



Overview of Autogas market in Europe

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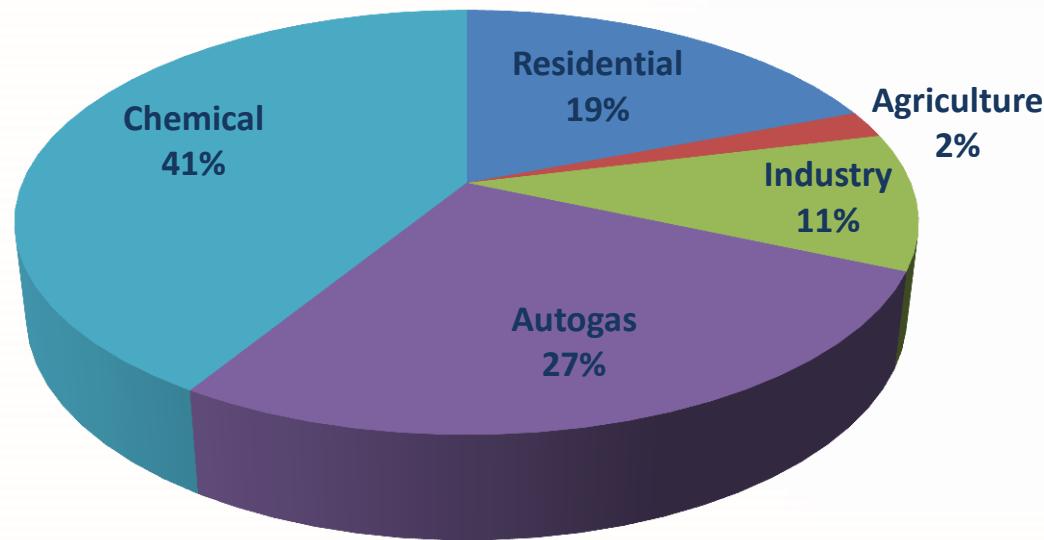
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Buenos Aires, March 30th, 2017



Market segmentation in Europe

Total LPG demand in 2015
= 37 million tonnes



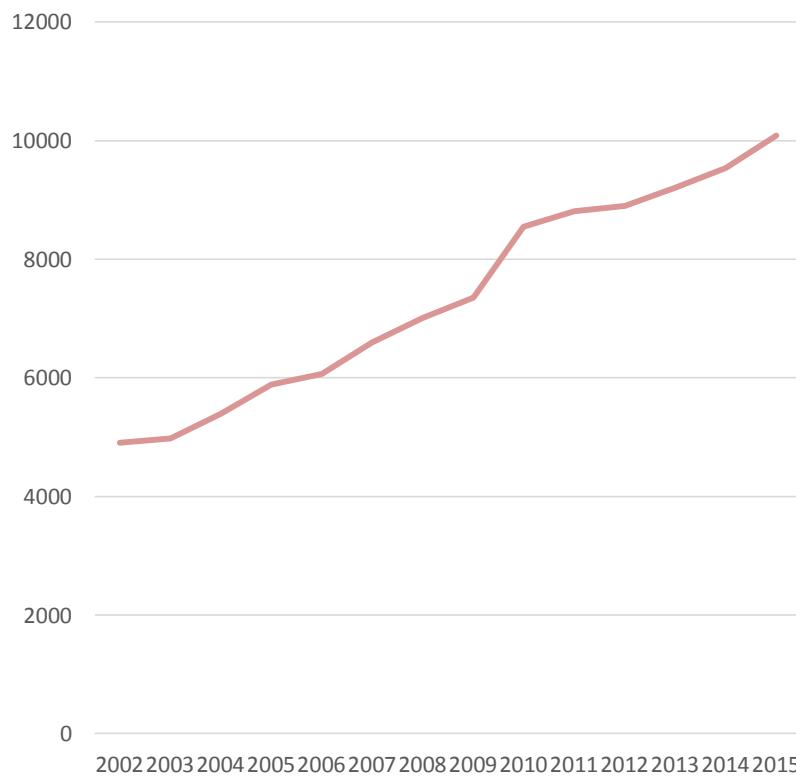
Top-10 Autogas markets in Europe (in volume)

