



IFP Sessions

“Alternative fuels : hope and issues”



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Why PSA Peugeot Citroën promotes sustainable biofuels

➤ Sustainable Biofuels bring significant advantages :

❑ Environmental benefits :

- Improve air quality by reducing exhaust gas emissions
- Reduce WtW CO₂ emissions and therefore global warming if strict environmental criteria are applied (cf Renewable Energy Directive under discussion)

❑ Social and economic aspects :

- Diversification for agricultural outlets
- Employment

❑ Energy security :

- Help to limit oil imports
- Contribute to promote the use of sustainable resources

❑ Technical application :

- Liquid fuels
- Require no major modification of the engine/vehicle when blended into petroleum fuels (fuel extenders)

➤ PSA Peugeot Citroën : over more than ten years of experience with biofuels (EtOH and biodiesel)

■ Alternative fuel : PSA Peugeot Citroën in favour of biofuels (1)

BIODIESEL (first generation)

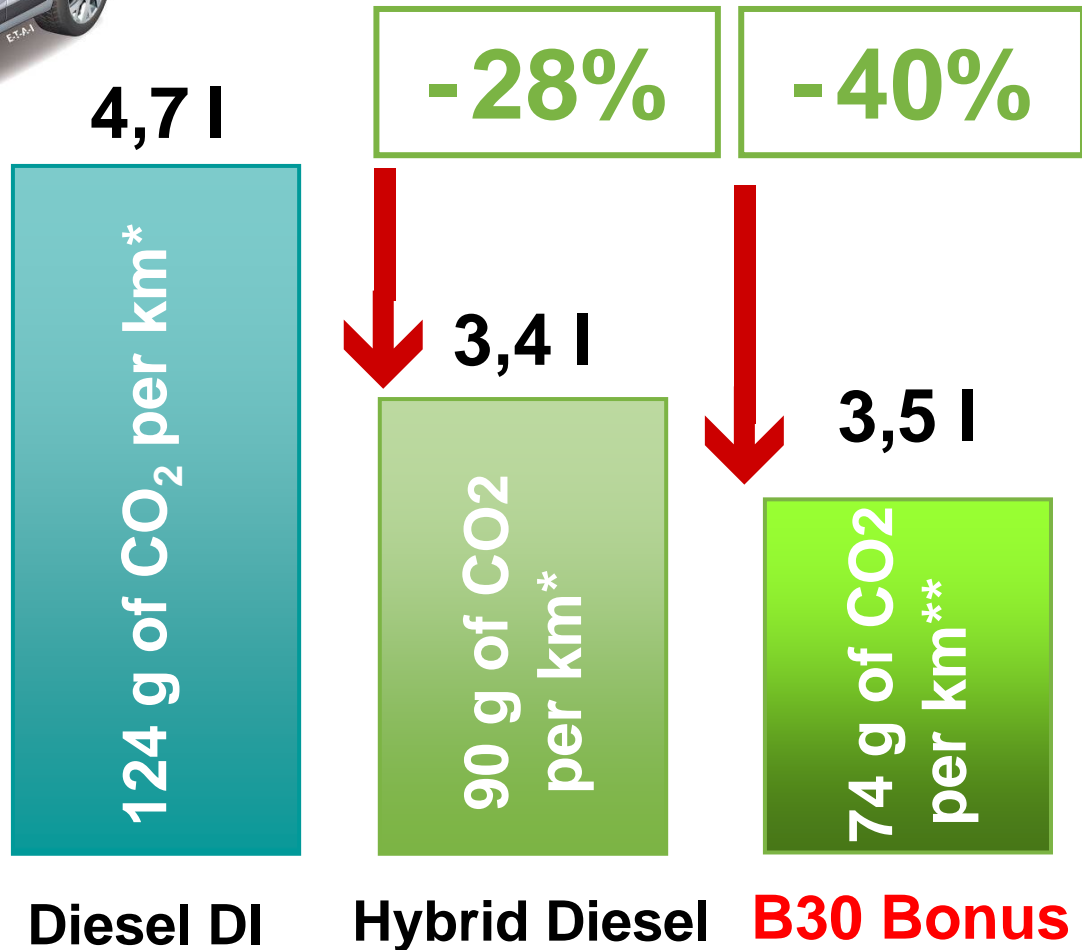
- All PSA Peugeot Citroën vehicles are compatible with 10%v/v of biodiesel (B10) and up to 30%v/v providing some limited maintenance preconisation (lubricant quality, lubricant and fuel filter maintenance...)
- PSA Peugeot Citroën is in favour of a B10 generalisation (to maximize the CO₂ reduction impact (around 5% with B10) while staying in acceptable production capacity limits), **if strict quality norms are adopted on the market** (oxidation stability, cold properties...)



