
Green Transformation in the Automotive Value Chain – Ahu Köksal (TOFAŞ)
Carbon Border Adjustment Mechanism and Toyota's Climate Targets – Zafer Atabey (TOYOTA)
Green Transformation Incentives and Supports – Gönül Mumlu (OTOKAR)

Q&A

International Efficiency Challenge Electric Vehicle Races

TÜBİTAK and OSD have been cooperating for four years in the organization of the International Efficiency Challenge Electric Vehicle Races. The general aim is to increase the knowledge and experience of students on electric vehicle technologies, which will become widespread all over the world in the future with the concept of clean and efficient energy, and to enable participants to gain research opportunities on alternative energies and keep up with developments. International Efficiency Challenge Electric Vehicle Races were organized on July 19-24, 2022, at the Körfez Racetrack as part of TEKNOFEST. OSD and its members contributed to the preparation processes of high school and university students participating in the race.

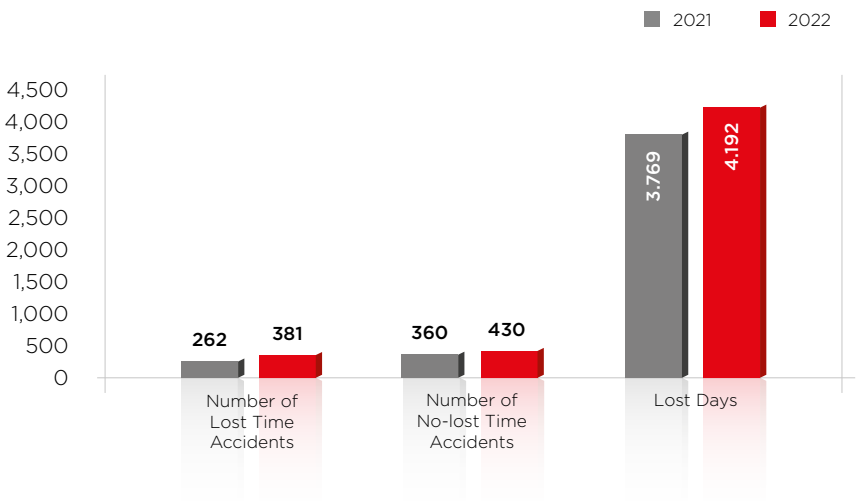
OCCUPATIONAL HEALTH AND SAFETY

All OSD member facilities analyze the occupational health and safety risks that arise within the scope of their activities and take all necessary measures for their employees and all suppliers serving in their facilities.

In addition to providing a healthy and safe working environment for all its employees, the automotive industry considers protecting the mental and physical health of its employees as its most fundamental responsibility. Within the scope of occupational health and safety, the automotive industry is classified as hazardous according to the "Communiqué on Workplace Hazard Classes Regarding Occupational Health and Safety". Therefore, all OSD member facilities analyze the occupational health and safety risks that arise within the scope of their activities and take all necessary measures for their employees and all suppliers serving in their facilities. All member companies have OHS committees where employees can share their suggestions and opinions on occupational health and safety issues. They have established Occupational Safety and Management Systems in compliance with national and international legislation and carry out their activities in accordance with the Labor Law. The Occupational Health and Safety Management System has been established in all member companies, and 11 of the member companies have been certified with the ISO 45001 Occupational Health and Safety Management System Standard.

Since 2016, OSD members' OHS data has been transformed into metrics that are monitored in terms of sustainability, enabling members to conduct benchmark studies and share best practices. The graphs below show OSD members' lost-time accidents, no-lost-time accidents, lost days, accident frequency rates and severity rates data for 2021-2022.