1. Turkey
2. Poland
3. Italy
4. Ukraine
5. Germany
6. Bulgaria
7. Romania
8. Serbia
9. Greece
10. Netherlands

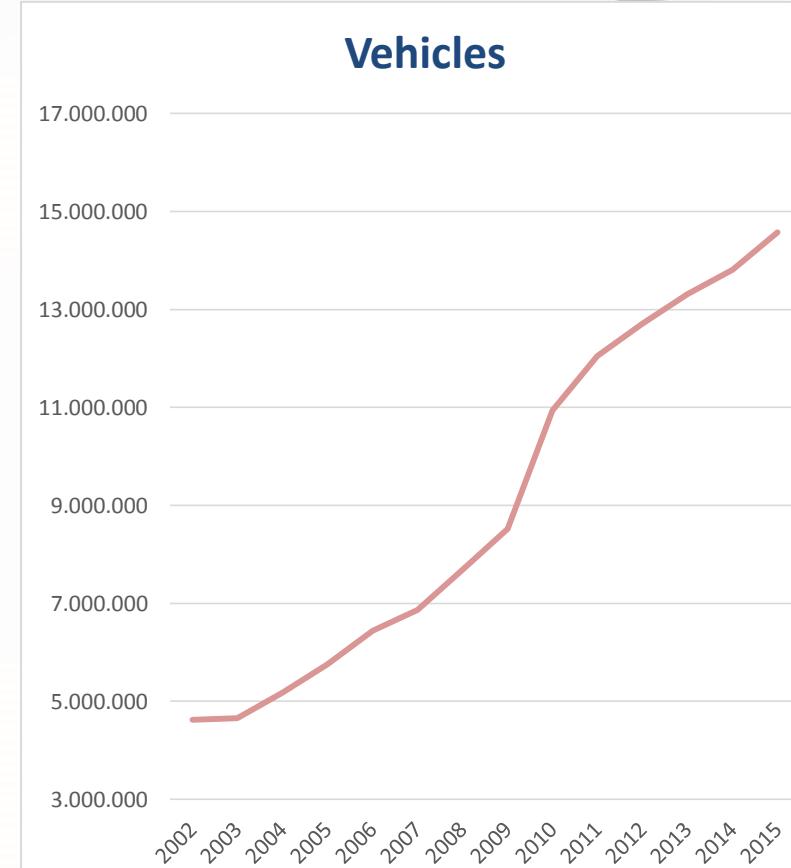
EU 28 + Turkey, Ukraine, Norway, Switzerland, Serbia and Bosnia Herzegovina

