

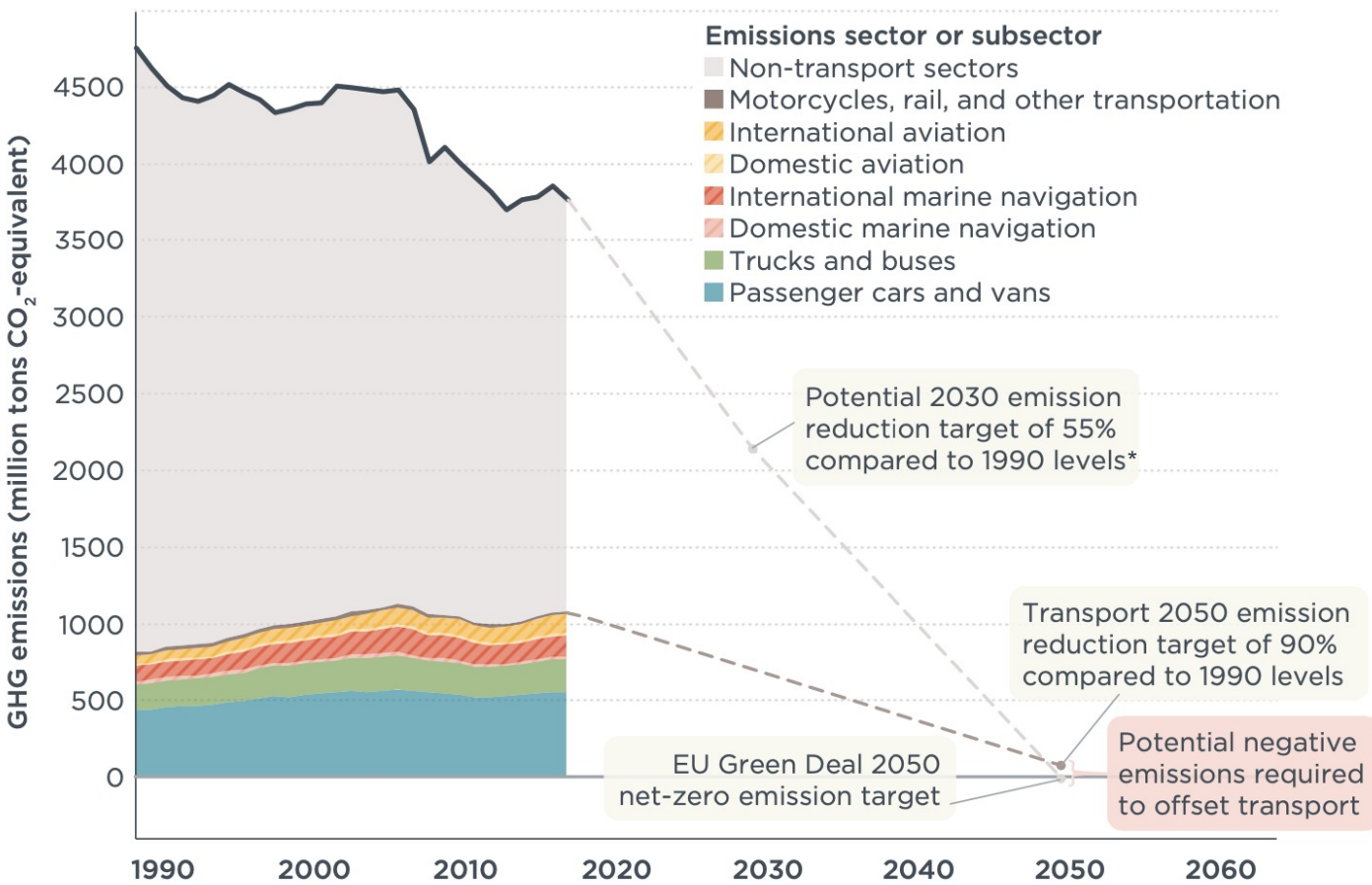
# Decarbonizing EU transport: the role of CO<sub>2</sub> standards for passenger cars and vans

