Study "Legal and Regulatory Environment for the Construction and Operation of CNG Filling Stations in European Countries"

BACKGROUND TO THIS PROJECT (2011-2012)

- Sponsor: European Business Congress
- Primary Contractor: National Gas Vehicle Association Russia, assisted by Clean Fuels Consulting
- Project Scope
  - 21 European NGV Country Profiles (West & East Europe) – PowerPoint file
  - Legal & regulatory environment to build fuelling station network – Excel File
  - Strategic approaches to create NGV fuel infrastructure – PowerPoint file
  - NGV Infrastructure Calculation Tool (NICA) – Excel File

PURPOSE OF THE PROJECT

European Business Congress Study - 2012

The European market for natural gas vehicles has been expanding steadily since 1994 when there were 524,000 natural gas vehicles (NGVs) and 1,693 CNG fuelling stations. Today the European market has expanded to 1.5 million NGVs and 4,000 fuelling stations; growth of 286% and 236% respectively.

While NGVs and the fuelling infrastructure are a practical potential business opportunity they compete with the 'politically attractive' technologies such as hydrogen fuel cells and electric battery vehicles.

Thus, the time is right for the wider European business community to be made aware of the 'NGV potential.' This is best done by highlighting the excellent opportunities to invest in a sustainable fuel and technology that addresses today's important concerns about energy and the environment through the wider use of NGVs, whether they run on fossil natural gas, liquefied natural gas or renewable biomethane.

The European Business Congress has recognized this need and now is seeking a way to inspire new investments in the CNG fuelling infrastructure across Europe. Once in place, this can lead to a much more widespread development of the European NGV market in individual countries that are linked across Europe along the normal transportation corridors.

ACKNOWLEDGMENTS

The project sponsors wish to thank the following individuals for their dedicated research and analysis in making this project possible

- EBC Project Coordinator: Detlef Wessling, E.On Ruhrgas
- NGVRUS Project Manager: Eugene Pronin, Gazprom
- Clean Fuels Consulting
- Principal Investigator: Dr. Jeffrey M. Seisler
- Research Assistant: Marco Dal Pont
- Project engineer for the Natural Gas Infrastructure Calculation Tool (NICA): Gijs van Schoonhoven (Ingenieurbüro van Schoonhoven)

NGV COUNTRY PROFILES

European Business Congress Study - 2012

NGV Country profiles provide, in a PowerPoint format, a template of information that represents in-depth analyses on a country-by-country basis. The profiles focus on the specific elements that are important to understand the investment environment to develop a CNG fuelling infrastructure. Taken together, these country profiles provide a unique window into individual markets that may be attractive to different commercial interests investing in the NGV infrastructure.

GERMANY
(August 2011)

COUNTRY PROFILE TEMPLATE

European Business Congress Study - 2012

- NGV Profile
- Motivation
- Energy Profile (oil & gas/imports & exports)
- Vehicles
- Fuelling Infrastructure
- Government Support
- Gas Industry Support
- Conclusions

NGV PROFILE

European Business Congress Study - 2012

- Number of NGVs: 85.000
- NGVs are 0.17% of total vehicle population
- 1 NGV per 1000 population
- CNG fuelling stations: 860
- 94,4 vehicles per fuelling station
- Price differential CNG-Petrol/diesel:
  - CNG per gasoline liter equivalent: 0.69 €/liter
  - Regular gasoline: 1.54 €/liter

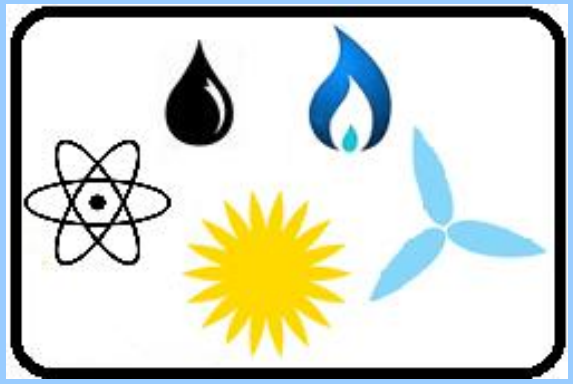
  Natural gas costs 45% less then gasoline

Source (July 2011), www.metanoauto.it; http://www.drive-alive.co.uk/fuel_prices_europe.html

MOTIVATION

- Environmental considerations have been among the strongest elements in the German NGV program
- Energy diversification and security also play a large role in the gas industry strategy, in particular
- Economics and profit motive are strong in order to keep stakeholders committed

ENERGY PROFILE



ENERGY PROFILE SUMMARY

- Germany is one of the world's largest energy importers due to limited non-coal domestic energy resources
- 5th largest oil and 3rd largest natural gas consumer in the world
- The largest electricity market in Europe
- 4th largest nuclear power producer in the world, although the nuclear policy has shifted since the March 2011 nuclear incident in Fukushima, Japan

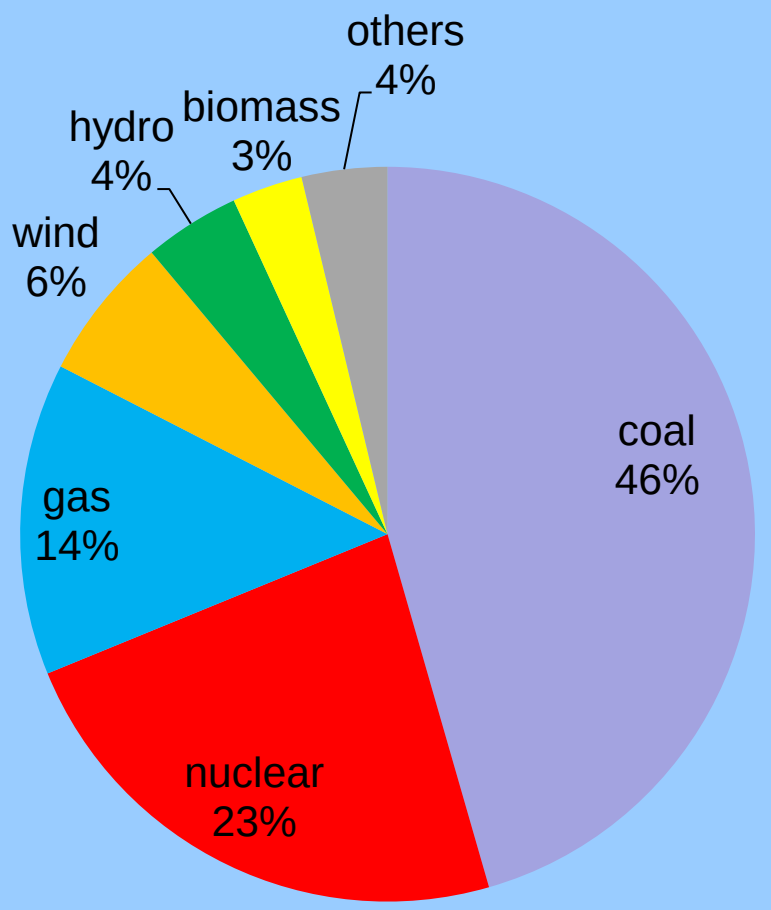
ENERGY PROFILE

- **Oil**
  - production: 156.800 bbl/day
  - consumption: 2,437 million bbl/day
  - imports: 2,862 million bbl/day
  - exports: 536.600 bbl/day
  - reserves: 276 million bbl
- **Natural gas**
  - production: 15,29 billion m^3
  - consumption: 96,26 billion m^3
  - imports: 94,57 billion m^3
  - exports: 12,64 billion m^3
  - reserves: 175,6 billion m^3

Source: CIA World Factbook 2011

Nuclear power provides a quarter of total electricity production

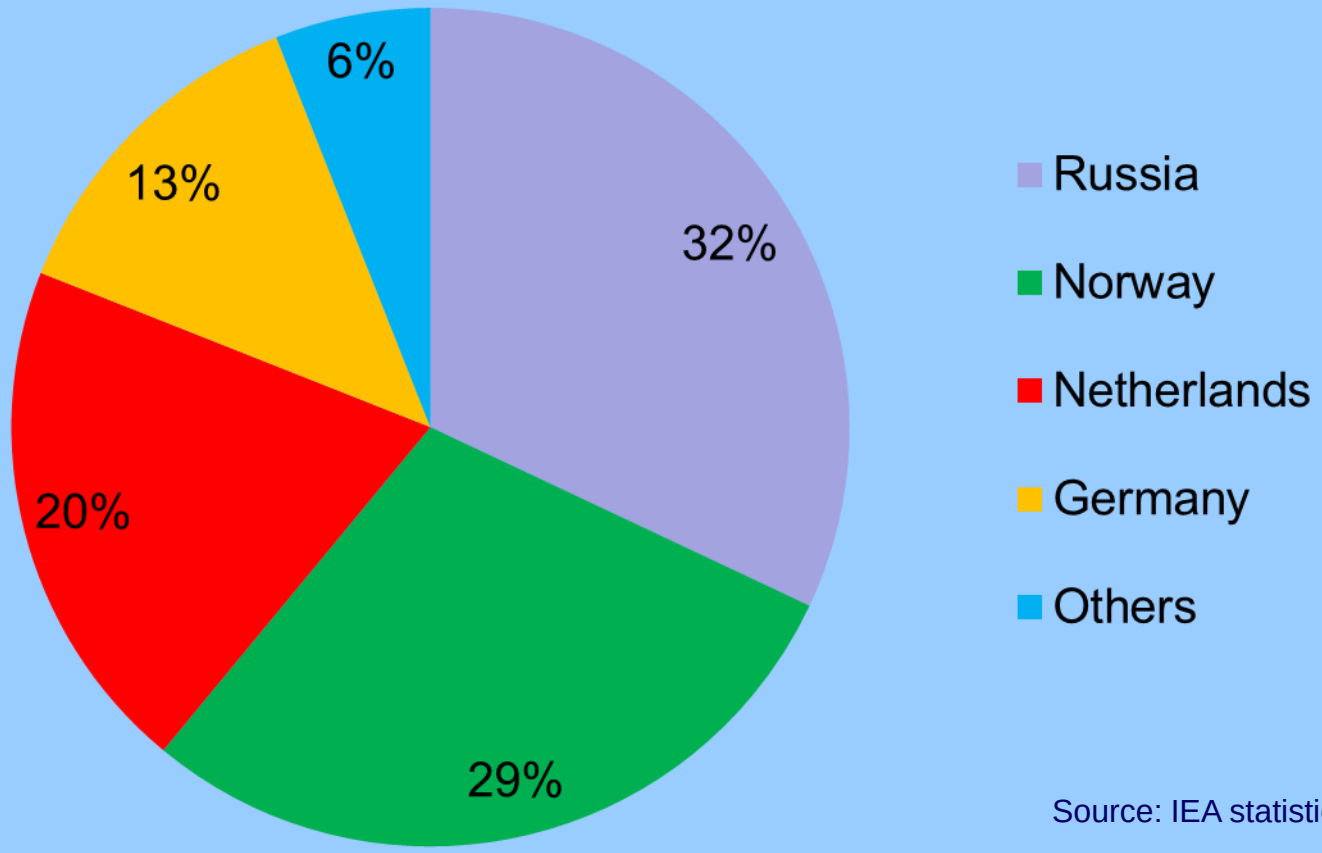
Following the crisis in Fukushima, Japan (March 2011) Germany decided to close all17 of their nuclear power plants by 2022, giving strong support to renewable energy sources.
First 8 plants will be closed in 2011; 6 in 2021; and 3 in 2022



NATURAL GAS PIPELINE MAP

With 430.000 Km Germany has one of the biggest natural gas pipeline networks in Europe

Only 13% of total gas consumed comes from Germany. A vast majority of German gas is reliant on imports



Source: IEA statistics, 2011

Germany has one of the biggest gas markets in Europe

Market player:

- Widely diversified market with **approx. 350** gas companies that own and/or operate CNG filling stations

Gas market:

- Gas market is a deregulated market between grid, gas supplier, gas originator and gas distributor

No LNG port or LNG supply chain

- RWE announced in 2007, with U.S. company Excelerate Energy and German group Nord-West Oelleitung, to develop a new LNG import facility at the deep-sea port of Wilhelmshaven in northern Germany
- The terminal should be developed by E.on and was initially set to begin functioning in 2010/2011 with a capacity of 10 bM3 per year
- Today the construction is suspended