15 years of steady growth

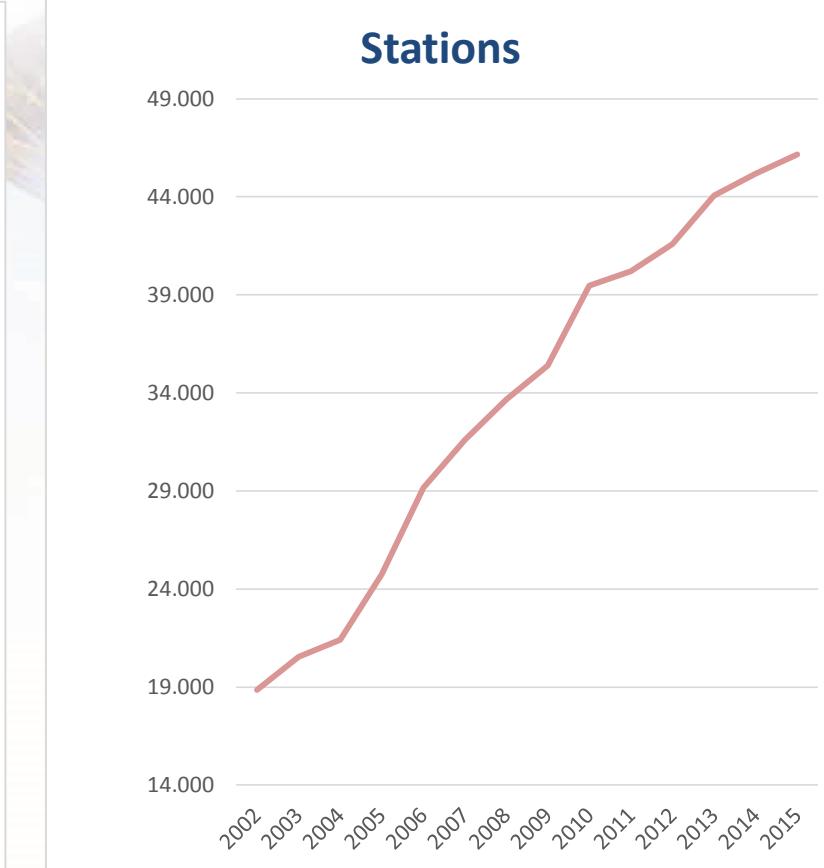
Volumes



Vehicles



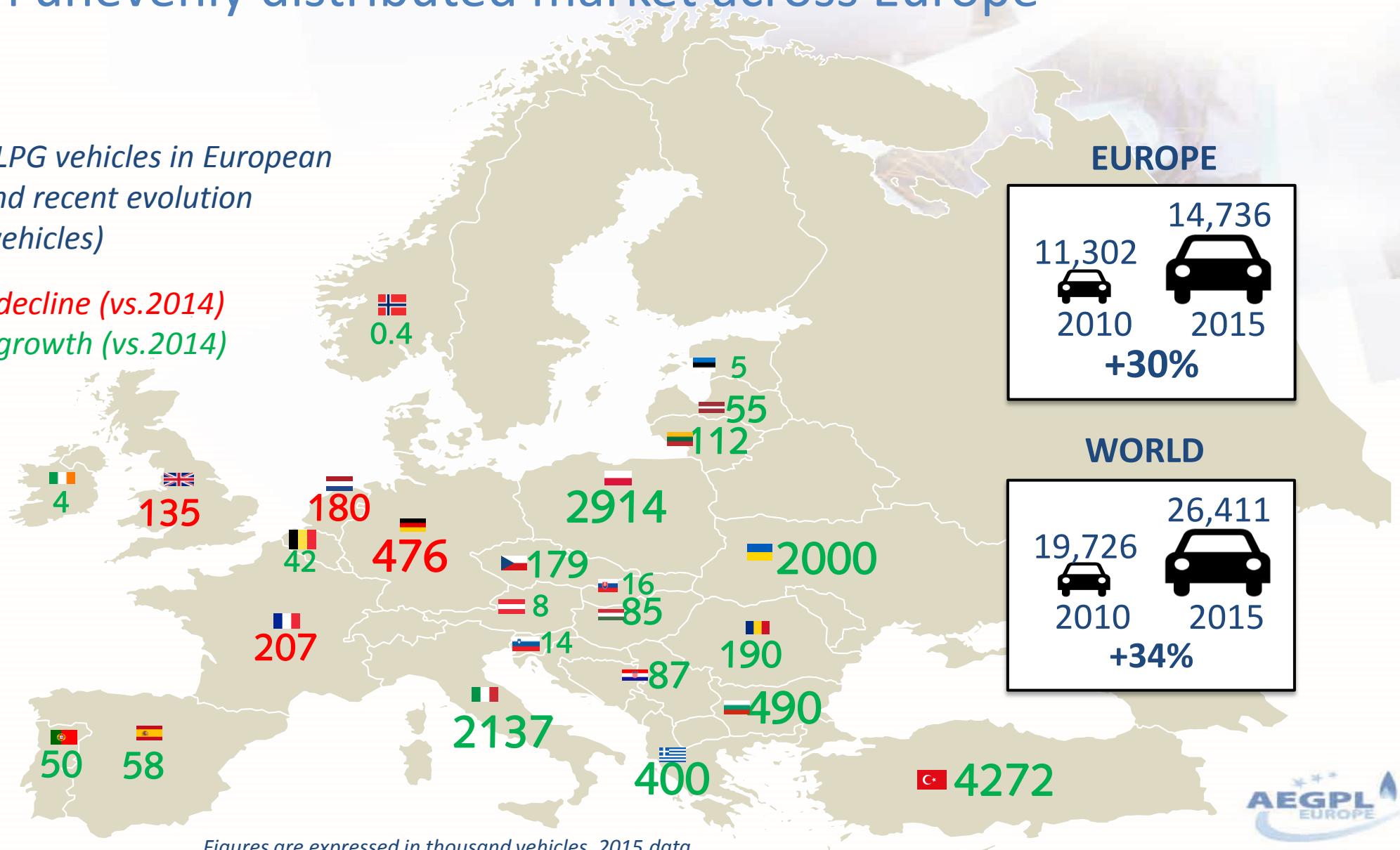
Stations



An unevenly distributed market across Europe

Number of LPG vehicles in European countries and recent evolution (thousand vehicles)

Markets in decline (vs.2014)
Markets in growth (vs.2014)





Key factors driving LPG demand in Europe

The early days: getting the Autogas market started in the 1980's

Oil prices skyrocketed.
Consumers were
looking for cheaper
alternatives

Oil Shocks



**European
Oil Majors**



Infrastructure got
started by oil companies
interested in creating a
new LPG segment

