

life  
auto



**SOLVAY**

asking more from chemistry®

**SOGEFI**

# Demonstration and Validation of an innovative “in-vehicle” fuel additives storage and automatic dosing system for diesel vehicles

**LIFE12 ENV/FR/000480**

Barcelona (Spain), 26/09/2017



# CO2 emissions reduction

## Global approach in the Transportation



**26% of our EU CO2 emissions  
850 Mt CO2 eq. (2014)**

### CO2 emissions reduction pathway

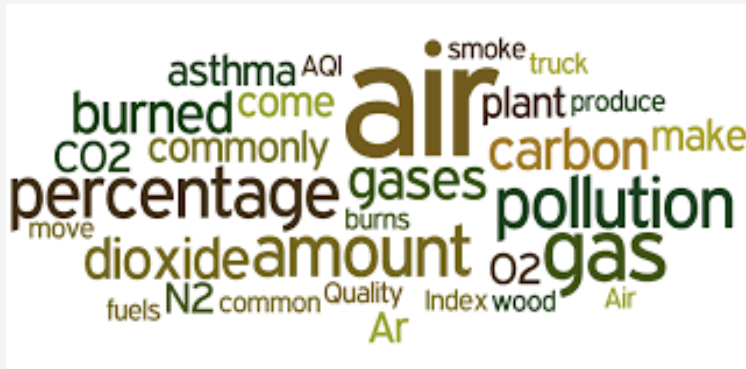
- Energy mix
- Vehicle technologies and management
- Renewable Fuels
- Optimization in the transportation

