Technical summary

The *Environmental Tax Policy Review of Andalusia* report supports the government of Andalusia in developing plans for potential reforms to its environmentally related tax legal framework, with a view to improving regional environmental outcomes and enhancing national and global environmental performance. The report is the outcome of a project on "Technical support for an integral reform of the environmental tax legal framework of the Autonomous Region of Andalusia" funded by the European Union (EU) via the Technical Support Instrument (TSI), and implemented by the OECD, in cooperation with the European Commission.

The report provides strategic recommendations for environmentally related tax reform in three key areas; greenhouse gas (GHG) emissions and air pollution (with a focus on stationary sources of emissions and on road transport), water usage and pollution, and waste and circular economy. The recommendations derive from a thorough review of the legal framework at the regional, national and EU level and from an assessment of how existing taxes and fees applicable at the Andalusian level align with principles of good environmental tax policy. Concrete practical examples underpin the assessment of specific instruments and their design.

This technical summary presents key findings and strategic recommendations from the report.

The multi-level governance framework in Spain and Andalusia

Spain is a quasi-federal country with a three-tier system of subnational government whose autonomy is constitutionally recognised. The first tier of the subnational governance structure is composed of 17 autonomous communities, the second tier is made up of 50 provinces, and the third tier comprises 8 131 municipalities and two autonomous cities (Ceuta and Melilla). Spain also has an asymmetric system of subnational governance. Andalusia is one of the 15 autonomous communities that fall under a "common regime", while the Basque Country and Navarra fall under a "foral regime" that provides them with special responsibilities and more fiscal autonomy.

In addition to the Constitution of Spain, each autonomous community is governed by a Statute of Autonomy through which the central government may transfer some of its responsibilities. The Andalusia Statute of Autonomy (*Estatuto de Autonomia de Andalucia*) was adopted in 1981 and revised in 2007 and provides for the transfer of powers, including revenue raising capacities, from the central to the regional government. This Statute also provides full guarantee and protection of local autonomy and is complemented by the organic 1985 Law regulating the basis of local administration (*Ley reguladora de las bases del régimen local (LBRL)*, which sets the framework of the local government system. Local and regional responsibilities are defined in accordance with the principle of subsidiarity, where decisions should be taken at the lowest decision-making level possible. The legislation of higher levels of government must ensure that lower levels of government have the right to intervene in matters that affect their interests and have adequate powers, in accordance with the principles of decentralisation, proximity, effectiveness and efficiency.

As Spain is one of the most decentralised countries in the OECD, subnational governments assume significant responsibilities for public spending and service provision. Subnational governments were responsible for almost half (47.3%) of total public spending in 2020, amounting to 24.8% of GDP, above the OECD average (respectively 36.6% and 17.1%)**.** The autonomous communities may assume both exclusive and shared responsibilities with the central government. Exclusive responsibilities must not fall under the central government's remit and are listed in the Constitution of Spain. Environmental protection is a regional responsibility (though legislation must be in line with national and EU legislation), which provides Andalusia with extensive obligations in the areas of environment and climate. The region also has responsibilities in areas related to the green transition, such as transport, economic development, agriculture and forestry, water management, regional planning and housing. Responsibilities may differ across autonomous communities as the exact allocation of responsibilities is determined by each community's Statute of Autonomy. Municipalities are in charge of waste collection and treatment, drinking water supply system and urban environmental protection, as outlined in the 1985 LBRL. This differs across municipalities; for example, waste treatment and urban environmental protection may revert to regions for very small municipalities.

Tax revenue accounted for 37.5% of total subnational government revenues in 2020 in Spain. Autonomous communities can establish own-source taxes, apply a surcharge on centrally levied taxes (with some limitations), and have some discretion over assigned taxes (e.g. exemptions). The central government is responsible for establishing and administering assigned taxes, while the revenue is wholly or partially shared with the autonomous communities. By contrast, own-source taxes are created by the autonomous communities and must be based on a taxable event that is not already subject to tax by the central government or by municipalities (e.g. the Tax on Gas Emissions into the Atmosphere, the Tax on Discharges into Coastal Waters or the Single-Use Plastic Bag Tax in Andalusia). If the taxable event is already subject to tax at a lower level of government, the government that established the new tax must compensate the lower level of government for the revenue loss. Similar to autonomous communities, municipalities can finance their responsibilities through their own taxes and assigned taxes from the autonomous communities and the central government.

Parts of the Spanish tax system are currently under review. The report includes proposals from the "White Book for the reform of the tax system and its adaptation to the reality of the 21st century" published in March 2022 by the *Committee of experts to prepare the White Book on the tax reform*, established by the Spanish Treasury (Comité de personas expertas (2022[1]), Labandeira (2022[2])). This White Book analyses the tax system as a whole and considers topics such as environmental taxation, corporate taxation and property taxation.

Stationary sources of GHG emissions and air pollutants

Over the past two decades Andalusia has been reducing GHG emissions, which are directly responsible for climate change. Climate change is an existential threat that is increasingly impacting ecosystems and people's lives. Since the global warming impact of GHGs[2] is independent of where the emissions occur, a concerted effort across countries and all levels of government is needed to address the threat of climate change. In Andalusia, carbon dioxide (CO_2) represented 80% of GHG emissions in 2019 and have steadily declined from about 75 $MtCO_2e$ in 2007 to about 54 $MtCO_2e$ in 2019. The main sectors responsible for CO_2 emissions are the electricity (29%), industry (24%) and road transport (31%) sectors, though the main sources for other GHGs differ. Agriculture is the main sector responsible for methane (CH_4) emissions (representing 95% of total CH_4 emissions in Andalusia) and nitrous oxide (N_2O) emissions (86%).

Air pollutant emissions have direct and localised effects on human health and on the environment but have generally followed a downward trend over time in Andalusia. Air pollutants might indirectly impact climate change, but the direct impact of air pollutants is often local, and their harmfulness generally

depends on local conditions, such as population density and weather conditions. [3] The OECD's *Air pollution effects* indicator estimates that in 2019, exposure to fine particulate matter ($PM_{2.5}$) caused 190 deaths per 1 000 000 inhabitants in Spain (OECD, 2022[3]). Evidence shows that beyond the health and environmental impacts, air pollution may also have detrimental effects on the economy by reducing worker productivity, increasing public health expenditure or causing loss of crop yield. In Andalusia, air pollutant emissions followed a downward trend between 2003 and 2019, with reductions of up to 80% for SO_2. Ammonia (NH_3) emissions experienced a much smaller decrease of 6% over the same period, declining significantly until 2011 and then increasing to 2019. In 2019, the main anthropogenic sources of air pollutants in Andalusia differed across emissions; SO_2 arose principally from the industry sector (about 51%), maritime traffic (22%) and electricity production (20%). Nitrogen oxide (NOx) emissions arise principally from road traffic (28%), agriculture (26%), maritime traffic (13%) and electricity production (11%) and $PM_{2.5}$ from buildings (39%) and agriculture (32%).

