

The A3 Project Clean Heavy Duty



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Contents

- The Project „Clean Heavy Duty“
- Requirements for „Clean Heavy Duty“ Vehicles
- On-Board Emissions and Fuel Consumption Analysis
- Real-World Measurement Results
- Conclusion

The Project Partners „Clean Heavy Duty“

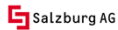
Consortium



• TU Vienna, IFA, Prof. Pucher



• Magna Steyr Fahrzeugtechnik



• Salzburg AG



• Frikus – Spedition



Mercedes-Benz

• Mercedes Benz Austria



Pappas Gruppe

Das Beste erfahren.

• Pappas Gruppe - MB



• Daimler Commercial Vehicles AG, BRD

• Grazer Energieagentur



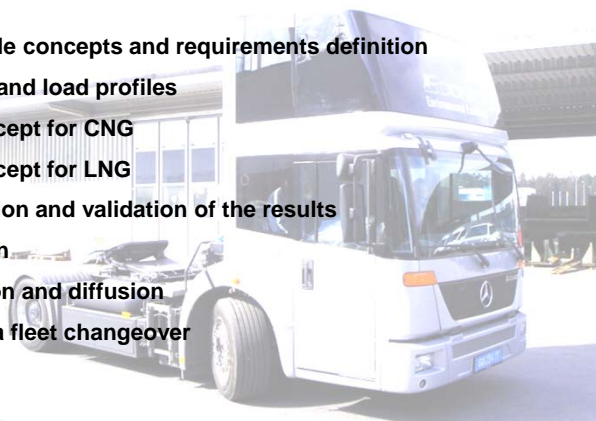
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3

The Project „Clean Heavy Duty“

Fields of Research and Activities

- Evaluation of vehicle concepts and requirements definition
- Test road sections and load profiles
- Energy supply concept for CNG
- Energy supply concept for LNG
- Test vehicle operation and validation of the results
- Vehicle optimization
- Results presentation and diffusion
- Business case for a fleet changeover



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4

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Requirements for „Clean Heavy Duty“ Vehicles

- Short and medium range for the supplier fleet
- Average of 3 tons of cargo to destination
- All-purpose trailer tractor with swap body
- Particularly suitable cab with low-entry concept
- Easy handling of the vehicle
- Reduce logistics costs through lower fuel prices

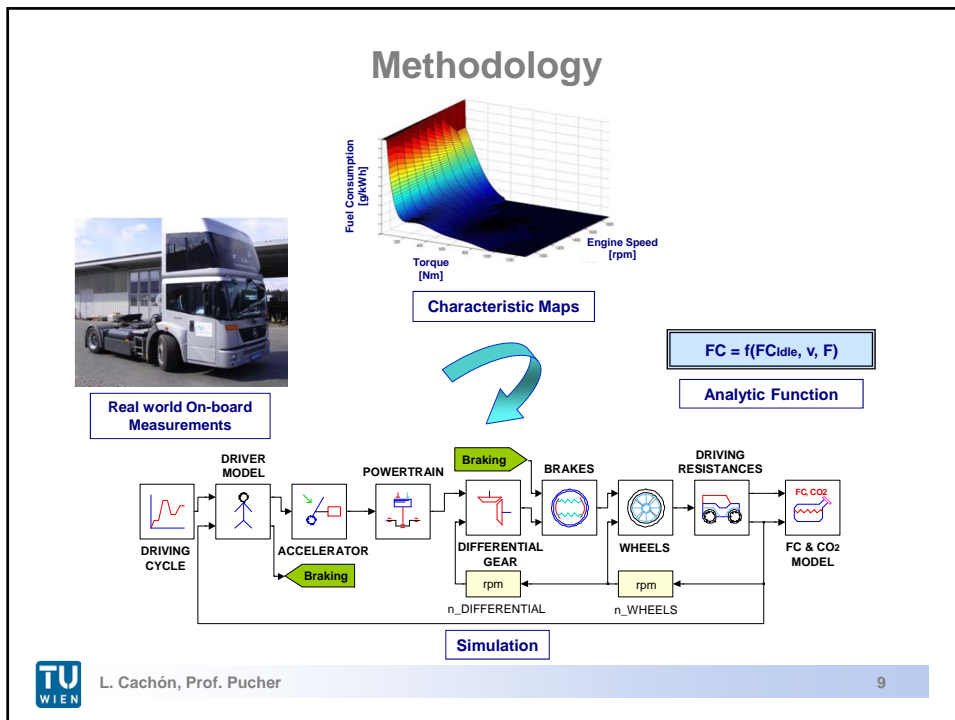


Requirements for „Clean Heavy Duty“ Powertrains

- Lower CO₂ Emissions
- Reduction of NO_x and particulate matter emissions
- Noise reduction 3-5 dBA
- No odors
- Operation with CNG and LNG as Biomethan
- Monofuel propulsion for greater energy efficiency
- Innovative gas system with lightweight vessels and electronic pressure regulator

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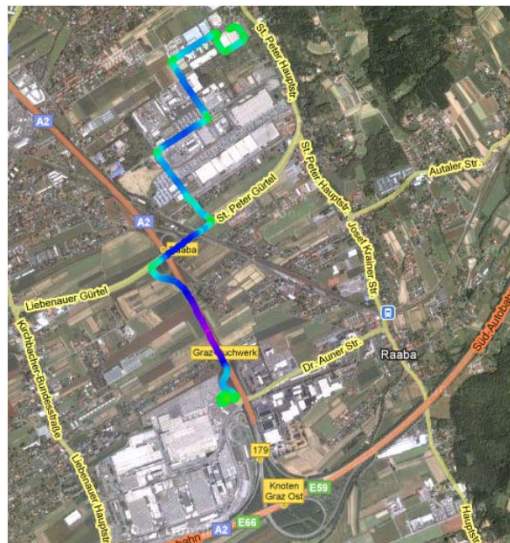
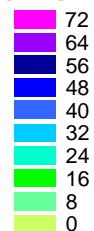
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GPS Tracking of the Routes for the Plant Supplier Traffic

