Policy Instruments for Managing Road Vehicle Emissions in the Western Balkans

Sustainable and Green Mobility
Transport and Energy Community Joint Workshop
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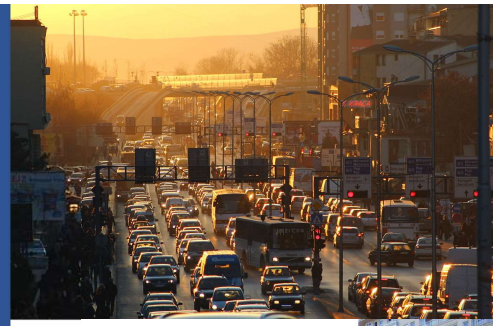
Eduardo Espitia
Transport Specialist
Europe and Central Asia, World Bank (IECT1)



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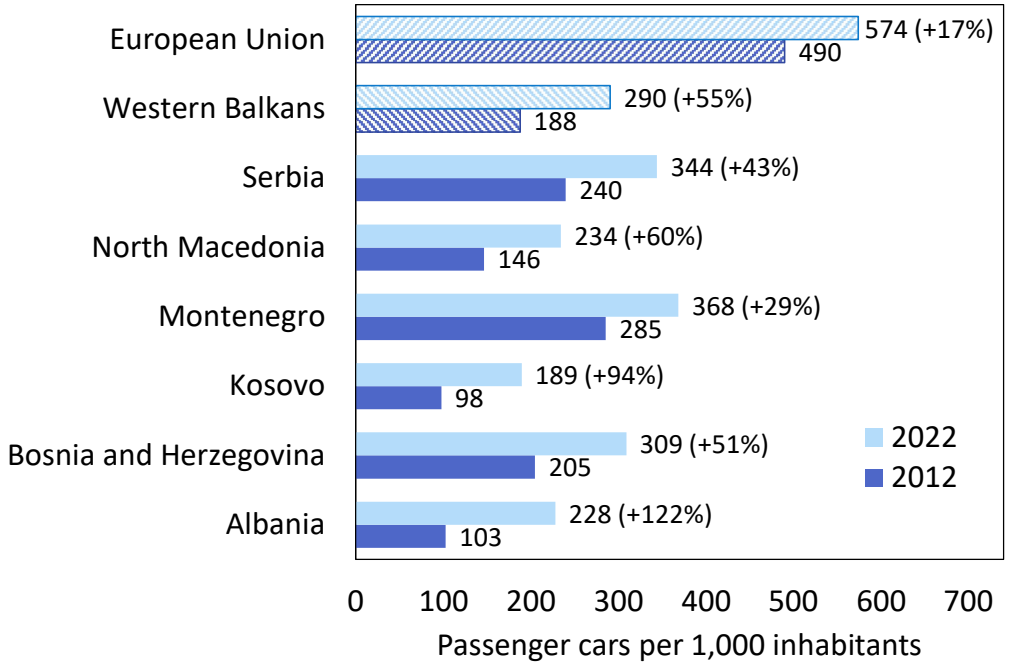
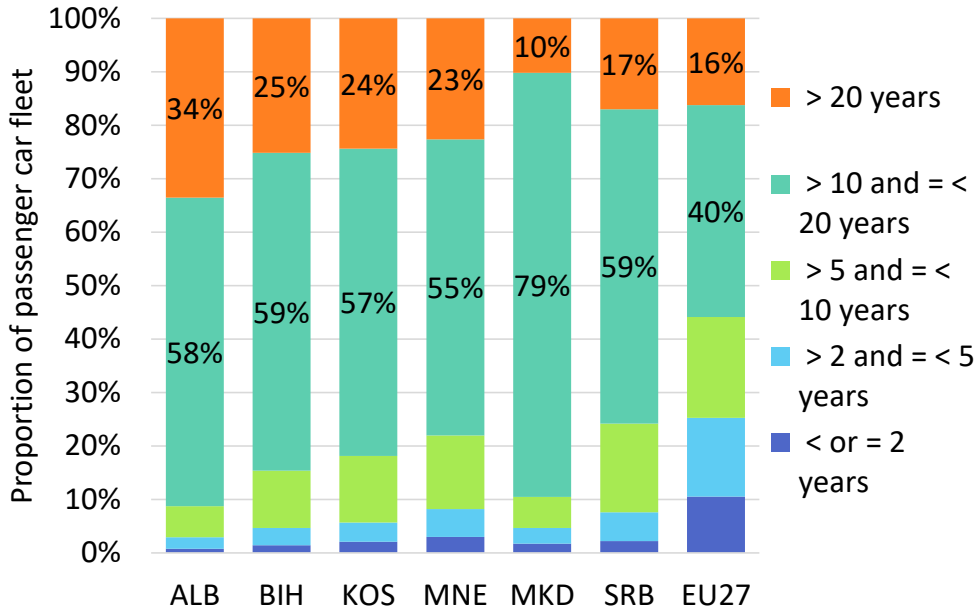
Baseline

- **Increasing motorisation rates**
- **Old fleet** (most vehicles older than 10 years)
- **Second-hand vehicle imports** represent around 70 – 90% of first registrations.





