October 2023

Spain's new Energy and Climate Plan: facts, figures and recommendations for transport

Summary

Spain’s NECP would deliver strong emissions reductions in 2030 outperforming its national climate target set under EU law.

Transport is the second sector for absolute emissions reductions (after the power sector), reducing emissions by 32MtCO2eq in 2030. The government estimates that the transport sector will contribute to 36% of the cumulative energy savings target for 2021-2030 or by 19Mtoe. The savings are achieved via adoption of more energy efficiency technology and via measures that lower the demand for transport and mobility services overall.

Spain is on the right path to clean transport's energy via electrification and to make the transport system more energy efficient through modal shift and less mobility. However, some room for improvement remains.

Spain has wisely included in the draft NECP the decision of eliminating soy and palm biofuels in 2025 but it still has to be approved.

It is also setting lower caps on first generation biofuels and opting to electrify transport. However, the NECP wrongly maintains that the road freight sector is a difficult sector to decarbonise through direct electrification, which is flatly wrong. In addition, it still relies on LNG and biomethane for ships undermining the national e-ammonia and e-methanol production potential.

There is insufficient evidence that the planned measures will enable Spain to catch-up with delays accumulated in the electrification of road transport.

The Plan contains a good level of information, lists which measures are additional to the old NECP and identifies the national authorities responsible for the implementation of the policy or measure. However, it is not always clear from the Plan which governance structure is in place to monitor the delivery of what is planned. Nonetheless some good governance examples can be found (e.g. the establishment of a task force for the charging infrastructure deployment).

Key recommendations

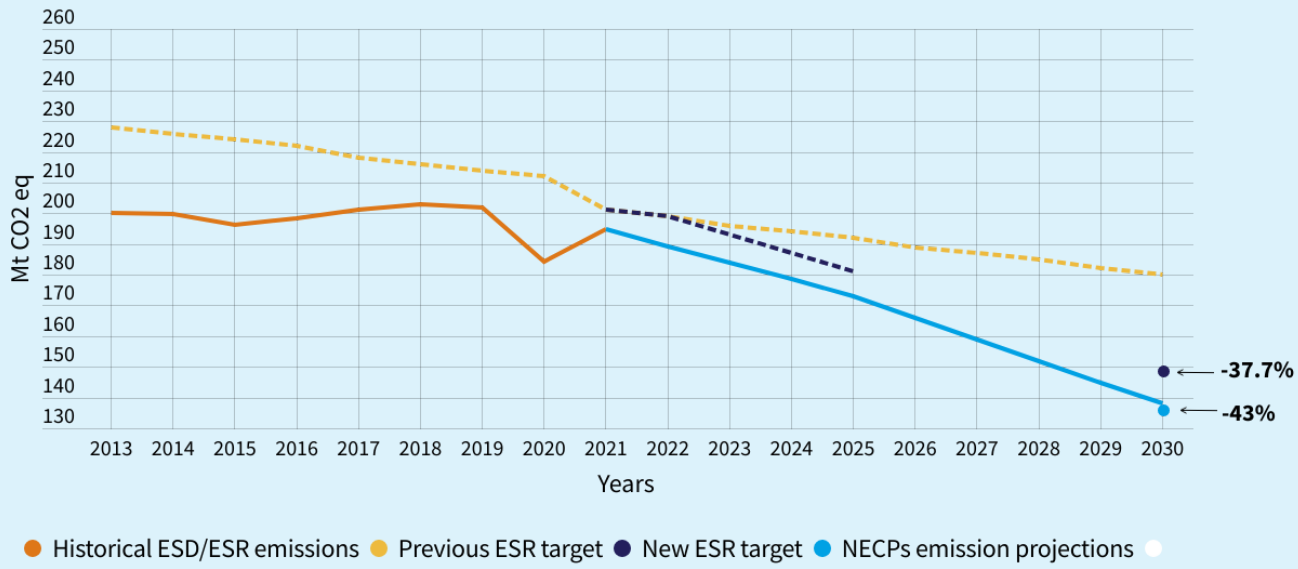
- Correct the energy mix in transport: avoid burning biofuels and supporting LNG in shipping;
- Keep the target for advanced biofuels at 3.5%;
- Adopt a masterplan for electric charging infrastructure, a social leasing scheme, and mandate for 100% BEVs in companies' fleets by 2030;
- Adopt additional measures to support e-trucks and prioritise electrification of all types of heavy-duty vehicles
- Prioritise allocation of RFNBOs to aviation and maritime transport and adopt measure to make SAF available and affordable;
- Bring the modal share for rail freight to 18% in 2030 in line with the EU average;
- Adopt green and smart taxation in support of green policies and measures;
- Take concrete action to tackle transport poverty together with energy poverty.

The updated NECP will bring the emissions of the whole economy down by 32% in 2030 (compared to 1990).

