

# EXECUTIVE SUMMARY OF THE STUDY "ON THE MOBILE AIR CONDITIONING (MAC) SECTOR IN ALBANIA"

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**Date:** November 2025

## **PURPOSE**

This study analyzes the development of the Mobile Air Conditioning (MAC) sector in Albania during the period 2019–2025, with a focus on the structure of the vehicle fleet, refrigerant use, the sector's climate impact, and the challenges associated with the implementation of the Kigali Amendment and European policies aimed at reducing fluorinated greenhouse gases (F-gases).

## **KEY FINDINGS**

### **1. Significant growth of the vehicle fleet**

The national vehicle fleet increased from approximately 578,000 vehicles in 2019 to more than 917,000 vehicles by mid-2025. Passenger cars and light commercial vehicles account for around 88% of the total fleet and are the main consumers of refrigerants in the MAC sector.

### **2. The fleet continues to be dominated by older vehicles**

Despite the gradual introduction of more modern vehicles, approximately half of the national fleet still consists of vehicles manufactured before 2005. This situation maintains a high dependence on the refrigerant R134a and increases the risk of leaks and greenhouse gas emissions.

### **3. R134a remains the dominant refrigerant**

In 2025, R134a still represents approximately 85% of the refrigerant market in the MAC sector, while R1234yf accounts for around 15%. The use of CO<sub>2</sub> (R744)-based systems remains almost non-existent.

### **4. Gradual transition toward low-GWP refrigerants**

The number of vehicles using R1234yf has increased significantly across all categories, particularly among passenger cars, buses, and agricultural machinery. This indicates that newly imported vehicles are gradually aligning with European standards and the requirements of the Kigali Amendment.

### **5. Emissions remain high**

Estimated emissions from the MAC sector increased from approximately 122,000 tonnes of CO<sub>2</sub> equivalent in 2019 to more than 150,000 tonnes of CO<sub>2</sub> equivalent in 2023–2024. Passenger cars and light commercial vehicles contribute more than 70% of the sector's total emissions.

## **MAIN CHALLENGES**

The study identifies a number of issues that slow the transition toward technologies with lower climate impact:

- Continued use of R134a in vehicles designed for R1234yf.
- Lack of developed systems for refrigerant recovery, recycling, and reclamation.
- Limited technical and infrastructure capacities for refrigerant management.
- Absence of mandatory certification programs for MAC sector technicians.
- Insufficient monitoring, enforcement, and compliance with legal requirements.
- Limited awareness among technicians and end users regarding the proper use of low-GWP refrigerants.

## **RECOMMENDED PRIORITIES**

### **Short-term**

- Strengthen R134a recovery and recycling systems.
- Train and certify MAC sector technicians.
- Improve market surveillance and servicing practices.

### **Medium-term**

- Accelerate fleet renewal.
- Restrict the import of very old vehicles.
- Promote the use of low-GWP refrigerants and establish end-of-life refrigerant collection systems.

### **Long-term**

- Achieve a full and gradual transition to low-climate-impact refrigerants.
- Integrate MAC sector management into national climate, energy, and transport policies.

## **CONCLUSION**

The mobile air conditioning sector in Albania is currently in a transition phase. On the one hand, the aging vehicle fleet continues to sustain high levels of R134a use and the associated emissions. On the other hand, the rapid growth in vehicles using R1234yf demonstrates that the conditions for a gradual transformation toward more climate-friendly technologies are emerging. Accelerating this transition will require coordinated action in import policies, strengthened technical capacities, technician certification, and improved refrigerant management systems.