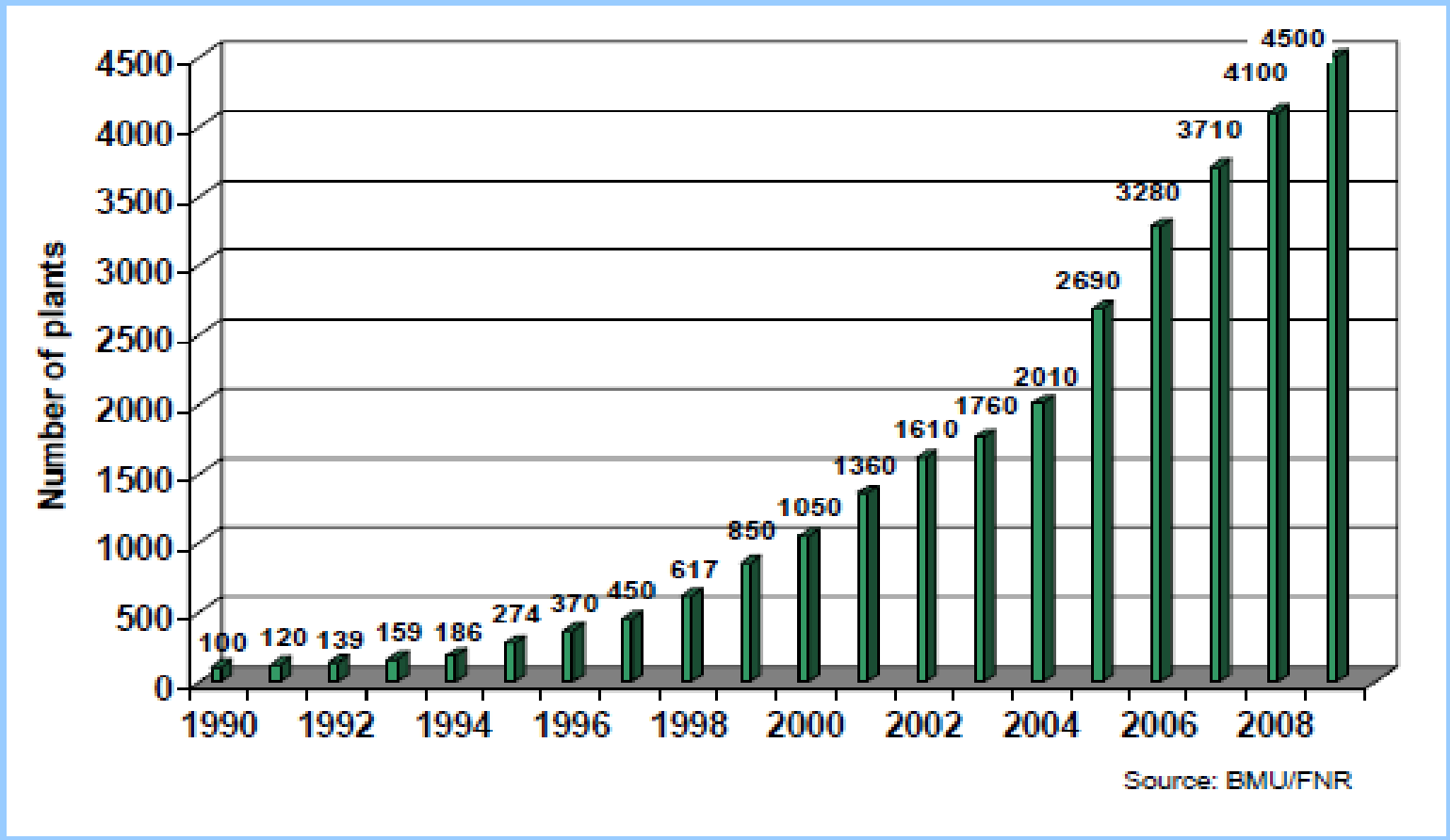
Biogas will provide a good opportunity for the future use of renewable methane

4500 Biogas plants in Germany:

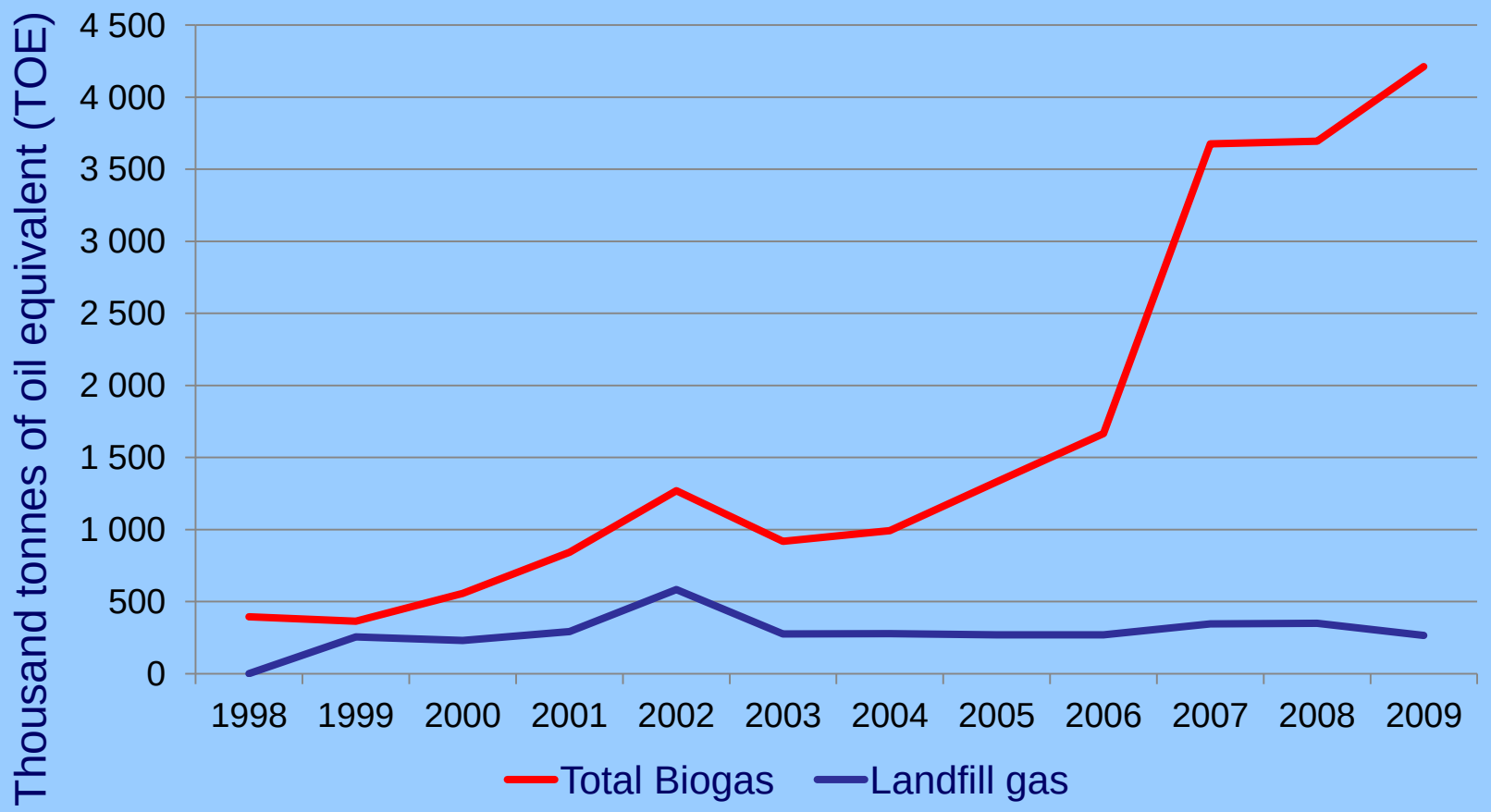
- in 2009: 26 bio methane plants with a installed capacity of 180 MW
- in 2010/2011: further 34 plants going into production with additional 300 MW capacity

Source: Ergas mobil, Timm Kehler,NGV Rome, June 2010

Biogas plants growth in Germany



Germany is responsible for 50% of total EU biogas production



Source: Eurostat

Biogas policies in Germany

- Gas quality: prescribed
- Mandatory acceptance of Grid Injection: Yes
- Regulatory Style: highly prescriptive in a well-specified legislative and regulatory framework
- Government Incentives: Tariff bonuses
- Restrictions: NO (exception is requirement to meet gas quality standard)
- Tariffs: Established
- Feed-in Facilities: 37 in operation, 14 under construction, 27 planned

Biogas targets

- 2020: 6 Bn m3 biomethane injected into the grid
  - 6% of the 2007 German natural gas consumption
- 2030: 10 Bn m3 biomathane in the grid
  - 10% of the 2007 German natural gas consumption

Source: EIFER, Biomethane in Germany. Injection in the NG Grid and Vehicle fuel, 16 June 2009

Exxon Mobil looks for shale gas

- Exxon Mobil Corp. is looking for unconventional natural gas pockets in western Germany, where giant volumes are believed to be locked underground
- Over the next five years, Exxon Mobil will spend several hundred million dollars and up to more than $1 billion on exploring shale gas in North Rhine-Westphalia
- The German unconventional gas would have to be able to compete with liquefied natural gas and pipeline gas from Russia

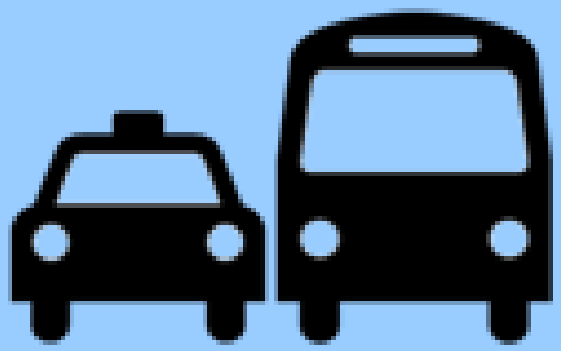
Source, UPI.com, 25 January 2011

Shale gas production could be unprofitable in Germany

- After protests from civil organizations against ExxonMobil explorations in North Rehine-Wesphalia, Federal Office for the Natural Environment presented a draft document on shale gas production
- "Appraisal of shale gas production in Germany" that sets the need to check the impact on the natural environment before each drilling; the need to obtain permits for drilling also from offices in charge of water and a ban on production with the hydraulic fracturing method in areas where potable water, water from medicinal springs, or mineral water is extracted
- German energy companies generally are not interested in shale gas production because they do not have the necessary technologies

Source: Centre For Eastern Study, Will Germany restrict the possibilities for the development of shale gas fields?, 10 August 2011

