

## EBA Policy Recommendations on the revised CO2 Emission Standards for HDVs

Sustainable biomethane as a transport fuel provides a ready-available, local and cost-competitive alternative to conventional transport fuels, representing a key solution in the transition towards a climate neutral economy and able even to achieve negative emissions<sup>1</sup> necessary to attain the EU climate neutrality targets.

While accounting for only 2% of all vehicles running on European roads<sup>2</sup>, more than a quarter of transport's GHG emissions in the EU are generated by lorries, buses and coaches, vehicles category accounting for over 6% of total EU GHG emissions<sup>3</sup>. Due to increasing road freight traffic, the emissions from the heavy-duty segment are still rising. The European Commission (EC) proposal for a revised Regulation EU 2019/1242 setting CO2 emission performance standards for new heavy-duty vehicles in the EU seeks to curb the segment emission. However, as the proposal focuses solely on reducing CO2 emissions at the tailpipe, it does not provide for a level playing field among technologies and favors a limited number of solutions, regardless of their footprint.

In the run for EU's climate neutrality, electrification will play an important role in the decarbonization of the transport sector, alongside other technologies. Powertrain complementarity will be the key to ensure a fast, resilient and affordable transition, and a strong role for biomethane will allow to de-risk the shift from fossil to renewable transport fuels.

As recognized by a number of EU policies<sup>4</sup>, EU regulation must be technology neutral as all solutions, including biomethane, will be necessary to reach climate neutrality and make the EU transport system more sustainable. This is especially important considering that, according to the European Environment Agency (EEA)<sup>5</sup>, Europe's transport emissions reduction will not be sufficient to bring emissions in line with the EU's overall climate neutrality target by 2050.

To capitalize on biomethane's essential role as a long-term and cost-effective solution for ensuring the segment decarbonization, it is of paramount importance that the CO2 Standards for HDVs Regulation:

- **Ensures coherence with EU climate and energy policy:** In order to avoid legal uncertainty and accelerate the total decarbonization of EU mobility thanks to already available solutions, the CO2 Standards for HDVs Regulation **must provide consistency with existing legislation**.
- **Recognizes renewable fuels contribution to reduce CO2 emissions by introducing a definition of "CO2 Neutral Fuels" and a Carbon Correction Factor (CCF):** In the absence of a science based Well-to-Wheel (WtW) or Life Cycle Approach (LCA), the regulation must **introduce a definition of "CO2 Neutral Fuels" and robust methodology for recognizing vehicles powered with CO2 neutral fuels**, such as sustainable biomethane. The upcoming CountEmissions EU initiative will provide an important opportunity to include a WtW or LCA as GHG emissions accounting methodology to be applied.

<sup>1</sup> Depending on the feedstock utilized.

<sup>2</sup> ACEA (2022). Report – Vehicles in use, Europe 2022

<sup>3</sup> EEA (2022). Report No 2/2022 "Decarbonising Road transport — the role of vehicles, fuels and transport demand"

<sup>4</sup> Notably the Sustainable and Smart Mobility Strategy.

<sup>5</sup> EEA (2022). Report No 2/2022 "Decarbonising Road transport — the role of vehicles, fuels and transport demand"

- **Enables the green transition while maintaining EU competitiveness:** To further reduce CO2 emissions, an appropriate legislative framework maintaining European competitiveness and technology leadership is needed. The revision **should provide market actors with the possibility to continue producing and improving the efficiency of all technologies, including Internal Combustion Engines (ICEs). To this end, the CO2 reduction targets should be ambitious, while remaining realistic.**

## 1. EU HDV segment

Driven by the increasing transport volumes, the growth of road transport emissions is inextricably linked to the sector's heavy dependency on fossil fuels. Namely, road transport is dominated by fossil gas/diesel oil (66.46 %) and motor gasoline (23.91 %)⁶.