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# GHG emissions in the EU

historical and targeted

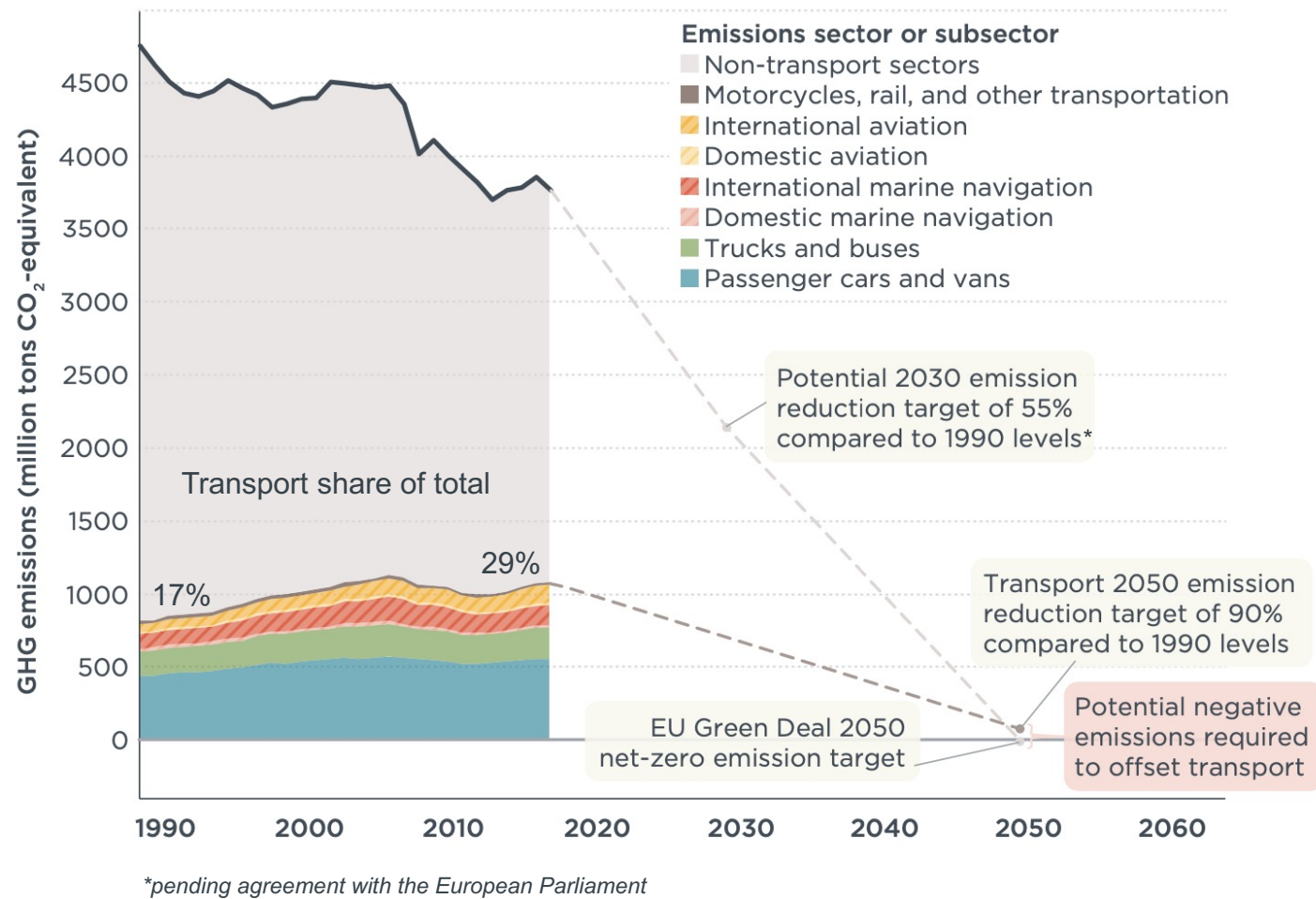


\*pending agreement with the European Parliament

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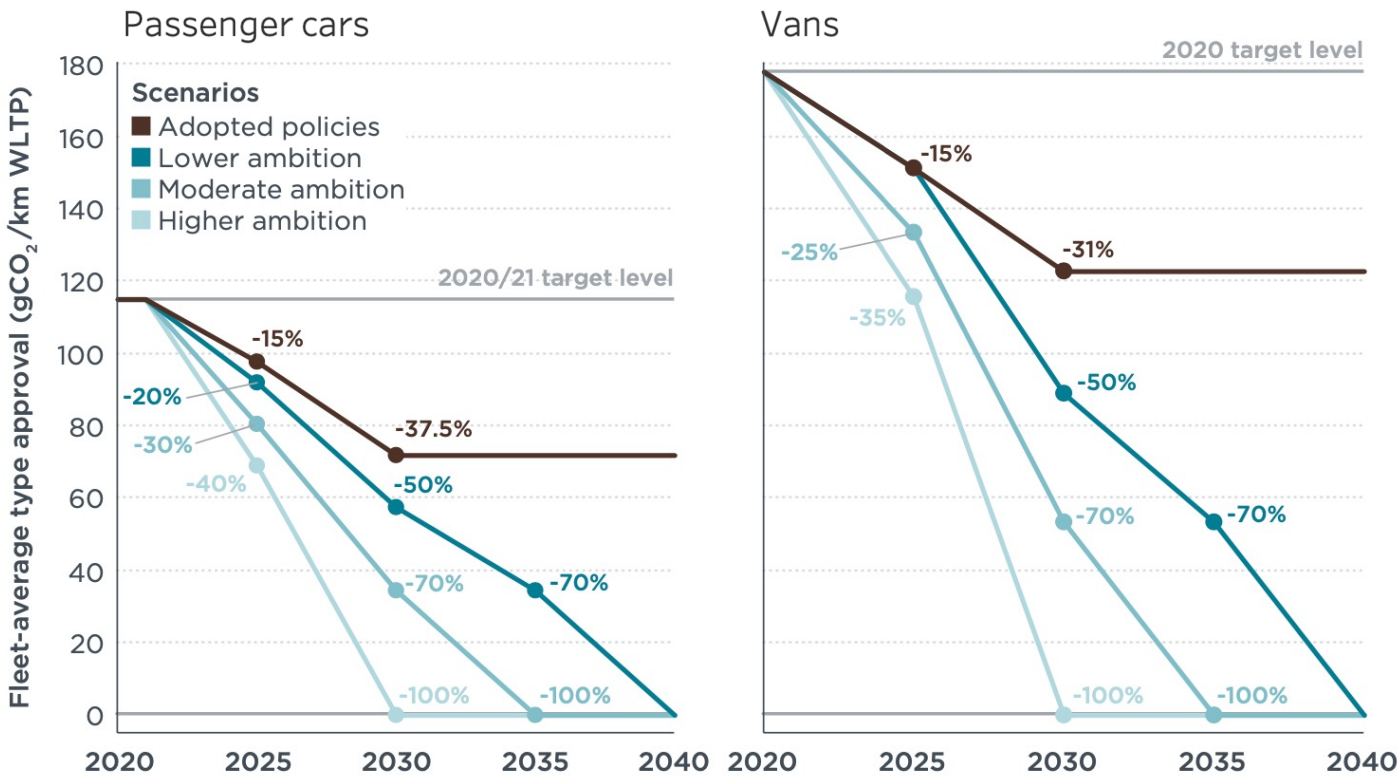
Transport sector emissions remain a key challenge in achieving the EU's proposed climate targets.