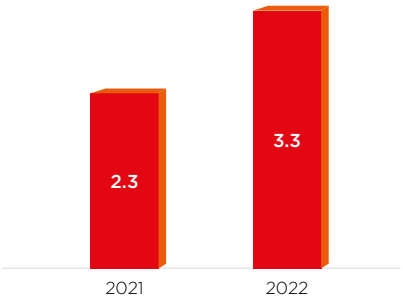
Number of lost-time accidents



**Hattat Traktör data not included.*

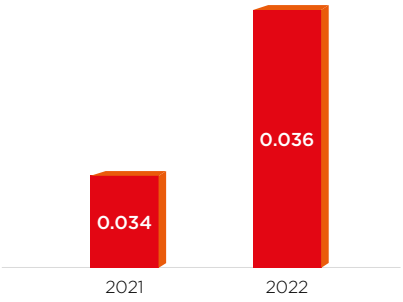
Every year, members periodically receive OHS trainings, perform health checks, take precautions for employees at a high risk of occupational disease, conduct risk analyses to maintain a safe working environment, create action plans for monitoring occupational accidents and near-miss incidents and ensure their follow-up.

Accident Frequency Rate



** Accident Frequency Rate = Total Number of Lost Time Accidents / Working Hours *1,000,000*

Accident Severity Rate



**Accident Severity Rate: Total Number of Lost Days*1,000 / Working Hours*

The accident frequency rate and accident severity rate of the facilities of OSD Members remain well below the SSI Türkiye statistics. However, there is an increase in the OSD average in 2022 compared to the previous year. In 2022, investments and capacity utilization rates of facilities of OSD Members generally increased, and the total number of employees rose significantly by 9% compared to the previous year. In addition to legal OHS trainings during recruitment processes, new employees are provided with both theoretical and practical trainings according to the work to be performed. However, although new employees are given theoretical and practical training, it takes time to acquire safe behavior habits. Root cause analyses conducted for the facilities with an increase in accidents highlight unsafe behaviors. In facilities of members with increased accident frequency rate, additional measures are taken according to the root cause analysis results.

Every year, members periodically receive OHS trainings, perform health checks, take precautions for employees at a high risk of occupational disease, conduct risk analyses to maintain a safe working environment, create action plans for monitoring occupational accidents and near-miss incidents and ensure their follow-up. OHS trainings are provided by OSD members in accordance with the obligations set out in the Occupational Health and Safety Law No. 6331 and the Regulation on the Procedures and Principles of Occupational Health and Safety Trainings for Employees. An analysis of OHS trainings indicate that over 300 thousand hours of training is provided for employees every year.

Through the work of the OHS Committee within the Association, developments both in the world and in our country are monitored and examples of good practices are shared.

OCCUPATIONAL HEALTH AND SAFETY

The OSD OHS Committee has been organizing “Seminars on OHS Good Practices in the Automotive Industry” every year since 2016 as a social responsibility project to raise awareness among automotive supply industry companies on OHS practices.

Seminars on OHS Good Practices in the Automotive Industry

The OSD OHS Committee has been organizing “Seminars on OHS Good Practices in the Automotive Industry” every year since 2016 as a social responsibility project to raise awareness among automotive supply industry companies on OHS practices. The traditional seminar, which was suspended for two years due to the pandemic, was held online on May 25, 2022, with the participation of OHS experts from various sectors, especially OHS experts from automotive supply industry companies.

Seminars on OHS Good Practices in the Automotive Industry

(May 25, 2022)

Opening speeches

Özlem Güçlüer – Automotive Manufacturers Association Secretary General

Seda Yenidünya – Deputy Director General of OHS, Ministry of Labor and Social Security

PANEL 1

Moderator Meral Turan Akırmak (OSD)

Good Practices in the Metal Sector Altan Çetindal (MESS)

Good Practice by Tofaş (Good Practices in Press Mold Areas) - Taner Çetintaş (TOFAŞ)

Good Practice by Oyak Renault (OHS Practices in Logistics Areas) - Evren Özdem (OYAK RENAULT)

Q&A

PANEL 2

Moderator Burçin Harlak (ANADOLU ISUZU)

Good Practice by Ford Otosan (Communication Efforts for Occupational Safety Cultural Development) - Nalan Gülçin Baydağ (FORD OTOSAN)

Good Practice by MAN (Promotion of Health in the Workplace) - Dr. Kemal Yıldırım (MAN)

Q&A

RELATIONS WITH STAKEHOLDERS

In order to identify the expectations of its internal and external stakeholders, OSD conducted a stakeholder materiality survey for the 2021 Sustainability Report.

