

Strengthening European Competitiveness: The Role of Liquid Gases

Position paper

Strengthening European Competitiveness: Recognizing Liquid Gases in the Clean Industrial Deal

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The European Commission's commitment, as outlined in the Competitiveness Compass, to establishing a clear strategic framework for guiding Europe's future while fostering productivity and innovation is a crucial step forward. Ensuring consistency across all initiatives within the Compass is essential, particularly in recognizing the role of low-carbon fuels, including renewable liquid gases.

The Affordable Energy Action Plan, and the Industrial Decarbonization Accelerator Act, and the Strategic Dialogue on the Future of the European Automotive Industry are essential for achieving Europe's climate and industrial objectives. However, an apparent lack of coordination among these initiatives risks undermining their effectiveness. Strengthening alignment and ensuring a coherent approach across these policies is imperative to securing Europe's long-term sustainability and industrial competitiveness.

Promoting bio- and renewable liquid gases is essential to advancing decarbonization efforts. Traditional liquid gases already offer significant emissions reductions—33% compared to coal and 12% compared to oil. Renewable liquid gases go even further, reducing emissions by up to 80% compared to their conventional counterparts. Their widespread adoption can play a pivotal role in decarbonizing light- and heavy-duty transport, industrial applications, services, agriculture, and residential heating, particularly in rural areas, while seamlessly complementing existing energy solutions.

Recognizing and integrating low-carbon fuels— specifically renewable liquid gases—is a fundamental step toward an inclusive and sustainable energy transition and a means of enhancing the competitiveness of the European industrial sector, which is one of the key objectives of the Competitiveness Compass.

The role of renewable liquid gases in decarbonizing residential, transport, and hard-to-abate sectors should be explicitly recognized within the Competitiveness Compass, especially the Clean Industrial Deal. Supporting their innovation, deployment, and integration through funding, technology-neutral policies, financial incentives, and harmonized standards will ensure their effective contribution to Europe's energy transition.

What Are Renewable Liquid Gases?

Renewable liquid gases are fuels derived from sustainable sources such as waste, residues, and renewable energy chemically identical to traditional LPG. They may be produced using renewable feedstocks (bioLPG) or innovative power-to-gas processes using waste and biomass. These fuels can reduce CO₂ emissions by up to 80% compared to traditional liquid gases and achieve net-negative greenhouse gas emissions when offsetting mechanisms are applied, all while maintaining the versatility and efficiency of traditional liquid gases.

In 2023, renewable liquid gases in Europe saw an impressive 36% year-on-year production increase, reflecting growing adoption and capacity. While their share of the total LPG market remains modest,

this growth underscores their potential as a reliable, clean energy source. Overall, liquid gases — including renewables — account for around 3% of Europe’s total energy mix, playing a vital role in decarbonizing sectors where other renewable solutions face challenges.

Applications of Liquid Gases

Liquid gases serve a wide range of applications across heating, transport, and industry, offering reliable energy solutions for diverse needs:

Heating	Industry	Transport
In rural and off-grid areas, where access to natural gas networks is limited, (renewable) liquid gases are essential for residential and commercial heating. They provide a low-carbon alternative to oil-based heating systems, significantly reducing emissions while ensuring energy security for millions of Europeans.	Liquid gases are indispensable for industrial processes requiring high-temperature and precision heating, such as ceramics, glass production, and food processing. Their clean combustion properties and flexibility make them an ideal energy source for industries aiming to decarbonize without compromising operational efficiency.	Autogas (LPG for transport) is Europe’s most widely used alternative fuel, powering over 8 million vehicles. It delivers immediate environmental benefits, such as up to lower CO ₂ emissions and significantly reduced air pollutants compared to petrol and diesel. Renewable LPG enhances these benefits further, enabling near-zero carbon mobility solutions.

The Rural Dimension

Europe’s rural areas, home to nearly 137 million people, often lack access to centralized energy infrastructures. As a result, over 80% of LPG consumption occurs in rural or semi-rural areas, providing a lifeline for heating, cooking, and powering businesses. Renewable liquid gases provide these communities with an affordable and sustainable alternative, contributing to the EU’s objectives of achieving energy equity and reducing rural energy poverty.