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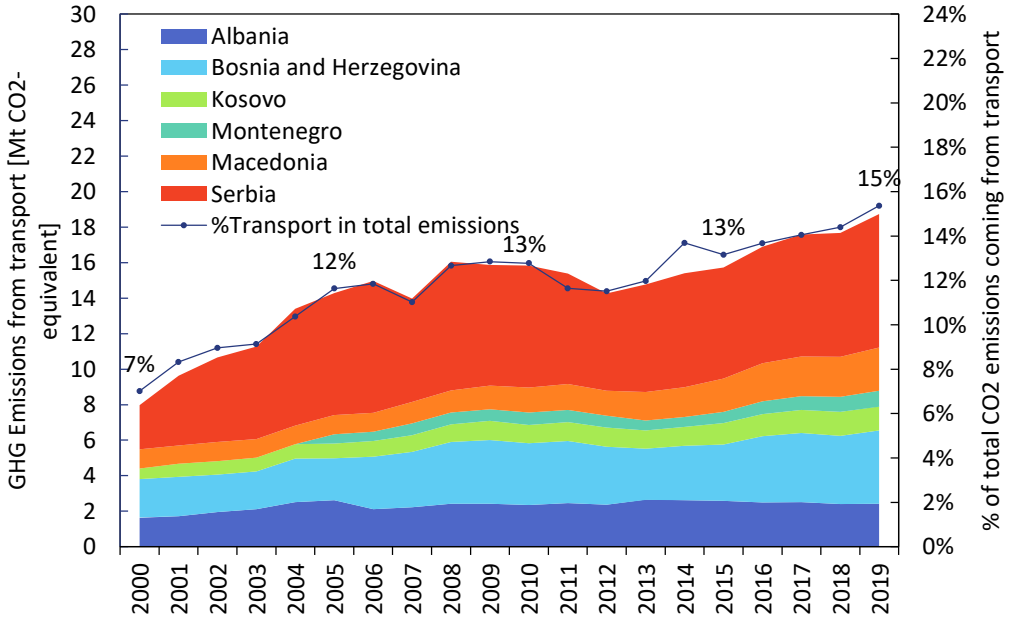
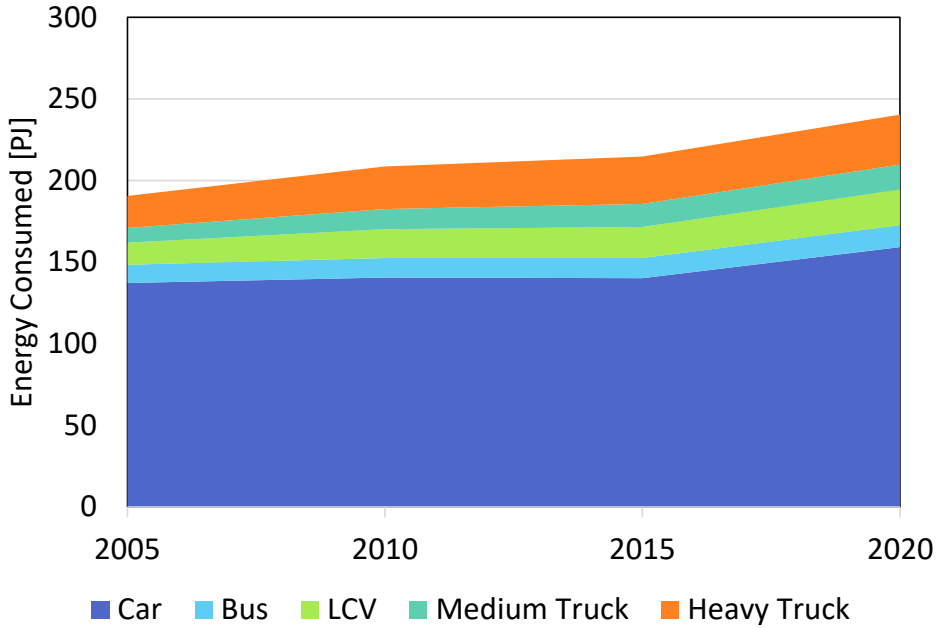
Baseline

