

# TIR-H

Transporting Industrial Relations towards Hydrogen

**Report on relevant policies, initiatives, and experiences in the field of ecological transition with a focus on the role of hydrogen in France, Hungary, Italy, and Turkey**

Deliverable D2.2



Co-funded by the  
European Union

Project acronym: TIR-H | Project No. 101048682

## PROJECT CONSORTIUM

Coordinator



Beneficiaries



Affiliated Entities

Fondazione **ADAPT**

Associate Partners



## D2.2 DOCUMENT ON RELEVANT POLICIES, INITIATIVES AND EXPERIENCES IN THE PROJECT'S COUNTRIES

### Document Information

Project Acronym

TIR-H

Project Number

101048682

Deliverable number and title

[D2.2.] [Document on relevant policies, initiatives and experiences in the project's countries]

Dissemination level

Public

Organisation Name

[ADAPT, Fondazione ADAPT]

Authors

Sara Prosdocimi, Margherita Roiatti

Submission date

20/09/2023

## Table of Contents

<b>Table of Contents</b> .....	<b>3</b>
<b>Abbreviations</b> .....	<b>4</b>
<b>1. Introduction</b> .....	<b>5</b>
<b>2. Methodology of the research</b> .....	<b>7</b>
<b>3. National policies</b> .....	<b>8</b>
3.1. Governmental initiatives.....	8
3.2. Multistakeholder initiatives .....	13
<b>4. Company level initiatives</b> .....	<b>16</b>
<b>5. Conclusions</b> .....	<b>28</b>
<b>References</b> .....	<b>30</b>

## Abbreviations

<b>CA</b>	Consortium Agreement
<b>DoA</b>	Description of the Action
<b>EC</b>	European Commission
<b>GA</b>	Grant Agreement
<b>PC</b>	Project Coordinator
<b>WP</b>	Work Package
<b>WPL</b>	Work Package Leader

# 1. Introduction

Significant impulses to the ecological transition have been driven for some time now by international and EU policies, particularly the [Green New Deal](#), the ambitious European program aiming to achieve climate neutrality in the EU by 2050. The plan sets forth challenging objectives primarily for sectors directly involved in the energy transition, with a strong emphasis on ecological sustainability, while also focusing on preserving existing value chains in transition and safeguarding workers' employability.

Among the sectors requiring a transition, the European Commission has long focused on the transport sector, even before the ratification of the Green Deal. The 2011 White Paper on Transport urgently called for significant reductions in greenhouse gas emissions to limit global warming below 2°C, specifically targeting a 60% reduction in emissions from the transport sector compared to 1990 levels.

The European Commission underlines how the transport sector is responsible for approximately a quarter of greenhouse gas emissions in the EU, with road transport being the largest contributor at 71.3%, followed by aviation (12.7%), maritime transport (13.5%), rail transport (0.7%), and inland waterway transport (1.8%). These emissions are not only a direct result of the transport sector but are also linked to indirect emissions, primarily stemming from the energy production required for travel.

Therefore, recognizing the need for sustainable solutions, in the last years the European Union and the Member States have promoted hydrogen technologies as a key pillar of their strategy to achieve carbon neutrality and drive the transition towards a cleaner and greener future in the transportation sector. In particular, the [European Hydrogen Strategy](#) highlights hydrogen potential to address hard-to-abate parts of the transport system, complementing electrification and other renewable and low-carbon fuels. The [Global Hydrogen Review 2022](#) by the OECD further underscores hydrogen's role, especially in sectors like heavy industry, heavy-duty road transport, and shipping, where it can support decarbonization and reduce dependency on fossil fuels.

Despite the progress in hydrogen adoption, challenges related to storage, infrastructure, and costs must be addressed before hydrogen can become a central energy source in the transport sector. Technological advancements in hydrogen storage and weight reduction, particularly in the maritime and aviation sectors, are essential for its successful integration.

In addition, to support a full development of hydrogen strategies and technologies, on July 10, 2023, the [EU regulations 2023/1185/EU](#) and [2023/1184/EU](#) came into effect, defining the conditions for qualifying hydrogen as a non-biological renewable fuel source. These regulations integrate the [Renewable Energy Directive 2018/2001/EU](#), establishing the criteria for considering hydrogen and hydrogen-based fuels as non-biological renewable fuels.

«Renewable hydrogen is a crucial component of our strategy for a cost-effective clean energy transition and to get rid of Russian fossil fuels in some industrial processes. Clear rules and a reliable certification system are key for this emerging

market to develop and establish itself in Europe. These delegated acts provide much-needed legal certainty to investors and will further boost the EU's industrial leadership in this green sector» (Kadri Simson, Commissioner for Energy – 10/02/2023).

In particular, producers must demonstrate that the electricity from renewable sources used for hydrogen production complies with additivity rules, ensuring renewable hydrogen is produced only when and where sufficient local renewable energy is available (known as temporal and geographical correlation). The second regulation provides a methodology for calculating greenhouse gas emissions of non-biological renewable fuels throughout their lifecycle, including energy sourcing, processing, and transportation to the end consumer.

These initiatives align with the [RepowerEU policy](#), implementing the 'Fit for 55' proposal, with the aim of producing 10 million tons of non-biological renewable fuels. Therefore, they underline the commitment of the European Union to fostering the widespread adoption of hydrogen technologies and their crucial role in reducing greenhouse gas emissions and advancing the shift towards a more sustainable and low-carbon energy landscape in various sectors, particularly in transportation. Furthermore, implementing the Fit for 55 package, the Commission presented in July 2021 a legislative proposal for a revision of the CO<sub>2</sub> emission performance standards for new passenger cars and light commercial vehicles. The proposal, which aims to contribute to the EU 2030 and 2050 climate objectives, was endorsed by the European Parliament in February 2023. As underlined by the rapporteur of the proposal «this regulation encourages the production of zero- and low-emission vehicles. It contains an ambitious revision of the targets for 2030 and a zero-emission target for 2035, which is crucial to reach climate neutrality by 2050. These targets create clarity for the car industry and stimulate innovation and investments for car manufacturers. Purchasing and driving zero-emission cars will become cheaper for consumers and a second-hand market will emerge more quickly. It makes sustainable driving accessible to everyone» (Jan Huitema (Renew, NL), Rapporteur, 14-2-2023).

Not only the [proposal](#) has been adopted in April 2023, but also the specific subsector of heavy transport of goods and people continues to undergo rapid evolution, as demonstrated by the European Commission [proposal](#) of February 2023 on new CO<sub>2</sub> emissions targets for new heavy-duty vehicles (HDVs) from 2030 onwards and the [Greening freight package](#), discussed in July 2023 by the Committee on Transport and Tourism. This initiative is designed to enhance the efficiency and sustainability of freight transportation, by improving rail infrastructure management, providing stronger incentives for low-emission lorries, and offering better information on freight transport greenhouse gas emissions. The objective is to increase efficiency within the sector, enabling it to contribute significantly to the reduction of transport emissions by 2050, in line with the objectives of the European Green Deal, while ensuring the growth of the EU single market. If the social partners generally support the goals and the objectives of the proposal, they «emphasise that longer and heavier trucks require adequate infrastructure, driver training, safety equipment onboard the vehicle, and careful consideration of potential market dynamics that may hinder long-term climate goals» ([European Transport Workers' Federation](#), 12-7-2023) as well as a comprehensive a policy framework that is fair for workers.

Despite the numerous initiatives proposed at the international, European, and national levels, it is also advisable to highlight the substantial regional disparities. As emphasized by [EUROFOUND's research](#), the imperative to ensure a just transition is particularly pressing in regions heavily reliant on fossil fuels and carbon-intensive industries. Therefore, giving prominence to the regional disparities stemming from the economic structures of these regions becomes of utmost importance.

The impact on employment also shows marked disparities locally. For example, as it is highlighted in the [OECD report](#), in several regions the likelihood of job losses in specific sectors exceeds twice the national average. Furthermore, the socio-economic context differs across regions: certain areas demonstrate a greater aptitude for undertaking necessary transformations and effectively addressing them, often owing to the technological advancement of their firms or the higher level of training among their workforce, while some others will have to face significant occupational and social challenges.

The green transition in the sector will influence the jobs and the skills demanded, potentially highlighting emerging challenges for specific groups of workers such as those with lower skills, older employees, and temporary staff. For these reasons, it is worth mentioning that [IndustriAll Europe](#) argues that «the new regulation must be designed to secure EU industrial leadership in the production of heavy-duty vehicles and related equipment and ensure a fair transition that preserves and creates quality jobs. Just transition principles have been anchored in climate legislation for passenger cars. The same approach must prevail for trucks and busses».

In this sense, it should be highlighted the central role of social dialogue and collective bargaining, with the objective of alleviating regional division, although the involvement of social partners is still lacking. In fact, their role is largely limited to mitigating the potential adverse effects of sectoral transformation on employment and their action remains fragmented, with contributions from tripartite bodies and cross-sectoral social dialogue on the just transition being restricted to a handful of Member States, as well as the social dialogue and collective bargaining at the regional and company levels varies significantly depending on the region and sector under analysis.