Andalusia has established multiple instruments to reduce GHG emissions and air pollution, which align with national and EU level action. Andalusia has pioneered regional-level action on climate change; the 2002 Andalusian Strategy on Climate Change was the first initiative of its kind in Spain. The autonomous community has since adopted several measures to strengthen climate change action, including its latest Andalusian Climate Action Plan (PAAC) in 2021, based on the 2018 Andalusian Law on Measures Against Climate Change and the Transition Towards a New Energy Model (Law 8/2018). The main objective of the PAAC is to reduce GHG by 39% by 2030 compared to 2005 and is composed of three programmes (mitigation, adaptation and communication). The PAAC aligns with national and EU-level action on climate change, specifically the Spanish Climate Change and Energy Transition Law (Law 7/2021) and the European Climate Law (EU Regulation 2021/1119). To complement the PAAC and reduce the emissions of other atmospheric pollutants, Andalusia adopted the Strategy for Air Quality in 2020, based on the Andalusian Law 7/2007 and in line with the Spanish National Program on Atmospheric Pollution Control (Royal Decree 818/2018) and EU Directive 2016/2284. The strategy aims to support the preparation of air quality improvement plans by local governments and provides a comprehensive assessment of air quality at the local level, including the main pollutants emitted by sectors.

The Andalusian Tax on the Emission of Gases into the Atmosphere (IEGA) is an important element of regional action on stationary sources of GHG and air pollutant emissions. Introduced in 2003, the IEGA covers emissions from CO_2 and from two important air pollutants, nitrogen oxyde (NOx) and sulfur oxyde (SOx). The IEGA covered about 70 installations in 2019, of which about 40% were electricity providers or autoproducers of electricity (i.e. some industrial firms) and 60% were in the manufacturing industry. Slightly more than 80% that were covered by the IEGA were also subject to the EU ETS. To calculate the IEGA liability, CO_2, NOx and SOx emissions are each adjusted by a reference value, which is similar to the threshold levels set in the European Pollutant Emission Register (EPER) Decision. The resulting adjusted CO_2, NOx and SOx emissions are added up to form one taxable base, referred to as polluting units, which are subject to a progressive tax rate schedule, with marginal tax rates ranging from 0 to EUR 14,000 per polluting unit. Exemptions apply to emissions from landfills and facilities for the intensive rearing of animals as well as those from the combustion of biomass and biofuel.

The IEGA follows good administrative practice and is more comprehensive than pricing tools that only cover CO_2 emissions. The IEGA determines which entities are covered by the tax through physical characteristics (e.g. production capacity and storage, level of thermal power) instead of emission thresholds. This allows entities to be clearly identified and avoids relying on emissions reporting, which would create a high administrative burden on installations and the verifying entities. The IEGA also played a pioneering role in air pollutant emissions pricing, with Andalusia being one of the first regions to establish such a tax, and represents a more comprehensive approach to emissions taxation in its effort to cover CO_2 emissions as well as NOx and SOx emissions.

The design of the IEGA is complex, which risks muting its price signal and providing unintended incentives. The IEGA currently bundles all three gases into a single tax base and applies to polluting units

rather than quantities of pollutants emitted (e.g. in tonnes). This reduces the salience of the tax as it makes it difficult for firms to know how much they are taxed on each type and unit of emissions. Rather than incentivising reductions across all types of emissions, the combined tax base allows firms to offset increases in one type of emissions by reducing another type. Moreover, the reference values used to adjust the quantities of emissions are not based on emission limit values or the relative harmfulness of the different types of emissions; rather they are based on reporting thresholds intended to cover most emissions at a limited administrative burden (European Commission, 2017[4]).

The IEGA sets a very low CO_2 price signal compared to recommended price levels for the transition to net-zero. The average marginal rate is EUR 0.036/tCO_2 for installations covered by EU ETS and IEGA and almost all installations covered only by the IEGA fall below the IEGA exemption threshold and have a tax liability of EUR 0. For installations covered by both the IEGA and the EU ETS, the price signal from the IEGA adds very little to EU ETS permit prices, which in 2019 averaged EUR 25/tCO_2. Moreover, the low price level of the IEGA does not help reach the standard low-end benchmark price level needed to trigger meaningful abatement efforts, which is EUR 30/tCO_2 in 2021 and EUR 60/tCO_2 in 2025. It also does not help attain the EUR 100/tCO_2 Social Cost of Carbon retained by a recent European Commission study (European Commission, 2021[5]) either.

The tax rates on NOx and SOx that apply through the IEGA are at the lower range of observed rates worldwide, but they are similar to those observed in other parts of Spain. Benchmark price levels are rarely discussed in the case of air pollutants, as these are location specific. Indeed, where the objective relates to target reduction levels, the cost and local availability of abatement technologies should be considered as this will affect how reactive firms are to the tax. If the objective relates to costing the externalities that arise from air pollution then the local population, climate, weather and environmental considerations should be accounted for.

As GHG and air pollutant emissions from stationary sources are already taxed in Andalusia, the main legal possibility for tax reform is to broaden the scope of the IEGA. The tax base of the IEGA can be expanded to cover other pollutants (e.g. particulate matter (PM) emissions, NH_3) and other industrial or productive activities (e.g. waste management, poultry) that are currently exempt. Other possible improvements include simplifying the calculation of the tax value and updating the tax with the current regulatory framework at the national level. As suggested by the White Book for Tax Reform in Spain, the design of this tax would also benefit from harmonisation between regions that levy an equivalent tax.

Based on the assessment, the following strategic recommendations are proposed (Box 1).

Box 1. Strategic recommendations – Stationary sources

General recommendations regarding the Andalusian Tax on the Emission of Gases into the Atmosphere (IEGA)

Separating the **IEGA into three tax schedules, each applied per tonne of emission of CO_2, nitrogen oxide (NOx) or sulphur oxides (SOx)** would make the price signal more salient, and would enable a better alignment of price levels with environmental costs and mitigation targets.