Starting awareness of
GHG issue resulted in
early support from
governments

**Climate
Change**

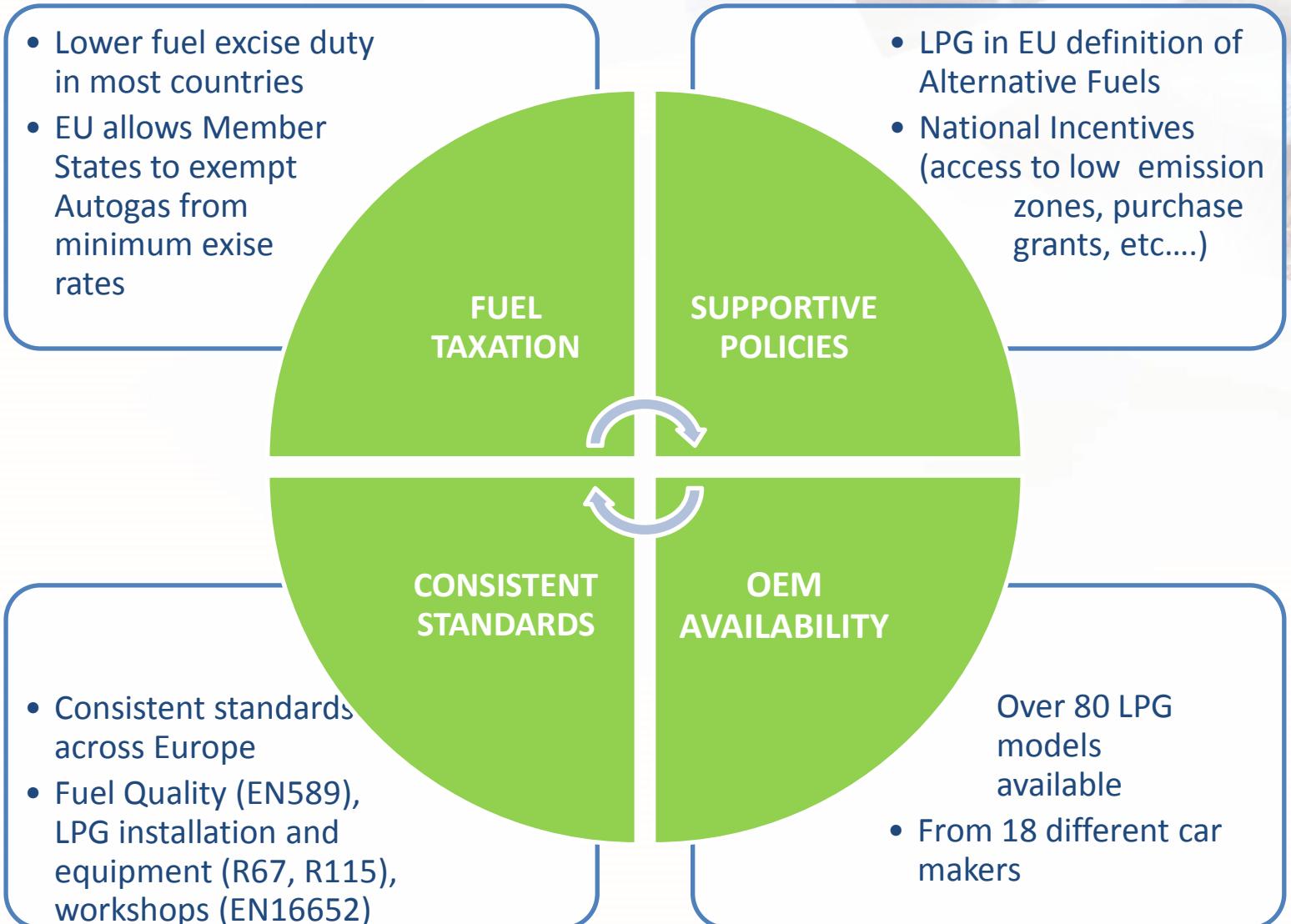


No OEMs available,
market started with
conversions (of varying
quality though)

**Conversions
Only**



What is now driving autogas growth?



What are the obstacles?