- Total **GHG emissions from road transport (15%)** in the region increasing faster than other sectors.
- Most transport emissions are coming from **Road Transport**
- GHG emissions from road transport are not likely to peak soon if no **policy action** is taken
- Transport decarbonisation agenda also contributes to **energy security**

Total GHG emissions from road transport

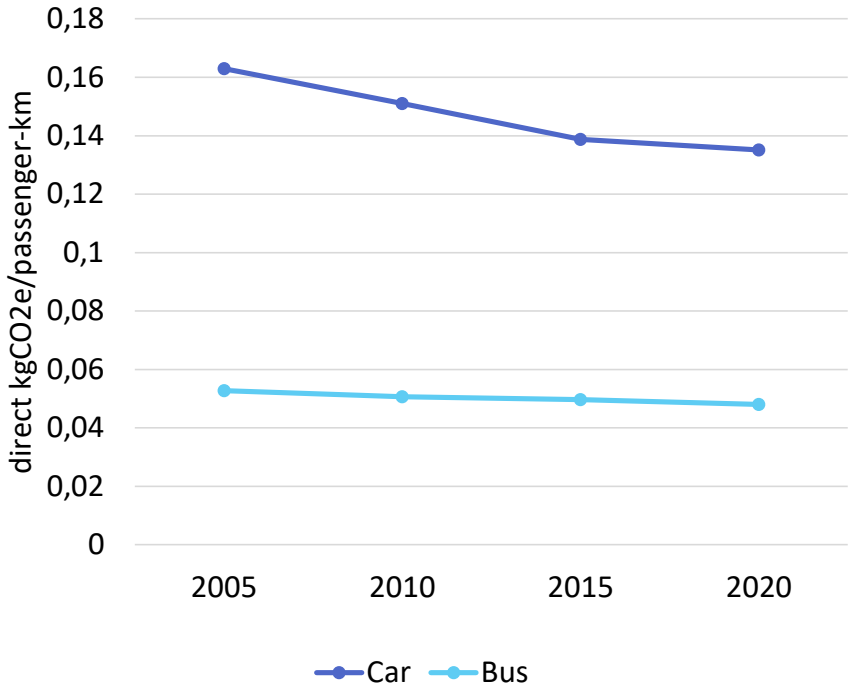


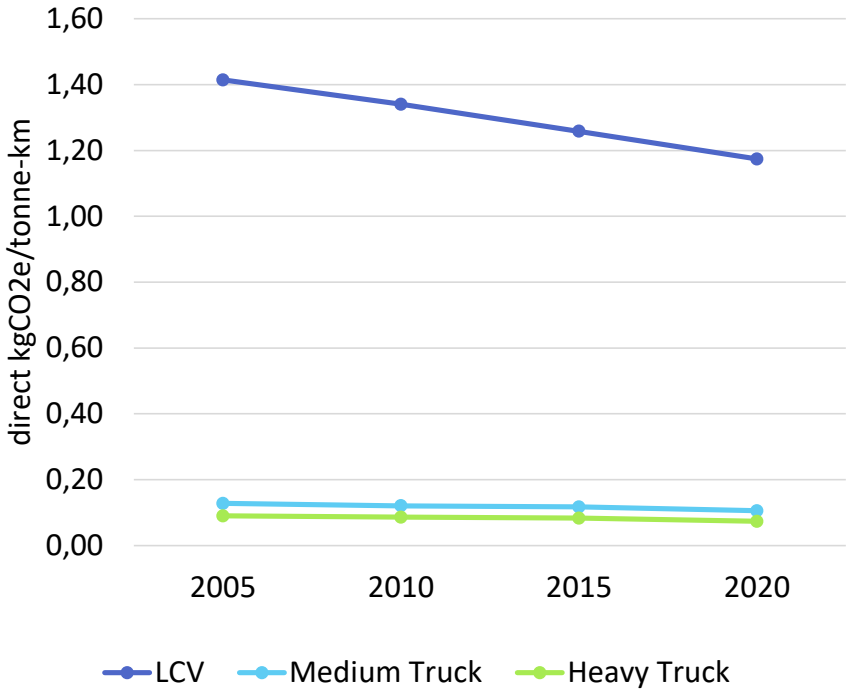
Total energy consumption from road transport (PJ)



Average **carbon intensity** has decreased, but not enough to offset increased activity levels:

Direct GHG emissions (kgCO2e) per passenger-km (left) and per tonne-km (right)