Applying flat IEGA tax rates would ensure coherent abatement incentives, ensuring that the price signal aligns with the environmental costs of each unit of emissions rather than increasing with total emissions as currently.

Compared to the progressive tax rates that currently apply, **equity concerns for firms of different sizes are better dealt with by complementary instruments, which can be direct or indirect**. Indirect support could include a **time-progressive phase-in of the tax base and rates** to give firms the opportunity to make the necessary investments. Direct support could include **subsidies for green technology adoption**.

Subsidies for firms should be carefully designed to ensure they are properly targeted (e.g. tailored to firm size) and are effective in addressing affordability and competitiveness concerns. The revenue implications of such subsidies need to be considered; for example, they could be implemented using the general budget or the revenue from green taxes (revenue recycling).

Reform options for Greenhouse Gas (GHG) emissions

Given that GHG emissions are a global issue, **the regional level may not be the most suitable** governance level for regulation in this area. In terms of effectiveness, climate change and GHG mitigation are best dealt with at a national or even supranational level. Indeed, this enables emissions cuts where they are the cheapest at a much larger scale and can help avoid carbon leakage.

Reform options for air pollutant emissions

Air pollutant emissions (e.g. NOx, SOx, ammonia (NH_3), particulate matter (PM) emissions) are principally a local issue, which makes them **a suitable target for regional level action**.

If the **objective is to reach specific air pollution reduction targets**, tax rates would need to be **set with reference to local air pollution reduction targets** and with reference to **available mitigation technologies and costs** (i.e. where mitigation is relatively inexpensive, lower tax rates may be sufficient to incentivise behavioural shifts).

If the objective is to **reflect external costs from pollution in tax rates**, Andalusia could consider **including population density in the calculation of tax rates**. This would better align price levels with health costs (which are higher in more populated areas) and possibly discourage firms from settling in densely populated areas going forward. A similar measure applies in Chile (Box 3.7)

An **extension of the tax to cover PM emissions** from industrial and electricity sector stationary sources could be considered. This would be relatively straightforward to implement given that NOx and SOx emissions are already measured and taxed. Moreover, this would deal with one of the most harmful air pollutants for human health.

The current IEGA exemption for emissions of NOx, SOx and PM arising from biofuels could be removed. Indeed, while biomass might be carbon-neutral over the life cycle, it is a highly emitting fuel in terms of air pollutants.

Reform options for emissions from the farming sector

An extension of the tax to the farming sector would entail **extending the coverage to other air pollutants, such as NH_3, and to other GHGs, such as nitrous oxide (N_2O) and methane (CH_4)**. The agricultural sector in Andalusia is responsible for a low share of CO_2 emissions but is the main source of CH_4 and N_2O emissions (95% and 86% respectively). The sector is also responsible for the air pollutants NOx, PM and NH_3 emissions.

The **emissions measurement methods should be adapted** to capture emissions from the farming sector. Farm-level emissions, of which a low share arises from fuel use, cannot be measured in the same way as firm-level emissions. Such a reform therefore requires emissions the measurement to capture farm-level emissions.

Extending taxation of GHGs and air pollutants to the farming sector would require **dialogue and engagement with stakeholders**, **proposals for and existence of alternatives**, and **support for farmers in the transition**. Andalusia could adopt a similar approach to the New Zealand 2022 proposal for taxing farm-level emissions (see Part I) and should ensure dialogue with farmers highlights the benefits that better air quality and mitigated climate change would have on their sector and employees.

Greenhouse gas emissions and air pollutants arising from road transport

Road transport is a major source of GHGs and local air pollutants due to the combustion of fossil fuels in vehicles and causes a range of additional external costs unrelated to fossil fuel use. Road transport is responsible for external costs due to the combustion of fossil fuels in vehicles, as well as potentially substantial costs related to accidents, congestion, noise and road damage. In Andalusia, CO_2 emissions from road transport increased by 12% between 2011 and 2019 but remained stable as a share of the region's total CO_2 emissions over the same period (around 28%). In contrast, air pollutant emissions followed a downward trend over the same period; in 2019 road transport accounted for 12.6% of nitrogen oxide (NOx) emissions (compared to 34.7% in 2011), 2.7% of fine particulate matter ($PM_{2.5}$) emissions (22.7% in 2011), and 3.2% of particulate matter (PM_{10}) emissions (21.5% in 2011). Although air pollution from vehicles has been decreasing, it remains an important source of pollution, especially in urban environments.

The Andalusian Climate Plan (PAAC) sets out the region's objective to reduce GHG emissions from road transport and complements national and EU-level action. The PAAC establishes a reduction target between 30% and 43% by 2030 compared to 2018 levels for transport and mobility. In addition, the Spanish Climate Change Law (Law 7/2021) sets out the national objective to reach a zero GHG emissions fleet of passenger cars and light commercial vehicles by 2050, in line with EU Regulation 2019/631 setting CO_2 emission performance standards for such vehicles. To help autonomous communities promote electrified transportation, the central government launched the Moves III Plan in 2021 (Royal Decree 266/2021). The Spanish Climate Change Law also promotes the adoption of sustainable urban mobility plans by 2023 for large municipalities with the aim to reduce emissions from mobility. This includes, among others, the development of low-emission zones, the improvement of the public transport network and its electrification.

Private drivers and vehicle owners in Andalusia are currently liable for national and local taxes and charges, but these do not fully reflect environmental externalities from private road transport. At the national level, drivers are subject to an excise duty on fuels and are liable for the national vehicle registration tax (a one-off tax paid on the first registration of a vehicle). In addition, municipality-specific annual circulation taxes apply. However, there is currently no direct taxation on emissions from non-stationary sources in Andalusia and drivers currently do not face road tolls or congestion charges.[4]

Well-designed tax policy can contribute to pricing the costs from environmental damage caused by drivers and vehicle owners. Pricing can improve transport-related decision-making and environmental outcomes by reflecting the costs from environmental damage. Different tax measures account better for different types of external costs. For example, vehicle taxes can reflect external costs related to average vehicle characteristics and fuel excise taxes can capture external costs related to fuel types. When these costs vary with the location and time of driving or depend on population and ecosystem exposure, distance-based or location-specific charges (i.e. road tolls or congestion charges) are better suited. Beyond taxation, non-price policies like fuel or emission standards are another option to achieve environmental policy goals.