## 2. Methodology of the research

In this report, good practices at the national and company levels are highlighted, with reference to specific initiatives, corporate objectives, and examples of social dialogue related to sustainability and carbon emissions reduction in the heavy freight and passenger transport sector. The report also aims to underscore the increasing relevance of hydrogen technologies in supporting the green transition of heavy freight and passenger transport.

The practices were collected in collaboration<sup>1</sup> with TIR-H Project partners, originating from three Member States and one candidate country (Turkey). Specifically, the good practices and initiatives were collected from the following organizations: FIM-Cisl Torino e Canavese (Italy), Federation Des Travailleurs De La Metallurgie CGT (France), Vasas Szakszervezeti Szovetseg (Hungary), and Turk Metal Sendikasi (Turkey). Additionally, the FIM- Cisl, in quality of Associated Organistaion contributed to the collection of the practices and supported its regional federation (FIM-Cisl Torino e Canavese, Coordinator of the Project).

The collected data includes: 7 national experiences, three of which concern ecological transition programs, while four specify their focus on new hydrogen technologies; 4 multistakeholder initiatives, one of which is dedicated to the utilization and centrality of hydrogen in transition processes, one focused on hydrogen use in the transport sector, and two dedicated to exploring the ecological transition in the transportation sector. Finally, 18 company-level initiatives were gathered, covering the use and promotion of new hydrogen technologies (2), the ecological transition in the automotive and heavy transport sectors (4), and the utilization of new hydrogen technologies in the transportation sector. It is worth mentioning that, in order to provide a broader overview of practices and initiatives of interest to the Project, ADAPT and Fondazione ADAPT supplemented this report with examples gathered through desk research complementary to first-hand information from the other project trade union partners.

The good practices are categorized by initiatives taken at the national level, with a distinction between government and multistakeholder initiatives, as well as company-level initiatives.

## 3. National policies

### 3.1. Governmental initiatives

<b>Country:</b> France
<b>Parties involved:</b> French government – Ministry for Energy Transition, Ministry Delegate for Industry
<b>Title:</b> France Hydrogen Strategy

<sup>1</sup> For the collection of information, in order to increase the degree of uniformity and comparability of the data collected, ADAPT and its AE prepared a multilingual template consisting of the sections reflecting the information contained in the next section of this report (i.e. proposed title/parties involved/case reference level -with specific reference to the relevant level of social dialogue/collective bargaining-/summary of the selected case-key elements/source).



In September 2020, the French government, in particular the Minister for Energy Transition, Minister Delegate for Industry, presented its national strategy for the development of decarbonised hydrogen, focusing on applications where hydrogen is key for deep decarbonisation, including refineries and the chemical industry as well as steel production, and the mobility sector.

Key stages for the initiative include the support for research and development (R&D) to advance the efficiency of hydrogen technologies across various applications; the assistance for business start-ups and industrialization, leveraging both European partnerships for large-scale projects and national initiatives; the deployment support through the establishment of assistance mechanisms.

Priorities for intervention encompass decarbonizing the industrial sector through the development of a robust electrolysis sector in France; the advancing the utilization of decarbonized hydrogen for heavy-duty mobility purposes and the promotion of the research, innovation, and skills development to foster the adoption of future hydrogen applications.

**Source:**

<https://www.tresor.economie.gouv.fr/Articles/4a1ac560-a021-4358-a466-f5430928a1db/files/7d2fd0e2-8a3d-4ce8-bbb3-94cbd5b9c3d1>

**Country:** Hungary

**Parties involved:** Ministry for Innovation and Technology

**Title:** Hungary's National Hydrogen Strategy 2018-2022

The Hungary's National Hydrogen Strategy 2018-2022 is a national policy promoted in May 2021 by the Ministry for Innovation and Technology.

The Plan contributes to the achievement of decarbonization goals and presents an opportunity for Hungary to actively participate in the European hydrogen sector, by paving the way for the establishment of a hydrogen economy.

In the short and medium term, the strategy recognizes the need for a rapid reduction in emissions and the creation of a viable hydrogen market, therefore requiring the production of low-carbon hydrogen. In the long term, the strategy primarily focuses on green hydrogen, which is produced using renewable resources like solar energy; the plan also acknowledges the potential for hydrogen production based on carbon-free energy from sources such as nuclear power or the existing energy network.

The policy focuses on four priorities. Firstly, it aims to produce large volumes of low-carbon and decentralized carbon-free hydrogen. Secondly, it focuses on the decarbonization of industrial consumption, partly using hydrogen. Thirdly, it emphasizes green transport initiatives. Lastly, it aims to support the infrastructure for electricity and natural gas.

Looking at the specific predictions of the strategy regarding the potential use of hydrogen in the heavy-duty transportation sector for goods and people, it is important to emphasize how this strategy is designed to reduce emissions by promoting the use of hydrogen, also predicting a significant increase in hydrogen demand by 2050. The policy aims to develop and promote a refuelling network for hydrogen vehicles. Additionally, it

supports the decarbonization of heavy-duty traffic through the implementation of hydrogen propulsion technologies, including projects like *Green Truck* and *Green Bus*.

**Source:**

<https://cdn.kormany.hu/uploads/document/a/a2/a2b/a2b2b7ed5179b17694659b8f050ba9648e75a0bf.pdf>

**Country:** Italy

**Parties involved:** Ministry of Economic Development, Ministry of the Environment and Protection of Land and Sea, Ministry of Infrastructure and Transport

**Title:** National Integrated Plan for Energy and Climate – *Piano Nazionale Integrato per l'Energia e il Clima* (PNIEC)

The Ministry of Economic Development, the Ministry of Environment and Land Protection, and the Ministry of Infrastructure and Transport promoted the National Integrated Plan for Energy and Climate (*Piano Nazionale Integrato per l'Energia e il Clima* – PNIEC) in 2021.

The plan aims to contribute to a wide-scale transformation of the economy, where decarbonization, circular economy, efficiency, and rational and equitable use of natural resources serve as both objectives and tools for a green and just economic transformation. Specifically, the plan is structured around five integrated lines of action, namely decarbonization, efficiency, energy security, development of the domestic energy market, and promotion of research, innovation, and competitiveness.

Furthermore, the plan proposes the development of renewable hydrogen technologies to decarbonize high-energy-intensive industrial sectors and long-haul commercial transportation.

**Source:**

[https://www.mimit.gov.it/images/stories/documenti/PNIEC\\_finale\\_17012020.pdf](https://www.mimit.gov.it/images/stories/documenti/PNIEC_finale_17012020.pdf)

**Country:** Italy

**Parties involved:** Italian government – Ministry for economic development

**Title:** National Hydrogen Strategy: preliminary guidelines – *Strategia Nazionale Idrogeno: Linee Guida Preliminari*

As a complement to the strategy outlined in the National Integrated Plan for Energy and Climate, the Italian government published in the same year the National Hydrogen Strategy Preliminary Guidelines. These guidelines emphasize the role of hydrogen in the national decarbonization pathway, in line with the National Integrated Plan for Energy and Climate, the broader environmental agenda of the European Union, and the

recently published EU Hydrogen Strategy within the Long-Term Strategy for complete decarbonization by 2050.

In the long term, the plan highlights how hydrogen can support decarbonization efforts along with other low-carbon technologies, particularly in "hard-to-abate" sectors such as high-energy-intensive industrial processes or aviation. In the short term, until 2030, hydrogen will play a central role in selected applications such as chemistry, mobility, and oil refining, enabling the development of a national hydrogen ecosystem necessary to fully harness the long-term potential of hydrogen. Among the key objectives of hydrogen utilization, the government emphasizes its application in the transportation sector, particularly in heavy-duty vehicles like long-haul trucks, railways, and industry. Additionally, hydrogen will be used in segments where it is already employed as a feedstock, such as the chemical sector and oil refining.

**Source:**

[https://www.mimit.gov.it/images/stories/documenti/Strategia\\_Nazionale\\_Idrogeno\\_Lin\\_ee\\_guida\\_preliminari\\_nov20.pdf](https://www.mimit.gov.it/images/stories/documenti/Strategia_Nazionale_Idrogeno_Lin_ee_guida_preliminari_nov20.pdf)

**Country:** Italy

**Parties involved:** Italian government – Ministry of Economy and Finance

**Title:** National Recovery and Resilience Plan – *Piano Nazionale di Ripresa e Resilienza*

The National Recovery and Resilience Plan (PNRR) promoted by the Italian government in 2021 is part of the Next Generation EU (NGEU) program, a €750 billion package, of which approximately half consists of grants, agreed upon by the European Union in response to the pandemic crisis. The plan encompasses six major areas of intervention: green transition, digital transformation, smart, sustainable, and inclusive growth, social and territorial cohesion, health and economic, social, and institutional resilience, policies for the new generations, childhood, and youth.