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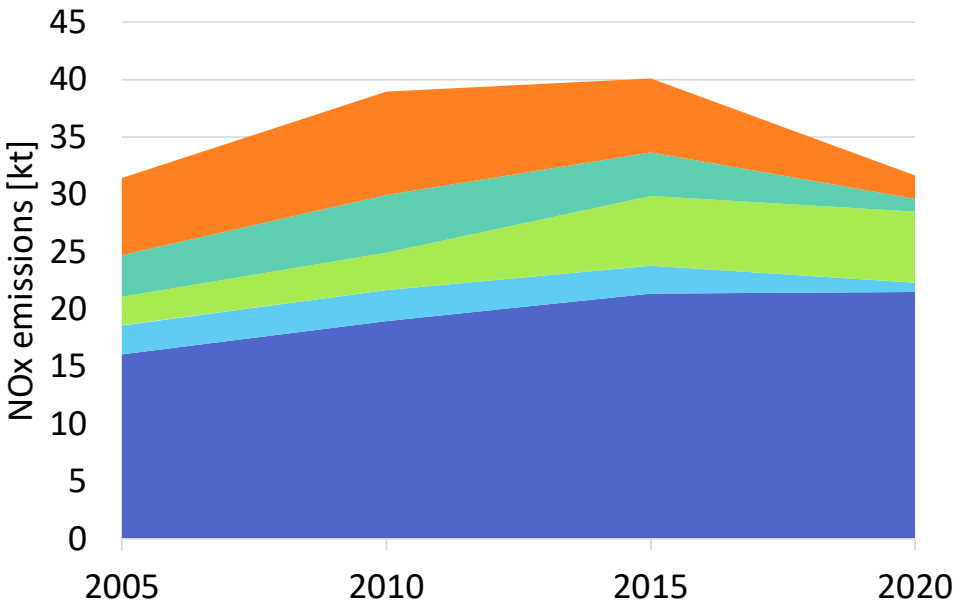
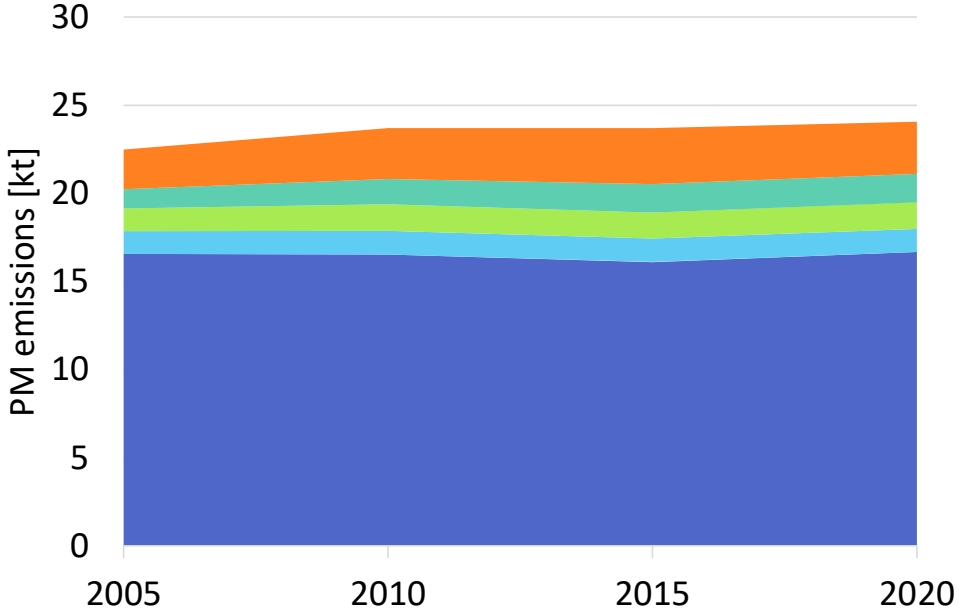
Local pollutant emissions

9 out of the 15 most polluted cities in Europe in 2022 were found in the WeBa according to the World Air Quality Report 2022

Total NOx emissions by type of **road vehicle**, WeBa



Total PM emissions from type of **road vehicle**, WeBa



Car Bus/Coach LCV Medium Truck Heavy Truck

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Screening of Policy Measures (34 measures)