Fuel and carbon taxes are well suited to account for the external costs related to CO_2 emissions, as CO_2 emissions are proportional to fuel consumption; but the Region has little room for manoeuvre as they are set at the national and EU level. The current Spanish fuel excise tax rates

exceed a low-end estimate of climate costs today. This does not mean the rates are necessarily too high, as climate cost estimates are highly uncertain and external costs from fuel use are broader than climate costs. Fuel excise tax rates vary across fuel types and users and are not based on carbon content, which leads to an unequal treatment of taxpayers and potential distortions. However, Andalusia has no direct control over these rates that are regulated at the national level in alignment with the EU Energy Tax Directive.

Vehicle taxes can reflect the average emissions profile of a vehicle but are currently not used for this purpose in Andalusia. Vehicle taxes can account to some extent for the range of health and environmental impacts arising from vehicles, as they can reflect those impacts linked to average vehicle characteristics. Such taxes can have unintended effects however; for example, the Spanish registration tax varies by vehicle type and CO_2 profile of a car, but as it does not account for air pollution profiles it has the potential to stimulate the sale of diesel cars, despite the relatively large negative impact of diesel on health and the environment through air pollution. Moreover, current municipal-level annual ownership taxes account for neither CO_2 emissions nor air pollutants. While well-designed vehicle taxes have the potential to reflect a range of vehicle emissions types, they are less efficient in targeting driving-related and location-specific external costs, such as congestion and population exposure to air pollution.

Distance-based fees or congestion charges are currently not used in Andalusia, although they have the potential to deliver more efficient road transport if carefully designed. Andalusia does not currently levy distance-based or congestion charges, though these can usefully reflect driving-related external costs like congestion and accidents, which are not covered in fuel or vehicle taxes. Benefits from distance-based charging are also evident in terms of their revenue stability, as driving likely adjusts less quickly to pricing and taxation than energy use. While distance-based charging has several downsides, such as their administrative and implementation costs and privacy concerns related to data collection, technological progress is reducing costs and may remedy privacy concerns. Potential distributional concerns may be alleviated by using part of the revenue for public transport improvements or direct transfers to low-income drivers that have no alternative to driving in the short run.

An alternative means to charge distances driven is to take odometer readings, though additional information would be needed to fully reflect the external costs. Distance-based charges relying on odometer readings assess distances travelled by a vehicle without collecting detailed information on when and where the driving took place. The downside of these types of charges is they cannot vary with location and congestion levels and would only cover cars registered in Andalusia. Nevertheless, implementing odometer readings aligns better with external cost management than having no distance-related charging at all.

Synergies and coordination with other levels of government and between tax and non-tax policy instruments is crucial for successful environmental policy. In the climate context, for example, Andalusia can act in coordination local, national and supranational governments and draw on other instrument in the climate policy toolkit in addition to taxation. Other relevant climate policy instruments at the Spanish national level or at the EU level include the Spanish National Fund for the Sustainability of the Electricity System (FNSSE), national and European regulations on emissions of air pollutants, the European regulation on GHG emissions from vehicles, Euro standards, the EU Energy Tax Directive, and the EU Emissions Trading System, including the potential extension to road transport. These policies are currently being reviewed with the intention of increasing their environmental policy stringency, particularly in relation to carbon neutrality. If EU or national level policies become more ambitious, the scope for regional level activity declines. Nonetheless, it will be important for Andalusia to adapt the use of taxation as the policy mix and regulatory approaches evolve in the future; for example implementing low emission zones and integrating the upcoming Euro 7 standard.

From a legal perspective, Andalusia has the possibility to establish several new taxes since there is currently no direct taxation on emissions from non-stationary sources in Andalusia. Andalusia

has several options to target emissions and air pollution, given the region's competencies (e.g. areas related to environmental protection and transport) and given existing tools at the national and EU levels (e.g. fuel excise taxes) and at the municipal level (e.g. circulation taxes). Reforms could include the introduction of a tax on the emissions from mechanical traction vehicles (i.e. motor vehicles). Additional legal possibilities include the creation of a congestion charge for polluting vehicles that circulate in central urban areas, aligned with the potential creation of the Low Emission Zones, and encouraging the central government to update its vehicle registration tax (e.g. fewer exemptions, updating the tax rate bands more regularly to account for technological advances).

Based on the assessment, the following strategic recommendations on tax reform are proposed (Box 2).

Box 2. Strategic recommendations – Road transport

General assessment of the road transport tax framework

On an external cost basis, **the tax framework applicable to drivers and passenger car owners in Andalusia could be improved**. Fuel taxes, for example, apply heterogeneously and are not based on carbon content. No specific tax instrument applies to incorporate costs from air pollution and congestion, despite their significance for and variation at the local level.

The sub-national level is well-placed to manage pricing of air pollution and congestion. Taxes (or feebates) targeted to the emissions of vehicles or congestion pricing in urban centres can help manage local congestion problems and improve local air quality.

Focusing tax reform on reflecting external costs can fail to address additional policy considerations, such as the transition to a zero-emission transport sector or other key transport and environmental fiscal policy goals, such as managing distributional consequences or revenue raising.

Engaging in tax reform can take up significant administrative resources and political capital, **the government is therefore encouraged to decide on a ranking of policy objectives before starting a comprehensive reform process**. If the main goal of the Andalusian government is decarbonisation in the road transport sector, administrative resources may better be used to design a reform that strongly encourages zero-carbon vehicles to enter the fleet, instead of engaging in marginal but burdensome reform that aligns the tax framework with external cost estimates.

Reform options for a cleaner passenger vehicle fleet

A combination of tax elements may help Spain and Andalusia to push for a clean passenger vehicle fleet in the context of existing and future policy mix**.**

- **Consistent fuel excise and carbon pricing will align climate incentives across the economy and provide strong signals that fossil fuels are not the future.** These considerations are relevant for the national or the EU level.
- **Vehicle taxes could be reformed to cover average CO_2 emissions jointly with air pollution profiles of vehicles**. Israel is a practice case of a vehicle tax with broad coverage of CO_2 and air pollutants that tracks their external costs in detail (see Box 4.2). It would be important to favour zero-emission vehicles only. A downside of fine-tuning tax rates to different emissions and external costs is its administrative complexity.

