

SUBMISSION BY SPAIN AND THE EUROPEAN COMMISSION ON BEHALF OF THE EUROPEAN UNION AND ITS MEMBER STATES

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Subject: views on opportunities, best practices, actionable solutions, challenges and barriers relevant to accelerating just energy transition in transport systems

Introduction

The EU welcomes the announcement of the topic and the opportunity to submit its views on opportunities, best practices, actionable solutions, challenges and barriers relevant to accelerating just energy transition for the second global dialogue (2nd GD) and investment focus event (IFE) of the Mitigation Work Programme (MWP), that will take place in Abu Dhabi in October 2023, with a focus on Just Energy Transition in transport systems.

Just energy transition remains the main challenge and opportunity for reducing emissions in line with 1.5°C pathways and reaching climate neutrality, therefore, this 2nd GD should ensure a strong continuity with the just energy transition topics discussed in the first global dialogue (1st GD) to take advantage of the momentum created for those topics in June, and progress on solutions to promote actions on energy efficiency (EE), renewable energy (RE), carbon capture and storage/utilization (CCS/CCU) and grids and storage. There are important interlinkages and synergies between the topics for 1st GD and 2nd GD, e.g. when it comes to sector coupling, renewable energy, electrification and the necessary decreasing use of fossil fuels in this decade, that we would like to see reflected in the agenda for the 2nd GD, to follow up on the debates that we had in Bonn so we can advance work on practical solutions.

In that sense, the IPCC states global GHG emissions should have peaked by 2025 at the latest, meaning a peak in fossil fuel consumption in the near term, thus, we reiterate that limiting global warming to 1.5°C requires rapid, deep and sustained reductions in economy-wide global greenhouse gas emissions of 43 per cent by 2030 relative to the 2019 level, while the latest Nationally Determined Contributions (NDC) synthesis report states that the total global greenhouse gas emission level in 2030, taking into account implementation of all latest nationally determined contributions, is estimated to be only 0.3 per cent below the 2019 level. It further explains that current NDCs would result in global warming of around 2.5 °C in 2100. We are not on track, and the window of opportunity is rapidly closing. A just energy transition, including in transport, shall be implemented to help achieving Paris Agreement goals on mitigation.

The EU reminds that its first NDC, with a target of at least 40% economy-wide reduction of greenhouse gas emissions by 2030, compared to 1990 levels, was updated with a new and more ambitious EU climate target for 2030 applicable to the EU and its 27 Member States of “a net domestic reduction of at least 55% in greenhouse gas emissions by 2030 compared to 1990” and submitted it to the UNFCCC Secretariat as an updated and enhanced NDC on 18 December 2020.



Ambitious targets for improving energy efficiency and for increasing renewables in the EU energy mix have also been agreed. The EU has agreed to increase ambition on energy savings through an enhanced target to reduce final energy consumption at EU level by 11,7% in 2030 and a new target for increasing renewable energy in final energy consumption of at least 42,5% by 2030, with an additional 2,5% indicative top up that would allow to reach 45%. This is estimated to increase the share of RE in the power sector to 69 percent by 2030, in line with IRENA and IEA Analysis for a 1.5°C pathway. Transport is a crucial sector in the achievement of these targets, the EU aims to increase the share of renewable energy in transport to 29 percent of overall energy consumption of the sector.

With respect to transport¹, the EU has set the ambitious goal of reducing its transport emissions by 90% in 2050 compared to 1990, in line with the aim to achieve climate neutrality in the EU in the same year. By 2030, the EU aims at having:

- at least 30 million zero-emission cars operating on European roads
- 100 European cities climate neutral
- high-speed rail traffic doubling across Europe
- scheduled collective carbon neutral travel for journeys under 500 km
- automated mobility deployed at large scale
- zero-emission marine vessels being market-ready

We trust that the Co-Chairs and the secretariat, in organising 2nd GD & IFE will take on board the feedback received and lessons learned regarding the organisation of 1st GD & IFE, in particular with regard to allowing for and facilitating meaningful participation by Parties and Non Party Stakeholders

This second MWP dialogue and investment focused event should allow Parties and non-Party stakeholders to exchange on lessons learned, identify synergies, think of robust domestic policies to be applied and explore how policies and measures shared may underpin climate action and ambition at domestic level, and enable countries to make progress in implementing and enhancing their mitigation commitments.

The EU believes that the MWP would highly benefit from interacting with existing initiatives. In this particular case, when talking about just energy transition in transport, the MWP should be looking, in particular, to transport commitments and initiatives launched at the UN Climate Change Conferences, in order to improve coordination and promote synergies in decarbonizing the transport sector. In this context it will also be important to consider initiatives that support the decarbonisation of the power sector as this is an essential element in decarbonising the transport sector through electrification.

It is the EU view that the CMA decision on the MWP should, at least, reflect technical discussions in the global dialogues and investment focus events, and include recommendations for the decarbonization and just transition of the energy and transport sectors, including the opportunities, barriers and solutions such as enabling conditions and international cooperation, as well as inform on the mitigation component

¹ Mobility Strategy (europa.eu)

in the new NDCs. It should send a strong signal to the actors in these sectors to take action in the transition and to policy makers on how to best implement policies and measures with a view to achieving a just energy transition, helping policy makers in identifying possible areas for greater ambition in developing their NDCs and LT-LEDS, in a facilitative, non-intrusive manner. It should also reflect how to interact with the GST and the Ministerial High-Level Roundtable on pre-2030 ambition, as well as the interlinkages and synergies with relevant initiatives within and outside the UNFCCC that can help achieving the MWP objectives (increase ambition and implementation in mitigation).

Implementing policies and measures in the transport sector with a global overview and country-specific experience –

According to the IPCC, 15% (8.7 GtCO₂-eq) of global GHG emissions in 2019 originated in the transport sector. The biggest share of transport related emissions is generated by road transport vehicles (70%), while around 10% are linked to shipping and air transport respectively. Aviation also has significant non-CO₂ climate impacts. Overall, global transport emissions are still increasing. According to the IEA, transport emissions need to decrease by around 25% in 2030 compared to 2020 levels to stay aligned with 1.5 °C pathways. In 2050, transport-related CO₂ emissions would need to be restricted to about 2 to 3 Gt, or about 70 to 80% below 2015 levels, to meet the goals set in the Paris Agreement. (IPCC 6AR).