In the Effort Sharing Regulation sectors, the cut will be 43% (from 2005 levels), while the ESR sets a target of -37.7% for the country. Spain would have outperformed its ESR target even without updating the NECP (emissions cuts with the old NECP would have been -39%), therefore the country is showing more ambition than EU legislation.

Transport is the second sector for absolute emissions reductions (after the power sector), reducing emissions by 32MtCO2eq in 2030. Thus, the Spanish government chose to make sectoral legislation the driver of the sector's decarbonisation to be complemented by the price signal of the new ETS for road transport and building (or ETS2, entering into force in 2027). Spanish citizens and businesses will pay the ETS2 price less compared to other countries, thanks to their government's ambition. Moreover, by outperforming its ESR target, Spain will be able to sell ESR credits to underperforming countries.

Ambitious emission cuts in the Effort Sharing sectors



Source: NECPs 2023. Historical ESR emissions from EEA ESD review.
Note: The annual emissions allocations for the years 2026-2030 will be determined in 2025, following a comprehensive review of the emission data.

There is still room to improve transport's energy mix

Spain sets renewable energy targets in transport in line with the RED III. The RED allows Spain to set a lower share of RES in transport's final energy consumption because it is eliminating completely palm and soy biofuels in 2025. The cap on food and feedstock biofuels is progressively limited from 4% in 2020 to 2.6% in 2030.

Transport's 2030 energy targets		
	2023 NECP	RED III
GHG intensity of energy	-16%	-14%
RES in final energy consumption	25%	29%

Table 1: Energy targets for transport. Source: 2023 NECP

Renewable energy targets in transport				
Component	2020	2025	2030	2030 targets in RED
Biogas and biofuels (Annex IX, part B)	2.0%	1.4%	1.5%	Maximum 1.7%
Biogas and advanced biofuels (Annex IX, part A)	0.5%	6.1%	7.5%	Minimum 3.5%
Food and feedstock biofuels	4%	2.6%	2.6%	Maximum 7%
RFNBOs and biogas and advanced biofuels	0.2%	7.2%	11.1%	Minimum 5.5%

Table 2: Sub-targets for bioenergy in transport. Source: 2023 NECP

These objectives will be met also through electrification of road transport (5.5 million EVs in 2030 including passenger cars, vans, buses and motorbikes - an increase of half a million from previous NECP), railways (two train lines in 2030 will run on green hydrogen) and of ports.
The government is also setting ambitious SAF targets in line with ReFuel Aviation: 5% of biofuels, of which 0.7% synthetic fuels. However, the production potential and resource availability remains unclear in the Plan.

The gap left by palm and soy will be covered by the biofuels from waste and residues (annex IX, part A of RED) which will increase to 7.5% in 2030. Setting such a high target for advanced biofuels is concerning because of a problematic application of the cascading principle. More importantly, Annex IX actually includes some unsustainable feedstocks. The Plan doesn't even indicate whether the country has sufficient available sustainable resources to produce these biofuels while respecting the cascading principle.

Concerningly, the government continues supporting the supply of LNG in ports wrongly considers heavy road transport a mode of transport that is as difficult to electrify as some hard-to-abate industrial sectors.

How to fix it

- Don't increase the target for advanced biofuels without a solid application of the cascading principle and an analysis of the country's availability of sustainable feedstock for their production. T&E recommends to[1] keep the target to 3.5% and to increase instead the minimum target for RFNBOs to 2% under the combined 5.5% sub-target of the RED III.

- Prioritise direct electrification of all types of heavy-duty vehicles (trucks, buses, coaches);

- Focus on developing Spain's e-ammonia and e-methanol potential and increase the electrification of ports instead of supporting LNG programmes and biomethane in the maritime sector. To that end, adopt a 1.2% sub-target for RFNBOs in shipping;

- Concentrate the use of RFNBOs (hydrogen and e-fuels) for aviation and maritime transport.