BIODIESEL (advanced like GTL, HVO...)

- Engines fully compatible with second generation biodiesel

■ *Biofuels : a cumulative benefit when used with hybrid technology*



* Tank to Wheel analysis

**Including a 50% GHG reduction of the biodiesel fraction in a Well to Wheel analysis

■ Alternative fuel : PSA Peugeot Citroën in favour of biofuels (2)

ETHANOL (first and advanced generation)

- All PSA Peugeot Citroën vehicles (gasoline engine) produced after January the 1st 2000 are compatible with 10% of Ethanol (E10)
- PSA Peugeot Citroën is in favour of an E10 generalisation (to maximize the CO₂ reduction impact (around 4% with E10) while staying in acceptable production capacity limits, and strict respect of the current EN228)
- Like in Brazil (where more than 80% of gasoline engines sold are flex-fuel), PSA developed for Europe a range of flex-fuel (BioFlex) vehicles to run with E85 (SuperEthanol)

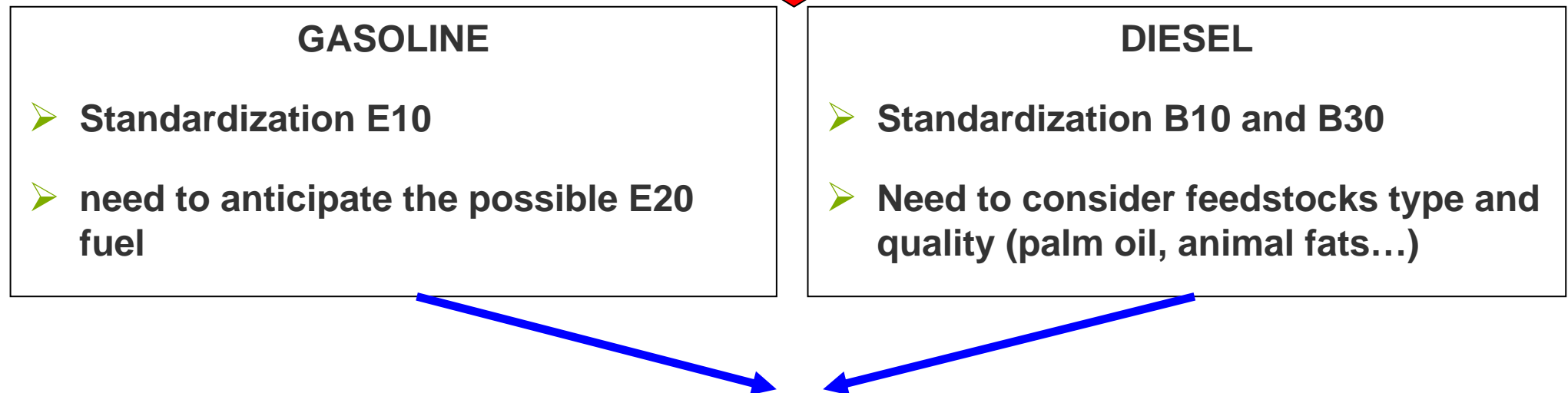


■ Anticipation fuel/engine suitability

- Necessity to have biocomponents compatible with actual and futur vehicles
- Adequate fuel quality criteria (oxidation stability, lubeoil protection, drivability...)
- Clear planning fuel introduction including long term policies (fiscality, supply...)

RED Directive (2009/28/EC) : Target of 10%pci for transportation in UE 2020

possible scenarios



Need to launch adequate studies between OEM + Oil industries + biocomponents producers (engine suitability, materials compatibility...) for anticipation and prepare standardization debates