  An alternative could be to vary tax rates according to environmental indicators such as the Euro emissions standards for vehicles[5] that increase in stringency over time. The vehicle tax could also be transformed into a feebate that charges a fee on dirty and large vehicles and subsidises zero-emissions vehicles of regular size (France uses feebates for example (see Box 4.6)). Whether such reform would best happen at the national or regional level depends on advances of vehicle tax reform at the Spanish level.

The creation of an additional tax on emissions from vehicles at the regional level, as implemented in Catalonia, requires careful thinking. From a taxpayer perspective, the compliance burden may increase significantly when vehicle owners are subject to three different, but similar taxes, i.e. the existing national tax on vehicle registration, the potential new regional tax on emissions from vehicles and the existing municipal tax on circulation of vehicles.

- **Subsidies and tax incentives provided through the corporate or the personal income tax system can further support the adoption of clean vehicles but could have important budgetary implications**. They can help overcome consumer myopia, financial constraints and other barriers that prevent households from making the relevant investments. But these tools lead to forgone revenue or expenditures that need to be assessed. They also risk predominantly benefitting richer households. A means-tested approach directed towards low- and middle-income buyers may overcome such shortcomings.
- **Congestion pricing could be implemented at the regional or local level to help manage local congestion problems, while improving local air quality.** The local governance level may be well-equipped to implement congestion charges in urban areas where effects are likely most important. This can be done through combining information of density in different cities with traffic and air pollution data.
- **Preparing to use distance-based charges can be an alternative option.** If not pursued at the national level, local level action in this area can bring local benefits, such as better traffic management, reduced congestion, fewer accidents, lower air pollution and additional revenue.[6]

Independently of their principal objective (i.e. external cost management or decarbonisation of transport sector), the above points highlight that such tax policy choices have budgetary and distributional impacts that should be considered when designing environmental policy. It is also important to consider that electrifying the car fleet can only be successful if accompanied by significant investment in charging infrastructure for electric vehicles and will contribute to the net-zero transition only if electricity production is decarbonised.

Water usage and pollution

Water scarcity is a growing concern worldwide, in Spain and in Andalusia. Spain has historically high temporal and spatial variability in water resources, and Andalusia is one of the driest regions in the country. Traditionally, the Spanish government has mainly dealt with scarcity in regions such as Andalusia through supply-side instruments (e.g., dams, reservoirs, inter-basin water transfers). However, in the coming decades, freshwater availability is projected to decrease globally and drought cycles to increase. Climate change models project warming temperatures, increased variability in precipitation patterns, and more frequent and extreme weather events (OECD, 2020[6]). This calls for additional efforts through demand-side instruments, which include pricing and taxation.

Water pollution is caused by many factors and may originate from urban, industrial and agricultural users. Water pollution generates a range of external costs; it poses risks to human health and ecosystems, increases the costs of water use by raising treatment costs and increases water scarcity by reducing the quantity of water that is safe to use. In the urban and industrial sectors, water pollution is mainly due to wastewater and direct industrial discharges and arises from point sources, defined as direct discharges into water bodies at a discrete location, such as pipes and ditches from sewage treatment plants and industrial sites. Water pollution from the agricultural sector mainly arises from sedimentation and pesticides use as well as certain practices of nutrient use, animal feeding, livestock grazing and irrigation. These diffuse sources of water pollution are defined as indirect discharges to receiving water bodies, via overland flow and subsurface flow to surface waters, and leaching through the soil structure to groundwater. In

recent years there has also been a growing focus on contaminants of emerging concern (CECs) from households, businesses and farmers (e.g., pharmaceuticals, industrial and household chemicals, personal care products, nanopesticides and nanomedicines) and the use of intrants in agriculture, in particular pesticides and fertilisers.

Legislation at the regional, national and EU levels sets out water-related environmental objectives and regulates responsibilities between different levels of government. The main legislation on water in Andalusia is the Andalusian Water Law (Law 9/2010), which establishes a set of environmental objectives and regulates the responsibilities between the autonomous community and local governments with the aim to achieve water protection and sustainable water usage. The law is in line with the Spanish Water Law (Royal Legislative Decree 1/2001), which determines river basin districts as the basic managerial units of Spanish water resources, and the European Water Framework Directive (2000/60/EC), which provides an integrated framework for the protection and sustainable use of water within the EU. The Andalusian Water Law regulates the organisation of the river basin district authorities and their management plans, the supply and sanitation system of urban water use, and the revenue earmarked for infrastructure and public service provisions, among others. In 2020, the Andalusian government also launched the Andalusian Water Pact to promote a participatory process on water-related issues. Additionally, the Royal Decree 47/2022 on water diffuse pollution produced by nitrates from agricultural sources provides River Basin Authorities with the possibility to establish limits on new water concessions and other activities that may result in nitrate contamination.

In Andalusia a number of pricing instruments apply to water users. The main water users in Andalusia are agriculture (about 80%, above the world average of 70%) and urban users. Industry that is not connected to the grid represents a much smaller share of water use in most Andalusian river basins. Several instruments are in place to directly price water use of urban users, while only one instrument prices water use from agriculture directly. These instruments are implemented at the national, regional or local level. The national-level instruments principally address service-cost recovery and environmental costs related to the installation of water extraction activities. The Andalusian and local charges address service-cost recovery as well as affordability and sustainable use criteria to a certain extent.

Pricing of water usage should satisfy several environmental and economic criteria. Addressing one of the criteria, however, does not guarantee that the other criteria will be addressed and there might be trade-offs between the different objectives. From an economic and environmental perspective, five key criteria should be considered (no order of importance) when designing a price for water usage:

- **Cost of service recovery** (i.e., water prices cover the full current and future supply, administrative and governance costs of water use and guaranty financial sustainability);
- **Universal access and affordability** (i.e. access to a minimum level of water for everyone);
- **Promotion of sustainable water use for human populations** (i.e. adapted to the issue of scarcity and avoid potential overuse and water losses in networks);
- **Internalisation of externalities caused to ecosystems** (e.g., depriving fish of their habitat, decreasing availability of water as a support to wetlands or for healthy vegetation);
- **Equity** (i.e. pricing ensures that the burden falls in an equitable way on users, for example avoiding misalignment between the costs that users generate and the price that they bear).

Water pricing in Andalusia could be better aligned with the good practices outlined above. Water use from agriculture is subject to irrigation charges, which principally seek to cover service-related costs and address equity between agricultural users. Urban users are subject to pricing instruments that deal with service-related costs as well as seek to ensure affordability and sustainable use. Water pricing currently does not account for the environmental externalities linked to water use.