[1] T&E (2023) Transport targets in the Renewable Energy Directive

Fact #1: biomethane not a cure for heavy transport

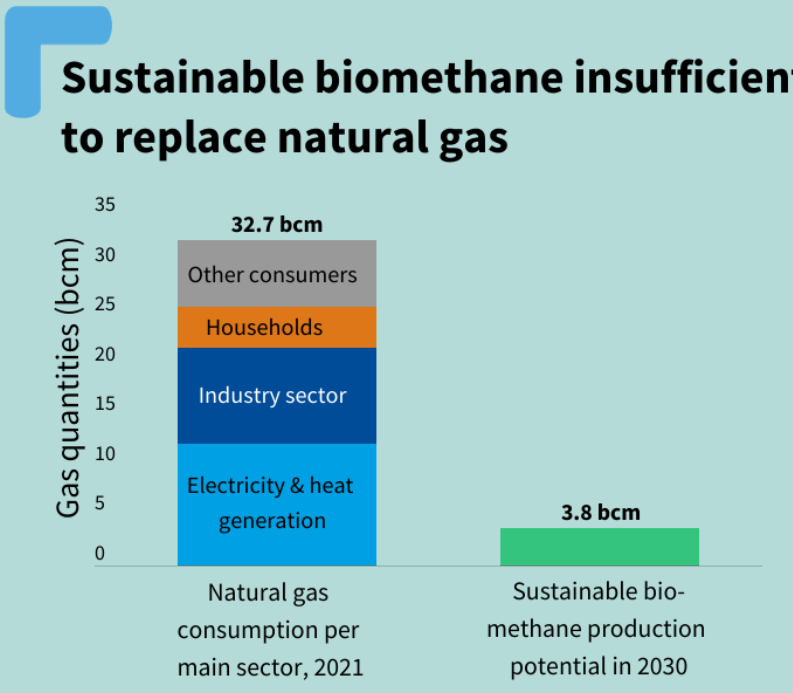
Using biomethane to decarbonise road transport inflates the demand for this gas and, as urban waste for its production is insufficient, induces the use of crop cultures, with a risk of indirect land use change and deforestation, for its production. In addition, burning biomethane in internal combustion vehicles is less energy efficient than direct electrification and still emits health-damaging air pollutants.

Only around 600 gas-powered trucks were sold in Spain in 2021. All future sales of trucks could be electric trucks in 2030 as performance and affordability of electric trucks rapidly develop.

Biomethane and biofuels in shipping are a concerning choice too. In addition to the issues above, the risk of fraud on the origin and sustainability of the biofuels supplied by marine bunkers worldwide would provide a backdoor to food and feedstock biofuels with high ILUC impact which Spain is planning to eliminate from the energy mix.

BOX: What about sustainable biomethane?

Guidehouse[2] estimates that the EU27 potential for sustainable biomethane production (from anaerobic digestion) is enough to meet the REPowerEU target of 35 bcm, among which 3.8 bcm could be produced domestically in Spain. These figures are deemed inflated, since a realistic EU-wide potential for biomethane based on waste and residual materials is estimated approximately 17 bcm[3]. Still, 3.8 bcm of sustainable biomethane would only cover 13% of the Spanish current natural gas consumption. Instead of increasing the demand for biomethane by adding HDV, all the biomethane that Spain could sustainably produce could satisfy the demand of those sectors that are currently hungry for natural gas such as the industry and households. For instance it could replace gas which is used for the production of GHG intensive fertilisers. Digestate, a byproduct of anaerobic digestion, could also replace nitrogen and phosphorus fertilisers. This would help Spain decrease emissions from agriculture.