### Constraints and Challenge

- Driving conditions
- Vehicle types
- Robustness and durability of performance

# Air Quality improvement

## Europe is leading the race

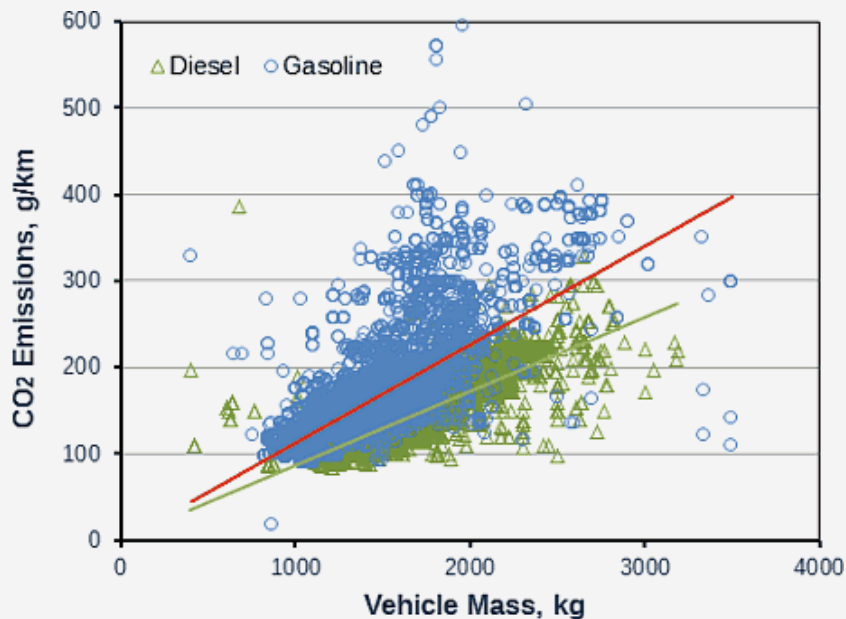


**EUROPE has to combine different elements to keep the lead (EURO-standards):**

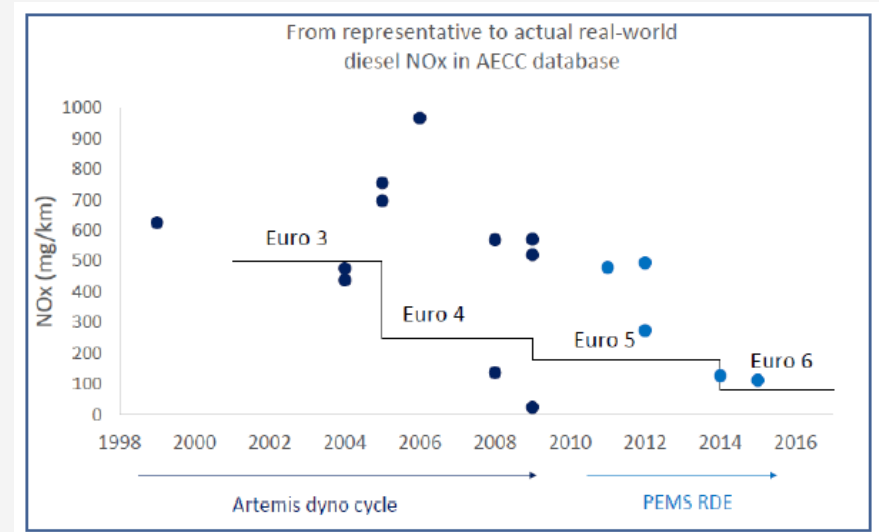
- Pollutants (regulated and un-regulated);
- Limits (post-EURO-6/EURO-7);
- Procedures and methodologies (RDE, CF);
- Technology neutrality (ICE, EV, FC, Hybrid)
- Robustness and durability (must be reinforced)



# Diesel engine is attractive for low emissions in Transportation



Better fuel efficiency for > 1.5 tons



Cleaner with EURO-6/RDE implementation

Source:  
KBA data base  
AECC 2017

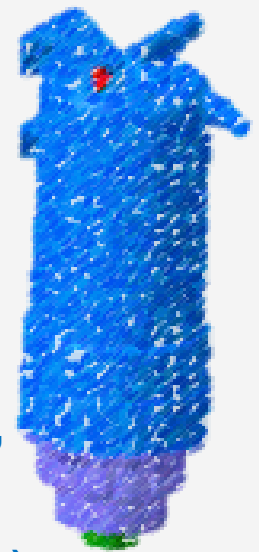
# The LIFE AUTO Project supports the Diesel engine efficiency

Demonstration and Validation of an innovative “in-vehicle” fuel additives storage and automatic dosing system for diesel vehicles

- Complete integration in the “Fuel Filter” perimeter
- Support the use of renewable fuels
- Add robustness and durability with the engine emissions
- Keep the engine performance at the initial level

Based on the potential of 10gCO<sub>2</sub>/km emissions reduction per car, around 1,36 Mt CO<sub>2</sub>/year could be saved in Europe

*(based on annual 8 millions diesel cars production and mileage of 17.000 km/year)*



# The LIFE AUTO identity card

## LIFE 12 ENV/FR/000480

### Project location:

France (all regions)