# Policy scenarios

We consider:

- Type approval targets
- ZLEV benchmarks
- PHEV uptake for passenger cars
- Real-world CO<sub>2</sub> gap



Data labels: % reduction from 2020/21 target levels

## Adopted policies scenario

- OEMs meet fleet-wide type approval targets
- OEMs exceed ZLEV benchmarks by 5% for cars
- Maintain current ZEV:PHEV ratio for cars
- 1% annual growth in real-world CO<sub>2</sub> gap to 2030

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## New policy scenarios

### Passenger cars and vans

### Trucks and buses

	100% ZEV target	Annual ICE efficiency improvement*	100% ZEV target	Annual ICE efficiency improvement (post-2025)
<b>Lower ambition</b>	2040	<i>Cars: 0.9% to 2025, then 2.3% to 2035 Vans: 0.4% to 2025, then 2.0% to 2035</i>	2050	<i>MDTs and buses: 2.9% to 2040 HDTs: 1.9% to 2040</i>
<b>Moderate ambition</b>	2035	<i>Cars: 4.3% to 2025, then 1.0% to 2030 Vans: 2.9% to 2025, then 0.6% to 2030</i>	2045	<i>MDTs and buses: 4.3% to 2035 HDTs: 3.7% to 2035</i>
<b>Higher ambition</b>	2030	<i>Cars: 5.7% to 2025 Vans: 1.2% to 2025</i>	2040	<i>MDTs and buses: 8.4% to 2030 HDTs: 7.2% to 2030</i>

