

# Prospects and opportunities for Biogas and Autogas-driven vehicles

International Conference  
10–11 September, 2014  
Haus der Wirtschaft – Stuttgart, Germany  
exhibition + poster session + field trip

## Progress in Biogas III

Biogas production from agricultural biomass and organic residues

Organised by IBBK & Hohenheim University

[www.progress-in-biogas.com](http://www.progress-in-biogas.com)

INTERNATIONAL CONFERENCE WITH EXHIBITION AND FIELD TRIP

10 – 11<sup>TH</sup> SEPTEMBER 2014, STUTTGART, GERMANY

**M.Sc. Christian Jenne**

**Project supervisor: Prof. Dr.-Ing. Bernd Noche**

# Which is the best fuel option?

Biogas

Liquefied Biomethane Gas

Compressed Natural Gas

Petrol

Biomethane

Diesel

Autogas

Liquefied Petroleum Gas

# Vehicle comparison (Opel Zafira Tourer)

OPEL ZAFIRA TOURER  
1.4 TURBO



**Petrol**

OPEL ZAFIRA TOURER 1.4  
LPG TURBO ECOFLEX



**LPG/Autogas**

OPEL ZAFIRA TOURER  
1.6 CNG ECOFLEX



**CNG**



# Vehicle running cost comparison (Opel Zafira Tourer)

**Petrol**

**LPG/Autogas**

**CNG**

Engine size	1364 ccm	1364 ccm	1598 ccm
Engine capacity	140 BHP	140 BHP	150 BHP
Fuel consumption	7.4 ltr./100km	8.6 ltr. LPG/100km 7.7 ltr. Petrol/100km	5 kg H-gas/100km 7 ltr. Petrol/100km
Distance driven	50000 km	50000 km	50000 km
Fuel consumption	3700 ltr. of Petrol	770 ltr. of Petrol (20/80 fuel ratio) 3440 ltr. of LPG	2850 kg of CNG (100% CNG)
Fuel expenditure (50,000 km)	<b>€ 5883.00,-</b>	<b>€ 3494.70,-</b>	<b>€ 3192.00,-</b>

**Fuel savings when switching from Petrol to CNG = 45.7% (€2691.00,-)**

(Source: Opel Special Vehicles GmbH, Rüsselsheim, Germany - July 2014)

Research supported by EU Marie Curie ITN ATBEST project (Advanced Technologies for Biogas Efficiency, Sustainability and Transport)

# Thank you very much

**M.Sc. Christian Jenne**

Transport Systems and Logistics,  
Keetmannstrasse 3-9, 47058 Duisburg

**University of Duisburg-Essen, Germany**

**(Project supervisor: Prof. Dr.-Ing. Bernd Noche)**

**Landline:** +49 - (0)203 - 379 7044

**E-Mail:** christian.jenne@uni-due.de

**Fax:** +49 - (0)203 - 379 3048

**Website:** <http://www.uni-due.de/tul/>