Furthermore, the plan aims to make the Italian system more sustainable in the long term through the progressive decarbonization of all sectors. This objective involves accelerating energy efficiency, increasing the share of electricity generated from renewable sources, developing more sustainable mobility, and initiating the gradual decarbonization of industry, including the adoption of hydrogen-based solutions in line with the European Strategy.

In line with the European strategy, Italy intends to pursue this opportunity and promote the production and use of hydrogen by developing flagship projects for its utilization in hard-to-abate industrial sectors, starting with the steel industry. It aims to facilitate the creation of hydrogen valleys, particularly leveraging areas with decommissioned industrial sites, enable the use of hydrogen in heavy transport and selected non-electrifiable railway routes, and support research and development while completing all necessary reforms and regulations to enable the use, transport, and distribution of hydrogen.

**Source:** <https://www.governo.it/sites/governo.it/files/PNRR.pdf>

**Country:** Turkey

**Parties involved:** Republic of Türkiye – Ministry of Trade

**Title:** Green Deal Action Plan – *Yeşil Mutabakat Eylem Planı 2021*

In 2021, Turkey promoted its Action Plan to mitigate the potential negative effects of the European Green Deal in the country, while also aligning with the objectives of the European Green Deal.

The Plan entails a series of actions aimed at contributing to Turkey's transition to a sustainable and resource-efficient economy while ensuring compliance with the comprehensive changes expected, particularly within the framework of the European Green Deal, in order to preserve and further enhance the integration achieved within the context of the trade union between Turkey and the EU. The Plan outlines the actions that will be implemented to achieve the established objectives in the following areas: border carbon regulations, green and circular economy, green financing, clean, affordable, and secure energy supply, sustainable agriculture, sustainable smart transportation, climate change mitigation, diplomacy, and information and awareness-raising activities on the European Green Deal. Within this framework, the Plan includes a total of 32 objectives and 81 actions divided into 9 main categories. It also identifies the relevant organizations and stakeholders who will work in collaboration with the main coordinating body responsible for implementing the actions and includes a timeline for the conduct of related actions, as well as monitoring and evaluation tools to track progress and developments.

The Plan also develops a program to achieve objectives such as reducing travel times in transportation, efficient utilization of existing road capacities, increasing mobility, contributing to the national economy through energy efficiency and safety, and reducing environmental damage. In this sense, the plan proposes the *Strategy for Sustainable and Intelligent Transportation*, which includes objectives to develop sustainable and intelligent transportation, green navigation practices, and green ports, improving rail transportation, as well as reducing fuel consumption and emissions, and promoting the use of micro-mobility vehicles such as bicycles and shared electric scooters.

**Source:**

<https://ticaret.gov.tr/data/60f1200013b876eb28421b23/MUTABAKAT%20YE%C5%9E%C4%B0L.pdf>

**Country:** Turkey

**Parties involved:** Türkiye Ministry of Energy and Natural Sources

**Title:** Türkiye Hydrogen Technologies Strategy and Roadmap

The Ministry of Energy and Natural Resources (MENR) of Turkey is actively engaged in developing Turkey's hydrogen roadmap.

The preliminary roadmap outlines a strategic plan divided into four distinct time periods for the country's hydrogen development: the first one, for the 2021-2025 period, focuses on initiating pilot projects, including innovation and demonstration initiatives. It also involves the completion of testing for domestic appliances and the establishment of a regulatory framework. The second period, 2025-2030, emphasizes the development of the renewable and low carbon gas market. Furthermore, industry incentives are increased to promote the production of hydrogen-ready appliances. Additionally, regulations are formulated for the transportation, storage, distribution, and consumption of hydrogen. The third period, 2030-2040, involves the gradual integration of up to 20 percent regional hydrogen blending. It also entails scaling up hydrogen production and establishing dedicated hydrogen pipelines to connect industrial clusters with storage and production facilities. The fourth and last period, 2040-2050, envisions the widespread utilization of hydrogen in the industrial sector and residential buildings. Distribution lines are expected to be fully compatible with hydrogen, marking a significant shift. Moreover, this phase involves the commencement of hydrogen export and the establishment of adequate hydrogen production and storage capacity. The MENR is committed to driving the development and implementation of Turkey's hydrogen roadmap, aiming to position the country as a key player in the hydrogen economy while fostering sustainable growth and reducing carbon emissions.

**Source:**

<https://ticaret.gov.tr/data/60f1200013b876eb28421b23/MUTABAKAT%20YE%C5%9E%C4%B0L.pdf>

### 3.2. Multistakeholder initiatives

**Country:** Hungary

**Parties involved:** Hungarian Hydrogen Technology Association (involving employers, NGOs, regional municipalities, governmental organizations, universities)

**Title:** Green Truck Program, 2021-2022

The Green Truck Program, promoted by the Hungarian Hydrogen Technology Association, is part of the project for the greening of transport connected to Hungary's National Hydrogen Strategy. The concept of the Green Truck Program is based on the opportunities presented by both hydrogen technologies and LNG to make the traffic of heavy-duty vehicles greener on the TEN-T corridors that cross Hungary.

Within this project, the objective is to simultaneously examine the economic incentives for purchasing and operating LNG- and hydrogen-fuelled heavy-duty vehicles (road tolling system, excise taxes) and to promote new and modern technological/infrastructural conditions. The aim is to establish a supply chain based on domestically available bio-LNG and hydrogen.

**Source:**

<https://cdn.kormany.hu/uploads/document/a/a2/a2b/a2b2b7ed5179b17694659b8f050ba9648e75a0bf.pdf>

<https://hh2.hu/index.php/projects/>

**Country:** Hungary

**Parties involved:** Hungarian Gas Storage Ltd, research institutes and universities

**Title:** Aquamarine Project: Advancing Hydrogen Integration in Hungary's Gas Storage Infrastructure

Within the framework of the Aquamarine project, an initiative supported by the European Union through the Sustainable Energy Storage Innovations in the Danube Region Countries program, the Hungarian Gas Storage company has spearheaded a hydrogen-focused initiative. The project consortium consists of international energy companies, research institutes, and universities collaborating to assess the suitability of the current infrastructure for storing hydrogen-mixed natural gas. The primary aim is to establish an extensive electrolysis infrastructure for hydrogen generation and seamlessly integrate it with an existing underground storage facility.

At the core of the project is the construction of an electrolyser, designed to generate hydrogen utilizing surplus electricity from variable renewable sources. The produced hydrogen is then stored and can be either utilized in fuel cells to generate electricity for the grid when required or liquefied for various applications.

Technical studies, conducted by international institutions, have examined the project's feasibility concerning the existing infrastructure, encompassing research on hydrogen-natural gas blending, the potential adverse effects of hydrogen on pipeline steel, and liquid hydrogen storage.

Future project milestones include commencing hydrogen production and incorporating hydrogen-mixed natural gas into applied industrial research programs starting in 2023. By 2024, hydrogen will be introduced into the natural gas network, and in 2025, a joint research program will investigate the reservoir for hydrogen-mixed natural gas storage.

**Source:**

<https://iea.blob.core.windows.net/assets/9f137e48-13e4-4aab-b13a-dcc90adf7e38/Hungary2022.pdf>

<https://mfgt.hu/en/Akvamarin>

**Country:** Turkey

**Parties involved:** Uludağ Automotive Industry Exporters' Association (OİB), Exporters' Assembly (TİM), Automotive Suppliers' Association (TAYAD) and Automotive Manufacturers' Association (OSD) together with the Trade Ministry

**Title:** Sustainability Strategy For Turkish Automotive Industry

Türkiye's automotive industry has published a Sustainability Strategy For Türkiye Automotive Main Industry in 2023.

The document is devised to help some 8,000 exporting companies in the automotive industry comply with targets under the EU Green Deal and regulations related to climate change.

All targets laid out under six sections, such as access to finance for green transformation, reducing the impacts on the environment and transition to a circular economy, transition to new technologies for environment-friendly vehicles and social sustainability, are expected to be met in five years.

The report, in particular highlights Mercedes-Benz Türk's investments in infrastructure development for carbon-neutral transportation and the production of hydrogen-fuelled vehicles, particularly in the truck manufacturing sector. Additionally, the investments of other companies such as ISUZU, Toyota, and Karsan are also mentioned.

**Source:**

<https://cdn.kormany.hu/uploads/document/a/a2/a2b/a2b2b7ed5179b17694659b8f050ba9648e75a0bf.pdf>

**Country:** Turkey

**Parties involved:** Automotive Manufacturers' Association (OSD)

**Title:** Turkish Automotive Industry Sustainability Report

The Automotive Manufacturers' Association (OSD) in 2022, but from the moment of its foundation, has prepared a Turkish Automotive Industry Sustainability Report. The report, compiled with contributions from the 14 member companies of OSD, was prepared in line with the GRI standards. In this report, the United Nations' Global Compact (UNGC) was taken into consideration and its Sustainable Development Objectives were included. This report's contents were defined and prepared through the participation of internal and external stakeholders at national and international levels.