Environmental vehicle regulations	**M1**	**New vehicle emission standards** for local pollutants, convergence with EU regulation
	M2	Maintain **import bans for some used road vehicles** and make them stricter over time
	M3	Implement **vehicle access regulations**
	M4	Converge to **EU carbon emission regulations for light duty vehicles**
	M5	Converge to **EU carbon emission regulations for heavy duty vehicles**
	M6	Introduce **vehicle labelling** for both new and used vehicles
	M7	Regulatory requirements for **energy efficiency** and **CO_2 emissions** of imported second-hand vehicles
Vehicle technical inspection and fuel quality monitoring	**M8**	Improve **enforcement of emission control tests** as part of vehicle roadworthiness procedures
	M9	Improve **enforcement of vehicle import regulations**
	M10	Align with **type approval** regulation and procedures at EU level
	M11	**Governance reform** with a dedicated agency or improved coordination of the vehicle inspection system
	M12	Improve **fuel quality monitoring**
	M13	Setting **sustainable criteria for biofuels**
	M14	Establish a **motor vehicle information management system**
End-of-life of vehicles	**M15**	Full transposition and implementation of the (revised) **End-of-Life Vehicles Directive**
	M16	Introduce **scrappage programmes**, with fiscal incentives to scrap pollutant cars and purchase cleaner cars
	M17	Adoption of **vehicle registration fees** to cover costs of end-of-life treatment
	M18	Align with the forthcoming EU **Sustainable Battery regulation**

Screening of Policy Measures

Vehicle taxation and pricing instruments	**M19**	**Vehicle registration tax reform**: higher rates for vehicles of higher CO_2/km and higher pollutant emissions
	M20	**Vehicle circulation tax reform:** higher rates for vehicles of higher CO_2/km and higher pollutant emissions
	M21	Introduce **feebates** (i.e. a bonus/malus system) for the purchase of EVs
	M22	Establishing a **regional platform for e-tolling**
	M23	**ETS (carbon market) for road transport fuels**, to eventually converge with the forthcoming ETS2 at EU level
	M24	**Carbon tax** on road fossil fuels
	M25	Increase **fuel excise duty** for diesel and petrol
Promotion of e-mobility and other low carbon technologies	**M26**	Improve **governance in e-mobility,** improved coordination or creation of dedicated agencies/departments
	M27	Setting new or maintaining current **VAT exemptions for EVs** (including e-bikes and e-scooters)
	M28	Establishing **subsidies** for the purchase of new EVs
	M29	**Regulatory requirements** for the roll out of electric vehicles in public and private fleets
	M30	**Retrofitting programme** for buses and public fleet vehicles
	M31	Regulatory requirements regarding the **roll out of publicly accessible charging infrastructure** for EVs (AFIR)
	M32	Create the **framework for private investment** in charging infrastructure (pricing, licensing, incentives)
	M33	Infrastructure programme targeting **highly utilised vehicles**
	M34	Regulatory requirements **for off-street charging infrastructure**

Priority Policy Areas:

Policy Actions	Priority	Policy Area Group
Introduce regulations on energy efficiency/CO_2 emissions per km and **stricter regulations on emissions of local pollutants for second-hand vehicle imports**.	TOP	Regulatory requirements
Introduce fleet level EV requirements and other measures for the early transition for highly utilized vehicles	TOP	E-mobility rollout acceleration
Implement differentiated vehicle taxation based on environmental performance where this is not already the case	HIGH	Vehicle and fuel taxation
Increase fossil fuel taxation, alongside redistributional measures to respond to equity-related challenges.	HIGH	Vehicle and fuel taxation
Improve governance and enforcement of roadworthiness procedures and technical inspections	HIGH	Regulatory requirements
Develop a clear policy framework for EV charging infrastructure	HIGH	E-mobility rollout acceleration
Introduce regulations on energy efficiency/CO_2 emissions per km and stricter regulations on emissions of local pollutants for new vehicles	MEDIUM	Regulatory requirements