The Role of Liquid Gases in a Clean Industrial Future

The upcoming Clean Industrial Deal presents a pivotal opportunity to drive the decarbonization of Europe’s industrial sector. Liquid gases have a significant role to play in this transition:

- 1. Decarbonizing Hard-to-Abate Sectors** Renewable liquid gases offer immediate and scalable solutions for industries where electrification is not feasible or cost-effective. Sectors such as ceramics, glass, and food processing rely on high-temperature processes, where liquid gases provide the efficiency and reliability required while significantly reducing greenhouse gas emissions compared to conventional fossil fuels.
- 2. Complementing Renewable Energy Systems** Renewable liquid gases support electricity systems by addressing gaps in infrastructure, particularly in rural areas where centralized grids are underdeveloped or economically unviable. Their ability to provide reliable, on-demand energy complements renewable electricity sources like wind and solar, ensuring energy security and resilience in off-grid and remote applications.
- 3. Driving Circularity and Innovation** The production of renewable liquid gases involves utilizing waste and residues, contributing to the EU’s circular economy objectives. Liquid gases can enhance the EU’s competitiveness in global clean energy markets by fostering innovation in production pathways, such as power-to-gas and advanced biofuel technologies.
- 4. Aligning with EU Climate and Energy Goals** Renewable liquid gases contribute directly to achieving the Renewable Energy Directive (RED) targets, supporting the EU’s goals for

reducing greenhouse gas emissions, enhancing energy security, and ensuring a just transition for all regions, including rural areas.

5. **Supporting Domestic Energy for Domestic Use** Renewable liquid gases can significantly enhance Europe’s energy independence by being produced and locally through various pathways. BioLPG, for example, is a co-product of HVO/HEFA and SAF production, both of which are expected to grow substantially in Europe due to increased demand for sustainable fuels. Renewable liquid gases can also be produced intentionally, supporting the EU’s objectives of reducing reliance on imported energy, fostering local economic development, and ensuring robust energy security across urban and rural areas alike.

Our Recommendations for the Competitiveness Compass initiatives and the Clean Industrial Deal

To guarantee that the EU’s ambitious climate and industrial targets can be achieved, enabling all technologies, such as renewable liquid gases is essential. Liquid Gas Europe calls on the European Commission to:

- **Competitiveness Compass initiatives & Clean Industrial Deal framework:** Explicitly recognize renewable liquid gases as critical enablers of industrial decarbonization, especially in rural, transport, and hard-to-abate sectors.
- **Ensure Technology Neutrality:** Promote policies that enable a level playing field for all low-carbon and renewable energy carriers, ensuring industries can adopt the most cost-effective and efficient solutions for their unique needs.
- **Support Innovation and Deployment:** Increase funding for research, development, and deployment of renewable liquid gas technologies under the Horizon Europe, Innovation Fund programs, and the upcoming Competitiveness Fund.
- **Incentivize Industrial Adoption:** Provide targeted incentives for industries transitioning to renewable liquid gases, including tax credits, grants, and inclusion in state aid frameworks.
- **Facilitate Harmonized Standards:** Develop EU-wide standards to facilitate cross-border trade, supporting a robust internal energy market.

The Case for Immediate Action

In 2023, replacing higher-emission fossil fuels with LPG and bioLPG prevented over 4 million tonnes of CO₂ emissions—a clear demonstration of the immediate climate benefits of liquid gases. To put this into perspective, this is equivalent to removing approximately 3.1 million passenger cars from European roads for an entire year, highlighting the crucial role liquid gases play in reducing emissions today.¹

Scaling up renewable liquid gases will further enhance these benefits, directly supporting the EU’s goals of reducing fossil fuel dependency, strengthening energy security, and fostering sustainable industrial growth.

About Liquid Gas Europe

Liquid Gas Europe is the voice of the European liquid gas industry, representing a vast network of companies and associations committed to supporting the energy transition. As an advocacy-driven

¹ The average new passenger car in Europe emits approximately 107 grams of CO₂ per kilometer. theicct.org. Assuming an average annual mileage of 12,000 kilometers per car, this results in about 1.284 tonnes of CO₂ per car per year. Therefore, saving 4 million tonnes of CO₂ is comparable to removing approximately 3.1 million passenger cars from European roads for an entire year.

association, we advocate for sustainable energy solutions, focusing on the transformative potential of liquid gases such as LPG, renewable LPG (bioLPG), and renewable DME in achieving the EU's climate neutrality goals.

Our members provide energy to millions of Europeans, especially in rural and off-grid areas, ensuring a diverse and resilient energy mix that complements other renewable sources. As Europe embarks on the path toward industrial decarbonization, we are committed to ensuring that the role of liquid gases is recognized as a vital component of the energy transition.