Policy push towards renewables only



Electromobility hype

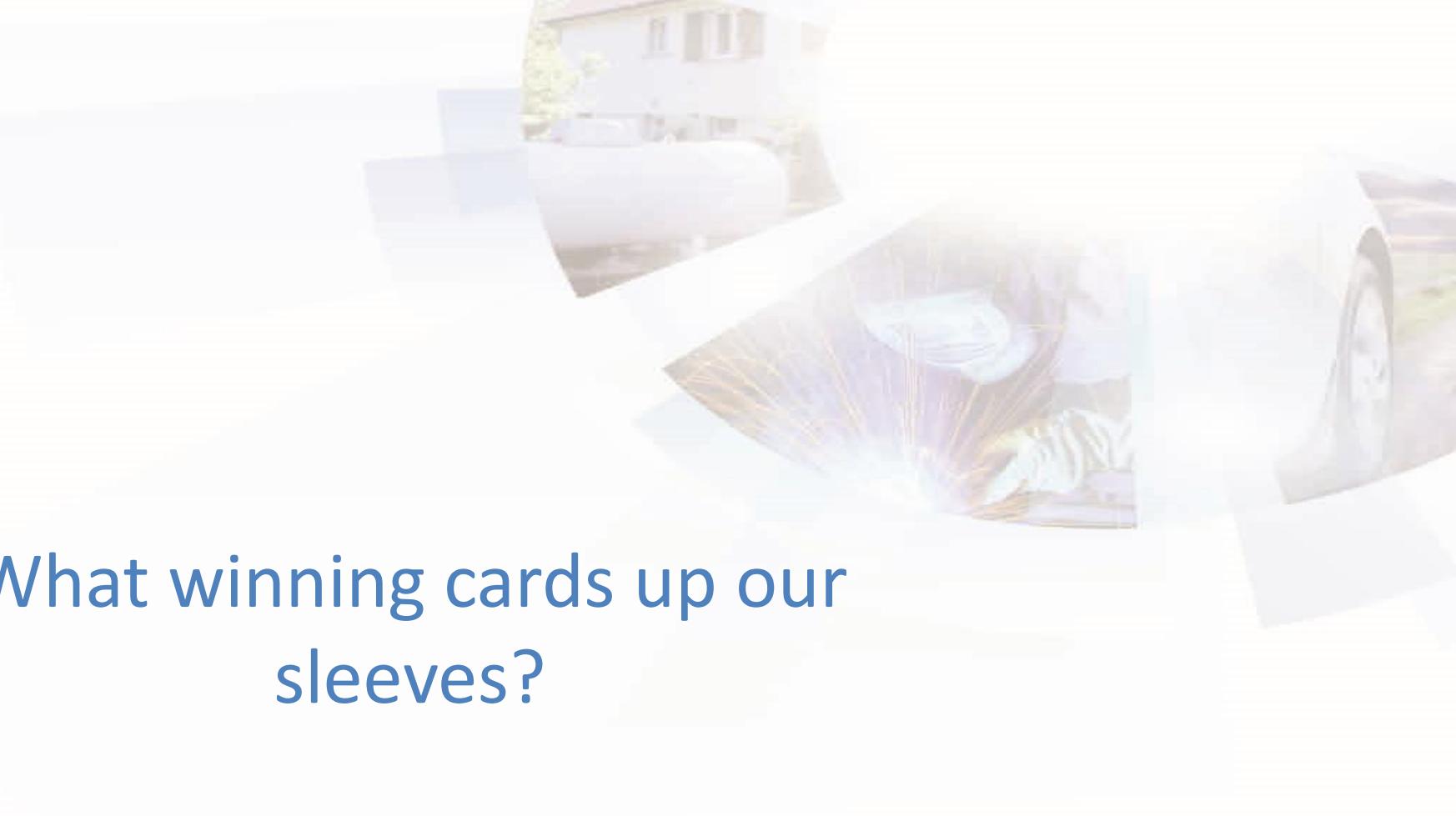


European market still dominated by diesel



Perception issues remain



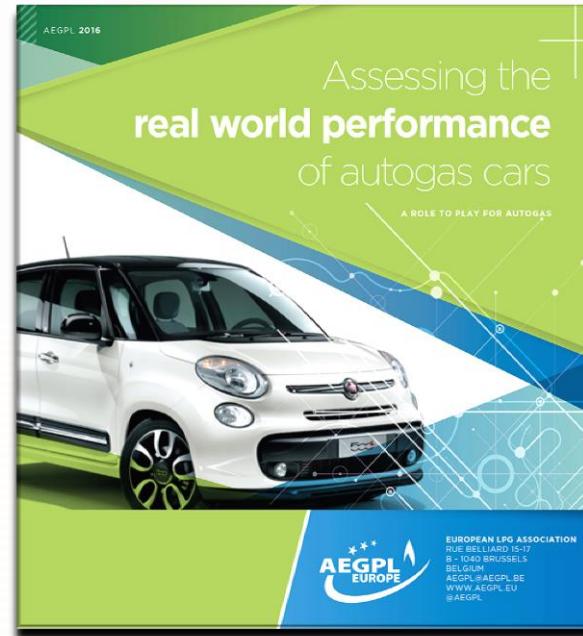


What winning cards up our
sleeves?



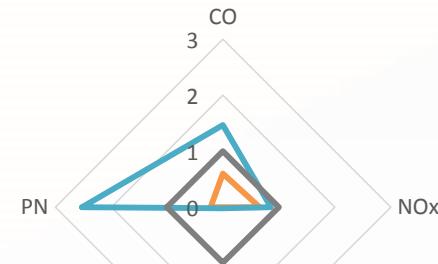
Our response to the post-dieselgate environment: LPG real-driving emission tests

- ✓ Series of tests run jointly by AEGPL + the French and German LPG associations
- ✓ Use of Portable Emission Measurement Systems, based on state-of-the-art test procedures, RDE and WLTP, to become mandatory in the EU in September 2017
- ✓ 6 vehicles tested (LPG vs gasoline and diesel)
- ✓ Series of 3 tests (80kms on public roads) for each type of fuel and car
- ✓ Measure simultaneously a number of GHG and pollutants: CO₂, CO, NO_x, HC, particle number