Johnson Controls – Magna Plant

Length: 3.8 km;
vm: 27 km/h;
vmax: 70 km/h;

Vehicle Speed
[km/h]

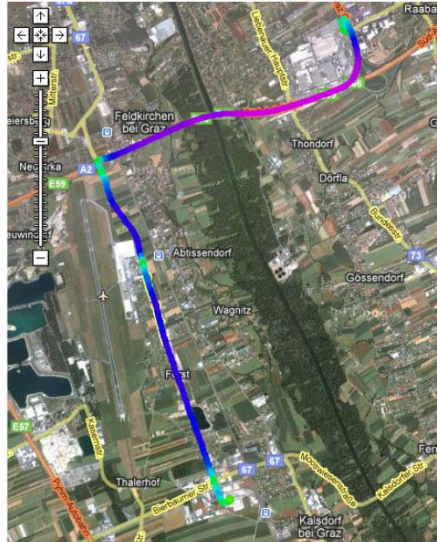
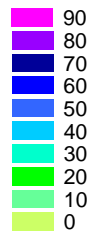


GPS Tracking of the Routes for the Plant Supplier Traffic

Magna Plant – Kalsdorf

Length: 10.1 km;
 vm: 48 km/h;
 vmax: 90 km/h;

Vehicle Speed
 [km/h]



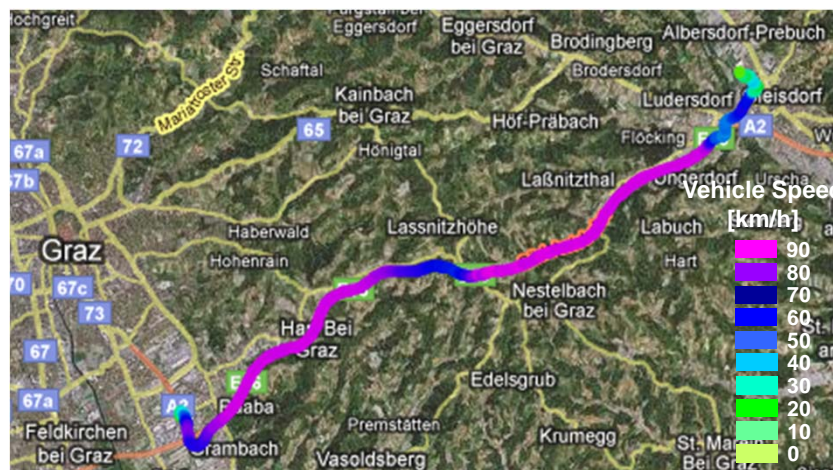
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13

GPS Tracking of the Routes for the Plant Supplier Traffic

Magna Plant – Albersdorf

Length: 23.8 km; vm: 60 km/h; vmax: 90 km/h;

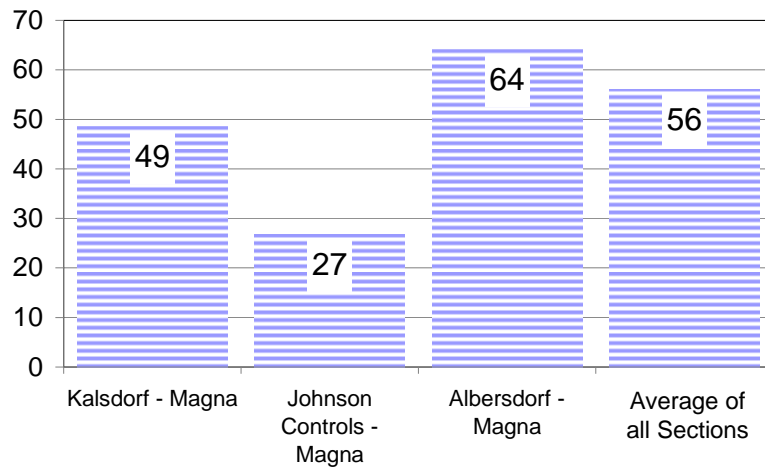


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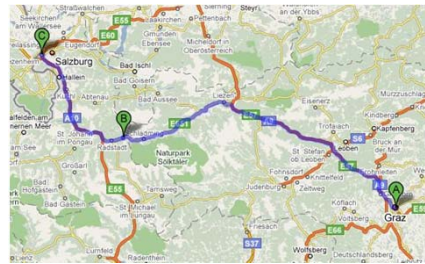
14

Mean Vehicle Speed in Plant Supplier Traffic

Vehicle Speed [km/h]



LNG Econic Demonstration in Salzburg



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Conclusion „Clean Heavy Duty“

- The pilot project was successfully accomplished thanks to the dedication of all involved Partners in a very short period of 18 months.
- It was demonstrated for the first time in Austria, that an alternative propulsion system can also be successfully implemented in heavy duty vehicles.
- On-board exhaust gas measurements could validate lower CO₂ emissions and significantly lower NO_x emissions under Real-world conditions.
- The decrease in fuel consumption and lower fuel costs constitute an attractive solution for fleet operations.



Thank you for your attention!