# Modeling results

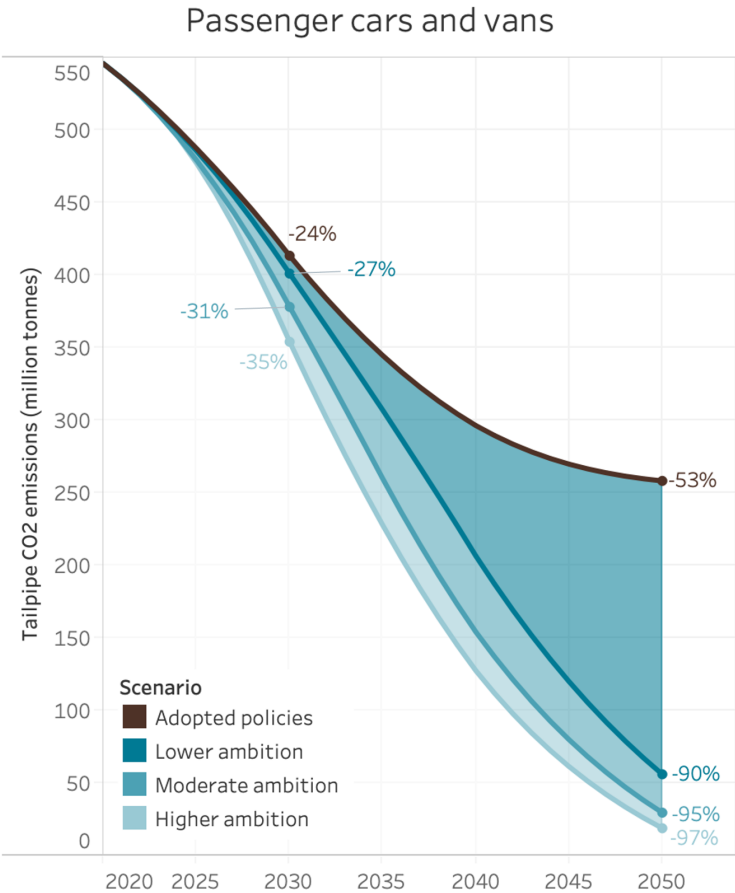
# CO<sub>2</sub> emission trajectories

## LDVs

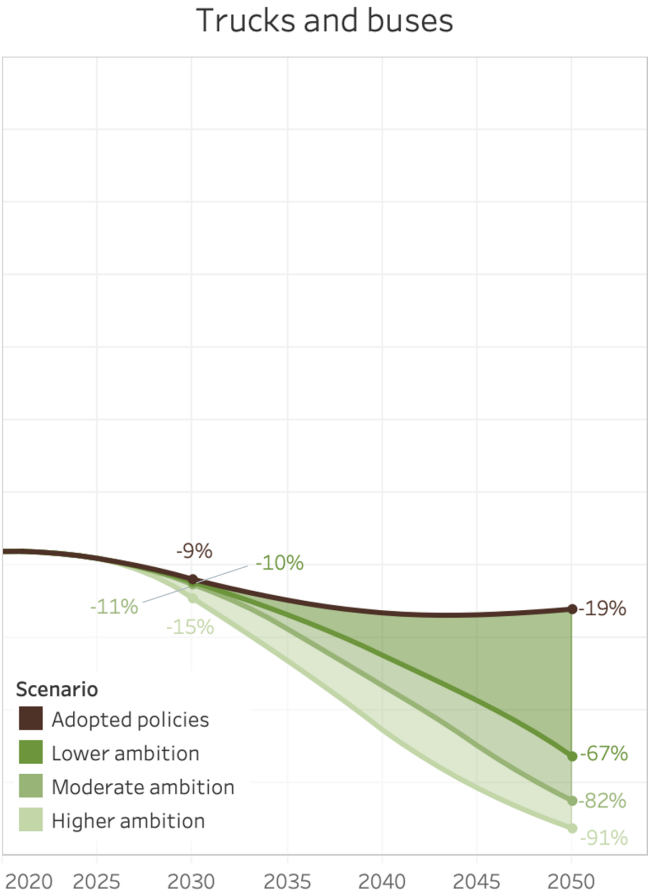
- Relatively strong decarbonization by 2050 in all new policy scenarios, owing to 100% ZEV targets