### Budget information:

Total amount: 3,276,160 €

% EU Co-funding: 48.7%

### Duration:

Start: 01/07/13 - End: 30/06/17

*Including the 12 months extension from July 1<sup>st</sup>, 2016*

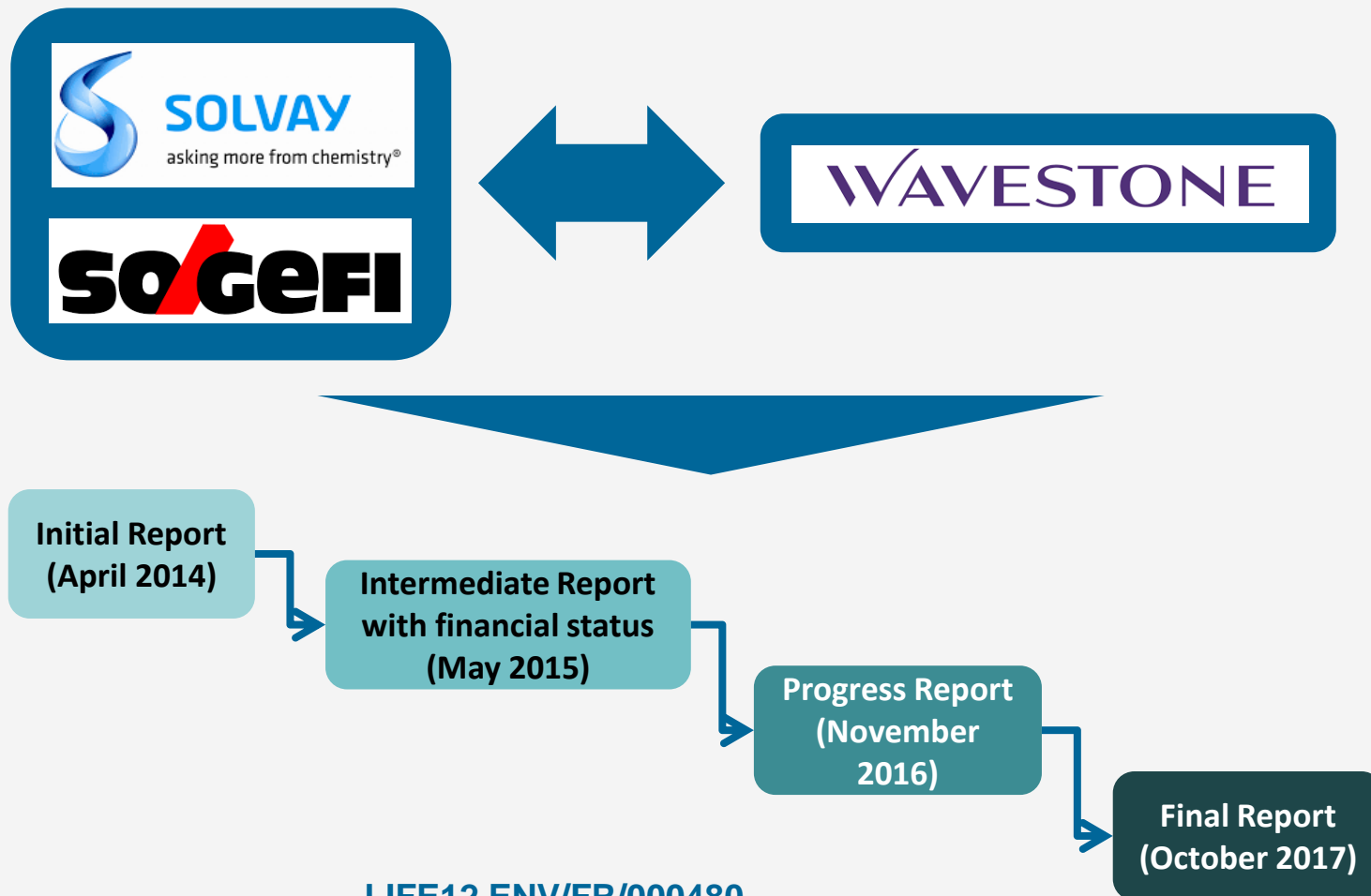
### Project's implementers:

Coordinating Beneficiary: RHODIA OPERATIONS S.A.S

Associated Beneficiary(ies): FILTRAUTO S.A. (SOGEFI)