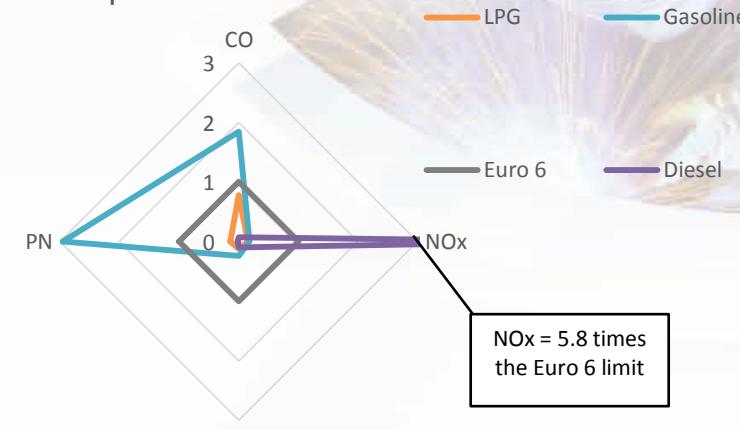


Results overview vs. Euro 6 limits

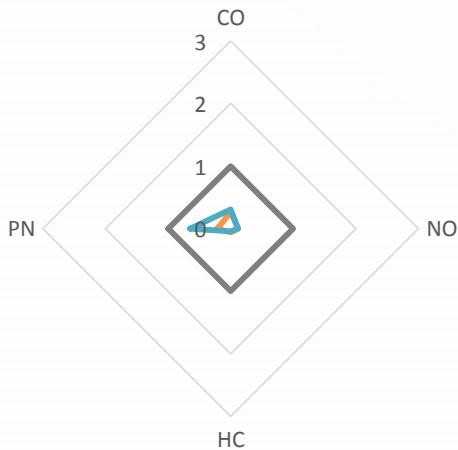
Alfa Romeo Mito



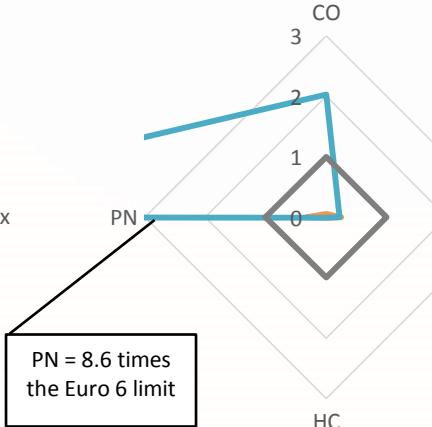
Opel Astra



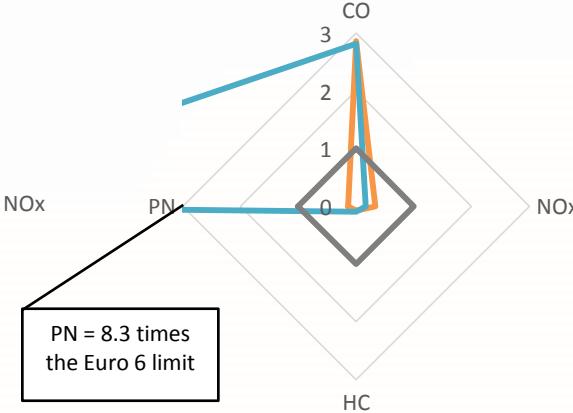
Skoda Octavia



Fiat 500L



Kia Sportage



Key takeaways from our European RDE tests

Average results for the Autogas vehicle compared to gasoline

CO2	CO	NOx	HC	PN
-13%	-45%	Similarly low	Similarly low	-90%

Autogas vehicles, even older converted cars, bring significant reductions in particles and CO2 emissions when compared to gasoline

Similar emission profile as modern diesel (i.e. low on CO2 and several pollutants) but -98% NOx emissions!!