## HDVs

- Slower ZEV uptake drives wider spread in 2050 emissions



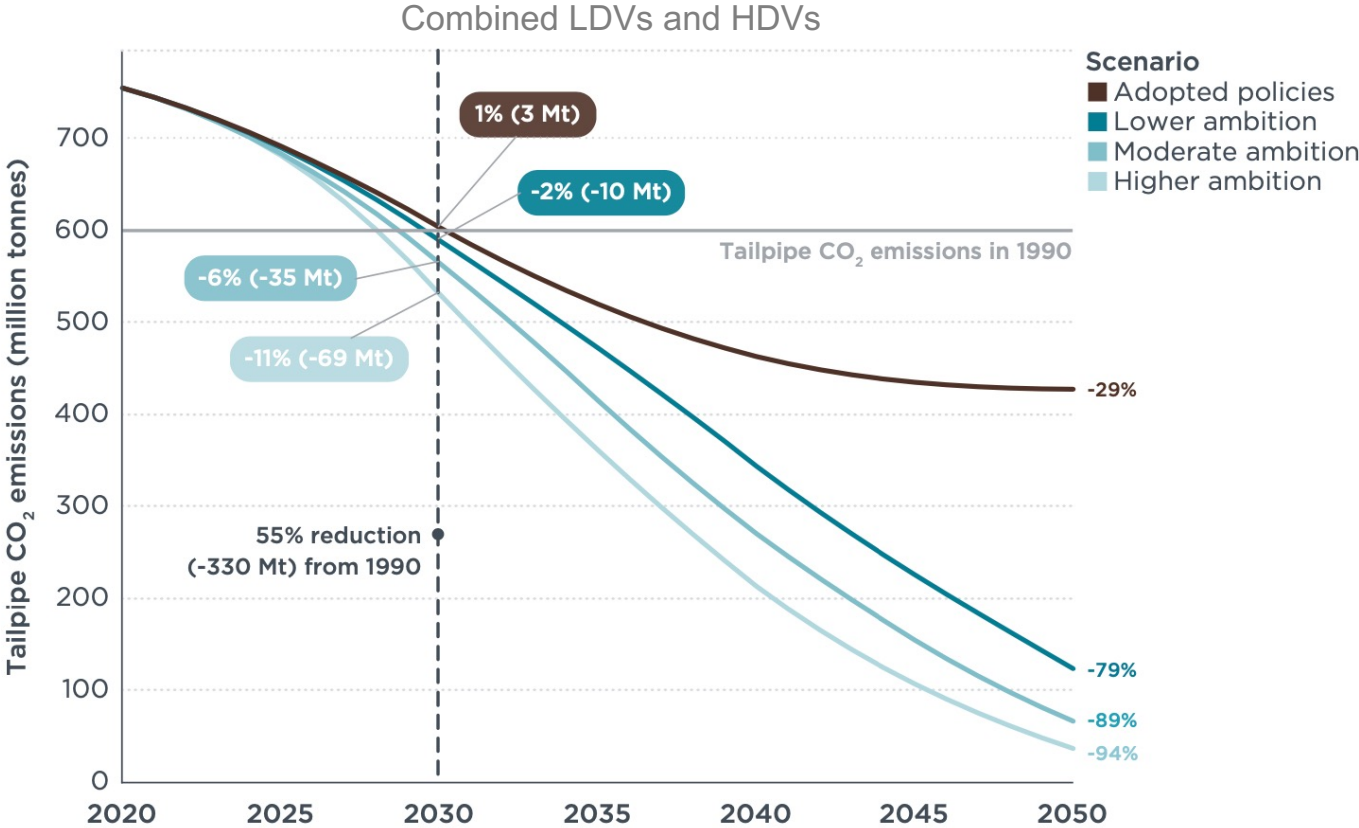
Data labels: % reduction from 2020





# Road transport in 2030

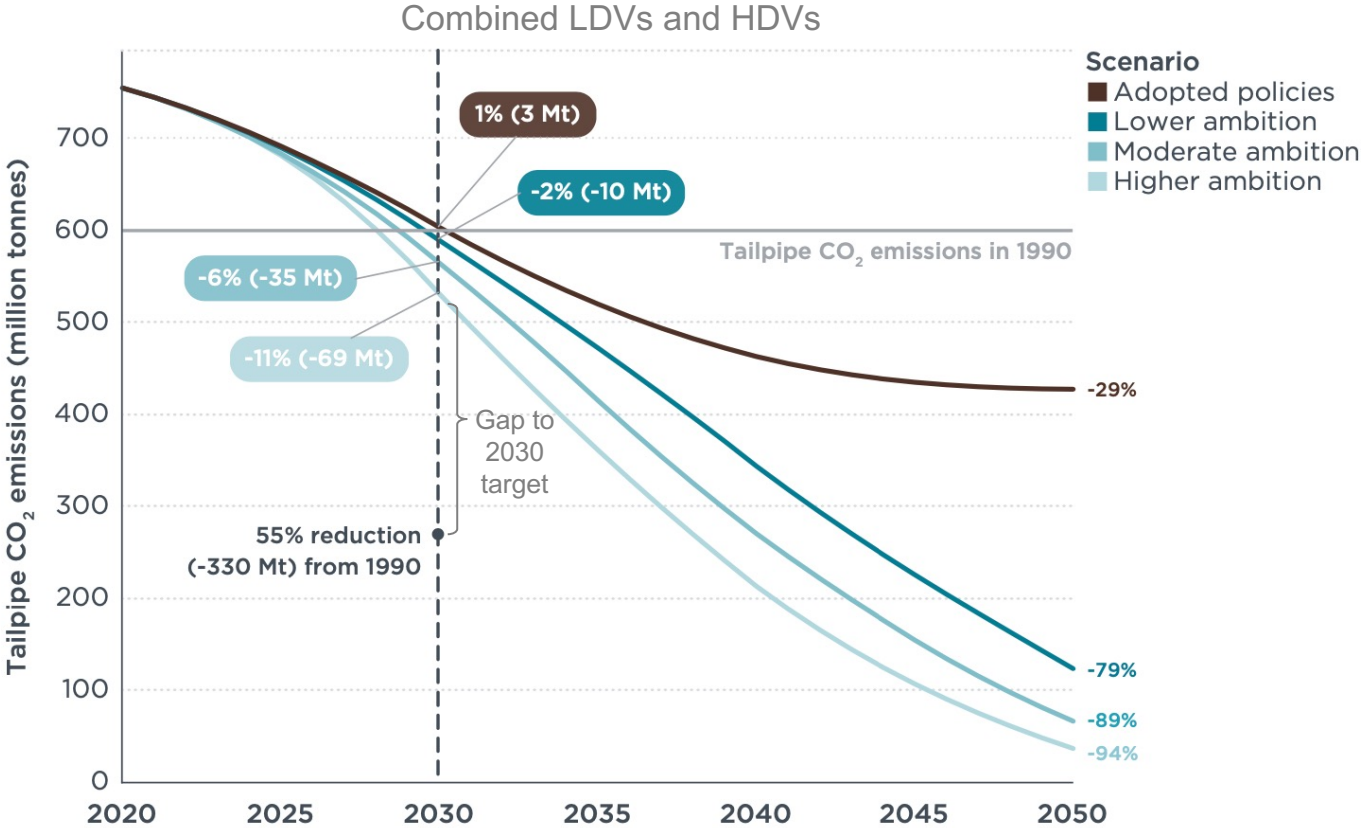
- Up to 11% reduction by 2030 relative to 1990



Data labels: % reduction from 1990 (absolute reduction from 1990)

