

LPG, the Immediately Available Clean Alternative





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AEGPL
Boulevard du Souverain, 165
B-1160 Brussels
Belgium

aegpl@aegpl.be

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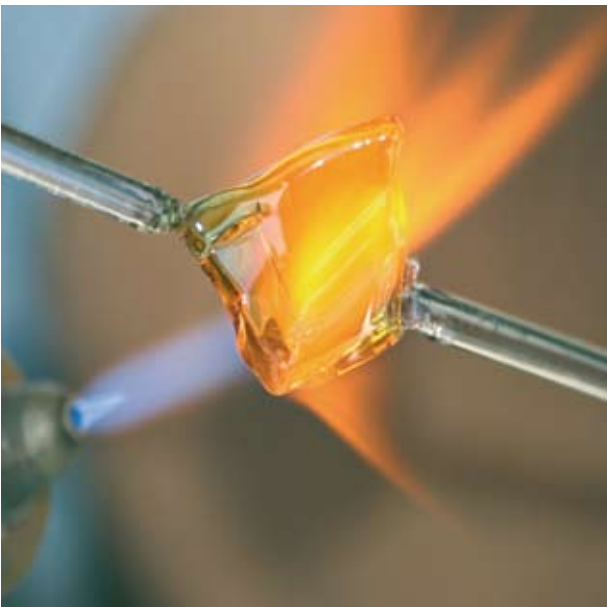
LPG: Made to play a key role in Europe's energy portfolio

LPG is an environmentally friendly energy source with a wide range of applications: domestic (space and water heating, cooking), industrial, agricultural and automotive. Indeed, LPG is used in hundreds of applications by millions of users throughout Europe.

LPG or **LP Gas**, acronyms of Liquefied Petroleum Gas, covers 2 light non-toxic hydrocarbons - called "natural gas liquids" - heavier than air and lighter than water:

- **propane** (C_3H_8) and
- **butane** (C_4H_{10}).

Their combustion has almost no harmful impact on the environment and human health, making LPG a **clean, low carbon alternative** to other fossil fuels: It burns completely, and emits significantly less pollutants than most conventional fuels.



The name "**liquefied gas**" finds its origin in the possibility to obtain **gaseous propane and butane** at a normal temperature and atmospheric pressure, and to convert them into a **liquid state** under moderate pressure or refrigeration. LPG's volume is 274 times smaller when in a liquid state than when it is in a gaseous state. As a consequence, LPG is easy to transport and store, making it the most **multi-purpose fuel**.

LPG has two origins: **66% comes from natural gas** directly drawn from the earth, and **34% from crude oil refining**¹. As an **associated gas**, LPG is **automatically generated** during production of methane, and during refinery processing. As such, its destruction through flaring and venting represents an unacceptable waste of an immediately available energy resource.



¹ Statistical Review of Global LP Gas 2006, World LP Gas Association, Paris.

LPG: A vast array of advantages

LPG offers a myriad of advantages for both end-users and the community as a whole. Simplicity of transport, storage and use are combined with its immediate availability, and negligible impact on the environment.



LPG's characteristics make it an attractive energy solution for a wide range of end-users. Available in both individual cylinders and bulk tanks, LPG is a **multi-purpose, modern, portable, clean, accessible and efficient** energy source.

Beyond the specific advantages enjoyed by end-users, the use of LPG contributes to the development of a **sustainable energy model** for European society as a whole.

LPG is:

- Limiting the impact of energy use to global warming due to its **low CO₂ emissions**
- Protecting human health by **limiting air pollution**, both indoor and outdoor, particularly in urban area thanks to low particle emissions, low NO_x emissions, and low sulphur content
- Contributing to the **security of Europe's energy supply**, thanks to its substantial reserves, dual origins and diversified supply sources
- Enhancing Europe's **energy efficiency** and energy savings
- Contributing to the EU's **competitiveness**, as a liberalized and competitive sector composed of SMEs and large companies (both with labor-intensive profiles totaling 150,000 direct and indirect employees)
- Making a **modern energy accessible to citizens** and industries throughout the EU territory, even those out of the reach of energy grids, boosting the **social and economic development** of Europe and its regions
- Accelerating the **development of renewable energy** by serving as a clean back up for intermittent renewables such as solar, wind, small hydro and geothermal

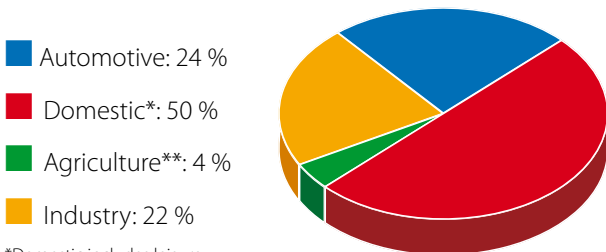
Due to its particular characteristics - both as a product and an industry - LPG can make a meaningful contribution to meeting Europe's 3 key objectives of sustainability, security of supply and competitiveness both now and in the future.

LPG: A valuable energy resource for more than 120 million Europeans

The range of LPG applications is so vast that one in four European citizens – whatever their habitat, household structure, professional activity, leisure preference or purchasing power – already benefit from its many advantages.

LPG is easily transported and stored, making it accessible to a wide range of both domestic and industrial end-users in both rural and urban areas.

