Clean, decentralised and efficient energy just like LPG, but renewable

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CLIMATE CHANGE IS HAPPENING, AND ACTION IS NEEDED. THE LPG SUPPLY CHAIN HAS A ROLE TO PLAY IN DELIVERING COST-EFFECTIVE DECARBONISATION. INITIALLY, AS AN IMMEDIATE LIKE-FOR-LIKE ALTERNATIVE TO HIGH-CARBON FUELS SUCH AS COAL AND HEATING OIL, AND IN THE LONG-TERM, AS AN AGENT FOR DEEP DECARBONISATION THROUGH BIOLPG.

**WHAT IS IT USED FOR?**
Just like LPG, BIOLPG can be used in many different sectors, such as domestic, commercial, industrial, agricultural, and for transportation. Wherever heat, light or power is required.

**USES & APPLIANCES**
- Production processes
- Heating & Cooling
- Weed control
- Warm Water & Cooking
- Cylinders: BBQ, terrace heating, camping
- Maritime transport
- Lift trucks
- Drying, welding, cutting
- Steaming
- Baking & Frying
- Drying
- Road transport

**SPECIFIC USES**
- Professional use
- Household use

**WHAT IS IT MADE FROM?**
BIOLPG is created from renewable and waste materials. The feedstocks undergo a series of sophisticated treatments to purify their energy content.

**SOURCES & FEEDSTOCKS**
- Palm fatty acid distillate & stearine
- Waste fat from the fish processing industry
- Waste materials from the food processing industry
- Crude palm oil
- Crude camelina oil
- Jatropha oil
- Tall-oil pitch
- Technical corn oil
- Tall-oil pitch
- Rapeseed oil
- Camelina oil
- Soy oil

**A DROP-IN ALTERNATIVE**
BIOLPG is chemically identical to conventional LPG. It can replace conventional LPG but the two can also be blended and used by existing appliances suitable for use with LPG, without having to change or upgrade equipment or appliances.

**LOWER THAN LOW CARBON FOOTPRINT**
The mission behind the development of BIOLPG is to further reduce carbon emissions and the environmental impact of LPG, which already emits 35% less CO2 than coal and 12% less than oil. BIOLPG fulfills that mission - its carbon footprint is up to 80% lower than that of conventional LPG.

**READILY AVAILABLE**
BIOLPG is not an innovation for the distant future, it is already available on the European market in quantities that can service the energy needs of thousands of families and businesses. Currently production is being increased and the market upscaled.
THE FACT THAT THESE PROPERTIES ARE GENERALLY OLDER AND NOT ENERGY EFFICIENT AND THEIR INHABITANTS MORE LIKELY TO BE AT THE RISK OF POVERTY MAKES DECARBONISATION VERY CHALLENGING.

BIOLPG IS AN OPTIMAL SOLUTION IN HARD-TO-DECARBONISE AREAS AND SECTORS OF THE ECONOMY

**RURAL & OFF-GRID AREAS**

BIOLPG IS THE BEST SOLUTION FOR COST-EFFECTIVE DECARBONISATION OF RURAL HOMES.

IN THE EU ALONE, 40.7 MILLION HOUSEHOLDS* ARE LOCATED IN RURAL AREAS THAT ARE NOT CONNECTED TO THE GAS GRID. THEIR HEATING PREDOMINANTLY COMES FROM HEATING OIL & COAL*.

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**INDUSTRY**

BIOLPG CAN FUEL HIGH-TEMPERATURE INDUSTRIAL PROCESSES REQUIRING A GASEOUS FUEL.

IT IS ABLE TO REPLACE HIGH-CARBON FOSSIL FUELS THAT CURRENTLY ACCOUNT FOR ABOUT 22% OF ENERGY USED IN EU INDUSTRIAL COMBUSTION*.

BIOLPG CAN BE USED IN EU INDUSTRIAL COMBUSTION*.

**EXISTING BUILDING STOCK**

BIOLPG CAN BE COMBUSTED IN EXISTING LPG BOILERS SAVING BOTH THE HOUSEHOLD BUDGET, AND HASSLE FROM SWITCHING TO A NEW HEATING SYSTEM.

THERE ARE AN ESTIMATED 2,000,000 LPG BOILERS* IN THE EU THAT CAN LOCK-INTO LOWER CO₂ EMISSIONS COST-EFFECTIVELY.

**VALUE**

BIOLPG IS Cost Effective

BIOLPG CAN BE UTILISED IN EXISTING GAS BOILERS, THAT ARE 3-4 TIMES CHEAPER THAN AN AIR SOURCE HEAT PUMP.

8-9 TIMES CHEAPER THAN A GROUND SOURCE HEAT PUMP TO INSTALL IN A HOUSE*.