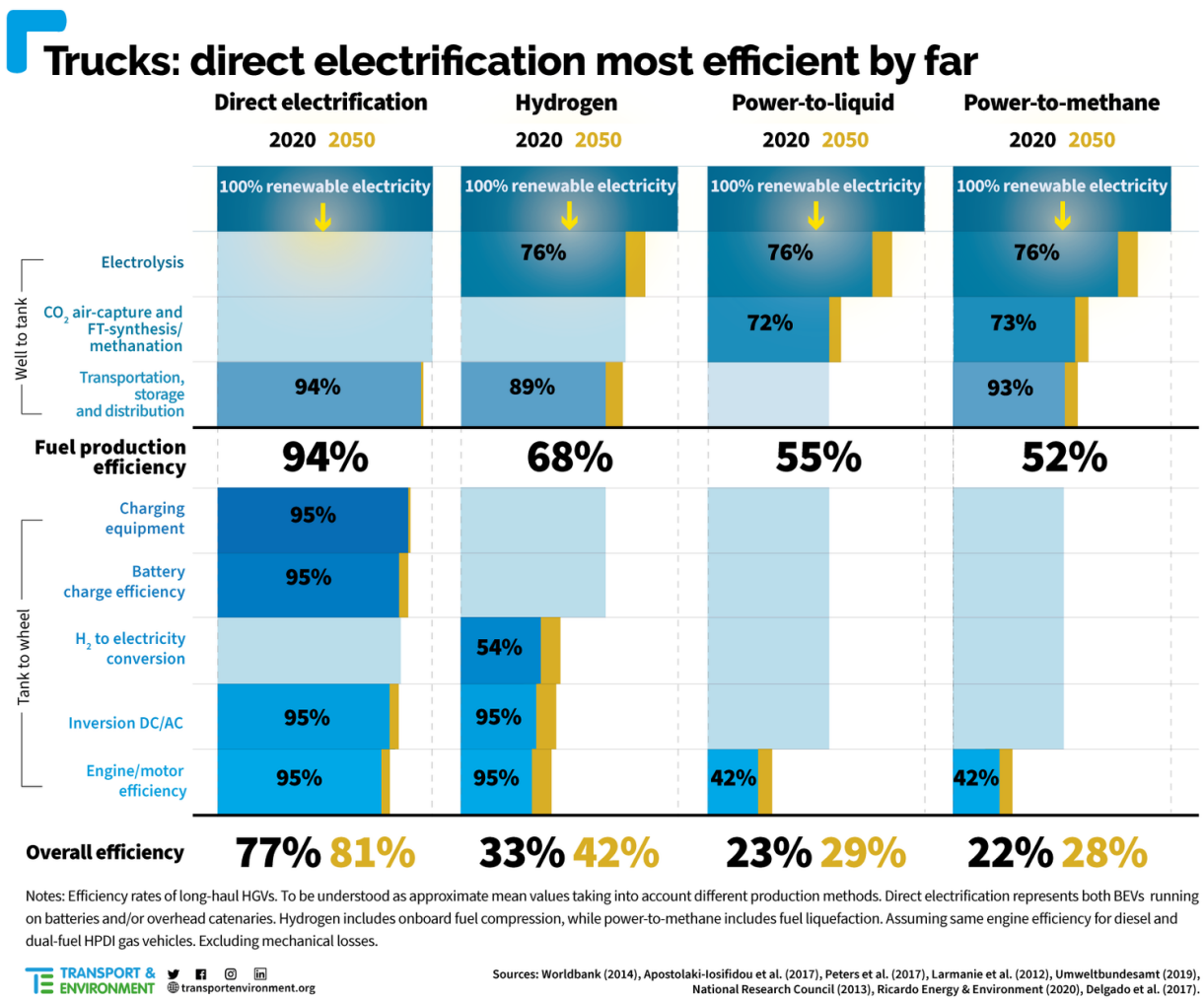


Source: Biomethane country fiches: Spain, EC 2023

[2] Guidehouse (2022) Biomethane production potentials in the EU

[3] IFEU (2022) Biomethane in the EU

Fact #2: Trucks - direct electrification most efficient so far



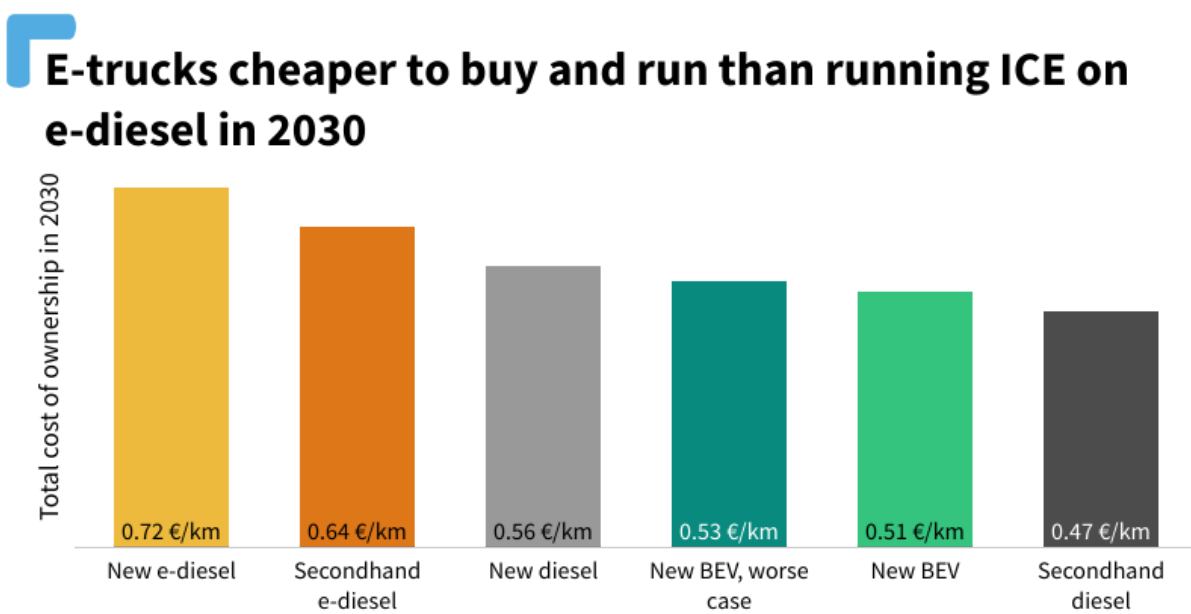
Opting for using electricity directly in vehicles is the most energy efficient choice while running heavy trucks on e-diesel would disperse most of the fuel's energy content[4].

Aviation, shipping and industry could make better use of hydrogen, e-petrol, e-diesel and other synthetic fuels.

[4] T&E (2020) E-fuel would be wasted on cars while it's badly needed to decarbonise planes and ships – study

Fact #3: Fuelling trucks with e-diesel make no environmental or economic sense[5]

A diesel truck fuelled with e-diesel compliant with the Renewable Energy Directive (RED II criteria) would emit almost three times as much as an equivalent battery electric truck over its lifetime. Moreover, already in 2030, buying and operating a new electric truck will cost less than running an old second hand diesel truck on e-diesel.