Nevertheless, the last decade saw a steady growth of CNG and LNG alternative fuelled trucks, of which new registrations followed a constant increasing trend until 2021<sup>7</sup>. CNG and LNG vehicles are based on a mature technology, of which the EU is a leader. Moreover, gas mobility has become one of the mainstream solutions and a corner stone of the long-term product planning of prominent EU OEMs<sup>8</sup>. By 2030, several studies<sup>9</sup> indicate that the EU fleet will count 280,000 HD gas vehicles, which would require approximately 100TWh of fuel. Even with 50% sales of BEV HDV in 2030, about 90% of the rolling fleet will use an ICE powertrain<sup>10</sup>, which could run on renewable fuels, such as biomethane, to drastically reduce their emissions.

Renewable gaseous and biomass fuels, such as biomethane, are thus a viable and already available option for the decarbonization of EU commercial freight thanks to their growing shares in transport<sup>11</sup> and the rapid expansion of projects based on biomethane.

## 2. Biomethane as a solution for heavy-duty transport decarbonization

As of today, Europe is the world's largest producer of biogas and biomethane, which combined production in 2021 amounted to 18.4 bcm (196 TWh), an energy volume comparable to 4.5% of the total EU gas consumption for 2021. With the right policy and market conditions, EU biomethane production can achieve the REPowerEU target of 35 bcm in 2030 and could reach 151 bcm in 2050. This would be sufficient to significantly contribute to the decarbonisation of all end uses, including road transport. Market analysis demonstrates that the market has positively reacted to the EU commitment, and investments are flowing in the deployment of new biomethane capacities. This availability will be nevertheless conditioned by the legislative framework, which may drastically disincentivise the investments in both powertrain and energy production, thus compromising and possibly closing the door for the use of biomethane in the segment.

<sup>6</sup> EUROSTAT (2022). Oil and petroleum products - a statistical overview

<sup>7</sup> European Alternative Fuels Observatory (2023). Vehicles and fleet – AF New registrations (N2&N3)

<sup>8</sup> NGVA Europe (2022). Roadmap to carbon neutrality

<sup>9</sup> European Biogas Association, Statistical Report 2022

<sup>10</sup> SEI report (2021). Accelerating to zero: speeding up the decarbonization of heavy-duty vehicles in the EU

<sup>11</sup> Up to 90-100% in Germany and Sweden.

When applying a WtW methodology<sup>12</sup>, biomethane is a high performer in terms of reducing GHG emissions in transport. Under the WtW perspective, a vehicle running on 40% bio-LNG mix with LNG will help reduce the CO<sub>2</sub> emissions by 55%<sup>13</sup>. The GHG emissions balance can be even negative when using 100% bio-LNG.

As biomethane consists of the same molecule as natural gas, it is used presently as a renewable substitute to fossil fuels, such as CNG and LNG, in the forms of bio-CNG and bio-LNG, and can be directly injected into the well-developed network of CNG and LNG filling stations. The fast-expanding EU gas refuelling network accounts now for almost 4,200 CNG and 700 LNG facilities<sup>14</sup>, and there are approximately 1,898 bio-CNG and 123 bio-LNG filling stations operational<sup>15</sup> throughout Europe.

Aside from the well-established benefits of lowering emissions and strengthening EU circular bioeconomy<sup>16,17</sup>, the EU can achieve its energy independency thanks to biomethane. Especially considering today's gas price volatility and geopolitical uncertainties, it is essential to promote and preserve the EU strategic autonomy in the energy sector by implementing policies that support energy sources produced and technologies developed in the EU. These are all activities creating jobs in a number of sectors of the internal market, including in the ICE powertrain<sup>18</sup>, as reported by the recent study *“Electric Vehicle Impact Assessment Report 2020-2040: A quantitative forecast of employment trends at automotive suppliers in Europe”* published by CLEPA.

### 3. Recommendations

Being an essential part for the internal market well-functioning, the HDV sector must contribute to the achievement of Europe's climate neutrality by 2050, and biomethane is one of the few readily available technologies truly capable of accelerating the segment decarbonization.