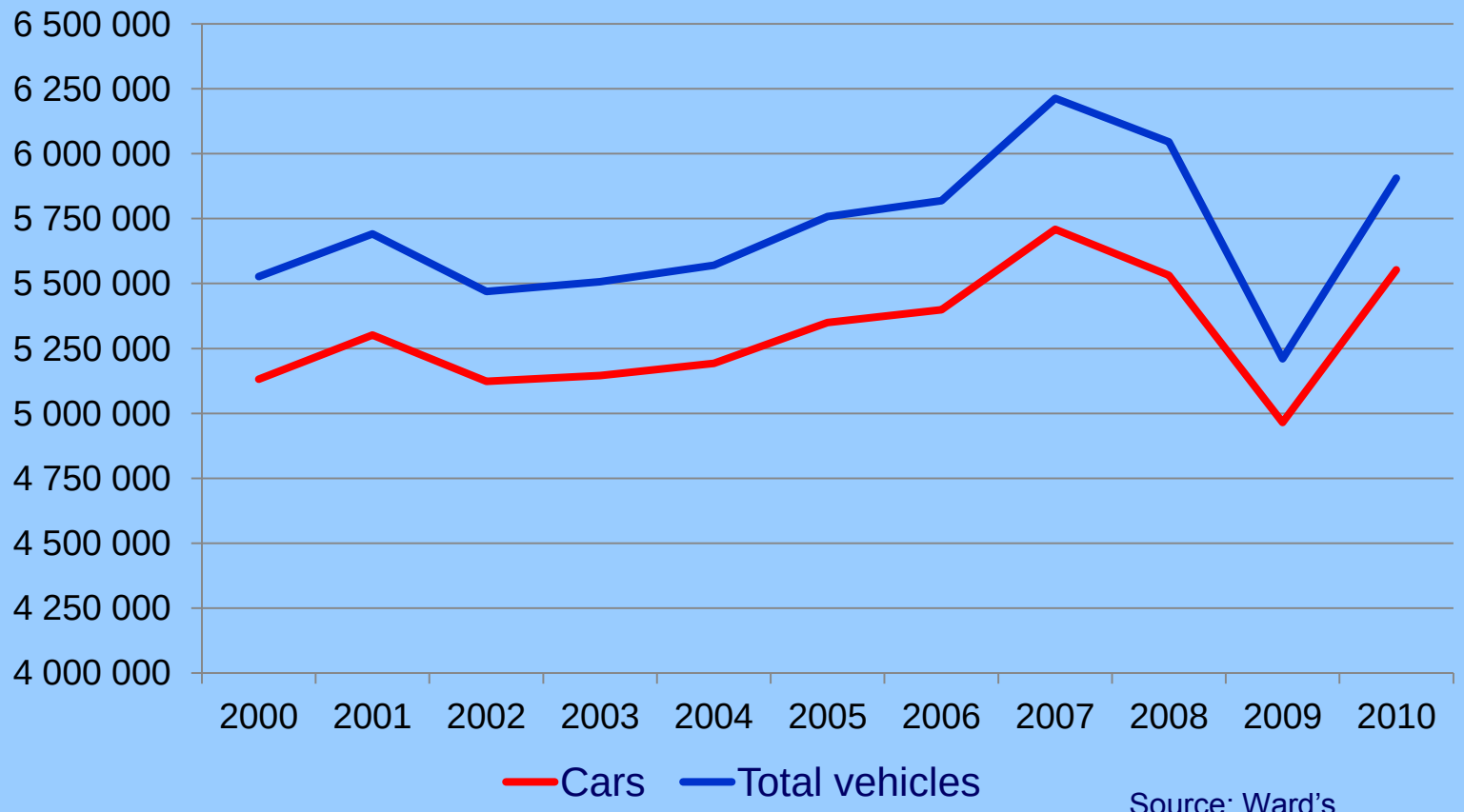
VEHICLE PROFILE



Gasoline & Diesel Vehicle Overview

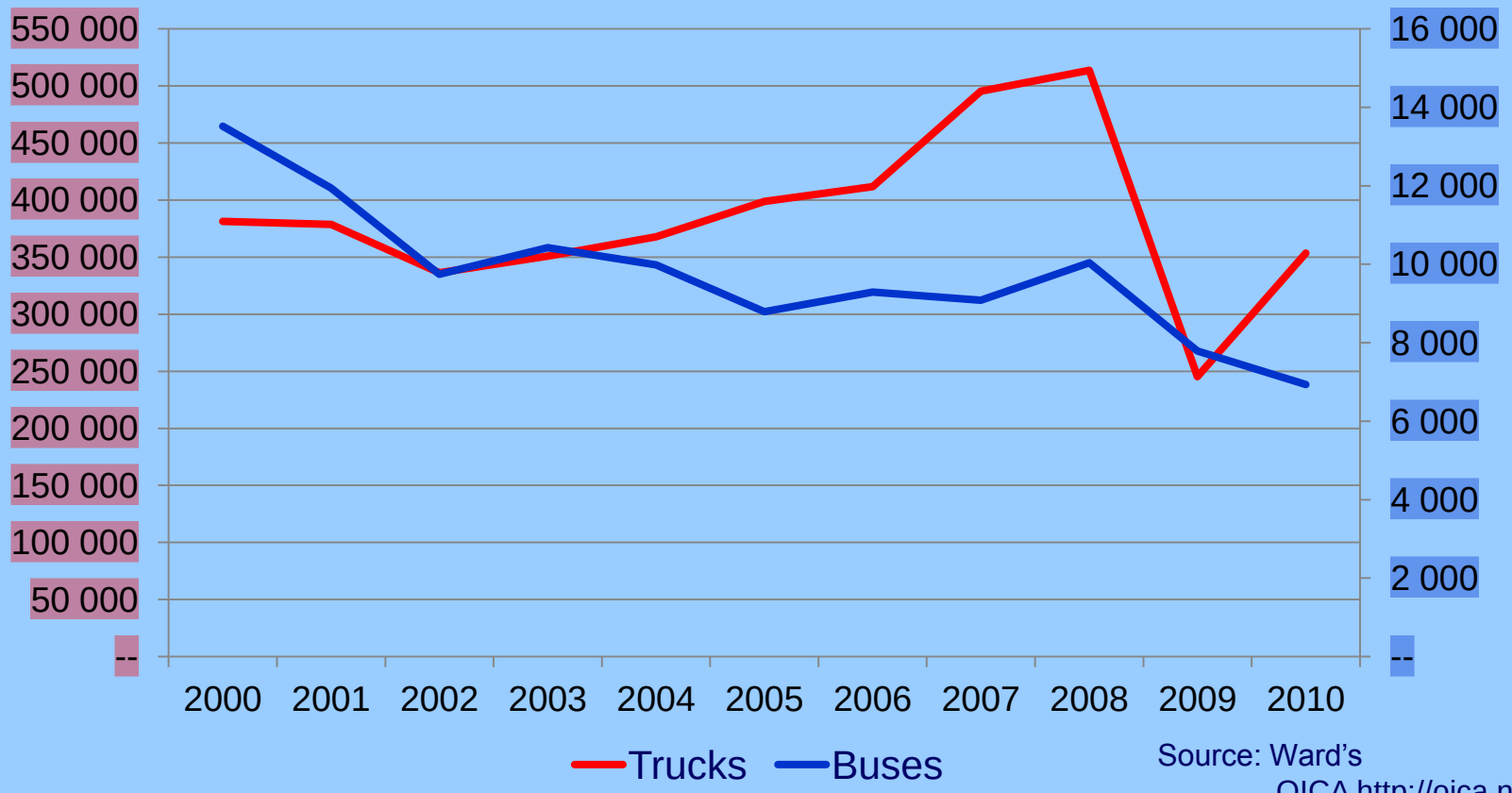
- Transport sector is over 90% dependent on petroleum
- CO2 emissions in transport sector only reduced by about 6% since 1990
- 2.92 million new cars registered in 2010, of which 41% run on diesel

2009 crisis did not affect vehicle production as much as in other European countries



Source: Ward's
OICA http://oica.net/

Truck production decreased suddenly in 2009, while bus production continued to decrease gradually since 2000



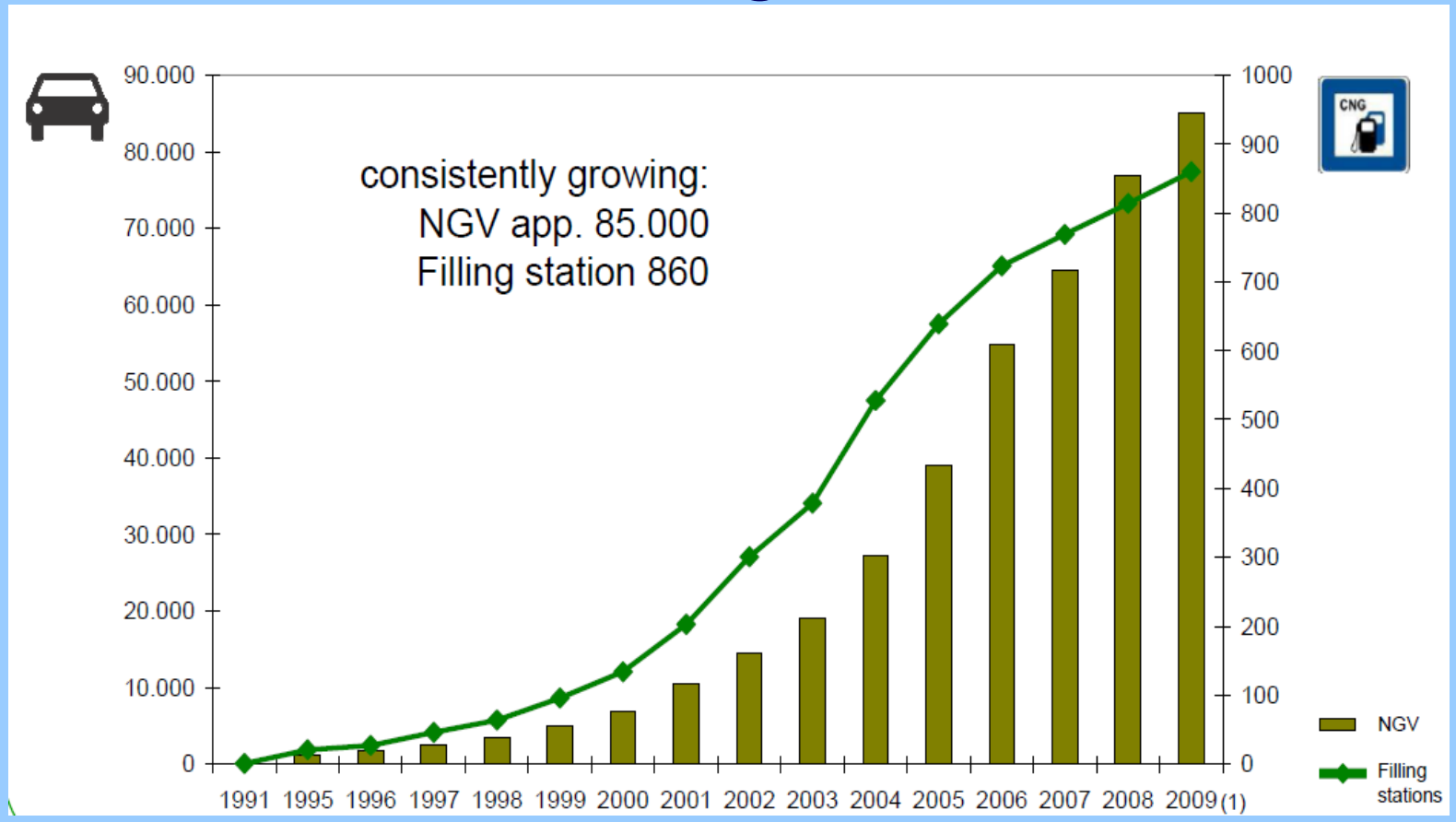
Source: Ward's
OICA http://oica.net/

NGV program started in 1994

- First German serial CNG car was produced by BMW (3' and 5' Series) in 1994
- Since 1996 other OEMs brought their NGVs into the market
- Until 2008 yearly NGV growth rates have been between 35 - 45%.
- Since 2008 until today the NGV yearly growth rate was 15%

Source: Ergas mobil, Timm Kehler,NGV Rome, June 2010

NGV growth follows CNG fuelling station growth

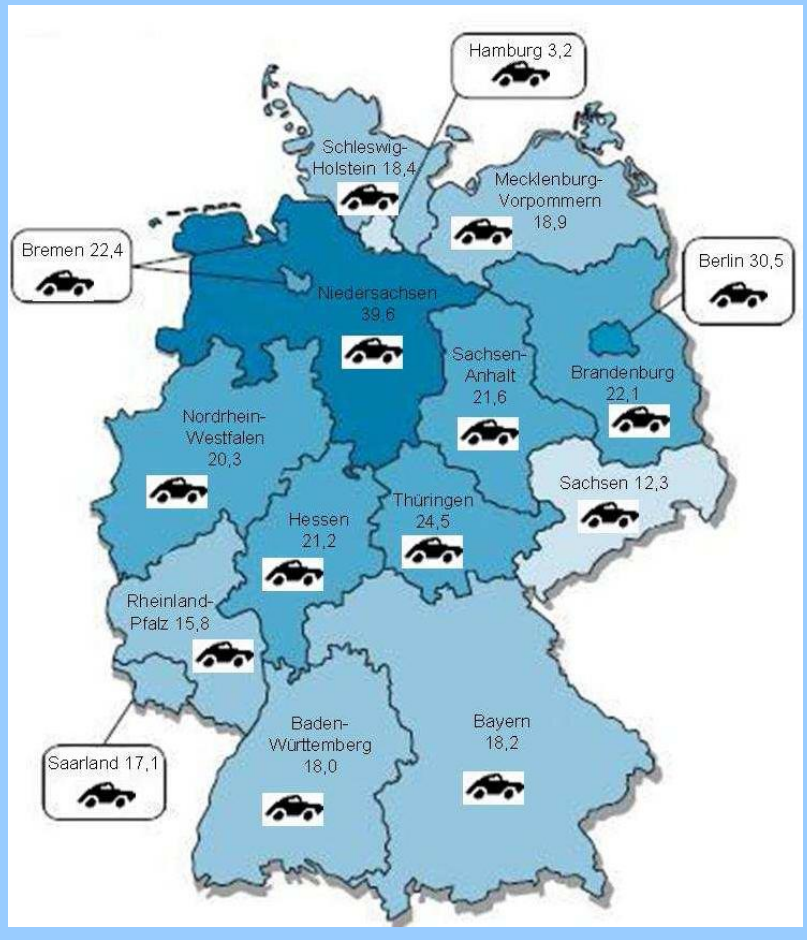


Source: Ergas mobil, Timm Kehler,NGV Rome, June 2010

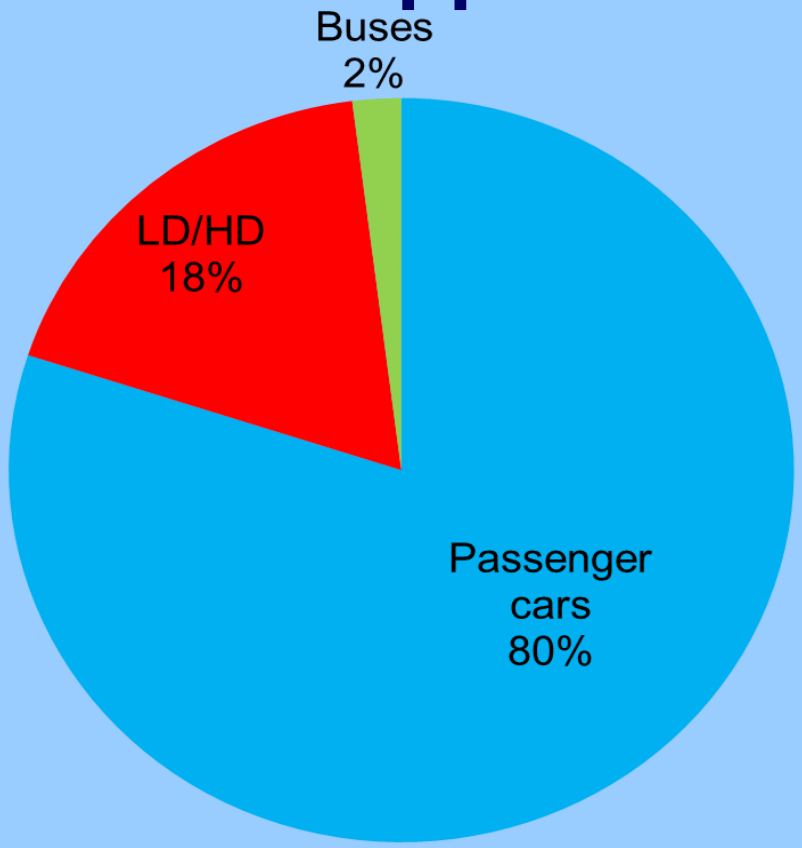
Lower Saxony and Berlin are the regions with the largest number of NGVs