As an association, OSD's culture is based on the expectations, needs and future visions of all its domestic and international stakeholders. Implementing all its social, environmental and economic responsibilities with awareness and consciousness, OSD holds corporate values that support the Association's vision and reflect its culture, and this approach is adopted by all its members. In this direction, in order to make the sustainability culture accessible to all stakeholders, OSD prioritizes the participation and satisfaction of stakeholders in ethical, environmental and social management issues.

In order to identify the expectations of its internal and external stakeholders, OSD conducted a stakeholder materiality survey for the 2021 Sustainability Report.

In line with its set of values, OSD continues to improve and strengthen its communication with its stakeholders and to work in mutual cooperation.

OSD supports its members to improve their sustainability performance in areas that will contribute to their development. In this context, it considers raising awareness on sustainability issues as one of its prioritized tasks as it considers sustainability to be an important responsibility. For all these common goals, the Association continuously develops its sustainability approach and the practices it entails and works to ensure their continuity and to expand them to the entire value chain. OSD collaborates with suppliers, public institutions, employees, non-governmental organizations, international organizations and other stakeholders to create value in economic, environmental and social issues.

OSD AWARDS AND SOCIAL RESPONSIBILITY

Published in 2021, the Turkish Automotive Industry Sustainability Report won the award in the “Sustainable Business Reporting” category at the Sustainable Business Awards 2022 organized by the Sustainability Academy.

Sustainable Business Awards 2022: Published in 2021, the Turkish Automotive Industry Sustainability Report won the award in the “Sustainable Business Reporting” category at the Sustainable Business Awards 2022 organized by the Sustainability Academy.

OSD has been presenting achievement awards to recognize the achievements of its members since the 90s. The “OSD Export Achievement Award” is presented to the three members of OSD with the highest exports in terms of value and to the member with the highest percentage increase in exports on an annual basis. In addition, the “Technological Achievement Award” is given to the three members with the highest number of patent registrations per year.

“Supply Industry Achievement Awards” have been handed out since 1993 in order to highlight successful supply industry organizations that supply parts to the automotive main industry, to improve the environment of cooperation between the main industry and the supply industry, and to encourage the development of institutionalization. In addition, “Achievement Awards”, “Technology and Innovation Award” and “Jury Special Award” are presented based on developments in quality-focused mentality, delivery reliability, competence in technology development and competitiveness criteria.

In 2019, OSD launched the “OSD Corporate Social Responsibility Project Award” to encourage its members to undertake social responsibility projects.

OSD Awards:

2021 OSD Awards list:

Name of Award	Awarded Company	Awarded Work
Export Achievement Award	Ford Otomotiv Sanayi A.Ş.	USD 5.9 Billion in Exports
Export Achievement Award	Toyota Otomotiv Sanayi Türkiye A.Ş.	USD 3.9 Billion in Exports
Export Achievement Award	Oyak Renault Otomobil Fabrikaları A.Ş.	USD 2.8 Billion in Exports
Export Achievement Award	Anadolu Isuzu Otomotiv Sanayi ve Ticaret A.Ş.	(148% increase)
Technological Achievement Award	Ford Otomotiv Sanayi A.Ş.	147 patent registrations
Technological Achievement Award	Tofaş Türk Otomobil Fabrikası A.Ş.	56 patent registrations
Technological Achievement Award	Türk Traktör ve Ziraat Makineleri A.Ş.	47 patent registrations
Corporate Social Responsibility Achievement Award	Mercedes Benz Türk A.Ş.	Our EML: Star of the Future
Supply Industry Achievement Awards	Olgun Çelik San. ve Tic. A.Ş.	Company selected by all OSD Members
Supply Industry Achievement Awards	Coşkunöz Metal Form San. ve Tic. A.Ş.	Company with a production capacity of over 100 thousand units, selected by all OSD Members
Supply Industry Achievement Awards	Turna Ahşap İnş. San. Tic. Ltd.	Company with a production capacity of under 100 thousand units, selected by all OSD Members
Technology and Innovation Award	Adastec Teknoloji A.Ş.	Software development for making Karsan Atak EV L4 autonomous
Contribution to Sustainability Award	CMS Jant ve Makina San. A.Ş.	Innovative efforts for the reduction of product emissions, investments in the use of renewable resources in production areas, social responsibility activities carried out in the regions where the company operates, career development programs, safe and egalitarian work policies
Contribution to Sustainability Award	Seçil Kauçuk San. and Tic. A.Ş.	Establishment of a solar electricity generation facility with the goal of carbon reduction and activities targeting external services

OSD AWARDS AND SOCIAL RESPONSIBILITY

OSD's awards encourage members to engage in technological innovation, growth, social responsibility projects and sustainability activities. In this way, projects that contribute to sustainable development goals in particular are highlighted and supported.

2021 Corporate Social Responsibility Project Achievement Award:
The 2021 Corporate Social Responsibility Project Achievement Award was presented to Mercedes Benz Türk A.Ş. for the project "Our EML: Star of the Future". Mercedes Benz Türk A.Ş.'s "Our EML: Star of the Future" project aims to provide vocational high school students with information about today's technology and contribute to their qualified development, and to boost the employment of qualified intermediate staff in the automotive sector by contributing to the employability of the graduates of related departments. Mercedes-Benz Laboratories (MBL) have been established in 32 Industrial Vocational High Schools (IVHS) in 28 cities within the scope of the "Our EML: Star of the Future" project, which has been implemented since 2014 in cooperation with Mercedes-Benz Otomotiv, Mercedes-Benz Türk, the Ministry of National Education, and Mercedes-Benz Authorized Dealers and After-Sales Service Centers.

OSD presents the "Contribution to Sustainability Award" to its members to contribute to sustainability, and to create supply industry partnerships for the goals of quality education, gender equality, environment and energy, which are among the sustainability development goals of the United Nations. The award-winning projects include innovative work on reducing product emissions, investments in the use of renewable resources in production areas, social responsibility activities, career development programs, safe and equitable work policies, and the establishment of a solar power generation facility with the goal of carbon reduction, and activities targeting external services.

Companies that received the Contribution to Sustainability Award:
- CMS Jant ve Makina San. A.Ş. with its projects on "Accessible and Clean Energy" and "Quality Education".
- Seçil Kauçuk San. and Tic. A.Ş. with its project on "Accessible and Clean Energy".

OSD's awards encourage members to engage in technological innovation, growth, social responsibility projects and sustainability activities. In this way, projects that contribute to sustainable development goals in particular are highlighted and supported.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COLLABORATIONS, PARTNERSHIPS AND MEMBERSHIPS

OSD closely follows developments in the sector and supports the transfer of knowledge and experience by participating in various meetings and working groups. In this context, it closely monitors the efforts on the European Green Deal, electric vehicle cooperation and climate change, and attaches great importance to technological advancement and R&D. OSD participated in the platforms and working groups listed in Annex-1 in 2021 and 2022 in order to support the necessary practices to combat climate change.