**FLEXIBLE**

BIOLPG CAN BE EASILY AND COST-EFFECTIVELY STORED AND TRANSPORTED, MAKING IT A FLEXIBLE FUEL SUITABLE FOR A WIDE RANGE OF APPLICATIONS.

IT CAN BE USED IN EXISTING GAS TECHNOLOGIES AND STORED COMPACTLY IN STORAGE VESSELS, WHICH SAVES SPACE AND EXPENSE.

**LOW-CARBON**

WHEN USED IN A TYPICAL GAS BOILER, BIOLPG CAN REDUCE GREENHOUSE GAS EMISSIONS BY 70%-80% AGAINST HEATING OIL.

THIS CAN BE LOWERED FURTHER WHEN BIOLPG IS CONSUMED IN A HYBRID HEAT PUMP, OR COMBINED HEAT & POWER SYSTEM, AND WHEN ENERGY EFFICIENCY MEASURES ARE INSTALLED.

WITH ITS INHERENT BENEFITS IT CAN ALSO SET THOSE AREAS ON A LOW-CARBON PATHWAY
COMPARISON TO OTHER FUELS

WHilst feedstocks vary, Biolpg has a typical emission factor which is substantially lower than heating oil and coal.

CONVERSION OF BIOMASS TO PRODUCE FUEL, HEAT, POWER AND CHEMICALS. A LARGE NUMBER OF TRADITIONAL OIL REFINERIES IN THE EU HAVE REFINERY TECHNOLOGY SUITABLE FOR HVO/RENEWABLE DIESEL CONVERSION. AS SUCH, THE GLOBAL INSTALLED CAPACITY OF HVO/BIODIESEL IS EXPECTED TO INCREASE FROM 4.7 MILLION TONNES TODAY TO UP TO 20MT IN 2025.

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POWER TO GAS (P2G)

A TECHNOLOGY WHICH CONVERTS ELECTRICAL POWER TO A GAS FUEL. COMBINING THE ELECTRICITY AND GAS SYSTEM (KNOWN AS SECTOR COUPLING) CAN INCREASE EFFICIENCY AND FLEXIBILITY OF THE ENERGY SYSTEM AND ULTIMATELY LOWER THE COST OF DECARBONISATION.

ANAEROBIC DIGESTION (AD)

THE BREAKDOWN OF ORGANIC MATERIAL BY MICRO-ORGANISMS, IN THE ABSENCE OF OXYGEN. THIS PROCESS PRODUCES BIOMASS (SUCH AS BIOLPG). AD IS A KEY PROCESS FOR DEVELOPING A CIRCULAR ECONOMY AS IT ELIMINATES WASTE AND REGENERATES NATURAL SYSTEMS.

A PROCESS THAT USES HEAT, PRESSURE AND STEAM TO CONVERT BIOMASS MATERIALS SUCH AS FOREST AND AGRICULTURE WASTE INTO GASEOUS COMPONENTS THAT CAN BE USED IN VARIOUS APPLICATIONS. GASIFICATION IS ANOTHER SOLUTION TO INNOVATE AND TO MAKE THIS CRUCIAL ENERGY TRANSITION HAPPEN TOWARDS 2050.

IN THE MIX

BIO-REFINING IS HIGH-PERFORMING COMPARISON TO OTHER FUELS

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BIO-REFINING HAS HIGH POTENTIAL A PARTNER TO RENEWABLES & EFFICIENT TECHNOLOGIES

BIO-REFINING IS COMPATIBLe WITH EXISTING TECHNOLOGIES, AND HYBRID SYSTEMS. AS AN EASILY STORABLE FUEL, THIS PROVIDES BUSINESSES WITH FLEXIBILITY AND SECURITY OF SUPPLY.

SOLAR THERMAL

BIO-REFINING PROVIDES FLEXIBLE TOP UP TO HOT WATER AND SPACE HEATING.

SMALL SCALE WIND

BIO-REFINING CAN BE STORED COST-EFFECTIVELY AND BACKUP INTERMITTENT RENEWABLE GENERATION WHEN REQUIRED.

COST-EFFECTIVE TRANSITION

BIO-REFINING SYSTEMS ARE LOWER COST THAN OTHER RENEWABLE HEATING OPTIONS (HEAT PUMPS AND BIOMASS) AND ARE COST-COMPETITIVE ON A TOTAL COST OF OWNERSHIP BASIS.

SUPPLY OUTLOOK

CHALLENGE

ONE OF THE CHALLENGES WITH BIOFUEL PRODUCTION IS THE EXPECTATION THAT FEEDSTOCKS WILL BE SCARCE. POLICY-MAKERS SHOULD LOOK TO SUPPORT SUSTAINABLE BIOGAS DEPLOYMENT WHERE IT CAN PROVIDE THE GREATEST BENEFIT.

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