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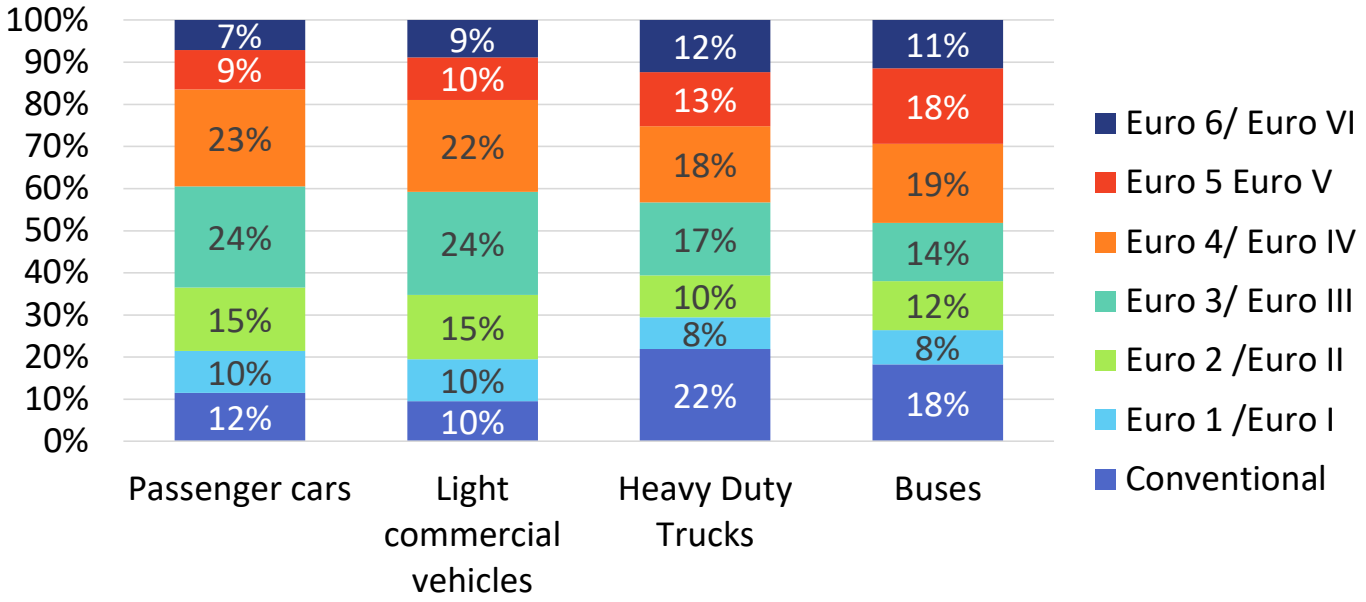
Local pollutant emission regulations

Serbia included a transition to stricter euro standards in the "**Air quality programme for the period 2022-2030**" with gradually stricter minimum Euro standards for second-hand imported vehicles: Euro 5/V from 1st January 2024 and Euro 6/VI from 1st January 2025



Country	Light Duty Vehicles (LDV)		Heavy Duty Vehicles (HDV)	
	New	Used	New	Used
Albania	5	4	V	III
Bosnia and Herzegovina	6	5	VI	V
Kosovo	-	4	-	IV
Montenegro	6	4	VI	IV
North Macedonia	6	4	VI	IV
Serbia	5	3	V	III

Stricter emission regulations on second-hand vehicle imports

Policy Measures with direct impact	Enablers	
Emission regulations on CO_2/km for second-hand vehicle imports.	Type approval (emission measurments)	Vehicle Information System
Local pollutant emission regulations for second-hand vehicle imports.	Labelling / Consumer information	Fuel Quality
	Enforcement of vehicle import regulations	

Assessment

Environmental Impact	• Significant emissions savings on a per vehicle basis • Large share of used vehicles, considerable impact in the short term
Economic and distributional impact	• Potential cost increases would be partially offset by market dynamics (switch to smaller/cheaper cars). • Any resulting negative equity implications could be addressed with ad hoc mitigation measures.

TOP PRIORITY: Environmental benefits are higher the earlier the stricter regulations for second-hand vehicles are adopted

Potential savings

Serbia

Albania, North Macedonia, Kosovo, Montenegro

Bosnia and Herzegovina

Passenger car stock composition, by powertrain in the WeBa region

WeBa country	Latest data year	Diesel%	Petrol%
ALB	2020	74%	26%
BIH	2020	77%	23%
KOS	2019	79%	21%
MNE	2019	76%	24%
MKD	2020	56%	44%
SRB	2019	52%	48%
Total		63%	37%

Percentage reduction in PM, NOx and CO resulting from moving to a higher Euro standard (considering limits of each Euro standard)

Passenger car - Diesel - PM

FROM \ TO	Euro 3	Euro 4	Euro 5	Euro 6	Euro 7
Euro 3	50%	90%	91%	91%
Euro 4	80%	82%	82%
Euro 5	10%	10%
Euro 6	0%

Passenger car - Diesel - NOX

FROM \ TO	Euro 3	Euro 4	Euro 5	Euro 6	Euro 7
Euro 3	50%	64%	84%	88%
Euro 4	28%	68%	76%
Euro 5	56%	67%
Euro 6	25%

Passenger car - Petrol - PM

FROM \ TO	Euro 5	Euro 5b	Euro 6	Euro 7
Euro 5	10%	10%	10%
Euro 5b	0%	0%
Euro 6	0%