Equity across water users could be improved in Andalusia, including across agriculture and urban users as well as among urban users. Agricultural water users only pay for the supply cost of the water

used for irrigation, which is distributed amongst users according to the *share* of volume used, but does not directly depend on the volume *level* itself. Urban users, on the other hand, pay a fee that directly depends on their water use. Moreover, agricultural users sometimes also use water directly from wells, and then face no other cost than their private costs of extraction. The differential rates and coverage observed, however, may be justified by other reasons, such as accounting for the pass-through of price increases for farmers to food prices for households, or the different demand responsiveness of users. The design of the main water use fee in Andalusia, i.e. the improvement fee, can also create equity issues among urban users belonging to households of different sizes, due to the fixed exemption per household (rather than an exemption per person), the progressive fee structure, and the higher thresholds for the progressive fees that apply to large households.

Taxation could better address the external costs arising from water pollution in Andalusia. Water pollution damages human health and ecosystems (environmental externalities) and gives rise to economic externalities. For example, groundwater provides a non-negligible share of drinking water to both humans and animals, so the higher its pollution level, the higher water treatment costs are. For urban and industrial use, the main external costs from water pollution are currently addressed in Andalusia by the national level pollution control fee on discharges of water from those users. However, no pollution tax or fee applies in the agricultural sector, even though it is the main sector responsible for aquifer pollution today.

The main legal possibility identified at the regional level for water usage is the creation of a levy for water abstraction for agricultural and industrial purposes. A levy for water abstraction would reflect the environmental costs arising from the process of taking or extracting water from a natural source. Additional legal possibilities exist at the national level, such as developing incentive mechanisms on sustainable groundwater abstraction for Irrigation Communities or creating a tax that covers water-related environmental costs arising from tourism (this could also cover other environmental costs such as electricity and waste).

Regarding water pollution, the creation of a tax to disincentivise the use of pesticides and fertilisers at the national level constitutes the main legal possibility. A tax on the use of pesticides and fertilisers would reflect the environmental impact of water pollution from the agricultural sector, which can be difficult to target where water pollution arises from diffuse sources. The White Book for Tax Reform in Spain also proposed the creation of a national tax on the nitrogen content of fertilisers used in agriculture, combined with a VAT increase for these products.

Based on the assessment the following strategic recommendations are proposed (Box 3).

Box 3. Strategic recommendations – Water usage and pollution

Reform options for water usage

Given the **special status of water as a human right**, the price of water for different users is determined by government. As a result, the usual market dynamics that would increase prices and decrease demand when water supply is low are not in play. While this ensures water remains accessible and affordable, it fails to send a price signal to encourage users to reduce water consumption when supply is low. **Further government intervention may therefore be needed to promote sustainable water use.**

To better balance key criteria for water use pricing such as cost-recovery and financial sustainability, equity, affordability and sustainable use, the government of Andalusia is encouraged to **set clear objectives** and **acquire additional information on water supply costs and water demand responsiveness to prices** (price elasticity of demand). This could also allow for reflecting environmental costs of water abstraction (i.e. the costs on the ecosystem) in prices.

With respect to the **formal extraction of water** (e.g. through concessions) for urban, industrial and agricultural uses, **an abstraction charge at the Andalusian-level** could be put in place, to align with sustainable use goals of Andalusia. This is also a recommendation for the national level of the 2022 White Book for Tax Reform in Spain. France and Estonia have such taxes (Box 6.4).

Water allocation regimes are also an option and if designed properly can be more effective than pricing in the case of water use, given the generally low responsiveness of water users to prices. They can also allow a clearly identifiable share of water to be dedicated to the environment. Water markets based on such regimes exists in Australia (see Part II). However, these come with high administrative costs and may trigger unintended effects, such as lower return flows to water bodies.

With respect to the **informal extraction of water** (through wells, that may be legal or not), which covers a non-negligible share of agricultural water use, **monitoring mechanisms could be put in place at the user association level** (also referred to as Irrigation Communities). Monetary fines, for example, could be put in place if the groundwater body to which these wells are attached reaches poor quantitative status. This latter mechanism, however, would fall within the jurisdiction of Spain.

Evidence finds that **pricing policy effectiveness is enhanced when combined with non-pricing policies**. Accompanying measures, such as public awareness campaigns about water scarcity, information on water fees themselves aimed at increasing their salience or smart metering devices can contribute to increasing responsiveness.

Reform options for water pollution

The region could consider introducing a **price on polluting inputs, such as pesticides and fertilisers,** which are both responsible for an important share of water pollution. Currently, no price applies on water pollution from agriculture, and instead of applying a price to diffuse pollution directly, taxes on pesticides and fertilisers could target the quantities purchased of a specific product and tax rates could depend on their respective environmental impact. Pesticides on the European market are already risk assessed by the European Chemicals Agency, so defining products to be targeted by the tax and grouping them into different rate bands would be relatively straightforward. Norway has such a tax (Box 6.7).

However, evidence points to low responsiveness of farmers to input taxes. This stresses the **importance of complementary policies**, which can help farmers reduce pesticide use without risking an important decrease in yield or income, and ensuring the broader policy environment is aligned with water protection objectives (e.g., policies that promote quality of agricultural production over quantity).

If action at the regional level is envisaged, coordination with other Autonomous Communities is key to avoid farmers buying their input provisions (which constitutes a mobile tax base) from neighbouring regions with no input tax.

Advances in nutrient pollution modelling can provide an opportunity **to tax diffuse pollution outputs directly**, rather than taxing inputs that can only serve as proxies. This is particularly the case of fertiliser use, which is harmful to the environment if over-applied and not necessarily from first application. Such an approach could increase the efficiency and fairness of water pollution taxes, by **promoting a tax which would more closely align with direct environmental damage**.

General considerations

Introducing or reforming fees for water usage or pollution can involve **political economy sensitivities**. Political barriers may be addressed through **better communication on evidence-based results of pollution pricing mechanisms and earmarking of revenues**. For example, the revenue from such taxes could be used to accompany farmers in their transition to more sustainable agricultural practices.

This can also help increase responsiveness as well as address affordability issues and sustain the economic well-being of farming in Andalusia, which is a key sector of the region.