Number of NGVs per 10.000 vehicles:

- <15 NGVs
- 15-20 NGVs
- 20-30 NGVs
- 30-35 NGVs
- 35-40 NGVs



70-75% of NGVs are used for fleet and commercial applications



Source: Ergas mobil, Timm Kehler,NGV Rome, June 2010

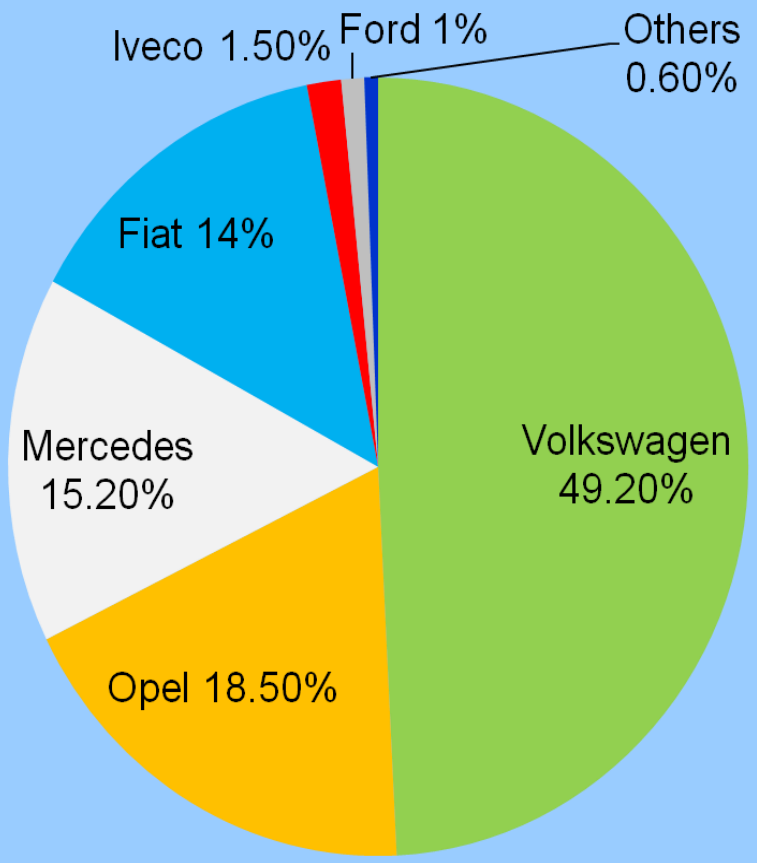
Volkswagen dominates the German NGV market with 49%

6 German OEM are currently in the market:

- Volkswagen
- Mercedes
- Opel
- Ford
- Evobus
- MAN

2 foreign OEM:

- FIAT
- IVECO



Source: Ergas mobil, Timm Kehler,NGV Rome, June 2010

Fiat and Volkswagen lead the NGV market for private commuters

FIAT
Doblò
Fiorino
Panda
Grande Punto
Qubo

Mercedes
B 180
E 200

Opel
Combo
Zafira

Volkswagen
Caddy
Caddy Maxi
Caddy Tramper
Passat
Passat Variant
Touran
T5

Source: Ergas-mobil.de

Commercial NGVs OEM availability

Fiat Doblò Cargo

Fiat Ducato

Fiat Fiorino

IVECO Daily

IVECO Daily Pritsche

Mercedes Sprinter

Opel Combo

VW Caddy

VW Caddy Maxi

Source: Ergas-mobil.de

Tedom and Evobus (MB) are the two OEMs that produce CNG Buses

Evobus MB Citarto CNG

Evobus MB Citaro CNG Gelenkbus

Tedom C12 G

Tedom L12 G

Source: Ergas-mobil.de

German OEMs are producing new model of NGVs

- Mercedes-Benz rolls out new model of E 200 NGT that only requires about 5.5 kilograms of natural gas per 100 kilometres[1]
- Volkswagen has produced a new re-styled Passat, the seventh generation since 1973, including the New NG TSI EcoFuel[2]
- Opel will put in the market 2012 the new Combo, thanks to a partnership with FIAT[3]
- Audi is creating its first natural gas models: the A3 and the A4[4]

1) NGV Global, March 2011; 2) NGV Global, October 2010; 3) Gibgas.de, July 2011; 4) Erdgas, May 2011

Associated 'conversion industries' based in Germany tend to be design & engineering firms but do not produce mainstream NGV retrofit systems

- Brachetti and Partner
- IAV (engineering & development)
- IvS
- Air LNG (investigating LNG applications for turbines for stationary and mobile applications

Corporate fleets are a primary market for the German NGV industry

Aldi is using a Mercedes-Benz Ecotonic

Police station in Salzlandkreis (Saxony-Anhalt) has 12 civilian vehicles and 6 squad cars

Deutsche Post DHL is using more then 170 NGVs in Munich, Berlin, Dortmund, Hamburg and Bremen

The Health service CWS-Boco International has a fleet of 275 Mercedes Sprinters

Source: Ergas-mobil.de

High-fuel consuming taxi cabs and airports (with appropriate fuelling stations) are a strong market

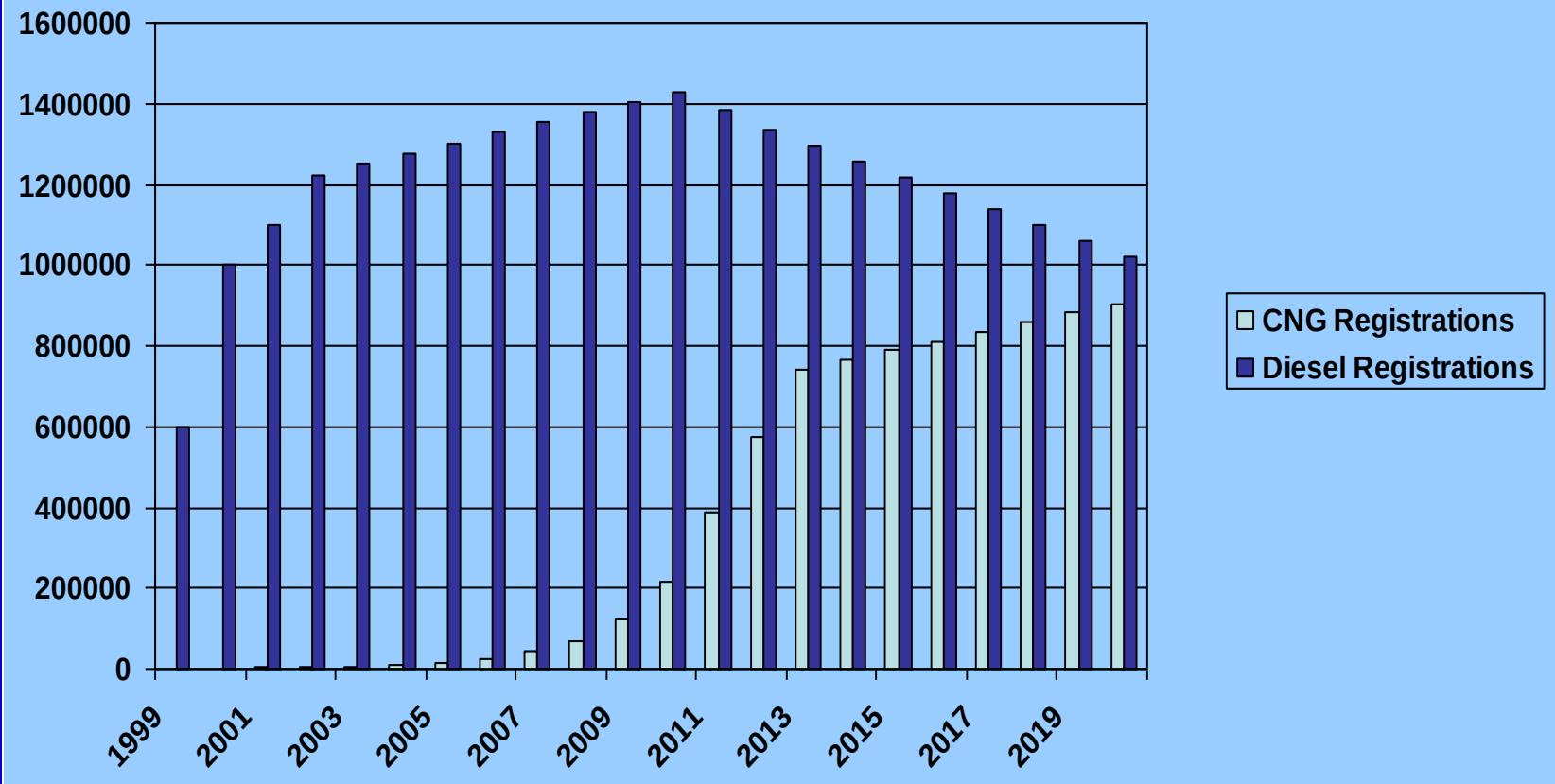
Several thousand taxis powered by natural gas are already on the road in Germany thanks to the agreement between Erdgas-Mobil and the Taxi Association

An Opel Zafira 1.6 CNG ecoFLEX turbo, a VW Passat 1.4 TSI EcoFuel and an Opel Combo 1.6 CNG ecoFLEX are now part of the fleet at Munich Airport

In July 2011 in Munster, the first two natural gas vehicles were included in the Federal Armed Forces Service Center fleet