# Road transport in 2030

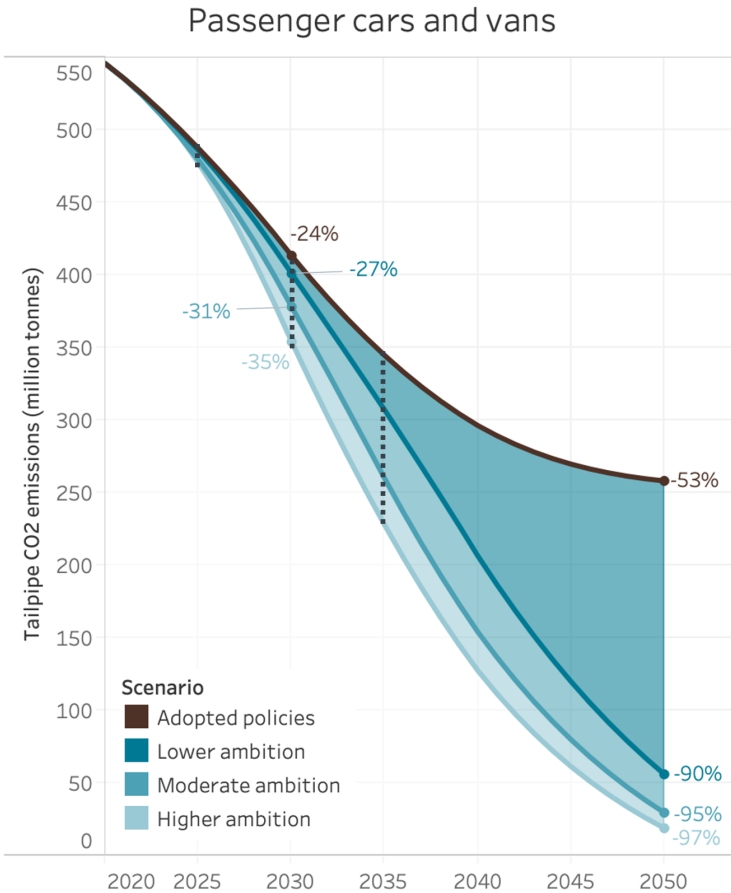
- Up to 11% reduction by 2030 relative to 1990
- Complementary policies and/or other sectors would need to reduce emissions by an additional 260–330 Mt CO<sub>2</sub>e



Data labels: % reduction from 1990 (absolute reduction from 1990)

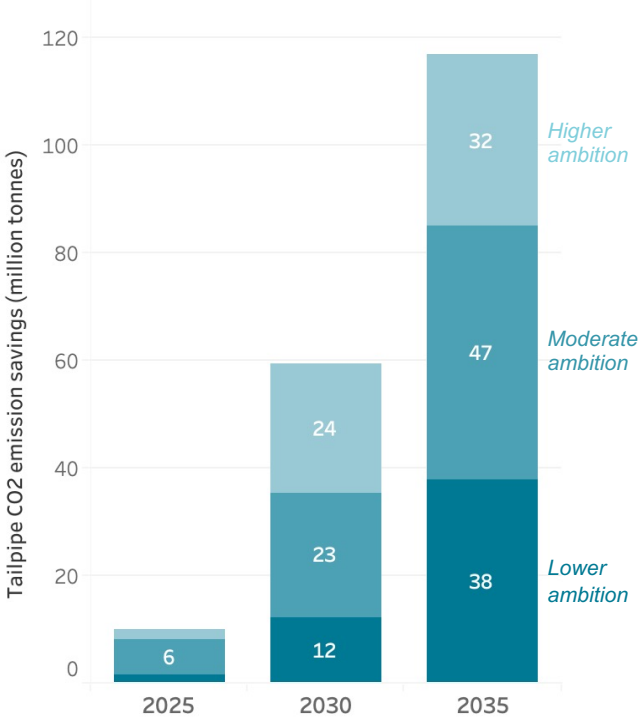
# LDVs only in 2030

- Emission savings are 4.8 times greater in higher vs. lower ambition scenario in 2030