The report highlights Mercedes-Benz Türk's investments in infrastructure development for carbon-neutral transportation and the production of hydrogen-fuelled vehicles, particularly in the truck manufacturing sector. Also, the investments of other companies such as ISUZU, Toyota, and Karsan are mentioned.

According to the draft report, the Euro 7 emissions standards for new passenger cars and light commercial vehicles are expected to come into effect in July 2025, while the standards for heavy commercial vehicles are projected to take effect in July 2027. As members of the AMA, these companies will align their reporting with the Euro7/VII Draft, facilitating efficient monitoring and compliance.

**Source:**

[https://www.osd.org.tr/saved-files/PDF/2022/02/18/OSD\\_SRDE\\_2020.pdf](https://www.osd.org.tr/saved-files/PDF/2022/02/18/OSD_SRDE_2020.pdf)

## 4. Company level initiatives

<b>Country:</b> France
<b>Parties involved:</b> Air Liquide, IVECO
<b>Title:</b> Air Liquide and IVECO for the development of hydrogen heavy-duty mobility in Europe
<p>In 2021, Air Liquide, a world leader in gases, technologies and services for Industry and Health, and IVECO, the commercial vehicles brand of CNH Industrial, have signed a Memorandum of Understanding to develop hydrogen for mobility in Europe. The partnership will contribute to materialize clean mobility by leveraging the two companies' complementary competencies, in particular Air Liquide's unique expertise across the entire hydrogen value chain, from production and storage to distribution, and IVECO's legacy as a provider of advanced, clean sustainable transport solutions. Both partners will dedicate means and resources to study the roll-out of heavy-duty fuel-cell electric long-haul trucks coupled with the deployment of a network of renewable or low-carbon hydrogen refuelling stations along the main trans-European transport corridors. In parallel, both companies will jointly promote initiatives to encourage hydrogen mobility by involving all stakeholders along the entire value-chain.</p>
<b>Source:</b> <a href="https://it.airliquide.com/statics/2021-12/Air%20Liquide%20e%20IVECO%20collaborano%20per%20accelerare%20lo%20sviluppo%20della%20mobilit%C3%A0%20pesante%20a%20idrogeno%20in%20Europa.pdf?VersionId=viTigBN_DfAciVnadAoA0dxanAixE0_Q">https://it.airliquide.com/statics/2021-12/Air%20Liquide%20e%20IVECO%20collaborano%20per%20accelerare%20lo%20sviluppo%20della%20mobilit%C3%A0%20pesante%20a%20idrogeno%20in%20Europa.pdf?VersionId=viTigBN_DfAciVnadAoA0dxanAixE0_Q</a>

<b>Country:</b> France
<b>Parties involved:</b> Renault Flins plant
<b>Title:</b> The Renault 're-factory' in Flins
<p>At the end of 2020, the Renault Flins plant (Île-de-France region) underwent a significant transformation, fully embracing the concept of the circular economy. This transformation gave rise to Refactory: in fact, recognized for its refurbishment of used vehicles, Refactory aligns with the Renault Group's strategy aimed at creating value throughout the entire lifecycle of its brand models<sup>2</sup>. All assembly operations are set to cease by 2024, and, instead, new capabilities will be developed to provide a comprehensive range of</p>

<sup>2</sup> In FTM-CGT's view, this has already resulted in unprecedented job losses as the group is now relocating most of its production and spinning off its industrial operations.



services throughout the car's lifecycle. The facility offers repair services for both conventional internal combustion engine (ICE) and electric vehicles. This line of business encompasses the management of battery lifecycles. Depending on their condition, used batteries are then either refurbished for reuse or disassembled for recycling.

**Source:**

<https://www.etui.org/publications/way-electromobility-greener-more-unequal-future>

**Country:** Hungary

**Parties involved:** Linde GAS, MVM Zrt

**Title:** Driving Clean Hydrogen Initiatives: MVM Group and LINDE GAS Hungary Forge Strategic Partnership

In 2021, Hungary's leading energy company, MVM Group, and LINDE GAS Hungary, a prominent provider of industrial and medical gases in the country, entered into a strategic agreement to advance clean hydrogen initiatives in Hungary.

The agreement outlines the collaborative efforts of both companies in pursuing clean hydrogen projects, encompassing both green and blue hydrogen. The primary focus is on developing and implementing pilot hydrogen programs in Hungary and neighbouring markets. The partnership places significant emphasis on producing carbon-neutral hydrogen through electrolysis and jointly enhancing electricity and gas infrastructure. Moreover, the agreement highlights opportunities for green hydrogen production and storage, as well as the implementation of seasonal electricity storage solutions.

The joint initiative also aims to drive the decarbonization of the transportation sector by establishing hydrogen refuelling stations for buses, vans, cars, and trains. This initiative supports the adoption of green hydrogen mobility. Additionally, the agreement establishes a governing body and outlines the formation of several working groups that will concentrate on key areas of cooperation, including knowledge and resource exchange.

Overall, this strategic agreement between MVM Group and LINDE GAS Hungary demonstrates their commitment to promoting and implementing clean hydrogen projects, with a particular focus on pilot programs, infrastructure development, and the greening of the transportation sector.

**Source:**

[https://zerocarbonhub.hu/wp-content/uploads/2021/11/Zold\\_kamion\\_Linde.pdf](https://zerocarbonhub.hu/wp-content/uploads/2021/11/Zold_kamion_Linde.pdf)

<https://www.lindegas.hu/hu/news/linde-mvm.html>

**Country:** Hungary

**Parties involved:** Waberer's

**Title:** Waberer's Ambitious Green Logistic Concept: Pioneering Hydrogen Technology in Hungarian Transportation

In 2021, Waberer's, the Hungarian transportation company, developed an extensive Green Logistic Concept, a declaration aimed at expanding combined transportation and adopting hydrogen technology in Hungary.

The key elements of Waberer's Green Logistic Concept are: ensuring widespread charging infrastructure, considering fast charging time and range while accounting for payload mass, offering a full range of vehicles powered by hydrogen engines for road transportation, providing accessible maintenance and financing solutions, maintaining competitive lifetime costs and vehicle acquisition prices, and offering secondary market or manufacturer buyback guarantees. In the absence of these conditions or until they are achieved, the company's concept suggests EU or government support to offset the additional costs of traditional diesel vehicles by internalizing positive social externalities. It also emphasizes the importance of customer support for the adoption of the technology.

Furthermore, the guidelines involve the implementation of various local projects. For example, in Győr, Waberer's proposes establishing a cross-dock facility to cater to the distribution needs of the entire region using their hydrogen-powered truck fleet. They also suggest utilizing the Győr railway terminal for hydrogen-powered last-mile intermodal deliveries and introducing hydrogen buses in Győr's public transportation system. In Debrecen, Waberer's is committed to implementing hydrogen technology in BMW factories, contingent upon the availability of charging infrastructure. As for Budapest, the proposal is to serve the city via a carbon-neutral hydrogen truck fleet using a ring road and conducting targeted deliveries once a day.

**Source:**

[https://zerocarbonhub.hu/wp-content/uploads/2021/11/Zold\\_kamion\\_Waberers.pdf](https://zerocarbonhub.hu/wp-content/uploads/2021/11/Zold_kamion_Waberers.pdf)

**Country:** France

**Parties involved:** Fédération des travailleurs de la métallurgie CGT (FTM-CGT)

**Title:** Alstom's Coradia iLint: Pioneering Sustainable Hydrogen Train for Greener Rail Transportation

Alstom, a French company specializing in railway manufacturing, has recently developed an innovative hydrogen train with the aim of offering a more sustainable and environmentally friendly alternative to diesel trains. The Alstom hydrogen train utilizes fuel cell technology, which converts hydrogen and oxygen into electricity without emitting harmful gases. This technology is particularly suitable for long-distance trains, providing a viable and sustainable solution to the current reliance on diesel trains.

The flagship model, known as Coradia iLint, features two high-pressure hydrogen tanks that store gaseous hydrogen. The hydrogen is then combined with oxygen from the air to generate electricity, which powers the electric motors propelling the train. The only by-product of this process is water, which is safely expelled through the exhaust system, contributing to low-carbon and sustainable mobility.

The manufacturing of the Alstom hydrogen train utilizes modular construction techniques and standardized equipment, enabling efficient deployment on a large scale. Initial deliveries of the hydrogen trains have already been made in Germany as of 2021. The introduction of the Alstom hydrogen train represents a significant milestone in the transition towards more sustainable and environmentally friendly railway transportation, providing a viable alternative to diesel trains. It showcases Alstom's commitment to advancing hydrogen-based technologies in the railway sector and aiming to revolutionize hydrogen railway transportation. Alstom EWC (European Works Council) has collaborated in the implementation of this project.