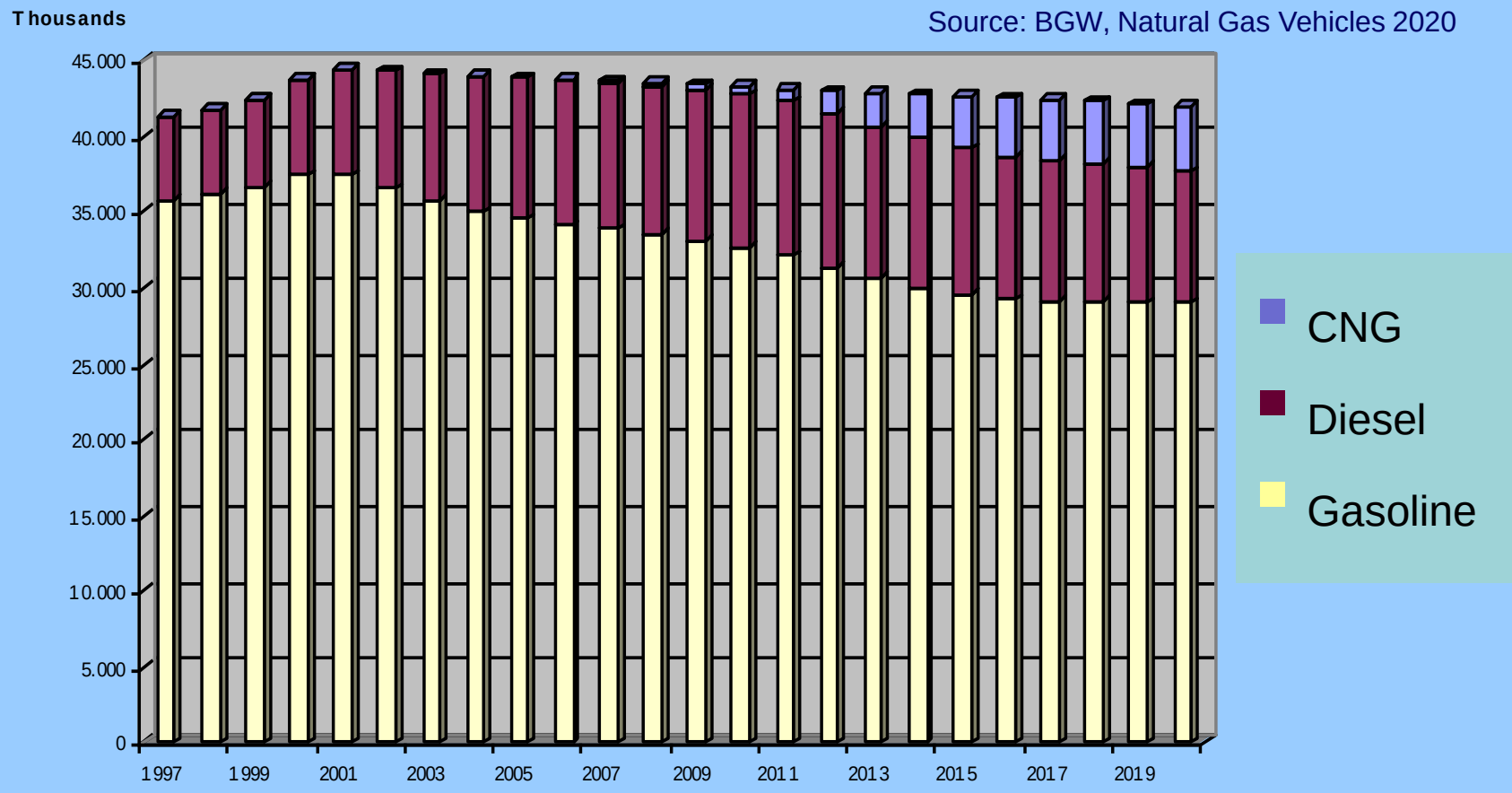
Source: Ergas-mobil.de

CNG passenger car registration is projected to approach diesel cars by 2020



Source: BGW, Natural Gas Vehicles 2020

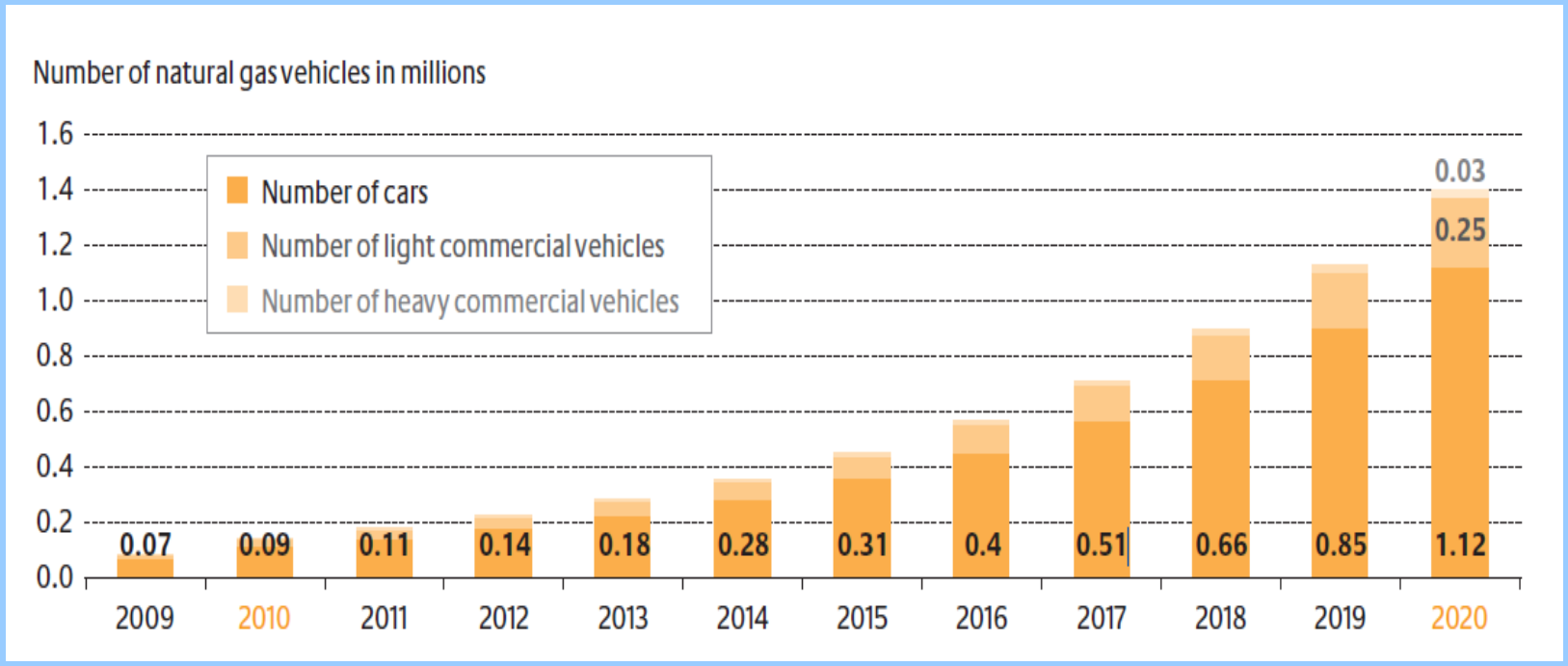
NGVs are anticipated to impact more on diesel car sales then on gasoline cars



Source: BGW, Natural Gas Vehicles 2020

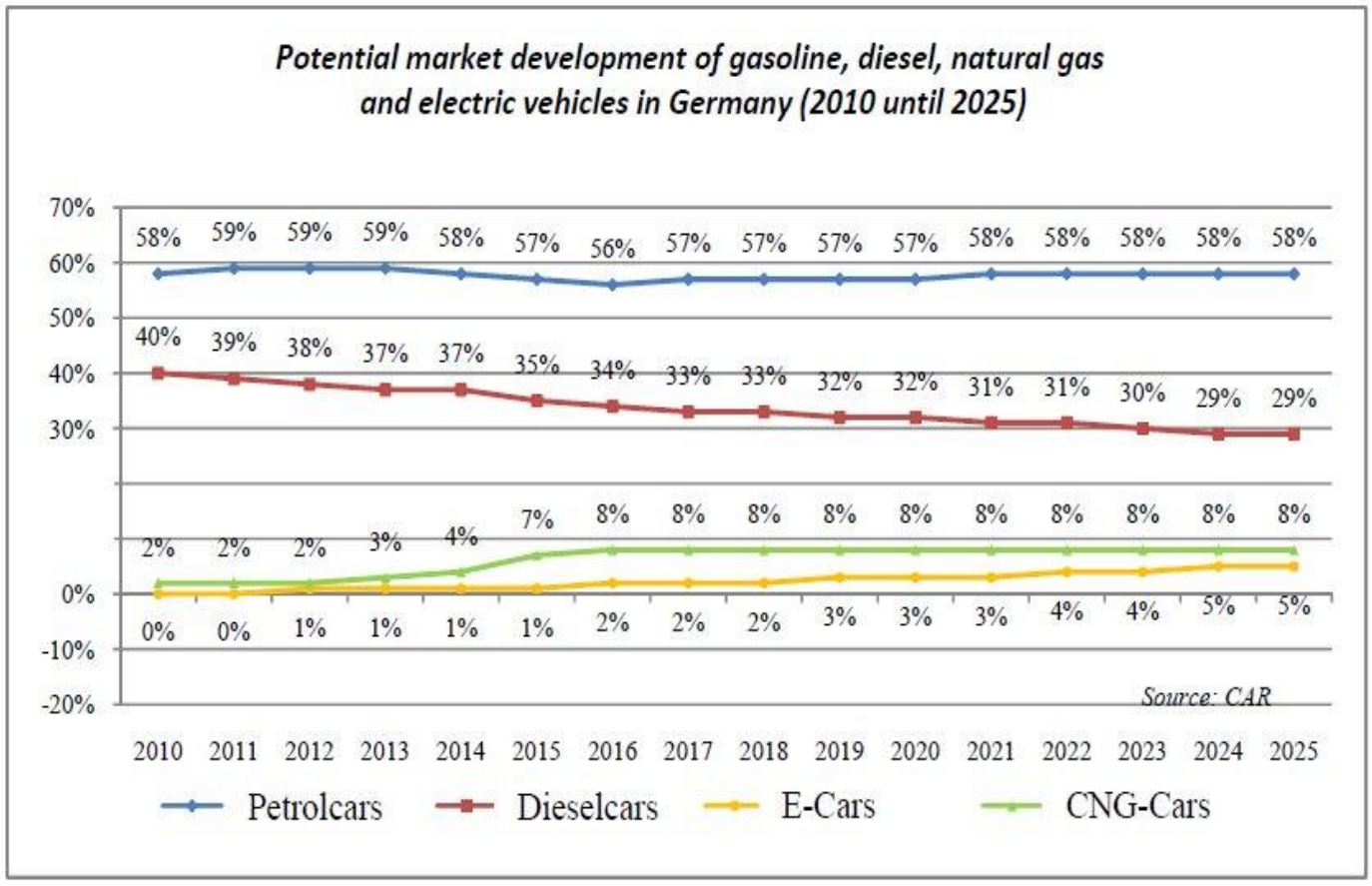
"2004 Fuel Strategy"

To reach the target vehicles, numbers must rise to around 1.4 million or approx 2.6 % of the current number of vehicles on the road



Source: DENA, The role of natural gas and biomethane in the fuel mix of the future in Germany

NGVs should be 8% of total vehicles in Germany in 2016 (challenging target!)

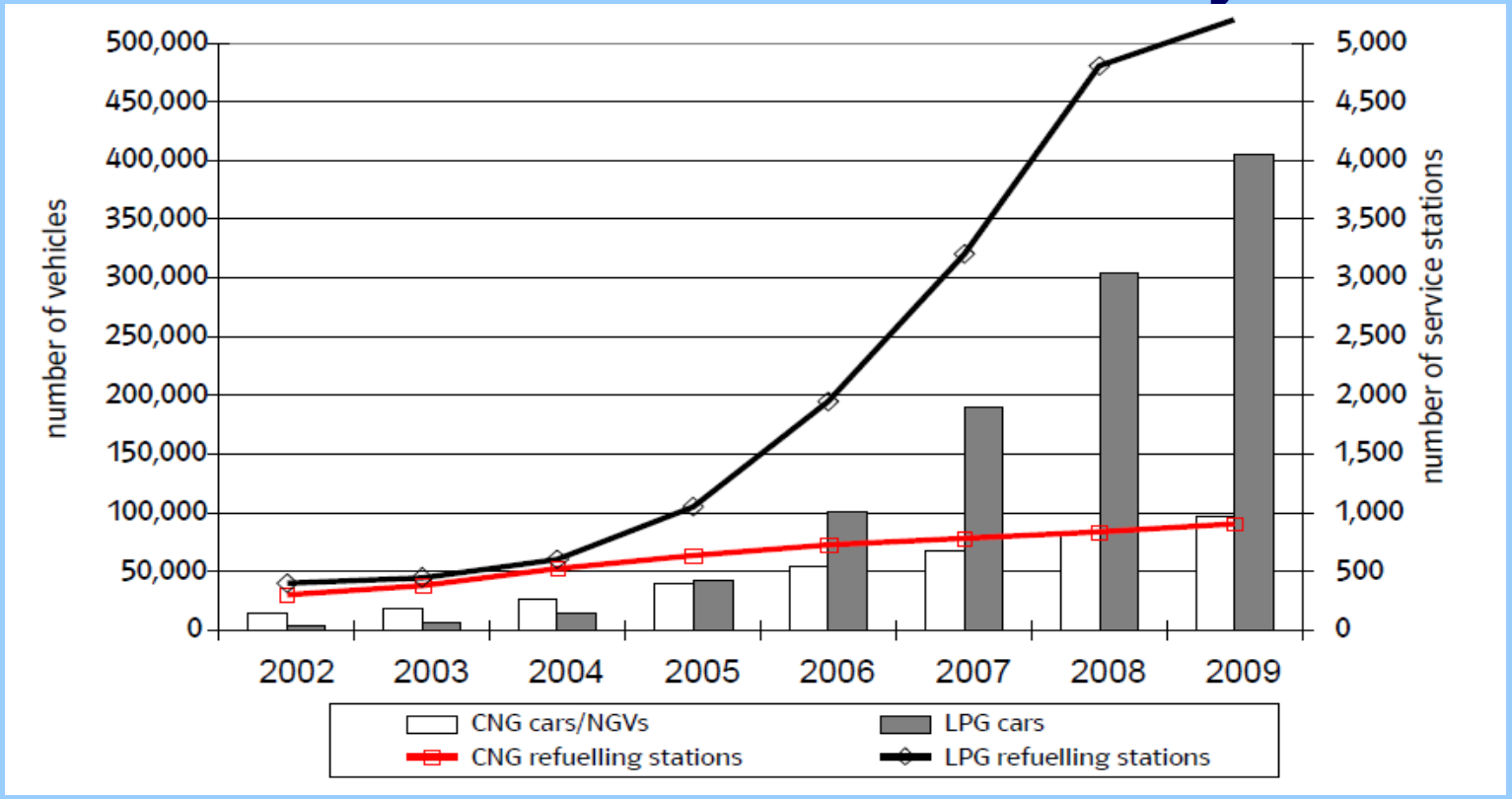


Source: ENI, Compressed natural gas as fuel for NGV – potential, synergy and development , September 2011

NGV FUELLING INFRASTRUCTURE

Germany has introduced the international CNG road signage agreed through the UN

Due to a lower investment in refuelling stations (70.000€ vs 250.000€), LPG grew much more then CNG in the last years