Data labels: % reduction from 2020

## CO<sub>2</sub> emission savings compared to adopted policies

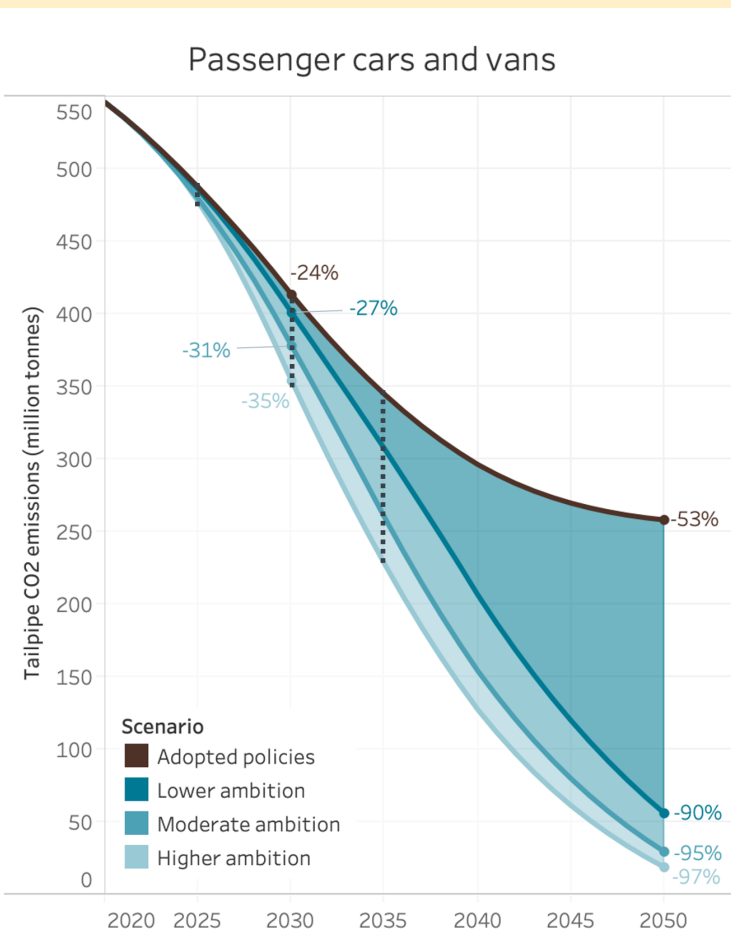


Data labels: incremental emission savings

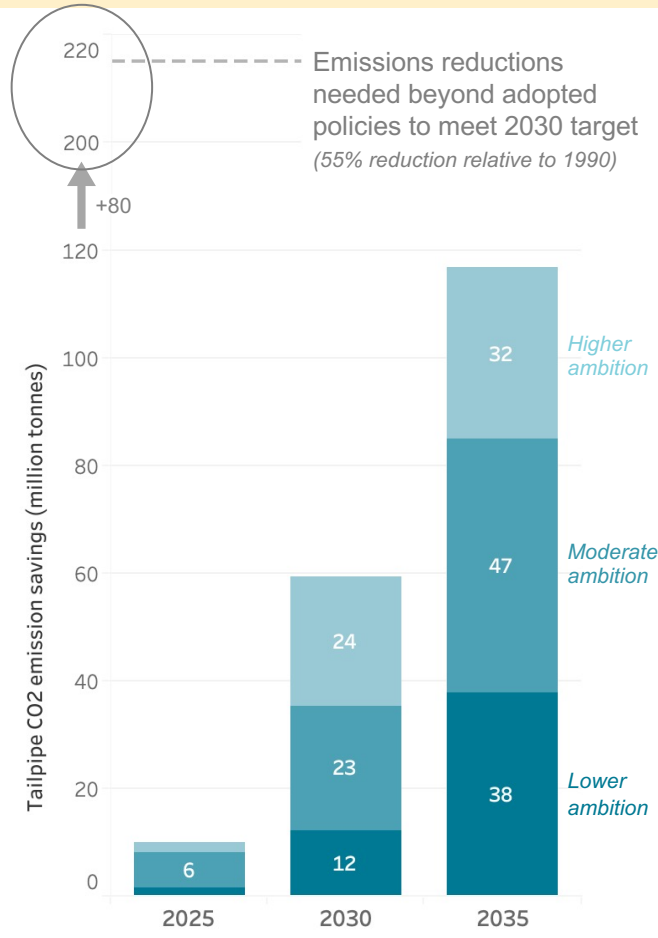
# LDVs only in 2030

- Emission savings are 4.8 times greater in higher vs. lower ambition scenario in 2030
- LDVs would achieve a 20% reduction from 1990 levels by 2030 in higher ambition scenario

(right panel plus 27 Mt CO<sub>2</sub> savings from adopted policies)