STAKEHOLDERS

STAKEHOLDERS OF OSD

Stakeholders Associated with OSD	Activity
Economic Development Foundation (İKV)	Work on the Customs Union and the European Union as Observer Member
Automotive Technology Platform (OTEP)	Work on the Development of R&D and Innovation Competitiveness as Founding Member
Technology Development Foundation of Türkiye (TTGV)	Work on Technology Development as Founding Member
Association of Intelligent Transportation Systems (AUSDER)	Work on Intelligent Transportation Systems as Founding Member
Federation of Sectoral Associations (SEDEFED)	Member
International Organization of Motor Vehicle Manufacturers (OICA)	Member
European Automobile Manufacturers' Association (ACEA)	Liaison Committee Member
ODETTE	Member

PLATFORMS OSD PARTICIPATES IN

12TH DEVELOPMENT PLAN - Automotive Industry Working Group
12TH DEVELOPMENT PLAN - Specialized Commission on the Impact of Climate Change on Sustainable Development
12TH DEVELOPMENT PLAN - Working Group on New Approaches to Foreign Trade
12TH DEVELOPMENT PLAN - Specialized Commission on Manufacturing Industry Policies
Climate Council - Greenhouse Gas Mitigation-1 (Energy, Industry, Transport)
Climate Council - Green Finance and Carbon Pricing
EU-Türkiye International Green Corridors NGO Network
All OTEP Working Groups (Battery WG, Electrification WG, Software WG and Digital Transformation WG)
Motor Vehicles Technical Committee (MARTEK) and its Sub-Committees under the coordination of the Ministry of Industry and Technology
Working Group on Updating the Customs Union under the coordination of the Ministry of Trade
Union of Chambers and Commodity Exchanges of Türkiye (TOBB) Automotive Industry Assembly
Specialized Working Groups on the European Green Deal under the coordination of the Ministry of Trade
TOBB European Green Deal Working Group
TOBB Digital Transformation Working Group
TÜBİTAK Efficiency Challenge Electric Vehicle Races Collaboration Stakeholder
IAEC Organizing Committee
International Motor Vehicle Manufacturers' Association (OICA) General Assembly and Committees
European Automobile Manufacturers' Association (ACEA) Committees
ODETTE Technical Working Groups
Meetings with Automotive Industry NGOs
Meetings with Automotive Industry Commercial NGOs - Legislation Studies
Meetings with Sectors Using Flat Steel in Production
AUSDER General Assembly
Economic Development Foundation (IKV) General Assembly

CONTRIBUTIONS TO THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

Definition	SDG's Content and Goals	Related Sustainable Development Goals
Climate Change	7.1. By 2030, ensure universal access to affordable, reliable and modern energy services 7.a. By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology 13.2. Integrate climate change measures into national policies, strategies and planning 13.3. Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	 
R&D and Innovation	9.4. By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities 9.b. Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities	
Occupational Health and Safety	8.8. Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment.	
Contribution to the Turkish Economy	8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors	
Low Carbon Focused Production	9.4. By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities 12.2. By 2030, achieve the sustainable management and efficient use of natural resources	 
Digitalization	9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities	

Definition	SDG's Content and Goals	Related Sustainable Development Goals
Electric Cars, Battery and Alternative Fuels	9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities	
Contribution to Employment	8.5. By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value 8.8. Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment	
Compliance with National and International Legislation	16.6. Develop effective, accountable and transparent institutions at all levels. 16.7. Ensure responsive, inclusive, participatory and representative decision-making at all levels	
Supply Chain Development and Localization	17.10. Promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the World Trade Organization, including through the conclusion of negotiations under its Doha Development Agenda	
Emission Technologies and Air Quality	3.d. Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks 1.1. By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day 7.a. By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology	 
Equal Opportunity	8.5. By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value 8.8. Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment 10.2. By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status	 