Source: E-fuels in trucks: expensive, scarce and less green than batteries, T&E 2022

Fact #4: Spain could be a leader on green ammonia

Instead of investing in LNG, Spain could bet on its great potential for e-ammonia and hydrogen production for which ranks 4th on the World Bank global ranking[6]. There are at least three good reasons why Spain should develop this potential:

- Investing in LNG in shipping will lock the country in strained assets because the infrastructure won't be compatible with green fuels (hydrogen, e-methanol and e-ammonia), the real solution for greening shipping in the future;

- LNG ships may emit more GHG on a well-to-wake, CO2 equivalent basis, than conventionally fuelled vessels[7] (this accounts for direct emissions and for methane slip from the vessel and along the supply chain). This is particularly true for 4-stroke engines, the main type used for cruise ships and passenger ferries. With a number of ongoing investigations, some evidence already suggests that methane slip from marine engine is higher than previously assumed[8];

- Industry already believes in e-fuels production in Spain and should be supported: Maersk is set to invest in e-methanol production in Andalucia and Galicia[9].

[5] T&E (2022) E-fuels in trucks: expensive, scarce, and less green than batteries
[6] World Bank (2021) Publication: The Potential of Zero-Carbon Bunker Fuels in Developing Countries
[7] ICCT (2020) The climate implications of using LNG as a marine fuel
[8] Queen's Mary University of London (2022) First study to measure total methane and CO2 emissions from liquefied natural gas carriers (LNGs)
[9] Maersk (2022) Maersk and the Spanish Government to explore large-scale green fuels production

T&E's proposals to clean transport's energy

The NECP already contains some good measures to clean the energy consumed in the transport sector and meet the national RES objectives.

The government took the right step by setting the objectives of having 5.5 billion EVs in 2030. But the EU's regulation of CO2 standards of cars alone won't deliver it. Only 5% of cars sold in the first half of 2023 were BEVs, way below the European average of 13%[10] . It is clear that **Spain is beyond[11] on EVs' uptake and the deployment of charging infrastructures.**

The delay sends wrong signals to the industry: to reach the CO2 standards, companies will sell BEVs in countries where the national regulations facilitate the market expansion. As a result, Spain could see BEVs making only 48% of sales in 2030[12] with a negative impact on the national automotive industry. The incentives programme and the deployment of charging infrastructure are enabling tools, but are not enough. Moreover, purchase aids usually benefit more affluent groups that can afford the upfront investment.

Spain could sustain its electrification efforts by including additional actions in its plan:

- Introduce an obligation for **companies to have all new car registrations to be BEVs in 2030**, and 50% in 2027. Setting these targets could boost the BEV sales share to 74%[13] in 2030 and would bring an additional 1.5 million BEVs on the streets. This provision could be reinforced through a tax reform (see below);

- Introduce a **social leasing scheme** following France's example[14]. This is scheme that would make leasing an EV affordable for low-income households at €100 per month and increase the number of e-cars on the roads;

- When implementing the the **crediting mechanisms of the RED III**[15]:

+ For public recharging, credits should be given also for rolling out (fast-recharging) capacity;
+ Reward also p**rivate charging** (as done in Germany and Austria), facilitating charging at home and at work (75% of charging happens at home[16]). Such a measure would strengthen Spain's action to encourage self-consumption of renewable energy;
+ Reward the higher energy efficiency from charging EVs with renewable electricity by means of the energy-based multiplier of 4 or the higher fossil fuel comparator.

10 BEV sales shares from ACEA
11 Faconauto (2023) El Ejecutivo retrasa dos años la expansión de la red de carga pública en las carreteras españolas
12 T&E in-house calculations
13 T&E in-house calculations, based on the EUTRM and dataforce corporate fleet data
14 T&E (2023) Un leasing social avec des voitures 100% électriques, fabriquées en France et en Europe, c'est possible !
15 T&E (2023) RED III and renewable electricity
16 ChargeUp Europe (2023) European Performance of Buildings Directive (EPBD) and Emobility

- Avoid the risk that rural areas and areas with low population density are excluded from EVs uptake by deploying a strategy for electric charging infrastructure with regional targets by province.

The government also provides for an incentive programme for households and businesses for the **purchase of EVs and installation of charging points**, and for investments on bi-direction electric charging. These incentives should be proportionate to the weight of the car (smaller size EVs are more efficient) and the income of the recipients.