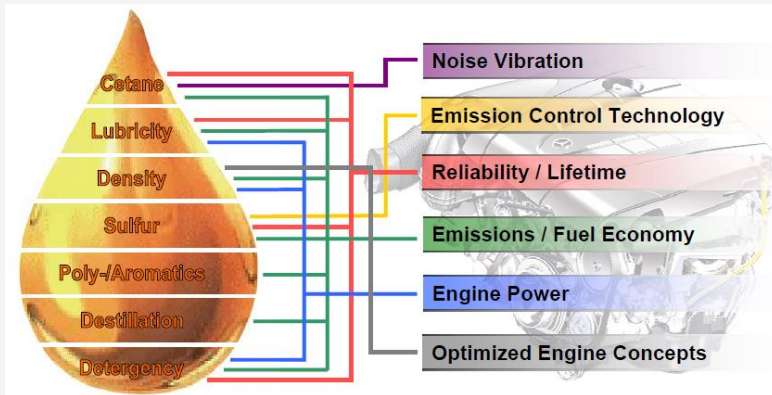


# Project organization with constant release of progress

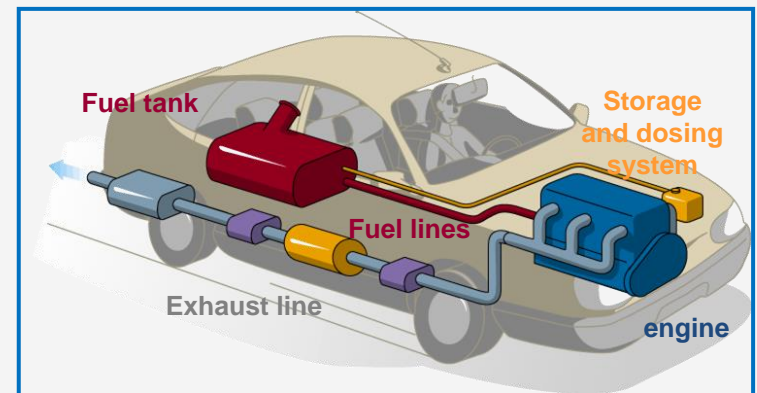
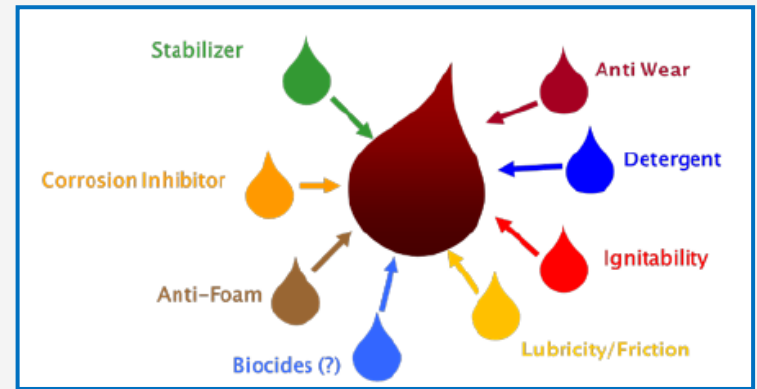


# “In-Vehicle” Fuel Additives strategy supports the full engine potential

Fuel properties interact in a complex way with different engine features



“In-Vehicle” Fuel Additives improve the Fuel Quality during the vehicle operation



# High Flexibility in the offer to cover the maximum of vehicle configurations



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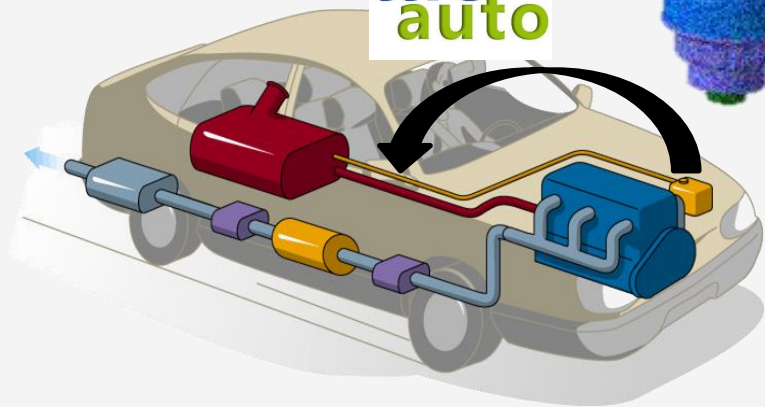