**Source:**

<https://www.alstom.com/fr/solutions/materiel-roulant/coradia-iliant-le-premier-train-de-passagers-hydrogene-au-monde>

**Country:** Italy

**Parties involved:** AFV Beltrame Group

**Title:** Beltrame Group's Sustainable Transition Strategy: Embracing Sustainability Across the Steel Industry Value Chain

The Beltrame Group, a company operating in the steel industry with a focus on construction, shipbuilding, and earthmoving machinery, has recently embraced a sustainable transition strategy. In fact, recognizing the multifaceted nature of sustainability across the value chain, the company is dedicated to integrating sustainability into its operations.

In pursuit of this goal, Beltrame has formulated a strategy based on 5 pillars, which represent the key areas of focus. The first pillar pertains to electrical Consumption, aiming to reduce the use of electricity (including natural gas and electrical energy) and increase the share of renewable energy in the energy supply. The second pillar focuses on water, seeking to decrease water consumption in production processes. The third pillar addresses waste, aiming to recycle and appropriately manage waste and by-products generated during production, with landfill disposal as a last resort. The fourth pillar is dedicated to CO<sub>2</sub> emissions, encompassing a decarbonization plan to minimize the carbon footprint in alignment with the objectives of the European Green Deal. The fifth pillar revolves around safety, aiming to mitigate the risk of workplace incidents.

Of particular significance is the pillar concerning the reduction of CO<sub>2</sub> emissions. The plan sets a target of achieving a 40% reduction in CO<sub>2</sub> emissions by 2030 compared to 2015 levels, accompanied by an investment plan of 300 million euros by 2030.

The decarbonization plan encompasses the development of 45 projects organized into four areas: improving and modernizing facilities, enhancing operational and maintenance practices, procuring green energy through Power Purchase Agreements (PPAs) and constructing renewable energy production facilities, and promoting the utilization of hydrogen (blended with methane) in rolling mill furnaces.

The company has also established guidelines for creating an integrated systemic process. To facilitate this integration, the Beltrame Group has defined its sustainability

policy, which focuses on two key aspects: the sustainability of production processes and the enhancement of relationships with internal and external stakeholders.

**Source:**

<https://gruppobeltrame.com/sostenibilita-gruppo/>

**Country:** Italy

**Parties involved:** Avio Aereo

**Title:** Avio Aero's Sustainable Innovation in Aeronautics: Advancing Towards Zero Emissions with Hydrogen-Powered Aircraft

Avio Aero, a business under GE-Aviation, specialized in the design, manufacture, and maintenance of components and systems for civil and military aeronautics, has been increasingly dedicated to research, development, and innovation in sustainable and environmentally friendly products and processes. These efforts often involve collaborations with national institutions such as the Ministry of Education, Universities, Research Centers, Regional Development Centers, Technological Districts, and the CTNA (National Aerospace Technology Cluster), as well as significant international partnerships.

Engineers and researchers at Avio Aero are particularly focused on developing engines and aeronautical systems for a sustainable future, aiming to reduce environmental impact and enhance process efficiency. To foster innovation, research collaborations have been strengthened through a network collaboration model among leading European universities and research centers, leading to the creation and expansion of EU Technology Development Clusters (EUTDC).

Within this framework, Avio Aero has initiated a technological demonstrator for hybrid-electric aircraft in Europe. The consortium led by Avio Aero, supported by Clean Aviation, a public-private partnership of the EU, will receive an investment of €34 million over the next four years for the development of the Amber demonstrator. The electric motor of the demonstrator will be powered by hydrogen fuel cells, playing a crucial role in the advancement of lower-emission engines for civil aviation. Clean Aviation's partnership with industry aims to accelerate the adoption of key technologies, including electrification and hydrogen power, to support the European Union's decarbonization efforts in the aviation sector, with the ultimate goal of achieving zero emissions by 2050.

**Source:**

<https://www.avioaero.com/en/innovation/new-technologies>

**Country:** Italy

**Parties involved:** FCA Italy Spa; FIM-CISL; FIOM-CGIL; UILM-UIL; UGL nazionale; FISMIC-CONFSAL; AQCFR nazionale

**Title:** Stellantis' Electrification Strategy: FCA Italy's Expansion Contract Promoting Generational Turnover and Professional Development

FCA Italy S.p.A. and the trade unions have reached a *contratto di espansione* ('expansion' contract) that came into effect on April 21, 2023. This contract aims to encourage generational turnover within the company and facilitate the requalification of personnel.

The agreement is part of the extensive transformation process taking place within the Stellantis Group, of which FCA Italy S.p.A. is a member. Stellantis has placed electrification as a central pillar of its strategic vision, recognizing the potential of this technology in managing production offerings and ensuring quality products at affordable costs during the ongoing energy and technological transition in the global automotive industry. Electrification is integral to the company's mission of providing secure, sustainable, and accessible mobility solutions. To achieve this goal, which is also an ethical commitment, Stellantis plans to progressively increase the production of electrified models, including plug-in hybrids and fully electric vehicles, with the aim of electrifying almost the entire range of company models in most countries where Stellantis operates by 2030.

In order to support the ongoing transformation of the company, the parties involved acknowledge the necessity of implementing certain interventions to adapt and develop the required professional skills. These interventions include promoting generational turnover and integrating new professions that align with the company's outlined plan. Specifically, the company's plan involves implementing a targeted hiring program to incorporate specific professional profiles that align with the evolving business transformations, establishing a training and professional requalification program to enable personnel to adapt and enhance their skills, and adopting an early retirement plan.

**Source:**

<https://www.fim-cisl.it/2023/04/21/stellantis-firmato-il-contratto-di-espansione-ad-atessa/>

**Country:** Italy

**Parties involved:** IVECO Bus

**Title:** IVECO Bus Italy and new technologies in Italian transport sector

IVECO Group, a prominent player in the automotive industry, has announced that its IVECO Bus brand, known for manufacturing urban, intercity, and tourist buses, has expressed interest in accessing the development contracts offered by the Ministry of Economic Development as part of the opportunities presented by the National Recovery and Resilience Plan. The objective is to initiate manufacturing investments and research and development activities that support the energy transition of the passenger transport sector in Italy. Specifically, the development contract aims to drive the

development and introduction of advanced propulsion technologies in the country, with a particular focus on IVECO Group's facilities specializing in the production of internal combustion engines.

The plan targets two specific facilities, located in Turin and Foggia. At the Piedmont facilities, the company is exploring possibilities to enhance engineering and manufacturing activities related to electric batteries. In the Puglia region, IVECO envisions the potential installation of new assembly lines for the final production of next-generation zero-emission buses, specifically Battery Electric Vehicles (BEV) and Fuel Cell Electric Vehicles (FCEV).

**Source:**

[https://www.ivecogroup.com/media/corporate\\_press\\_releases/2023/april/iveco\\_group\\_inaugurates\\_its\\_new\\_plant\\_in\\_foggia\\_and\\_returns\\_to\\_producing\\_buses\\_in\\_italy](https://www.ivecogroup.com/media/corporate_press_releases/2023/april/iveco_group_inaugurates_its_new_plant_in_foggia_and_returns_to_producing_buses_in_italy)

**Country:** Italy

**Parties involved:** Punch Torino

**Title:** PUNCH TORINO: Driving Hydrogen Propulsion and Energy Solutions for Sustainable Transport

PUNCH TORINO, a division of the PUNCH Group specializing in innovative propulsion systems and control solutions, has undertaken the design, integration, and sale of energy storage and propulsion systems based on hydrogen technologies. These systems incorporate proprietary control systems, algorithms, and software. PUNCH Hydrocells, in particular, is dedicated to the development, provision, and integration of hydrogen propulsion and energy storage systems. The PUNCH Hydrocells portfolio encompasses three primary components: H<sub>2</sub>-ICE (hydrogen internal combustion engines), FC (fuel cell integration and control), and PSD (hydrogen energy storage system integration and control). The overarching aim is to offer solutions that facilitate the transition to hydrogen technologies and contribute to increased decarbonization, all at affordable investment costs.

Through strategic partnerships, the PUNCH Group seeks to collaborate in promoting the adoption of carbon-neutral products and technologies. An illustrative example is the establishment of the H<sub>2</sub>-ICE alliance, which aims to encourage the use of hydrogen in internal combustion engines within the public transportation sector. Furthermore, PUNCH is actively pursuing collaborations with local entities such as GTT and ENVIROMENT PARK to establish hydrogen stations.

In addition to fuel cell systems, PUNCH is engaged in projects related to hydrogen-fuelled internal combustion engines, as well as advancements in hydrogen production and storage technologies. For instance, PUNCH has initiated a project at its Turin headquarters to produce green hydrogen using photovoltaic panels and electrolyzers. In this context, PUNCH has inaugurated the first fuel cell test bed in Turin, with a specific focus on integrating fuel cells into urban bus applications. The objective is to enhance efficiency through software control and optimize performance in this specific context.