CONTRIBUTIONS TO THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

Definition	SDG's Content and Goals	Related Sustainable Development Goals
Covid-19 Effects	3.3. By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases 3.d. Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks	
Talent Management and Trainings	8.5. By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	
Ethics and Transparency	16.6. Develop effective, accountable and transparent institutions at all levels 16.7. Ensure responsive, inclusive, participatory and representative decision-making at all levels	
Water and Wastewater Management	6.1. By 2030, achieve universal and equitable access to safe and affordable drinking water for all	
Greenhouse Gas Emissions	17.7. Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed	
Autonomous Vehicles and Data Management	9.b. Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities 11.3. Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	
Product Lifecycle Assessment and Management	12.6. Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle	
Circular Economy	7.1. By 2030, ensure universal access to affordable, reliable and modern energy services 12.5. By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse 12.6. Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle 13.3. Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	  

Definition	SDG's Content and Goals	Related Sustainable Development Goals
Contribution to Local Communities	10.2. By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status 17.16. Enhance the Global Partnership for Sustainable Development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the Sustainable Development Goals in all countries, in particular developing countries	
Stakeholders and Communication	17.16. Enhance the Global Partnership for Sustainable Development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the Sustainable Development Goals in all countries, in particular developing countries 17.17. Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships	
Shared Mobility	11.3. By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries	
Biodiversity	12.2. By 2030, achieve the sustainable management and efficient use of natural resources 14.1. By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution 15.9. By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts	

FINANCIAL PERFORMANCE INDICATORS

METRICS	Unit	2021	2022
Production	Million Units	1.28	1.3
Contribution to Tax Revenues	%	7.3	8
Total Automotive Exports	Units	937 Thousand	970 Thousand
Foreign Trade Surplus	USD Billion	9.4	9.1
Investments	USD Million	662	976
R&D Expenditures	USD Billion	3.4	6.2
R&D Exports	USD Million	125	253
Number of Patents	Units	315	236
R&D Employees	Thousand	4.6	5.2

ENVIRONMENTAL PERFORMANCE INDICATORS

ENERGY CONSUMPTION	Unit	2019	2020	2021	2022	Reduction Rate (%)
Total Equivalent Energy Consumption (All Vehicles)	kWh	2,015,670	1,923,981	1,942,165	1,937,332	3.9%
Unit Energy Consumption (Light Vehicles)	kWh/unit	1,104	1,167	1,187	1,080	2.2%
Unit Energy Consumption (Heavy Vehicles)	kWh/unit	8,660	7,083	5,353	5,246	39.4%
Total Greenhouse Gas Emissions (All Vehicles)	Tons CO_2e/ vehicle	0.42	0.38	0.35	0.31	27.5%
Unit Greenhouse Gas Emissions (Light Vehicles)	Tons/units	0.33	0.29	0.27	0.23	30.8%
Unit Greenhouse Gas Emissions (Heavy Vehicles)	Tons/units	2.76	2.05	1.38	1.25	54.5%
WATER CONSUMPTION						
Total Water Consumption (All Vehicles)	m^3/ vehicle	3.14	3.21	3.28	3.04	3.1%
Unit Water Consumption (Light Vehicles)	m^3/ vehicle	2.35	2.41	2.51	2.24	4.4%
Unit Water Consumption (Heavy Vehicles)	m^3/ vehicle	23.97	17.75	13.06	13.09	45.4%
TOTAL WASTEWATER						
Total Wastewater (All Vehicles)	m^3/ vehicle	2.04	1.91	1.78	1.70	16.5%
Unit Wastewater (Light Vehicles)	m^3/ vehicle	1.62	1.53	1.47	1.36	16.1%
Unit Wastewater (Heavy Vehicles)	m^3/ vehicle	13.22	8.78	5.65	6.07	54.1%
WASTE						
Total Waste (All Vehicles)	kg/vehicle	243	242	250	243	0.3%
Unit Waste (Light Vehicles)	kg/vehicle	220	218	226	215	2.1%
Unit Waste (Heavy Vehicles)	kg/vehicle	869	681	554	591	32%
Total Waste Recovery (All Vehicles)	%	-	97	99	99	-