To **support the uptake of electric trucks** the following measures are recommended:

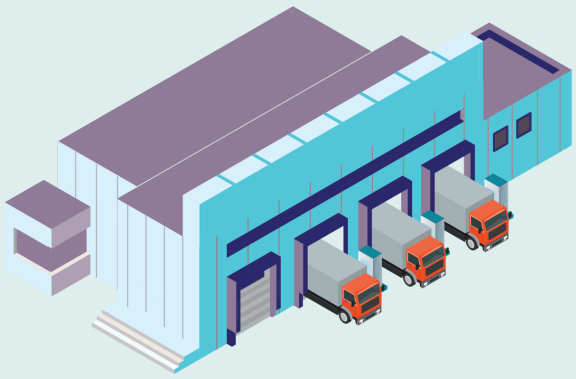
- Introduce a national target for the uptake of electric trucks;

- Make it easier for hauliers to apply for financial support for the purchase of e-trucks and retrofitting of existing ones. Hence, the administrative process to receive the subsidies should be simpler and quicker and disbursement should be timely;

- Deploy public charging points for electric trucks in urban nodes and along major highway;

- Apply truck tolls, with reductions for zero emission trucks. EU legislation requires that, where governments apply tolls on trucks, there must be a reduction of between 50% and 75% for zero-emission trucks (or higher tolls for the most-polluting trucks). Germany, Austria, and Czechia already provide toll discounts to ZE trucks, while Belgium, Denmark and the Netherlands will do so soon. Spain needs to keep pace with the trucking transition;

- In the logistic sector, public administrations should guarantee that last-mile collection and delivery services will be zero emissions from 2030 in all cities with more than 20 000 inhabitants, and in all cities from 2035.



Electrification of **rail transport** should be done with lines or battery electric trains depending on the situation.

The government rightly recognised in its plan that **aviation and shipping sectors** need the prompt development and deployment of clean fuels and infrastructure. To that end it included a roadmap for the development of SAF (synthetic kerosene from DAC and other zero emissions technologies) and measures to bridge the costs between synthetic fuels and traditional fuels for aviation and shipping. In addition to that, T&E also recommends:

- To promote and facilitate private investments for the development of clean fuels for aviation and shipping (including via Direct Air Capture), zero emission technologies and port and airport infrastructure;
- To use the revenues from carbon markets to finance public funding for green hydrogen and e-fuels production. T&E recommends earmarking 25% of the revenues generated from the ETS in aviation and shipping;
- To adopt Carbon Contract for Difference schemes, financed via revenues raised from the application of the polluter-pays principle;
- To set a zero emissions 2030 target for private jets landing and taking off from the country.

The NECP already foresees measures to improve the energy efficiency of the ports' buildings and equipment. Additional provisions could be adopted to **support the decarbonisation of Spanish ports and shipping**:

- Electricity should be supplied to all types of ships at berth and in all ports by 2030 (not just passenger and container ships as in AFIR);
- Set dates for progressive elimination of emissions in ports: all ships at berth or manoeuvring in Spanish ports must be zero emissions by 2035;
- Port authorities should have the obligation to promote emissions reduction by operators and users of the ports through provision of enabling equipment and services. The authorities should also make the availability of electricity and synthetic fuels in each port public;
- An analysis of the individual situation of ports should be jointly carried out by competent Ministries, port authorities and DSOs and TSOs to identify measures to develop clean energy in ports.

T&E's recommendations for transport efficiency

The NECP contains measures aiming at decreasing the energy demand of transport and reducing the demand for mobility. We recommend some adjustments to what's already in the Plan:

- Spain shows great ambition in establishing low-emissions zones by 2023 in all cities with more than 50 000 inhabitants. This measure could be improved by reforming the **environmental labels of vehicles** so that only truly low-emissions cars can enter cities. At the moment, PHEVs get a ZERO label and natural gas powered cars get the ECO label. This would also help designing a progressive transition towards zero-emissions zones;

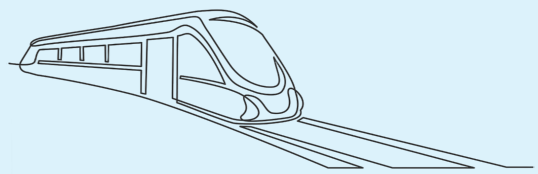
- **Teleworking** should be a mandatory measure to include in the 'Transport to Work Plans' that companies must develop. The NECP itself recognises that teleworking can reduce traffic in urban environments by 41.3% by 2030 and metropolitan traffic by 1.5% per year;

- The central government should set **minimum standards for the Sustainable Urban Mobility Plans** that municipalities (with > 50 000 inhabitants) must develop. As a minimum the plans should ensure sustainable mobility services such as public transport, car sharing, shared electric micro-mobility (e.g. scooters, bikes), improve cities' infrastructures and reallocate the public spaces to incentivise walking, cycling and use of public transport, and introduce city road pricing and/or congestion zones as a policy to reduce private car use;

- **Passenger transport by rail should be incentivized** by adopting additional action:

+ Reopen lines and start reinvesting in the conventional network, by guaranteeing for instance a minimum of 4 train services (2 outbound and 2 return) in all of its stations;
+ Provide bonuses for train service use targeting less affluent income groups;
+ Complete the high-speed network, connecting large regional cities if justified to achieve a shift from road and air to rail.