Also according to the IPCC, transport-related GHG emissions, including freight transport, can be reduced by demand-side options and low-GHG emissions technologies: (adapted from IPCC 6AR SYR)

- On the demand-side, actions can be grouped in the Avoid-Shift-Improve (ASI) framework. While shifting and improving provides the highest mitigation potential for road transport, avoiding is currently the most impactful action in shipping and aviation. Altogether, demand side measures have the potential to reduce transport emissions by around 2.4 GtCO₂-equivalent by 2030, and by more than 60% altogether until 2050. Some examples of demand side actions are: changes in urban form, reallocation of street space for cycling and walking, pooling of transport and introduction of shared economy instruments, digitalisation (e.g., teleworking) and programs that encourage changes in consumer behaviour (e.g. transport, pricing) that can reduce demand for transport services and support the shift to more energy efficient transport modes (high confidence).
- On the technologies side, the electrification of transport modes offers the largest decarbonisation potential, in particular, for land-based transport. Furthermore, measures to increase the fuel efficiency of transport modes and the introduction of alternative zero-emission technologies can offer additional mitigation potential.

The impact of both options is crucially influenced by actions of public stakeholders, including all levels of government, and public transport entities such as road management authorities and municipal or regional public transport management. Their actions related to providing infrastructure that allows for a change of the modal split

(e.g., safe bike- and walkways, public transport), and actions incentivizing increased involvement of private actors (e.g., support for the construction of road transport charging infrastructure) are the foundation for lasting demand-side changes. Similarly, regulation and research support are two main instruments available to public stakeholders to accelerate technology improvements and innovation.

Lastly, a mixture of demand-side and technology measures, their spread and affordability while constantly considering and ensuring public acceptance, has the potential to accelerate the low-carbon transport transition.

On the specific topics suggested by the co-chairs:

Deploying and shifting to collective and non-motorized modes of transport (rail, urban public transit, cycling, etc.)

This is an important subtopic as a shift to the use of more efficient transport modes is needed to achieve significant mitigation in the transport sector. Moreover, the EU is of the view that this subtopic should also include discussions on avoiding the need to travel (including also transport of goods), as this is an important element of the ASI framework and currently not covered in the indicative list of subtopics.

There are several elements that determine the final choices of passengers or freight displacements, such as costs, capacity, availability, time, flexibility, safety and reliability. As mentioned by the IPCC, recent research shows that individual, social, and infrastructure factors also affect people's mode choices. Incentivizing changes in demand patterns and having sustainable alternatives available to avoid the necessity of transport to the extent possible are the main challenges.

Actionable solutions that could be discussed under this subtopic include, amongst others: upgrades of public transport options (i.e., infrastructure and services); city planning and improvements on the last mile, including best-practice bike and walking infrastructure; incentive systems, including subsidies, regulation, and taxation to steer demand towards avoiding transport or shifting to more efficient or cleaner modes of transport; effective awareness campaigns and creation of public support; modal changes in freight transport, etc.

The EU would like to share some examples of policies and measures that try to influence the demand-side and achieve sustainable selections of transport mode, and that have been included in the annex to this document.

Energy and resource efficiency in the transport sector (design improvements, circular economy and material changes, vehicle vintage, carpooling, etc.)

The IPCC shows that efficiency improvements in the transport sector can cut annual transport emissions by more than 1 GtCO₂-eq by 2030. These gains are not only limited to achieving higher fuel efficiency, but are, especially in aviation and shipping, also linked to the implementation of more efficient routes and transport mode design improvements. Efficiency gains, together with the reduction in the number and length of displacements will therefore contribute significantly to reduce GHG emissions from transport.

Actionable solutions that should be discussed under this subtopic include, amongst others: digitalization including smart technologies for efficiency improvements in

logistics and city planning; carpooling and micro mobility; research and innovation stimulus and cooperation; incentives, regulation and taxation to steer supply and demand of energy efficient solutions; dematerialization; etc.

Some examples of actions at EU level and at Member State level are shown in the annex to this document.

Electrification of vehicles (infrastructure, batteries and minerals)

The impact of the electrification of vehicles in emissions mitigation has two main components: 1. A technology component, with the need to develop electric vehicles that are competitive compared to fossil-fuel motioned vehicles, and 2. A demand-side component, making these vehicles accessible and attractive to users (e.g build adequate electric vehicles (EV) infrastructures). According to the IEA, average lifetime emissions from battery electric cars (BEV) are significantly lower than any fossil-fuel powered car, even if electricity generation is not predominantly renewable. The IEA furthermore concludes that, to be in line with its net-zero emission by 2050 scenario, BEVs in total sales need to reach 60% by 2030 and all car and van sales would need to be zero-emissions by 2035.

Electrification needs to occur hand in hand with most of the topics discussed in the first global dialogue, namely renewable energy, energy efficiency, grids and energy storage. With the right infrastructure (grids), accelerated deployment of renewable energy and decarbonized electricity production, the decarbonisation potential of the electrification of transport can be leveraged.

Additionally, actionable solutions that should be discussed under this subtopic include, amongst others: Provision of charging infrastructure by public and private entities; innovation and research stimulus, specifically for batteries; importance of city planning incl. building codes; incentives, regulation and taxation to improve the update of electric vehicles; innovative forms of costumer finance to cover costs of purchase with lower operating costs; awareness campaigns to create public support; etc.

Examples on EU and MMSS actions are compiled in the annex to this document.

Shifting to low- or zero-carbon fuels (hydrogen, biofuels, biogas, compressed natural gas)

Where electrification is not available (at least yet) fossil fuels shall be replaced by alternative low- or zero-carbon or zero-emission fuels.

These alternative fuels are in different status of development and face different infrastructure challenges, require production process improvements and cost reductions. Some of them are a solution already, others will be part of the mitigation action in the medium-long term beyond 2030. The EU is of the view that the discussion around low- or zero carbon fuels should therefore be centered on solutions with significant impact to scaling up the ambition and implementation in this critical decade. The EU also thinks that linkages of some of these low or zero-carbon fuels with indirect land use changes and food security should be carefully explored to avoid spill-over effects in emissions from land, food insecurity and water scarcity.

With respect to compressed natural gas, the EU expresses its concern about the inclusion of the fuel in this subtopic and suggest focusing on low- and zero carbon fuels

instead. Compressed natural gas is neither a zero nor a low carbon fuel, as its life cycle emissions, including upstream and fugitive emissions, is not significantly less than diesel. Promoting the technology as a solution for heavy duty transport can further lead to lock-in effects for costumers.

Actionable solutions that should be discussed under this subtopic include, amongst others: R+D and enabling conditions needed to deploy the potential of these fuels; use cases in hard-to-abate transport system technologies and modes, piloting in heavy duty vehicles, shipping and aviation, etc.

We would like to share the main EU policies related to low or zero-emissions fuels, and some Member States examples. They can be found in the annex to this document.