To untap biomethane's valuable role as a long-term and cost-effective solution to ensure the decarbonization of the EU transport sector, EU policy must be consistent and able to encourage the development of clean vehicles and technologies.

#### a. Ensure coherence with EU climate and energy policy

The revision of the CO<sub>2</sub> emission standards for heavy-duty vehicles should include consistent provisions with other piece of European legislation and should recognise the role of renewable fuels, such as biomethane, as a key contributor to the climate objectives of the Union.

As part of its **REPowerEU plan**, the EC set in 2022 a historical step forward for the biogas and biomethane sector: a 35 bcm target for the EU production of biomethane by 2030. This fundamental steppingstone towards the achievement of climate-targets, circular bioeconomy and supply security also implied the clear recognition of biomethane as a green vector necessary to achieve the EU clean energy transition.

<sup>12</sup> A well-to-wheel methodology is the assessment of the environmental impact of a given fuel, looking at all emissions generated from production to end use in the transport sector.

<sup>13</sup> EBA (2022). Fuelling clean mobility with bio-LNG

<sup>14</sup> [NGVA – Stations Map](#) (data May 2023).

<sup>15</sup> EBA (2022). Statistical Report 2022

<sup>16</sup> [EBA \(2023\). Beyond Energy: Regenerative agriculture](#)

<sup>17</sup> [EBA \(2023\). Beyond energy: monetising biomethane's whole system benefits](#)

<sup>18</sup> [CLEPA \(2021\). “Electric Vehicle Impact Assessment Report 2020-2040: A quantitative forecast of employment trends at automotive suppliers in Europe”](#)

More recently, biogas and biomethane production technologies were accounted among the “net-zero technologies” (Article 2) and “strategic net-zero technologies” (Annex I and Article 10) in the **Net Zero Industrial Act**, which gives primacy to the supply of clean technologies.

When looking at transport related legislation, the **FuelEU Maritime** and the **Alternative Fuels Infrastructure Regulations** clearly recognize bio-LNG as a renewable fuel that will progressively substitute transport fuels such as fossil LNG. Moreover, the **Renewable Energy Directive (RED)** sets a transport combined target for advanced renewable fuels, such as biomethane, of 5,5%.

Moreover, the EC plans to establish a European framework for the harmonised measurement of transport GHG emissions via the **CountEmissions EU initiative**. When questioned regarding the type of a GHG emissions accounting methodology that should be applied, the vast majority of public consultation respondents called for the implementation of either a WtW methodology (46%) or full LCA (46%). The EBA calls upon the European Commission to include this input when drafting the proposal. If addressed in the right way this initiative can become an important driver of real CO<sub>2</sub> emission reductions in the transport sector.

As asserted also by the Joint Research Centre<sup>19</sup> (JRC), a LCA such as the WtW is the most appropriate methodology to properly assess the climate impact of different technologies. Nevertheless, current regulation as well as this proposal adopted by the EC still applies a restrictive “Tank-to-Wheel” (TtW), or tailpipe approach, which totally disregards the available shares of biomethane and its contribution in reducing CO<sub>2</sub> emissions from heavy-duty vehicles. The heavy-duty market is still largely dominated by Internal gas Combustion Engines (ICEs) vehicles, which can run on sustainable biomethane and will still be needed in the long-term to cover long-haulage transport needs. Therefore, the EC must **develop as soon as possible a methodology for the assessment and the consistent data reporting of the full life-cycle CO<sub>2</sub> emissions of heavy-duty vehicles** that are placed on the Union market. This can be achieved through connected filling technologies, which is available today.

#### **b. Recognize renewable fuels contribution to reduce CO<sub>2</sub> emissions by introducing a definition of “CO<sub>2</sub> Neutral Fuels” and a Carbon Correction Factor (CCF)**

##### **CO<sub>2</sub> Neutral Fuels**

EU transport policy must **adopt a definition of “CO<sub>2</sub> Neutral Fuels” capable of recognizing the decarbonization contribution of all renewable fuels, included biomethane** and RED requirements.