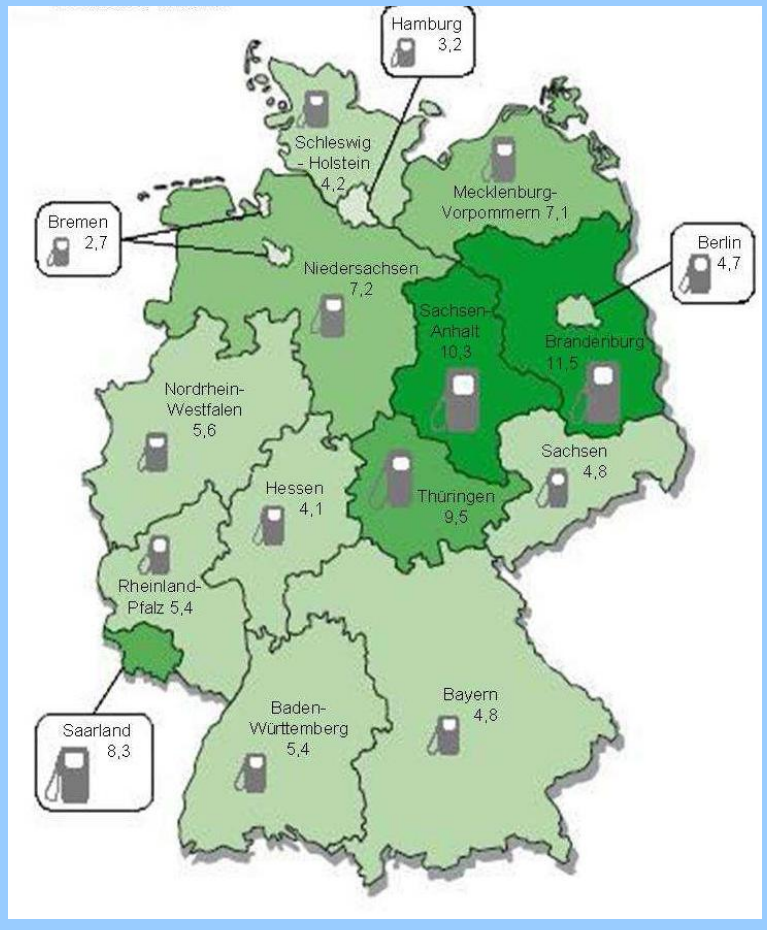


Source: E-On, Potential of Natural Gas and Biomethane as a Fuel for Climate Protection

Approx 860 of the total 14.500 petroleum fuel stations include natural gas fuelling

Proportion of CNG stations in fuel station network (number per 100 stations)

- < 4 CNG stations
- 4-6 CNG stations
- 6-8 CNG stations
- 8-10 CNG stations
- 10-12 CNG stations



Cooperation between the local municipality and the operator of the conventional fueling station is important but there are various ownership models

- In the majority of cases the mineral oil company is the station operator
- The operator of the fueling station frequently owns or leases the fuelling station
- The local municipality is in-charge of running the NGV/CNG refueling system: they are taking care of maintenance and set their own CNG price

Source: GERBIO, National Report on State of CNG/Biomethane filling station – Germany, April 2010

Gas fuelling infrastructure is predominantly in private sector hands

- In addition to some major gas companies (private) there are about 700 municipal (private or public) and regional (private) utilities in Germany partly operating natural gas fueling stations

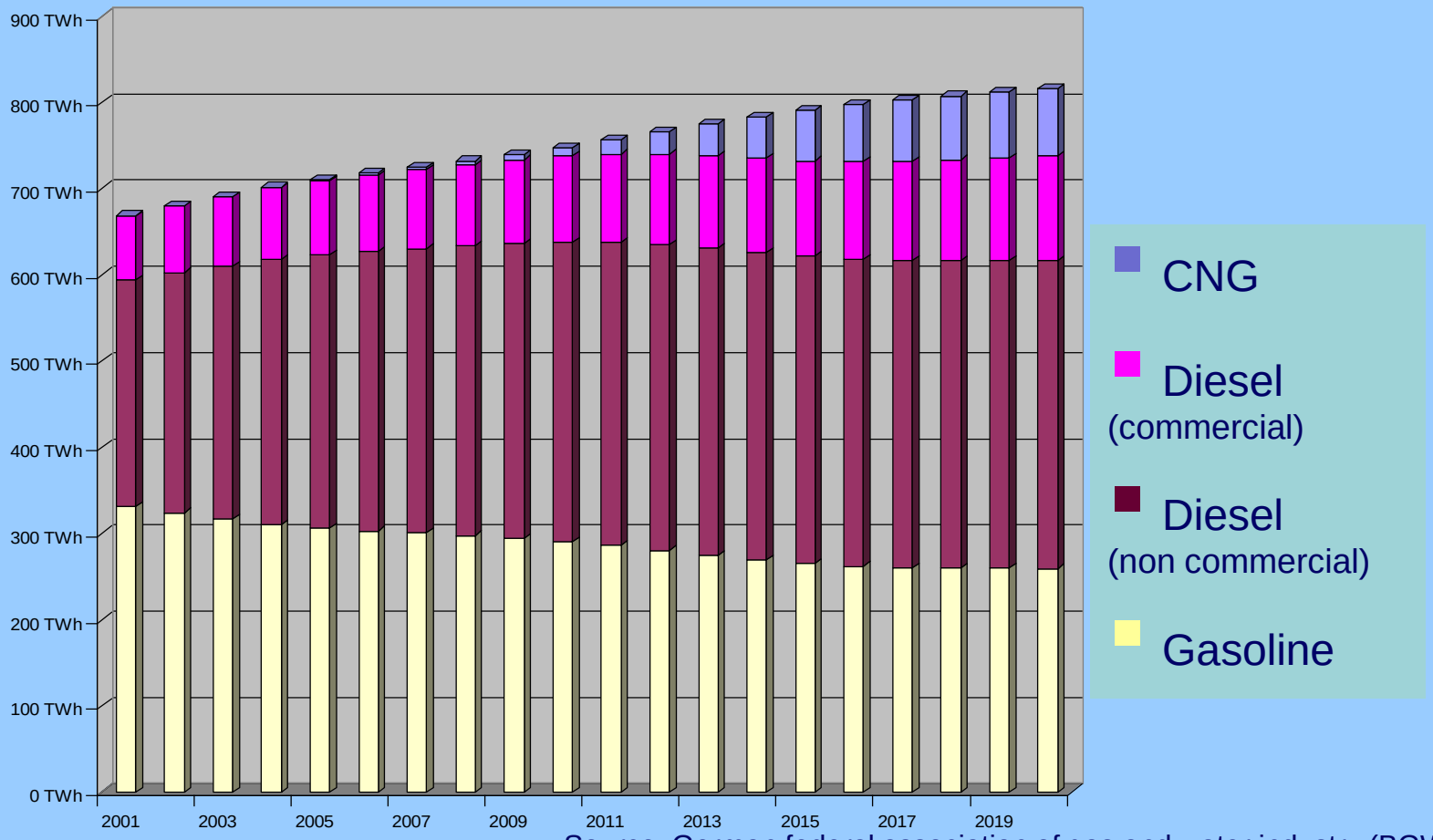
Share of CNG in German fuel market currently is 0,3%

Goal of Federal government's Fuel Strategy 2004 not achieved in 2010:

- Share of natural gas in the fuel market should be 0,5 – 2%
- Assumption for 2020: 4 – 10%
- Goal achievable if sales figures increased sharply in next few years

Source: DENA, Enhancing the role of natural gas and biomethane in transport: concept for a roadmap process, Berlin 20 October 2010

Predicted Energy Consumption in the Transport Sector



Source: German federal association of gas and water industry (BGW)

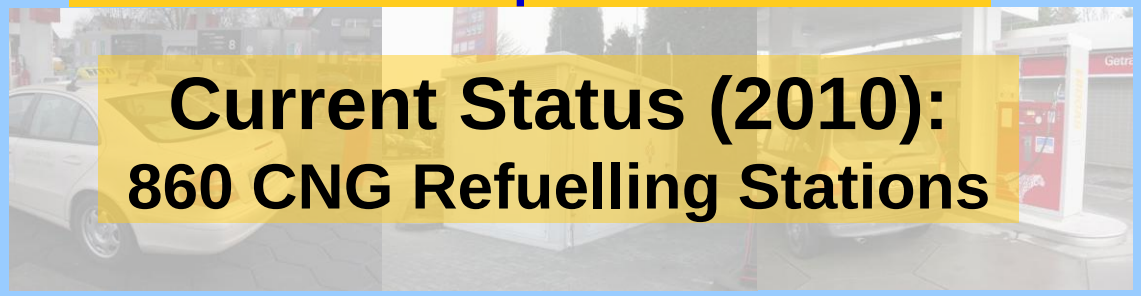
CNG Station constructed by erdgas mobil

Price panel

Integrated CNG multipoint fuel dispenser

Single handed operation

There is no difference whether the customer uses gas, petrol or diesel..Except the PRICE!



Current Status (2010):
860 CNG Refuelling Stations

Up to now there are only two biomethane refuelling stations

Jameln:

- Created by the Farmers Association (raiffeisen Genossenschaft Jameln)
- Is operating since June 2006
- The biomethane comes from a close Biogas Upgrading Plant

Dannenberg:

- Created by a farmer with an existing conventional fuelling station
- The biogas upgrading equipment is installed but they have to wait to get the permission from the local gas supplier to allow for the injection of the biomethane to the national gas grid

Source: GERBIO, National Report on State of CNG/Biomethane filling station – Germany, April 2010

New biomethane station became operational in Augsburg (Bavaria)

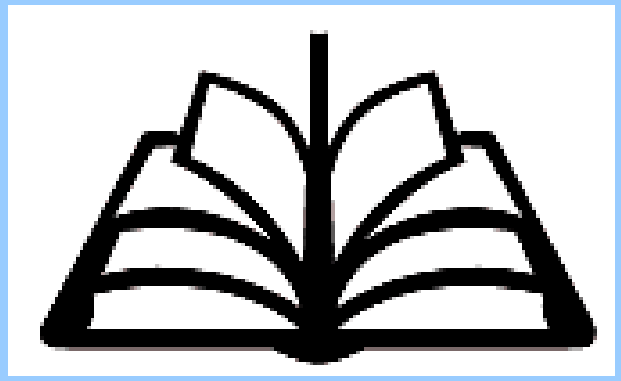
- Fuel produced by Verbio AG, according to the agreement signed with Stadtwerke Augsburg, the city public utility provider
- Initially, natural gas will be mixed in a ratio of one-third biomethane and the plan is to increase this share to 100%

Source: “Augsburg's filling stations to serve biomethane”, NGV Journal, May 12, 2011

German-based compressor, fuelling station, and component suppliers

- Bauer: Compressors
- Schandl: Compressors and Fuelling Stations
- Schwelm Anlagentechnik: Fuelling Stations
- WEH gmbh Gas Technology: Fuelling Stations; fuel connectors

STANDARDS & REGULATIONS



Approximately 90% of the CNG filling stations are integrated into the mineral oil stations infrastructure

- Multi-fuel stations: allowed
- No limits on opening hours: 70% of stations are opened 24 hours
- Self service: allowed
- Payment practices at the pump: cash, credit card and company fuel cards

Vehicle and safety regulations in Germany are based on EU and UN ECE

- Natural gas vehicles – Emission Standard Procedure (heavy duty vehicles): ECE R-49
- NGV components standards: ECE R-110 and ECE R-115

Source: Ergas mobil, Timm Kehler,NGV Rome, June 2010

For a CNG refueling station national laws and national standards apply

- Building permits for the construction of fuelling stations are issued by the local authorities
- The joint Technical Standard for CNG Fuelling Station **G 651 A vdTÜV** was introduced by the DVGW (German Technical and Scientific Association for Gas and Water) and TÜV (Technical Inspection Authority)

Source: GERBIO, National Report on State of CNG/Biomethane filling station – Germany, April 2010

All necessary standards and by-laws identifications can be found in the G 651 A vdTÜV

- For NGVs the UN-ECE R110 is used
- For all CNG fuelling stations an individual explosion proof safety document has to be produced
- Maintenance and operation of an CNG fuelling station is done according to DVGW Standard G 651
- Fuel quality standard: DIN 51624

Source: GERBIO, National Report on State of CNG/Biomethane filling station – Germany, April 2010

Source: Ergas mobil, Timm Kehler,NGV Rome, June 2010

Requirements for gas injection according to German standard G260/G262

PARAMETER	UNIT	DEMAND IN STANDARD
Higer Wobbe index	MJ/nm3	46,2-56,5 in H gas grids 37,8-46,8 in L gas grids
Relative density	-	0,55-0,75
Dust	-	Technically free
Water dew point	ºC	<t
CO2	Vol-%	<6
O2	Vol-%	<3 (in dry distribution grids)
S	Mg/nm3	<30