[Addressing financial, technological and capacity-building needs in this area, such as through international cooperation, including with non-Party stakeholders, and provision of support to developing countries](#)

Technology development, transfer, capacity building and financing can support developing countries/ regions in leapfrogging or transitioning to low-emissions transport systems thereby providing multiple co-benefits. (IPCC AR6 SYR)

The EU is addressing part of its financial needs to fight climate change in relation to transport using the incomes from auctioning of allowances of its emissions trading system, that partially reverts to investments climate change policies, and, in particular, in mitigation in transport sector.

The EU also invests intensively in innovation in relation to climate change mitigation technologies through the Innovation Fund, one of the world's largest funding programmes for the deployment of net-zero and innovative technologies. The Fund has been extended, in 2023, to support innovation in low- and zero-carbon technologies and processes that concern the consumption of fuels in the buildings, road transport and additional sectors, including collective forms of transport such as public transport and coach services. In addition, the Innovation Fund should serve to support investments to decarbonise maritime transport, including investments in energy efficiency of ships, ports and short-sea shipping, in electrification of the sector, in sustainable alternative fuels, such as hydrogen and ammonia that are produced from renewables, in zero- emission propulsion technologies such as wind technologies, and in innovations with regard to ice-class ships.

The Modernization Fund, a programme from the European Union to support some Member States to meet 2030 energy targets by helping to modernise energy systems and improve energy efficiency, also supports projects to improve energy efficiency in the transport sector.

Connecting Europe Facility (CEF) is a key EU funding instrument to promote growth, jobs and competitiveness through targeted infrastructure investment at European level in the areas of energy, transport and digital.

Horizon Europe with its total budget of EUR 95.5 billion will also support research priorities related to global challenges. Projects in the transport sector will be funded under the theme Climate, energy, and mobility with a total budget of EUR 15.1 billion.

The inherently cross-border dimension of transport is reflected in the international reach of the EU policy. A wide range of activities have been put in place, covering all transport modes and activities which differ depending on the country or region concerned.

One of the most relevant initiatives at EU level is the Global Gateway, that plans to mobilise €300 billion in global investments from 2021 to 2027. Global Gateway will particularly help emerging countries in areas such as new electricity connections, new ports and railways, more modern telecommunications, infrastructure and digitalisation. The initiative will improve trade with international partners and invest in digital innovation, green energy, transport, healthcare and education. Global Gateway is creating stronger and more sustainable connections for goods, people and services to make international trade more resilient to future shocks and more sustainable.

Within this gateway, the EU is working with different partners on sustainable transport, for example, the European Commission has undertaken a Study on Sustainable Transport Connections between Europe and Central Asia, as one of the actions taken to implement the Global Gateway Strategy (2021), offering a solid basis for major potential investments in sustainable transport connections between the EU and Central Asia.

Another example, also related to the Gateway, is the new Regional Transport Action Plan adopted under the Union for the Mediterranean (a forum for dialogue among 27 EU Member States and 17 Mediterranean neighbours) that provides essential milestones until 2027, towards a safe, secure, sustainable, efficient, and connected Mediterranean transport system. The European Union will continue to support its Mediterranean partners' national transport strategies and regional transport cooperation. The European Union and its Member States are supporting, through multilateral development banks, such as the European Investment Bank and the European Bank for Reconstruction and Development, various international transport projects that take into account decarbonisation perspectives.

[Promoting sustainable development and understanding socioeconomic effects](#)

According to the IPCC, transport relates to virtually all the Sustainable Development Goals (SDGs). A sustainable transport system provides safe, inclusive, affordable, and clean passenger and freight mobility for current and future generations, so transport is particularly linked to SDGs 3, 7, 8, 9, 11, 12, and 13.

As recognized by the IPCC, transport systems are socioeconomic systems that include systemic factors that are developing into potentially transformative drivers of emissions from the sector. As socioeconomic systems, any changes undertaken with the aim to reduce GHG emissions will have social and economic effects.

Decarbonisation of the transport sector also represents a key sector for just transition. An efficient, sustainable grid of public transportation would enable positive socioeconomic effects, as well as the improvement of the air quality and public health. So, the deployment of sustainable modes of public transportation would postulate a number of benefits to people, especially the most vulnerable, like the poorest, women

and children. In this view, the topic provides an important parallelism with the Work Program on Just Transition, because of its power to induce investments of national economic resources towards instruments to achieve best life quality standards while implementing national climate policies.

The transformation towards a low-emission transport sector can bring various benefits:

1. Health: The reduction of fossil-fuel transport reduces health system costs by reducing pollution and accidents. Reduced local air pollution from phasing down fossil fuel use, and thus cleaner air, reduces the risk of cardio-respiratory disease. Indeed, the transport sector was responsible for approximately 11% (385,000 people) of all premature deaths due to air pollution in 2015 on a global scale, translating to 7.8 million years of life lost.
2. Quality of life and resilience: Shifting away from motorized individual transport allows for a redefinition of public space, such as reviving streets as pedestrian areas or creating green areas that improve the attractiveness of neighbourhoods. This creates climate change resilience, such as by reducing temperatures or providing flood protection.
3. Energy security and price stability: Electrifying transport reduces dependence on oil imports for non-oil extracting countries and has positive impacts on price variability, as electricity prices that, if predominantly from renewable generation, are much more predictable than volatile oil prices.
4. Employment: electrification combined with low-GHG energy, and shifts to active mobility and public transport can enhance the creation and supply of green jobs.

Nonetheless, the EU acknowledges that there are many social and economic issues that cannot be ignored in any transition undertaken to mitigate climate change, nevertheless, effects can be mostly positive.

For example, the introduction of the new EU emissions trading scheme for road transport, buildings and additional sectors in 2027 will generate important revenues that EU Member States will have to use in priority, among others, for measures intended to accelerate the uptake of zero-emission vehicles or to provide financial support for the deployment of fully interoperable refuelling and recharging infrastructure for zero-emission vehicles, or measures to encourage a shift to public transport and improve multimodality, or to provide financial support in order to address social aspects concerning low- and middle-income transport users;

In addition to this, the EU has established the Social Climate Fund, that is funded with determined incomes of the auctioning of emission allowances of the ETS system, and that has the objective of supporting the vulnerable households from 2026. The Fund will be able to finance temporary direct income support for vulnerable households, and will provide funding to Member States to support measures and investments in, among other, granting improved access to zero- and low-emission mobility and transport. These measures and investments under the Social Climate plan have to be specially targeted to vulnerable households, micro-enterprises or transport users.

ANNEX: EXAMPLES AT EU AND MEMBER STATE LEVELS

Deploying and shifting to collective and non-motorized modes of transport (rail, urban public transit, cycling, etc.)

