Decarbonizing French Aviation: Addressing CO_2 Utilization & Modal Shift Challenges

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Vision Behind This Action

Goal: Transform France's aviation sector into a **low-carbon, sustainable industry** by 2040, leveraging CO_2 utilization and shifting short-haul travel to rail.

Current Scenario (2024): The Challenges

- France captures **4.7 Mt CO_2** annually but **99% is used for enhanced oil recovery (EOR)**, locking in fossil dependency.
- Only **1%** of captured CO_2 is used for **Sustainable Aviation Fuel (SAF)**, despite the potential to meet **30% of aviation fuel demand**.
- **Flights emit 72x more CO_2** per person than trains, yet **68% of business travelers prioritize speed over sustainability**.
- CO_2 used for oil extraction offsets only **20% of emissions** from burned crude.
- Without CO_2 recycling, France imports **70% of SAF**, increasing lifecycle emissions by **25% (shipping).**
- 45 industrial plants (cement, steel) can retrofit CO_2 capture for SAF.
- France 2030's **€1.2B aerospace fund** prioritizes CO_2-to-fuel R&D.

Implemented Strategy (2024–2040)

- **CO_2 Utilization Reform:** Mandate **30% of captured CO_2 for SAF** by 2030.
- **Nuclear-DAC Synergy:** Deploy **Direct Air Capture (DAC) at nuclear plants** for 24/7 CO_2 capture.
- **CO_2 Market Creation:** Establish **€200/t carbon pricing for SAF** on Euronext.
- **Rail & Modal Shift:** Expand TGV routes, impose kerosene taxes, and build airport-train hubs to increase rail share.

Future Scenario (2040): A Sustainable Aviation Industry

Expected Outcomes in 2040

- **100%** of domestic aviation CO_2 is recycled.
- **90% rail dominance** for short-haul travel, reducing domestic flights.
- **SAF production reaches 1.5 Mt/year**, covering 50% of aviation fuel needs.
- Aviation emissions reduced by **92% compared to 2025 levels**.

Key Milestones

Year	Action	Expected Impact
2025–2027	Carbon Valorization Act, launch 2 DAC pilot projects	10% CO_2 diverted to SAF
2028–2035	Scale nuclear-DAC hubs, retrofit 20 industrial plants	50% CO_2 used for SAF
2036–2040	Full SAF transition for domestic flights, rail expansion	100% aviation CO_2 recycled

A Call to Action

The transition to sustainable aviation is possible, but requires commitment from policymakers, industry leaders, and citizens. By investing in CO_2 utilization, promoting high-speed rail, and taxing high-emission flights, France can set a global example in decarbonized aviation.