Q&A on BioLPG

1. What is bioLPG?

BioLPG is a gaseous fuel that can come from production processes using renewable and organic feedstocks. It is chemically identical to conventional LPG – propane, butane or a mix of thereof. It is already available on the European market in growing quantities.

2. How is bioLPG different from regular LPG? Is it identical in use and performance to LPG?

BioLPG and conventional LPG are chemically identical but produced from different feedstocks. This makes bioLPG a drop-in fuel that can be blended at any rate and still be used in existing infrastructure and appliances. It means that distributors and consumers do not need to change or upgrade their equipment or appliances to switch to a renewable energy solution.

3. What are the benefits of bioLPG in terms of CO2 and pollutant emissions?

The carbon footprint of bioLPG is up to 80% lower[1] than that of conventional LPG, dependent on the feedstock used. As bioLPG is chemically identical to conventional LPG, it carries the same low NOx, SOx and PM as conventional LPG.

4. How is bioLPG made?

BioLPG can be produced in several processes[2] where it is a naturally occurring by-product. Currently the only process to produce biopropane that is operating at the commercial scale is bio-refining – the hydrogenation or hydrotreating of vegetable oils (HVO), fats and biomass-derived oils.

Renewable LPG can be also produced in the power-to-x technologies (using renewable energy), anaerobic digestion, and the gasification of lignocellulosic biomass. Bringing such project to commercial maturity requires carefully planned investments which can only happen when a predictable legal and policy framework is in place, especially supportive measures and sustainability criteria of renewable feedstocks.

5. Where in Europe is bioLPG made?

The following operators in Europe are currently producing bioLPG: Eni (Italy), Global Bioenergies (France), Neste (the Netherlands), PREEM (Sweden), Repsol (Spain) and Total (France)[3].

6. What feedstocks are used to produce bioLPG?

In the current production processes a combination of around 60% waste and residue materials and 40% renewable vegetable oils is used[4].

In practice, this translates to the following feedstocks, which are currently transformed to produce bioLPG, fatty acid distillate and stearin, technical corn oil, tall-oil pitch, rapeseed oil, crude palm oil, waste materials from the food processing industry, waste fat from the fish processing industry, soy oil, jatropha oil and camelina oil.

All organic feedstocks used to produce bioLPG meet strict sustainability standards. They are fully traceable, sustainable and well managed. With time, first-generation crop-based feedstocks will gradually be phased out and replaced by waste and residue materials.

7. How much bioLPG is available on the market?

In 2018, it was estimated that consumption of branded bioLPG, a product available on the market explicitly labelled as such, was at about 100 kilotonnes a year. The rest of the produced bioLPG, another 100 kilotonnes a year, is used today internally as a process fuel[5].

The quantities of bioLPG are small but steadily growing. It is currently available in several European markets: France, Denmark, Sweden, Germany, Ireland, the UK, the Netherlands, and Belgium.

[1]2018 Sustainability Report (2018) SHV Energy
[2]Process Technologies and Projects for BioLPG (2019) E. Johnson
[3]BioLPG. The Renewable Future (2018) Atlantic Consulting
[4]The benefits and advantages of Bio LPG (2015) Neste and SHV Energy
[5]Process Technologies and Projects for BioLPG (2019) E. Johnson