In order to support the already good steps taken towards shifting freight transport from road to rail, Spain should **aim to reach a 18% modal share for rail freight in 2030** (to catch up with the EU average) and 35% in 2040.



To further support of this objective, Spain could also:

- Give tax incentives and aid to companies to promote goods' transportation by rail;
- Progressively adapt the majority of the Spanish rail network to the European standard gauge by 2040, improve gauges and infrastructure to the need of freight trains, invest in cross-border connections;
- Ensure equal access to track to all train, including new entrants and foreign trains and increase competition in the rail freight market;
- Invest in innovative technology to move containers from trucks to train quicker and easier, and in railway highways.

To **reduce air travels demand** Spain could consider to:

- Require to companies to take responsibility for their climate impact of their air travel policy: companies with most frequent flights should adopt a target for reducing emissions from their flights by 50% by 2030 (from 2019 levels);
- Prohibit domestic passenger flights on routes where there is an existing, direct rail alternative with daily frequencies of less than four hours' duration, while ensuring that the rail service is adequate. The government should also prepare a report on the possibility of eliminating cargo flights departing or landing in airport with a freight traffic volume above 100 000 tons/year when there is a rail transport alternative lasting less than six hours;
- Green taxation measures should be introduced as they are an effective tool in moderating aviation demand (see box below) .

In the **shipping sector**, **operational energy efficiency measures should be required**, such as reduction of ships speed and propulsion support systems using wind energy, to decrease the sector's climate impact.

Investments and green taxation in transport

The government estimates the investments needed to achieve the objectives of the updated NECP: €294,000 bln by 2030 (22% increase compared to previous plan). The quantification of public funding provided is made for most of the measures listed, but there are gaps, especially in the estimation of the investments provided for the decarbonisation of aviation and shipping sectors.

While the Plan tracks the subsidies for fossil fuels in place and presents some measures to eliminate dependency on fossil fuels, there is no clear plan of action or timeline for their phase-out. In addition, and contrary to what is planned by Spain, the application of new tax benefits on energy products of fossil origin shall not be justified in any case.

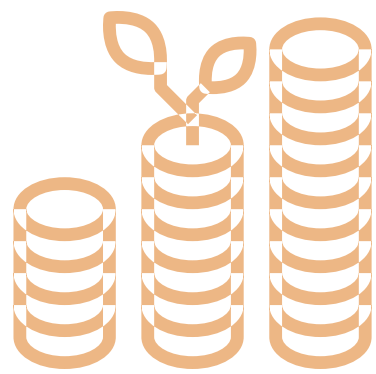
The government has not yet adopted a **reform to green up its fiscal system**. Its swift adoption would be a key measure to realise the sustainable transition drafted in the Plan.

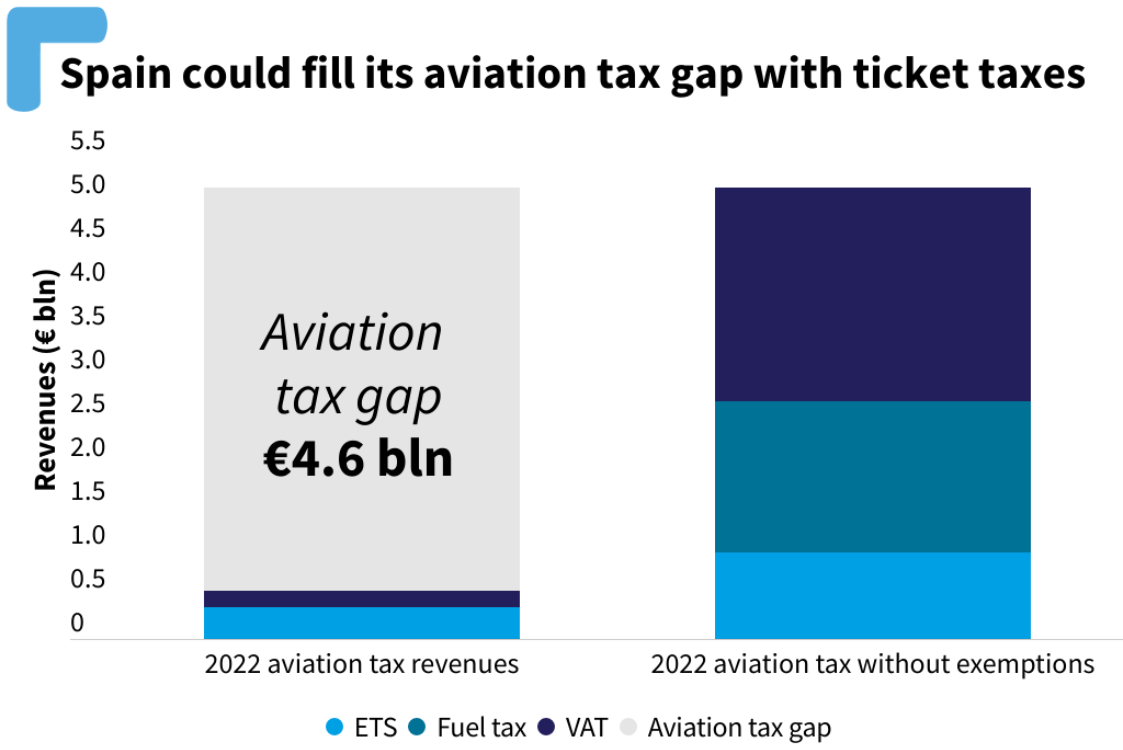
Following the example of some of its neighbours with higher BEV uptake, e.g. Portugal, Spain should carry out a fiscal reform to benefit those who are choosing BEV and to make it more costly to purchase, own and drive not only CO2-emitting cars, but also less energy efficient heavy cars. Among others, the main targets of this reform should be:

- BiK (Benefit-in-kind)
- VAT deduction
- Road Tax
- Registration and ownership Taxes

If Spain wants to support EVs uptake in companies' car fleets, in-kind remuneration for companies' battery electric vehicles and the elimination of tax depreciation for company vehicles with internal combustion engines and plug-in hybrids should be measures to include in a fiscal reform.

Spain could also **adopt ticket taxes to compensate for aviation's taxation exemption**. In 2022 Spain lost €4.61 billion because of the exemption.





Source: The aviation tax gap, T&E 2023

Without the tax exemption, in 2025 Spain would see revenues for €5.65 billion which could be reinvested in the decarbonisation of the sector. T&E estimates[17] the following ticket taxes would help fill the tax gap in Spain:

- Domestic ticket tax: €19
- Intra-EU flights: €49
- Extra-EU flights: €275

Notice that the adoption of national ticket taxes would not be necessary if ETS extension and application of tax on kerosene and VAT for all departing flights were agreed within the revision of existing legislation at EU level.

Energy poverty, transport poverty and Social Climate Plan

The Plan contains a good approach to the issue of energy poverty, but transport poverty is not sufficiently considered

Spain shows a good approach to the issue of energy poverty having adopted a National Strategy against energy poverty. The strategy identifies short-term palliative measures and long-term structural measures (for instance self-consumption of renewable energy), indicators and targets for elimination of the phenomenon and a governance to monitor implementation and progress. On the other hand, transport and mobility poverty is not sufficiently considered in the Plan. Spain needs to focus on this phenomenon as it becomes more relevant in the framework of the green transition and of the adoption of the Social Climate Plans (SCP, due in June 2025).

The Strategy is an essential building block for the SCP and the government makes a first attempt at linking the Social Climate Plan (SCP) and the NECP. The competent national body, the general objectives and the synergy of the SCP with the measures and policies of the NECP are identified. However, there isn't an indication of the process for the development of the SCPs nor of its governance.

[17]T&E (2023) Aviation Tax Gap

The consultation of civil society

The public consultation process could have been carried better out

The NECP contains a description of the public participation process undertaken for its update:

- A preliminary public consultation in August and September 2022 to inform the society and receive proposals. More than 2,000 contributions were submitted by associations and businesses, the public and academic sector;
- Roundtables and dialogues took place with representatives of various sectors, including from the civil society (NGOs, trade unions, rural and consumer organisations), market monitoring and operating entities, the research and development sector.
- A consultation on the draft updated NECP which in fact took place from June to September and September 2023 in the form of a questionnaire.

However, the draft of the updated NECP was not made public for inputs ahead of the submission in July. It is not clear what was the content of the input given by civil society and how it has been taken into consideration in the Plan. On the other hand, the NECP takes into account the recommendations of the Citizens' Climate Assembly and shows how the Plan contributes to their implementation.

Governance framework

National governance rules are on the right path, but gaps remain

The Plan contains a good level of information on the modelling underpinning the government's estimation of impacts of the policies and measures. It also quite clearly displays objectives and measures, lists which measures are additional to the old NECP and identifies the national authority or institution responsible for the policy or measure. However detailed measures are not always included nor is it clear what governance structure is in place to monitor implementation. Nonetheless few governance examples can be found such as the creation of a task force to govern the deployment of charging infrastructure.

The government also frequently links the measures of the Plan to other EU funding instruments (e.g. how the Recovery and Resilience Plan helps implement the NECP) and other national instruments and laws. However, some of these laws have been delayed over the years, complicating the achievement of the stated objectives. This is the case of the Sustainable Mobility Law which should define the financing for some of the transport measures included in the NECP. In addition, the Plan lacks an assessment of the need and availability (in terms of import and production potential) of sustainable resources such as green hydrogen and bioenergy feedstock.

Further information

Chiara Corradi
Climate policy officer
Transport & Environment
chiara.corradi@transportenvironment.org
Mobile: +32(0)488646157