SOCIAL PERFORMANCE INDICATORS

OCCUPATIONAL HEALTH AND SAFETY PERFORMANCE	Unit	2021	2022
Occupational Accident Frequency Rate	Rate	2.3	3.3

EMPLOYEE EDUCATION LEVEL	Unit	Line Worker	Office Worker
Primary Education	%	6.0%	4.4%
High School/Vocational High School/ Technical High School	%	57.0%	57.3%
Vocational School	%	15.5%	15.6%
Undergraduate	%	16.0%	17.8%
Graduate	%	4.4%	4.7%
PhD	%	1.0%	0.2%

NUMBER OF EMPLOYEES	Unit	2021	2022
Number of Employees	Units	52,257	56,722

EMPLOYEES BY AGE GROUP	Unit	Female	Male	Total
18 - 30	%	5.4%	27.2%	32.6%
31 - 50	%	5.5%	59.3%	64.8%
Above 50	%	0.1%	2.5%	2.6%

GRI CONTENT INDEX

GRI Standard	Definition	Disclosures	Page Numbers
GRI 101: Foundation 2016			
GRI 102: General Disclosures 2016			
Institutional Profile			
102-1	Name of the organization	About the Report	12
102-2	Activities, brands, products, and services		12
102-3	Location of headquarters		12
102-4	Location of operations		12
102-5	https://www.osd.org.tr/corporate/board-of-directors		
102-6	Markets served		12
102-7	Scale of the organization	OSD in Figures	14-17
102-8	Information on employees and other workers	OSD in Figures, Employment, Diversity and Inclusion	15-17, 96-99
102-9	Supply chain	Supply Chain Management	60-61
102-10	Significant changes to the organization and its supply chain		
102-11	Precautionary Principle or approach	Risk Management and Internal Audit	39
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102-13	Membership of associations		
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102-14	Statement from senior decision-maker	Message from the Chairman	22-23
102-15	Key impacts, risks, and opportunities	Risk Management and Internal Audit	39
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102-16	Values, principles, standards, and norms of behavior	Business Ethics and Compliance	38
102-17	Mechanisms for advice and concerns about ethics		
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102-18	Governance structure	Board of Directors and Organizational Structure/OSD Management	28-29
102-19	Delegating authority	Board of Directors and Organizational Structure	28
102-21	Consulting stakeholders on economic, environmental, and social topics	Sustainability Strategy and Targets	34-35
102-22	Composition of the highest governance body and its committees	OSD Committees and Working Groups	29
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102-40	List of stakeholder groups	Stakeholders	113
102-42	Identifying and selecting stakeholders	Relations with Stakeholders	109
102-43	Approach to stakeholder engagement		
102-44	Key topics and concerns raised	Renewed Vision of OSD, OSD's Material Sustainability Issues	30-33, 36,37

GRI CONTENT INDEX

GRI Standard	Definition	Disclosures	Page Numbers
Reporting Practice			
102-46	Defining report content and topic Boundaries	About the Report	12
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102-50	Reporting period	About the Report	12
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102-55	GRI content index	GRI Content Index	121
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GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Automotive Industry Economic Performance	40-62
	103-2 The management approach and its components		
	103-3 Evaluation of the management approach		
GRI 201: Economic Performance 2016	201-1 Direct economic value generated and distributed	OSD in Figures, Automotive Industry Exports	15, 51
	201-2 Financial implications and other risks and opportunities due to climate change	Production in the Automotive Industry	43
Anti-Corruption			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Anti-Bribery and Anti-Corruption	38
	103-2 The management approach and its components		
	103-3 Evaluation of the management approach		
GRI 205: Anti-Corruption 2016	205-3 Confirmed incidents of corruption and actions taken	Anti-Bribery and Anti-Corruption	38
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GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	Cleaner Production, Energy Management	68-81
	103-2 The management approach and its components		
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GRI 302: Energy 2016	302-1 Energy consumption within the organization	Energy Management	72-73
	302-3 Energy intensity		
	302-4 Reduction of energy consumption		
Water			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its boundary	Water and Waste Management	76-77
	103-2 The management approach and its components		
	103-3 Evaluation of the management approach		
GRI 303: Water and Effluents 2018	303-1 Interactions with water as a shared resource	Water and Waste Management	76-77
	303-2 Management of water discharge-related impacts		
	303-3 Water withdrawal		
	303-4 Water discharge		
	303-5 Water consumption		