Passenger car - Petrol - NOX

FROM \ TO	Euro 3	Euro 4	Euro 5	Euro 6	Euro 7
Euro 3	47%	60%	60%	60%
Euro 4	25%	25%	25%
Euro 5	0%	0%
Euro 6	0%

HDV - Diesel - PM

FROM \ TO	Euro 3	Euro 4	Euro 5	Euro 6	Euro 7
Euro 3	80%	80%	90%	90%
Euro 4	0%	50%	50%
Euro 5	50%	50%
Euro 6	0%

HDV - Diesel - NOX

FROM \ TO	Euro 3	Euro 4	Euro 5	Euro 6	Euro 7
Euro 3	30%	60%	91%	96%
Euro 4	43%	87%	94%
Euro 5	77%	89%
Euro 6	52%

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Equity implications

Potential equity implications are expected to be partially offset by market dynamics.

- Higher vehicle purchase costs as a result of stricter second-hand vehicle regulations
- Motorisation rates are expected to be lower among low-income (and potentially vulnerable) households across the region.
- Buyers may opt to purchase smaller and cheaper vehicles to keep affordability levels

Remaining equity concerns can be addressed **with graduality and potentially compensatory measures:**

- Ad hoc scrappage grants or fiscal incentives for low income (and potentially vulnerable) households and small companies
- Increase investment in public transport and cycling infrastructure in urban areas with a focus on areas with higher presence of vulnerable population.
- A transition period could be adopted to allow affected stakeholders more time to adjust to the new regulations.

Improve governance and enforcement of roadworthiness procedures and technical inspections

Policy Measures with direct impact	Enablers
Emission control tests as part of vehicle roadworthiness procedures	Improved governance of the vehicle inspection Vehicle Information System

Assessment	
Environmental Impact	• Significant air pollution emission reduction (non-compliant share expected to be high).
Economic and distributional impact	• No significant cost impacts for users • Additional monitoring and enforcement costs for authorities. Use of integrated database expected to reduce costs

HIGH PRIORITY: Environmental benefits can be significant assuming governance and enforcing issues can be resolved soon

Differentiated vehicle taxation

Policy Measures
Reform of vehicle registration tax with higher rates for vehicles with higher CO2/km and higher pollutant emissions
Reform of vehicle circulation tax with higher rates for vehicles with higher CO2/km and higher pollutant emissions

Assessment	
Environmental Impact	• Important to provide price signals to consumers. The case of North Macedonia shows that impacts on consumer choices can be significant. • Emission savings occurring over time, through vehicle stock replacement and/or growth.
Economic and distributional impact	• Cost impacts for vehicle users dependent on the details of the reform, and generally leading to net savings in a TCO basis, thanks to energy efficiency improvements. • Unlikely to be sufficient on its own to trigger transformative changes in powertrain choices, but it can support vehicle electrification.

HIGH PRIORITY: Important for countries with taxation structures that are not differentiated based on environmental performance.

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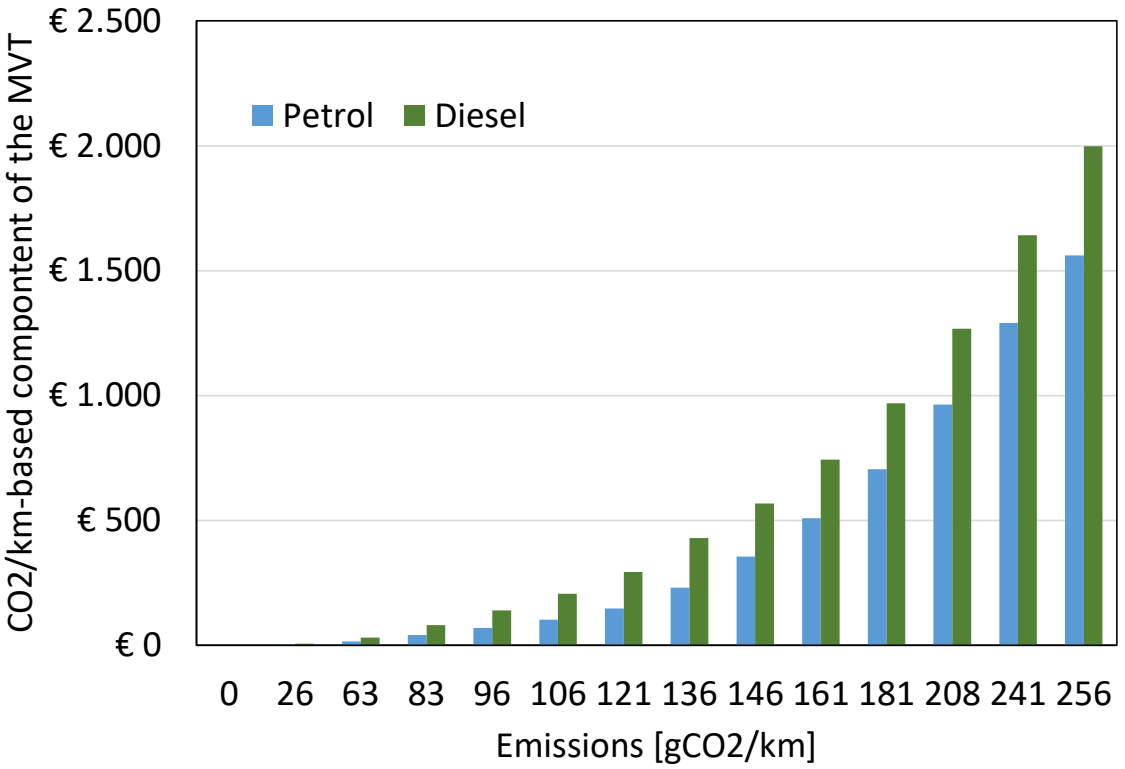
Differentiated vehicle taxation – The case of North Macedonia