**Source:**

<https://www.punchtorino.com/punch-hydrocells/>

**Country:** Italy

**Parties involved:** Alstom Italy

**Title:** Alstom's Sustainable Mobility Initiatives in Italy: Advancing Hydrogen-Powered Trains and Beyond

Alstom, a renowned company specializing in intelligent and sustainable mobility, has launched new initiatives to promote sustainable mobility at its manufacturing facilities in Italy. The company has made significant investments at the Savigliano (CN) site, which focuses on producing Avelia Pendolino high-speed trains incorporating tilting technology, as well as Coradia Stream regional trains. Additionally, investments have been made at the Bologna site, which specializes in railway signalling and traffic supervision systems.

In 2022, Alstom successfully introduced the first hydrogen-powered train, the Coradia iLint, in Germany. This regional train operates silently and emits only condensed water vapor (H<sub>2</sub>O), offering a range of 1000 km. Similarly, in Italy, Alstom has developed projects involving the deployment of Coradia Stream trains, which will be utilized by the Lombardy region. These trains utilize a hydrogen fuel cell to generate electric power for traction, making them well-suited for non-electrified railway lines. Furthermore, Alstom has proposed additional projects aimed at supporting sustainable mobility solutions for metros, trams, and buses.

**Source:**

<https://www.alstom.com/company/commitments/sustainable-mobility>

**Country:** Italy

**Parties involved:** Stellantis

**Title:** Stellantis: Driving Towards Net-Zero Carbon Emissions with Hydrogen Fuel Cell Technology and Electrification

Stellantis, a renowned global automotive manufacturer and mobility provider, is firmly committed to achieving net-zero carbon emissions by 2038 across the entire Well-To-Wheel cycle, encompassing the vehicle's entire lifecycle and value chain. By considering production, usage, and other aspects, Stellantis aims to lead the automotive industry in mitigating climate change. It is crucial to emphasize that the company is undergoing a transformation into a sustainable mobility technology company, guided by the Dare Forward 2030 strategic plan, with the ultimate goal of achieving carbon neutrality by 2038.

To accelerate its sustainability objectives, Stellantis plans to invest €30 billion by 2025, with a focus on intensifying electrification and software strategies. Notably, there will be increased investments in hydrogen fuel cell technology for light commercial vehicles. Furthermore, Stellantis recently introduced three new hydrogen fuel cell-powered vans in the European market under the Citroën, Peugeot, and Opel brands. This technology offers a zero-emission solution for customers managing vehicle fleets, enabling uninterrupted travel without the need for frequent recharging. The company has adopted a Plug-in Fuel Cell approach, combining the two elements of electrification: batteries and hydrogen. The van features a single electric motor that can be powered by either the fuel cell, fuelled by hydrogen cylinders, or a rechargeable battery. Operationally, this solution allows for over 400 km of zero-emission travel, depending on the availability of infrastructure.

**Source:**

[https://www.stellantis.com/content/dam/stellantis-corporate/news/media-events/HYDROGEN-FUEL-CELL-ZERO-EMISSION\\_PRESSKIT.pdf](https://www.stellantis.com/content/dam/stellantis-corporate/news/media-events/HYDROGEN-FUEL-CELL-ZERO-EMISSION_PRESSKIT.pdf)

**Country:** Italy

**Parties involved:** IVECO

**Title:** IVECO's Roadmap to Carbon Neutrality: Advancing Multi-Energy Solutions for Sustainable Mobility

IVECO, a renowned global leader in Commercial & Specialty Vehicles, Powertrain, and related Financial Services sectors, has recently unveiled an extensive roadmap with the objective of attaining carbon neutrality by 2040. This ambitious objective will be realized through the adoption of a multi-energy approach, encompassing various solutions such as biogas, a carbon-negative alternative suitable for all vehicle ranges, battery electric propulsion for shorter and medium-range missions, and fuel cell electric technology for complete decarbonization of long-haul and heavy-duty transport, all while prioritizing fuel efficiency.

The introduction of eDAILY and Nikola Tre FCEV (Fuel Cell Electric Vehicle) versions signifies a significant step forward in IVECO's journey towards achieving the target of net-zero carbon emissions by 2040. These innovative solutions showcase IVECO's commitment to sustainable mobility and the transition towards a carbon-neutral future.

**Source:**

[https://www.ivecogroup.com/-/media/sustainability/sustainability\\_essentials/docs/iveco-group\\_sustainability\\_essentials-2022.pdf](https://www.ivecogroup.com/-/media/sustainability/sustainability_essentials/docs/iveco-group_sustainability_essentials-2022.pdf)



**Country:** Italy

**Parties involved:** CNHi – New Holland Agriculture

**Title:** New Holland: Advancing Productivity and Sustainability in Agriculture with Localized Production and Hydrogen Solutions

New Holland, a prominent manufacturer of agricultural machinery specializing in tractors, combines, grape harvesters, and balers, is actively promoting a range of solutions that enhance productivity while prioritizing environmental sustainability.

A key aspect of New Holland's approach is the localization of production near end-users, reducing the need for extensive transportation and resulting in significant fuel savings and reduced carbon emissions. The company also emphasizes the preference for local suppliers whenever possible, reducing the distance travelled by components used in the manufacturing process.

With a total of 28 facilities certified with ISO 14001, New Holland demonstrates its ongoing commitment to minimizing the environmental impact of the production cycle. Furthermore, 13 facilities have obtained ISO 50001/BS EN 16001 certification for their effective energy management systems, acknowledging their accomplishments in reducing emissions.

Looking at the involvement of new technologies, New Holland's strategy for achieving energy independence in agriculture centres propose a progression to hybrid methane/hydrogen systems and, ultimately, pure hydrogen solutions, as exemplified by the NH<sup>2</sup>™ tractor. This tractor operates solely on hydrogen, which can potentially be produced directly on the farm, ensuring energy self-sufficiency.

**Source:**

<https://agriculture.newholland.com/en-gb/europe/our-vision/sustainable-farming>

**Country:** Italy

**Parties involved:** Stellantis

**Title:** Stellantis Atessa Plant Training Program: Driving Digital and Ecological Transformation in E-Mobility

In March 2023, Stellantis launches the Training Program related to the recent expansion contract concerning the Atessa plant.

The training program has been specifically designed with a focus on the drivers of digital and ecological transformation, particularly in the context of e-mobility.

The proposed training modules consolidate existing themes and introduce new competencies that will serve as the foundation for transformation and change. Topics such as communication and teamwork are redefined, taking into account new technologies, flexibility, and diversity inherent in the new corporate environment. Cognitive approach and decision-making skills are incorporated into the new business

intelligence model. Product and new technologies form an additional element of the growth plan, aiming to drive the transformation of mobility as a whole. The training program aligns with the objectives of the industrial plan, which include technical innovation in product areas such as electrification, autonomous driving, and connectivity. It also focuses on process integration following the merger with the PSA Group and the digital transformation of processes.

**Source:**

<https://www.fim-cisl.it/2023/04/21/stellantis-firmato-il-contratto-di-espansione-ad-atessa/#:~:text=Il%20contratto%20di%20espansione%20%C3%A8,di%20un%20terzo%20delle%20uscite>

**Country:** Turkey

**Parties involved:** FORD Otosan/FORD Trucks

**Title:** Ford Otosan's Path to Sustainability: Advancing Renewable Energy and Hydrogen-Powered Mobility Solutions

Ford Otosan, the leading company of the Turkish automotive industry, announced its long-term sustainability goals.

Firstly, Ford Otosan demonstrates its commitment to sustainability by sourcing all of the electricity utilized in its campuses from 100% renewable sources. This renewable energy approach contributes to reducing the environmental impact associated with the company's operations.

In addition, in its pursuit of producing zero-emission vehicles, it has successfully developed a hydrogen-powered single-cylinder engine. This accomplishment aligns with Ford Otosan's long-term plan to exclusively produce zero-emission vehicles by 2040. Notably, Ford Otosan is sole manufacturer of the E-Transit, a light and medium commercial electric vehicle, in Europe.

Ford Otosan has also made significant progress in hydrogen-related research and development. The company has successfully produced the first hydrogen-powered internal combustion research engine in Turkey, furthering its contributions to sustainable mobility solutions and alternative propulsion systems.

**Source:**

[https://www.fordotosan.com.tr/documents/2021\\_sustainability\\_report.pdf](https://www.fordotosan.com.tr/documents/2021_sustainability_report.pdf)

**Country:** Turkey

**Parties involved:** Tofas

**Title:** Tofas: Advancing Sustainability through Low-Carbon Energy Solutions in Partnership with Stellantis

Tofas Turk Otomobil Fabrikasi AS (Tofas) is an automotive vehicles manufacturer formed as a result of a partnership between Koc Holdings and Stellantis NV. The company manufactures light commercial vehicles, passenger cars, and automotive spare parts accessories. It produces Fiat Egea Sedan, Hatchback, and Station Wagon models, Yeni Doblo and MCV.