GRI Standard	Definition	Disclosures	Page Numbers
Emissions			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Cleaner Production, Greenhouse Gas Emissions	68-81, 74-75
	103-2 The management approach and its components		
	103-3 Evaluation of the management approach		
GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	Greenhouse Gas Emissions	74-75
	305-2 Energy indirect (Scope 2) GHG emissions	Greenhouse Gas Emissions	75
	305-4 GHG emissions intensity		
	305-5 Reduction of GHG emissions	Cleaner Production, Sustainable Products in the Automotive Industry	74-75, 85, 88-90
	305-7 Nitrogen oxides (NOX), sulphur oxides (SOX), and other significant air emissions	Cleaner Production, Sustainable Products in the Automotive Industry	80-81, 92, 95
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GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Cleaner Production, Waste Management	68-81, 78-79
	103-2 The management approach and its components		
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GRI 306: Waste 2016	306-1 Waste generation and significant waste-related impacts	Waste Management	78
	306-2 Management of significant waste-related impacts	Cleaner Production	78, 80, 82, 83- 85
	306-4 Waste diverted from disposal	Waste Management	78
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GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Cleaner Production	68-81
	103-2 The management approach and its components		
	103-3 Evaluation of the management approach		
GRI 307: Environmental Compliance 2016	307-1 Non-compliance with environmental laws and regulations	Cleaner Production	68
GRI 400 Social Standards			
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GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Employment, Diversity and Inclusion	96,97
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GRI 401: Employment 2016	401-1 New employee hires and employee turnover	Employment, Diversity and Inclusion	97

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GRI Standard	Definition	Disclosures	Page Numbers
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GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Occupational Health and Safety	106-108
	103-2 The management approach and its components		
	103-3 Evaluation of the management approach		
GRI 403: Occupational Health and Safety 2018	403-1 Occupational health and safety management system	Occupational Health and Safety	106
	403-2 Hazard identification, risk assessment, and incident investigation		106,107
	403-3 Occupational health services	Occupational Health and Safety	106
	403-4 Worker participation, consultation, and communication on occupational health and safety		107
	403-5 Worker training on occupational health and safety		108
	403-6 Promotion of worker health	Occupational Health and Safety, Relations with Stakeholders	108,109
		Occupational Health and Safety	106
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GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Training and Conferences	100
	103-2 The management approach and its components		
	103-3 Evaluation of the management approach		
GRI 404: Training and Education 2016	404-1 Average hours of training per year per employee	Training and Conferences	100
	404-2 Programs for upgrading employee skills and transition assistance programs		100,101,104,105
Diversity and Equal Opportunity			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Employment, Diversity and Inclusion	96-99
	103-2 The management approach and its components		
	103-3 Evaluation of the management approach		
GRI 405: Diversity and Equal Opportunity 2016	405-1 Diversity of governance bodies and employees	Employment, Diversity and Inclusion	97-99
Non-Discrimination			
GRI 103: Management Approach 2016	103-1 Explanation of the material topic and its Boundary	Employment, Diversity and Inclusion	96-99
	103-2 The management approach and its components		
	103-3 Evaluation of the management approach		
GRI 406: Non-Discrimination 2016	406-1 Incidents of discrimination and corrective actions taken	During the reporting period, there have been no incidents related to discrimination.	

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