Odorization standard based on DVGW G 280-1 and EN ISO 13734

- Odorization required both for transport and distribution
- Level of concetration and a control are required
- Continuous controls with perdiodical inspections and analytical and olfactory analysis

Source: Marcogaz

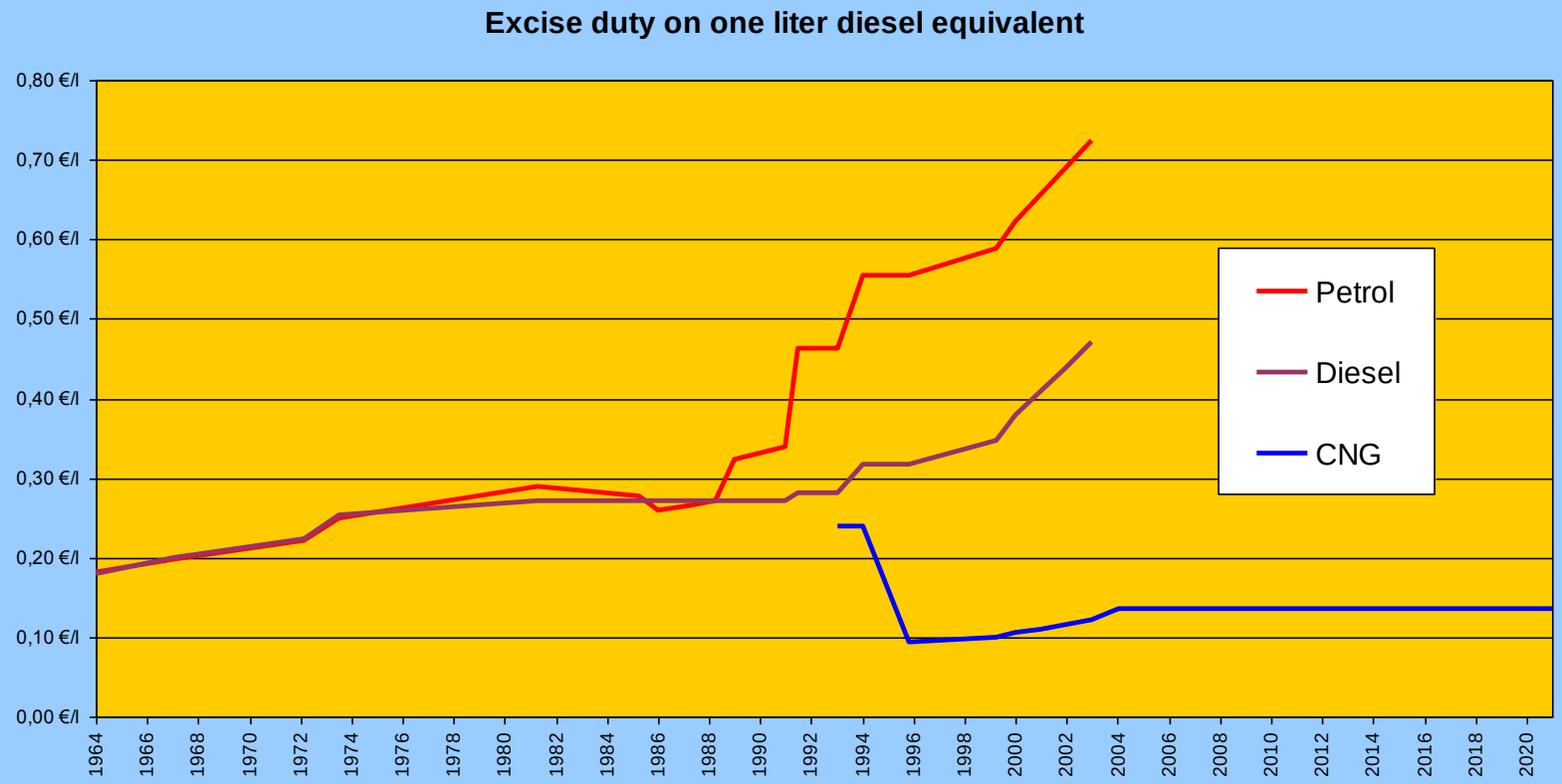
GOVERNMENT SUPPORT

New energy plan in favor of natural gas and biomethane as a fuel *"The Challenge of Mobility"*

- The federal government promotes the increasing sales of natural gas vehicles.
- The planned fuel tax based on greenhouse gas emissions also favours natural gas, as the environmentally-friendly fuel would also benefit from a low rate of taxation over the long term

Source: "German government plans to step up support for natural gas vehicles - Long-term strategic commitment outlined in the new energy concept", Gas Vehicles Report, October 2010, page 27

Tax reduction for CNG as a motor fuel for transport until 2018



Diesel:	4.79 ct/kWh	Petrol:	7.37 ct/kWh
CNG:	1.39 ct/kWh	LPG:	1.28 ct/kWh

GOVERNMENT SUPPORT

Tax is now based on vehicles' CO2-emission and the engine capacity. The new tax scheme is applicable for all cars that are used after 1 July 2009

- Car owners will pay €2 for each gram per kilometre of CO2 their vehicle emits beyond a specific ceiling: this has been set at 120 grams until 2011, 110 grams for 2012 to 2013, and 95 grams from 2014 onward
- A progressive tax will also take engine size into account, charging owners €2 a year for every 100 cubic centimetres of a gas-powered car's engine displacement; with the charge for diesel engines rising to €9.50 per 100 cubic centimetres
- Cars with a first registration since 4th November 2008 will be taxed as before until December 31st 2012. In 2013 they will be included in the new vehicle tax scheme

Funding scheme for investment in CNG/Biomethane vehicles and/or fuelling infrastructure is in place

- The funding scheme is operated by the national governmental development Bank KfW under the program umbrella «ERP – Umwelt – und Energieeffizienzprogramm»
- The national government offers a funding scheme for federal states (Gemeindeverkehrsfinanzierungsgesetz) for the implementation of buses/coaches running with fossil CNG / biomethanol used in public transport. Also the retrofitting of the vehicles can be funded

Source: Cleanportal.eu

Biogas Feed-in Tariffs according to the Renewable Energy Source Act (EEG) are guaranteed for 20 years according to a fixed rate

- Base Tariff: increase for old and new plants in the capacity class up to 150 KWe by 1ct/KWh to 11,67ct/KWh
- Bonus for the use of cultivated biomass: in the class up to 500KW the bonus is raised from 6 to 7ct/KWh independent of the start of operation year. For capacity up to 5 MW the bonus for the use of cultivated biomass remains at 4ct/KWh
- Landscape Conservation Bonus: the bonus for the use of cultivated biomass is raised by another 2ct/KWh, if mainly plants or plant particles from landscape conservation are used in the power generation
- Technology Bonus: 2ct/kWh up to a maximum gas conditioning capacity of 350 Nm^3 conditioned raw gas per hour 1ct/kWh up to a maximum gas conditioning capacity of 700 Nm^3 conditioned raw gas per hour (at a plant capacity of 5 MW maximum)

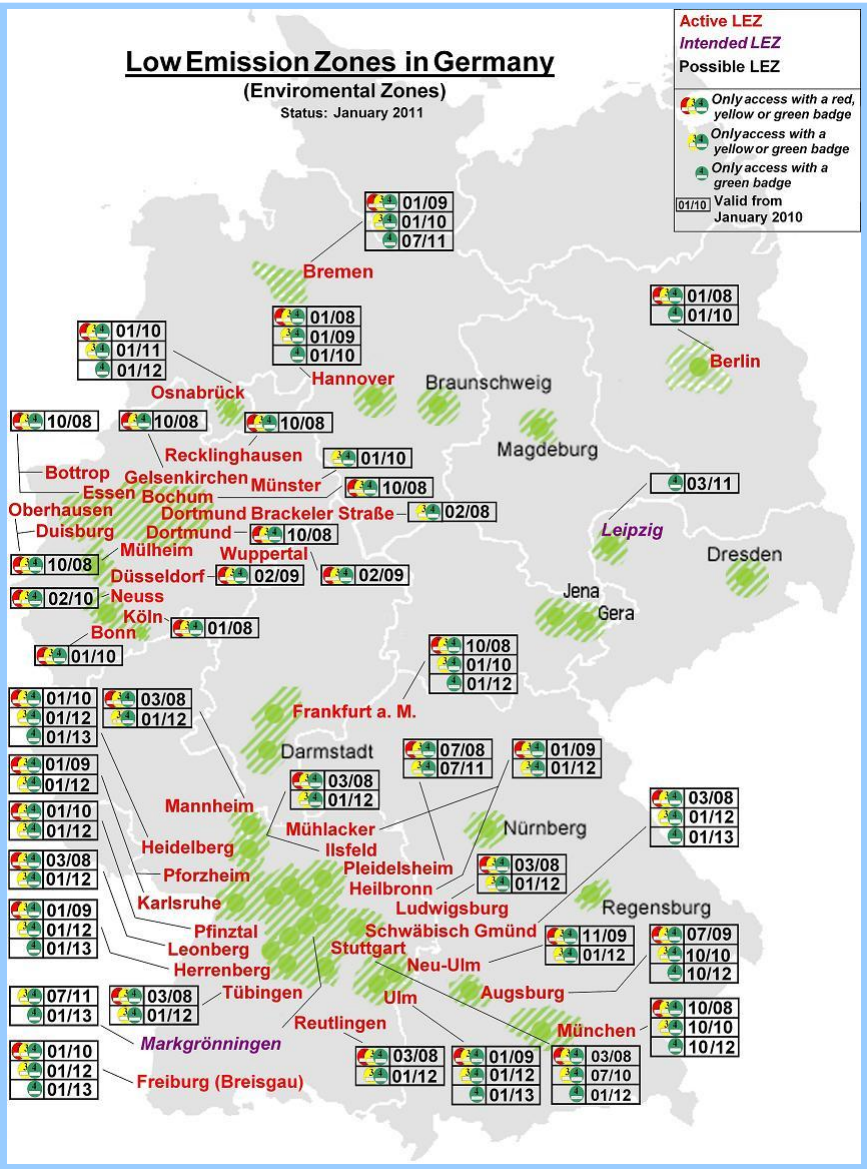
Regional Incentives

- Incentives vary in each Lander (state) and usually are organized by the local gas companies
- Regional incentives given by local natural gas companies are in the form of reductions, between €100 and €1500, or coupons to buy natural gas LDVs
- In Hessen 15,000 Lufthansa Air Miles are offered to NGV owners who recommend an NGV to a friend who then purchases one
- In Bremen €700 reduction is provided if the vehicle's emissions meet EURO 4 standards and the vehicle has an NGV advertising sticker displayed
- Some banks give a 15% reduction on insurance premiums for NGVs
- Some banks have environmental programs that offer low-interest loans to commercial companies
- The fuel cost savings mean it often only takes two years to recoup the additional costs of an NGV

Municipal Green Zones for Lower Polluting Vehicles

- Green Zones began operation on 1st January 2008 in Berlin, Cologne, and Hanover and have grown to include 23 cities
- Particularly polluting vehicles such as petrol cars without catalytic converters or diesel models without particle filters are banned from inner city Green Zones
- To enter a Green Zone a vehicle must have an environmental sticker: red, yellow or green depending on the vehicle's emission level
- A further 22 cities will introduce the scheme and another 46 environmental zones are under consideration