Recently, it has actively aligned itself with Stellantis' strategies and goals for transitioning to low-carbon energy solutions. As part of its commitment to sustainability, Tofas dedicates 21% of its research and development activities to conducting studies aimed at reducing emissions.

Furthermore, the collaboration with Stellantis enables Tofas to stay informed about the latest advancements and best practices in the automotive industry's transition towards cleaner and more sustainable technologies.

**Source:**

<https://www.stellantis.com/en/news/press-releases/2023/march/stellantis-and-koc-holding-strengthen-tofas-and-enhance-partnership-in-turkiye>

**Country:** Turkey

**Parties involved:** Tofas

**Title:** Tofas: Driving Sustainable Mobility in Turkey through Electric and Hybrid Vehicle Innovations

Tofas Turk Otomobil Fabrikasi AS (Tofas) is an automotive vehicles manufacturer formed as a result of a partnership between Koc Holdings and Stellantis NV.

It is at the forefront of numerous initiatives in Turkey aimed at enhancing the efficiency of vehicles equipped with conventional engines, promoting the adoption of alternative fuel systems, and advancing the development of electric and hybrid vehicles.

These projects encompass a wide range of areas, including the design and manufacturing of fully electric vehicles, the implementation of advanced battery management systems, and the integration of wireless high-speed charging systems into vehicles.

Through these initiatives, Tofas is actively contributing to the advancement of sustainable transportation in Turkey, driving innovation and progress in the automotive industry. By focusing on the development of electric and hybrid vehicles, it is playing a vital role in expanding the availability of environmentally friendly mobility solutions and promoting the adoption of cleaner and more efficient transportation technologies.

**Source:**

[https://tofas.com.tr/en/Sustainability/SustainabilityReports/Documents/2021\\_surduruleb\\_ilirlik\\_eng.pdf](https://tofas.com.tr/en/Sustainability/SustainabilityReports/Documents/2021_surduruleb_ilirlik_eng.pdf)

## 5. Conclusions

**In the upcoming years, a critical challenge lies in ensuring the success of the just transition in establishing a new growth model with a reduced carbon footprint compared to the present.** The restructuring processes due to the objectives of ecological transition and just transition are shaping modern labour markets and productive sectors. Therefore, the challenge is to ensure that green policies have a positive impact on employment and societies: it is imperative to guarantee that the economic, social, and environmental dimensions synergize effectively, contributing to the prosperity of businesses, sustainable job opportunities for workers, and the well-being of all citizens.

**As illustrated by the practices examined in this document, social dialogue and collective bargaining, together with the institutional framework, not only play a significant role in this process but can be considered cornerstones of a successful just transition.** Social partners can also craft effective solutions as part of their collective bargaining at the sectoral, regional, or company levels, or through other mechanisms that align with various national industrial relations systems and territorial and international ecosystems.

**The examples in this report encompass a range of processes, approaches and issues related to the implementation of the green and just transition in the automotive -heavy transport- sector.** While some of these initiatives are driven from the top down, guided by regulatory or voluntary targets, others are grassroots efforts. For a long time and as it can be noted in this document, it is worth mentioning that international and European institutions, together with national governments, unions, employers, communities put a strong emphasis only on the need for ecological transition, reducing emissions and taking concrete actions in the fight against climate change. Therefore often, international documents and agreements have put forth more general directives and goals rather than focusing on specific sectors. However, especially in recent years, there has been an increase in dedicated projects aimed at greening certain sectors, notably the energy and transportation sectors, as they are considered pivotal in the green transformation of the economy.

**In particular, in the vast majority of the countries analysed in the present report, examples can be found of government initiatives aimed at supporting the development of green national plans** (see National Integrated Plan for Energy and Climate – Piano Nazionale Integrato per l’Energia e il Clima (PNIEC); Green Deal Action Plan – *Yeşil Mutabakat Eylem Planı 2021*) **and hydrogen-related policies** (see Türkiye Hydrogen Technologies Strategy and Roadmap National Hydrogen Strategy: preliminary guidelines; Strategia Nazionale Idrogeno: Linee Guida Preliminari; Hungary’s National Hydrogen Strategy 2018-2022; France Hydrogen Strategy), also in the specific field of heavy freight and passenger transportation. **Furthermore, some multi-stakeholder initiatives can be underlined, while the highest number of best practices, across all countries included in the research, is found at the corporate level.**

**However, significant challenges persist.** The lack of well-established and formalized government policies, funds, and structures for the just transition, particularly in the automotive sector (manufacturing of heavy transportation vehicles for goods and passengers), presents a considerable obstacle, particularly in certain countries. This is also an obstacle for the progress of workers, employers, and communities in the concretization not only of a green transition but also of a just transition within the industry. If, in recent times, there has been a strong focus from the company and its management on greening production, unions, in particular, remain relatively less involved in the planning, monitoring, and evaluation of all projects and initiatives aimed at greening the sector (see Ford Otosan, 2021 Sustainability Report or with specific reference to the use of hydrogen in the heavy transport sector Linde, Hydrogen mobility at Linde 2021). This is particularly evident in countries like Turkey, where the head companies often do not tailor their employment and transition policies to the unique characteristics of the region or the nations, also not engaging with social partners in all the processes of reconversion and transition.

**Additionally, it is notable that many national policies often focus predominantly on the green transition aspect of the sector, overlooking the social and employment impacts of conversion and transformation processes.** Therefore, if hydrogen, as emphasized in various institutional documents and academic research, can be a significant driver for the green and just development of the sector, attention must be given to all aspects related to safeguarding the environment, communities, workers, and vulnerable groups. To ensure this and to guarantee that the transition reduces inequality, poverty, and social exclusion, more significant resources, policy focus and, certainly, involvement of social partners are required.

## References

- Air Liquide, CNH Industrial, *Air Liquide and IVECO collaborate to accelerate the development of hydrogen heavy-duty mobility in Europe*, December 14, 2021, [https://it.airliquide.com/statics/2021-12/Air%20Liquide%20e%20IVECO%20collaborano%20per%20accelerare%20lo%20sviluppo%20della%20mobilit%C3%A0%20pesante%20a%20idrogeno%20in%20Europa.pdf?VersionId=viTigBN\\_DfAciVnadAoA0dxanAjxE0\\_O](https://it.airliquide.com/statics/2021-12/Air%20Liquide%20e%20IVECO%20collaborano%20per%20accelerare%20lo%20sviluppo%20della%20mobilit%C3%A0%20pesante%20a%20idrogeno%20in%20Europa.pdf?VersionId=viTigBN_DfAciVnadAoA0dxanAjxE0_O)
- Alstom, *Relever le défi de la mobilité durable*, <https://www.alstom.com/fr/solutions/materiel-roulant/coradia-ilint-le-premier-train-de-passagers-hydrogene-au-monde>
- Alstom, *We are committed to taking up the challenge of sustainable mobility*, <https://www.alstom.com/company/commitments/sustainable-mobility>
- AVF Beltrame Group, *Sostenibilità*, <https://gruppobeltrame.com/sostenibilita-gruppo/>
- Avio Aero, *Innovation – New Technologies*, <https://www.avioaero.com/en/innovation/new-technologies>
- ETUI, *On the way to electromobility – a green(er) but more unequal future?*, 2023, <https://www.etui.org/publications/way-electromobility-greener-more-unequal-future>
- Eurofound, *Industrial relations and social dialogue – Supporting regions in the just transition: Role of social partners*, July, 2023, [https://www.eurofound.europa.eu/sites/default/files/ef\\_publication/field\\_ef\\_document/ef23020en.pdf](https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef23020en.pdf)
- European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – REPowerEU Plan*, COM (82022) 230 final, 2022, <https://eur-lex.europa.eu/legal-content/EN/TXT/DOC/?uri=CELEX:52022DC0230>
- European Commission, *Commission Delegated Regulation (EU) 2023/1185 of 10 February 2023 supplementing Directive (EU) 2018/2001 of the European Parliament and of the Council by establishing a minimum threshold for greenhouse gas emissions savings of recycled carbon fuels and by specifying a methodology for assessing greenhouse gas emissions savings from renewable liquid and gaseous transport fuels of non-biological origin and from recycled carbon fuels*, 2023, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32023R1185&qid=1693391412027>
- European Commission, *Commission Delegated Regulation (EU) 2023/1184 of 10 February 2023 supplementing Directive (EU) 2018/2001 of the European Parliament and of the Council by establishing a Union methodology setting out detailed rules for the production of renewable liquid and gaseous transport fuels*

of non-biological origin, 2023, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32023R1184&qid=1693391483001>

European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – The European Green Deal*, COM (2019) 640 final, 2019, [https://eur-lex.europa.eu/resource.html?uri=cellar:b828d165-1c22-11ea-8c1f-01aa75ed71a1.0002.02/DOC\\_1&format=PDF](https://eur-lex.europa.eu/resource.html?uri=cellar:b828d165-1c22-11ea-8c1f-01aa75ed71a1.0002.02/DOC_1&format=PDF)