Within the EU, Sustainable Urban Mobility Planning (SUMP) is the preferred urban transport planning concept. A Sustainable Urban Mobility Plan is a strategic plan designed to satisfy the mobility needs of people and businesses in cities and their surroundings for a better quality of life. It builds on existing planning practices and takes due consideration of integration, participation, and evaluation principles.” In contrast to traditional planning approaches, SUMP places particular emphasis on the involvement of citizens and stakeholders, the coordination of policies between sectors (especially transport, land use, environment, economic development, social policy, health, safety, and energy), and broad cooperation across different layers of government and with private actors. SUMPs have proven to be an effective instrument within the EU: The Spanish capital Madrid saw a 15% reduction in nitrogen dioxide pollution in just three months after establishing low emission zones in its SUMP in November 2018. With Toulouse’s latest SUMP (PDU in French), the city aims to reduce the number of people exposed to an increased concentration of NOx emissions from 8,000-18,000 (2013) to less than 300 in 2030.

The EU pushes ahead with building a sustainable and smart trans-European transport network (TEN-T) that connects 430 major cities with ports, airports and railway terminals. The revised Regulation requires, for example, that TEN-T passenger lines allow trains to travel at 160 km/h or faster by 2040. It calls for more transshipment terminals, improved handling capacity at freight terminals, reduced waiting times at rail border crossings, and longer trains to shift more freight onto cleaner transport modes. All 430 major cities along the TEN-T network will have to develop Sustainable Urban Mobility Plans to promote zero-emission mobility, and to increase and improve public transport. Provisions to make the TEN-T more resilient to the effects of climate change are also included. The Commission has announced that it will provide EUR 5.4 billion to co-fund 135 transport infrastructure projects that will form part of the Trans-European Transport Network (TEN-T), with the objective of completing the core TEN-T network by 2030 and the comprehensive network by 2050. 80% of the funding has been allocated to rail and inland waterway projects, supporting the EU’s climate targets. The EU is making a total of EUR 25.8 billion available between 2021 – 2027 to co-fund TEN-T projects.

Cities play a pivotal role in achieving climate neutrality by 2050, the goal of the European Green Deal. They take up only 4% of the EU’s land area, but they are home to 75% of EU citizens. Furthermore, cities consume over 65% of the world’s energy and account for more than 70% of global CO2 emissions. Under Horizon Europe, the world’s biggest scientific research funding programme, various stakeholder are working together to deliver 100 climate-neutral and smart cities by 2030 and to ensure that these cities act as experimentation and innovation hubs to enable all European cities to follow suit by 2050.

As foreseen in its implementation plan, the Cities Mission takes a cross-sectoral and demand-led approach, creating synergies between existing initiatives and basing its activities on the actual needs of cities.

The EU Urban Mobility Framework² initiative proposes measures to encourage EU Member States to develop urban transport systems that are safe, accessible, inclusive, affordable, smart, resilient, and emission-free.

The EU Urban Mobility Framework strives to improve the quality of life of the EU urban population by addressing urban mobility challenges (such as air pollution, congestion, accessibility, urban road safety, growth of e-commerce, etc.) and by increasing the share of sustainable transport modes (in particular public transport and active mobility) as well as zero-emission urban logistics, last mile deliveries and urban fleets (taxis and ride-hailing services).

It prioritises the construction and modernisation of multimodal hubs, as well as new digital solutions and services. It promotes a coherent and integrated approach to urban mobility planning while mapping out funding options for local and regional authorities to implement priority actions. The initiative also draws lessons from the effect of COVID-19 on public transport to help with the transition to a climate-neutral economy and emission-free transport at the local level.

The EU road safety policy³ focuses on vulnerable road users such as pedestrians and cyclists in all aspects of the ‘Safe System’ approach, including the revised General Vehicle Safety Regulation which has introduced mandatory safety features that will benefit those outside the vehicle such as technologies for buses and trucks to better recognise possible blind spots and warnings to prevent collisions.

The proposed Energy Performance of Buildings Directive foresees that public buildings should include sufficient parking spaces for bicycles and e-bikes.

An Action Plan⁴ was introduced on EU level in 2021 to boost long-distance and cross-border passenger rail services, combined with changes to the Trans-European Transport Network (TEN-T) to increase high-speed rail capacity, and new European Investment Bank (EIB) support for investment in rail, are preparing the ground for a real renaissance in rail. The plan is part of a package of [measures for efficient and green mobility](#), and will help the EU meet its strategic milestones of doubling high-speed rail traffic by 2030 and tripling it by 2050. In 2023, the European Commission announced support for 10 strategic cross border rail projects.



² [Sustainable urban mobility \(europa.eu\)](#)

³ [Active mobility: walking and cycling \(europa.eu\)](#)

⁴ [Action Plan to boost passenger rail \(europa.eu\)](#)

In **Belgium**, the Brussels region historically faces notorious traffic jams and has struggled to reduce its car dependency -. In 2016 the region launched a participatory process involving citizens and public and private stakeholders to design a new mobility plan. Four years of consultation resulted in the Good Move plan 2020-2030, which will essentially ban non-local, non-essential motorized traffic. The plan takes an inter-modal and transversal approach, and consists of the following interconnected focus areas:

- Good Neighbourhood: to manage mobility in the neighbourhoods and improve the quality of life of the inhabitants.
- Good Network: organise the transportation networks and ensure an efficient service.
- Good Service: to provide the Region's inhabitants and users with a range of integrated services.
- Good Choice: to guide individual and collective choices without compromising individual freedom.
- Good Partner: ensure participatory governance of the mobility plan.
- Good Knowledge: update mobility data and regularly evaluate the Good Move plan.

One year after the implementation of the plan in the very city centre of Brussels, motorized traffic has dropped by a quarter and there are 36% more cyclists. Initial resistance in some neighbourhoods to vehicle restrictions underline the importance of citizen engagement.

The harbor of Antwerp, in **Belgium**, is a key entry point for freight in Europe. Currently the majority of freight transport to and from the European hinterland goes by road, about one third goes through inland waterways, and only a fraction goes by rail. To reduce freight transport emissions a modal shift is envisioned away from road transport and towards more transport by inland waterways, rail, and pipelines. Two key components of the modal shift are:

1. An action plan to increase rail transport through, among others, improved management of port traffic flows, more efficient use of rail capacity, targeted investment in infrastructure, and enhanced digital information exchange between stakeholders.
2. A financial stimulus programme to enhance the port's connection with inland waterways through corridor shuttles which connect several inland terminal with a maritime terminal as well as terminal shuttles which consist of a hub and spoke system to increase the frequency of connections between a maritime terminal and the inland waterways.

Belgium has a rich cycling tradition, with 18% of displacements in Flanders in 2022 happening by bike. To further tap into the potential of cycling and realise environmental, economic and health co-benefits, a new cycling policy was launched in 2022 for the region of Wallonia aiming to increasing cycling five-fold by 2030. Similarly, in 2023 the Flemish government launched a cycling policy aiming to ensure that, by 2040, cycling will be the default mode of transport for short to medium trips with 30% of displacement happening by bike. To this end, the policies aim to ensure smooth switching between cycling and other sustainable modes of transport and ensure that

everyone has access to a (shared) bicycle and can cycle safely and comfortably, regardless of age, gender, social class, culture or health. This implies that residential centres, schools, hotspots and major employment poles will be safely and easily accessible by bicycle.