Current and Planned Green Zones



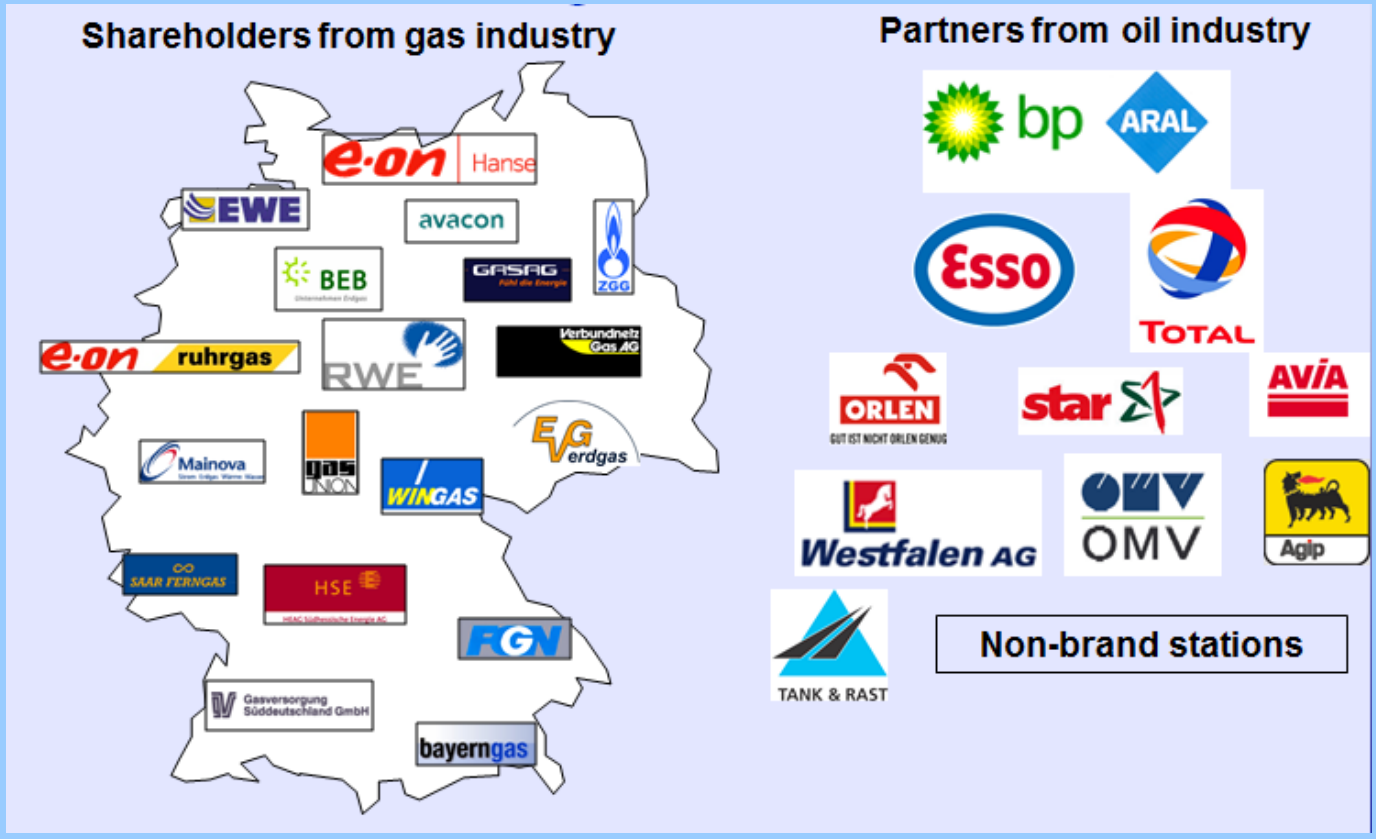
GAS INDUSTRY SUPPORT

ErdgasMobil is a partnership created to establish natural gas and bio-gas as alternative fuel of the future and exploit market potential

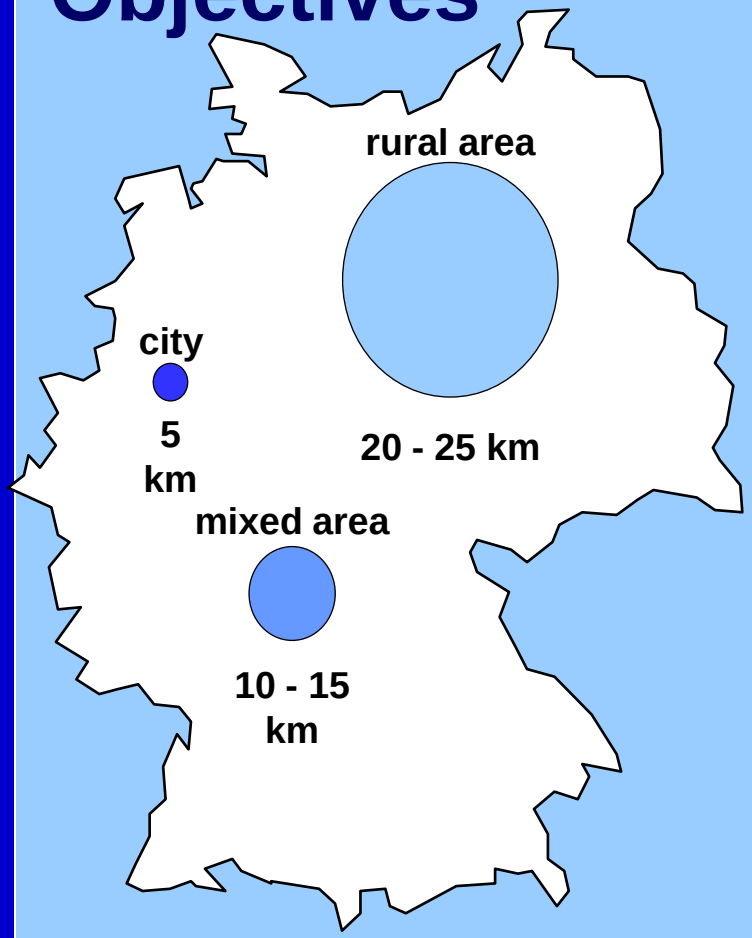
- Established in April 2002 at the initiative of E.ON Ruhrgas by 20 partners from the gas and petroleum industry
- Objective: Solve the “chicken/egg problem” for Germany by expanding the network of CNG filling stations to 1,000 stations by 2007
- Represents the interests of the participating gas companies and represents them in politics and in associations
- Infrastructure, sales and marketing services related to natural gas as fuel for all market participants

Source:E-On Ruhrgas, Country Profile Germany, 4 March 2011, Livorno (It)

Erdgas mobil GmbH: Stakeholders in Development the Fueling Infrastructure



Erdgasmobil: Objectives



Germany-wide infrastructure for CNG

'Acceptable' distance between refuelling stations is determined through customer market research

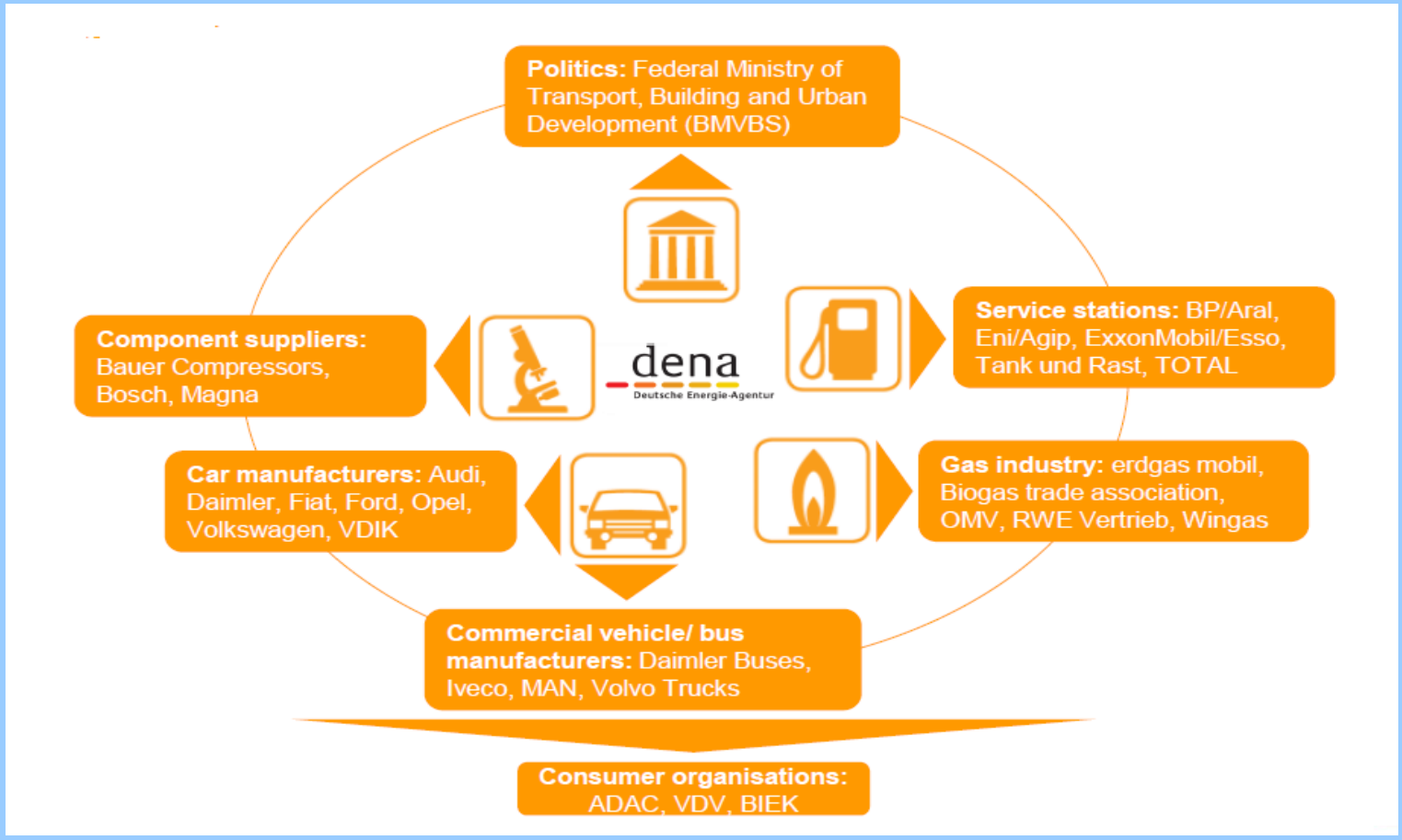
- Towns and cities approx. 5 km
- Mixed areas approx. 10-15 km
- Rural areas approx. 20-25 km

Construction of some 1,000 new CNG refuelling systems at public petrol stations until 2008/2009

Total capital expenditure:

approx. € 250 million

Roadmap to reach the goal of 4% Natural Gas or 1.4 Million NGVs in 2020: Consortia Approach



Source: DENA, Enhancing the role of natural gas and biomethane in transport: concept for a roadmap process, Berlin 20 October 2010

NATIONAL LAWS & REGULATIONS

Germany has a good regulatory environment that promotes business freedom

- Overall business freedom is well protected
- The efficient regulatory framework allows dynamic and innovative processes for business formation and operation

Source: The Heritage Foundation, 2011 Index of economic freedom

Germany is a dynamic economy in which is easy to make investments

- Foreign and domestic investors are treated equally. There are no permanent currency controls on foreign investments and no serious limitations on new projects
- The legal and regulatory environment is complex but transparent
- There are no restrictions on capital transactions or current transfers, real estate purchases, repatriation of profits or access to foreign exchange

Source: The Heritage Foundation, 2011 Index of economic freedom

COMMENTS BY STAKEHOLDERS

COMMENTS BY STAKEHOLDERS

The Federal Government is supporting an increase in the proportion of natural gas vehicles. It will investingate which measures can achieve an increase in the utilization of biogas in the fuel sector

Source: Energiekonzept – fur eine umweltschonede, zuverlassige und bezahlbare Energieversorgung, 28 September 2010, p.24

COMMENTS BY STAKEHOLDERS

- CNG infrastructure is still inadequate especially along German motorways
- Approx. 150 CNG filling stations are needed to close the gap
- Further development of CNG infrastructure in towns & cities and mixed areas (200/400)

Source: E-On, Potential of Natural Gas and Biomethane as a Fuel for Climate Protection

COMMENTS BY STAKEHOLDERS

"VERBIO AG wants to increase its production capacity and convert Germany's entire natural gas station network to the new green fuel (biomethane)"

Claus Sauter, CEO of VERBIO AG

Source: "Augsburg's filling stations to serve biomethane", NGV Journal, May 12, 2011

COMMENTS BY STAKEHOLDERS

"Despite the good progress in building filling stations (today we have over 900 stations), only a few OEM's offer attractive natural gas vehicles.
Certainly the limited range of vehicle types is still an essential market barrier for CNG."

Stakeholder from energy company

CONCLUSIONS

- Energy Environment
- Gas industry support
- Government support
- NGV market development
- Legal and regulatory framework for CNG station development
- Investment environment

Energy Environment

- Natural gas plays a leading role in Germany energy markets today and will in the future
- The well-developed infrastructure provides direct access to gas in most parts of the country
- Germany is the European leader in renewable biomethane production and will likely be important to adding environmental advantages to NGVs (and gas generally)

Gas Industry Support

- Strong partnership between gas industry, auto manufacuters, petroleum suppliers and government has created one of the best organised, most active, strategic NGV programs in the world
- Industry pushing for the expansion of the gas fuel station network to the target of 1,000 stations
- Gas industry intends biogas/biomethane to become part of the natural gas fuel mix for vehicles as part of the national CO2 reduction targets

Government Support

- Strong interest from government thanks to the strong stakeholder's lobbying and cooperative relationship with policymakers
- Good long-term strategy planned for CNG and NGVs
- Municipal government support very strong
- Commitment to CO2 reductions and 'greener energy' will be very positive for continued support for NGVs

NGV Market Development

- Good variety of NGVs available with a lot of national OEMs involved in their products for the domestic, European and international markets
- More vehicles are needed to make the CNG stations economical (sooner than later!)
- Fuel station ‘corridors’ linking critical mass stations in city centers bodes well for the growth of the vehicle markets for commuters and fleets
- Due to higher taxation and higher investment for CNG a big gap still remains compared to LPG market development

Legal and regulatory framework for CNG station development

- Standards and regulations are complex but well-established and trasparent
- There are very few barriers to invest in refuelling stations for domestic or foreign companies

Investment Environment

- Business freedom and investment freedom are strong
- Long-term competitiveness and entrepreneurial growth are supported by openness to global commerce

GERMANY
(August 2011)