Eolys PoweFlex®  
*(available in the market)*

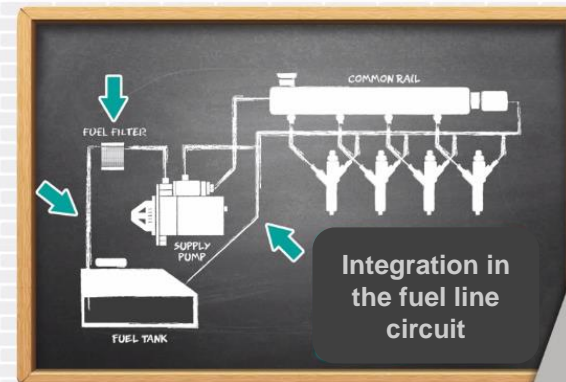


EasyFlex®  
*(new functionalities)*

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auto



Flexibility in the Fuel Additives type  
and the vehicle Integration



Integration in the fuel line circuit

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auto

# Chemistry to support vehicle operations under their real life



## EasyFlex<sup>®</sup>, a new “In-Vehicle” Fuel

Additive to keep clean the fuel injection system and protect Diesel engines from performance degradation

- ▶ 4% Fuel Efficiency with existing vehicles



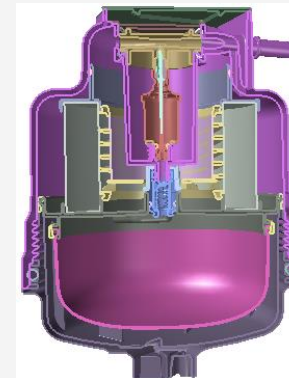
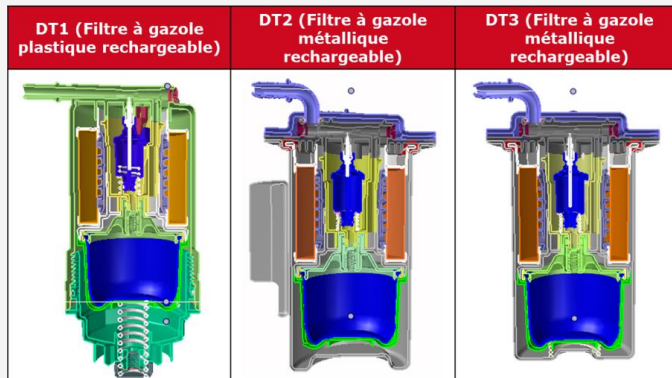
# Prototyping from “Concept proven” to “Ready for series development”