The policies foresee that authorities at all levels of government collaborate to provide safe and comfortable cycling infrastructure, including through innovative solutions such as a network of car-free bicycle high-ways for longer-distance trips and well-equipped cycling hubs providing parking facilities, connections to other sustainable transport modes, bike sharing systems, charging point for electric bikes, and facilities for bike maintenance. Furthermore, measures are foreseen to separate cyclists as much as possible from motorised traffic. With regards to freight transport, urban distribution centres for parcels are planned so that last mile delivery can happen by bike courier in urban environments.

Following the "Climate and resilience law" based on the proposal of the "Convention citoyenne pour le climat", France adopted many measures to accelerate modal shift from polluting modes. **France** introduced in 2021 in the Climate and Resilience law a ban of short-haul flights when there is an available train alternative under two hours and a half with a sufficient quality of service (multiple trains per day). The measure was enacted in a decree in 2023, after a notification and approval at the EU level according to EU law. It implies for example that the lines between Paris Orly and Bordeaux or Lyon are no longer operated. Moreover, the Transport Ministry recently announced that a 49€ ticket should be available next Summer, allowing illimited access to regional trains.

Also in **France**, some other initiatives on shifting transport modes are being implemented:

Carpool routes: Of the 60 carpooling routes available in France, the highest level of service currently available is the "Lane", which aims to reduce car use on the A43 motorway during rush hour between Bourgoin-Jallieu and Greater Lyon conurbation by developing home-to-work carpooling for commuters on this route. Lane is a dynamic carpooling service (real-time connections) that does not require booking. It is operated by Ecov and was fully opened to passengers in 2019. It is the result of a public/private partnership between the Metropole de Lyon, the Communauté d'Agglomération Porte de l'Isère (CAPI), Ecov and Instant-System. It was set up with the support of ADEME and the European Union. More than 14,000 people were registered with the service at the start of 2023, 20% of whom are active monthly users. At the start of 2023, the number of weekly journeys exceeded 400, rising to over 700 in some weeks. The operator's stated objective is to carry at least 6,000 passengers a month.

For further details: <https://www.ecov.fr/fr/story/lane-ligne-covoiturage-domicile-travail-lyon-bourgoin-jallieu-a43-ecov>

"Ecobonus" scheme in Lille (trial started on 04/03): The Lille Metropolitan Area rewards carpooling users, teleworkers or public transport users, with compensation of €2 per journey, limited to €80 per month. To do so, citizen will have to use public transport such as the train or bus, to use the bike, use teleworking, be a carpooling user, shifting working hours, without forgetting the so-called "hybrid" methods of using a car to go to a station or a park-and-ride facility. Route changes will not be eligible for the scheme.

The traffic patterns, taking into account capacity on the A1 and A23 at peak times, and the objective of reducing traffic by around 6%, give reason to hope for a reduction in traffic of 750 vehicles. The project, which has a total budget of 11.3 million €, will receive 550,000 € from the French government as part of the June 2021 CRTE (Contrat de relance et de transition écologique), 925,000 € from the Green Fund and 1.2 million € from the European Union as part of the ERDF.

For further details, visit: <https://xn--changerarapporte-ipb.fr/participant/comment-participer> and https://www.lillemetropole.fr/sites/default/files/2023-03/Dossier%20de%20presse%20%C3%A9cobonus%20BD_1.pdf.

Vélo express: Improving the daily mobility of local residents by using the network of cycle routes and greenways to address the problems faced by local authorities and users in terms of car dependency among disadvantaged groups in peri-urban and rural areas, and in remoted areas. The project is based on a social support scheme in order to improve individual mobility skills, and promotes the network of cycle routes and greenways among local residents in order to develop the utilitarian use of bicycles.

Scheduled to start in March 2019, the project is supported by the Macif, Norauto, SNCF and Vinci foundations. It was initially set up in the Essonne department, particularly in the Orsay area. The departments now covered are : Essonne, Loire Atlantique, Loire, Rhône, Gironde, Morbihan, Indre-et-Loire, Haute-Garonne. See the description on the France mobilités website: <https://www.francemobilites.fr/solutions/velo-express>.

In **Spain**, the Government has designed a package of incentives designed to make the most sustainable mobility option also much more economical. To this end, the Government funds 50% of high-speed trains tickets, and up to 90% for young passengers. It also funds 100% of other train tickets (short and medium distance regular trains), and apply a 100% discount on season tickets and multi-journey tickets for State bus services. Regional and local Governments are invited to complement the Government incentives by funding additional % of the tickets price.

In **Portugal**, since 2020, the Government has been implementing a support program to combat negative externalities associated with mobility, namely traffic, greenhouse gas emissions, noise, energy consumption and particularly social exclusion. The so-called Public Transport Fare Reduction Support Program has managed to ensure that there is no increase in public transport monthly passes. This support program is funded by the Environmental Fund, a national fund which uses the incomes from the auctioning of allowances of EU ETS to invest in climate change policies.

In Copenhagen, **Denmark**, 77% of the citizens cycles more than once a week, and 35% uses the bike for their daily commute. Since 2012, the Capital Region of Denmark, that includes the city of Copenhagen, has been promoting cycle superhighways, high-quality cycling routes for commuting, to make cycling as attractive as driving or using public transport. The cycle superhighways have increased cycling traffic by 23% on average, with 14% of new cyclists switching from cars. Commuters on bicycles cover an average of 11 kilometers each way, matching the region's average commute distance. E-bikes should in this context be considered as non-motorized transport. In a survey by the Danish Road Directorate, about half of the Danish e-bike users say that the e-bike have replaced car trips. With one in three bikes sold in Denmark now

being electric, cycle superhighways have even more potential, as electric cyclists are willing to commute even longer distances.

Also in **Denmark** the government has earlier this year set up a committee of experts to map the citizens' transport needs and come up with recommendations for public transport, including a new structure for local public transport, which can be tailored to both rural areas and the larger cities. This is based on a recognition of the need to look at how public transport can be designed and organized so it meets the needs of the citizens.

Urban environment agreements is a scheme for investments in public transport, cycling infrastructure or sustainable freight transport at the regional and local level in **Sweden**. The scheme commenced in 2015. In the national plan for the transport infrastructure 2022-2033, SEK 6 billion for the period 2022-2027 is allocated to the urban environmental agreements. Municipalities are eligible to apply for grants to cover part of the investment costs for public transport infrastructure. The investment should be coupled with other actions aiming at increasing the long-term sustainability of urban areas, including increased housing construction, and the transport system. The scheme is administered by the Swedish Transport Administration.