Data labels: % reduction from 2020



Data labels: incremental emission savings

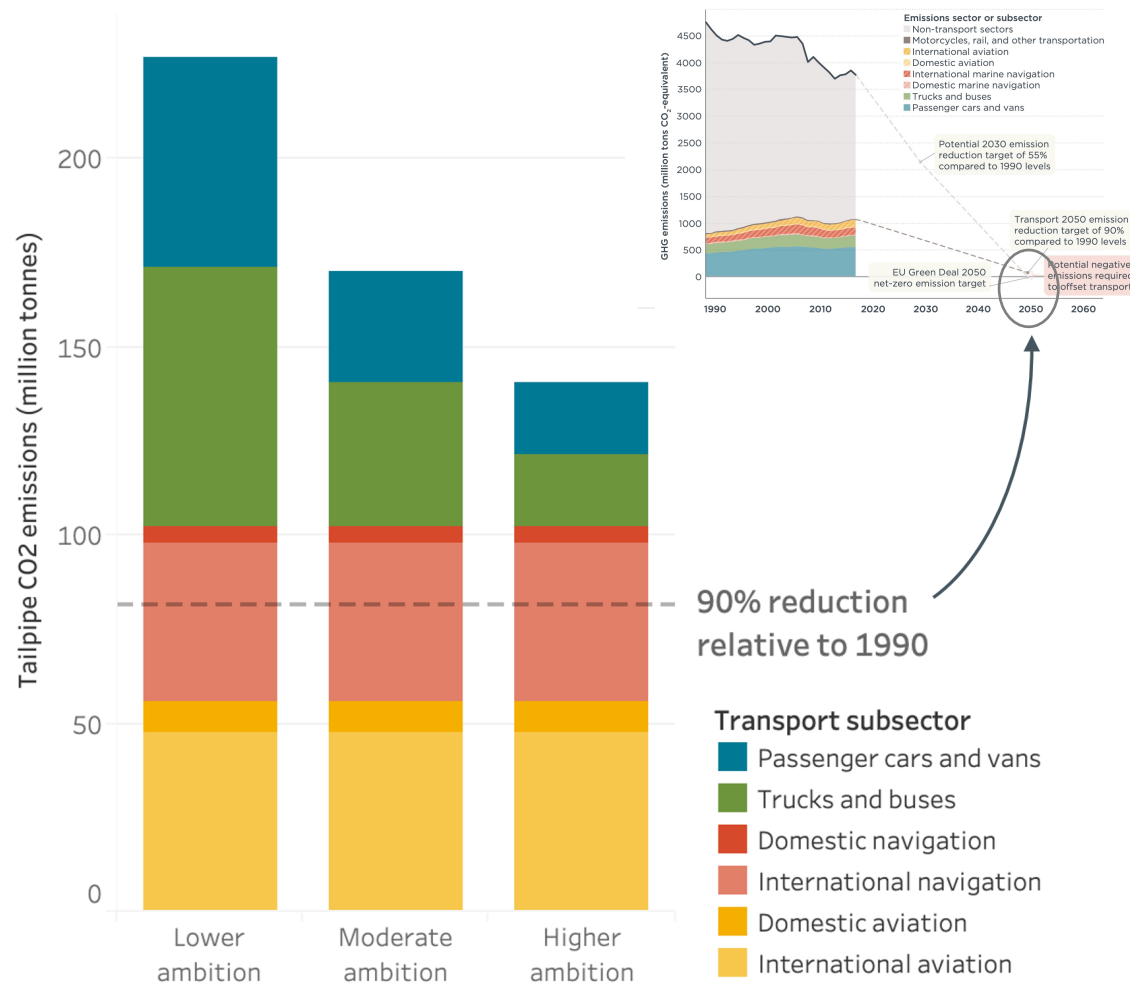
# Transport sector in 2050

*based on an ambitious yet feasible emissions trajectory*

Subsector	2018 emissions Mt CO <sub>2</sub>	2050 projections Mt CO <sub>2</sub>	2050 ambition
Marine navigation	153	47	75% reduction from 2008 levels by 2050
Aviation	143	56	50% reduction from 2005 levels by 2050
Motorcycles	9	0	Net zero by 2050
Rail	4	0	
Other road transportation	<1	0	

# Transport sector in 2050

- No scenario achieves the EU Green Deal's 90% reduction target
- This assumes ambitious mitigation in other transport subsectors (e.g., ships, planes, rail)
- Even if target is achieved, negative emissions will be needed in non-transport sectors to reach net-zero



## Cumulative CO<sub>2</sub> emissions savings by 2030 and 2050

- Cumulative 2021–2030 emission savings are 5.1 (LDVs) and 7.5 (HDVs) times greater in higher vs. lower ambition scenario
- By 2050, moderate ambition scenario saves ~1 Gt CO<sub>2</sub> more than lower ambition, and higher ambition saves additional ~0.5 Gt CO<sub>2</sub> compared to moderate ambition (LDVs)

	Passenger cars and vans		Trucks and buses	
	2030	2050	2030	2050
Lower ambition	40	2,040	4	790
Moderate ambition	130	2,970	8	1,200
Higher ambition	200	3,520	30	1,720

Cumulative tailpipe CO<sub>2</sub> emissions savings from 2021 to 2030 and 2021 to 2050 under new policy scenarios relative to the adopted policies scenario in million tonnes

## Recommendations

### LDV type approval targets

- Strengthen 2025 targets to drive near-term ICE efficiency improvements and ZEV uptake
- Set 2030 targets as close to 0 gCO<sub>2</sub>/km as feasible

### ICE efficiency

- Add a CO<sub>2</sub> emissions cap for ICE vehicles to prevent backsliding

### Real-world CO<sub>2</sub> gap

- Expedite the Commission's timeline for real-world enforcement of CO<sub>2</sub> emissions (i.e. adjust manufacturers' average CO<sub>2</sub> emissions based on real-world data)

### PHEVs

- Use real-world data to adjust the utility factor assumed in the regulation
- At the member state level, only incentivize PHEV models designed for electric driving (i.e. capable of rapid charging with limited combustion engine power)



Questions?  
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[s.diaz@theicct.org](mailto:s.diaz@theicct.org)

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ON CLEAN TRANSPORTATION

# Appendix

# Activity growth assumptions

*based on EU Reference Scenario 2016*