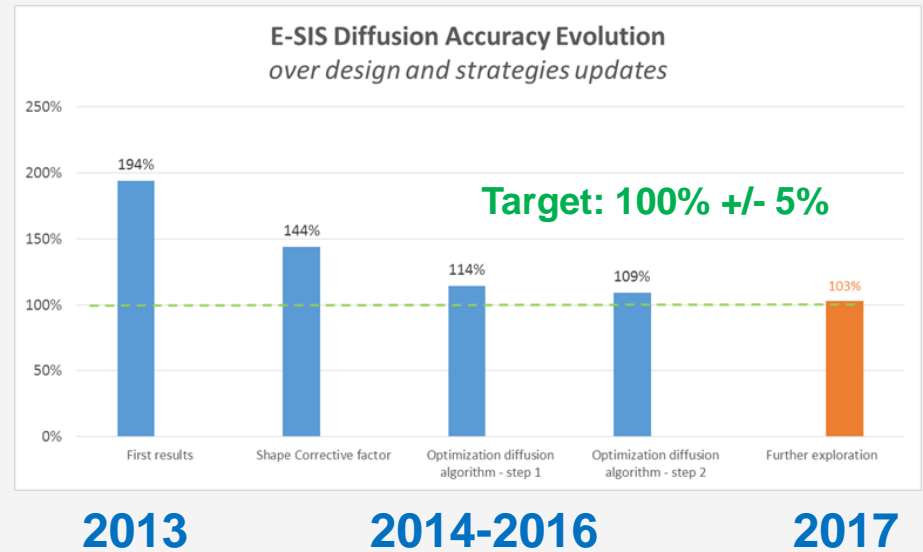
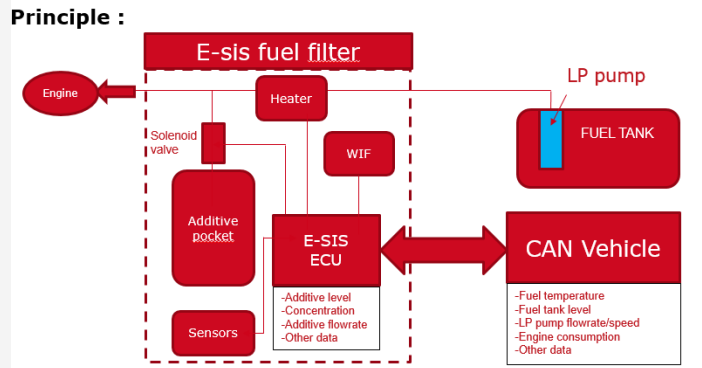
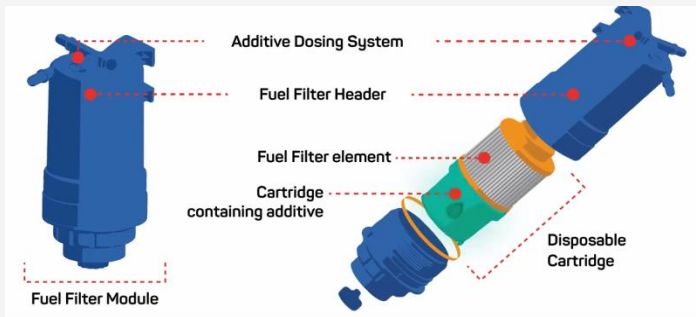
2013

2014-2016

2017