In **Italy**, 10 million euros have been allocated for each of the years 2020 and 2021 to finance the investments necessary for the implementation of experimental projects aimed at the creation or implementation of the school transport service with hybrid or electric means of transport for children in nursery schools and for students of state schools in the first cycle of education.

Energy and resource efficiency in the transport sector (design improvements, circular economy and material changes, vehicle vintage, carpooling, etc.)

Intelligent Transport Systems (ITS) are vital to increase safety and tackle Europe's growing emission and congestion problems. They can make transport safer, more efficient and more sustainable by applying various information and communication technologies to all modes of passenger and freight transport. Moreover, the integration of existing technologies can create new services. ITS are key to support jobs and growth in the transport sector. But in order to be effective, the roll-out of ITS needs to be coherent and properly coordinated across the EU.

The European Commission is working with Member States, industry and public authorities to find common solutions to the various bottlenecks for deployment. Through financial instruments the European Commission supports innovative projects in ITS and through legislative instruments it ensures that ITS are rolled out consistently.

In the coming years, the digitalisation of transport in general and ITS in particular are expected to take a leap forwards. As part of the Digital Single Market Strategy, the European Commission aims to make more use of ITS solutions to achieve a more efficient management of the transport network for passengers and business. ITS will be used to improve journeys and operations on specific and combined modes of transport. The European Commission also works to set the ground for the next generation of ITS solutions, through the deployment of Cooperative-ITS, paving the way for automation in the transport sector. C-ITS are systems that allow effective data

exchange through wireless technologies so that vehicles can connect with each other, with the road infrastructure and with other road users.

The revised Directive defines a "clean vehicle" as follows:

- Clean light-duty vehicle: any car or van meeting the following emission thresholds:
 - until 31 December 2025: no more than 50g/km CO₂ and up to 80% of applicable real driving emission (RDE) limits for NO_x and PN;
 - from 1 January 2026: only zero-emission vehicles.
- Clean heavy-duty vehicle: any truck or bus using one of the following alternative fuels: hydrogen, battery electric (including plug-in hybrids), natural gas (both CNG and LNG, including biomethane), liquid biofuels, synthetic and paraffinic fuels, LPG.

The Directive also sets a separate definition for "zero-emission heavy-duty vehicles", as a sub-category of clean heavy-duty vehicles.

The **Directive on end-of-life vehicles (ELV Directive)**⁵ sets clear targets for ELVs and their components. It also prohibits the use of hazardous substances when manufacturing new vehicles (especially lead, mercury, cadmium and hexavalent chromium) except in defined exemptions when there are no adequate alternatives. The exemptions are listed in annex II of the Directive. Following a review of the directive, a proposal to introduce a new Regulation on end-of-life vehicles, including for instance:

- improve circular design of vehicles to facilitate removal of materials, parts and components for reuse and recycling
- ensure that at least 25% of plastic used to build a vehicle comes from recycling (of which 25% from recycled ELVs)
- recover more and better-quality raw materials, including CRMs, plastics, steel and aluminium
- ensure that producers are made financially responsible for vehicles when they become waste, to ensure proper financing for mandatory ELV treatment operations and incentivise recyclers to improve quality
- put a stop to vehicles going "missing", through more inspections, interoperability of national vehicle registration systems, improved distinction of used vehicles from end-of-life vehicles and a ban on exporting used vehicles that aren't roadworthy
- cover more vehicles, and gradually expand EU rules to include new categories such as motorcycles, lorries, and buses, ensuring a proper end of life treatment.

The revised **Clean Vehicles Directive** promotes clean mobility solutions in public procurement tenders, providing a solid boost to the demand and further deployment of low- and zero-emission vehicles. The new Directive defines "clean vehicles" and sets national targets for their public procurement. It applies to different means of public procurement, including purchase, lease, rent and relevant services contracts. Adopted

⁵ [End-of-Life Vehicles \(europa.eu\)](https://europa.eu)

by the European Parliament & Council in June 2019, the Directive needs to be transposed into national law by 2 August 2021.

In **Belgium**, about one quarter of employees have a company car, often including unlimited fuel card. The high number of company cars in Belgium is the result of a legacy policy offering significant tax breaks for company cars. Addressing emissions from road transport in Belgium thus requires tackling company cars. Electrification and reducing the number of miles driven are two key levers to mitigate emissions from road transport. In recent years, Belgium has adopted the following measures to address both components:

- Introduction of a mobility budget, enabling employees to trade their company car for a package with public transport benefits, housing benefits when living close to work, a car with lower emissions or a higher salary.
- The phase out of tax deductions for fossil fuel company cars by 2028 and full tax deductibility for zero-emission company cars as of 2026, gradually being reducing to 67,5% by 2031.
- Corporate and personal tax deductions for investments in charging stations. The deduction rate will phase down over time.
- A Clean Power for Transport Action Plan aimed at building the charging and alternative fuel infrastructure required for zero-emission road transport..

In **France**, the Climate and resilience law created a tax on the weight of vehicles, in order to incentive light and less emitting cars: any new car above 1,8t is taxed proportionally to its weight. Also in France, the ecological bonus-malus, or eco-bonus or malus, is a tax-based method for combating greenhouse gas emissions, designed to steer consumption towards the purchase of lower-emission vehicles by granting a bonus and, conversely, to tax the purchase of vehicles with high CO₂ emissions. The bonus-malus incentive mechanism has three objectives: 1) to encourage buyers of new vehicles to change their purchasing behaviour in favour of vehicles with low carbon dioxide emissions, thereby encouraging a change in the structure of the vehicle fleet; 2) to stimulate technological innovation by manufacturers by encouraging them to target their range at the cleanest products; and 3) to speed up the renewal of the car fleet to remove the oldest vehicles, which are also the most polluting. The ecotax applicable to the most polluting private cars (malus) is intended to finance aid for the purchase of clean vehicles (bonus), and it is based on a) the number of grams of carbon dioxide (CO₂) emitted per kilometre, for passenger cars that have been type-approved by the European Union; and b) the engine power for other passenger cars. In return, the ecological bonus financially rewards people who acquire or lease a new vehicle that emits a limited amount of carbon dioxide (CO₂) per kilometre, subject to certain conditions.

In **Spain**, the Sustainable Mobility Strategy 2030 is boosting active mobility through the promotion of the use of non-motorized modes of transport, for example, with the creation of dedicated lanes, the implementation of bicycle rental programs, the design of safe and attractive pedestrian infrastructure, and raising awareness of the benefits of active mobility.