LPG consumption by sector in Europe



*Domestic includes leisure

**Agriculture includes breeding

Source: WLPGA Statistical Review of Global LP Gas 2006

Indeed, LPG is a clean and efficient energy employed by:

- **Households**, mainly for cooking, space and water heating and radiant heating
- **Hotels, cafés, restaurant managers** for the same applications
- **Industry and service employees**, primarily for ceramic and glass manufacturing, metal processing, cement production, drying process, thawing, laundry, as well as forklift propulsion
- **Fleet managers and drivers**, for passenger cars, utility vehicles and buses
- **Farmers**, mainly for crop drying, distilling, flame weeding, green houses, thermal desiccation, waste incineration, poultry breeding, etc
- **Individuals or community managers, for leisure activities**: camping, barbecues, swimming pool warming, terrace heaters, boating

- **Energy managers and users in remote areas** without access to natural gas grids, as LPG is used as a clean and reliable backup to intermittent renewable sources (photovoltaic, solar-thermal, wind, and small hydro), facilitating decentralized energy production.
- **Crisis managers**, in the aftermath of natural disasters and humanitarian crises requiring immediate local availability of energy for heating, cooking or power generation.

The flexible LPG distribution network is established all across Europe. Even in areas **far beyond the reach of energy grids** (islands, mountains, remote areas), LPG is available to businesses and citizens at a competitive price. This is possible due to LPG's high energy efficiency and the low costs associated with its transport in a liquid state.

LPG plays an important role in **regional, economic and social development**, as it allows for activity and development to take place in a homogeneous way throughout the EU territory. It therefore helps stabilize the population in rural areas by giving them access to a modern energy.

LPG already accounts for 1.6 % of Europe's total energy consumption and its strong prospects for long term growth make it well-placed to play an increasing role in the overall European energy mix.



LPG in Europe: Strong growth perspectives and ambitious goals

The European LPG industry is committed to helping to meet the challenges posed by the most pressing worldwide energy and environment issues: human impact on the environment, human health, and security of energy supply.

On key issues such as protection of the environment and human health, external energy dependency and European competitiveness, the contribution of LPG - significant in qualitative terms but quantitatively quite modest today - could be rapidly increased through close cooperation between industry and public authorities.

As it is an associated gas, the potential for increasing production of LPG is not unlimited. Nevertheless, the

expansion of LPG's distribution volumes – by two or three fold – is both technically and economically feasible. This would yield benefits for society as a whole well beyond the proportion of the initial investment required.

Internal AEGPL studies, supported by external consultants' research, demonstrate that it would be possible to double LPG's share of total European energy consumption by 2030. With 8% average growth in Europe energy consumption between 2004 - 2030¹ and an appropriate regulatory framework, **LPG could increase its share from the current 1.9% to 3.8%**, representing a jump from 31 million tons to 66 million tons².

Doubling LPG's contribution to the European energy mix will boost the positive impact of LPG for its users and society in general.



¹ European Commission, DG Research, World Energy Technology Outlook-2050 (WETO-H2), EC, Luxembourg, 2006.

² In line with the approach taken by the European Commission in its WETO-H2 study, the perimeter of "Europe" includes the EU-27 + Albania, Bosnia-Herzegovina, Croatia, Iceland, Macedonia, Norway, Serbia & Montenegro, Switzerland and Turkey.

Guiding principles to transform LPG's potential into reality



- Each energy source should be **used for the application to which it is best suited** according to its availability, efficiency, the end-user's needs and the protection of the environment and human health.
- The development of a rapid and sustainable long term energy system is only possible through **close cooperation** between the LPG industry, application manufacturers and political authorities, primarily in terms of R&D.
- Energy impacts should be evaluated through a **complete life-cycle/well-to-use analysis**. This analysis should be taken into account when comparing the relative performance of different energy sources. Energies' externalized costs should be integrated in a transparent way in order to facilitate meaningful comparisons.
- Public authorities have a responsibility to **promote the growth of clean alternative energies**, particularly those suffering from a lack of awareness among the public.
- The LPG industry has a responsibility to invest in the **expansion of its distribution network** to help Europe meet its energy needs.

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AEGPL, the European LPG Association

The AEGPL is a dynamic platform, providing a forum for the sharing of expertise developed by LPG operators from all across Europe. This structured exchange of experiences generates innovative proposals and action plans, contributing to the energy policy objectives of national and European authorities.

AEGPL is comprised of 24 national LPG associations, representing the main European LPG suppliers, distributors and equipment manufacturers.

With the support of its specialized commissions and standing committees of industry experts, AEGPL is actively involved in concrete initiatives and programs to ensure the safe, efficient and sustainable development of LPG in Europe.

The AEGPL's technical committee has been particularly active in the development and dissemination of safety standards which are currently used worldwide and has a global reference for best practice.

AEGPL's missions:

- To identify and monitor European energy, environment, taxation and research policy and any other EU initiatives having an impact on the LPG industry.
- To promote an ongoing dialogue between the European LPG industry and the EU Institutions to ensure the development of a mutually beneficial partnership.
- To develop best-practices and standards related to LPG conducted in cooperation with CEN (European Committee for Standardization), ISO (International Organization for Standardization), and the United Nations (Economic Commission for Europe).
- To promote and enhance the LPG industry's image in the eyes of key European, international and national authorities, institutions, NGOs and other key actors in the European energy sector.



AEGPL is committed to demonstrating the meaningful role that LPG - the safe, clean, healthy, multi-purpose, efficient and affordable energy - can play in the European energy portfolio.

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IDENTITE INSTRUMENTS • TEL. 0142.04.73.73

**EUROPEAN LPG
ASSOCIATION**

Boulevard du Souverain, 165 - B-1160 Brussels - Belgium
aaegpl@aaegpl.be