→ Will contribute to nurture/renew interest in LPG from car manufacturers and policy makers

Biopropane is becoming a commercial reality in Europe



RHI Evidence Report:
Biopropane for Grid Injection

SHV Energy

HOME COMPANY ENERGY PEOPLE SUSTAINABILITY BUSINESS UNITS MEDIA CENTRE THINK LPG

BIOPROPANE COMING TO EUROPE
Image a fuel that is made from waste, by-products or renewable raw materials. Image a fuel that emits up to 95% less CO₂ than fossil fuels. Image a fuel being just as good, efficient and versatile as the LPG you use today. Say hello to Biopropane.

Two global leaders in sustainable energy have reached an agreement to produce and market biopropane.

JOINING FORCES
Neste Oil is world leader in biofuels and has created NEXBTL, an advanced biofuel produced from vegetable oil. Neste Oil will make production at several plants across the world. Neste Oil will make in Rotterdam to recover a side stream from the production of NEXBTL.

LPG
EXCEPTIONAL ENERGY

- Several major announcements from the industry in the last months
- Critical for maintaining authorities' interest to support LPG
- AEGPL and European industry at large stepping up effort to integrate in our advocacy strategy

SCIENCES D'AVENIR
Nature

Comment faire de bonnes affaires quand on aime le vin.

À LA UNE

Un pas franchi vers le biopropane

Du gaz propane a pu être produit pour la première fois à partir de batteries. Une étape importante vers la prochaine génération de biocarburants.

GLOBAL BIOENERGIES
Comité Français Butane Propane

Vers un GPL renouvelable ?
CFBP et Global Bioenergies annoncent la réussite d'une série de tests intégrant de l'isobutène renouvelable dans les bouteilles à usage domestique

4 septembre 2015 – Le Comité Français Butane Propane (CFBP) et Global Bioenergies ont annoncé la réussite d'une série de tests intégrant de l'isobutène renouvelable dans les bouteilles à usage domestique.

DCC
Energy LPG

We are currently developing partnerships with investor groups and propane distributors to build and operate rural cooperative commercial scale biogas plants and biopropane and bio-hydrogen production facilities in 2016.



AEGPL EUROPE
European LPG Association

Further enhancing the LPG industry's contribution to EU climate and environmental policies

An AEGPL Introduction to BioLPG

1. What is LPG?

LPG is a blanket denomination covering propane (C₃H₈) and butane (C₄H₁₀), two naturally occurring gases which are easily converted to liquid form through the application of moderate pressure.

LPG is today primarily derived from the exploitation of natural gas (the origin of 62% of global LPG supply; 47% in Europe¹) and also comes as a by-product from oil extraction and refining. It is a highly versatile energy source with hundreds of applications in the home, in industry and in agriculture. For example, LPG currently responds to the heating and cooling energy needs of more than 20 million EU households, predominantly in areas where the natural gas network is not available. LPG is also used as an alternative road transport fuel, with a current fleet of over 7.8 million stations across the European Union.

liquid and solid fuels for combustion purposes (e.g. -49% vs. coal export fuel), its well-to-wheel carbon intensity as defined by the EU in the Fuel Quality Directive is also significantly lower than diesel

gas, producing low levels of NOx and particles, meaning that it is cleaner than many other energy sources.

What is bioLPG or biopropane?

Commonly used to describe LPG derived from production processes with a biological origin as the feedstock.

is identical to that of LPG produced from hydrocarbons, so can be used in the same form. As a genuine "drop-in" fuel, it can reach the technical specification and be used in all current LPG market applications.

EUA
Energy and Utilities Alliance

Biopropane
for the off-grid sector

Energy and Utilities Alliance (EUA)

February 2016

ALKCON
CORPORATION

Biopropane Production

ALKCON Corporation has developed a modular production platform that combines advanced science and proprietary gas conversion technology that will produce biopropane and bio-hydrogen from feed sources of biogas.

DCC
Energy LPG

a clean-burning, renewable fuel which can replace autogas and liquefied petroleum gas in all consumer and industrial applications. Biohydrogen can be used in

AEGPL
EUROPE

European LPG Association

See you in Lisbon, Portugal !



www.aegpl2017.com



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