Electrification of vehicles (infrastructure, batteries and minerals)

Within the EU, the electrification of vehicles continued its strong trend in Q1 of 2023. Almost half of new registered cars were either full electric or hybrid. With a share of slightly above 15% of all new cars, BEVs overtook diesel powered vehicles (13.4%) for the first time.

At EU level, the Fit for 55 regulation of CO₂ emissions from new cars and vans sets the following targets⁶:

- 55% CO₂ emission reductions for new cars and 50% for new vans from 2030 to 2034 compared to 2021 levels
- 100% CO₂ emission reductions for both new cars and vans from 2035

A regulatory incentive mechanism for zero- and low-emission vehicles (ZLEV) will be in place from 2025 until the end of 2029. As part of this mechanism, if a manufacturer meets certain benchmarks for the sales of zero- and low-emission vehicles it can be rewarded with less strict CO₂ targets. The benchmark is set at 25% for cars and 17% for vans.

Under the Fit for 55 package, the EU has set specific targets to accelerate the transition to electrified road transport:

1. Recharging points for cars and vans
 - at least 300 kW power output every 60 km on the TEN- T (core network: by 2025, comprehensive network: by 2030)
 - at least 600 kW on the TEN- T (core network: by 2030, comprehensive network: by 2035)
2. Hydrogen refueling stations
 - every 150 km by 2030 along the TEN-T core network;
 - in every urban node serving both LDV & HDV vehicles by 2030.
3. Recharging points for heavy duty vehicles
 - on the TEN-T core network: at least 1400 kW power output every 60 km by 2025 and at least 3500 kW by 2030;
 - on the TEN-T comprehensive network: at least 1400 kW power output every 100 km by 2030 and at least 3500 kW by 2035;
 - in every urban node and at every safe and secure parking by 2030

The EU, with its Connecting Europe Facility (CEF), has spent more than EUR 300mn between 2019-2021 on innovative projects in low-emission and zero-emission transport. Funding is provided in form of direct grants with blended finance from other stakeholders. For the period 2021-27, a total of EUR 25.8 billion are earmarked for the CEF, of which 60% will be dedicated to the EU climate targets.

Under the Alternative Fuels Infrastructure Facility (AFIF), grants are provided to complement bank financing to cover the risks associated with early deployment of EV chargers / Hydrogen Refueling Stations a project. The figure below shows the results of funding calls for 2021-2023:

⁶ ['Fit for 55': Council adopts regulation on CO₂ emissions for new cars and vans - Consilium \(europa.eu\)](https://consilium.europa.eu/en/press/press-releases/2023/04/23/)

2. Outputs – Unit contribution and zero emission

	Unit contribution				Zero emissions			
	150 kW		350 kW		HRS	Electrolyser	Charging points (*)	Port vehicles and equipment
	Charging points	Stations	Charging points	Stations				
AFIF 1	2.017	492	17	17	17	4	176	0
AFIF 2	5.359	1.263	432	153	57	2	347	0
AFIF 3	1.974	419	14	13	62	17	626	0
AFIF 4	12.305	1.504	713	201	18	1	1.152	14
TOTAL	21.655	3.678	1.176	384	154	24	2.301	14

(*) Public transport ports and airports

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Adoption of EV is accelerating in **France** as in many European countries: in 2022, 13 % of new cars were electric. France has passed the 100,000 mark for public charging stations in May 2023. The French government has already implemented actions to accelerate commercial and public fleets electrification: for instance, the annual tax on corporate vehicles increases with their level of CO2 emissions, and BEV are fully and permanently exonerated. In 2019, France also took the initiative to set regulations ensuring that a minimal share of new vehicles purchased by private bodies, including taxi fleets and online delivery platforms two-wheelers fleets, are electric or plug-in hybrid. The “Greening corporate fleets initiative” announced by the European commission in its 2023 work program will be the opportunity to entrench this legislation. As for public bodies, a similar regulation exists since 2015 for private cars, heavy vehicles and buses, strengthened by the European “Clean Vehicles” Directive a few years later (2019). These “greening fleets” obligations are a key example of a policy that can be easily replicated or extended at the international level (as a commitment for example). It helps to avoid “free rider” behaviour as every company must buy BEV. A battery manufacturing Hub is emerging in the North of France thanks to foreign and domestic investments, with 4 gigafactories about to be opened or already opened.

In **Spain**, programme MOVES III has been put in place to incentive electric mobility. With this programme, there are public funds available to support citizens and companies in the acquisition of plug-in electric and fuel cell vehicles, on one hand, and for the implementation of electric vehicle charging infrastructure on the other.

In **Sweden**, the “Climate Leap” is a comprehensive investment support scheme. Municipalities, companies, organisations and others can apply for investment support for measures to reduce climate impact. A large number of these investments relate to the transport sector, such as investments in biogas plants and the installation of charging points for electric vehicles. Also, with the aim to reduce greenhouse gas emissions private individuals are, since 2021, eligible to a tax reduction for installation of green technology including solar cells, systems for storage of self-produced electricity and at home charging stations (Govt. Bill 2021/22:1). The tax reduction is given on the cost of labor and materials. For installation of home charging stations for electric vehicles the reduction is 50 % (Govt. Bill 2020/21:1).

In **Denmark**, several of the domestic ferry routes has been electrified. The electrification of these ferries have been completed with support from the EU TEN T-programme and Horizon Europe. Furthermore, a subsidy scheme for the green transition of commercial and municipally run domestic ferries, carried out in 2021 and 2022, will help foster the electrification of domestic ferries on a larger scale. The schemes to support a green transition of domestic ferries has been supported by the EU's recovery fund.

In **Italy**, as part of the national recovery and resilience plan, financing of approximately 740 million euros has been provided for the construction of the infrastructure necessary to promote the development of electrical mobility, and reduce the environmental impact of transports, by creating by 2026 over 20,000 fast-charging points on highways and urban centres. This will lead to the increase of the number of vehicles (public and private) with zero emissions.

Shifting to low- or zero-carbon fuels (hydrogen, biofuels, biogas, compressed natural gas)

A. [RED II](#)⁷:

The RED II agreement also reinforces the regulatory framework for renewable energy use in transport (14.5% greenhouse gas intensity reduction or 29% share of renewable energy in final energy consumption by 2030), including a combined sub-target of 5.5% for advanced biofuels and renewable fuels of non-biological origin, including a minimum level of 1% for renewable fuels of non-biological origin. These targets support the EU's ambitions on renewable hydrogen roll-out.

B. [Maritime](#)⁸:

1. In January 2024, the EU's Emissions Trading System will be extended to cover CO2 emissions from all large ships (of 5 000 gross tonnage and above) entering EU ports, regardless of the flag they fly.

- The system covers:
- 50% of emissions from voyages starting or ending outside of the EU (allowing the third country to decide on appropriate action for the remaining share of emissions);
- 100% of emissions that occur between two EU ports and when ships are within EU ports.