# Mechatronic to control the E-SIS<sup>®</sup> dosing accuracy (+/- 3%)



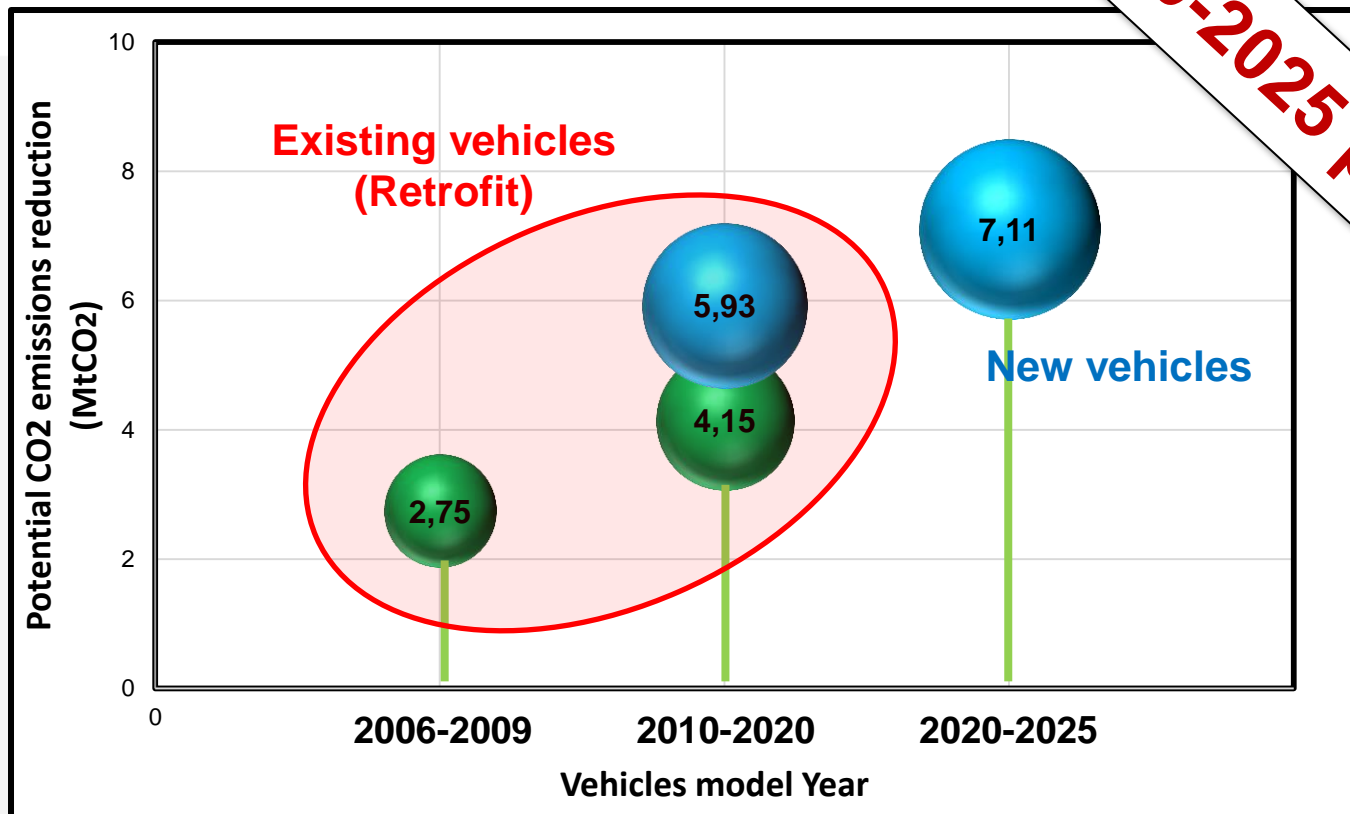
**Better control of the dosing accuracy:  $\Delta$  3% instead of  $\Delta$  5%**