As the current proposal applies a tailpipe approach, the EU road transport legislation should distinguish between CO<sub>2</sub> of fossil origin and circular CO<sub>2</sub> from renewable fuels, such as biomethane. Said definition must encompass all fuels with a neutral or negative carbon footprint, in compliance with the Renewable Energy Directive methodology, which assesses fuels on a WtW basis, and thus considers as zero the emissions when using renewable fuels because of the biogenic origin of the carbon. By excluding vehicles operating exclusively on carbon neutral fuels from the scope of the CO<sub>2</sub> Standards Regulation, the legislation would enable the uptake of vehicles running on these renewable vectors and thus ensure that all decarbonisation levers are utilized.

##### **Carbon Correction Factor**

While a proper science based WtW or LCA approach are defined, the regulation must provide for a provision to recognise vehicles powered with CO<sub>2</sub> neutral fuels, such as biomethane.

The **Regulation must therefore include a robust and transparent Carbon Correction Factor (CCF)**. The inclusion of such a provision would allow on one hand to address the shortcomings of a pipeline only approach and recognise the actual GHG footprint of vehicles and the fuels they use. On the other hand, it would help to result

<sup>19</sup> JRC (2020). Well-to-Wheels Report Version 5

in a more effective regulatory framework driving the development and deployment of CO<sub>2</sub> neutral fuels, which in turn would decrease the GHG emissions of existing and new vehicles and contribute to the achievement of the EU's climate targets, without changing the Regulation overall approach.

### c. Enable the green transition while maintaining EU competitiveness

Biomethane is one of the most commercially viable HD low carbon fuels, often providing the highest GHG reduction, both per € and per km, of all HD transport solutions<sup>20</sup>.

When talking of trucks manufacturing costs<sup>21</sup>, it has been determined that the LNG trucks will be comparable to those of diesel, whereas Fuel Cell Electric Vehicle (FCEVs) trucks are anticipated to be more expensive and the timing of their mass market introduction over the following ten years is uncertain<sup>22</sup>. Gas mobility running on a blend of LNG and biomethane has costs comparable to FCEVs fuelled by grey or blue hydrogen and has lower costs than FCEVs fuelled by green hydrogen.

When electrification is not feasible or renewable energy cannot be supplied in adequate quantities, transport operators will continue to rely on liquid and gaseous fuels<sup>23</sup>. In these cases, biomethane can provide a cost-competitive green vector: in the EU, the current cost of biomethane production is estimated to be on average 80 €/ MWh, and the estimations range between 57 – 66 €/MWh for 2050.

Given uncertainties in the market development of decarbonisation technologies in the coming years, the CO<sub>2</sub> Standards Regulation should be revised no later than 2027 to consider conditions for market uptake, access to infrastructure and for research and innovation developments.

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#### About EBA

*The European Biogas Association is the voice of renewable gas in Europe since 2009. EBA advocates the recognition of biomethane and other renewable gases as sustainable, on demand and flexible energy sources that provide multiple knock-on socio-economic and environmental benefits. Supported by its members, EBA is committed to work with European institutions, industry, agricultural partners, NGOs and academia to develop policies which can enable the large-scale deployment of renewable gases and organic fertilisers throughout Europe, supported by transparent, well-established sustainability certification bodies to ensure that sustainability remains at the core of the industry. The association counts today on a well-established network of over 200 national organisations, scientific institutes, and companies from Europe and beyond.*

<sup>20</sup> Scania (2021). Sustainable Heavy Duty Transport and Biomethane in Heavy Duty Transport – a Scania comment

<sup>21</sup> Trucks manufacturing costs are one-off CAPEX investments that Frontier annualized over a nine-year lifetime for trucks.

<sup>22</sup> Frontier (2021). CO<sub>2</sub> emissions abatement costs of gas mobility and other road transport options

<sup>23</sup> NGVA Europe (2022). Roadmap to carbon neutrality