The EU ETS covers CO2 (carbon dioxide), CH4 (methane) and N2O (nitrous oxide) emissions, but the two latter only as from 2026. Emissions from maritime transport are included in the overall ETS cap, which defines the maximum amount of greenhouse gases that can be emitted under the system. The cap is reduced over time to ensure that all ETS sectors contribute to the EU's climate objectives. This will incentivise energy efficiency, low-carbon solutions, and reductions of the price difference between alternative fuels and traditional maritime fuels.

⁷ [Accelerate the rollout of renewable energy \(europa.eu\)](#)
[EU energy ministers reach agreement on RED II revision | Argus Media](#)

⁸ [Reducing emissions from the shipping sector \(europa.eu\)](#)

To ensure a smooth transition, shipping companies only have to surrender allowances for a portion of their emissions during an initial phase-in period:

- 2025: for 40% of their emissions reported in 2024;
- 2026: for 70% of their emissions reported in 2025;
- 2027 onwards: for 100% of their reported emissions.

2. In the EU, waterborne transport generated 3 to 4% of total CO₂ emissions in 2021. Despite a drop in activity in 2020 due to the coronavirus pandemic, shipping is expected to grow, fuelled by rising demand for primary resources and container transport. FuelEU Maritime is a new EU regulation ensuring that the greenhouse gas intensity of fuels used by the shipping sector will gradually decrease over time, by 2% in 2025 to as much as 80% by 2050. This measure will help reduce greenhouse gas emissions from the shipping sector by promoting the use of cleaner fuels and energy. The deal complements the provisional agreement reached on 18 December 2022 to include shipping emissions in the EU Emissions Trading System (EU ETS), both key initiatives in the EU's efforts to reduce maritime emissions.

FuelEU Maritime will help decarbonise the maritime transport sector by setting maximum limits on the yearly greenhouse gas intensity of the energy used by a ship. Those targets will become more ambitious over time to stimulate and reflect the expected developments in technology and the increased production of renewable and low-carbon fuels. The targets cover not only CO₂, but also methane and nitrous oxide emissions over the full lifecycle of the fuels.

C. Aviation:

a) ETS aviation

CO₂ emissions from aviation have been included in the EU ETS since 2012. The EU ETS applies for intra-European flights (including departing flights to the United Kingdom and Switzerland), while CORSIA will apply to extra-European flights to and from third countries participating in CORSIA ('clean cut') from 2022 to 2026. The co-legislators agreed to gradually phase out free emission allowances for the aviation sector as follows: 25% in 2024, 50% in 2025 and 100% from 2026. This means allowances will be fully auctioned from 2026. As regards the use of revenues, co-legislators agreed to transfer 5 million of allowances from the aviation sector to the innovation fund. In parallel, the Commission will appropriately implement the Carbon Offset and Reduction Scheme for International Aviation (CORSIA) under the International Civil Aviation Organization for extra-European flights.

EU Law will apply CORSIA to flights that are outside the EU ETS and depart or arrive in countries which apply CORSIA. Emissions from these flights will be offset once collective international emissions exceed 2019 levels. The eligible offset units need to originate from countries that participate in the Paris Agreement and in CORSIA. Offsets must be reliably accounted for to avoid them being counted twice.

b) Sustainable aviation fuels

Sustainable aviation fuels (advanced biofuels and electrofuels) have the potential to significantly reduce aircraft emissions. However, this potential is largely untapped as such fuels represent only 0.05% of total fuel consumption in the aviation sector.

The direct electrification of international aviation and shipping will be technologically challenging due to the high energy density required over long distances. Sustainable biofuels or synthetic renewable fuels such as kerosene, hydrogen, ammonia, methanol, etc. produced from biogenic or renewable sources are one of the most promising options to meet these challenges. While the technologies to produce and use these fuels in both sectors are in principle available, their costs are currently several times higher than the fossil fuels used to date. Several policy instruments could accelerate the uptake of these fuels.

Approaches to be discussed under this subtopic include fuel standards that require an increasing proportion of sustainable fuels to be included in the fuel supply so that fossil fuels are displaced over time, or a goal-based approach where the greenhouse gas emission factor of the fuels used must eventually be reduced to zero.

Regulations adopted in the EU require aviation fuel suppliers to increase the share of sustainable aviation fuels (SAF) from 2% in 2025 to 70% in 2050 (ReFuel Aviation).

c) Regulation on deployment of alternative fuels infrastructure

There should be fair contributions across the EU economy from all sectors, in terms of carbon pricing and taxation of fossil fuels. Since 2012, the EU ETS has given an incentive for more efficient aviation through its application to intra-European flights. A level playing field has been maintained for all airlines operating within Europe, and Member States have ensured that the law is applied. As part of the European Green Deal, the EU ETS is progressively extended to maritime emissions from 2024, so as to ensure that that sector contributes its fair share to the increased climate objectives of the Union as well as to the objectives of the Paris Agreement. This is in line with Article 4(4) which states that developed countries should continue to take the lead by undertaking economy-wide emission reduction targets, while developing countries are encouraged to move over time towards economy-wide emission reduction or limitation targets. Third countries are encouraged to decide on appropriate action in respect of the other share of emissions, recognising the importance of extending carbon pricing to reach the temperature goals of the Paris Agreement.

D. [Hydrogen](#)

In 2022, hydrogen accounted for less than 2% of Europe's energy consumption and was primarily used to produce chemical products, such as plastics and fertilisers. 96% of this hydrogen was produced with natural gas, resulting in significant amounts of CO₂ emissions. The European Commission has proposed to produce 10 million tonnes of renewable hydrogen by 2030 and to import 10 million tonnes by 2030. The EU strategy on hydrogen was adopted in 2020 and suggested policy action points in 5 areas: investment support; support production and demand; creating a hydrogen market and infrastructure; research and cooperation and international cooperation.

A proposal on creating a European Hydrogen Bank is currently being discussed. The European Hydrogen Bank is a financing instrument run internally by Commission services. It is not designed to be a physical institution. The main objective of the facility is to unlock private investments in hydrogen value chains, both domestically and in third countries, by connecting renewable energy supply to EU demand and addressing the initial investment challenges. Moreover, a pilot hydrogen auction under the

Innovation Fund will be opened in November 2023, as a key element of the European Hydrogen Bank, to cost effectively secure renewable hydrogen production in the EU .

In **Spain**, in the frame of the National Energy and Climate Plan 2030, two relevant roadmaps have been approved with the aim of boosting alternative fuels:

- Biogas Roadmap
- Hydrogen Roadmap

Both of them gathered a comprehensive dossier of measures aimed to shift to these alternative fuels in different sectors, including transport.