Price-based mechanisms are generally more cost-efficient, as they encourage abatement where costs are the lowest and provide continued incentives, for example. However, given the little knowledge there is about demand elasticities for water use and polluting inputs and given the high temporal variability in water supply, **regulation as a policy tool might in some cases be better suited to the context of water use and water pollution**. Regulations on input use already exist and they can be made more stringent. Regulation on water use, especially during summer months can also help address such issues.

Finally, ensuring **policy coherence** and setting **clear policy goals and priorities** is key in achieving water use and pollution sustainability and fairness without prejudice to other policy areas, in particular economic viability of rural communities. In this respect, **long-term and short-term goals and sustainability should be carefully assessed**. This trade-off can be illustrated by the recent take-off of avocado cultivation in Andalusia, which is substantially more profitable in the short-term than historic olive cultivation but less environmentally (and economically) sustainable in the long-term as much more water demanding.

Waste management and circular economy

The share of waste recycled in Spain is below the EU average and does not meet EU recycling targets. In 2020, Spain recycled only 36% of its Municipal Solid Waste (MSW) while the EU-27 average was 48%. Spain did not meet the EU recycling targets of 2020 and without further action it will be a challenge to meet future EU targets related to recycling and waste management. It is therefore imperative to investigate reform options in Andalusia to reduce waste generation and encourage a shift towards a more circular economy.

A substantial share of non-hazardous waste in Andalusia is disposed of in landfill and there is significant uncontrolled disposal of waste from the construction sector. In 2018, 18.34 million tonnes of non-hazardous waste were generated in Andalusia. This arose primarily from waste management facilities and water treatment (31%), municipal waste (27%), and construction and demolition waste (22%). More than a quarter of non-hazardous waste was landfilled, while 31% was recycled in Andalusia. Waste from Construction and Demolition Waste (CDW) poses a unique challenge; while authorised facilities achieve high recycling rates, up to 30% of CDW in Spain is uncontrolled and some is deposited in unauthorised places or their fate remains unknown. Accounting for this uncontrolled CDW, Andalusia is unlikely to reach the objective of 70% of non-hazardous CDW destined for reuse or recovery as established in the National Waste Framework Plan (PEMAR) for the year 2020.

A substantial share of hazardous waste disposed of in Andalusia is imported. In 2018, Andalusia generated 327,646 tonnes of hazardous waste, nearly half of which came from the waste recovery sector (26%) and the extractive and metallurgic industry (22%). The amount of hazardous waste treated and/or disposed of by Andalusia was around two and a half times the hazardous waste generated in the region, as some was imported from other countries or autonomous communities, and some was treated more than once (i.e. there are primary and secondary destinations for hazardous waste). The import of waste is partly due to Andalusia's (and Spain's) available waste treatment facilities and landfills, competitive pricing for waste disposal, and low population density.

Andalusia is a significant producer of raw mining materials, which causes environmental damage. Forty percent of the Spanish mining production value comes from Andalusia and includes fuels, metallic minerals, industrial minerals, ornamental rocks and quarry products. For instance, the province of Almeria within the region of Andalusia concentrates around 60% of the gypsum extracted in Spain. The extraction

of raw materials (also called virgin aggregates) has environmental impacts, such as soil degradation, damage to ecosystem functions and air pollution from fine particles, as well as greenhouse gas emissions from energy use. Reducing the consumption of virgin aggregates and increasing the use of recycled aggregates would reduce environmental impacts related to extraction.

Traditionally, environmental taxes related to resources and waste are predominantly levied at the regional level, but in 2022 the Spanish waste law implemented nationwide waste taxes. At the regional level, Andalusia currently applies a waste landfill tax, as well as a tax on single use plastic bags and at municipal level, waste charges apply to households and businesses. In April 2022 a new national Spanish waste law (Spanish Law 7/2022), which is currently being implemented, introduced two nationwide waste taxes: one on non-reusable plastic packaging and one on landfilling, incineration and co-incineration of wastes. While the new Spanish Waste Law applies lower taxes on landfill compared to Andalusia's current landfill tax on hazardous waste, the Law allows autonomous communities to implement a surtax on the national tax rates. The law also foresees the implementation of a Deposit Refund System for beverage containers if Spain does not meet the collection target of 70% for bottles by 2023 as established in the EU Single Use Plastics Directive.

Recent taxes established at the national level and EU directives have implications for Andalusia's incumbent fiscal legislation and require action to ensure coherence. The existing waste disposal tax of Andalusia applies different categorisation of waste types and higher tax rates than the national tax. As a result, waste disposal would be taxed at a lower rate under the new national tax than under the existing regional tax. In addition, the transposition of the EU Single-Use Plastic Directive into Spanish law (Spanish Royal Decree 239/2018) bans the types of plastic bags that are taxed under the Andalusian plastic bag tax and leaves this regional tax without a tax base. A reform of Andalusia's tax regime is therefore necessary to ensure coherence between regional and national tax policies, as well as to better internalise external environmental costs related to waste management and resource use, including emissions to air or leachate to soil and water.

The main legal possibilities identified at the regional level for waste management and resource use is a surtax on the national waste tax for specific waste streams and taxation of aggregate material extraction. A surtax on the new national waste tax would preserve the existing level of taxation of hazardous waste disposal and maintain the current incentive scheme. Construction and demolition waste are not taxed at the regional level but will fall within the scope of the new national-level law on waste disposal, allowing Andalusia to implement a surtax. The extraction of raw materials is currently not subject to taxation, but environmental taxes on material extraction falls within the regional governments competencies and would help incentivise material recovery, recycling and the use of secondary materials.

Based on the assessment, the following two strategic recommendations for tax reforms are proposed to address the circularity of different economic sectors whilst increasing waste prevention and recycling (Box 4).

Box 4. Strategic recommendations – waste management and circular economy

Reform options for waste disposal taxes

Even with the current regional landfill tax rate for hazardous waste, Andalusia is receiving substantial amounts of hazardous waste and imports would likely increase if tax rates were to be lowered to the levels set by the Spanish Waste Law. The import of waste is partly due to Andalusia's (and Spain's) available waste treatment facilities and landfills, competitive pricing for waste disposal, and low population density.

To avoid an additional influx in hazardous waste imports, **Andalusia should apply a surtax to the national waste disposal tax rate to match the level of the current regional waste disposal tax.** The recommended surtax on the national tax to maintain current tax levels in Andalusia would avoid a surge in waste imports and maintain incentives for material recovery.