# Final validation with complete integration in an existing diesel vehicle



# Environmental impact

## CO<sub>2</sub> emissions reduction

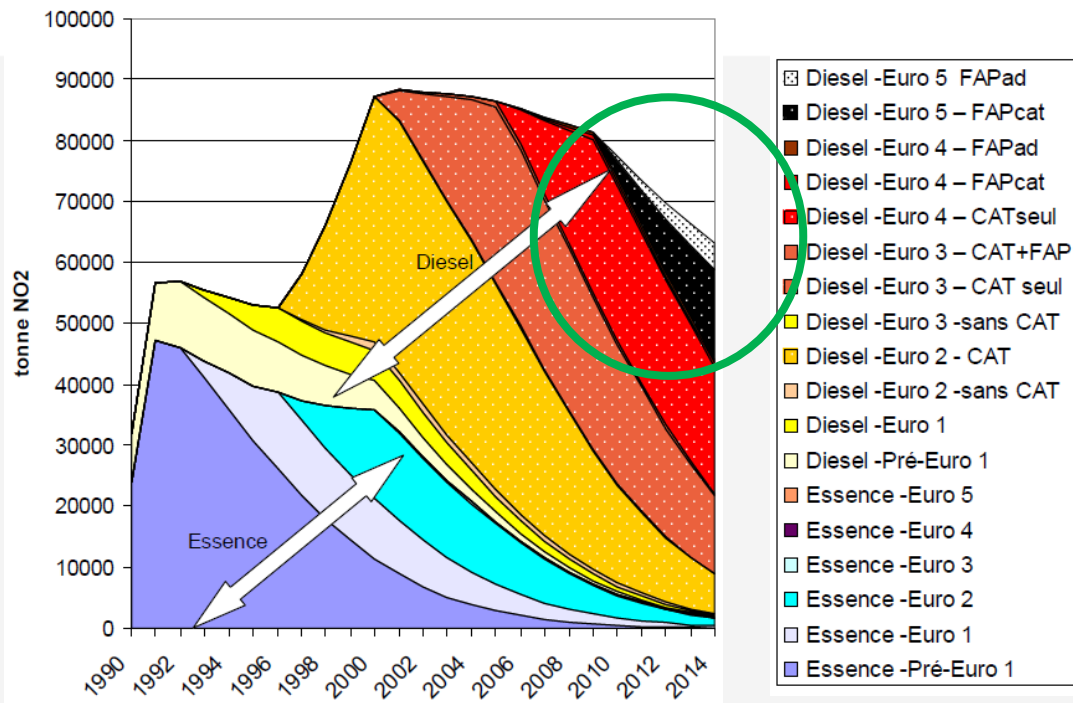


Details of the calculation available  
in the Layman's Report

A potential of approx. 20 Mt CO<sub>2</sub> for the  
2020-2025 period

# Environmental impact

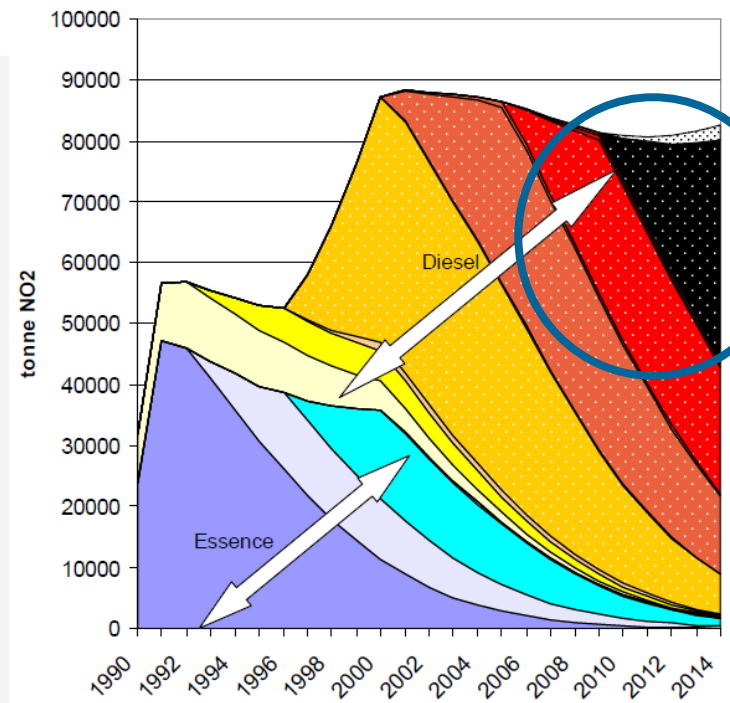
## NO2 emissions reduction



**Best scenario**  
with Eolys PowerFlex®



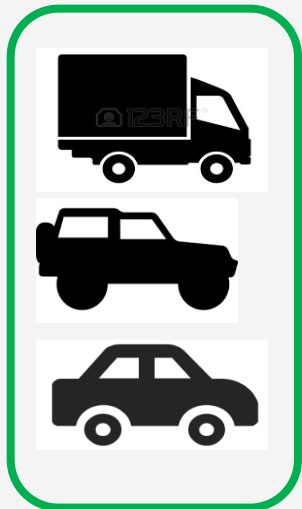
Study not included in the project LIFE AUTO  
Indirect effect (AFSSET \*Sept. 2009)



**Worse scenario**  
without Eolys PowerFlex®

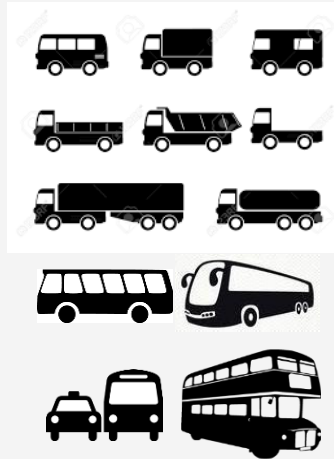
# Transversality of the technology offers

LIFE AUTO  
perimeter



Transportation

Goods



People



Non-Mobile Machineries

Mining and Constructions



Agriculture





Thank you

[www.lifeauto-project.com](http://www.lifeauto-project.com)

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