- The 2020 reform introduced an specific tax component to account for the vehicle's CO2 emissions (g CO2/km) with increasing rates per unit of emission for more pollutant vehicles , in addition to a tax component dependent on the vehicle value.
- The reform included a full exemption from the motor vehicle tax to Battery Electric Vehicles.
- Fiscal revenues from vehicle registrations doubled
- Decreased market share for energy inefficient vehicles and increased purchases of more environmentally friendly vehicles



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Policy Recommendations

- **TOP PRIORITY**: Given the import of large quantities of second-hand vehicles, **pollutant and CO2 emission control policies for second-hand vehicles should be prioritised.**
  - ❖*Key enabler: Access to **EUCARIS** database*

- **TOP PRIORITY:** To facilitate the transition of vehicle fleets to EVs and in parallel with the deployment of charging infrastructure, **mandate that a share of vehicles in public (and eventually private) fleets is electric**
  - ❖*Key enabler: **Retrofitting** as a way to reduce capital cost and increase replacement rate*

- **HIGH PRIORITY: Charging infrastructure is needed to boost the uptake of electric vehicles.** Policies to support their deployment and attract private investment should be prioritised.
  - ❖*Key enabler: **Governance** to improve planning and reduce administrative burden*

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Policy Recommendations

- **HIGH PRIORITY:** When countries identify an opportunity for fiscal reform, they should consider **updating vehicle and fuel taxes**
  - ❖*Key enabler: Alignment with **EU framework***

- **HIGH PRIORITY:** Likely large share of non-compliant vehicles is in circulation. Assuming appropriate enforcement, **reforming roadworthiness procedures to ensure compliance with Euro standards** can lead to significant air quality benefits.
  - ❖*Key enabler: **EUCARIS** database as a blueprint for an integrated database*

- **MEDIUM PRIORITY:** Aligning with the EU policy framework will mean considering the introduction of **emission control policies for new vehicles**
  - ❖*Key enabler: Coordination to improve **monitoring and enforcement procedures***

Concluding remarks

- A coordinated and evidence-based approach to policy reforms is likely to yield large benefits in terms of **air quality, GHG emissions, fiscal revenues and economic development**. Overall, these are powerful incentives for action at local level, with the support of international stakeholders.

- **EU actions:**
  - Facilitate access to EUCARIS database
  - Roadworthiness checks on vehicles that are exported (as part of revised EU Roadworthiness Directive)
  - Increase capacity building efforts
  - Targeted financial support for infrastructure

- **Transport Community actions:**
  - Facilitate exchange of vehicle technical data at regional level and access to EUCARIS
  - Regional coordination on charging infrastructure planning and interoperability, and on vehicle regulation

- **World Bank** to continue to provide financial support and technical advice to advance policy reforms in these areas

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Thanks

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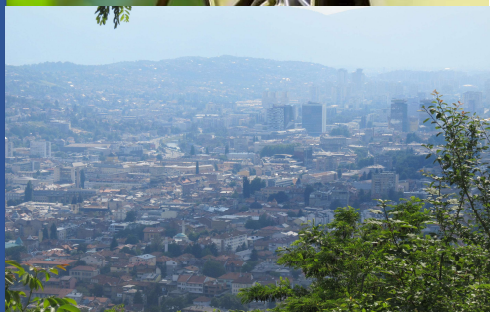

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