To increase material recovery for Construction and Demolition Waste (CDW), it is recommended to **increase landfill tax rates for this waste stream to EUR 5 per tonne (with pre-treatment) and EUR 3 per tonne (without pre-treatment).** As the national tax rate for CDW is low compared to regional taxes applied by other autonomous communities, a surtax on the national tax for CDW is recommended to increase incentives for material recovery in the sector.

Reform options for aggregates extraction taxes

Andalusia could introduce an environmental tax on aggregates to reduce the consumption on virgin aggregates and favour material recycling.

The tax design of such an aggregate tax requires **careful consideration**:

- In order to avoid imports of aggregate material from bordering regions, which apply lower or no aggregate taxes, the tax rate should not exceed 3 EUR per tonne.
- Since no studies are available for Andalusia that assess differentiated environmental impacts of extraction activities by type of material (making it difficult to implement a detailed Pigouvian tax), a straightforward option would be to apply an *ad quantum* flat rate to all aggregates. The drawback of this option is, however, that it would represent a greater relative impact on cheaper materials. For instance, an ad quantum tax of 1.35 EUR/t represents up to 91% of the price of the cheapest aggregates (e.g. clay and loam) and only 11% for the most expensive aggregate (e.g. siliceous sand). As a consequence, impacts on demand will also vary greatly in such a tax setting.
- Alternatively an *ad valorem tax* of 10% of the aggregate value could be charged, which would result in equal impacts on demand for different aggregates. This tax option would however result in less tax revenues and arguably in low-value materials being taxed insufficiently to effectively incentivise a shift to the use of secondary materials.

Based on these considerations, **an intermediate option is recommended, which would take the form of a differentiated ad quantum tax with three tax brackets based on an aggregate's market price.**

In addition, **the tax rate could be differentiated according to the location of the extractive activity** to account for higher environmental externalities in areas with high natural capital. Whilst this further differentiation may lead to greater sector acceptability, it would also complicate implementation.

The taxation of tourist stays

The tourism industry is one of the major economic sectors in the Andalusian economy but generates external environmental costs and places pressure on local infrastructure. While tourism makes important contributions to the regional economy, making up 13% of the region's economy and 14% of its employment, the sector also generates external costs such as pollution, noise and congestion, and overuse of ecosystems such as national parks and beaches. In addition, tourism affects infrastructure needs, as the seasonal inflow of tourists requires investments to increase the capacity of infrastructure such as roads and waste beyond what is required for local residents.

Existing pricing tools may not reflect the external costs or increased infrastructure needs linked to tourism. Some tourists will face a lower water abstraction charge than local residents, as hotels are

considered non-residential urban users and are not subject to the fixed charge or progressive tax rates that apply to residents. As the tax rates applied to non-residential water users do not rise with use, water pricing for the tourism industry may not encourage sustainable use of water. Similarly, rental cars are currently exempt from the national registration tax, which means tourist drivers may also contribute less than local residents to the construction and maintenance of road transport infrastructure. This preferential tax treatment raises concerns regarding visitors' contribution to the external costs they generate and equity in the tax treatment of local residents and visitors.

Some European countries and cities levy tourist taxes to fund municipal expenses, but these taxes typically do not account for the environmental impact of tourism directly. While there is currently no specific tax on tourists in Andalusia, these taxes exist in several European countries at the subnational government level, such as in the cities of Amsterdam and Lisbon, as well as in the Spanish Autonomous Communities of Catalonia and the Balearic Islands (Responsible Travel, 2022[7]). Typically, tourist taxes are a fixed charge per night or are charged as a percentage of the price of the accommodation. Whilst several tourist taxes use revenues to relieve some of the (environmental) pressures caused by tourism, there are few cases in Europe where tourist taxes incorporate environmental criteria explicitly. The tourist tax in the Balearic Islands is a notable example of a tax that incorporates environmental considerations.

Andalusia could consider reducing the preferential tax treatment of the tourism sector in existing levies and, if needed, explore additional options to internalise external environmental costs and fund infrastructure. Reform to existing taxes on use or consumption, such as the water improvement levy, is one option to account for the external costs. This would allow the tax treatment to align more closely with actual costs incurred; for example, tourists using more water would face a higher tax liability. However, as Andalusia does not have direct control over certain taxes, the scope for action at the regional level will be limited in some policy areas. Where reform of existing taxes would not be legally or politically feasible or where existing taxes would not be sufficient to cover external costs, Andalusia could explore alternate options to internalise these costs such as a tourist tax. In addition, a tourist charge could account for the costs of constructing and maintaining additional infrastructure capacity, which is only used during tourism peaks and could incorporate environmental impacts of tourist activities, which cannot be reflected by reforming existing taxes. However, care should be taken when using proxy measures that do not reflect actual external costs; for example, higher rates on more luxurious lodging reflect the greater environmental impact, but do not incentivise tourists to reduce this impact.

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Notes

[1] DG REFORM project 21ES30 ("Technical support for an integral reform of the environmental tax legal framework of the Autonomous Region of Andalusia) under the conditions set in the DG REFORM/OECD Framework Delegation Agreement Reform/Im2021/006.

[2] The main GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and F-gases.

[3] The main air pollutants are sulphur oxides (SOx) and nitrogen oxides (NOx) (generally expressed as quantities of SO_2 and NO_2), carbon monoxide (CO), ammonia (NH_3), volatile organic compounds excluding methane (NMVOC), particulate matter (PM).

[4] External costs in road transport do not only relate to private driving i.e. passenger cars that are registered in the region (which are at the centre of the analysis) but can come from drive-through traffic, tourist and company cars, as well as non-passenger cars such as heavy and light duty vehicles, motorcycles, etc. These driving and vehicle types are not considered in detail in the analysis.

[5] The Euro emission standards for vehicles (set out in European Regulations 715/2007 and 595/2009) set limits on the emissions of air pollutants for vehicles. Recently, the European Commission presented a proposal of a new Euro 7 standard to further reduce air pollution from vehicles and to improve air quality (European Commission, 2022[8]).

[6] The White Book for Tax Reform in Spain also suggest such a reform proposal at the medium term, namely a tax on the actual use of vehicles that varies according to location, time and type of vehicle (Comité de personas expertas (2022[1])). Such a charge would replace most of the existing taxes in road transport (fuel, vehicles) and also those on congestion and infrastructure (should they be introduced). Such a charge would best be implemented gradually and considering potential distributional impacts – likely through the help of pilot evaluations (Labandeira (2022[2])).