European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – The European Green Deal – A hydrogen strategy for a climate-neutral Europe*, COM (2020) 301 final, 2020, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020DC0301>

European Commission, *Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EU) 2019/1242 as regards strengthening the CO<sub>2</sub> emission performance standards for new heavy-duty vehicles and integrating reporting obligations, and repealing Regulation (EU) 2018/956 (Text with EEA relevance)*{SEC(2023) 100 final} – {SWD(2023) 88 final} – {SWD(2023) 89 final}, 2023/0042 (COD), 2023, [https://climate.ec.europa.eu/system/files/2023-02/policy\\_transport\\_hdv\\_20230214\\_proposal\\_en\\_0.pdf](https://climate.ec.europa.eu/system/files/2023-02/policy_transport_hdv_20230214_proposal_en_0.pdf)

European Commission, *Proposal for a Regulation of the European Parliament and of the Council on the use of railway infrastructure capacity in the single European railway area, amending Directive 2012/34/EU and repealing Regulation (EU) No 913/2010 (Text with EEA relevance)*{SEC(2023) 443} – {SWD(2023) 443} – {SWD(2023) 444}, 2023/0271 (COD), 2023, [https://transport.ec.europa.eu/system/files/2023-07/COM\\_2023\\_443\\_0.pdf](https://transport.ec.europa.eu/system/files/2023-07/COM_2023_443_0.pdf)

European Parliament, Council of the European Union, *Regulation (EU) 2023/851 of the European Parliament and of the Council of 19 April 2023 amending Regulation (EU) 2019/631 as regards strengthening the CO<sub>2</sub> emission performance standards for new passenger cars and new light commercial vehicles in line with the Union's increased climate ambition (Text with EEA relevance)*, 2023, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32023R0851>

European Parliament, Council of the European Union, *Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (recast) (Text with EEA relevance)*, 2018, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L2001>

European Transport Workers' Federation (ETF), *ETF points out contradictions in EC's Greening Transport Package*, July 12, 2023, <https://www.etf-europe.org/etf-points-out-contradictions-in-ecs-greening-transport-package/>

- Fim-Cisl, *Stellantis: firmato il contratto di espansione ad Atessa*, April 21, 2023, <https://www.fim-cisl.it/2023/04/21/stellantis-firmato-il-contratto-di-espansione-ad-atessa/>
- Ford Otosan, *2021 Sustainability Report*, 2022, [https://www.fordotosan.com.tr/documents/2021\\_sustainability\\_report.pdf](https://www.fordotosan.com.tr/documents/2021_sustainability_report.pdf)
- French government, Ministry for Energy Transition, Ministry Delegate for Industry, *The French Green Hydrogen Plan 2020-2030*, <https://www.tresor.economie.gouv.fr/Articles/4a1ac560-a021-4358-a466-f5430928a1db/files/7d2fd0e2-8a3d-4ce8-bbb3-94cbd5b9c3d1>
- IEA, *Hungary 2022 – Energy Policy Review*, 2022, <https://iea.blob.core.windows.net/assets/9f137e48-13e4-4aab-b13a-dcc90adf7e38/Hungary2022.pdf>
- IndustriAll, *New CO2 emission standards for heavy duty vehicles must be part of a job-rich industrial strategy*, February 14, 2023, <https://news.industriall-europe.eu/Article/865>
- Italian government – Ministry for economic development, *Strategia Nazionale Idrogeno – Linee Guida Preliminari*, [https://www.mimit.gov.it/images/stories/documenti/Strategia\\_Nazionale\\_Idrogeno\\_Linee\\_guida\\_preliminari\\_nov20.pdf](https://www.mimit.gov.it/images/stories/documenti/Strategia_Nazionale_Idrogeno_Linee_guida_preliminari_nov20.pdf)
- Italian government, Ministry of Economy and Finance, *Piano Nazionale di Ripresa e Resilienza*, <https://www.governo.it/sites/governo.it/files/PNRR.pdf>
- Iveco Group, *2022 Sustainability Essentials, Strategy – Actions – Performance*, 2022, [https://www.ivecogroup.com/-/media/sustainability/sustainability\\_essentials/docs/iveco-group\\_sustatinability-essentials-2022.pdf](https://www.ivecogroup.com/-/media/sustainability/sustainability_essentials/docs/iveco-group_sustatinability-essentials-2022.pdf)
- Iveco Group, *Iveco Group inaugurates its new plant in Foggia and returns to producing buses in Italy*, April 18, 2023, [https://www.ivecogroup.com/media/corporate\\_press\\_releases/2023/april/iveco\\_group\\_inaugurates\\_its\\_new\\_plant\\_in\\_foggia\\_and\\_returns\\_to\\_producing\\_buses\\_in\\_italy](https://www.ivecogroup.com/media/corporate_press_releases/2023/april/iveco_group_inaugurates_its_new_plant_in_foggia_and_returns_to_producing_buses_in_italy)
- Linde, *Hydrogen mobility at Linde 2021*, 2021, [https://zerocarbonhub.hu/wp-content/uploads/2021/11/Zold\\_kamion\\_Linde.pdf](https://zerocarbonhub.hu/wp-content/uploads/2021/11/Zold_kamion_Linde.pdf)
- Ministry for Innovation and Technology, *Hungary's National Hydrogen Strategy – Strategy for the introduction of clean hydrogen and hydrogen technologies to the domestic market and for establishing background infrastructure for the hydrogen industry*, <https://cdn.kormany.hu/uploads/document/a/a2/a2b/a2b2b7ed5179b17694659b8f050ba9648e75a0bf.pdf>
- Ministry of Economic Development, Ministry of the Environment and Protection of Land and Sea, Ministry of Infrastructure and Transport, *Piano Nazionale Integrato per l'Energia e il Clima*, [https://www.mimit.gov.it/images/stories/documenti/PNIEC\\_finale\\_17012020.pdf](https://www.mimit.gov.it/images/stories/documenti/PNIEC_finale_17012020.pdf)



New Holland Agriculture, *Sustainable Farming*, <https://agriculture.newholland.com/en-gb/europe/our-vision/sustainable-farming>

OECD, *Regional Industrial Transitions to Climate Neutrality*, OECD Regional Development Studies, 2023, <https://www.oecd-ilibrary.org/docserver/35247cc7-en.pdf?expires=1694509249&id=id&accname=guest&checksum=EF9F8E85D3F83CB2B84CD7BC5BC8B34F>

Otomotiv Sanayii Derneği, *Turkish Automotive Industry Sustainability Report*, [https://www.osd.org.tr/saved-files/PDF/2022/02/18/OSD\\_SRDE\\_2020.pdf](https://www.osd.org.tr/saved-files/PDF/2022/02/18/OSD_SRDE_2020.pdf)

Punch Torino, *Hydrocells*, <https://www.punchtorino.com/punch-hydrocells/>

Republic of Türkiye, Ministry of Trade, *Yeşil Mutabakat Eylem Planı 2021*, <https://ticaret.gov.tr/data/60f1200013b876eb28421b23/MUTABAKAT%20YE%C5%9E%C4%B0L.pdf>

Stellantis, *Hydrogen Fuel Cell – Zero Emission*, March, 2021, [https://www.stellantis.com/content/dam/stellantis-corporate/news/media-events/HYDROGEN-FUEL-CELL-ZERO-EMISSION\\_PRESSKIT.pdf](https://www.stellantis.com/content/dam/stellantis-corporate/news/media-events/HYDROGEN-FUEL-CELL-ZERO-EMISSION_PRESSKIT.pdf)

Stellantis, *Stellantis and Koç Holding Strengthen Tofaş and Enhance Partnership in Türkiye*, March 1, 2023, [https://www.stellantis.com/en/news/press-releases/2023/march/stellantis-and-koc-holding-strengthen-tofas-and-enhance-partnership-in-turkiye?adobe\\_mc\\_ref=](https://www.stellantis.com/en/news/press-releases/2023/march/stellantis-and-koc-holding-strengthen-tofas-and-enhance-partnership-in-turkiye?adobe_mc_ref=)

Tofaş, *Sustainability Report 2021, 2022*, [https://tofas.com.tr/en/Sustainability/SustainabilityReports/Documents/2021\\_surdurulebilirlik\\_eng.pdf](https://tofas.com.tr/en/Sustainability/SustainabilityReports/Documents/2021_surdurulebilirlik_eng.pdf)

Waberer's, *Zöld logisztika koncepció – Kombináltfuvarozás és hidrogén technológia*, 2021, [https://zerocarbonhub.hu/wp-content/uploads/2021/11/Zold\\_kamion\\_Waberers.pdf](https://zerocarbonhub.hu/wp-content/uploads/2021/11/Zold_kamion_Waberers.pdf)